

U. S. Environmental Protection Agency



Office of Air and Radiation

FY 1997-1998
Implementation Plan

Revised Edition

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About this Revision

The OAR FY 1997-1998 Implementation Plan - *Revised Edition* discusses national air and radiation priorities, the strategies and activities that must be implemented in FY98 to address them, expected outcomes, and performance measures that will be used to assess progress. The *Revised Edition* discusses FY98 implementation issues in more detail than the December 1996 edition (particularly with regard to the proposed PM_{fine} and ozone NAAQS), and includes a new section on implementation of the Clean Air Act in Indian country. Sections of the plan dealing with other program areas have also been revised, albeit to a lesser extent.

It was our original intent to issue a 2-year plan which included revisions for FY98 and new guidance for FY99. This plan was to have been consistent in both form and substance with the planning architecture being developed by the Agency for implementation of the Government Performance and Results Act in FY99. The Agency planning process for FY99 however, is not yet finalized. We decided that an edited revision of the existing plan was the most efficient way to provide updated information for FY98 in timely manner.

Differences between this Revised Edition and the original Implementation Plan are indicated throughout by using the word processors's strikethrough feature () to indicate text that is deleted and by using a different font to indicate newly inserted text (**example**). The two new sections that have been added, "Revised Ozone/New Particulate Matter/Regional Haze Programs," and "Clean Air in Indian Country," are not done in the italicized font for ease of reading, but rather, the word "NEW" is printed across the tops of the new pages.

Also for ease of use, a complete revised Table of Contents with strikeouts omitted is provided below.

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Office of Air and Radiation FY 1997-1998 Implementation Plan (Revised Edition)

Introduction

This plan identifies the national program priorities of the Office of Air and Radiation (OAR) for the FY98 time frame, and the strategies and actions planned to address them and support the national environmental goals that were developed by the Agency. The Plan also:

- ▶ provides a media for communicating air and radiation priorities, strategies, and actions throughout EPA and to stakeholders.
- ▶ provides information that can be used to measure program progress and results.
- ▶ serves as the next step in developing a process and plan that coordinates and integrates various OAR and agency planning activities such as strategic planning, the National Goals project, and implementation of the Government Performance and Results Act.
- ▶ provides a point of reference on priorities for use in developing the FY99 budget.

Mission

OAR's mission is to protect and enhance the quality of the nation's air resources and protect human health and the environment from airborne pollutants and radiation. OAR carries out this mission by implementing the 1990 Clean Air Act Amendments and the 1993 Climate Change Action Plan, and by developing and implementing programs to

reduce risk from indoor air pollution and radiation.

Fundamental Responsibilities

Fundamental responsibilities are those air and radiation programs and activities that are carried out in the context of day-to-day mission performance. Many of OAR's fundamental responsibilities are associated with implementing the 1990 Clean Air Act. Under the Act, OAR:

- ▶ sets health-based national ambient air quality standards for specific pollutants such as ozone and carbon monoxide, and helps state, local, and Tribal governments develop and implement programs to prevent and control those pollutants.
- ▶ develops standards to control the release of air toxics, which are air pollutants that are known or suspected of causing cancer or other serious health effects.
- ▶ oversees state permit programs, reviews permit applications, and implements the federal permit program in states without permit programs.
- ▶ sets standards to reduce emissions from motor vehicles through tailpipe standards, evaporative emissions controls, on-board vapor recovery systems, and cleaner fuels.
- ▶ operates the Acid Rain program, an innovative, market-based program to reduce sulfur dioxide and nitrogen oxide emissions from utilities.
- ▶ oversees U.S. efforts to stop stratospheric ozone depletion by regulating the production, use, and disposal of ozone-depleting substances;

implementing a market-based allowance trading system for production and importation of these chemicals; evaluating alternative substances; and the implementing U.S. responsibilities under the revised Montreal Protocol.

Another fundamental responsibility of OAR is to implement provisions of the Climate Change Action Plan. OAR's role is to develop and implement programs to stimulate and transform the markets for technologies that reduce emissions of carbon dioxide, methane, nitrous oxide, and halogenated compounds that contribute to global warming. In particular, OAR's efforts focus on encouraging profitable investments in energy efficient technologies, wiser use of existing technologies, and the profitable capture and use of methane and other greenhouse gas emissions.

Activities authorized by the Indoor Radon Abatement Act and the Superfund Amendments and Reauthorization Act comprise a broad set of fundamental responsibilities aimed at reducing the public health risks from radon and other indoor pollutants. OAR operates the State Indoor Radon Grants program, oversees the national radon proficiency programs, and conducts other activities to build capacities at the state and local level to identify and fix radon problems. In addition OAR employs a national partner network to address a variety of Indoor Air Quality issues including childhood asthma, environmental tobacco smoke, school air quality, and poor air quality due to product sources.

OAR's remaining fundamental responsibility is to protect the public health and the environment from radiation exposure. Under authorities provided in several statutes, OAR regulates emissions of airborne radionuclides and radioactive waste disposal, assesses sites and analyzes samples;

operates the national radiation monitoring network; and promulgates radiation clean-up and waste management guidance. OAR also maintains mobile laboratories and support vehicles for radiation field activities, and has a highly trained emergency response team for rapid deployment in the event of a radiation emergency.

Priorities for FY98

Priority: Implement the Clean Air Act.

The ongoing implementation of the Clean Air Act is OAR's top priority. Clean Air Act-related priorities for FY98 time frame were identified through a series of meetings with representatives from the EPA regional offices and state and local agencies. These priorities are to:

- ▶ develop new attainment strategies for the proposed new ozone and PM standards, and new regional haze program. Needed efforts will include regional initiatives where transport plays a role (such as the Ozone Transport Commission), integrated strategies such as the Clean Air Power Initiative, streamlined approaches similar to that underway in the Permits program, and adequate enforcement and compliance assurance capabilities.
- ▶ develop a national integrated air toxics strategy, continue to issue national technology-based standards (MACT) for reducing emissions of air toxics and provide implementation assistance, help states and sources ensure that emissions reductions promised from the MACT program are achieved, complete strategies for control of air toxics from mobile and other urban sources, and begin to evaluate MACT standards for

residual risk.

- ▶ upgrade the national air monitoring infrastructure for the proposed new PM standard and for information on air toxics in urban areas and ozone in rural areas, gather and assess data on air toxics, and monitor and assess data related to the Acid Rain program. A new PM standard will place increased responsibility on the states to set up a new PM monitoring network. They will need to start deploying fine particle samplers in FY98 and complete the network by FY00. More efforts will also be needed to supplement the rural network of ozone monitoring in order to better characterize transport, monitor areas newly designated as nonattainment under the revised standard, and for the potential new secondary ozone standard.
- ▶ develop federal control measures for the mobile, stationary, and area sources of criteria pollutants that can be regulated only or most effectively at the federal level such as on- and off-road engines, consumer products, and maintenance coatings.
- ▶ improve and expand technical information, tools, and training so that EPA and states can better predict ozone and PM levels and help areas attain compliance with the national ambient air quality standards.
- ▶ increase public education and outreach.
- ▶ ensure coordination and consistency in program priorities with the Office of Enforcement and Compliance Assistance in EPA.

Another Clean Air Act priority is to implement the requirements of the Act in Indian Country. The Tribal Authority Rule authorizes tribes to be treated in a manner similar to states for implementing provisions

of the CAA within the boundaries of the reservation and in other areas over which they can demonstrate jurisdiction. We will be providing assistance in developing Tribal Implementation Plans and other tribal programs or implement federal programs necessary to protect the health and welfare of people living in Indian Country. A section discussing implementation of the CAA in Indian Country in more detail has been added to the Plan.

Priority: Implement the Climate Change Action Plan.

The Intergovernmental Panel on Climate Change has clearly demonstrated to policy makers that further action must be taken to avoid profound consequences for the economy and the quality of life of future generations. Human health, food security, water resources, and coastal communities are all at risk. The challenge is now to develop and implement the most cost-effective means of limiting greenhouse gas emissions to the extent necessary to protect human health and environment through

international and national policy making processes.

This challenge requires an integrated climate strategy; one with three principal components: catalyzing productivity improvements, meeting greenhouse gas reduction targets and timetables, and supporting developing country progress in avoiding future greenhouse gas emissions.

As a priority, we must continue to aggressively implement the Climate Change Action Plan (CCAP) to reduce greenhouse gas emissions and fulfill U.S. obligations under the Framework Convention on Climate Change. The CCAP programs are designed to catalyze productivity improvement across many key sectors, demonstrating that energy services can be

provided with substantially less pollution.

At the heart of EPA's CCAP initiatives are the voluntary partnership programs that promote profitable investments in energy efficient technologies, and the profitable capture and use of methane and other greenhouse gas emissions. These programs are well on their way to achieving over 40 million tons of emissions reductions by the year 2000.

Although not part of the Climate Change Action Plan, "Clean Car" is another catalyzing initiative to curtail greenhouse gas emissions. The goal of the Clean Car program is to develop, in partnership with the U.S. auto industry, an affordable vehicle that has three times the fuel efficiency of today's cars (representing a 67% reduction in carbon dioxide emissions) and meets extremely low emissions standards for other air pollutants.

The second component of the strategy, setting and meeting emissions reductions targets and timetables, will be addressed using OAR's broad experience with both regulatory and economic instruments to design and evaluate options for using emissions trading as a overall framework for controlling greenhouse gases in the post 2000 period.

Finally, to support developing country progress in avoiding future greenhouse gas emissions, OAR will build upon its experience in the voluntary programs to effectively promote the more rapid distribution and diffusion of climate-friendly technologies.

Priority: Reduce the risk posed by indoor air pollution.

Indoor air pollution is consistently ranked among the top environmental health risks. To reduce the risk, we will continue to

employ voluntary approaches to improve the quality of indoor environments by: (1) refining the science on which recommended actions for exposure reduction are based; (2) raising public awareness of potential indoor health risks and steps that can be taken to reduce exposure; and (3) using partnerships and technology transfer to improve the ways in which buildings are designed, operated, and maintained to bring about healthier indoor environments .

Our Healthy Environments for Children initiative continues two demonstration projects aimed at reducing indoor air triggers of asthma and providing schools with tools to provide education about indoor air quality. These projects are targeted at schools in disadvantaged communities due to the disproportionately high rate of asthma incidence in minority low income households. However, the guidance generally applies to all schools.

Priority: Protect the public and the environment from exposure to radiation.

Our top radiation priority is to promulgate implementation guides for the clean-up of radioactively-contaminated sites. These guidelines will facilitate the safe and cost-effective disposal of 30,000,000 cubic meters of waste expected to be generated by DOE clean-up activities .

In addition to developing guidance, we are providing site-specific technical assistance in the assessment and remediation of radiation contamination. Other priorities in radiation protection include oversight of the Waste Isolation Pilot Plant, the development of site-specific standards for the nation's proposed high level waste repository at Yucca Mountain, and the development of an overall waste management

strategy to address all radioactive wastes.

Guiding Philosophies

The following philosophies influenced the development of OAR's strategies and actions.

Innovative and Efficient Approaches

Foremost among our philosophies is the recognition that the prescriptive, regulatory-based approach to environmental protection we have used in the past will not by itself, meet the challenges of the future. Many of our activities and responsibilities are regulatory, but that does not preclude the use of more flexible non-regulatory tools oriented towards environmental results.

Economic incentives, stakeholder involvement, consensus building, and targeted voluntary initiatives (such as OAR's climate change and radon programs) all have demonstrated their effectiveness in the air program and should be used more extensively in the future. Regulatory programs will continue to be an essential element of environmental protection, but they must be streamlined and made less cumbersome, costly, and punitive.

Our willingness to re-invent and to be flexible in the way we implement the Clean Air Act and radiation priorities in the past has led to some promising, cost-effective approaches to cleaner air and reduced radiation exposure. Examples include open market emissions trading, consolidated federal air rules (one industry - one rule), early consultation with stakeholders in our streamlined MACT development process, and discussions with industry on the phase-out of halon.

Partnerships with Stakeholders

Solving the complex environmental problems facing our nation is not the responsibility of, or may be beyond the ability of, any one level of government. Federal, regional, state, local, and tribal governments, the private sector, and the public, all have a role, and are critical to successful implementation of our programs.

Often it is the individuals and organizations within a community that are most informed and best equipped to deal with a particular problem. An important aspect of our strategies and actions is to continue to work towards building partnerships and alliances among entities involved in implementing pollution prevention and control programs.

Over the last several years, we have launched a number of projects involving partnerships with industry, states, and environmental groups such as the Ozone Transport Assessment Group, the Federal Advisory Committee Act subcommittee for ozone, particulate matter and regional haze, and the Southern Appalachian Mountain Initiative. We have played a strong role in Agency-wide efforts such as the Common Sense Initiative and Project XL, and have undertaken other initiatives such as the "one industry-one rule" project with the Chemical Manufacturers Association, and the pollution prevention permitting project efforts to enable pollution prevention through flexible permitting.

