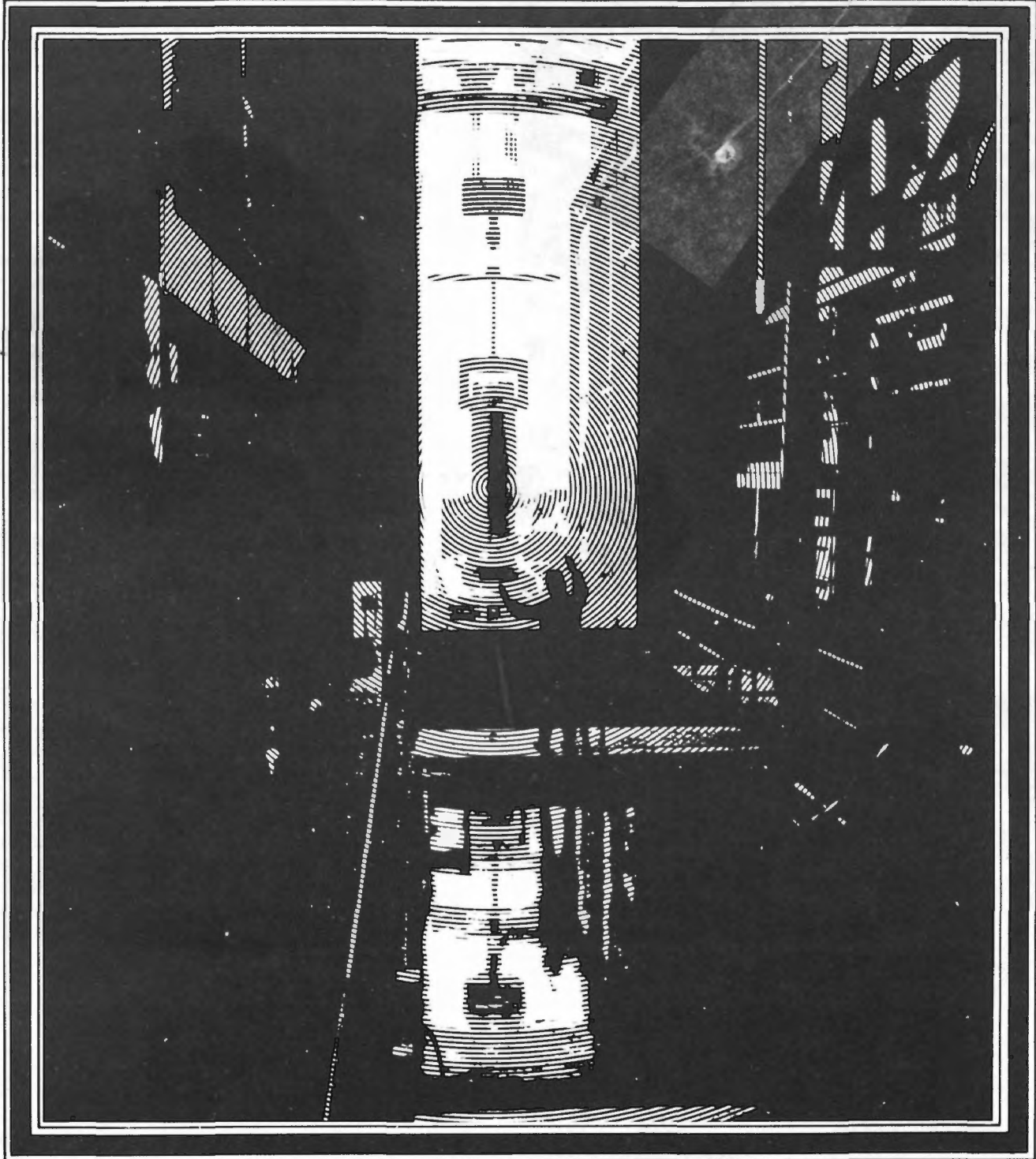


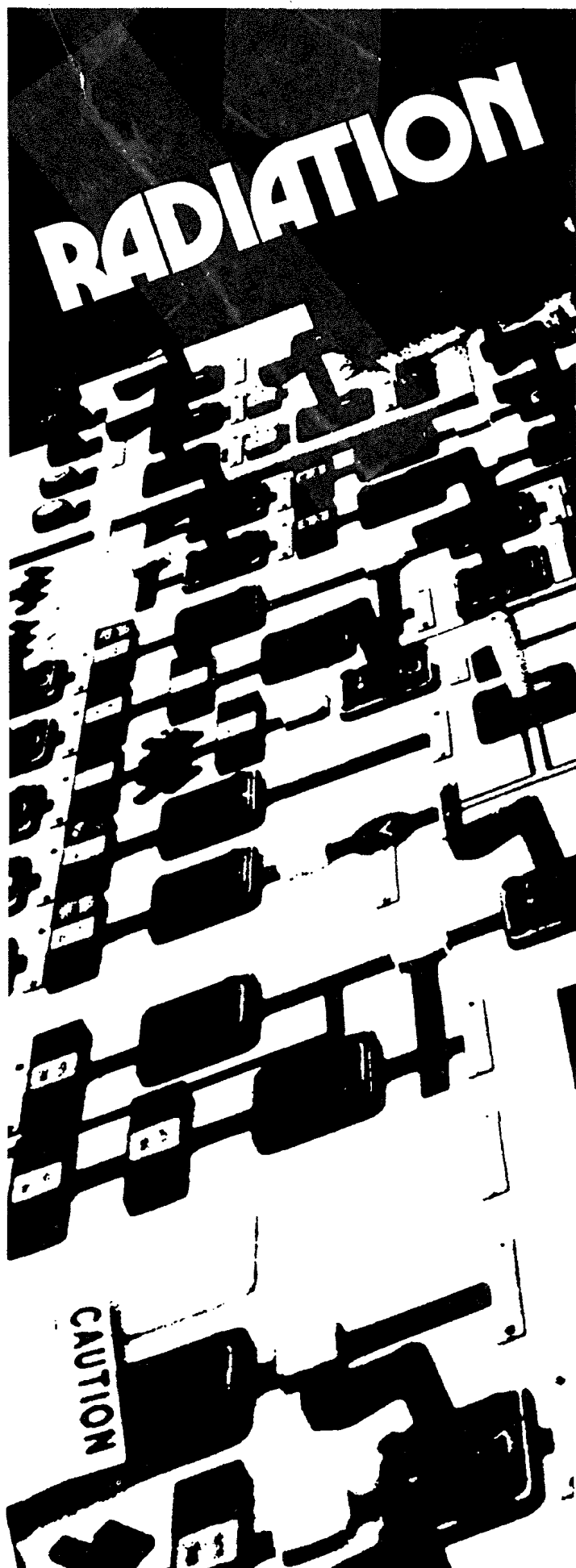
EPA JOURNAL

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RADIOACTIVE WASTES
U.S. ENVIRONMENTAL PROTECTION AGENCY



"A growing number of Americans are now more concerned about the consequences of nuclear accidents than they are about the need for nuclear energy. To them, the menace presented by the Nation's 56 operating nuclear power plants and the 64 now under construction is greater than the threat of a renewed oil embargo and energy crisis. Their fear is the driving force behind the bills now before Congress and 24 State Legislatures to slow the spread of nuclear power."

—Time Magazine, Dec. 8, 1975

This quote from a Time article headed "The Great Nuclear Debate" helps illustrate why EPA's Office of Radiation Programs plays an increasingly significant role.

It is the responsibility of this Office to help protect man and the environment from the harmful effects of radiation.

It can do this to some degree by Agency comments on environmental impact statements required when permission is sought to build new nuclear plants.

The Office of Radiation Programs can also help assure that adequate steps are taken to prepare for nuclear accidents and to handle disposal of high-level radioactive wastes. Both of these concerns are the subjects of articles in this issue of EPA Journal.

An over-all view of the Agency's role in radiation is given in an interview with Dr. William D. Rowe, Deputy Assistant Administrator for Radiation Programs.

A separate article discusses diagnostic x-rays and the need for standards to protect patients from excessive exposure.

Other subjects in this issue include a letter from the Administrator to EPA employees disclosing that they will be given briefings on a proposed new design plan for the Agency's printed materials and other graphics.

As EPA Journal reported last May the program to provide better design for improved communication with the public is part of an effort started three years ago by the National Endowment for the Arts to upgrade all Federal design, including graphics.

The New York design firm of Chermayeff & Geismar, Inc., retained by the Public Affairs Office, has proposed a unified visual communications plan for EPA.

Action being taken by EPA to protect man and the environment from dangerous chemicals such as Kepone, PCBs and vinyl chloride is the subject of another article.

Continued in this issue as part of the Agency's observance of the Nation's Bicentennial is the second installment in A Parade of the Regions. Region II is spotlighted in this issue of the magazine.

Other articles include:

A review of the surprisingly favorable impact environmental regulations are having in helping the Nation's economy.

A report on the program for regular inspection and maintenance of air pollution controls on privately owned cars started last month in the greater Phoenix and Tucson areas in Arizona. □

EPA JOURNAL



U.S.
ENVIRONMENTAL
PROTECTION
AGENCY

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Cover: A cask of spent nuclear fuel is lowered into water tank at General Electric's major facility for used radioactive fuel rods at Morris, Ill.

PHOTO CREDITS

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Washington Post

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PAGE 11 Flip Schulke*

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U.S. Air Force

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and Visitors Bureau

PAGE 24 Alan Wilson

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

THE ADMINISTRATOR

Dear Fellow Employees:

During the past several months the Office of Public Affairs has carried out a study of all the printed materials prepared and distributed by this Agency. I received recently several recommendations resulting from this study concerning the format, style, and over-all appearance of our numerous publications. I believe that as we implement many of these recommendations we will be able to improve markedly the effectiveness and appearance of our communications.

One of the recommendations was a proposal that we change the emblem of EPA from its current floral design. I know that many of you may have your own opinions with respect to the EPA symbol, and I believe that any design change of the symbol should attempt to reflect generally preference among all of us who work for EPA. I have arranged for a full briefing on the study to be given widely through the Agency, including our Regional Offices and field laboratories as well as Headquarters.

I hope that all of you will attempt to receive this briefing, and I want to know what your opinions are. I hope you will send your comments to me directly or to Pat Cahn, Director of our Office of Public Affairs.

I look forward to hearing from you.

Sincerely yours,

A handwritten signature in dark ink, reading "Russell E. Train".

Russell E. Train

Radioactive Wastes

Wanted: A permanent storage place for vast quantities of radioactive materials that will retain their toxicity for thousands of years. Must be earthquake-proof, leakproof, and foolproof.

This is a need that must be met, because failure to find a solution could threaten the future of the nuclear power industry.

Roger Strelow, Assistant Administrator for Air and Waste Management, told the Joint Committee on Atomic Energy last November that "EPA believes the rapid development of at least one environmentally acceptable method for the permanent disposal of radioactive wastes is essential for the continued development of nuclear power."

Mr. Strelow stressed that EPA is "totally committed to finding a means to ultimately dispose of high-level wastes."

He also said that the inventory of wastes from weapons production is presently in interim storage in leaking tanks, and wastes from nuclear power plants are expected to exceed current temporary storage capacity.

"The question then is not if, but when will we have an acceptable ultimate disposal method, how good it will be, and how much will it cost."

Some fission products which must be stored are cesium-137, strontium-90, iodine-131 and plutonium-239. Some decay rapidly in hours or days. Others take up to thousands and millions of years to lose their radioactive potency.

A proposal for permanent disposal of radioactive wastes is expected to be made this year by the Energy Research and Development Administration, one of the successor agencies to the Atomic Energy Commission.

Many Options

Some of the possibilities which had been considered by AEC included:

Geologic Disposal: Burial in bedded salt deposits or bedrock caverns. AEC had proposed at one point use of a salt mine near Lyons, Kansas, for disposal of all commercial radioactive waste. However, this proposal was later abandoned when it was learned that nearby mining activities might have caused leaks in the abandoned mine. Another possibility, dumping wastes into a manmade cavern near



This abandoned salt mine near Lyons, Kansas, was considered but rejected for permanent storage of high-level radioactive waste. Other salt-bed sites are being studied for a Pilot Plant Repository.

the AEC's property on the Savannah River was also dropped because of concern that the wastes might reach the nearby Tuscaloosa aquifer, a huge underground reservoir that supplies fresh water to much of Georgia and South Carolina.

Outer Space: Questions of cost and safety now appear to rule out this alternative. The great concern was that wastes rocketed from earth might unexpectedly return as a result of launching or rocket malfunction.

Polar Disposal: Could the wastes be placed in uninhabited land masses such as Antarctica? Wouldn't they just melt their way down to bedrock? However, this alternative would require amending an international treaty that now bars the disposal of atomic wastes there. Also, scientists argued that too little is known yet about the movement of glaciers.

Transmutation: The concept was to bombard the wastes with neutrons inside a reactor and thus change them

into shorter-lived or even harmless substances. However, some of the radioactive waste products, such as cesium-137 and strontium-90, cannot be easily changed by this bombardment process.

Seabed Disposal: European nations and the United States used to deposit relatively low-level wastes in the oceans. However, the U.S. stopped doing this many years ago. Now interest is mounting in resuming ocean dumping of radioactive wastes. The July-August issue of EPA Journal carried the first published account by Robert S. Dyer, an EPA oceanographer, with the Office of Radiation Programs, on his successful search for radioactive wastes dumped in the Pacific Ocean some 20 years ago. Since then, Mr. Dyer, who used deep submersibles to find and photograph radioactive wastes dropped on the seabed, has found radioactive wastes deposited in the Atlantic.

Continued on page 4

"These surveys," Mr. Strelow said, "were the first successful attempts at finding the actual drums of radioactive wastes, some of which had lain there for almost 30 years at depths of over 9,000 feet."

"We have taken extensive photographic documentation of the dump-site areas and have collected many sediment samples for radioanalysis. We are still tabulating our results and hope to issue one or more technical reports in the near future and present our findings to the International Atomic Energy Agency."

Costs Will Soar

In his Congressional testimony, Mr. Strelow emphasized that interim storage of high level wastes "with only minimum planning for eventual final disposal is unacceptable because of the potential enormity of the costs that may have to be incurred."

The cost projections for interim storage of high-level wastes and for burial of low-level wastes will be about \$7 billion by the year 2000, he noted. Therefore, he added, explicit attention should be given to the possibility that an interim engineered storage system may become permanent solely due to economic costs.

