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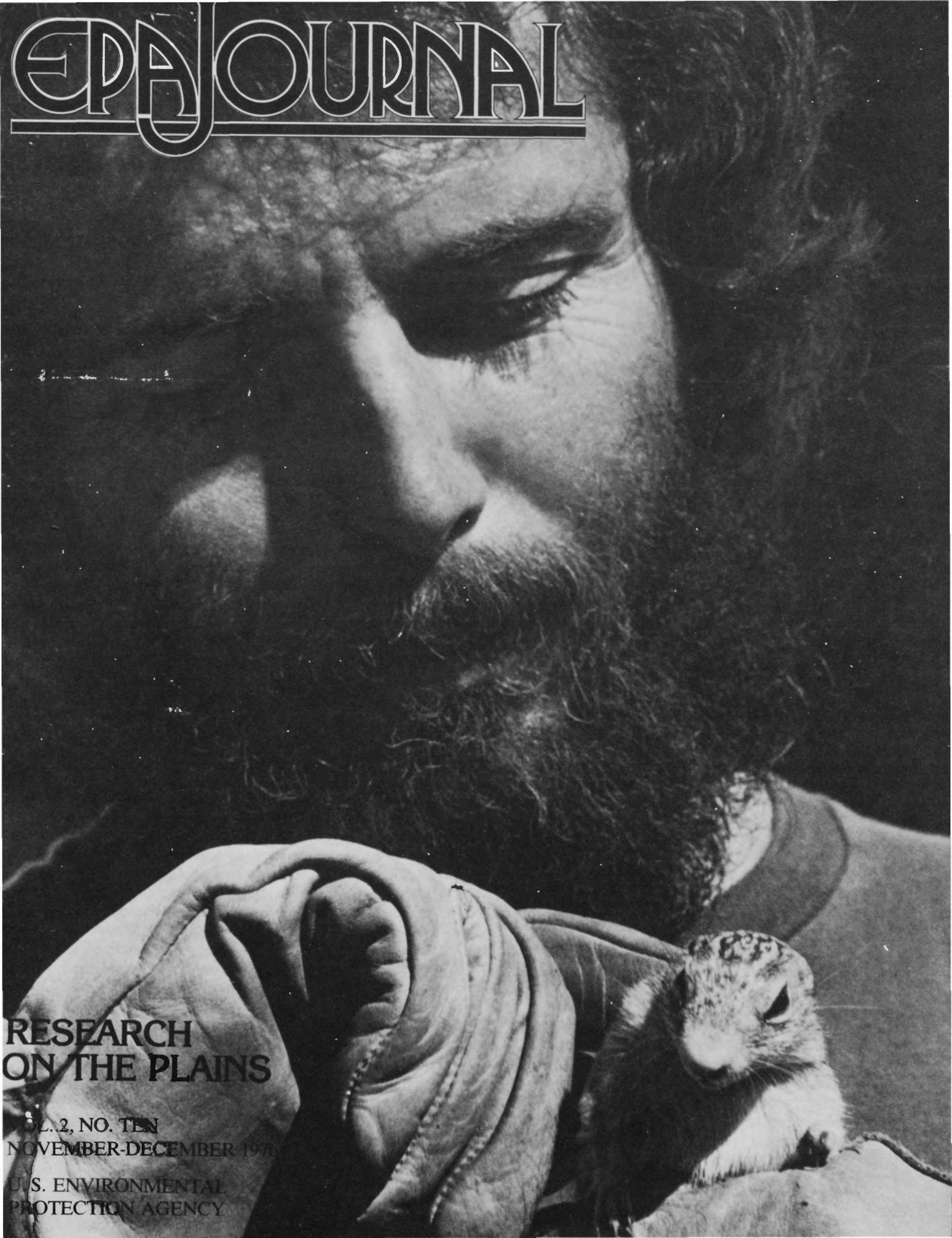

RESEARCH ON THE PLAINS

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U.S. ENVIRONMENTAL PROTECTION AGENCY