The one industry-one rule project has the objective of consolidating 13 separate federal rules affecting the organic chemical industry into one consolidated rule, eliminating redundant and time-consuming reporting and record keeping requirements in the process. Since almost all states have chemical plants within their borders, almost all states will benefit.

Another example is our Indoor Environments program. We collaborate with over 25 national partner organizations and their local affiliates to address Indoor Air Quality issues in the nation's homes, schools, large buildings, and workplaces.

Education and Outreach

Improved communications and increased educational and outreach efforts will be important aspects of building and sustaining partnerships. We need people to understand the impact that their activities have on the environment, and conversely, how conditions in the environment can have a direct bearing on their health and well being. A better public understanding of environmental issues, hazards, and risks will be essential to ensure that the political decision makers, regulated community, and general public understand EPA activities and the reasons they are being conducted.

To generate support for our activities, comprehensive and sophisticated public education and outreach strategies will be imperative to build understanding of the problems and acceptance of the measures that must be implemented.

Community-Based Environmental Protection

Community-based environmental protection is an approach for identifying environmental problems, setting priorities, and developing solutions that is driven by the places and the people who live in them. It differs fundamentally from the program-based efforts in which EPA analyzes environmental problems and structures national solutions. We will continue to set national standards, but as we apply them we will keep uppermost in our minds the reality that exists in the places where they are applied.

OAR is actively involved in several community-based initiatives. One project is a comprehensive evaluation of particulate matter in communities in the northern Manhattan region of New York. Community groups in that area have expressed concerns about high rates of asthma and other respiratory illnesses. A project in Northern Oxford County, Maine involves working with a coalition of stakeholders to investigate reportedly high incidences of cancer and respiratory disease in the Androscoggin Valley region. A third example is the East St. Louis Gateway Project, which has as its goal the promotion of creative solutions to regional environmental problems such as hazardous and radioactive sites, poor air quality,

wetland and riparian issues, and water quality issues.

Pollution Prevention

Preventing pollution before it is created is the best environmental strategy and OAR's first choice in environmental protection while taking into account impacts on human health and the environment. The Clean Air Act provides opportunities for making pollution prevention a routine consideration in carrying out our programs and reinforcing the major efforts already underway. For example, flexible permits will enable permitted sources to commit to pollution prevention as part of their compliance strategy.

Pollution prevention is also integral to OAR climate change programs, and the CFC refrigerant recycling program helps prevent the production of additional ozone-depleting chemicals. Transportation-related initiatives to reduce motor vehicle miles traveled are grounded in a pollution prevention philosophy. Lastly, OAR's recent success at having national building codes include radon-resistant construction techniques will help

prevent exposure to radon in homes and buildings built according to those codes.

Tools and Training

Accurate data, better technical tools, and well-trained federal, regional, state, tribal, and local air quality professionals are essential for successful implementation of the air program as well as for building strong partnerships. New tools and training will also be needed to support the potential new national ambient air standards such as emission factors, emission inventories, models, and analyses. We will continue to appropriately use existing tools while new tools are being developed.

Strong Science

Finally, sound science and data continue to be the foundation of environmental protection. Air quality and emissions monitoring and modeling, health effects research, risk assessments, and the development of national standards, are just a few of the ongoing science-intensive air program activities. The development and use of indicators for measuring environmental progress and program effectiveness is another area where science will play a key role - initially to identify the appropriate indicators, and later to obtain and interpret the data.

In these and other areas, increased communication and interaction with the broader scientific community through the peer review process and other mechanisms will help ensure that our policies and programs are based on the best science and information available.

Plan Organization

program results, and reporting requirements where applicable.

The key elements of this Plan - the strategies and supporting actions - begin on the next page. There is a plan for each of OAR's major programs or areas of emphasis, which are:

- ▶ Current NAAQS Attainment Programs:
Ozone/Carbon Monoxide/ Nitrogen Dioxides/Particulate Matter/Sulfur Dioxide/Lead
- ▶ Implementation of New/Revised Ozone, PM NAAQS, and Regional Haze Programs
- ▶
- ▶
- ▶ Air Toxics
- ▶ Permits
- ▶ Acid Rain
- ▶ Stratospheric Ozone
- ▶ Climate Change
- ▶ Indoor Environments
- ▶ Radiation

The plan for each program area includes:

- ▶ a description of the *Problem*
- ▶ *National Environmental Goals* that are related to the problem (from the Goals report)
- ▶ *Milestones* to be achieved (mostly from the Goals report, but with several others developed by OAR).
- ▶ *Progress* made since 1990
- ▶ *Strategies* for reaching the Milestones
- ▶ *Specific Steps* be taken in FY98
- ▶ *Anticipated Outcomes* from completion of the actions and strategies
- ▶ *Performance Measures* for determining

Current NAAQS Attainment Programs: Ozone/Carbon Monoxide/Nitrogen Dioxide/ Particulate Matter/Sulfur Dioxide/Lead

Problem

Ozone, carbon monoxide, nitrogen dioxide, particulate matter, sulfur dioxide, and lead are air pollutants that endanger public health and the environment. EPA has established National Ambient Air Quality Standards (NAAQS) for each of these pollutants to protect public health. EPA has established health-based standards for each of these pollutants. Areas of the country where the concentrations of one or more of these pollutants exceed the NAAQS are classified as “nonattainment.” Stationary and mobile sources are significant contributors to the nonattainment problem through emissions of the gases that form ozone (volatile organic compounds and nitrogen oxides), and carbon monoxide.

Ozone

High levels of ozone cause health problems in sensitive individuals such as children and those with impaired respiratory systems, and, to a lesser degree, healthy adults. In addition to lung tissue damage, ozone contributes to reduced lung function, and can sensitize lung tissue to other irritants. Ozone also causes several billion dollars of agricultural crop yield loss in the U.S. each year and damages forest ecosystems in California and the eastern U.S.

Ozone is not emitted by specific sources but is created by sunlight acting on nitrogen oxide (NO_x) and volatile organic compound (VOCs) emissions in the air. Common sources of these “precursor” gases include gasoline vapors, solvents, combustion products of fuels, and consumer products. They can originate from large industrial facilities, gas stations, small businesses such as bakeries and dry cleaners, and mobile sources. Often, the precursor gases are emitted in one area, but the chemical reactions that produce ozone take place in another.

EPA has proposed that the national standard for ozone be changed based on new evidence that shows health effects below the level of the current standard. A final decision on the change is due by June 1997.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas that reduces the oxygen carrying capacity of the blood, with concentration-dependent impacts including impairment of vision and dexterity and impaired learning ability. CO is formed when carbon in fuels is not burned completely. Motor vehicles are the major source of CO emissions, while other sources included industrial processes and fuel combustion in sources such as boilers and incinerators.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is a respiratory irritant and contributes to increased respiratory infection rates. NO₂ belongs to a family of highly reactive gases called nitrogen oxides (NO_x) that are formed when fuel is burned at high temperatures. These gases come principally from motor vehicle exhaust and stationary sources such as electric utilities and industrial boilers. This family of gases plays a major role in the atmospheric reactions that produce ground-level ozone, and also affects terrestrial and aquatic ecosystems.

Particulate Matter

Particulate matter (PM) includes solid and liquid particles suspended in the atmosphere. Some particles are large or dark enough to be seen as soot or smoke; others can be detected only with an electron microscope. Particulates are produced by many sources, including diesel fuel combustion, incineration of garbage, industrial processes, and fireplaces and woodstoves.

The current national ambient air quality standard for PM focuses on particles 10 micrometers or smaller (PM₁₀), which are able to reach the lower portions of the lungs. PM₁₀ health effects include: adverse impacts on breathing and respiratory systems, damage to lung tissue, cancer, and premature death.

EPA has proposed that the national standard for PM be changed based on a substantial number of new epidemiological studies that show associations between particles and excess mortality and morbidity effects at concentrations and particle sizes below the current standards. A final decision on the change is due by June 1997.

Sulfur Dioxide

Sulfur dioxide (SO₂) is formed when fuel containing sulfur (mainly coal and oil) is burned, and during smelting and other industrial processes. The major health concerns associated with exposures SO₂ include effects on breathing, respiratory illness, alteration of the lung's defenses, aggravation of existing respiratory and cardiovascular disease, and mortality. People with asthma and cardiovascular or chronic lung disease as well as children and the elderly are most sensitive to SO₂. SO₂ can also damage the foliage of trees and agricultural crops, and is major a precursor of acid rain.

In May 1996, EPA decided not to revise the national standard for SO₂ because the existing standard provided adequate nationwide protection from adverse health effects, including substantial protection for most asthmatics against acute, short-term peak exposures to SO₂. However, EPA remains concerned that some asthmatics in very localized situations may be repeatedly exposed to short-term peak SO₂ levels of concern during mild physical activity.

Lead

Smelters and battery plants are the major sources of lead in the air. Lead levels and associated health risks have come down considerably, but high lead concentrations are still measured around some industrial sources. Lead exposure occurs mainly through breathing and ingestion of lead in food, paint, water, soil or dust. Lead accumulates in the body and because it is not readily excreted, it can affect several organs including the nervous system. Excessive

exposure to lead may cause reproductive disorders, kidney disease, and neurological impairments such as seizures, mental retardation, and behavioral disorders. Even at low doses, lead exposure is associated with changes in fundamental enzymatic, energy transfer and other processes in the body. Infants and children are especially susceptible to lead and often suffer central nervous system damage. Recent studies have shown lead to be a factor in high blood pressure and heart disease. Lead can also harm wildlife.

National Environmental Goal

Clean Air: Every American city and community will be free of air pollutants at levels that cause significant risk of cancer or respiratory and other health problems. The air will be clearer in many areas, and life in damaged forests and polluted waters will rebound as acid rain, ozone, and hazardous pollutants are reduced.

Milestones

- ▶ By 2005, the number of cities where air quality does not meet national standards will be reduced more than 96% from the 1995 levels, thereby making the air safer to breathe for an additional 85 million Americans in 164 metropolitan areas. Note that this milestone will have to be changed if the ozone standard is changed.
- ▶ Between now and 2005, concentrations of the 6 air pollutants will be reduced to the level of the national ambient air quality standards in all but 6 metropolitan areas. Five of the 6 areas (Chicago, Southwest Desert (south of L.A.), Houston, Milwaukee, New York City) will meet the standards by 2007. Los Angeles will meet the standards by 2010. Note that this milestone will have to be changed if the ozone standard is changed.
- ▶ By 2005, emissions of unhealthy smog-causing volatile organic compounds will fall 65% per mile per car, compared to 1990 levels.
- ▶ By 2005, increases in miles driven by U.S. vehicles will not interfere with attainment or maintenance of air or water quality standards, nor will increases in driving interfere with fulfillment of the U.S. commitment to reduce greenhouse gas emissions.

Progress to Date

- ▶ 33 of the 99 areas of the country designated as nonattainment for ozone in 1990 have been reclassified to attainment. Approximately 35 million people live in these 33 areas.
- ▶ From 1986 to 1995 ambient concentrations of ozone have decreased by 6% and emissions volatile organic compounds have decreased by 9%.
- ▶ 14 of the 43 areas of the country designated as nonattainment for carbon monoxide in 1990 have been reclassified to attainment. Approximately 12 million people live in these 14 areas.

- ▶ From 1986 to 1995 ambient concentrations of carbon monoxide have decreased by 37% and emissions have decreased by 16%.
- ▶ 4 of the 83 areas of the country designated as nonattainment for PM₁₀ in 1990 have been reclassified to attainment. Approximately 1.1 million people live in these 4 areas.
- ▶ The national average of annual mean PM₁₀ concentration has declined 22% between 1988 and 1995. PM₁₀ emissions from sources that were consistently monitored over the same period decreased 17%.
- ▶ 14 of the 54 areas of the country designated as nonattainment for SO₂ in 1990 have been redesignated to attainment. Approximately 2.4 million people live in these 14 areas.
- ▶ 3 of the 13 areas of the country designated as nonattainment for lead in 1990 have been redesignated to attainment. Approximately one million people live in these 3 areas. Another 3 of the 13 nonattainment areas were issued state implementation plan calls because of air quality problems. EPA has received SIP submittals for these 3 areas.

Strategies

The following strategies support the current NAAQS. For a discussion of the proposed revisions to the ozone standard and the new particulate matter standard, see the chapter on Revised Ozone/New Particulate Matter/Regional Haze Programs.