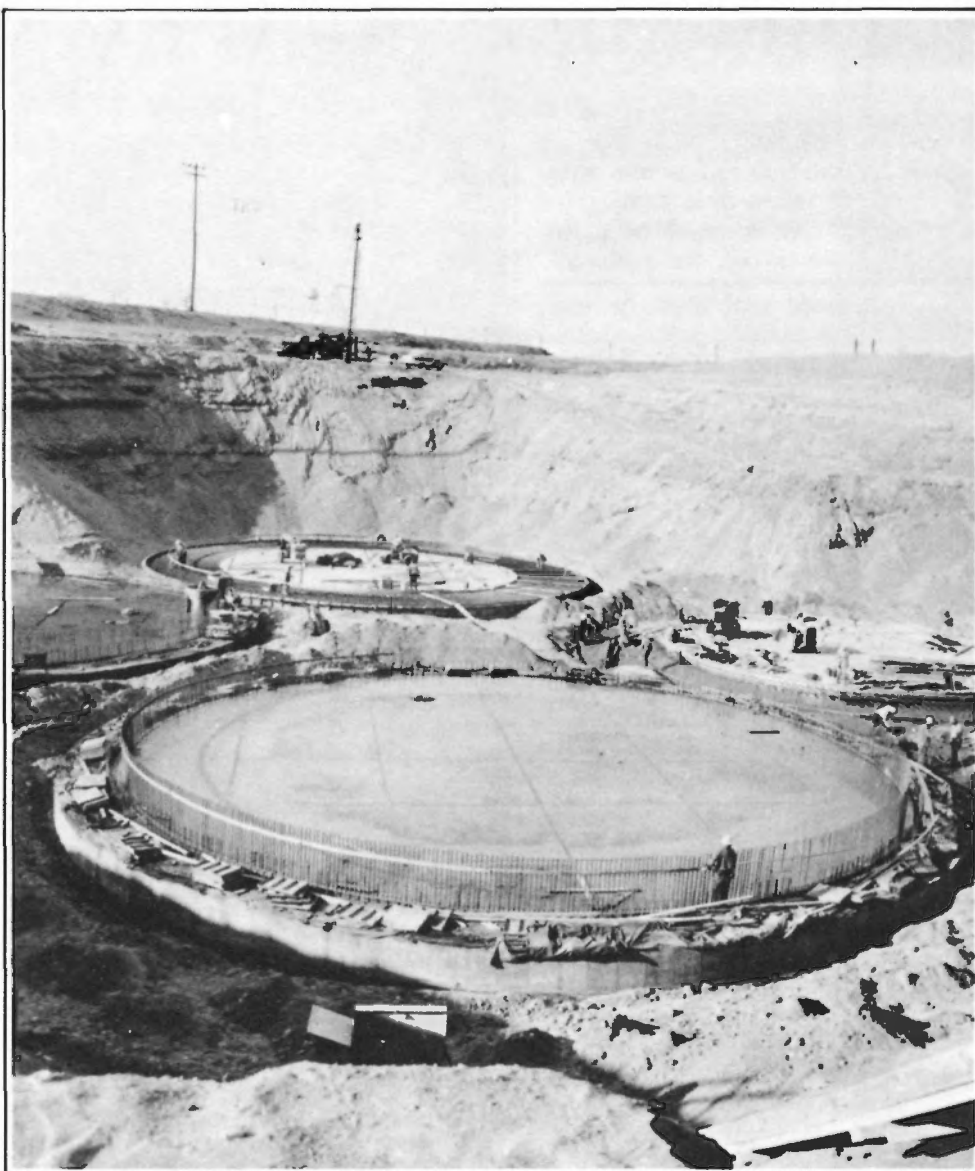
Noting that this point has been developed in detail by Dr. Rowe, in a paper entitled "The Hidden Commitment of Nuclear Wastes," Mr. Strelow said that "these potentially large costs could eventually dictate use of an interim storage method as a permanent repository, contrary to the environmental need for ultimate disposal."

The cost for ultimate disposal of high-level wastes could exceed \$1 billion by the year 2000, he said.

Discussing the disposal of low-level wastes, Mr. Strelow said that EPA, in conjunction with the States involved, has been conducting environmental studies at the Maxey Flats site in Kentucky and the West Valley site in New York, where low-level wastes are buried in large earthen trenches.

He said that studies supported by the Office of Radiation Programs have shown that rainfall seeping through the earthen caps over these trenches can cause some leakage of radioactive material from the wastes.

"EPA believes it is necessary to place a high priority" on establishment of additional regulations controlling the burial of long-lived waste in shallow surface trenches, Mr. Strelow said.



Million-gallon storage tanks for liquid radioactive wastes built at Hanford, Wash. Steel-lined tanks are surrounded by thick concrete and buried 7 to 14 feet below ground surface.

Natural Radioactivity

In addition to manmade radioactive wastes, there are naturally occurring radioactive materials. This area includes the problems of radioactivity from uranium mine and mill tailings and from the mining of such materials as phosphates, fossil fuels, vanadium and other ores.

Mr. Strelow said EPA is conducting a number of projects designed to provide a comprehensive assessment of this problem, including field measurement of radioactivity at mill tailing piles.

One of these projects is the development and testing of a model to estimate population exposure from radon and its decay products or "daughters" to human beings.

EPA is also involved in assessing the

radioactivity from phosphate mining and milling. The Agency recently informed the Governor of Florida that a preliminary EPA study showed the presence of high levels of radioactive radon and its decay products in residential buildings constructed on reclaimed phosphate mining lands in Polk County.

Although the health risk involved will not be fully known until further studies are completed, EPA scientists believe that continuous exposure for ten years to the highest level of radioactivity found at the Polk County site could double the normal risk of lung cancer for people living in these buildings.

Mr. Strelow emphasized that EPA is concerned with proper management and containment of all types of radioactive wastes. □

IS THIS X-RAY REALLY NECESSARY?

How are you most likely to be exposed to radiation?

If you answer "an accident at a nuclear power plant" or "the outbreak of nuclear warfare," you're wrong.

The odds-on chances are that your radiation exposure will come from an x-ray examination given by your doctor or dentist or in a hospital or clinic.

At least 90 percent of the total "dose" of manmade radiation to people in the United States comes from diagnostic x-rays, according to a report made to EPA three years ago by a special committee of the National Academy of Sciences.

EPA is developing guidance to Federal agencies for diagnostic x-ray usage to protect patients receiving health care from these agencies from unwise or excessive exposure. The first public announcement of the EPA plan is being made this month by Dr. James E. Martin of the Office of Radiation Programs at a meeting of the Health Physics Society in Denver. The plan, called "Federal Radiation Guidance for Diagnostic X-Rays," will be formally proposed by publication in the Federal Register after completion of technical review and Presidential approval. This review process is expected to begin in March.

The guidance recommended by EPA will take effect when it is implemented by various Federal agencies—such as the Department of Defense, the Veterans' Administration, and the Public Health Service—which provide medical services and operate hospitals and clinics, Dr. Martin explained.

There is a broad consensus that many unproductive x-ray examinations are given, he said.

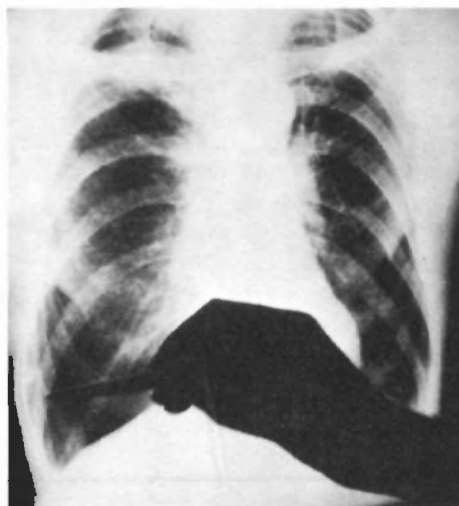
Advising the President

"EPA has no authority to tell doctors how to treat their patients nor do we want such authority," Dr. Martin said, "but we do have a statutory responsibility to 'advise the President' on radiation health matters and, with his approval, to provide guidance to 'all Federal agencies in the formulation of radiation standards.' With the population exposure to x-rays as high as it is and the potential reductions available, we feel compelled to work with Federal agencies and to recommend national goals to the President." This power goes back to the Atomic

Energy Act which was amended in 1959 (PL 86-273) to establish the Federal Radiation Council and its functions. These functions were transferred to EPA, when the Agency was formed.

170 Millirems

In general, for population groups, the current Federal recommended limit is 170 millirems per year to the average individual. (A millirem is a measure of radiation's effect on living tissue.) The limit is about twice the natural background radiation to which everyone is unavoidably exposed: an average of 84 millirems per person annually in the United States. This radiation comes from minerals in the earth and from cosmic rays, so it varies in different parts of the country and at different altitudes.



"Our aim in proposing diagnostic x-ray guidance is simple," Dr. Martin said. "We want to try to make sure that x-rays are used in Federal health care activities with a minimum risk and maximum benefit to the patient."

"We believe there is no 'safe' level of radiation; all radiation is assumed to have some potential effect, and the effects are cumulative; they add up over the years. One x-ray or fluoroscopic examination can give you as much radiation exposure as several years of natural background."

"Most people don't realize that an x-ray involves a small but definite risk. Many doctors use x-rays routinely, like a blood pressure or urine test, even when there is no real indication that an x-ray is needed for the particular patient."

Dr. Martin and his colleagues, DeVaughn R. Nelson and Harry J. Pettenigill, have been working for a year and a half with medical representatives of the Army, Navy, Air Force, Veterans' Administration and with consultants from universities and the Public Health Service in developing the guidelines.

3 Steps to Take

The group agreed it was desirable and possible for Federal facilities to reduce diagnostic x-ray exposure in three ways:

- Fewer x-ray examinations, eliminating those that are "clinically unproductive." The total medical x-ray usage in the United States has been increasing at about 4 percent each year. In 1970 the abdominal dose was estimated to be about 72-millirem to the average person. No x-ray should be made unless ordered by a qualified physician for a specific purpose. X-ray screening of groups of people—as chest x-rays for tuberculosis—should be avoided, likewise routine dental x-rays and breast x-rays for women under 35 who have no symptoms of possible breast cancer.

- Better techniques to assure minimum exposure when x-rays are taken. These include proper maintenance and calibration of equipment, better training of technicians, and use of image intensifiers for fluoroscopy. The guides will include recommended exposure, levels for several x-ray views.

- Equipment standards. All x-ray equipment manufactured after Aug. 1, 1974, must conform to standards set by the U.S. Food and Drug Administration, but most of the equipment now used in Federal facilities antedates these standards, and variances can be obtained for some new equipment. The guides for all Federally-owned equipment will recommend conforming to key portions of the equipment performance standards as soon as practicable; in the interim minimum levels of performance necessary to protect both patient and operator will be recommended.

Although EPA's guidance would apply only to activities of Federal agencies, it is expected to have an influence on private medical practice and general hospitals by setting an example. □

PREPARING FOR NUCLEAR ACCIDENTS

"The phone call came in mid-afternoon of Wednesday, October 5, 1966. The exact time is not recorded, because it was never entered officially on the log of the Sheriff of Monroe County, Michigan. An unidentified voice on the other end of the line spoke sharply and briefly. There was something wrong at the new Enrico Fermi Atomic Power Plant. The voice said that the situation should not be publicized, that no public alert should be given. More information would follow . . ."

This is an excerpt from a new fast-selling book about the hazards of nuclear power titled "We Almost Lost Detroit" by John G. Fuller. The book begins with a report on what happened on that October afternoon in 1966 when the control panel inside the Enrico Fermi atomic reactor near Detroit suddenly registered high radiation levels, a sign of critical danger.

The problem at this experimental breeder reactor was finally controlled, but this plant, which continued to be troubled by mishaps, was finally ordered closed.

Even though the title is exaggerated, the book does raise in a dramatic fashion a problem EPA believes must be faced and dealt with.

This is why EPA has prepared guides advising States and local governments what should be included in their emergency plans to prepare for nuclear accidents.

The types of accidents that must be planned for include those in nuclear power reactors used for generating electricity, in plants that reprocess fuel for nuclear reactors and in the transportation of spent fuel and high-level radioactive wastes.

The nuclear power industry has developed elaborate safety measures to prevent accidents and to reduce the consequences of those that occur. Because of this effort the industry has avoided any large release of radioactivity to the environment, and it claims to be one of the Nation's safest industries.

Accident Odds

The probability of a serious accident



Baltimore Gas and Electric Co.'s Calvert Cliffs Plant is on the Chesapeake Bay near Lusby, Md.

such as a core meltdown is estimated to be one in 20,000 per reactor per year. There are also possible accidents of lesser consequences with increased probabilities (about one in 2,100 over the 30-year life time of a power reactor), according to Dr. William D. Rowe, Deputy Assistant Administrator for Radiation Programs.

"Some States," he said, "with only one or two reactors have been reluctant to spend money on the development and maintenance of an effective radiological emergency response plan for a very unlikely serious reactor accident within their State.

"However, there are about 55 operating reactors in the United States. Therefore, a serious but not catastrophic accident at a power reactor during the next 10 to 20 years is a definite possibility and the probability is increasing as the nuclear industry continues to grow.

"Furthermore, the possibility of other types of nuclear accidents, in transportation of radioactive material, for example, must be added to the growing probability of a nuclear power plant accident."

The need to protect the population within several miles of a reactor from a serious nuclear accident has prompted responsible State and local officials to seek guidance from Federal agencies for improving their radiological emergency response plans.

These plans must cover several types of nuclear accidents, because each type may require a different response.