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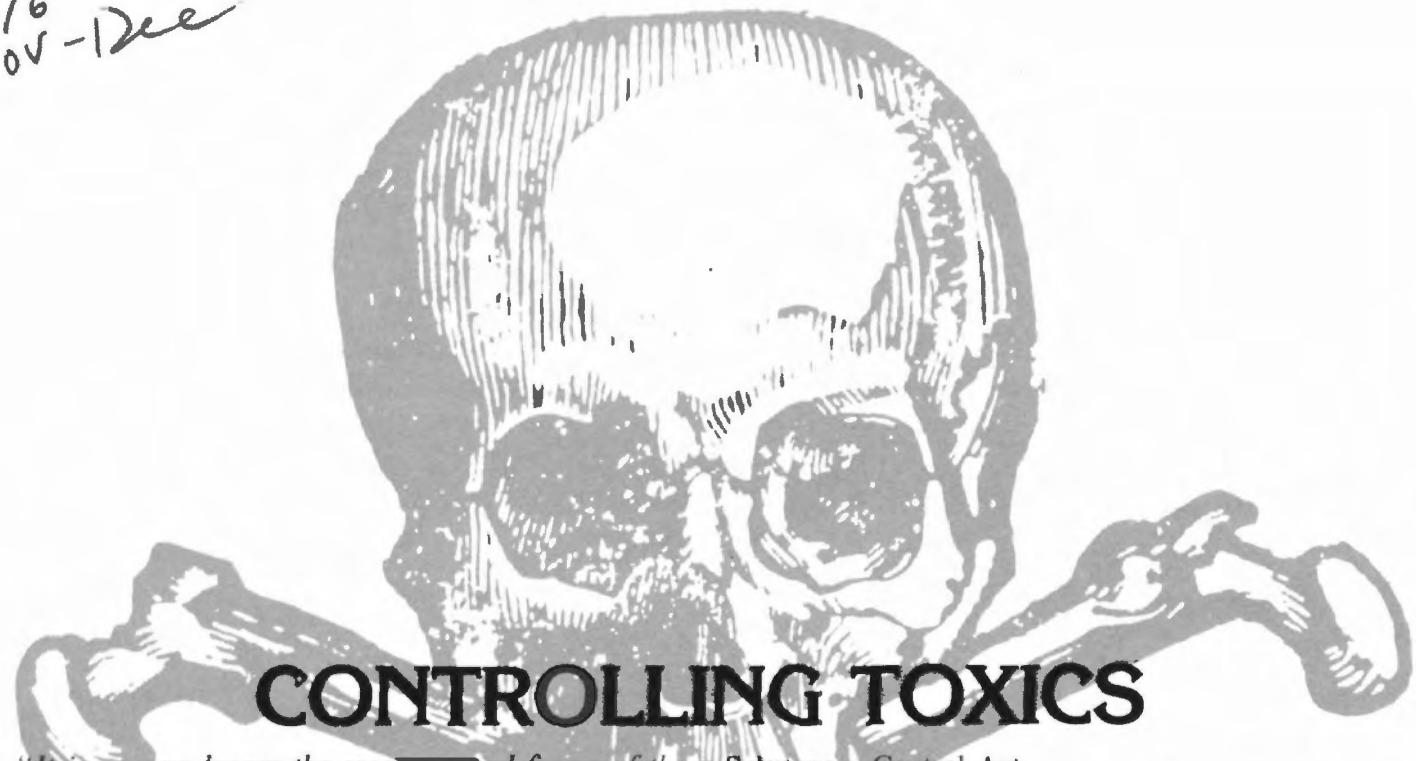

CONTROLLING TOXICS

"It is . . . no longer the creatures and forces of the natural world that most threaten us . . . it is, instead, such strange new creatures of our own making as 'bischloromethyl ether' and 'nitrosamines' and 'polychlorinated biphenyls' and polyvinyl chloride.' They are all around us—in our air, our water, our food, and in the things we touch. When they hit us, we don't feel a thing. Their ill effects may not show up until decades later, in the form of cancer—or even generations later, in the form of mutated genes—when it is, often, too late to undo the damage.

"Most Americans had no idea, until relatively recently, that . . . when they went to work in the morning, or when they ate their breakfast—that when they did the things they had to do to earn a living and keep themselves alive and well—that when they did things as ordinary, as innocent and as essential to life as eat, drink, breathe or touch, they could, in fact, be laying their lives on the line. They had no idea that, without their knowledge or consent, they were often engaging in a grim game of chemical roulette whose result they would not know until many years later."