- ▶ NO_x Attainment: The one area that has not attained the NO_x standard will attain as a result of actions to reduce NO_x emissions in connection with the ozone standard.
- ▶ Ozone Attainment: There is a 4-part strategy for eliminating ozone nonattainment by the year 2010.
 1. Identify and work with areas classified as *marginal* or *moderate* that are eligible for redesignation based on clean air data. Encourage areas to seek redesignation to attainment by submitting formal requests to EPA for review, and ensure that areas eligible for redesignation continue to monitor and implement maintenance plans as appropriate. Identify areas that will fail to attain by the Clean Air Act's deadlines and ensure that modifications to their plan, including control strategies, are made as necessary to attain the ozone standard.
 2. Ensure areas classified as *serious*, *severe*, or *extreme* continue to adopt, submit to EPA for review, and implement plans meeting the Clean Air Act's rate of progress and related requirements, which represent a critical down payment of emission reductions needed to achieve ozone attainment. In addition, during FY97-98, EPA will review demonstrations (and associated control strategies) submitted by those in the Ozone Transport Assessment Group showing how the ozone standard will be attained.
 3. Encourage and provide guidance on market-based and other innovative programs to continue to control ozone in the most cost-effective manner.

4. Continue to focus on controlling NO_x from major sources in as many areas as appropriate under the Clean Air Act since doing so will help reduce ozone in many nonattainment areas.
- ▶ CO Attainment: Regions and states need to continue to process state implementation plan (SIP) actions and to redesignate areas to attainment. Data for areas that receive an attainment date extension will be reviewed to determine whether those areas attain the standards by the end of the extension period. States with areas reclassified as *serious* will be encouraged to develop a SIP that demonstrates how the standards will be met and maintained. In addition, Headquarters carbon monoxide (CO) initiatives for mobile sources will be maintained to ensure continued CO emission reductions and reductions in CO nonattainment.
 - ▶ PM₁₀ Attainment: EPA will continue to process SIP submittals, particularly for areas classified as serious. Where appropriate, EPA will work with regions and states to redesignate areas to attainment.
 - ▶ SO₂ Attainment: EPA will propose a new Intervention Level program to address the potential health risks posed by short-term peak levels of SO₂ in specific, localized circumstances. The Intervention Level program will be a flexible, common sense approach to address the health concerns associated with short term peak concentrations of SO₂. Under this program, states will have the flexibility to identify areas of concern and the mechanism for addressing associated risks. Regions and states should continue to act on SIPs, with an emphasis on redesignating areas to attainment. Regions and states should work to identify areas where SO₂ peak concentrations may pose a health risk and move monitors to these areas to determine if there is an air quality problem.
 - ▶ Lead Attainment: Regions and states should continue to act on SIPs and to work to achieve attainment of the lead standard in all areas. Regions and states should work to identify areas where potential air quality problems might exist, and states should be encouraged to address the problems in the manner that is most appropriate for their sources.
 - ▶ Mobile Source Strategies Applicable to All Pollutants:
 - Continue to reduce emissions from mobile sources through technology and emission standards and improved durability of vehicles.
 - Continue efforts to reduce vehicle miles traveled using State Implementation Plan (SIP) credits for sustainable development and also develop voluntary control measures in concert with states and localities.
 - Provide accurate, timely, and easy to use mobile source models for both the EPA and states to use in strategic decision making.
 - Provide credible information about costs, emission effects, and public health to sustain our policy choices.

- Increase public outreach and education efforts to raise awareness of the link between air quality and transportation choices.
- Pursue targeted efforts to harmonize emission standards internationally to produce both domestic and international air quality benefits.
- Use a technology- and standards-based approach to reduce emissions from mobile sources that integrates particulate emissions reductions with NO_x emissions reductions (targeting ground-level ozone) through improved technology, emission standards, improved durability of vehicles, and pollution prevention efforts aimed at reducing vehicle miles traveled.

Specific Steps in FY 98

- ▶ Ozone Attainment:
 - Headquarters will work with Regional Offices to implement rules promulgated in FY97 for autobody refinishing, architectural and industrial maintenance coatings (AIM), and consumer and commercial products.
 - Headquarters will continue to assist the regions as they evaluate requests from the states to redesignate the *marginal* and *moderate* ozone nonattainment areas from nonattainment to attainment. As needed, Headquarters will assist the regions to reclassify any areas that fail to attain the ozone standard and ensure those areas adopt the control measures necessary to achieve attainment.
 - Headquarters will continue to assist the regions as they evaluate rate of progress and other plans submitted by the states for *serious* and above ozone nonattainment areas. Headquarters will also support ozone modeling and monitoring efforts, including: the existing Photochemical Assessment Monitoring Stations network to better understand the ozone problem; augmenting the limited rural ozone monitoring network to better characterize background levels and ozone transport; and, continuing the regional modeling to determine appropriate control strategies to bring nonattainment areas into attainment.
 - Administer \$12,077,500 of Section 105 funds for the operation and maintenance of the existing PAMS network and the installation of a new PAM and upper meteorological monitoring site in St. Louis, Missouri.
 - Headquarters will issue guidance on open market trading and lead an interagency team to assist the regions and states in developing and evaluating state market-based trading programs.
 - Headquarters will assist the regions as they evaluate state plans for NO_x reasonable available control technology and new source review as well as NO_x waiver petitions. Headquarters will support: the NO_x memorandum of understanding effort to establish accurate NO_x baseline emission inventories; NO_x cap and trade programs; and,

regional modeling studies for ozone precursors that indicate reducing NO_x emissions may be most effective for reducing ozone levels.

- ▶ CO Attainment: Headquarters will assist the regions on implementation of the CO program and assist in redesignating areas to attainment. Headquarters will also assist the regions and states in cases where national consistency may be an issue, and will encourage the regions to act on SIP submittals and to redesignate areas to attainment.
- ▶ Consistent with the 1995 NO_x PM Statement of Principles (SOP), promulgate new technology-forcing NO_x standards for heavy-duty on-road engines, heavy-duty off-road engines, and small engines; promulgate new technology-forcing particulate standards for heavy-duty on-road and heavy-duty off-road engines. Develop and demonstrate diesel engine technology capable of simultaneously meeting a 2.0 gram per brake horsepower hour (g/bhphr) NO_x standard and the current 0.1 g/bhphr particulate standard.
- ▶ Prepare to implement the Phase II reformulated gasoline program with stakeholder support through an effective outreach and communications effort, and effective testing.
- ▶ Introduce "complex model" reformulated gasoline, including implementation of opt-in and opt-out policies, inclusion of attainment areas through an attainment area opt-in policy, and partnership efforts with stakeholders.
- ▶ Improve the Inspection/Maintenance programs through compliance assistance to states (especially those operating demonstration programs under the NHSDA) and processing final Agency actions on SIP submittals under the NHSCA post-demonstration period.
- ▶ Evaluate breakthroughs in vehicle technology and develop a strategy for tighter (Tier 2) new-vehicle tailpipe emission standards.
- ▶ Reinvent the new-vehicle compliance program, and implement an engines compliance program for newly regulated sectors.
- ▶ Streamline the Conformity process.
- ▶ Assess the effectiveness of onboard diagnostics programs through both FY97 and FY98 in-house and I/M lane test programs.
- ▶ Improve the analytic tools for integrating air quality and transportation planning by: 1) incorporating key EPA policy positions in FHWA's FY97-98 modeling guidance; 2) providing staff leadership and funding for the development of both short-term model improvements and longer-term transportation model developments through TRANSIMs and Georgia Tech; 3) promoting and brokering an agreement with respective parties to significantly increase the coordination of 3 distinct modeling improvement programs (TMIP, TRB, and Georgia Tech).
- ▶ Coordinate with the Office of Management and Budget and the Department of Transportation to propose and comment on legislative language to ensure an environmentally sensitive reauthorization of ISTEA.

- ▶ Develop an understanding of heavy-duty in-use emissions performance, and identify appropriate shifts in compliance program emphasis.
- ▶ Initiate comprehensive control program to reduce locomotive NO_x by 40% or more.
- ▶ \$850,000 of Section 105 money was targeted for mobile source-related outreach activities through a competition among state and local air agencies and multistate air organizations in FY 97. An additional \$450,000 has been targeted in FY 98 for new standards. Funded projects will emphasize Car Care (maintenance, testing, and repair), transportation choices, and environmental education for young people.
- ▶ Collaborate with the Department of Transportation on transportation/air quality national public education campaigns.
- ▶ Fund up to \$150,000 for partnerships with national organizations addressing environmental education issues.
- ▶ Implement a national public service campaign focusing on vehicle maintenance.
- ▶ Continue the Wever/State/Utah-Department of Air Quality pilot project ("Car Care for Clean Air").
- ▶ Fund development of a driver education curriculum module which will add responsible maintenance to responsible driving in public and private driver education courses.
- ▶ Evolve outreach, communication, and public education efforts to reflect an increasing emphasis on particulates in FY98.
- ▶ Complete rulemakings and begin implementing the National Low Emission Vehicle program, consistent with the outcome of stakeholder negotiations on this voluntary initiative.
- ▶ Support development and implementation of criteria for both the long-term and short-term state I/M program evaluations being conducted by the ECOS/STAPPA National Highway Designation Act evaluation workgroup.
- ▶ Develop data on emission rates and size distributions for brake and tire wear, and for paved and unpaved road dust.
- ▶ Examine existing monitoring data to determine whether roadways or intersections contribute to hot spots.
- ▶ Evolve outreach, communication and public education efforts to reflect an increasing emphasis on particulates.
- ▶ Where criteria pollutants are identified as problems in Indian Country, regions will work with headquarters and tribes to inventory sources, assess control alternatives, and develop abatement and control strategies.

- ▶ Administer \$2,711,500 of Section 105 funds for the U.S. Mexico Border initiative.
- Perform analysis of PAMS data in each of the 24 PAMS areas.

Anticipated Outcomes:

- ▶ Ozone, NO_x, and CO emissions from stationary sources will continue to decrease as nonattainment areas implement rate of progress plans, control strategy plans, maintenance plans and attainment demonstrations.
- ▶ The Ozone Transport Assessment Group (OTAG) will recommend levels of regional ozone emissions reductions needed to eliminate transported emissions which in many cases prevent areas from attaining the NAAQS.
- ▶ All existing 23 PAM sites continue to operate and the new PAM and upper air meteorological site for St. Louis, Missouri is installed and all sites have an approved Quality Assurance Project Plan.
- ▶ New PAM sites scheduled for FY 1998 may be deferred until FY 1999 (except for St. Louis, Missouri).
- ▶ PAMS areas take advantage of the pre-engineering assumptions for reductions in carbon and VOC sampling.
- ▶ As existing NO_x monitoring instruments need to be replaced, States are encouraged to replace them with total reactive oxides of nitrogen NO_y/NO monitoring instrumentation.
- ▶ The flow of data, guidance, and results among individual PAMS areas, Regional Offices and EPA Headquarters is facilitated through the acquisition of hardware and the development of software.
- ▶ Establish a national forum for the transfer of information on analytical techniques, data quality assurance, and data analysis results among PAMS data analysts at all the State/local, Regional and Headquarters level.
- ▶ Implementation of OAQPS air quality monitor upgrade and replacement strategy.
- ▶ Additional nonattainment areas will attain, and the number of people exposed to unhealthy levels of ozone, NO_x, and CO will be reduced.
- ▶ States will develop and submit rate of progress, attainment demonstrations, and control strategy plans.
- ▶ Additional trading programs will be created and progress made in reducing the cost of ozone control. Progress will also be made at reducing NO_x emissions from major sources.

- ▶ A 2.0 g/bhphr highway engine NO_x standard will translate into 1.2 million tons of annual nationwide NO_x reductions, or a 5% reduction in overall nationwide NO_x emissions.
- ▶ New diesel and large spark-ignition non-road engine standards will reduce emission to less than one third of current levels.
- ▶ The Inspection/Maintenance vehicle compliance, and engine compliance initiatives will achieve the reductions anticipated by EPA models for new and historical emission standard initiatives.
- ▶ The onboard diagnostics initiative will drive the deterioration rates of the light-duty fleet as close to zero as possible, equivalent to targeting approximately 16% on-highway mobile source NO_x emissions and 8% of VOC emissions in the year 2005, and increasing percentages in later years.
- ▶ The Phase II reformulated gasoline program will provide annual (summer) reductions of 152,000 tons of VOC and 22,000 tons of NO_x.
- ▶ Streamlining the Conformity process and improving our models will help reconcile transportation planning and air quality planning issues in a manner that does not cause or worsen violations of the ambient air standards.
- ▶ NO_x emissions from mobile sources are projected to fall from 2.7 million tons to 1.5 million tons between 1990 and 2010.