Emergency Plans

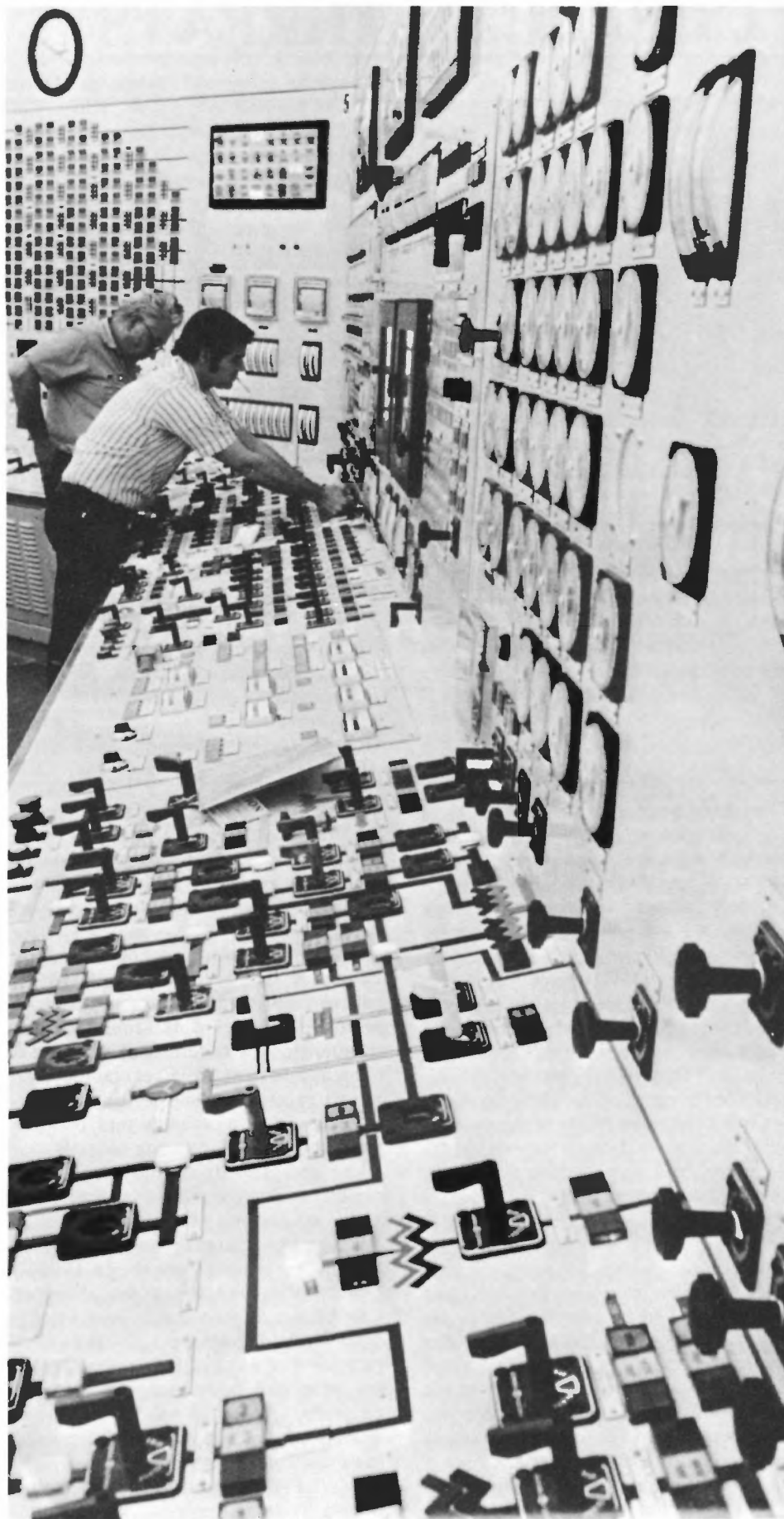
As part of a Federal interagency program for emergency response planning, EPA is preparing a manual for use by State agencies in developing their emergency response plans. The first portion of the manual has been issued. It provides guidance for protection of the population from exposure to airborne release of radioactive gases and iodine. This section of the manual was written first, because large airborne releases of radioactive materials would require immediate protective actions to minimize population exposure.

People living near or immediately downwind from a power reactor from which radioactive gases have escaped would be soon exposed to radioiodine and to gamma radiation from the gaseous cloud.

What should be done to avoid a radioactive cloud? The individual may be told to leave home at once and go to a designated safer area or be advised to remain indoors until the radioactive cloud has passed by and been dispersed.

The protective action guides recommend that action be taken when anticipated exposure reaches certain levels.

Merely publishing advice, however, will not ensure that effective plans will



Control room of the Commonwealth Edison Company's Dresden Nuclear Power Station near Morris, Ill. Three General Electric boiling water nuclear reactors are in operation at this location.

be developed by each State. The States must decide how to apply this guidance to the different needs of their communities.

Details in the State plans will vary depending on the number of people involved, the weather conditions, available transportation and many other considerations that should be worked out carefully by the responsible State officials and tailored to each locality where an accident might occur.

EPA's goal is to help each State develop emergency response plans that will save lives. This will require prompt communication between plant operators and State authorities, training of emergency workers, and testing of the whole emergency response system.

Training Courses

EPA personnel have assisted in developing courses of study for State planners at the Staff College of the Defense Civil Preparedness Agency at Battle Creek, Mich. In addition, EPA is developing a program for training State emergency response coordinators and their staffs on implementing State plans. EPA personnel are also observing and commenting on tests of State plans.

EPA's Region VIII Office in Denver has taken the lead in developing guidance for handling accidents involving the transportation of radioactive materials.

A 40-minute video tape, "The 5th Line of Containment," produced by EPA's Audiovisual and Public Support Branch, will be made available to the Regions to help explain EPA's emergency response roles.

The film is introduced by Dr. Rowe and involves a panel discussion on the protective action guides. Panelists include John Abbots, National Public Interest Research Group; Ralph Lapp, nuclear energy consultant and a former member of the AEC; Margaret Reilly, Pennsylvania's emergency response coordinator; John Robinson, Yankee Electric Power Corp.; and David Smith, Director, Technical Assessment Division, Office of Radiation Programs. Carroll James, a professional actor, is moderator.

While the current issue of the manual issued by EPA on protective action guides deals only with exposures to airborne releases from nuclear power facilities, similar guidance on other types of accidental releases of radioactivity will be distributed by the Agency in the near future. □

CURBING CHEMICAL THREATS

Several steps to control chemical threats to the environment have been taken recently by EPA.

The Agency:

- Announced plans to curb the release of polychlorinated biphenyls (PCBs)—industrial chemicals that persist in the environment and enter the food chain;

- Proposed air emission standards for vinyl chloride, a widely used synthetic compound that has caused cancer in workers handling it;

- Proposed regulations to protect waterways from spills of more than 300 chemicals that are "hazardous substances";

- Placed an immediate ban on most uses of the pesticides heptachlor and chlordane, each regarded as an "imminent hazard" for causing cancer;

- Reported on environmental contamination by Kepone, a pesticide, in and around Hopewell, Va., information that caused State officials to ban fishing in the James River.

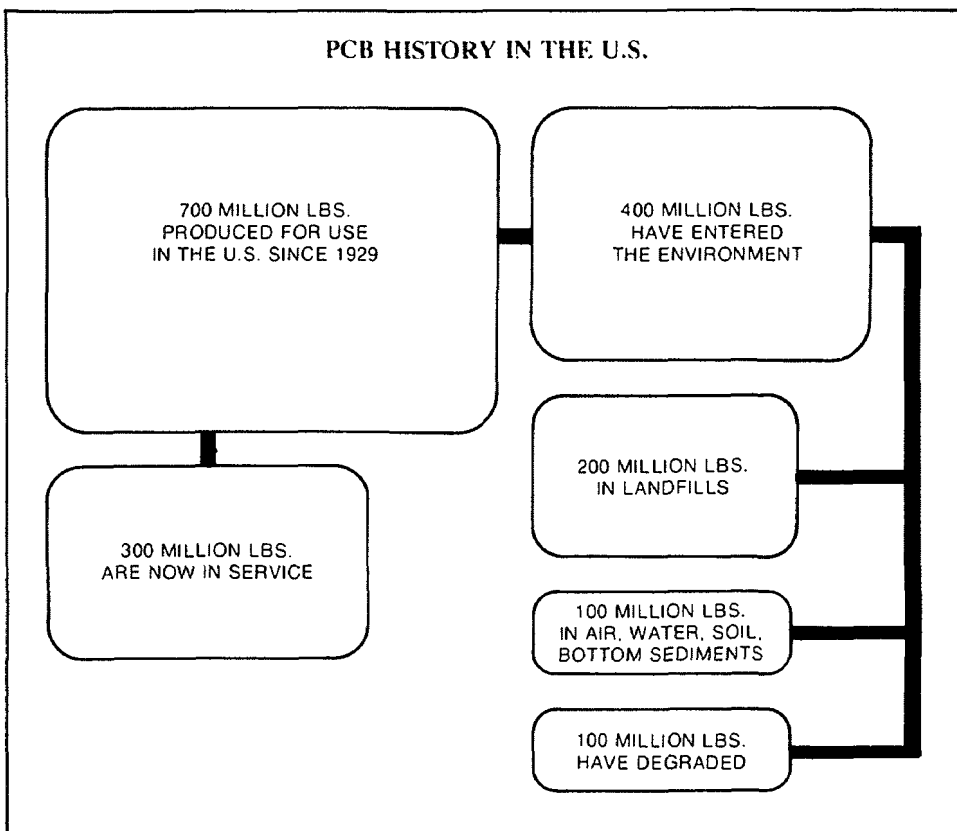
- Issued a report on the economic effects of controlling chemicals believed to deplete ozone in the upper air.

Polychlorinated Biphenyls

PCBs are chemicals with a number of adverse environmental and human health effects, and they "must be immediately and effectively controlled by every means at our disposal." Administrator Russell E. Train declared at a press conference Dec. 22. He said EPA will use all its existing regulatory authorities as well as its powers of persuasion and publicity to get voluntary action by industry, pending the passage of new legislation to control toxic substances.

Working through Regional Offices and in cooperation with States, EPA will seek to have PCBs eliminated from manufacturers' waste and to have all makers and users develop substitute compounds as soon as possible, Mr. Train said. "It will not be possible to eliminate the use of PCBs overnight. With all we can do, it may take many years before we are able to see a significant decline in the levels of PCBs in the environment. Nevertheless, we must begin at once."

PCBs are a family of synthetic, oily liquids that are highly stable and flame-resistant, good electrical insulators, and good conductors of heat.



They have been used for more than 40 years in electrical equipment, paints, plastics, adhesives, and in many other ways. When discharged to the environment, usually in waterways, they persist and are absorbed in the fatty tissues of fish and other aquatic life. Already their levels in certain fish taken from the Great Lakes, the upper Mississippi River, and the Hudson River, exceed the limits set by the Food and Drug Administration.

Although no human ailments have yet been traced to PCBs in the environment they have caused tumors, gastric disorders, and reproductive failures in laboratory animals.

Vinyl Chloride

Emission standards for vinyl chloride were formally proposed Dec. 16, and are expected to be adopted within six months, after the usual period for public comment and hearings. Vinyl chloride was designated the fourth "hazardous air pollutant" under the Clean Air Act. (The others are asbestos, beryllium, and mercury.)

The standards would apply to all plants that manufacture or process vinyl chloride—a gaseous compound of chlorine, carbon, and hydrogen—that is used to make thousands of

common plastics known as polyvinyl chlorides. All emissions from vents or leaks in the chemical plants would be limited to not more than 10 parts per million of vinyl chloride in the exhaust gases. A similar limit would be set for plant wastewater.

Elaborate procedures are listed for process improvements, enclosure of fugitive leaks, and treatment of the captured gases before they can reach the environment. The regulations also would require monitoring of all emissions by plant operators and periodic reporting to EPA or State officials.

The proposed regulations were drawn up by the Emission Standards and Engineering Division, Office of Air Quality Planning and Standards, Research Triangle Park, N.C. Don R. Goodwin is Director of the Division.

As of last June, the National Cancer Institute had confirmed 27 cases of a rare form of liver cancer among workers who had been exposed to vinyl chloride. As little as 50 parts per million of the gas in air has caused liver cancer in small laboratory animals. EPA monitoring indicates that people living near vinyl chloride plants are generally exposed to less than one part per million, but 24-hour levels can range between one and three ppm.

with occasional peak exposures as high as 33 ppm.

EPA estimates that 4.6 million persons live within five miles of the 58 plants that would be affected by the proposed regulations. Thirteen of the plants are in Louisiana, nine in Texas, six in New Jersey, and four each in California and Ohio. The 22 other plants are scattered among 14 States.

Chemical Spills

A list of more than 300 chemicals regarded as hazardous to human health and the environment when spilled into waterways was proposed by Mr. Train on Dec. 22. They include such common industrial chemicals as nitric and sulfuric acids; caustic soda; benzene and its derivatives; ammonia; chloroform; certain compounds of arsenic, antimony, and mercury; and many others.

All are considered "nonremovable" once spilled, although dischargers can mitigate a spill's harmful effects by proper planning and emergency action, Mr. Train said.

The proposed regulations define how much of each substance is considered dangerous—one pound for the most toxic substances, larger amounts for others—and set penalties for violations. The scale of fines ranges up to \$5 million, but any fine over \$5,000 would be assessed only where gross negligence is shown.

The new regulations, to be adopted after a 60-day period for public comment, complement the oil spill control program now conducted by EPA and the Coast Guard.

Heptachlor and Chlordane

Heptachlor and chlordane are chlorinated hydrocarbon pesticides that have been found to cause cancer in laboratory animals. Administrator Train on Dec. 24 suspended all but a few specialized uses of these chemicals, saying their "imminent hazard" of causing cancer in people far outweighs their benefits to farmers. Mr. Train had announced last July his intention to suspend all uses of the two chemicals, except for termite control.

About two million pounds of heptachlor and 21 million pounds of chlordane were manufactured in 1974, all by the Velsicol Chemical Corp., Chicago, Ill. They are marketed by many other firms under hundreds of different brand names.

Mr. Train said residues of the two chemicals are found in air, water, and

soil; in meat, fish, and poultry; in human tissue and human milk; and to a lesser extent in raw agricultural produce.



A sign at Life Science Products Co. in Hopewell, Va., which manufactured Kepone, gives a warning apparently followed by few.

Kepone

An outbreak of illness last summer among workers at a small pesticide plant at Hopewell, Va., caused State officials to shut down the plant.

EPA's Region III Office ordered the manufacturer to halt the sale, use or removal of Kepone from the plant and EPA scientists launched extensive tests of air, soil, water and plant life in and around the city just south of Richmond on the James River.

Teams led by Dr. Carl G. Hayes, Chief, Air Pollution Branch, Health Effects Research Laboratory, Research Triangle Park, N.C., completed their sampling by the end of August. Samples were analyzed in the Laboratory under the direction of Dr. Edward Oswald, Chief, Analytical Chemistry Branch, and the results announced Dec. 16 by Dr. John Knelson, Health Effects Research Laboratory Director.

Detectable levels of Kepone, the pesticide that had been manufactured at Hopewell, were found in the Appomattox and James River.

Virginia Governor Mills E. Godwin promptly ordered a halt to the taking of all fish and seed oysters from the lower James River until July 1, 1976. Mature oysters have not been harvested there for more than a decade because of a virus infestation, but taking seed oysters for transplanting to other waters has been a thriving local business.

An extensive cooperative experimental program has been launched to determine the degree of environmental contamination and whether oysters transplanted to clean areas will purge themselves of the Kepone.