—EPA Administrator Russell E. Train. Excerpted from remarks delivered before the National Press Club, February 26, 1976

Mr. Train recalled in the same speech that when he became the first chairman of the Council on Environmental Quality in February, 1970, his first directive to the council's small staff was to develop a legislative proposal to cope with the problems caused by toxic chemicals.

Now some six years later Congress has finally approved and the President has signed the Toxic Substances Control Act.

Carrying out the requirements of the new law will give EPA a demanding challenge in the new year.

Another major advance on the environmental front was the passage by Congress of a new act greatly expanding EPA's solid waste control program.

The significance of both of these important new laws is explored in articles in this issue of the Journal.

A landmark court decision growing out of the notorious Kepone poisoning case is also reported.

On another front, Assistant Administrator Roger Strelow has contributed an article about his recent trip to Iran to help advise the Government there about air pollution control techniques. The automobile, he reports, is an even greater contributor to air pollution in the capital of Tehran than it is in major American cities.

The discovery of a new genus of sponge found clinging to drums of radioactive waste on the floor of the Pacific ocean is the subject of another report.

A major EPA research project being conducted on the plains of southeast Montana under the direction of EPA's Environmental Research Laboratory at Corvallis, Ore., is discussed in another article. The EPA project at Colstrip, 100 miles east of Billings, Mont., is designed to develop information which can be used to minimize the environmental impact of coal-burning plants.

Concluding the year-long series on EPA's regional operations are two articles from the Agency's Northwest office—Region X on Parade.

The magazine ends with an intriguing report that bass, popular game fish, are now being caught in large numbers in the Potomac River in the Washington area.

U.S.
ENVIRONMENTAL
PROTECTION
AGENCY
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COVER: Thomas L. Gullett, a biology technician from EPA's Environmental Research Laboratory in Corvallis, Ore., checks condition of a ground squirrel as part of a major research project being conducted on the Montana plains.

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EPA JOURNAL

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ARTICLES

DEPARTMENTS

TOXIC CONTROLS TO BEGIN

EPA has been given the power, starting January 1, to regulate the production and use of harmful chemicals.

When he signed the Toxic Substances Control Act on October 12, President Ford said: "I believe this . . . may be one of the most important pieces of environmental legislation . . . enacted by the Congress.

"This . . . legislation provides broad authority to regulate any of the tens of thousands of chemicals in commerce. Only a few of these chemicals have been tested for their long-term effects on human health or the environment.

"Through the testing and reporting requirements of the law, our understanding of these chemicals should be greatly enhanced. If a chemical is found to present a danger to health or the environment, appropriate regulatory action can be taken before it is too late to undo the damage."

The President said that the bill closes "a gap in our current array of laws to protect the health of our people and the environment."

Several hundred—and perhaps as many as 1,000—new chemicals are introduced into commerce each year. Most of them are put into use without testing for their possible long-term effects on the health of people or on plant and animal life.

Of particular concern during the past several years have been chemicals that may cause cancer, mutations of human cells, and birth defects.

The Act is designed to plug some long recognized loopholes in the Nation's environment protection program. Laws to curb pollution of air and water and to assure healthful workplaces are aimed primarily at correcting hazards already there. The new law seeks to prevent hazards from being introduced as well as to correct problems after the fact. It stems from the growing public concern over industrial chemicals that have subtle, long-lasting effects, that accumulate in the body to dangerous levels, and that resist natural breakdown in the environment.

The list of suspect chemicals is already long and includes such widely used substances as synthetic halocarbons (PCB's and PBB's), raw material for plastics (vinyl chloride), spray can propellant gases, phosphates, and nitrosamines.

Since thousands of industrial chemicals

Michigan dairy farmers shooting cattle contaminated by the toxic chemical, PBB.

are already on the market and are being used with little knowledge of their toxicity or environmental effects, EPA will start administering the new law with a huge backlog of work.