Performance Measures

- ▶ Trends in air quality for each of the 6 criteria air pollutants.
- ▶ Number of nonattainment areas and their associated populations that reach attainment and areas that have been redesignated for each of the criteria air pollutant standards (NAAQS) that were in effect as of January 1, 1997.
- ▶ Emission reductions since 1990 for each criteria pollutant, as discussed in each annual edition of EPA's National Air Pollution Emission Trends Report.
- ▶ Status of state progress in developing and submitting required SIPs including number of approvable inspection/maintenance SIPs submitted and approved. (Note: If the NAAQS for ozone is revised, this measure will change to be consistent with milestones in the Interim Implementation Policy.)
- ▶ Progress in implementing the 2-phased approach for ozone attainment demonstrations. (Note: Specific OTAG activities regarding progress in achieving Phase II commitments will be determined in mid-FY97.)

- ▶ Number of areas where attainment determinations have been made and contingency measures and other remedial activity initiated.
- ▶ Number of areas where states and regions have identified air quality problems associated with violations of the NAAQS and necessary action is taken.

Revised Ozone/New Particulate Matter/Regional Haze Programs

Background

EPA proposed revisions to the existing ozone and a new PM NAAQS in December 1996. Final action on these proposals is scheduled for July 1997. In order to assist States in developing plans that will demonstrate attainment and maintenance of any new/revised NAAQS, the Agency is in the process of developing a two-phased implementation strategy. This strategy will integrate the implementation of ozone, PM and regional haze requirements. Integration of control requirements is necessitated by the fact that ozone, PM-fine, and regional haze problems share common emission sources and common meteorological influences. With regard to implementation of existing ozone and PM NAAQS during the time period between promulgation of new/revised NAAQS and the time that States have SIP's in place to implement these NAAQS, EPA is preparing an interim implementation policy.

Input to EPA on the development of the integrated implementation strategy is being provided by the Ozone, Particulate Matter and Regional Haze Implementation Programs Subcommittee (Subcommittee) of the Clean Air Act Advisory Committee (CAAAC). The CAAAC was formed under the provisions of the Federal Advisory Committee Act (FACA) and the Subcommittee is therefore also subject to the provisions of FACA. The Subcommittee's purpose is to advise EPA on the development of cost-effective and common-sense programs for the integrated implementation of ozone, PM and regional haze requirements.

Strategy

Phase I of the integrated implementation strategy will be proposed in July 1997 and finalized early in 1998. Phase I is the basic building block for NAAQS/haze implementation and includes guidance related to the basic air quality management planning process, designation of areas, and regional haze requirements. Phase II of the strategy will be proposed in July 1998 and will be finalized in July 1999. Phase II will address area classifications, attainment dates, new source review, and control strategies.

The interim implementation strategy was proposed in December 1996 and is scheduled to be finalized in July 1997. This policy will assure that States maintain the momentum of existing control programs during the time when they are preparing plans to implement the new/revised NAAQS.

As part of its effort to implement new/revised NAAQS, the agency proposed revised PM monitoring requirements in December 1996. Final action on this proposal will take place in July 1997. Proposed ozone monitoring requirements will take place in July 1997 with final action scheduled for July 1998.

All aspects of the NAAQS/regional haze implementation strategy have not yet been developed and will not be available until after the FACA Subcommittee has completed providing its advice to EPA. However, a critical aspect of the implementation strategy is the establishment of Regional Air Management Partnerships (RAMPS). EPA will publish guidance on RAMPS

as part of its Phase I strategy proposal in July 1997. The Agency will propose that all States and Tribes be in a RAMP. The total number of RAMPS has not yet been determined. The functions of the RAMP are to coordinate regional modeling, monitoring, and emission inventory development activities; identify areas that violate air quality standards (areas of violation) and areas that contribute to these violations (areas of influence); coordinate development of regional implementation plans; facilitate trading programs, and analyze regional control strategies.

Another critical aspect of the strategy is the deployment of monitors to record ambient levels of fine particulate matter. Steps are underway to deploy these monitors so that area designations for PM-fine can be made. Initial deployment of monitors will start in FY98 with a total of 1200 PM-fine monitors deployed by February 2000.

Specific Steps in FY98

- ▶ FACA Subcommittee meets every 2 months to consider Phase II implementation issues.
- ▶ Regions administer \$10,935,000 of Section 105 grant funds for the initial implementation of the PM fine monitoring network. FY98 will be the first year of a multi-year effort. Refer to FY98 National Air Grant Guidance for additional details.
- ▶ Installation of 510 PM-fine Federal Reference Method (FRM) monitors. Refer to FY98 National Air Grant Guidance for additional details.
- ▶ Administer \$455,000 of Section 105 grant funds for public education of the new/revised NAAQS rules.
- ▶ Ozone monitoring requirements finalized.
- ▶ Phase I implementation strategy finalized.
- ▶ RAMPs finalized.
- ▶ Phase II implementation strategy proposed.
- ▶ Governors propose ozone and PM area designations.
- ▶ Promulgate regional haze program, including criteria for states to use in measuring progress.
- ▶ In FY98, issue second Report to Congress assessing actual progress and improvement in visibility in Class I areas.
- ▶ Administer \$1,750,000 of Section 105 grant funds for the development of Regional Air Management Partnership (RAMP) centers.

- ▶ Administer \$1,250,000 of Section 105 grant funds to support the IMPROVE monitoring network.

Anticipated Outcomes

- ▶ Monitors to record ambient levels of fine particulate matter will begin to be deployed and a network established so that area designations of PM-fine can be made.
- ▶ Strategies that simultaneously reduce levels of particulate matter, ozone, and air toxics will be developed.
- ▶ Continued modest improvement and maintenance of annual average visibility in rural and Class I areas across the country will occur.
- ▶ Continued funding the Interagency Monitoring of Protected Visual Environments (IMPROVE) network - a long-term visibility monitoring program. (HQ)
- ▶ Coordinate the IMPROVE monitoring network with future monitoring for a potential new fine PM NAAQS for regional assessment of visibility conditions. (RO)
- ▶ First scrubber unit at Navajo Generating Station in Page, Arizona (near Grand Canyon National Park) will come online and reduce SO₂ emissions by 1/3/98. (HQ, RO, and States)

Performance Measures

- ▶ Number of PM_{2.5} monitors deployed to identify air quality problems.
- ▶ Progress in procuring and locating PM fine monitors to provide geographic coverage with added initial emphasis on high population, high pollution PM-10 areas and high ozone areas,
- ▶ Progress made in developing the infrastructure to perform necessary quality assurance, fine particulate sampling and analysis, and
- ▶ For recipients with existing PM-10 nonattainment areas, the status and results of any special studies or data analyses regarding the nature of fine particles in high pollution PM-10 areas, and assistance with the design of new PM monitoring networks.

Air Toxics

Problem

EPA estimates that the U.S. industrial base annually emits about 2.7 million tons of toxic chemicals into the air, and that sites in the U.S. that emit, or have the potential to emit, more than 10 tons per year, number in the thousands. Individuals living near these sites are potentially exposed to elevated concentrations of these chemicals, which can cause a wide variety of effects from lung irritation to cancer and birth defects. In general, scientists have only a very limited understanding of the specific effects of continued exposure to many of these chemicals, but it is not uncommon for people living in urban areas to be exposed to increased lifetime cancer risks - as high as 1 in 10,000. EPA estimates that as many as 1,700-2,700 cases per year may result from exposure to various forms of air toxics. Risk due to air toxics can result from exposure to hazardous air pollutants emitted from all types of sources including: individual facility emissions; mixtures of pollutants found in urban settings; and long-range transport of pollutants over regional, national and even global air sheds.

The 1990 Clean Air Act identifies 188 toxic chemicals, and requires EPA to determine the major and area sources of these emissions, to develop standards for the maximum achievable control of the emissions (MACT standards), and ultimately, to protect public health with an ample margin of safety and protect the environment from serious and widespread effects. There are 174 categories of major sources potentially affected by the MACT standards, some of which include petroleum refineries, manufacturers of polymers and resins, lead smelters, and synthetic organic chemical manufacturers.

National Environmental Goal

Clean Air: Every American city and community will be free of air pollutants at levels that cause significant risk of cancer or respiratory and other health problems. The air will be clearer in many areas, and life in damaged forests and polluted waters will rebound as acid rain, ozone, and hazardous pollutants are reduced.

Milestone

By 2005, all 174 categories of major industrial facilities will meet toxic air emission standards.

Progress to Date

21 MACT standards are in place that limit toxic air emissions from approximately half of all major domestic industrial and commercial sources. These standards will reduce emissions by nearly 1,000,000 tons of hazardous air pollutants (HAPs) per year once fully implemented. EPA headquarters and regional offices have been working together to enable states to administer these standards either through formal delegations or informal agreements. In collaboration with NOAA and state agencies, EPA continues to develop strategies for addressing risks in urban areas and risks from atmospheric deposition to the Great Lakes, Chesapeake Bay, and other “great” water bodies.

Strategies for FY97-98

- ▶ Issue emission standards for another 25% of the source categories in FY97-98.
- ▶ Continue to improve our characterization of the air toxics program by evaluating existing data and, as feasible, by collecting and evaluating additional air toxics data.
- ▶ Adopt goals or benchmarks for evaluating program progress in order to make optimal use of the available resources under GPRA via the Air Toxics Performance Pilot Project.
- ▶ For the many recently established MACT standards, continue to work towards successful administration of the program at the state, tribal, and local level.
- ▶ Examine the process of source notification, the number of sources affected by the MACT standards, and the number of sources that have required control programs in place and operational.
- ▶ Complete assessments to determine which, if any, existing MACT standards do not provide sufficient public health or environmental protection. This includes identifying additional risks outside of the basic MACT program, and where appropriate, beginning to develop requirements for additional reductions by implementing the Residual Risk Strategy.
- ▶ Continue to technically assist and train states, tribes, and local agencies so they can reach the long term objective that all 174 source categories of major industrial facilities and commercial sources will meet MACT standards by 2005.
- ▶ Continue work to assess the mobile source portion of the air toxics inventory.
- ▶ Publish a national strategy which identifies air toxics of greatest concern in urban areas, comprehensively identifies the sources of those compounds, and evaluates a range of actions to reduce emissions.

Specific Steps in FY97-98

- ▶ Develop a plan for evaluating existing air toxics data including identify, evaluate, and track a potential baseline set of indicators to better define the air toxics problem.
- ▶ Determine where the existing program may not adequately address emissions, exposures, or risks. Where appropriate, define approaches beyond the existing MACT program.
 - Complete and publish the Residual Risk Report and the Great Waters Report.
 - Respond to the Science Advisory Board's review and complete the Report to Congress on mercury.
 - Identify additional industrial sources which are major sources of the short list of high priority pollutants named in the statute ((112 (c)(6)).
 - Complete the hazard ranking, and alternative control strategy portions of the urban air toxics strategy.

- Determine if the current authorities are adequate to address human health and sensitive ecosystem threats and associated human health concerns in the Great Waters and other regions and identify further needed action.
 - Continue to evaluate the effects of electric utilities.
- ▶ Address an additional 25% of the 174 source categories through the existing MACT program.
 - Propose or promulgate 23 standards for the 7-yr MACT source categories.
 - Ensure the existing standards are delegated to or otherwise effectively implemented by states or regions.
 - Require MACT on large construction projects that emit HAPs under section 112 (g).
 - Build the capacity of state and local agencies to implement the air toxic program (e.g., train students through the Air Pollution Training Institute (APTI)).
- ▶ Further reinvent and integrate program activities.
 - Complete the consolidated air rule, record keeping and reporting burden reduction rule making, and amendments to Subparts A, B and E; and begin other special initiative rule making.
 - Expand the use of common sense approaches such as Project XL and Common Sense Initiatives where appropriate.
 - Increase public access to air toxics information.
 - Develop integrated approaches to air toxic program implementation including coordinated activities within EPA.
 - Re-examine the section 112(l) rule to allow states the opportunity to achieve emissions reductions program in ways different than the MACT program, provided that the state approach is not less stringent.
 - Integrate the air toxics program with the criteria pollutant program to achieve maximum environmental benefit at minimum costs to society.
- ▶ Through coordinated efforts with the Office of Enforcement and Compliance Assistance;
 - Ensure that all HON sources have their required permits and all HON source permits are reviewed.
 - Ensure that all HON sources are inspected annually
 - Ensure unannounced inspections at 10% of the chrome electroplaters are conducted within two years.
 - Provide compliance assistance to States and sources for newly promulgated air toxics regulations.
- ▶ Administer \$1,100,000 in section 105 grant funds for MACT Partnership and Database projects.

- ▶ Administer \$1,187,100 in section 105 grant funds for support of the Great Lakes initiative.

Anticipated Outcomes

- ▶ Continued large reductions in HAPs emissions from various sources are expected through implementation of the already promulgated emission standards. By working closely with stakeholders, including states and regulated industry, implementation of MACT standards will become more efficient and effective and less burdensome to all parties. This will be demonstrated by an increase in stakeholder meetings, and delegation or partnerships with states for implementation of the programs. Outreach and better working relationships with state and local agencies will ensure a majority of small businesses understand the requirements of MACTs affecting them.
- ▶ EPA will continue to improve its ability to track compliance with existing MACT standards and will demonstrate that 90% of major sources are taking actions to come into compliance with the promulgated standards. Monitoring compliance and measuring reduction in emissions related to HAPs should lead to better defining the current health risks to the public and environment from air toxics.