Fluorocarbons and Ozone

About 310,000 metric tons of the gases used in spray cans and refrigeration machinery escape each year to the air, rising to the stratosphere and causing chemical changes that threaten to reduce the earth's protective layer of ozone, according to an EPA-commissioned study announced Dec. 10.

The study by Arthur D. Little, Inc., of Cambridge, Mass., said the United States accounts for 45 percent of the worldwide discharge of these fluorocarbon gases to the atmosphere. About 70 percent of the U.S. emissions come from aerosol spray cans, 20 percent from refrigeration and air conditioning equipment, and the remainder from plastic foams.

EPA recently urged pesticide manufacturers to voluntarily refrain from using fluorocarbons as propellant gases in their spray products.

Fluorocarbons are used as propellants because they are nontoxic, stable, and do not interact with the perfumes, paints, or soaps they carry. They are efficient refrigerating agents because their temperatures of evaporation can be closely controlled and they carry a lot of heat.

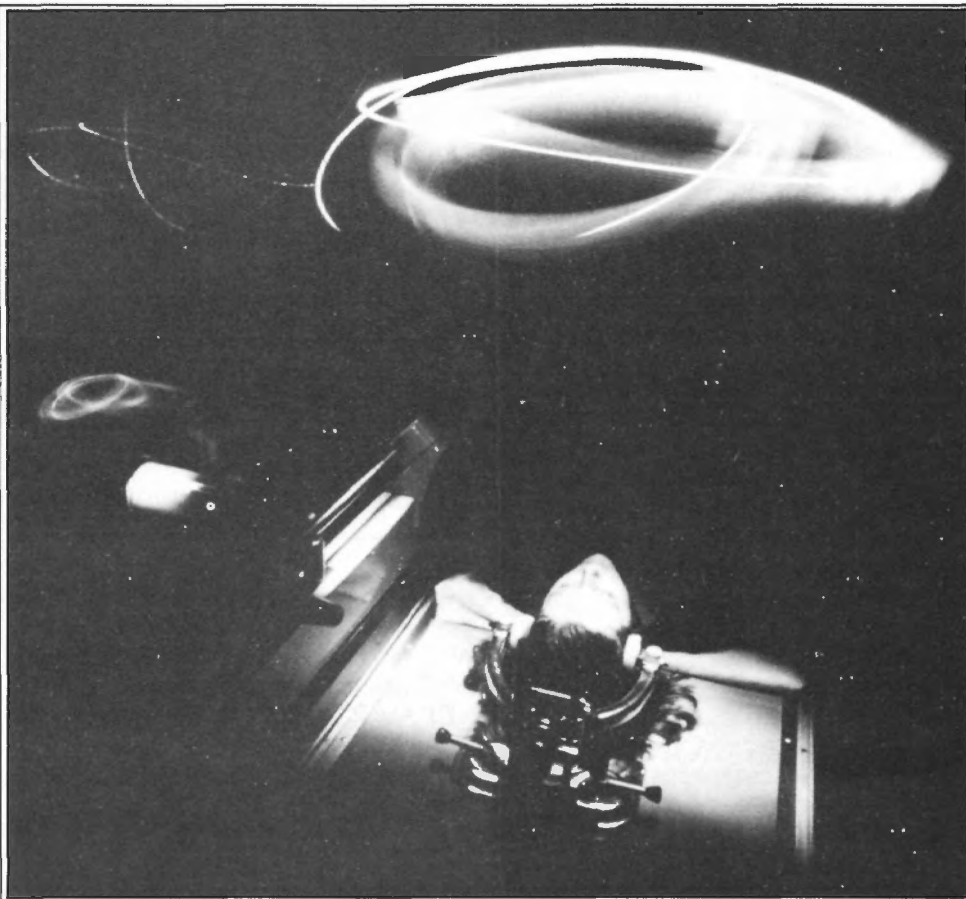
Only in recent years have scientists found that these compounds migrate to the stratosphere and break down under ultraviolet radiation. This breakdown releases free chlorine that is believed to react to deplete the stratosphere's ozone layer. The ozone, thinly spread between 15 and 30 miles high, keeps much of the sun's ultraviolet rays from reaching the earth.

Last October in Brussels, Administrator Train said ozone depletion was possibly the "first truly global environmental problem" and urged international efforts to forestall it. Although the chemistry of the stratosphere is not yet fully known, he said, it is likely that air pollutants that carry chlorine to the upper air may have long-term adverse effects, including increases in skin cancer, crop damage, and climatic changes.

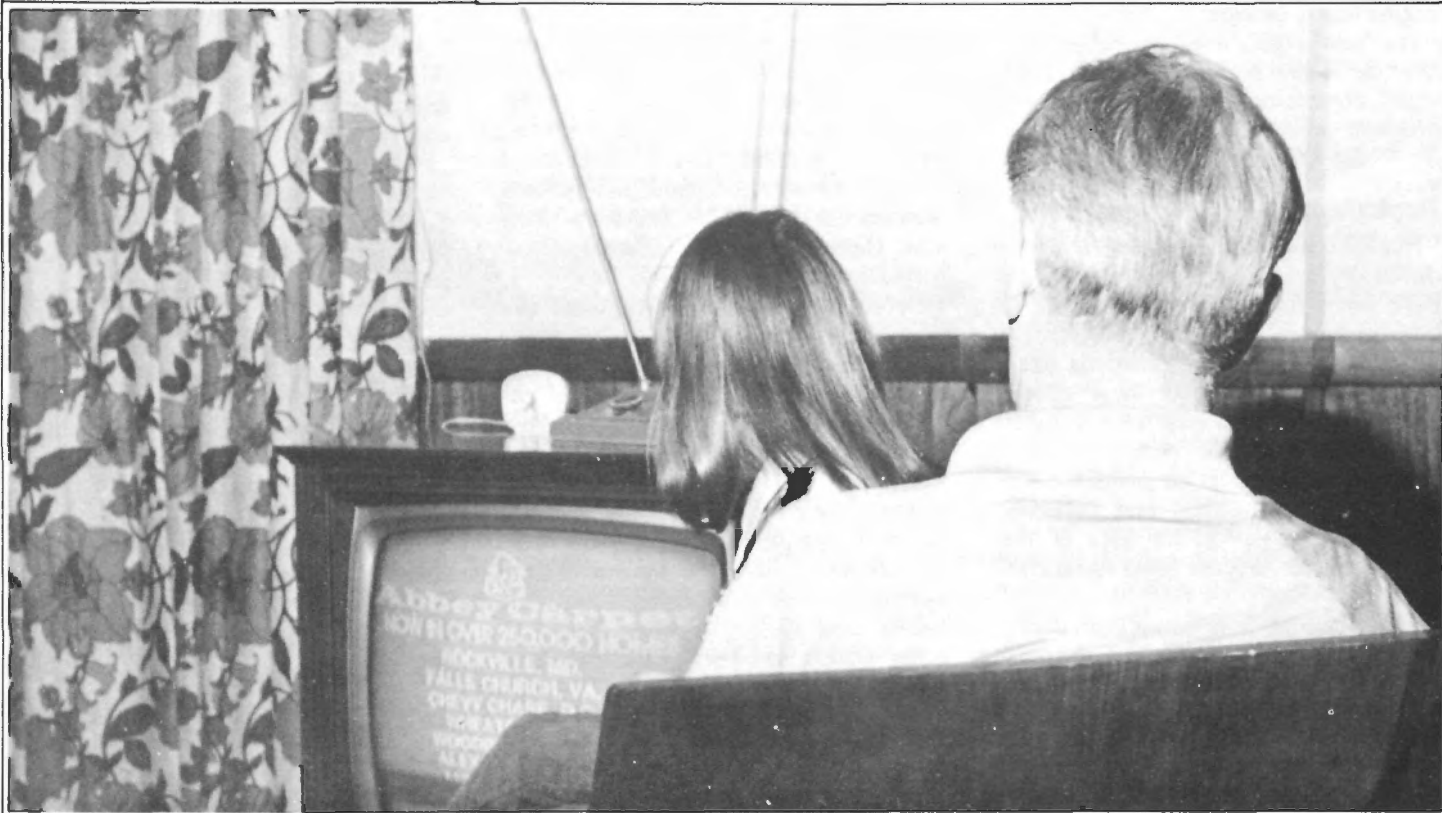
The EPA study concludes that banning the most common fluorocarbon gases would reduce U.S. emissions by 92 percent, but would have a severe economic impact on affected industries. □

COMMON RADIATION SOURCES

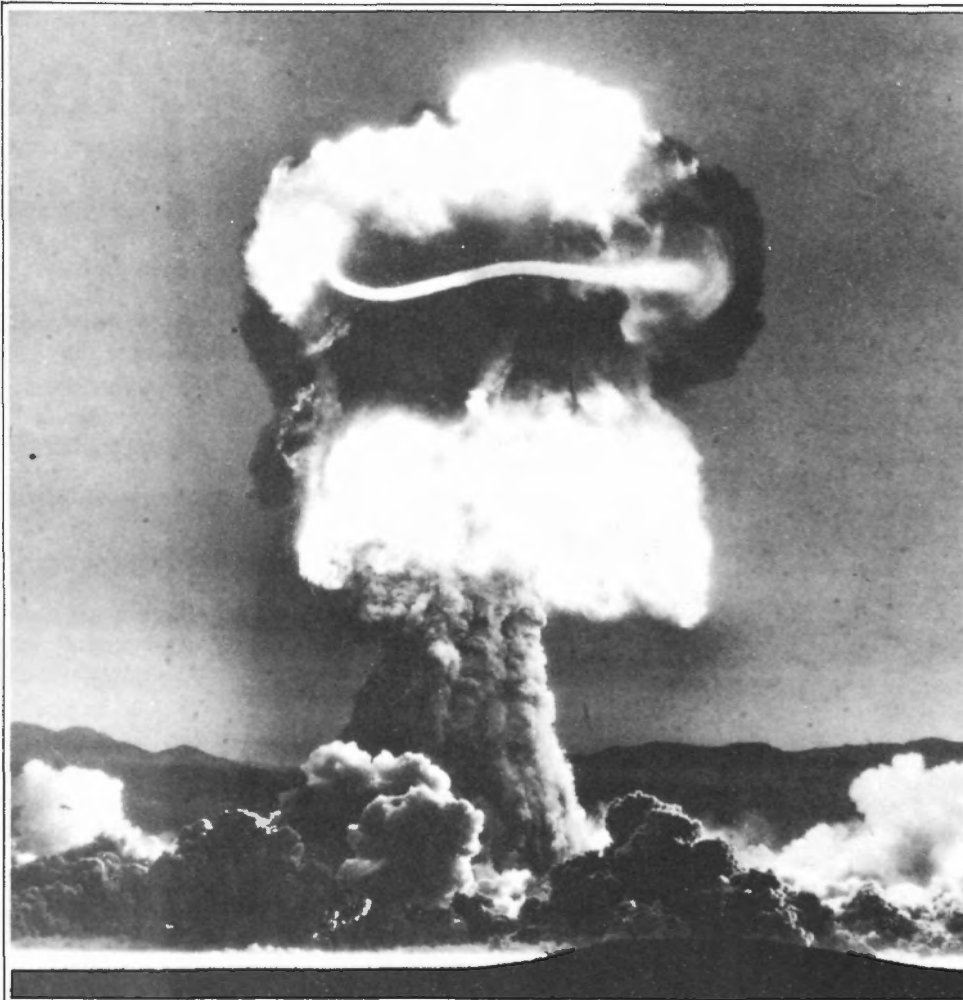
These photos show common radiation sources and their approximate average millirem (mrem) yearly doses to humans. A millirem is a measure of radiation's effect on living tissue. In general, for population groups, the current Federal recommended limit is 170 millirems per year to the average individual. EPA gathers information about radiation produced by many sources through a national monitoring network.



Diagnostic X-rays—72 mrem.



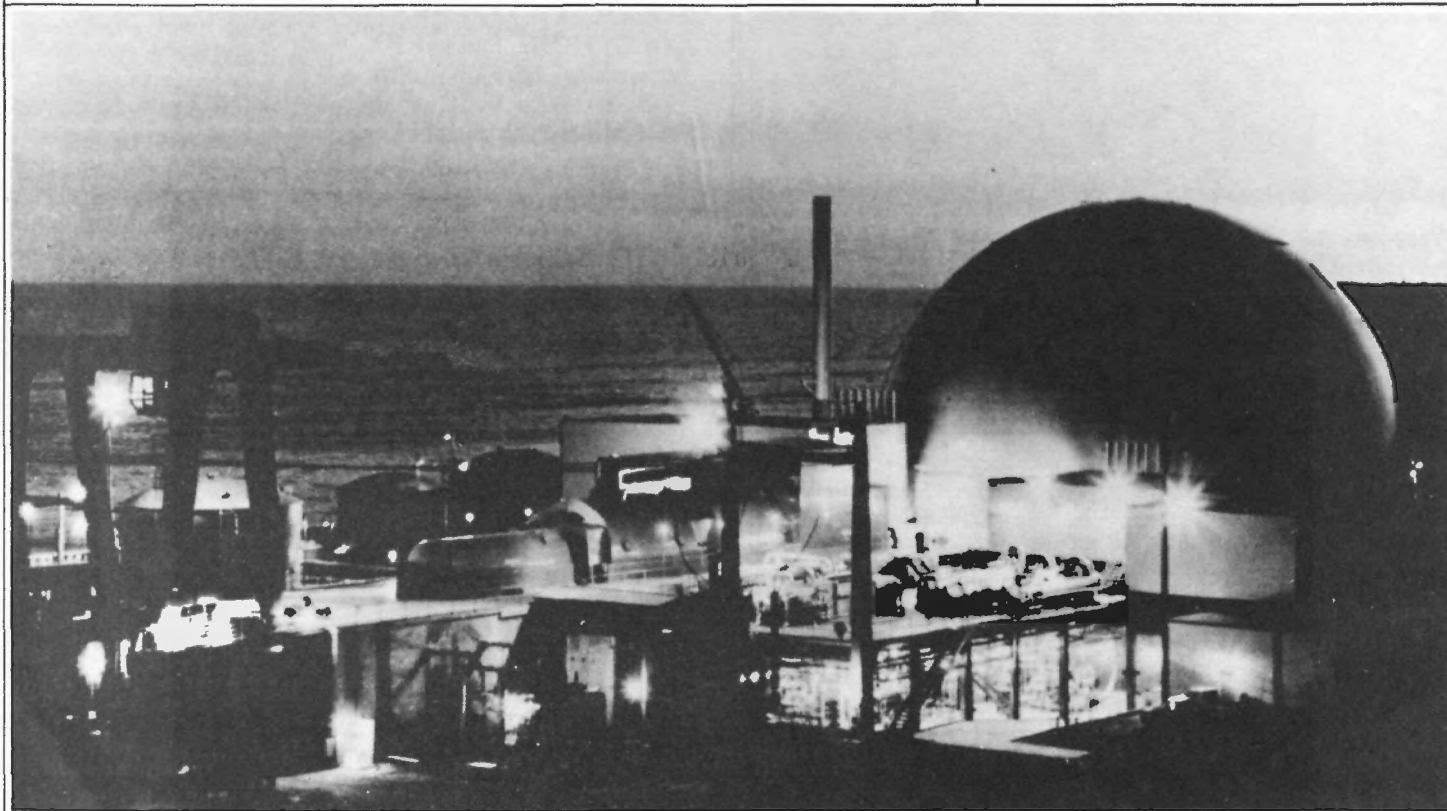
Radiation generated by consumer products such as a tv set—1.6 mrem.