The EPA Administrator must first make an inventory of all chemicals "manufactured or processed in the United States" in the last three years. This list must be compiled and published by Nov. 11, 1977. Thereafter the inventory must be kept current as new chemicals are introduced.

Glenn E. Schweitzer, Director of the Office of Toxic Substances, said, "We expect there may be as many as 20,000 substances on the inventory. The exact number will depend upon the use of categories for certain 'families' of compounds. New chemicals which fall into a category included on the inventory would not be subject to premarket notification."

Before a chemical not on the inventory can be introduced into commerce, the manufacturer must notify EPA at least 90 days in advance. He must submit estimates of the amount of the chemical he plans to produce, its intended uses, the estimated number of people who will be exposed to it, and any test data he may have on its toxicity and probable environmental effects.

On the basis of the data submitted, EPA must make a "reasoned evaluation" of the risk involved. If there is not enough information to make this judgment, the Agency may, after preliminary procedures, seek a court injunction to prohibit manufacture pending further testing.

If EPA believes a new chemical substance may present an unreasonable risk, the Agency may seek a court injunction to prohibit the manufacture or may make a rule immediately effective to limit its use, require appropriate labelling, or proper disposal methods, pending normal rule-making procedures. In any rule-making on toxic substances the law requires EPA to consider and publish its findings on the substances' benefits, the availability of substitutes, and the probable effects on the industry and the national economy.

For existing chemicals that pose an unreasonable risk, the new legislation offers several regulatory options. The Agency may ban production altogether, restrict the amount of production, or limit the chemical's sale to certain uses only. Alternatively, EPA may set labelling or disposal requirements.

Mr. Schweitzer believes that, under the new law, it is not reasonable to expect that all hazardous substances will be caught and brought under control.

"We cannot realistically expect to evaluate every one of the tens of thousands of chemicals in commerce. It will take years to develop the information needed to assess the health and environmental effects of even the major chemicals. This Act will be an important tool to reduce the number of chemical incidents, but there is no way to eliminate them completely."

The Act authorizes $10.1 million to carry out its provisions in Fiscal 1977. The sum of $12.6 million is authorized for 1978 and $16.2 million for 1979. An additional $1.5 million in each of the three years is authorized for grants to States having a concentration of chemical industries to help them assess their problems with the control of toxic substances.

The Act also authorizes a new EPA Assistant Administrator for Toxic Substances to be appointed by the President subject to Senate confirmation. Filling of this new post would give EPA six Assistant Administrators.

The cost to industry of the new legislation is estimated by EPA at up to $140 million per year. The General Accounting Office, a branch of Congress, says it should not exceed $200 million. Industry representatives have said the cost would be ten times as much.

The Act provides for appointment of an interagency committee to advise the Administrator on which chemicals should be tested. The committee members will represent the Departments of Labor, Commerce, and Health, Education, and Welfare, including several of its research activities; the Council on Environmental Quality; the National Science Foundation; and EPA.

One of the committee's first tasks is to make a "priority list" designating the 50 chemicals EPA should tackle first. Committee appointments are limited to four years, and no member who leaves the committee may take a job with the chemical industry for one year thereafter.

Civil penalties for violating the Act may be set at not more than $25,000 per violation, and each succeeding day constitutes a new violation. Criminal penalties can be as high as a $25,000 fine, a year in prison, or both.

Manufacturers may be required to keep records of the amounts of chemicals they produce and the uses to which they are put and to report periodically to EPA. Small businesses are exempt from certain reporting requirements.

The law protects confidential business information (trade secrets and privileged commercial and financial data). Any Federal officer or employee who discloses such information to unauthorized persons commits a misdemeanor punishable by a $5,000 fine and a year in prison.

A special section of the Act deals with polychlorinated biphenyls (PCB's), a family of synthetic compounds now used primarily in electrical equipment, although formerly used extensively in industrial and consumer products, such as paints, inks, and plastics. PCB's are poisonous to humans, accumulate in the fatty tissues of fish, and persist in the environment as DDT does. By July 1, 1977, EPA must set rules for warning labels on all products containing PCB's and for prescribing methods of safe disposal.

The law bans all PCB manufacture after two years and all processing or distribution after two and a half years.