Performance Measures

- ▶ Number of stakeholder meetings demonstrating active participation.
- ▶ Development of national air toxics emissions inventories.
- ▶ Number of MACT standards proposed or promulgated
- ▶ Percent of source categories for which delegations/responsibility have been accepted.
- ▶ Number of major industrial facilities meeting toxic air emission standards.
 - number of sources affected by air toxics requirements.
 - number of sources with required controls in place and operational.
- ▶ Issuance of the second Great Lakes Report and Utility Report to Congress.
- ▶ Number of inquiries to air toxics information systems and through the Internet websites.
- ▶ Number of students trained through APTI.

- ▶ Trends in emissions of toxic air pollutants. EPA's Toxic Release Inventory in conjunction with EPA's National Toxics Inventory will be used as the primary source of information on emissions of air toxics until a future date when enhancements to EPA's National Toxics Inventory are fully implemented.
- ▶ Reductions in emissions of air toxics. EPA's Toxic Release Inventory in conjunction with EPA's National Toxics Inventory will be used as the primary source of information on emissions of air toxics until a future date when enhancements to EPA's National Toxics Inventory are fully implemented.
- ▶ Status of state progress in implementing air toxics requirements: MACT standards, other Section 112 provisions (in particular, Section 112(g) provisions), and Section 129 guidelines and standards. Measures include:
 - Percent of source categories within the state for which delegation has been accepted (guidance implemented).
 - Number of sources within the state for which compliance¹ with the standards has been determined.

Permits

Problem

Before the 1990 Clean Air Act Amendments, stationary sources of air pollution were subject to pollution control requirements that were scattered among numerous provisions of both state and federal regulations. This resulting ambiguity and confusion meant that emission requirements often were not being fully implemented and needed emission reductions were not being made. Title V of the 1990 Clean Air Act Amendments changed that by requiring states to develop permit programs, and major stationary sources of air pollution to apply for permits to emit pollutants. Projects to construct new sources or expand, modernize, or alter existing sources are also subject to the permitting procedures.

The permit compiles, in a single document, all the air pollution control obligations of the individual source such as the types and quantities of pollutants being released, and requirements for monitoring, record-keeping, and reporting. Because all pertinent requirements are contained in one document, the source, state, EPA, and the public are better able to understand the various requirements to which the source is subject and determine compliance with those requirements.

States are required to develop permitting programs that meet federal requirements, and EPA is required to develop and administer a permit program for states without permit programs. A permitting program for Tribal lands is also required.

National Environmental Goal

Clean Air: Every American city and community will be free of air pollutants at levels that cause significant risk of cancer or respiratory and other health problems. The air will be clearer in many areas, and life in damaged forests and polluted waters will rebound as acid rain, ozone, and hazardous pollutants are reduced.

Milestones

- ▶ By 2005, the number of cities where air quality does not meet national standards will be reduced more than 96% from the 1995 levels, thereby making the air safer to breathe for an additional 85 million Americans in 164 metropolitan areas.
- ▶ By 2005, all 174 categories of major industrial facilities will meet toxic air emission standards.
- ▶ By 2005, U.S. SO₂ emissions will be reduced by nearly 10 million tons and NO_x emissions will be reduced by 2 million tons from 1980 levels.
- ▶ By 2005, annual average visibility in the rural, central, and eastern U.S. will improve 10-30% from 1990 levels. The visibility in the rural western U.S. will be maintained or slightly improve from 1990 levels.

Progress to Date

- ▶ 115 of 116 permitting authorities had federally-approved programs as of 4/1/97 (the one remaining has been proposed for approval) . The Federal Operating Permit Program has become effective for the 14 state and local permitting authorities that are without approved programs. However, 13 of those programs now have State approval; thus, the Federal Operating Permits Program has been terminated (as noted above, the one remaining has had the State program proposed).
- ▶ Hundreds of draft Title V permits have been reviewed and over 400 permits have been issued, covering almost 500 sources.
- ▶ States have successfully received complete applications for over one-third of the expected 22,000 Title V sources in addition to seeing many thousands of synthetic minor permit applications. Some states have also issued or drafted flexible permits which many industries need to complete under ever changing market conditions. These flexible permits also incorporate pollution prevention concepts.
- ▶ Draft revisions to the operating permit program requirements of 40 CFR Part 70 to provide for more flexibility have been completed, and efforts are ongoing to define requirements for compliance assurance monitoring which are being developed to ensure compliance with emission limitations.

Strategy

During FY97-98, state and local permitting authorities will be implementing the requirements of Title V and issuing permits. This means that all 116 permitting authorities will have received at least interim approval for their programs or will have received a delegated federal permits program and will be reviewing permit applications. All applications for operating permits (estimated at 22,000 sources) will have been submitted and operating permits will have been issued to approximately 50% of these sources. By FY98 we will have revised the permit program requirements to streamline the permit revision process. This will result in EPA working with permitting authorities to incorporate simplified permit revision processes into the state and local permitting program. EPA will also be completing efforts to resolve deficiencies in permitting programs that were identified during the interim approval process. Efforts will be maintained to identify state-level audit legislation that inhibits enforcement of the permitting program and in rectifying problematic situations.

Specific Steps in FY 97-98

- ▶ Revise 40 CFR Parts 71 to promote permit streamlining.
- ▶ Host a regional office/state workshop to address Part 70 revisions.
- ▶ Issue final rule that simplifies and streamlines the new source review program.
- ▶ Monitor permit review process to ensure complete and enforceable permits.

- ▶ Monitor progress of programs where authority to run a federal permit program under part 71 has been delegated to state/local permitting authorities.
- ▶ Monitor efforts to resolve issues raised in the interim approval process.
- ▶ Provide guidance for states on the Acid Rain Program Phase II permitting and emissions monitoring activities.
- ▶ Ensure that operating permit programs are implemented on Tribal lands.
- ▶ In conjunction with the Office of Enforcement and Compliance Assistance:
 - Regions are to review Title V permits for identification of noncomplying facilities, and submission of required compliance schedules, determine appropriate enforcement response where noncompliance is disclosed
 - Review source compliance certifications
 - Investigate synthetic minor permits to ensure that they were obtained correctly, and that the source follows the terms and conditions to limit its emissions.

Anticipated Outcomes

- ▶ Permitting regulations will be revised early in 1997, and permitting authorities will begin revising their programs to enable applicants to develop more flexible permits. Many issues are expected to arise that will necessitate the development of guidance to clarify or explain requirements.
- ▶ In FY97-98, all programs will receive at least interim approval, and many deficiencies raised during the interim approval process will be resolved. Some of these changes will require state-level legislative action and many will require changes in state or local permitting regulations.

Performance Measures:

Performance measures are associated with the accomplishment of environmental goals. While the successful implementation of the Title V operating permits program is a significant accomplishment, it is not, in and of itself, considered an environmental goal but rather a tool for aiding in the accomplishment of the goal. For that reason there are no corresponding Performance Measures associated with the program. However, agencies are asked to report on the issuance of major source operating permits as described below.

Reporting Requirements:

- ▶ Status (%) of state and local Title V operating permit programs moving from interim to full approval.
- ▶ Status (%) of state and local Title V operating permit programs submitting revisions in accordance with the Part 70 supplemental rulemaking.
- ▶ Status (%) of operating permits issued, by state.
- ▶ Status (%) of operating permits issued with compliance schedules attached, by state.
- ▶ Number of Title V programs implemented in Indian Country.

Clean Air in Indian Country

Problem

Tribal lands, known as Indian Country, are found throughout the U.S. and are therefore subject to the same airshed pressures as state and local lands. The difference is that tribes lack the regulatory authority to control sources of air pollutants in the same manner as states. The Tribal Authority Rule, which will be promulgated in FY98, authorizes tribes to be treated in a manner similar to states for implementing provisions of the Clean Air Act (CAA) within the boundaries of a reservation and in other areas over which they can demonstrate jurisdiction. The problems associated with implementing the CAA in Indian Country are described in more detail below under "Strategy," but briefly, include:

- ▶ a lack of reservation-specific air quality and emissions data. Minor sources and area/categorical sources may be contributing as much or more to air quality problems than the estimated 100 major sources on tribal lands.
- ▶ incomplete Federal regulatory authority to effectively address issues unique to Indian Country and carry out Federal trust responsibilities.
- ▶ a wide range in the capacity among tribes to implement air programs.
- ▶ a shortage of contractor, grant, and EPA staff resources needed to address tribal air quality problems.

National Environmental Goal

Clean Air: Every American city and community will be free of air pollutants at levels that cause significant risk of cancer or respiratory and other health problems. The air will be clearer in many areas, and life in damaged forests and polluted waters will rebound as acid rain, ozone, and hazardous pollutants are reduced.

Milestones

- ▶ By 2005, the number of cities where air quality does not meet national standards will be reduced more than 96% from the 1995 levels, thereby making the air safer to breathe for an additional 85 million Americans in 164 metropolitan areas.
- ▶ By 2005, all 174 categories of major industrial facilities will meet toxic air emission standards.
- ▶ By 2005, U.S. SO₂ emissions will be reduced by nearly 10 million tons and NO_x emissions will be reduced by 2 million tons from 1980 levels.

- ▶ By 2005, annual average visibility in the rural, central, and eastern U.S. will improve 10-30% from 1990 levels. The visibility in the rural western U.S. will be maintained or slightly improve from 1990 levels.

Progress to Date

To ensure that the national goal of clean air is met in Indian Country, Regional and Headquarters staff have worked together, in consultation with tribes, to develop a common understanding of the nature of the potential air quality problem in Indian Country. OAR and the Regional Offices each have developed a plan of action to govern the implementation of CAA programs in Indian Country. Workgroups were established to address different aspects of the regional and national strategies and to ensure that progress continues to be made in achieving the goals of those strategies.

Strategy

OAR has developed a national strategy to address the challenges of protecting tribal air quality resources. This strategy has three major components. The first component is tribal capacity building and information transfer. Consistent with the Agency's Indian policy, EPA strongly encourages tribes to manage their own air programs. The second component is building regional capacity building. EPA Regional Offices will assist tribes in building capacity and will directly implement programs where tribes cannot. Where Regions are responsible for direct implementation, they must develop the in-house expertise to do so. The principal initial tasks will be implementation of Federal standards and the Federal Operating Permits Program that apply to stationary sources. The third component is developing the Federal regulatory tools and other information and support to use in direct implementation. This also includes development of regulatory authorities to deal with, among other things, existing major sources and review of new minor sources.

In FY98, the principal focus will be on filling the federal regulatory gap and building tribal capacity to develop CAA programs. OAR, in cooperation with Regional staff, will propose rules for controlling both major and minor air pollution sources in Indian Country. OAR will also work closely with the Regions to identify those strategies most likely to contribute to enhancing tribal capacity. In addition to developing additional air pollution training programs for tribal environmental professionals and providing guidance on the implementation of the Tribal Authority Rule, OAR will encourage and promote the participation of tribal environmental professionals in the full range of air pollution control activities available to their state and local counterparts.

EPA also will develop a delegation strategy for tribes to implement and enforce existing Federal standards such as Maximum Achievable Control Technology (MACT) standards, New Source Performance Standards (NSPS), and National Emissions Standards for Hazardous Air Pollutants (NESHAPs), where appropriate.

- ▶ **Build Tribal Capacity:** EPA will aggressively support and assist tribes who are ready to implement programs by expediting program approval and providing ongoing technical and

financial support. For tribes who are not far along in developing air programs or do not know if they need CAA programs, Regions will help each tribe to ascertain whether they have air issues that justify the development of a tribal air program. For tribes that intend to develop programs, the Region and tribe should include air issues in the Tribal Environmental Work plans. EPA will utilize the following resources and approaches to help build tribal capacity:

- Grants and other Resources for Program Development: EPA continues to build its tribal grant budgets and tribes need to be made aware of the availability of these resources and provided with the tools to gain access to them. EPA will access new funding for tribal programs (e.g., Environmental Justice, Monitoring Repository, CBEP).
- Air Quality Management Training: Training is an important mechanism not only for transferring the necessary expertise to develop and run air programs but also as a forum for tribal environmental professionals to share their concerns about environmental protection with their peers and build relationships. While NAU has developed a successful, small scale program, training is not available for a large percentage of tribal staff. The Air Pollution Training Institute courses are not appropriate for tribal representatives, absent some sort of "bridge" such as through NAU.
- Peer-to-Peer Tribal Support: Tribes should be able to profit from the experience of other tribes in developing tribal air programs and EPA will facilitate the exchange of information and expertise between tribes by funding the transportation and other expenses of tribal professionals who donate their time to assisting other tribes.
- Internship Programs: EPA has a number of internship programs, including one with NAU, that work to fill the pipeline for environmental professionals. EPA will expand the availability of these programs and tribes will be provided with access to these interns and internships to build depth in their programs.
- IPAs (both Tribal-to-Federal and Federal-to-Tribal): The Intergovernmental Personnel Act (IPA) provides a valuable means for facilitating the exchange of program information and expertise between levels of government. Regions should notify tribes that tribal professionals should seek IPA placements.
- State/local Cooperative Agreements: A rich source of expertise and program tools is available through the state and local offices that run air programs. Tribes will be encouraged, where feasible, to profit from these resources to augment their own capacity.
- ▶ Technology/information transfer: The Agency has amassed over the years a wealth of information, strategies, and technologies to implement the CAA and we need to develop a mechanism to make these resources useful for the tribes and provide the tribes with ready access to them.