Annual external radiation dose from nuclear tests' fallout—.9 mrem.



Cosmic and terrestrial radiation—84 mrem.



Average radiation dose within 50 miles of a nuclear power plant—.1 mrem.

What is EPA's role in radiation?

An interview with Dr. William D. Rowe,
Deputy Assistant Administrator
for Radiation Programs



What are the health hazards of radiation? Who monitors the radiation levels in the United States? How much radioactive wastes are being stored now? Will radiation problems block growth of the nuclear power industry? Dr. Rowe answers these and other questions.

QUESTION: What is EPA's basic role in the field of radiation?

DR. ROWE: We are responsible for overseeing all aspects of radiation protection. Both ionizing radiation, which is what we usually associate with nuclear power plants, medical x-rays and cosmic rays; and non-ionizing radiation, which we are more familiar with in the form of rays from radio and TV transmitters and microwave devices.

In carrying out this role, we examine all aspects of radiation including uses which are not strictly environmental. For example, presently we cover medical x-ray, and occupational uses of radiation under this broad responsibility.

In addition, we have specific legislative authority in specific areas.

QUESTION: Do you see this role growing or diminishing in the next five years? And why?

DR. ROWE: I think we see the role growing because of the expanded uses of radiation—nuclear power and emerging problems of natural radiation such as in the phosphate industry. There is also an increasing awareness of the risks incurred by radiation exposure.

I think EPA's role will grow. I don't think it will grow enormously, but I think there will be steady growth in the field since we have to cover more problems.

QUESTION: What is the most serious problem in the radiation field today?

DR. ROWE: Well, that is hard to answer, since there are many problems, and they fall into two classifications. Those which are not problems now, but which if we don't do something about them, could potentially become very great problems, such as the disposal of radioactive wastes from nuclear power plants.

And, secondly, those which we have identified as existing problems which need control.

Much of our efforts are focused on the emerging problems, especially in relation to nuclear energy. There are few immediate problems with nuclear energy; but as these uses expand, there are going to be tremendous amounts of radioactivity produced by man, and we, indeed, want to assure that controls are adequate.

In other cases where man is already exposed, such as excess exposure to medical x-rays, and certain aspects of naturally occurring radiation, we're addressing these kinds of problems directly. Radium in drinking water is a good example.

QUESTION: Does EPA have a national monitoring network to check on radiation?

DR. ROWE: Yes, we do. We call it by an acronym, ERAMS, which is the Environmental Radiation Ambient Monitoring System. It measures ambient radiation levels from different sources around the country.

In addition, we will in the near future issue a State of the Radiation Environment Report which will report all aspects of radiation throughout the country and summarize total exposure from all sources. This report will be published annually and will be based on data from other agencies and States as well as on data that we obtain ourselves.

QUESTION: Is the level of radiation growing? Have any hot spots been found by this network?

DR. ROWE: Well, we are finding hot spots, caused primarily by man's efforts, and in many cases in unsuspected areas.

These are occurring because of leaks to the environment from various activities, or the fact that man has upset nature's natural barriers in extracting materials from the earth which are themselves radioactive. The mining of phosphate is a good example.

QUESTION: What are EPA's main accomplishments in radiation control?

DR. ROWE: We've had some success in two areas.

The first is reviewing all environmental impact statements involving radiation. We have had considerable influence in persuading other agencies to take steps to assure that

radiation protection is enhanced. This has been particularly true in the nuclear energy areas of waste disposal and Liquid Metal Fast Breeder Reactors.

In the second area, we are setting radiation environmental protection standards directly for the protection of individual members of the population.

In 1971 we initiated standards to protect uranium miners from overexposure to radon in the mines. These rules are now enforced by the Department of Interior's Mining Enforcement and Safety Administration.

In May, 1975, we issued proposed standards for the uranium fuel cycle. Last September we issued proposed standards for radiation in drinking water; these should be promulgated early this year.

QUESTION: What is the approximate quantity of radioactive wastes now being held in this country?

DR. ROWE: There are a number of different kinds of wastes, and different ways of summing this up, but first of all let's talk about those wastes which are generated by the Government for weapons production.

In 1974, there were about 85 million gallons of this waste in liquid form. A great deal of this waste has been solidified into cake and crystal form in a program carried out by the Energy Research and Development Administration.

The level of wastes that are being produced by nuclear energy are now rather small compared to that left from our weapons program.

In the nuclear energy industry there are about 400 gallons of high level waste produced for every ton of fuel. We have about 100,000 to 200,000 gallons of waste from this industry.

But with the growth of nuclear power we expect the commercial wastes to begin to exceed those from the weapons production by the year 2000. In addition to this, we have even larger volumes of low-level wastes, but these are a separate problem.

QUESTION: How do you distinguish between high-level wastes and low-level wastes?

DR. ROWE: High-level wastes are produced directly in the reprocessing of fuel from nuclear reactors. Their wastes are active—"hot" both from a radioactive point of view and a thermal-point of view.

Low-level wastes are generated as by-products of the nuclear industry. Included are contaminated clothing, contaminated resins used to extract radioactivity, laboratory glassware, contaminated equipment, etc.

QUESTION: Is the amount of wastes over-all going to grow in the future?

DR. ROWE: Very definitely. Our projections show that wastes from weapons have generally leveled off, but the growth of nuclear power is going to increase the volume of wastes at all levels—high-level, low-level, long-half-life wastes of transuranic materials. By the year 2000 we estimate the total commitment for waste management will be about \$7 billion which includes some allowance for inflation over this period.

QUESTION: Where are the high-level wastes being kept now?

DR. ROWE: Those associated with the weapons program are stored in three Government facilities: Hanford, Wash., Idaho Falls, Idaho, and Savannah River, Ga. These are large underground tanks which are considered temporary storage. And, as many of your readers may have read, the tanks in Hanford have had a variety of leaks over the past

few years.

Wastes from nuclear power plants are presently being stored at the power plant, in the form of spent fuel rods. Until new capacity to reprocess spent fuel is implemented in the next few years, this will be the primary storage mechanism.

QUESTION: What are the feasible options for permanent disposal of these wastes?

DR. ROWE: There are many options being looked into: geologic disposal in a variety of different formations, including salt beds, dry rock, under old known aquifers, and geologic disposal under the seabed. This does not mean disposal in the ocean but underneath the seabed with the ocean as an extra environmental barrier. Separation of isotopes is being explored; the high-level wastes would be reduced in volume so they can be handled more easily, and at the same time separated from the long-half-life materials.

QUESTION: When is a decision going to be made as to which options will be the most advantageous?

DR. ROWE: That decision is initially up to the Energy Research and Development Administration (ERDA), and we hope it will be soon. But that decision has not been made.

QUESTION: EPA, I presume, will have an opportunity to comment on proposed final disposal options?

DR. ROWE: Not only will we have the opportunity, we are involved in developing criteria to determine if these methods will be acceptable. We have been working very closely with both ERDA and the Nuclear Regulatory Commission (NRC) to develop a program to take care of these wastes and dispose of them in a manner we know will be safe for generations to come.

Then when the plan is drafted we will be involved in reviewing not only the general methods to be used, but also the specific disposal methods when we review environmental impact statements.

QUESTION: How long a storage period are we talking about?

DR. ROWE: Well, it will have to be tens of thousands of years for long-lived wastes. However, if we go to isotopic separation, we are talking of 300 to 400 years for those fission product wastes which are very hot.

QUESTION: How about the low-level wastes, where are they being stored now?

DR. ROWE: They are now stored in six commercial burial sites throughout the country. The adequacy of the methods used for low-level storage is open to question, and we have been actually surveying some of these sites to determine what problems may be involved and what corrective action should be taken.

The present method uses open trenches which when filled are covered with soil.

QUESTION: There has been concern, has there not, about possible leakage at the Maxey Flats storage area in Kentucky?

DR. ROWE: This is one we've been investigating, and we are compiling considerable data on it.

QUESTION: Do you still see nuclear power as providing a major part of the answer to our energy needs?

DR. ROWE: I don't see any alternative in the near future. I think we will have to depend upon nuclear power as one low-cost form of energy until new, renewable sources, such as solar and geothermal energy, are developed.

I feel strongly that, with the proper environmental regulations and controls, certain forms of nuclear power can be environmentally acceptable.

QUESTION: Generally, what are the health hazards of radiation? What happens to the person who is exposed?

DR. ROWE: Well, we have to talk about exposure to radiation of two different types. First there is very high-level exposure in which there are acute effects which include radiation sickness, such as that experienced by the Japanese after the dropping of nuclear weapons at Hiroshima and Nagasaki in 1945. While we are always concerned with these, they are different than the effects which we are concerned with in most environmental sources of radiation.

At low levels we consider that all exposure to radiation carries some hazard proportional to the dose received. The ionizing radiation acts upon the various organs of the body, and the cells in the organs, to cause changes in the cells that may develop as cancer sites. This can be caused not only by radiation itself but radiation acting with other potential carcinogens in a synergistic manner to possibly cause cancer over a long time period. It may be anywhere from 10 to 20 years from the initiation of the radiation dose till the cancer develops.

A second aspect is cellular damage to the chromosomes. There is a possibility of genetic effects occurring both in the person exposed and in subsequent generations.

QUESTION: What sources of man-made radiation do you think are most dangerous?

DR. ROWE: Well, all sources of radiation are essentially equally dangerous in terms of the relation seen between exposure and dose. Alpha particles from heavy radioactive elements are much more damaging to human tissue than gamma rays. We feel that some of the long-lived alpha-particle materials, such as plutonium and radium, can indeed be very dangerous because of their long half-lives and ability to enter the body and remain there for long times.

QUESTION: What can individuals do to reduce their exposure?

DR. ROWE: Since radiation is unseen and people are not aware of it, it is very difficult for an individual by himself to reduce his radiation exposure. Therefore, it becomes the role of EPA to intercede for individuals, to explain to people what some of the risks are and what actions they may take.

QUESTION: Do you think there is adequate public understanding of the radiation received from x-rays and the possible damage?

DR. ROWE: Obviously not. x-rays are probably the single largest source of man-made radiation exposure in our country. We personally feel that we can receive the benefits of x-ray diagnosis and therapy with much lower exposures.

Many x-rays do not directly benefit the patient. These ought to be eliminated.

QUESTION: What steps could EPA take to implement those precautions?

DR. ROWE: Well, in acting for the general public, EPA, under its Federal guidance function has undertaken to look at the way x-rays are prescribed. Several Federal agencies have helped us: the Air Force, Army, Navy, and Veterans Administration hospitals and radiologists. We have come up with some general guidelines for use in Federal facilities to assure that x-rays are administered properly and with minimum exposure.

What is EPA's role in radiation?

QUESTION: What research work in radiation is EPA doing now?

DR. ROWE: Our Office of Research and Development is primarily directing their resources into two areas. One is to investigate the health effects of non-ionizing radiation, that associated with television, radio frequency sources, microwave ovens, and radar systems. The second area is investigating the biological effects from exposure to low levels of krypton 85 and tritium.

We've also been investigating the possibility that very-high-voltage power lines might have health effects. We have been measuring such power-line fields around the country and exchanging data with other investigators. We've been a central source for gathering information in this area, which may or may not be a problem, depending upon the results of our findings.

QUESTION: What other Federal agencies are concerned with the radiation problem?

DR. ROWE: Well, the Nuclear Regulatory Commission is, of course, the specified regulatory agency involved with licensing nuclear energy and with radioisotopes used in medical research and therapy.

The Energy Research and Development Administration is responsible for developing our weapons systems and for conducting research and development activities towards development of new energy sources which include nuclear power and fusion energy as part of their activities.

The Bureau of Radiological Health of HEW is responsible for electronic equipment that involves radiation, including x-rays, and microwaves, lasers, and other aspects of non-ionizing radiation.

The Food and Drug Administration of HEW is responsible for specifying the limits of radioactivity in food, although EPA is responsible for specifying the limits of radioactivity in drinking water.

QUESTION: How would you describe EPA's mission in the radiation field?

DR. ROWE: The difficulty about radiation is that people cannot see it. You can't feel it; you can't know it is happening. It is also associated with nuclear weapons so people are indeed frightened of it.

The role that we have to play at EPA is one of assuring the public that they are adequately protected from this radiation they cannot see. We must make certain that all possible steps are being taken to reduce exposure. While there are some risks to any exposure from radiation, radiation can also provide benefits which are often well worth minuscule exposures.

We have a responsibility to inform the public about all aspects of radiation, and assure that regulatory actions are taken only after participation by all parties affected by the decisions. □

OPLE PEOPLE PEOPLE



Robert L. Baum

Robert L. Baum, Deputy Assistant Administrator for General Enforcement, has resigned to accept a position with Mission Viejo Company, the firm that is building the new planned city of Mission Viejo, near Laguna Beach, California. Mr. Baum will be involved in environmental and other planning for the new city and for other projects the firm has under way near Phoenix, Ariz.; Denver, Colo.; and Fresno, Calif.

Mr. Baum joined EPA as Associate General Counsel for Air Quality, Noise, and Radiation when the Agency was formed five years ago. Since 1973 he has been responsible for supervising all EPA enforcement activities except those in water pollution. He has taken a leading part in all Federal actions in the implementation of the Clean Air Act.

He previously had served for three years in the General Counsel's Office of the Department of Health, Education, and Welfare and for eight years in general law practice in Rockville, Conn.



Jack D. Tarran

Jack D. Tarran, manager of EPA's Executive Communications unit, has been selected as the new Director, Facilities and Support Services Division, Office of Administration.

Mr. Tarran has occupied the Executive Officer position for approximately one year. He had previously served as executive assistant to Fitzhugh Green, Associate Administrator for International Activities.