Many substances are specifically exempt from the Toxic Substances Control Act because they are already controlled by other laws. These include pesticides, food additives, drugs, tobacco, ammunition, and nuclear materials.

Passage of the law climaxes a five-year effort by EPA to obtain adequate regulatory power over chemical poisons that are not limited to one environmental medium, like air or water. Legislation was introduced in 1971 and again in 1973 and 1975. The final bill was a compromise between separate versions passed by the House of Representatives and the Senate. It also represents a compromise between the stringent regulation sought by environmental groups and the chemical industry's desire for greater emphasis on self-regulation.

The policy and intention of Congress is summed up in the Act's preamble. "Congress finds that—

- "Human beings and the environment are being exposed each year to a large number of chemical substances . . . (that) may present an unreasonable risk of injury . . .
- "Adequate data should be developed (on these risks) . . . and such data should be the responsibility of those who manufacture and . . . process such chemical substances . . .
- "Authority . . . should be exercised (so as) not to impede unduly or create unnecessary economic barriers to technological innovation . . .
- "The Administrator shall carry out this Act in a reasonable and prudent manner and . . . consider the environmental, economic, and social impact of any action . . ." ■

SOLID WASTE CONTROL PROGRAM EXPANDED

EPA's solid waste control activities will be greatly expanded under legislation passed in the closing days of the 94th Congress.

The new law authorizes $35 million for the Solid Waste Office's operations in the current fiscal year, more than double last year's appropriation, $38 million in 1978, and $42 million in 1979.

In addition, starting in fiscal '78, grants are authorized to States and regional bodies for planning and carrying out solid waste programs. About $140 million is authorized for State aid, research, and other purposes in 1978 and $107 million in 1979.

The law also—for the first time—requires EPA to set standards for the handling of hazardous solid wastes and provides regulatory powers and penalties.

"Enactment of this legislation presents a great new challenge to EPA," said Sheldon Meyers, Deputy Assistant Administrator for Solid Waste Management Programs, "but we are confident we can meet that challenge and justify Congress's expectations."

"Solid waste has long been the stepchild of the environmental movement," said Sen. Jennings Randolph of West Virginia before the final vote on the legislation. "Substantial attention has been given to the problems of air and water pollution . . . and properly so. . . . But we neglected to fully recognize the implications of haphazard solid waste disposal practices."

Sen. Randolph, chairman of the Public Works Committee, sponsored the bill in the Senate, where it was approved, 88 to 3, last June. The House passed the bill on Sept. 27 by a vote of 367 to 8. Final Senate action was unanimous, and President Ford signed it into law on Oct. 22.

The Resource Conservation and Recovery Act supersedes the Solid Waste Disposal Act of 1965 and augments the Resource Recovery Act of 1970.

The new law seeks to reduce the amounts of waste created, to recover materials and energy from wastes, and to dispose of wastes in ways that will not endanger public health or the environment. In the words of Sen. Randolph, it is "imperative that we examine our attitudes toward the consumption of materials. Depletion of

Burning dump near Moab, Utah.

resources and higher prices dictate that we change our individual attitudes and our collective public policy."

The law itself notes that the cleanup of the Nation's air and water is creating greater amounts of solid waste in the form of sludges and other pollution treatment residues.

Hazardous Wastes

Hazardous waste is defined in the Act as any waste that "because of its quantity, concentration, or physical, chemical, or infectious characteristics" may cause death or disease or threaten public health or the environment. Examples might be industrial chemicals that may enter the food chain, substances that may wash out of landfills, and oily wastes that kill fish and wildlife.

EPA is required to identify and publish a list of hazardous wastes within 18 months and to set standards for the handling, transportation, and ultimate disposal of such wastes.

Under EPA guidelines, States are to establish regulations for hazardous waste handling and issue permits for treatment, storage, or disposal. If States fail to do so, EPA regulations apply. Civil and criminal penalties are established for violations, up to $25,000 per day of noncompliance, a year in prison, or both. EPA must consult with the Department of Transportation in drafting rules for transporting hazardous wastes.