- ▶ Build Regional Capacity: Regions and tribes have expressed concerns about a lack of appropriate resources to support CAA implementation in Indian Country. Over the past few years, states have become more responsible for detailed technical applications. As a result, not all Regions have maintained the technical skills needed to assist tribes with the detailed monitoring, emissions assessment, and other work that must precede program development. Rebuilding this kind of regional capacity will be an important bridge from federal to tribal implementation. OAR's allocation of 19 staff resources for tribal air work in 1997 is a good start, but regional staff devoted to tribal air issues must increase as the Region moves into direct implementation and increased assistance to tribal program development. Further, where necessary, Regions will develop Federal Implementation Plans (FIPs) to attain and maintain the National Ambient Air Quality Standards (NAAQS), focusing on those areas where action is required to protect public health. Specific areas that need to be addressed are:
 - Staff Capacity: As EPA moves to implement the CAA more aggressively in Indian Country, a broader spectrum of EPA expertise will be required for program development (beyond the current tribal coordinators and grant project officers). It is necessary to identify the right skills mix to work with tribes and where necessary, give them appropriate training to do their job. Also, the American Indian Environmental Office, in cooperation with the Office of General Counsel, has developed a training course (Working Effectively with Tribal Governments) that will be made available to staff who will work with tribes.
 - Technical Support: One of the greatest of the new demands on EPA staff will be to provide detailed technical support that will allow tribes to evaluate their air quality problems and decide on appropriate air programs. Regional staff have been less involved in this kind of support, particularly in the area of monitoring (since states have moved well beyond this stage in the implementation of their own programs). The EPA will have to develop strategies for filling the gaps in-house expertise. Options include awarding regional contracts to replace the headquarters level-of-effort contracts, targeted recruiting to fill skills gaps in the Region, and encouraging information/technology transfer with state/local counterparts, where working relationships can be most productive.
- ▶ Develop Federal Regulatory Tools:
 - Existing Major Sources: Pollution from existing major sources in Indian Country without Federally-enforceable emission limits is a problem that cannot be effectively managed through a national rulemaking. To address concerns about these sources, the Regions, in consultation with the appropriate tribes, will have the discretion to develop tribe-specific or Region-wide FIPs to establish Federally-enforceable emission limits for these sources. Working with the tribes in developing these limits, the Regions could consider emission limits that had purportedly been applicable through State Implementation Plans.

- Minor New Source Review: Tribes have expressed concerns about the cumulative effects of minor sources in Indian Country and want to control them in the same way that states do. Since no current Federal regulatory authority exists for such a program, we are evaluating whether to adopt a Federal rule that would provide EPA with the capability to impose limits on these sources in the absence of a tribe's capacity to do so. This authority could also be used to limit a source's potential to emit (PTE) to keep it below Title V thresholds, and could serve as a template for tribes to develop their own minor source control programs.
- Major Source Limits in Non-attainment Areas: Although the Federal Prevention of Significant Deterioration (PSD) program at 40 CFR 52.21 provides Federal authority to issue preconstruction permits for sources in attainment areas, no analogous authority exists for sources in non-attainment areas. We are proposing to reactivate a draft rule at 40 CFR 52.10 that would provide for Federal review of new major sources and modifications to existing major sources in non-attainment areas and transport regions.
- Categorical Limits for Sources of Concern in Indian Country: Federal NSPS and MACT standards provide emissions limits for many categorical/area sources. However, they may not cover certain emissions sources that tend to predominate in Indian Country. We are proposing to work with the tribes to identify source categories that are a priority concern and will develop a rulemaking strategy to address them.

Specific Steps in FY98

Specific steps for FY 1998 fall in four categories: tribal capacity building, tribal problem assessment, tribal program implementation, and EPA direct implementation.

- ▶ Tribal Capacity Building
 - For tribes that intend to develop programs, include air issues in Tribal Environmental work plans.
 - Complete a thorough inventory and review of training, including regional efforts.
 - Increase outreach and information transfer to tribal communities, including environmental education (K-12).
 - Develop an inventory of manuals, guidelines, and model regulations that are applicable to tribes.
 - Add a "Tribal Programs" area to the OAR web site. Develop cross-links for electronic transfer of documents and information.

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- Coordinate with American Indian Environmental Office to better integrate air program concerns into their multi-media efforts.
- ▶ Tribal Problem Assessment
 - Work with tribes to help them determine whether they have sufficient air quality issues to justify development of a tribal program. Inventory emissions and monitor air quality where needed.
- ▶ Tribal Program Implementation
 - Develop specific air quality management plans or improve programs already in place. Review and process tribal CAA submittals.
 - Develop an outreach and communications plan to announce the Tribal Authority Rule and explain its implications for Indian Country.
 - Provide direct headquarters support and regional flexibility to enhance and develop tribal programs as part of Community-Based Environmental Planning efforts.
 - Encourage development of Part 70 permit programs throughout Indian Country.
 - Work with tribes to identify where economies of scale might warrant developing models and templates of rules and programs (in addition to minor source review and operating permits).
 - Support inter-tribal air program assistance by tribal professionals.
- ▶ EPA Direct Implementation
 - Implement and enforce federal standards applicable to stationary sources.
 - Implement Part 71 in Indian Country.

Anticipated Outcomes

- ▶ Operating permit programs will be implemented on tribal lands.
- ▶ Tribes will develop their own programs were they are able. When they are not able, the tribes will be able to rely upon EPA to develop and utilize Federal authorities to protect priority tribal air resources.
- ▶ Tribes will be provided needs assessment tools and assistance so that they, in coordination with the Regional Offices, can determine the nature and extent of their air quality problems and develop programs to address them.

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- ▶ Tribes and Regions will be better educated and equipped with the resources needed to achieve cleaner air in Indian Country.
- ▶ Tribal environmental professionals will be provided training and develop expertise that can also be shared with other tribes interested in developing their own air programs.
- ▶ Tribal implementation of air programs will relieve EPA from direct implementation on those reservations and enable EPA resources to focus on other priority needs.

Performance Measures:

- ▶ Status of the Tribal Authority Rule.
- ▶ Number of individual tribal needs assessments performed.
- ▶ Number of tribes with new or improved air quality management plans.
- ▶ Number of tribes with submitted emissions inventories or monitors in place.
- ▶ Status on implementing Part 70 permit programs throughout Indian Country, including number of Tribes that are developing, have submitted for approval, or have received approval for their Part 70 programs.
- ▶ Status of the following proposed rules: Minor New Source Review, Major Source Limits in Non-attainment Areas, and Categorical Limits for Sources of Concern in Indian Country.
- ▶ Number of tribes attending outreach forums and training sessions and number of model regulations, etc. developed as templates for tribal programs.
- ▶ Number of priority program areas with guidance available to tribes.
- ▶ Number of documents available via the OAR website.

Acid Rain

Problem

Emissions of sulfur dioxide (SO_2 , mostly from power plants and other industrial sources) and nitrogen oxide (NO_x , mostly from power plants and motor vehicles) react in the atmosphere and fall to earth as acid rain, causing acidification of lakes and streams and contributing to the damage of trees at high elevations. NO_x emissions are a major precursor of ozone, which affects public health and damages crops, forests, and materials. NO_x deposition also contributes to eutrophication of coastal waters. Additionally, before falling to earth, SO_2 and NO_x gases form fine particles that affect public health through premature mortality, chronic bronchitis, and other respiratory problems, and which contribute to reduced visibility in national parks and elsewhere. Acid rain also accelerates the decay of building materials and paints and contributes to degradation of irreplaceable cultural objects such as statues and sculptures.

National Environmental Goals

- ▶ **Clean Air:** Every American city and community will be free of air pollutants at levels that cause significant risk of cancer or respiratory and other health problems. The air will be clearer in many areas, and life in damaged forests and polluted waters will rebound as acid rain, ozone, and hazardous pollutants are reduced.
- ▶ **Reducing Global and Regional Environmental Risks:** The United States and other nations will eliminate significant risks to human health and ecosystems arising from climate change, stratospheric ozone depletion, and other environmental problems of concern at the regional and global level.

Milestone

By 2010, U.S. SO_2 emissions will be reduced by 10 million tons and NO_x emissions will be reduced by 2 million tons from 1980 levels.

Progress to Date

In the first year of the program, SO_2 emissions from 445 Phase I combustion units were reduced from 10.9 million tons in 1980 to 5.3 million tons in 1995. Emissions from these Phase I sources in 1995 were 39% below the allowable emissions level of 8.7 million tons required by the Clean Air Act. In addition, a recent study prepared for the U.S. Geological Survey indicated that reductions in SO_2 emissions have resulted in a 10-25% drop in rainfall acidity, particularly at some sites located in the Midwest, Northeast, and Mid-Atlantic regions.

Strategies

- ▶ Continue to operate the core SO_2 and NO_x program and develop the NO_x program.

- ▶ Invest in information resource management to increase public access to program information and lower administrative burdens.
- ▶ Improve program operation and efficiency through rule revisions.
- ▶ Track key indicators that will measure program costs and the significant health and environmental benefits that have already begun to appear.
- ▶ Work closely with our partners in the regions and states to implement the program and assess the results.
- ▶ Expand the successful cap and trade approach to other pollutants and environmental problems.

Specific Steps in FY98

- ▶ Conduct annual SO₂ program activities including permitting, recertification, field auditing of emission monitoring systems, allowance auctions, allowance transfers, emissions data reporting, and end-of-year compliance certifications.
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- ▶ Complete development and integration of the Acid Rain Program data systems for tracking emissions and tracking allowances.
- ▶ Complete revisions to allowance, permits, and CEM rulemakings in consultation with regions.
- ▶ Complete approvals of NO_x Early Election Plans.
- ▶ Conduct program audit and evaluation activities, including international obligations (Canada).
- ▶ Provide guidance to states on Phase II permitting and emissions monitoring activities.
- ▶ Work with states to share data and approaches for environmental monitoring and assessment.
- ▶ In partnership with interested states in the Ozone Transport Region, establish a pilot market-based, cap-and-trade program to reduce emissions of NO_x.
- ▶ Support efforts of the Ozone Transport Assessment Group to address regional NO_x reductions.

- ▶ Evaluate application of market approaches to reduce emissions from *the* power generation sector.

Anticipated Outcomes

- ▶ Continued large reductions in SO₂ and NO_x emission from electric utilities .
- Continued reductions in ambient SO₂, NO_x, sulfates, nitrates, ozone, and in sulfur and nitrogen deposition.

- ▶ Continued lower than expected compliance costs.

Performance Measures

- ▶ Tons of SO₂ and NO_x emitted nationally by electric utilities, as measured by continuous emissions monitors.
- ▶ Sulfate and nitrate concentrations in rainfall (wet deposition) as measured by the National Atmospheric Deposition Program/National Trends Network.
- ▶ Dry deposition of sulfate and nitrate particles, as measured by the Clean Air Status and Trends Network.
- ▶ Changes in ambient PM_{2.5}, visibility, and lake and stream acidity .
- ▶ Allowance prices, as published monthly by several allowance brokers.
- ▶ The number of continuous emissions monitors certified and recertified.
- ▶ Percentage of Title IV affected source CEMs audited.
- ▶ The percentage of continuous emissions monitors that meet relative accuracy standards.
- ▶ The number of quarterly reports processed.

Stratospheric Ozone

Problem

Stratospheric ozone is a layer of gas 9-18 miles above the earth. It protects living organisms from dangerous solar ultraviolet radiation, known as UV-b radiation. Over the last 30 years, the release of chlorine and bromine atoms from human-made chemicals, such as chlorofluorocarbons (CFCs), has depleted ozone in the stratosphere. Depletion of the ozone layer means more UV-b radiation is reaching the earth's surface, which increases human skin cancers and cataracts and impairs human immune systems. The increase of UV-b radiation also reduces crop yields and threatens plant and animal life. In 1996, scientists demonstrated for the first time the rise in UV-b radiation at the ground. Harmful radiation from the sun has been hitting major populated areas in increasing amounts over the past 15 years, according to trend analysis based on a satellite record. At 55 degrees north latitude, average exposure to UV has increased by 6.8% per decade, and at 55 degrees south the increase has been 9.9% per decade.