Before joining EPA in September, 1971, Mr. Tarran spent 20 years in the Navy, where he was a Chief Petty Officer serving as communications director for three secretaries of the Navy.

In his new position, Mr. Tarran will succeed Arthur Nies, who is now special assistant to Edward Rhodes, Deputy Assistant Administrator for Administration.

Mr. Tarran will officially assume his new responsibility as soon as a replacement is named to succeed him as Executive Officer.

Dr. Burton Levy, Director of Administration at EPA's Research Triangle Park, N.C., facility is taking a one-year leave of absence to teach at the University of North Carolina at Chapel Hill, N.C.

He will be a member of the political science faculty at the University and also will do research work.

Dr. Levy has been stationed at Research Triangle Park for the past four years. Before joining EPA he was a member of the political science department at Wayne State University in Detroit.



Dr. Burton Levy



Gary N. Dietrich

Gary N. Dietrich, former special assistant to the Assistant Administrator for Water and Hazardous Materials, has been named Director, Program and Management Operations, for the Water and Hazardous Materials Office.

Mr. Dietrich had occupied the special assistant post since November, 1974. Previously he had served as Associate Deputy Assistant Administrator for Resources Management.

Mr. Dietrich joined EPA in 1971 as Director, Division of Program Analysis in the Office of Resources Management.

His earlier experience included various positions with the Federal Water Quality Administration, one of EPA's predecessor agencies, the Public Health Service, the Los Angeles County Sanitation District and the Dallas, Tex., Water Department.

Mr. Dietrich, a graduate of the California Institute of Technology, received a B.S. in Civil Engineering in 1957. Born in Butte, Mont., Mr. Dietrich lives in Arlington, Va., with his wife and four daughters.

ENVIRONMENTAL CLEANUP AIDS ECONOMY

Despite dire industry predictions of widespread layoffs because of environmental controls, the loss of jobs has been much less than forecast and an entire new antipollution equipment industry has been spawned.

In commenting on the results of EPA's latest quarterly report to the Department of Labor on economic dislocation as a result of antipollution measures, Deputy Administrator John R. Quarles, Jr., said:

"The closings resulted in the loss of far fewer jobs, for example, than are lost through normal industrial obsolescence. Moreover, they are more than offset by the creation of an entire new industry—an industry devoted to the production, installation, and operation of antipollution equipment."

The report showed that during the past five years (January 1971 through September 1975) actual closings or curtailments of production in 75 plants have resulted in the loss of 15,700 jobs.

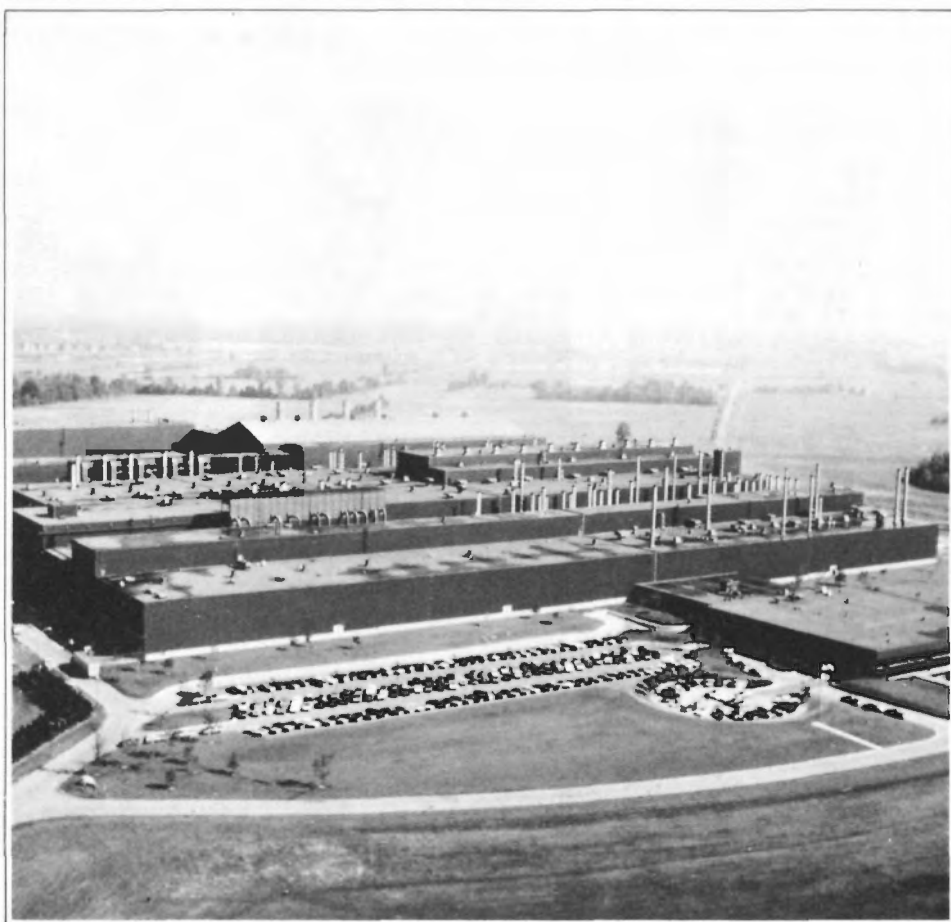
Mr. Quarles cited a study by a firm of Wall Street analysts for the Council on Environment Quality which found that environmental legislation has generated an industry employing 1.1 million workers. Industry spending on antipollution devices totaled \$15.7 billion, the analysts reported.

In a letter accompanying the EPA economic dislocation report—sent quarterly to the Secretary of Labor—Administrator Russell E. Train noted that "in most cases, pollution controls were one of a number of factors involved in the managements' decisions to discontinue operations.

"Other factors appear to be outdated facilities, marketing problems and OSHA (Occupational Safety and Health Administration) regulations."

Roy N. Gamse, Director of EPA's Economic Analysis Division, said that the "public has been misled by industry statements suggesting we must choose between environmental improvements and jobs."

Assessing the total impact of environmental regulations on employment is very complicated, Mr. Gamse said, because there are several ways in which jobs are both created and eliminated.



The EPA Regional Offices keep track of plant closings affecting 25 or more jobs, and the Economic Analysis Division tabulates the quarterly report for transmittal to the Secretary of Labor.

The latest quarterly report, prepared by Christina Moore, lists two shutdowns: 300 jobs involved in the closing of some U.S. Steel open hearth furnaces in Alabama, and 600 jobs at a Mead Corporation iron pipe foundry in Texas. An unknown number of the steel workers may be transferred or retired, Ms. Moore noted, and the foundry suffered from competition from plastic pipe.

The industries most affected over the last five years have been primary metals (16 closings; 3,020 jobs), pulp and paper (10 closings; 3,227 jobs), food products (10 closings; 610 jobs), and chemicals (8 closings; 4,115 jobs).

The Regions most affected have been II (21 closings; 5,002 jobs); III (10 closings; 1,860 jobs); V (13 clos-

ings; 3,735 jobs); VI (5 closings; 1,440 jobs); and X (8 closings; 1,381 jobs).

"While these employment losses are of concern," Mr. Gamse said, "they are not nearly as numerous as industry spokesmen have alleged, and some new jobs will be created at other plants which pick up the lost sales.

"Further job losses have undoubtedly resulted from higher prices due to pollution control costs, which result in lower sales, lower production levels, and fewer jobs. And in the future we may have fewer jobs than would have existed otherwise, because investment in plant and equipment is slightly reduced now while pollution control investments are made, resulting in slightly less industrial capacity and slightly fewer jobs a few years from now.

"On the other hand the environmental program has created a large number of new jobs. An entire new industry has developed—the environmental control industry—employing more

than one million people in more than 600 firms (not counting waste collection companies), according to a report prepared by two Wall Street analysts for the December 10, 1975 CEQ Environmental Industry Conference in Washington."

The antipollution program which undoubtedly employs the most people is the wastewater treatment plant construction grants program, Mr. Gamse said. "Each billion dollars of grants leads to roughly 20,000 year-long on-site construction jobs and 20,000 related off-site jobs. Hence, the \$3.6 billion in EPA grants to State and local governments through Fiscal 1975 has generated well over 100,000 jobs.

"So the environmental program adds a lot of jobs to the economy to counterbalance the ones that are lost. How do the positive and negative effects on employment balance out? More jobs exist now than otherwise would because pollution control investments are adding more investment to the economy than are being lost due to delayed investment in other plant and equipment."

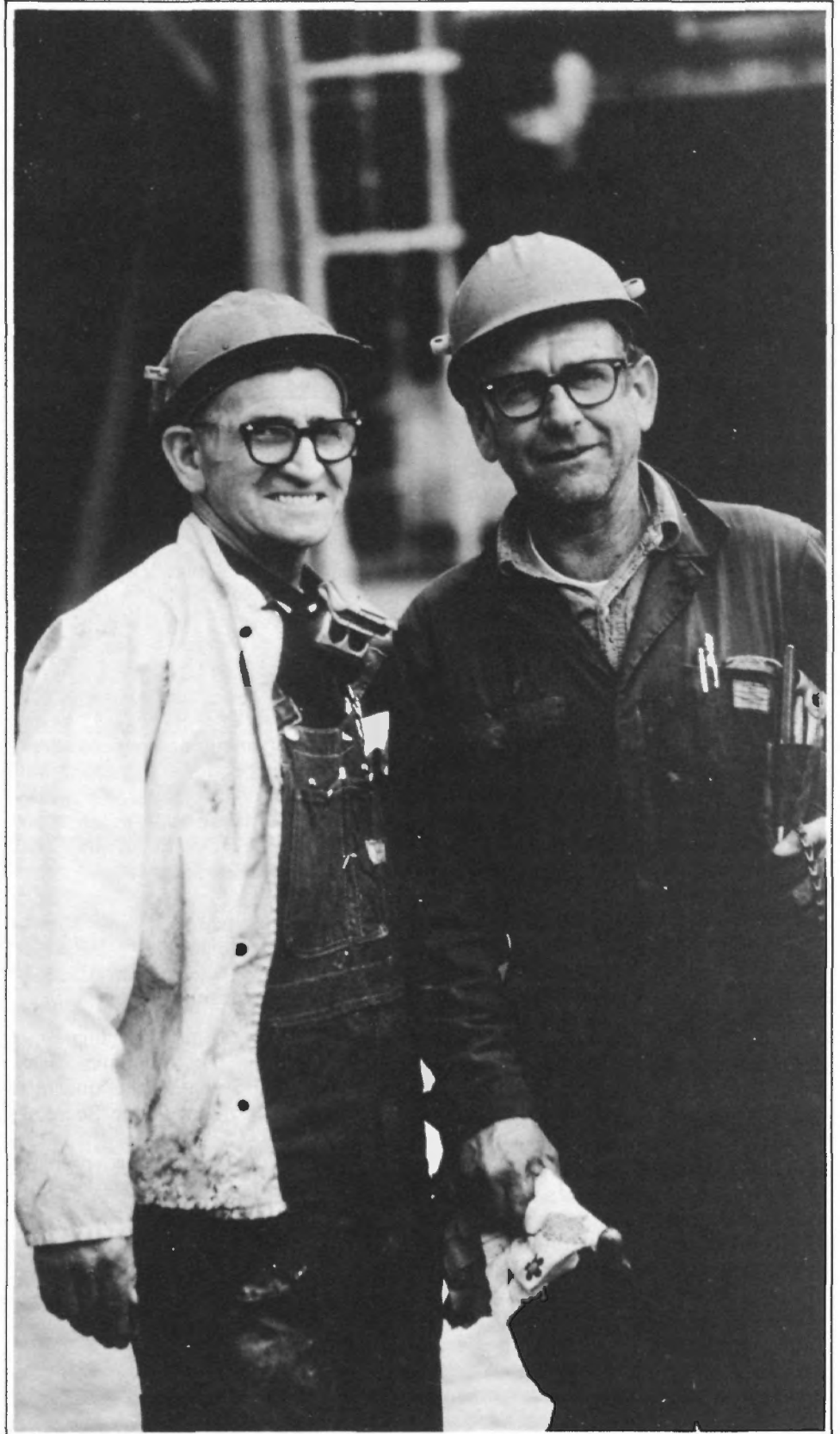
Russell W. Peterson, chairman of the Council on Environmental Quality, said at the Environmental Industry Conference in Washington that "CEQ estimates that U.S. expenditures for environmental improvement as a result of Federal legislation will amount to about \$200 billion over the 10-year period from 1974 through 1983.

"This includes both public and private expenditures, and covers environmental legislation related to air, water, noise, radiation, solid wastes and strip mining. Approximately 25 percent of these expenditures will represent capital investments in plant and equipment; the rest will go for operating and maintenance."

Mr. Peterson said that "while it is difficult to evaluate the health benefits of environmental measures, it is clear that those measures are producing direct savings in the industrial sector—by stimulating innovations that increase the productivity of materials and energy.

"A prime example of this is the paper industry. Roughly 60 percent of a tree is worthless for paper—and in the past, paper companies have dumped their mill wastes or sold them very cheaply.

"But with the rise in chemical prices over the last several years; the increasing cost of pollution control measures; and a desire to squeeze as much profit as possible from existing



facilities, paper companies have begun taking a harder look at their industrial garbage—and they've found some money in there."

Citing other examples in industry of companies turning their wastes into profits, Mr. Peterson recalled that Philip Hanes, chairman of Hanes Dye

and Finishing, has testified that "cleaning up our stacks and neutralizing our liquids was expensive, but in the balance we have actually made money on our pollution control efforts. EPA has helped our bottom line."□

REGION II ON PARADE

Region II of the United States Environmental Protection Agency is diverse culturally, economically, and physically—and, in many ways, represents a microcosm of the Nation's environmental problems, achievements and challenges.

The Region embraces New York, New Jersey, the Commonwealth of Puerto Rico and the Virgin Islands.

The area's history and early development have contributed to its phenomenal growth, particularly over the past hundred years. Nearly 17 percent of America's population is packed into a region which occupies only 1.6 percent of the Nation's land mass.

How is Region II EPA attempting to solve environmental problems and provide for the environmental needs of the future?

It is working hard, with citizens, State and local agencies, to bring the region up to acceptable Federal standards.

It once was inadvisable to open one's window to the outside air in New York City—white would turn grey, soot would float into food, and blacken flowers. Then, with the elimination of open burning of wastes and the use of low sulfur fuels for electric power generation and the elimination of most municipal and many private incinerators—things have gotten better.

Between 1970 and 1973, reductions in particulate matter were reported in 80 percent of the stations in New York State. A 95 percent reduction was reported in New Jersey. Sulfur dioxide reductions totaled 35 percent in New York from 1971-73; in New Jersey, they equaled 22 percent.