States will be eligible for technical and financial assistance to develop and implement State and regional solid waste management plans which would encompass collection and disposal as well as resource recovery and conservation options. Initially, EPA will assist in such efforts by promulgating guidelines for State plans, and—to encourage 'regionalization'—promulgate separate guidelines for helping States identify those areas which have common solid waste management problems. To implement State plans, if and when such plans are approved by the EPA Administrator, both State and local governments will be eligible for EPA grant assistance.

Open Dumping Ban

The law prohibits the open dumping of all solid wastes. Criteria for identifying open dumps, and for identifying sanitary landfills, will be published by EPA no later than October 1977, and the Agency will conduct a national inventory of all open dumps within the twelve months that follow. State or regional solid waste management plans must include the banning of open dumps. All open dumps throughout the country must be closed or upgraded by 1983. Special grant assistance to help meet these new requirements for land disposal facilities will be available for rural communities of less than 5,000 population and rural counties of less than 10,000 (or with fewer than 20 persons per square mile).

Grants to a limited number of "special communities" are also authorized. These are to be communities of less than 25,000 population, most of whose solid waste comes from outside their boundaries, causing serious environmental problems. Only one such grant (one project) can be made in each State.

The law also provides for:

- Extensive research, development, and demonstration projects in solid waste technology.
- At least eleven special studies in specific areas such as glass, plastics, rubber tires, sewage sludge, mining wastes, and the hazards caused by birds at landfills near airports.
- Special emphasis on the rapid dissemination of information, on public education programs, and a central reference library of solid waste management data and other materials.

Interagency Cooperation

Under the Act, the Secretary of Commerce is required to "encourage greater commercialization of proven resource recovery technology . . ." and the Energy Research and Development Administration is required to cooperate with EPA in the field of energy recovery from solid waste.

An Interagency Resource Conservation Committee will be set up this fiscal year with a $2 million authorization to study strategy and public policy, including subsidies and economic incentives. The EPA Administrator will be the chairman. Members include the Secretaries of Commerce, Labor, Interior, and Treasury; the chairman of the Council on Environmental Quality; and a representative of the Office of Management and Budget.

The Act makes no specific mention of returnable bottles and cans to reduce litter and save materials and energy. However, last June Sen. Mark Hatfield, of Oregon, proposed a uniform national deposit system on all bottles and cans as an amendment to the Senate bill. It was defeated. He then proposed, and the Senate almost unanimously approved, another amendment for an interagency study of the issue. This was dropped from both the House version and the final bill. But Sen. Hatfield said he was confident that such a study would be included under the Act's "general language concerning the need for Federal studies of various solid waste management alternatives . . ."

A Local Problem

The new law, like the one it replaces, recognizes that solid waste is primarily a local problem that should be managed by State and local governments or regional groups. It encourages existing agencies—particularly the area-wide planning agencies designated under section 208 of the Federal Water Pollution Control Act—to plan and carry out solid waste management programs.

The role of the Federal Government in solid waste activities said Sen. Randolph, "should be one primarily of providing financial and technical assistance. . . . The Environmental Protection Agency's effectiveness may be compromised if it advocates specific policy alternatives at the State or local level. These matters are best left to local choice . . ."

Sen. Howard Baker of Tennessee noted that the new law requires EPA to give advance notice to the appropriate congressional committees before publishing any guidelines, information, or model codes and ordinances. "This is not a provision for congressional approval or veto," he said. "It simply assures that Congress will be informed of EPA's intentions and activities."

The new law abbreviates the name of the Office of Solid Waste Management Programs. It becomes simply the "Office of Solid Waste." ■

Guarded by a facemask, a workman uses his machine to dig Kepone waste from the ground around the site of the Life Science plant in Hopewell.

JUSTICE IN THE KEPONE CASE

". . . I don't think that commercial products, or the making of profits are as important as the God-given resources of our country."

This warning was made by Federal Judge Robert R. Merhige Jr., as he levied the largest criminal fine ever imposed for environmental pollution. The Allied Chemical Corporation was penalized the maximum sum allowable under the law, $13,375,000, in October for discharging the pesticide Kepone and other chemical contaminants into the James River from its Hopewell, Va., plant.

EPA Administrator Russell E. Train declared that "the large criminal fines levied by the Federal court in the Kepone case represent a landmark decision in the history of environmental protection. The court has clearly signalled that polluters will be held accountable to the full extent of the law."