National Environmental Goal

Reducing Global and Regional Environmental Risks: The United States and other nations will eliminate significant risks to human health and ecosystems arising from climate change, stratospheric ozone depletion, and other environmental problems of concern at the regional and global level.

Milestone

- ▶ By 2005, ozone concentrations in the stratosphere will have stopped declining and slowly begun the process of recovery.
- ▶ By 2005, atmospheric concentrations of the ozone-depleting substances CFC-11 and CFC-12 will peak at no more than 300 and 570 parts per trillion, respectively.
- ▶ By 2005, except HCFCs and very limited "essential uses," there will be no U.S. production of ozone-depleting substances.
- ▶ During the period of peak damage to the ozone layer, (i.e., through 2005), efforts will be made to further reduce skin cancer risk, especially to children, through public education to promote behavioral change.

Progress to Date

- ▶ We have promulgated and are implementing flexible regulations that eliminate class I ozone-depleting substances, require recovery and recycling/reclamation of refrigerants, require labeling of products manufactured using class I substances, identify and promote the use of acceptable substitutes, ban nonessential products using ozone-depleting

substances where substitutes exist, and require federal entities to maximize the use of safe substitutes.

- ▶ Negotiations with other parties to the Montreal Protocol have yielded, among others, an acceleration of the phaseout of most class I substances and the listing of methyl bromide as a class I substance. The Montreal Protocol Multilateral Fund has committed over \$455 million for almost 7,400 activities in over 70 developing countries. These projects will eliminate over 69,000 metric tons of ozone-depleting substances representing over 35% of the ozone-depleting substances used by developing countries in 1996.
- ▶ In July 1995, scientists demonstrated that abundance in the atmosphere of methyl chloroform, the shortest-lived of the ozone-depleting compounds, was decreasing. In 1996, scientists confirmed that tropospheric chlorine attributable to man-made halocarbons peaked near the beginning of 1994 and is decreasing.

Strategies

- ▶ Continue to implement the market-based permit program that limits the production and import of controlled substances and promotes flexibility in making the transition to chemicals and technologies that are safe for the stratospheric ozone layer.
- ▶ Market innovation will continue toward the development of alternative chemicals and processes for refrigeration, air-conditioning, and other industrial processes.
- ▶ Evaluate the need for, and if necessary, implement an allocation or market-based auction program to control the production and consumption of class II compounds - the HCFCs.
- ▶ Continue to implement the refrigerant recycling program to ensure the reuse of existing refrigerants, thereby providing economic benefits and avoiding the production of additional of ozone depleting chemicals.
- ▶ Continue to review substitutes for controlled substances to ensure that substitutes do not pose unacceptable health or environmental hazards.
- ▶ Continue to remain actively involved in implementing the provisions of the Montreal Protocol globally. The Multilateral Fund, a component of the Protocol, provides capital to developing countries to support transition to alternatives.

Specific Steps in FY98

- ▶ Continue to work toward the phaseout of all ozone-depleting chemicals. The U.S. will continue to limit these chemicals, using such tools as labeling or bans to discourage and eliminate their use. The Program will maintain administrative procedures to monitor the production, export and import of these chemicals, and will focus resources on limiting the extent of illegal import of these chemicals.

- ▶ Oversee the production of ozone-depleting chemicals for essential uses, work to find alternatives to these and other applications, yet recognize the importance of limited essential use applications.
- ▶ Continue to emphasize pollution prevention including the recycling of ozone-depleting chemicals.
- ▶ The Significant New Alternatives Program (SNAP) will oversee developing alternatives and will review the health and environmental effects of alternatives including their global warming potential. The SNAP program will increasingly review substitutes and alternatives for the HCFCs and methyl bromide.
- ▶ Increase outreach efforts on 2 fronts:
 1. Inventories of existing ozone-depleting refrigerants and other chemicals will not be adequate to meet demand, forcing some sectors of the economy, such as the auto air-conditioning sector, to convert equipment to accept alternatives. An active outreach campaign to communicate with consumers in this and other sectors will be crucial to counter any public backlash against the phaseout of these chemicals.
 2. Damage to the ozone layer will not disappear until at least the middle of the next century. This means that the public will face continued exposure to higher-than-historical levels of UV radiation for some time to come. To reduce risks associated with this exposure, we will continue to emphasize public education about sun protection, including the UV Index. The UV Index emphasizes the dangers of sun exposure and its link to ozone depletion, and thus will reduce skin cancer over time by influencing sun exposure patterns in the population.

Anticipated Outcomes

- ▶ The amount of chlorine and bromine in the stratosphere is expected to peak between 1997 and 1999 and then decline, if Montreal Protocol limits are adhered to internationally.
- ▶ Despite lower chlorine levels in the atmosphere, damage to the ozone layer is expected to persist into the next century, as the slow process of ozone layer regeneration takes place.

Performance Measures

- ▶ Trends in stratospheric ozone concentration.
- ▶ Atmospheric concentrations of ozone-depleting chemicals (including reactive derivatives - chlorine and bromine).
- ▶ Total production of ozone-depleting chemicals, both in the U.S. and the world.
- ▶ Measurement of recycling programs.

Climate Change

Problem

Credible science indicates that emissions of carbon dioxide (CO₂) and other gases are contributing to a general increase in the atmospheric mean temperature (the "greenhouse effect"). The United Nations Intergovernmental Panel on Climate Change concluded that an unprecedented 1°F rise has occurred over the last 100 years, and the rate of increase could accelerate to produce 2-6°F increases over the next 100 years. Uncertainties are substantial, but the potential impacts of this increase include large scale alterations in climate patterns, geography, food production, system ecology, and human health.

The primary greenhouse gases and their sources are: CO₂ from fossil energy production and use including buildings; motor vehicles; methane from landfills, coal mines, natural gas systems, and livestock; and hydrofluorocarbons and perfluorocarbons from various industrial processes. The challenge for EPA and OAR is to design and implement effective strategies for cost-effectively limiting the emissions of these gases across the broad range of sectors that contribute emissions.

National Environmental Goal

Reducing Global and Regional Environmental Risks: The United States and other nations will eliminate significant risks to human health and ecosystems arising from climate change, stratospheric ozone depletion, and other environmental problems of concern at the regional and global level.

Milestone

By 2005 and beyond, U.S. greenhouse gas emissions will be reduced to levels consistent with an agreed global effort negotiated under the Framework Convention on Climate Change, building on initial efforts under the Climate Change Action Plan.

Progress to Date

- ▶ OAR's Climate Change Action Plan (CCAP) programs are well on their way to delivering a large segment of the CCAP's greenhouse gas emissions reductions by the year 2000. OAR's programs have built over 3,000 partnerships, and these partnerships are achieving rapidly increasing reductions of greenhouse gas emissions. However, there will be some ramifications due to the difficult FY96 budget year, and these are still being assessed.
- ▶ In fiscal year 1996, OAR's partnership programs - including Green Lights, ENERGY STAR, and Natural Gas Star - prevented the emission of 3 million tons of greenhouse gases (i.e., 3 mmTce), equal to the pollution from almost 2 million cars. Program partners saved over \$750 million on their energy bills.
- ▶ Recent surveys show that the public is developing a greater understanding of global climate change as an environmental problem, but that substantial confusion remains as to

how it relates to other environmental problems and as to the availability of solutions at the local and national levels.

Strategies

- ▶ Continue to promote and expand public/private partnership programs that produce pollution prevention at a profit and reduce the risk of climate change in each of the major sectors in the U.S. These programs represent nearly half of the emissions reductions which the U.S. has committed to reduce by the year 2000, and will offset significant emissions growth through 2010.
- ▶ Continue to demonstrate that substantial reductions in greenhouse gas emissions can be achieved in concert with economic growth through enhancing the diffusion of energy efficient technology throughout the U.S. economy and abroad.
- ▶ Continue to demonstrate in the U.S. and to the rest of the world that substantial reductions in non-CO₂ gases such as perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and methane can be achieved at low cost, if not profitably. These gases represent as much as 30% of the problem and have been somewhat ignored due to information lagging behind that available for CO₂. This work contributes to the overall ability to set longer-term concentration targets.
- ▶ Educate the consumer as to the environmental and economic benefits of energy-efficient products and empower the public to use their purchasing power to improve the global environment.
- ▶ Build on OAR experience and expertise to design and evaluate a market-based greenhouse gas control program.
- ▶ Continue to reduce greenhouse gas emissions from the motor vehicle sector by: developing, with the U.S. auto industry, a “clean car” that has 3 times the fuel efficiency of today’s car, and by improving fleet average fuel economy while preserving the stringency of the current standards.
- ▶ Develop a methodology to analyze the life-cycle emissions of renewable fuels.
- ▶ Develop a document outlining available and emerging technologies which will further reduce emissions from mobil sources.

Specific Steps in FY98

- ▶ Continue to expand and implement public/private partnership programs, including:
 - recruit more Green Lights and ENERGY STAR Buildings partners.
 - assist in energy-efficient lighting upgrades and building upgrades using the 5-stage ENERGY STAR strategy.
 - label additional ENERGY STAR products and sign-up additional ENERGY STAR partners to label and promote the environmental benefits of these products.

- recruit new partners for the Natural Gas STAR and AgSTAR programs.
 - assist new landfill gas recovery projects and coalbed methane recovery projects.
 - identify and promote better management practices for ruminant animals.
 - recruit more partners for the Aluminum, HFC-23, and semiconductor programs.
 - expand the HFC/PFC programs to other key industries.
 - track tons of pollution avoided for these programs (CO₂, SO₂, and NO_x).
- ▶ Design, evaluate, and promote approaches for effectively modeling technology innovation and diffusion and accelerating these processes in the economy.
 - ▶ Coordinate with international counterparts to develop key inventory, scenario, and technology cost estimates related to non-CO₂ gases.
 - ▶ Implement broad public education campaign through public service announcements as well as other efforts to link the waste of energy to air pollution problems including global climate change. Develop business school case studies emphasizing that building energy systems are an investment center, not just a cost control center.
 - ▶ Lead EPA effort to design, develop, and evaluate effective greenhouse gas control strategies with special emphasis on lessons learned from the CFC-phaseout and acid rain program.
 - ▶ Partner with state and local agencies and other public entities on ENERGY STAR procurement commitments.
 - ▶ Continue efforts to develop, with the U.S. auto industry, an affordable “clean car” that has 3 times the fuel efficiency of today’s cars, meets extremely low emission standards for other pollutants, and is technically, economically, and politically attractive.
 - ▶ Improve the analytic tools for integrating air quality and transportation planning.
 - ▶ Support community-based sustainable development initiatives, provide technical assistance for transportation control measures, and implement the Travel Smart (alternative travel means) initiative, to reduce vehicle miles traveled.
 - ▶ Provide guidance, technical assistance, and access to resources on transportation-related market incentives.
 - ▶ Use market incentives, transportation and development planning, improved development plans, and transportation control measures to reduce vehicle miles traveled.

Anticipated Outcomes

- ▶ Substantial pollution prevented due to partnership programs (at least 70 million tons CO₂-equivalent and 70,000 tons NO_x) while stimulating over \$50 billion of investments in energy efficient products and the return of over \$40 million in net revenues to the Federal treasury.

- ▶ Interagency models used to estimate aggregate economic impacts of possible future climate change policies are improved over those used currently in their ability to incorporate foresight and the potential for technological advancement and yield more realistic cost estimates for possible climate change policies.
- ▶ New scenarios developed to portray future emissions pathways and mitigation technologies will comprehensively treat all greenhouse gases better. Specifically, the non-CO₂ gases will be realistically forecast.
- ▶ Substantially greater public awareness of global climate change and the ENERGY STAR label; business school case studies developed and tested.
- ▶ Well-developed set of greenhouse gas control program options fully elaborated for public discussion.
- ▶ State Implementation Plan guidance memo issued and states achieve better integration of energy efficiency measures in attainment plans.
- ▶ Substantial increase in states, local governments, and other public entities with ENERGY STAR procurement agreements with EPA.
- ▶ The Clean Car will emit 67% less CO₂ than current vehicles.

Performance Measures

- ▶ Millions of tons of greenhouse gas emissions reduced/avoided.
- ▶ Number of corporations, businesses, state and local governments, and non-profits participating in voluntary programs that encourage cost-effective energy saving investments.
- ▶ Increased sales of efficient technologies and products.
- ▶ Demonstration of the Clean Car.