In Puerto Rico, EPA enforcement against a number of electric generating stations for excessive smoke emissions, plus new regulations limiting sulfur in fuel burned, on a source-by-source basis, should put a dent in Puerto Rico's air pollution problems.

Twelve areas in Puerto Rico have been identified as having difficulties in maintaining air quality standards for particulate matter and/or sulfur oxides

through 1985. In New Jersey, 15 such areas were noted; in New York, nine. In the Virgin Islands, primary and secondary air quality standards for sulfur and particulates have been met.

There are miles to go before we can rest in the environmental movement. Transportation control plans for highly urbanized areas in New York and New Jersey will control hydrocarbons, nitrogen oxides and carbon monoxide problems.

Plans for City

The New York City plan, formulated by the State and subject to recent enforcement orders by EPA, includes charging tolls on bridges into Manhattan, limits on taxi cruising, plans for limiting parking in the central business district, more express buses, better traffic management and enforcement, emissions inspections for cabs, and consolidation of deliveries. When fully implemented these will mean more good breathing days in an area that could certainly use them.

In New Jersey's central and northern portions, other transportation control strategies, promulgated by EPA for the State under the Clean Air Act, require transit incentives to be offered by large employers. In addition, an inspection and maintenance program for auto emission devices has reduced carbon monoxide readings by 21 percent from 1973 to the first six months of operation in 1974.

The Region's waters had become dumping grounds—cesspools where it was getting far easier to catch an oil slicked piece of refuse than a healthy fish. The Passaic River in New Jersey gained a reputation as the most polluted in the nation. The lower reaches of the Hudson or the Mohawk Rivers and Lake Erie in the Great Lakes, were not much better. The beaches in San Juan and the Condado Lagoon were posted.

However, things have changed. There are reports that fishing has improved in the Hudson and in the Mohawk Rivers and that with new sewage treatment collection systems, Condado Lagoon in Puerto Rico is now open for recreational use.

The 32 significant dischargers on the

Hudson River for which water cleanup permits have been set will, when the permits are fully effective, remove a total of 50,000 pounds of total suspended solids from their daily discharges.

Lake Erie Improving

There has been a reversal in the destruction and premature aging which Lake Erie, perhaps the most heavily polluted of the Great Lakes, has experienced.

Nearly 2100 permits to about 1000 major dischargers and 1100 minor dischargers have been issued in the region. Compliance with the permits plays a significant role in the regional enforcement program. EPA's construction grants are also aiding significantly in the water cleanup by municipalities. Over \$1.3 billion has been obligated thus far. Last year the Region awarded 86 grants for a total of \$460 million. This year the goal is 160 grants totaling over \$1 billion. The National Science Foundation water quality indicators show water quality improvement trends highly evident in New York and the Virgin Islands, with improvement on a slightly lesser scale being seen in New Jersey and Puerto Rico.

Those figures will become even more significant as the Region moves past its period of rapid growth, and begins to scrutinize itself closely. A new set of problems is becoming evident and new means of attack are necessary. Comprehensive planning, under the 208 program will mean more meaningful appraisals of over-all water quality management in particular problem areas in New York, New Jersey and Puerto Rico. Over \$23 million has been obligated for these local planning efforts.

Pesticides, radiation, noise and solid waste present serious environmental questions. All four Region II jurisdictions have certification programs for pesticides applicators. Our roles under our noise and radiation statutes have been primarily advisory.

Solid waste has become a serious hazard in the Region with landfill space diminishing and the solid waste load increasing geometrically.



The Brooklyn Bridge, still handsome after 93 years of service, spans East River between Brooklyn and Manhattan. Twin towers of World Trade Center, 110 stories high, loom behind bridge center.



Twelve-lane New Jersey Turnpike cuts a wide swath through industrial area and forest of power lines near Elizabeth, N.J.



Condado Lagoon in Puerto Rico's San Juan has been made fit for boating and water skiing because of construction of new sewage treatment facilities.

Recycling on Rise

Recycling and reuse, converting solid waste into energy, is becoming a popular option in areas ranging from Middlesex County, N.J. to Staten Island, Hempstead and Rochester, N.Y.

Disposal of sludge in the ocean has created some controversy. Region II has maintained that while the sludge dumping has not harmed area beaches it certainly is not a positive environmental practice. EPA has pledged to seek alternatives and to phase out all ocean dumping by 1981.

New dilemmas are developing in the Region—polychlorinated biphenols (PCBs) and their presence in fish in quantities up to 350 parts per million where the acceptable limit in fish, set by the FDA, is 5 ppm. The regional engineers and enforcement division are working through the permit program to limit the discharges of PCBs into the Hudson and other area waterways. Other problems include the transport of photochemical oxidants to formerly untouched areas from heavily polluted regions. Concentrations at urban and rural areas in the Region often exceed the national ambient air quality standards. Polyvinyl chloride emissions, under review by an EPA task force, may present additional hazards.

The Region is coping with its environmental problems and attempting to find ways to correct pollution problems without causing economic hardship. The status of the environment in Region II: difficult, but getting better. □

New York & Company

by Max Friedman

Max Friedman is a Region II public affairs officer.

Region II abounds in superlatives.

New York—the leading State in manufacturing industries (in number, employees, payrolls); New Jersey—the most densely populated; Puerto Rico—the nation's oldest settled area (discovered by Columbus in 1493, settled by Ponce de Leon in 1509), and the Virgin Islands—the most easterly land in the U.S. and a tourist mecca.

These superlatives can present problems as well as benefits—pollution can come quickly with heavy manufacturing, rapid growth can breed inadequate sewage facilities and increased air pollution in densely populated regions. Much work and money are necessary to correct environmental abuses in areas where pollution practices are entrenched.

Meanwhile, the Region has seen better days. The Great White Way doesn't glisten in the same way it did in the old George M. Cohan and Fred Astaire era.

Fiscal crises throughout New York City and State and in neighboring New Jersey, peaks of unemployment in Puerto Rico and dropping tourism rates in the Virgin Islands. High taxes and fewer services.

Watch carefully and someday in the center of Times Square, where moving lights spell the news, you will read, "Crisis Number 1032 Averted. Watch out for 1033."

Population Exchange

What links the Region together? . . . sets its mood, is a strange trade of population that is constantly occurring, sometimes slackening, sometimes increasing in pace. Millions have migrated from the South, from Puerto Rico, from the rest of the country to New York City and parts of New Jersey to find work. Ninety percent of the 870,000 Puerto Ricans—twice San Juan's population—in New York State, live in the City. Fifteen percent of the population of the Virgin Islands is from the U.S. mainland. New Jersey serves as a bedroom community for many New York City workers. The same cozy relationship exists among New York City and Long Island and surrounding counties in upper New York State. The movement of people and goods all around



New York City—a city of superlatives. Transportation control plans, elimination of open burning, use of low-sulfur fuels by power utilities, elimination of most municipal and many private incinerators—these measures, backed or ordered by EPA, are making the city's air cleaner and more healthful.

the Region makes for a kind of variety, dynamism and tension that one will not find in any other Region.

The man-made and natural spectacles of the Region accentuate this—from the needle-like skyscrapers and Ms. Liberty's torch to the stillness of the Hackensack, N.J., meadowlands—acres of swamps and dumping grounds with strings of cars on turnpikes circling the vast expanse of open land, Niagara Falls, near Buffalo, N.Y. once a honeymoon haven, crashes in rhythm to the movement of harnessed energy. The sand dunes and beaches of the New York, Long Island, and New Jersey shorelines roll and shift in a ballet of wind. Exotic birds screech in Puerto Rico's rain forest.

The Region is also rich in history. New York and New Jersey played important roles in the American revolution and the events that led up to it. New York City served as the Nation's Capital for four years (1785–1789) under the Articles of Confederation. George Washington was inaugurated as the first President of the United States in Federal Hall on Wall St. on April 30, 1789.

All Kinds of People

The richness and variety extends to the farming communities upstate, to southern New Jersey, once the site of plantations and slave holdings, to

northwestern New Jersey, where a frontier of sorts is still being carved, to Long Island, where American Indian tribes still harvest potatoes.

Why link these two mid-Atlantic States with Puerto Rico and the Virgin Islands, two mid-Caribbean areas? Probably for simple bureaucratic reasons—direct flights between New York City and the two island areas in case of emergency.

The cohesiveness of the New England States in cultural background or tradition is not to be found in this Region.

The essence of Region II is difficult to grasp. You can count the neon lights, peruse the crime statistics, enumerate the smells that emanate from parts of New Jersey, the Garden State, or defend the State for all the beauty it still preserves. You can talk about dense population or heavy manufacturing, unparalleled views of culture and the arts. You have not yet captured the essence. It lies in a complex uniqueness, something that defies description and definition, tensions that many thrive on, whether those tensions are natural or man-made. To try to escape from that uniqueness is, for many, trying to escape from life as they have come to know it.

These are hard times and the Northeast is not in its rising sun. Puerto Rico, where emigration has stabilized, still maintains vigorous exchanges with the mainland. Yet, for all the problems, the area has a quality that makes those that leave it, miss it.

High kicking Rockettes, Finger Lakes, sleazy Times Square, jokes in the Yiddish Catskills, the borsht belt and barrios, the U.N. and theater, the Mets and Museum of Modern Art, shorelines, chorus lines, farmers harvesting—a catalog that would leave Whitman exhilarated.

There are still canyons of tall buildings to be walked through, forests and waterfalls to marvel at, and, to fill our emptiness, expanses of land that wait for visitors, that rarely see human tracks. There are precious moments of art to be experienced unlike anywhere else. Most of all, there is a population of 32 million people who survive, even thrive, in spite of adversity—some say because of it. □

REGION II ON PARADE

Leadership Team



Gerald M. Hansler
Regional Administrator



Eric B. Outwater
Deputy Regional Administrator



Herbert Barrack
Director, Management Division



David Luoma
Director, Facilities Technology Division



Conrad Simon
Director, Environmental Program Division



William J. Librizzi Jr.
Director, Surveillance and Analysis Division



Meyer Scolnick
Director, Enforcement Division



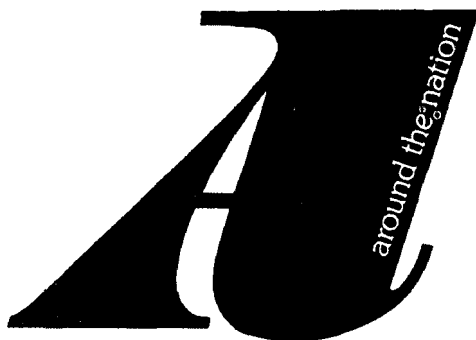
Weems Clevenger,
Director, San Juan Field Office



Kenneth Smallwood
Director, Civil Rights and Urban Affairs Division



Kenneth Walker
Director, Rochester Field Office



oil facilities penalized

Regional Administrator Gerald M. Hansler announced that civil penalties exceeding \$250,000 have been imposed against 84 owners and operators of oil storage and processing facilities. The fines were levied because of violations of oil pollution regulations under the Federal Water Pollution Control Amendments of 1972.

Mr. Hansler noted that 35 percent of the 339 oil facilities inspected in Region II were in violation of the regulations, either for failure to prepare or implement oil spill plans.

unleaded gas available

Almost all of Region II's gasoline stations are providing unleaded gas in compliance with EPA regulations. New figures show that of 2,038 stations sampled since June 1975, only 31 stations were not in full compliance. This is a failure rate of less than 2 percent. For the most part failures were caused by improperly flushed out storage tanks, or by failure of quality control in the refineries, trucks or in station tanks.

The inspection tests are being made by EPA's Surveillance and Analysis Division, based in Edison, N.J., and by the Rochester, N.Y. Field Office.



children's breathing

Following the major air pollution crisis in Pittsburgh last November, EPA conducted an on-the-spot study of the effect of the incident on the breathing of 270 school children.

This was the first time that a physiological examination of this type was made, according to Dr. James Stebbins, an epidemiologist with the Health Effects Research Laboratory Research Triangle Park, N.C., who directed the study.

The purpose of the testing by Dr. Stebbins and the Emergency Air Pollution Episode Team was to determine the effects of high air

pollution levels on the lungs of the average child.

The preliminary analysis of the data suggests that the episode had no significant effect on the majority of the children, but further analysis is required to determine whether a minority of especially susceptible children might have been adversely affected. Region III played a major role in controlling the air pollution crisis that began with an air inversion over Pittsburgh on November 17 and within two days caused pollution readings to hit a high of 251 (on a scale of 300, a reading of 35 is considered satisfactory). At the request of State and county officials, Regional Administrator Daniel J. Snyder and a five-man staff went to Pittsburgh and helped convince company officials to cut back their industry operations. The cutbacks were crucial in limiting pollution and protecting health. Improved weather conditions ended the emergency on Nov. 20.



progress in alabama

In November, 1971, an air pollution crisis in Birmingham, Ala., attracted nationwide attention. On November 18 EPA attorneys and scientists from Region IV and Raleigh-Durham obtained an injunction at 2 a.m. from a Federal judge to shut down 23 of the city's largest industries.

The air pollution particulate count had risen to a critical level but the industry shutdown, aided by a clean cold front and rain, brought an end to the crisis. Now the Jefferson County (Birmingham) Health Department reports a dramatic cleanup in the past three years—a reduction in particulates spewed into the county's air from 155,000 tons a year to 29,000 tons.



sulfur oxide hearings

Hearings were held in several major Ohio cities in December and January

higher sulfur coal

EPA has approved a request from Massachusetts to permit the use of higher sulfur coal by five power plants and 26 other sources in the Boston area through June 1977. Technical reviews indicate that this fuel can be burned without violating primary air standards. Each plant will have to meet rigid monitoring requirements. If standards violations occur, the offending plant must immediately cease burning the higher sulfur fuel.

It is estimated that this change will save \$30 million in fuel costs, and that the individual consumer will save an average of \$8 to \$10 annually in electrical costs.

incinerator closing ordered

Region I has issued an Administrative Order to the town of Winchester, Mass., for the violation of State and Federal air pollution regulations by its municipal incinerator. The Order sets July 1, 1976 as the final compliance date when the incinerator must be shut down and replaced by a dual-compactor transfer station to dispose of the town's solid waste.

Regional Administrator John A. S. McGlennon said that the closure will reduce particulate levels within Metropolitan Boston, where the national public health standard for particulates is being exceeded.

on proposed EPA regulations to control sulfur oxide emissions in that State.