Last December, a Region III investigation of the Kepone tragedy ended when Regional Administrator Daniel J. Snyder, III, referred the findings to the U.S. Department of Justice. "On the basis of the initial evidence which Mr. Snyder reported to us, our office decided that we should pick up the ball," said William Cummings, U.S. Attorney for the Eastern District. Shortly thereafter a grand jury was assembled.

The Justice Department's effort culminated in August when Allied pleaded "no contest" to 940 counts of violating Federal water pollution control laws. The violations occurred between 1971 and 1973 when the international company directly manufactured the persistent, toxic agricultural insecticide and discharged wastes into a tributary of the James.

Allied was given 90 days by Judge Merhige in which to pay the fines to the U.S. Treasury.

Judge Merhige said in remarks made during sentencing in the Richmond, Va., District Court that "the environment does truly . . . belong to every single person in this country . . .

"I am reasonably familiar with the legislative history of the acts that are involved in this case. I have had to study them, not only in connection with this case, but with regard to several others we have had and several that are coming. I am satisfied that we, as a Nation, are dedicated to clean water, unpolluted waters. . . . Our responsibility is to the law, and the law alone . . .

"I have reason to believe that Allied . . . is going to think several times before anything such as this (the Kepone incident) happens again. I think they are going to go the extra mile to see that it doesn't. That is not only good, but I think it is necessary . . . .

"I also recognize in one sense that all of us are responsible for what happened, because we have either affirmatively or through indifference permitted things like this to happen . . . we drive down the street and see smoke belching from a smoke stack. We see garbage being thrown into our rivers. We think it is terrible, but unless we are personally affected, that is the extent of our action.

"I hope after this sentence, that every corporate official, every corporate employee that has any reason to think that pollution is going on, will think, 'If I don't do something about it now, I am apt to be out of a job tomorrow.' I want the officials to be concerned when they see it.

"Allied knew it was polluting the waters. As Mr. Justice Rehnquist said 'Polluters do so at their own risk.'

"As you know, I said when the plea was accepted, that I would hope there would be some way that the fines that obviously would be forthcoming could be used to benefit those who directly were hurt . . . I am satified, however, that this cannot be done under the law . . .

"I intend to and will consider what actions, if any, have been voluntarily taken by the defendant corporation to alleviate the horrendous effects that have occurred.

"In no event, do I want any actions done under any compulsion whatsoever. Any action it would take should be taken voluntarily. In no event would a reduction (in the fine), if there is a reduction, be in an amount equal to whatever they may voluntarily expend. I am not, however, closing my mind to consideration of an appropriate adjustment."

Administrator Train noted in his assessment of the sentencing that, "the fact that the court indicated that the sentences might possibly be mitigated by voluntary action to help those directly hurt by the Kepone tragedy suggests a new measure of corporate responsibility in such cases."

Allied is not the only corporate body which has been fined as a result of the Kepone incident. In early 1974, Allied turned over the manufacture of Kepone to a small company called Life Science Products, which became the sole producer of the pesticide until the converted gas station from which it operated was closed as a health hazard in July, 1975. Life Science had previously pleaded guilty to 154 charges of violations of Federal pollution control laws, and was fined $3.8 million for polluting the James. Two former Allied Chemical employees who created Life Science were also given huge fines, (of which all but $25,000 was suspended,) and five years probation each.

U.S. Attorney Cummings noted in regard to the stiff sentences received by Allied and Life Science that, "there is at least one judge who clearly wants the word to go out that the environment cannot be abused. In this respect, this case could be a forerunner of others. It is encouraging."

The $3.8 million fine levied against the Life Science Corporation will probably go uncollected, according to Federal attorneys, because the now-defunct company has no known assets.

In other related trials, Judge Merhige ruled that the government failed to prove that Allied and Life Science had "knowingly and willingly" entered a criminal conspiracy to violate the pollution laws, and that two Allied employees had conspired to defraud the Federal Government. The city of Hopewell has been penalized for unlawful discharges from its sewage treatment plant.