Indoor Environments

Problem

Indoor air pollution ranks among the top 4 environmental risks to public health in relative risk reports. Radon is the second leading cause of lung cancer and is responsible for about 14,000 deaths per year. Environmental tobacco smoke (ETS) is a "Class A" carcinogen that causes about 3,000 deaths in nonsmokers annually, and is responsible for many childhood respiratory problems including 150,000-300,000 cases of pneumonia and bronchitis each year in children under 18 months of age. Carbon monoxide poisoning causes nearly 1,000 accidental deaths each year, and biological contaminants cause allergic reactions, asthmatic attacks, and illnesses in millions of Americans. All of these pollutants more severely and disproportionately affect children, the elderly, and asthmatics.

National Environmental Goal

Safe Homes, Schools, and Workplaces: All Americans will live, learn, and work in safe and healthy environments.

Milestones

- ▶ By 2005, 27 million homes will have been voluntarily tested for radon, corrective action will have been taken in 1 million homes, and 1.5 million new homes will have been built with radon-resistant features, resulting in a 25 percent reduction from 1985 levels in the number of Americans exposed to elevated radon in their homes.
- ▶ By 2005, children's exposure to environmental tobacco smoke will decrease through voluntary actions in the home. The proportion of households in which children 6 and younger are regularly exposed to smoking will be reduced to 15 percent from over 39 percent in 1986.
- ▶ By 2005, 5% of office buildings will be managed with good IAQ practices consistent with EPA guidance as set forth in EPA's *Building Air Quality* guidance.
- ▶ By 2005, 15% of the nation's schools will adopt good IAQ practices consistent with EPA's *Tools for Schools* guidance.
- ▶ By 2005, 95% of persons who request information will be satisfied with the timeliness of our response and consider the content of our information sufficient for them to make informed decisions.
- ▶ By 2005, the disparity between minority and low-income populations and the population as whole with respect to indoor air awareness or risk reduction actions will be decreased by 25%.

Progress to Date

- ▶ 73% of the American public is aware of radon, 10.2 million homes have been tested for radon, over 300,000 American homes have been fixed to reduce radon levels, and over 900,000 homes have been built radon-resistant.
- ▶ Smoking in homes with children 6 and under is down to 29% from 39% in 1986.
- ▶ 2 national building code organizations, the Council of American Building Officials and the Southern Building Congress International, have adopted radon-resistant model building codes.
- ▶ Developed and distributed over 7,500 “IAQ Tools for Schools” kits. IAQ Tools for Schools is a practical guide for solving and preventing indoor air quality problems in schools. It was developed with the co-sponsorship of the American Lung Association and five national schools-based organizations such as the PTA.
- ▶ Over 600 local partner affiliates of more than 25 national organizations are implementing community-based risk reduction activities to improve indoor air quality.
- ▶ At least 18,000 state and local officials, private sector personnel, and building owners and managers have been trained to address indoor air problems representing roughly 1 billion square feet of commercial building space.
- ▶ Awareness of radon in the Hispanic-American community has doubled, and testing rates have risen by 50% since 1992. In addition, Native American’s awareness and testing rates are high because of targeted use of State Radon Grant funding.
- ▶ 42 buildings have now been characterized and entered in the Building Assessment Survey and Evaluation database.
- ▶ The radon industry is growing. It now employs over 2,000 individuals in approximately 500 companies and generates over \$100 million dollars in revenue each year.

Strategies

- ▶ Continue to employ voluntary approaches to improve the quality of indoor environments.
- ▶ Continue to develop policy and guidance that promote good indoor air quality.
- ▶ Continue to refine the science on which recommended actions for exposure reduction are based.
- ▶ Reduce risk by raising public awareness of potential indoor health risks and steps that can be taken to reduce exposure. Also, use community-based partnerships and technology transfer to improve the ways in which all types of buildings are designed, operated, and maintained, to bring about healthier indoor environments.

Specific Steps in FY98

- ▶ With other EPA offices, assess voluntary approaches to working with manufacturers to reduce emissions from products designed to be used indoors.
- ▶ Continue to develop the database of environmental, building, occupant, and ventilation parameters that will assist in the development of public and private actions to improve indoor environments.
- ▶ Continue to implement IAQ Tools for Schools at the state and local level. Develop IAQ Tools for Schools training and outreach materials, and develop a system to track progress.
- ▶ Conduct a pilot schools intervention study and a large buildings intervention study.
- ▶ Continue to encourage citizens not to smoke in homes where children age 6 and under are present.
- ▶ Develop 5-year asthma and carbon monoxide risk-reduction strategies.
- ▶ Continue to encourage commercial building owners and managers to adopt effective indoor air quality management plans.
- ▶ Promote adoption of local real estate disclosure laws and continue to work with the real estate community to include radon testing and disclosure in residential real estate transactions. Also continue outreach to and training of real estate professionals.
- ▶ Develop IAQ guidance for occupants of commercial buildings and an IAQ guide to new home construction.
- ▶ Complete model on economic impact of good IAQ large building practices and produce case studies.
- ▶ Promote voluntary radon-resistant construction and national, state, and local radon-resistant code adoption.
- ▶ Continue IAQ and Radon Hotline support while searching for hotline efficiencies under the newly integrated Indoor Environments Program.
- ▶ Finish evaluating the National Academy of Sciences report on *The Biological Effects of Ionizing Radiation VI* and adjust the radon program if needed to incorporate any technical changes to risk assessment.
- ▶ Continue to operate the Radon Proficiency program while moving towards privatization.
- ▶ Work to ensure that State Indoor Radon Grant funds continue to support radon risk reduction and related indoor environment problems.
- ▶ Continue to develop new or improved performance indicators, supporting data, and systems to track progress.

Anticipated Outcomes

- ▶ More schools or commercial buildings will have indoor air quality management plans that meet EPA guidelines.
- ▶ A database of environmental, building, occupant, and ventilation parameters in 200 or more buildings will be available to assist in the development of public and private actions designed to improve indoor environments.
- ▶ Manufacturers will enter agreements to substantially reduce emissions from 10 or more products whose emissions create a relatively high adverse impact on indoor air quality and public health.

Performance Measures

- ▶ Number of homes that were voluntarily tested for radon and number of homes in which corrective action was taken.
- ▶ Number of new homes built with radon-resistant features.
- ▶ Number of schools or commercial buildings with indoor air quality management plans that meet EPA guidelines.
- ▶ Percent of people satisfied with information responses concerning radon and indoor air quality.
- ▶ The disparity in indoor air quality between minority/low-income households and those of mid- and high-income households.
- ▶ Estimated number of children 6 and under exposed to environmental tobacco smoke in their homes.
- Increases in the estimated number of children 6 and under living in homes with healthier indoor air.
- Outreach activities to reduce children's exposure to environmental tobacco smoke through voluntary actions in the home.

Radiation

Problem

Exposure to radiation poses risks to human health and the environment. The primary health effects of exposures to ionizing radiation are increases in the risk of cancer and deleterious genetic changes such as growth impairment and mental retardation. In the environment, high levels of radioactivity can make land or water unfit for beneficial uses, destroy vegetation, and potentially endanger the balance of ecosystems. Ionizing radiation can be emitted from natural or man-made sources. Sources of man-made ionizing radiation include medical facilities, pharmaceutical manufacturers, and research and teaching institutions; nuclear reactors and their supporting facilities such as fuel preparation plants; and federal facilities that are involved in research and nuclear weapons production.

National Environmental Goals

- ▶ ***Preventing Accidental Releases:*** Accidental releases of substances that endanger our communities and the natural environment will be reduced to as near zero as possible. Those which do occur will cause only negligible harm to people, animals, and plants.
- ▶ ***Safe Waste Management:*** Wastes produced by every person, business, and unit of government in America will be stored, treated, and disposed of in ways that prevent harm to people and other living things.
- ▶ ***Restoration of Contaminated Sites:*** Places in America currently contaminated by hazardous or radioactive materials will not endanger public health and the natural environment and will be restored to uses desired by surrounding communities.

Milestones

- ▶ By 2005, radioactivity will be cleaned up or contained at 6% of sites contaminated by radioactivity.
- ▶ Each year through 2005, the Federal Radiological Emergency Response Program will take response action necessary or assist local, State, and regional responders to prevent, reduce, or mitigate the imminent and substantial human health and environmental threats in a radiological emergency situation.
- ▶ By 2005, the amount of the nation's radioactive waste managed under the purview of the Atomic Energy Act that does not meet EPA disposal standards will be reduced by 1.2%.
- ▶ By 2005, risk assessment techniques including appropriate models, methodologies, and sources of data will be state of the art, allowing for thorough and accurate assessment of risks posed by radiation to public health and the environment.

Progress to Date

Heading an interagency workgroup for development of implementation guidance for these sites.

- ▶ Developed draft Superfund clean-up guidance which is under review.
- ▶ Coordinated with the Nuclear Regulatory Commission to eliminate redundant reporting requirements for 6,000 NRC licensees (Rescinded National Emissions Standards for Hazardous Air Pollutants (NESHAPs) Subpart I).
- ▶ Issued final radioactive waste disposal standards (40 CFR 191) for transuranic waste.
- ▶ Issued criteria for use by the Waste Isolation Pilot Plant (WIPP) in complying with the disposal standards.
- ▶ Proposed a standard for disposal of high-level and spent nuclear fuel wastes at Yucca Mountain.
- ▶ Published, with DOE, technical guidance on *Solidification and Stabilization Process for Mixed Waste*, and four *Municipal Incinerator Fact Sheets*.
- ▶ Conducted many emergency response and preparedness exercises including an ‘Olympic Sparkler’ exercise and counter Terrorism Emergency Response Preparedness exercise.
- ▶ Revised The EPA Radiological Emergency Response Plan and its implementing procedures.
- ▶ Analyzed over 8,000 samples from the national Environmental Radiation Ambient Monitoring system network in FY96 and initiated an extensive effort to upgrade our mixed waste analysis capabilities for which an additional thousands of samples are analyzed every year.
- ▶ Conducted workshop with stakeholders on scrap metal recycling.

Strategies

- ▶ Continue to coordinate national radiological emergency response efforts and federal, state, and local activities during emergency situations.
- ▶ Develop and issue standards and guidance to limit public and environmental exposure to radiation and radioactivity.
- ▶ Work with the public, industry, the states, and other government agencies to inform and educate people about radiation risks and promote actions that reduce human exposure.

- ▶ Measure environmental levels of radiation and assess radiation effects on people and the environment.
- ▶ Develop federal standards and criteria for radioactive waste including disposal standards for high-level wastes and spent fuel.

Specific Steps in FY98

- ▶ Determine compliance of the WIPP for transuranic radioactive wastes, develop implementation guidance for WIPP Management and Storage operations, and develop certification decision rule for WIPP Disposal.
- ▶ Develop site-specific standard for Yucca Mountain.
- ▶ Develop guidance and implementation guides for cleaning-up radioactively-contaminated sites.
- ▶ Develop criteria for recycling radioactively-contaminated metals.
- ▶ Assess technologies for remediating or stabilizing radioactive waste streams.
- ▶ Provide technical support for cleaning-up radioactively-contaminated Superfund and non-Superfund sites.
- ▶ Determine whether the NESHAPs should be revised to allow phosphogypsum (a radioactive by-product of phosphoric acid production) to be used for certain R&D and other purposes rather than mandating its disposal.
- ▶ Support federally-funded research on risks from radioactive material.
- ▶ Develop materials to inform and educate the public on radiation risks.
- ▶ Develop guidance for minimizing exposure to radiation for specific pathways.
- ▶ Train state and local officials, and provide technical support to state radiation, solid waste, and health programs which regulate radiation remediation. This includes the conduct of Performance Action Guideline workshops and radiological emergency response exercises.
- ▶ Monitor and assess environmental radiation levels to define baseline data and determine trends in meeting environmental goals.
- ▶ Continue to work with the states on issues involving the regulation and disposal of naturally-occurring radioactive material.

Anticipated Outcomes

- ▶ Nuclear waste generated from weapons production currently stored across the nation will be disposed of at the Waste Isolation Pilot Plant in accordance with EPA standards.
- ▶ Reduced potential for release at mixed and low level waste disposal sites.
- ▶ Reduced amount of radioactive groundwater contamination, and the protection of groundwater as a future resource.
- ▶ Spent nuclear fuel from nuclear power reactors currently stored across the nation will be disposed of according to EPA standards.
- ▶ Reduced potential for release at mixed and low level waste disposal sites.
- ▶ Reduced amount of radioactive groundwater contamination, and the protection of groundwater as a future resource.

Performance Measures

- ▶ Amount of waste under the purview of the Atomic Energy Act which does not meet EPA disposal standards or guidelines.
- ▶ Number of contaminated sites remediated to levels determined as safe under EPA standards or guidelines.
- ▶ Amount of scrap metal cleaned and recycled per EPA standards.
- ▶ Number of personnel trained to respond to radiological accidents.