A decision by the U.S. 6th Circuit Court and an adverse ruling by the Ohio Board of Review on the enforceability of State regulations have prohibited EPA and its State counterpart from issuing sulfur oxide emission cleanup orders until now. Ohio has a significant sulfur oxide problem caused by a high concentration of power plants and industries that currently use high-sulfur Ohio coal. The new EPA-proposed Ohio cleanup plan was developed by Region V's Air Programs Office.

great lakes

The Region V Office of Public Affairs has published a special 32-page issue of its monthly newsletter, "Environment Midwest," on the Great Lakes. The Great Lakes issue reviewed the current status of Great Lakes cleanup, the fate of commercial fishing on the lakes, EPA's research programs and concerns of environmental scientists for the future of the lakes.



underground reservoir

The Edwards Underground Reservoir, recently designated by EPA as the sole or principal source of drinking water for the San Antonio, Texas, area, was the subject of an informal "town meeting" in that city Jan. 7. Regional Administrator John C. White was host, and EPA officials undertook to answer any citizens' questions about the designation and about Federal protection of sole-source water supplies.

The reservoir is a water-bearing limestone formation, the Edwards aquifer, underlying south central Texas. It contains an estimated three million acre-feet of pure water and supplies San Antonio, five large military bases, 16 smaller cities, and many farms and ranches.

The Safe Drinking Water Act provides that no Federal aid may be given for "any project" that EPA determines might contaminate a sole-source water supply.



water quality course

A recent week-long course in "Water Quality and Pollutant Source Monitoring: Field and Laboratory Analysis" filled the Regional Office hearing room with attendees from the Corps of Engineers, private industry, and EPA personnel.

Instructors included Bill Keefer, Chief of the Water Section, Surveillance and Analysis Division; Charles Hensley, inorganic chemist; Steven Sisk, hydrologist; Bruce Littell, aquatic biologist; Dr. Robert Kloefer, organic chemist; Joseph Joslin, sanitary engineer; and Tom Lorenz, biologist. Dr. Lawrence Schmid of Kansas State University, lectured on "Sampling Agricultural Wastes."



beet processor fined

Pollutant discharges into the Yellowstone River from last year's beet processing at the Holly Sugar Sidney refinery have cost the company \$47,500 in fines, and it will be subject to further fines if violations occur during the 1975-76 processing.

The violations of wastewater discharge limits were documented during the 1974-75 season by EPA, the Montana Department of Health and Environmental Sciences and Holly's own sampling program. The U.S. Attorney for Montana filed court action that sought penalties totalling \$190,000 or \$10,000 for each of the 19 days of violations.

However, all parties agreed to a negotiated settlement that provides that Holly will forfeit \$10,000 per month for any month it exceeds permitted levels of BOD during this year's processing. BOD, biological oxygen demand, robs water and aquatic life of oxygen, thus reducing a stream's natural cleansing ability.



bacteria in bay

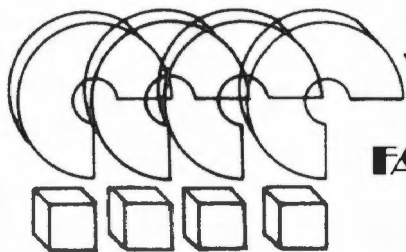
All three of San Francisco's sewage treatment plants have been discharging excessive amounts of disease-causing bacteria into San Francisco Bay. This was announced by the Bay Area Regional Water Quality Board after a 10-day study of plant discharges made by EPA's National Field Investigation Center at Denver. EPA divers found a bank of sludge 600 feet long near Fisherman's Wharf, a city landmark. The study has been made part of an inquiry into San Francisco's failure to keep to its sewage treatment improvement timetable.

The Bay has nevertheless shown considerable improvement in recent years, and Regional Administrator Paul DeFalco observed: "This is a good example of what can happen in a regional situation when one municipality or discharger does not meet its commitments. Other parts of the Bay are looking good, but the discharges from San Francisco are causing problems for us all."

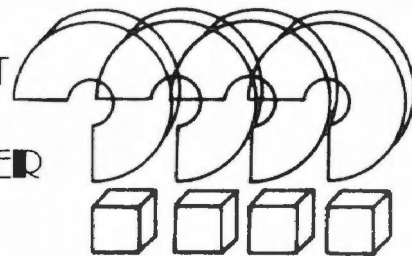


spill-plan fines

Civil penalties totalling \$1,500 were assessed recently by Regional Administrator Clifford V. Smith against five oil storage facilities that had failed to prepare or to implement plans to prevent and contain oil spills. All firms have signed settlement agreements and are now in compliance with the law. They are: Naumes Fuel and Equipment, Medford, Ore.; Empire Fuel Co. and Sause Brothers Ocean Towing Co., both of Coos Bay, Ore.; and Standard Oil Co., Everett and Mount Vernon, Wash. Naumes Fuel paid \$500 and the others \$250 each. Spill prevention and control plans are required for any facility storing more than 1,320 gallons of oil above ground or 42,000 gallons underground.



WHAT IS THE MOST IMPORTANT ENVIRONMENTAL PROBLEM FACING US IN THE FINAL QUARTER OF THE 20TH CENTURY?



Dr. Thomas D. Bath, Staff Director, Science Advisory Board, Office of the Administrator, Headquarters:

"In my opinion, one of the key issues over the next 25 years will be the *effectiveness* of the institutions and policies now being set in motion to protect our environment. In order to understand whether these approaches are appropriate to the needs which they seek to address, measures of effectiveness will have to be developed. Eventually, society will be concerned with the *best* way to live in harmony with our environment, rather than protecting environmental quality by frantically trying to correct past abuses. This, in turn, implies a search for an optimum approach through a period of feedback between environmental quality and environmental institutions."

Dr. William J. Lacy, Senior Engineering Advisor, Office of Research and Development, Headquarters:

"The Environmental Protection Agency must aim at cost effective closed loop industrial technology. This will result in zero discharge of pollutants and hazardous wastes. Therefore, the problem will be controlled at its source and no adverse health effects will result.

"However, one of the most serious problems facing the pollution control movement over the next ten years is not scientific; it is the issue of environment vs economy. In an effort to become energy independent and recover from an economic recession, many opponents to the environmental movement will cite the costs of clean-up as outlandish and non-productive.

"However, the investment in environmental clean-up can contribute to economic growth and make new jobs

in all disciplines—engineers, excavators, planners, cement and steel workers, etc.

"Our concern for a clean environment is practical and is based on sound economics."

Paul A. Brands, Deputy Assistant Administrator for Planning and Evaluation, Office of Planning and Management, Headquarters:

"Rather than single out one environmental problem, I believe the most important environmental issue confronting us in the next two decades involves more 'process related' concerns. I think we all generally agree that as a Nation we must achieve a *balance* among our very real environmental concerns and other national goals such as continued economic development and an improved standard of living and some form of energy independence. The issue confronting us is how to achieve a situation where this balancing will occur.

"I would argue that we can help insure this situation is achieved if the following actions occur. First, we must do our part to insure that the public is informed and fully appreciates the environmental impacts of various actions or inactions, particularly the longer-run health impacts. Second, as an Agency we must proceed with the development of our scientific analyses, regulations, and programs in an open, systematic manner. We must invite and encourage and perhaps insist upon public participation in their development—including environmental groups, industry, and government at all levels."

Dr. Alan P. Carlin, Economist, Office of Health and Ecological Effects, Headquarters:

"One of the major, largely unsolved

problems facing us in the foreseeable future is what is to be done about the many man-made chemicals not occurring in nature that have been and are being introduced by man, in ever proliferating forms, combinations and amounts, into the environment. We now know that a number of them have adverse effects on living things in general and on man in particular.

"Evidence is mounting that some of these chemicals are cancer-producing, cause deleterious genetic changes, or have other adverse effects."

Michael K. Glenn, Special Assistant to the Administrator, Headquarters:

"Answering that question is a bit like playing Russian roulette. Specific alternative 'bullets' quickly come to mind: environmental carcinogens; destruction of wetlands and other life-sustaining habitat; ozone depletion; nuclear facilities proliferation; and so on. Any one or more of these or other issues might emerge as uniquely life-endangering (and therefore presumably dominant) environmental issues during the next 25 years.

"In my opinion, however, the one issue cross-cutting all of the above—and forgive me if this sounds like a typical lawyer's response—is a 'procedural' issue. Namely, whether we will extend a full presumption of innocence to environmental contaminants (broadly defined) unless it can be shown conclusively that they are harmful to humans, or, as stated in the Administrator's December 31, 1974 'Year-End Report,' 'whether we should from now on insist that the presence or introduction of these environmental contaminants into the human environment must depend upon a determination that they do not constitute unwarranted hazards to human health and life.'"



Dr. Thomas D. Bath



Dr. William J. Lacy



Paul A. Brands



Dr. Alan P. Carlin



Michael K. Glenn

news briefs

EPA'S NEW BUDGET TOTALS \$718 MILLION

The proposed EPA operating budget for Fiscal Year 1977 is \$718 million, a decrease of \$53 million from the current budget for 1976. Administrator Russell E. Train said that while the budget reflects cuts in some areas, it "will enable the Agency to continue most of its programs at current levels. It also provides for increases in some high-priority programs." The major increase is \$10.6 million for the Water Supply Program to double the level of grant funding to States to help them in assuming primary enforcement responsibility for their drinking water programs. The budget also calls for reprogramming of more than 100 positions from Headquarters to the Regional Offices as part of the Agency's continuing policy of decentralization.

EPA OPPOSED SUPERSONIC AIRLINER SERVICE

Applications to allow the British-French supersonic airplane, the Concorde, to serve airports in New York City and Washington, D.C., were opposed by EPA at public hearings last month. Roger Strelow, Assistant Administrator for Air and Waste Management, said the Concorde is too noisy, pollutes the air, endangers the earth's ozone shield and is wasteful of fuel.

AIR STANDARDS SET FOR COPPER, LEAD, ZINC SMELTERS

Final regulations to control air pollution from plants producing copper, lead and zinc have been adopted by EPA. They limit the amounts of dust, smoke and sulfur dioxide that can be emitted from new or substantially modified existing smelters. The new rules are expected to reduce emissions of particulates and sulfur dioxides by approximately 95 percent from previous uncontrolled levels.

HEARING ON PROPOSED URANIUM STANDARDS

A public hearing was scheduled for February 17 in Washington on EPA's proposed standards to protect the public from releases of uranium used in nuclear power production. The standards would cover the uranium fuel cycle processes from the time uranium ore leaves the mines.



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ARIZONA ACTS TO PROTECT CLEAR SKY

Arizona has taken a major step toward protecting the clear sky and healthy climate which have been the State's trademark throughout the world.

It opened last month a vehicle emissions inspection network in greater Phoenix and Tucson which is expected to reduce pollution from increasing motor vehicle traffic by 20 percent in these areas by the end of 1977.

To help ease the program's impact, while motorists will be required to have their cars inspected annually, passing the emissions test for carbon monoxide and hydrocarbon pollutants will not become mandatory until Jan. 1, 1977.

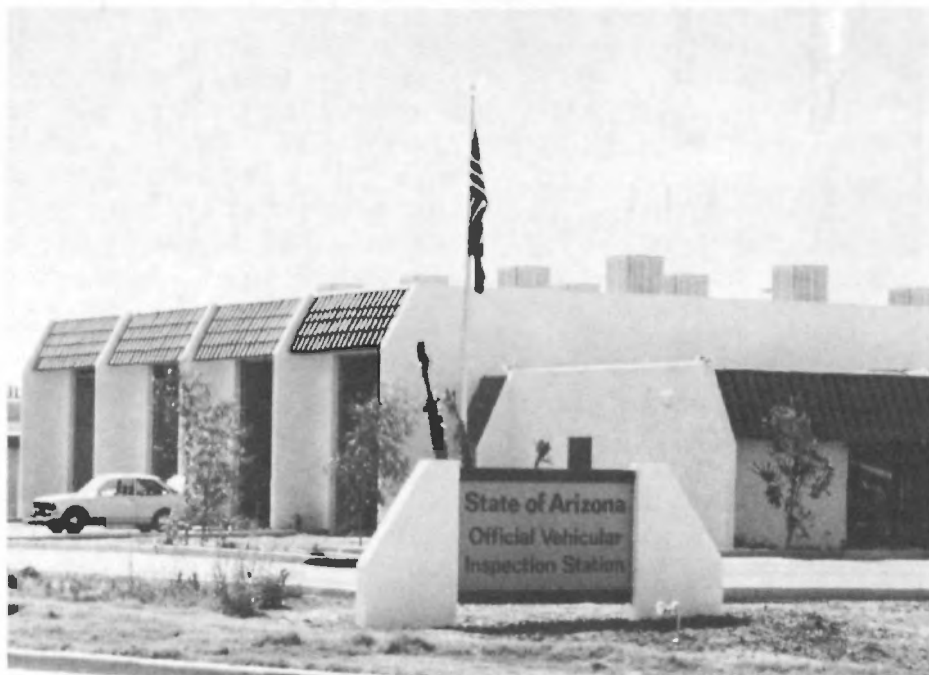
The purpose of the inspection and maintenance program in Arizona and elsewhere in the country is to ensure that cars being driven meet standards established to protect and improve air quality.

The inspection facilities in Arizona, owned and operated by Hamilton Test Systems, Hartford, Conn., but under State control, will be supported by an annual \$5 inspection fee from motorists.

EPA is encouraging similar operations as one method of establishing inspection and maintenance in other parts of the country where they are needed.

"Numerous other areas of the country should also have inspection and maintenance in effect right now as a basic step in protecting public health from air pollution hazards," according to Stanley W. Legro, Assistant Administrator for Enforcement.

"Arizona is setting a laudable exam-



This station in metropolitan Phoenix is one of 12 in the Phoenix and Tucson areas which have started testing cars for air pollution emissions.

ple for many other States to follow in our nationwide effort to control motor vehicle air pollution."

Mr. Legro said that inspection and maintenance offer real benefits by conserving fuel and providing more reliable motor vehicle performance in addition to the primary target of protecting the public health from air pollution.

Paul DeFalco, Jr., Region IX Administrator, described the inspection program as "the backbone of the State plan to control auto-related pollutants in Phoenix and Tucson."

"Successful implementation will take these urban areas a long way toward attaining and maintaining national am-

bient air quality standards for carbon monoxide and oxidants. We anticipate that in the future many States will follow Arizona's example."

Motorists could save between \$20 and \$25 in gasoline costs per year by regularly maintaining their auto pollution control equipment, EPA estimates.

Arizona was the sixth area in the country to establish an inspection and maintenance program for privately owned cars. Other areas with similar programs in effect are: the State of New Jersey; Chicago; Cincinnati and Hamilton County, Ohio; Portland, Oregon; and Riverside and Los Angeles, California. □