A number of EPA staff members served as expert witnesses during the Kepone trials. They included Dr. Tudor Davies of the Gulf Breeze Laboratory; Dr. Edward Oswald and August Curley of Research Triangle Park; Dr. Wayne Smith, Dr. Ted Meiggs and Art Masse of EPA's National Enforcement Investigations Center in Denver; Dr. Walter Lee and Mike Zickler of EPA Region III; and Dr. Jack Blanchard of headquarters.

Since receiving sentence for its "no contest" plea to violating Federal pollution control laws, Allied has issued statements saying that "the judicial process has been completed and we must respect it. We deeply regret the circumstances surrounding the Kepone affair and the concern caused to the people of Virginia, particularly because, in all our operations in Virginia over a period of 48 years, Allied Chemical has acted as a good corporate citizen and has maintained policies in support of all public programs, including environmental programs. We shall now concentrate on expanding upon our efforts to remedy the damage caused by Kepone."■

EPA HELPS IRAN SOLVE AIR POLLUTION

By Roger Strelow

Several months ago, the head of Iran's "EPA" asked Administrator Russell Train to send some U.S. EPA air pollution experts to Iran to help solve the serious air quality problem in Tehran, Iran's capital city. This request and invitation led to a fascinating experience for Joel Horowitz and myself from Air and Waste Management and for Don Oakley of International Activities who accompanied us and went on to make other contacts for EPA in the Middle East. The U.S. Agency for International Development (AID) financed our travel under its authority to stimulate reimbursable technical activities abroad.

Fumes rise from a cement plant on outskirts of Tehran.

We have good reason to believe that our consultation with the Iranian Government was a valuable stimulus to its new air pollution control program and that essential follow-up consultations on the details of specific programs are likely to occur. In addition, we initiated work on a general cooperative agreement that should be concluded soon between EPA and Iran's Department of the Environment (DOE).

Iran, more than 16 hours' flight time from Washington, is a sizable (2½ times larger than Texas), rugged country composed of arid deserts and plains, which are dotted with green valleys, and several large ranges of snow-capped mountains. It is one of the world's oldest nations, with known civilization dating back over 3000 years. Its artistically-oriented culture is still pervaded by the beautiful architecture of ancient Moslem mosques and the lyric poetry of Omar Khayyam, Firdausi, Hafiz, and Saadi. Over half of all Iranians live in the country—most of them in the walled, mud-brick houses that typify Iranian farm villages, and a smaller number belong to nomadic tribes. Some 44% of Iran's roughly 34 million people live in urban areas, many of which are expanding rapidly and drawing an increasing portion of the population.

The discovery of oil in the early 1900's stimulated the recovery of a Nation that had gradually lost wealth and power over several centuries. The series of ambitious economic development programs undertaken in recent decades with Iran's substantial oil profits inevitably gave rise to the type of air pollution problems that led to our trip.

While some of Iran's most scenic cities, such as Shiraz (pop. 336,000) and Isfahan (pop. 546,000), now face the prospect of becoming heavily polluted unless the growth planned in these areas is carefully controlled, the capital city of Tehran (pop. nearly 4 million) is already choking in the by-products of rapid, inadequately controlled growth. Although Tehran has its share of stationary sources—such as a belching cement plant—contributing to the visible pall that hangs over the city, the most obnoxious single air pollution problem there is unquestionably the automobile.

As "progress" has come to Tehran, so has one of its typical components, a rapid rise in auto ownership and use. Motor vehicles registered in Tehran now number over 800,000, dramatically up from less than 400,000 only five years ago. Few of these vehicles have emission controls. Moreover, the quality of available maintenance service is very poor. To make matters worse, most of these vehicles appear to be on the streets, contributing to mind-boggling traffic jams, at all hours of the day except for a few hours after midnight. All of this, combined with an "every man for himself" style of driving that exacerbates the fundamental congestion problem, causes an additional cloud of pollution, painfully perceptible to both nose and eyes, that floats over the main streets.

To its credit, Iran's government has begun to face the existing and potential air pollution problems symbolized respectively by Tehran and Isfahan. While any overall prognosis now would be difficult, there are very encouraging signs. In 1974, the Environmental Protection and Enhancement Act created the Department of the Environment, thereby upgrading and expanding the scope of the previous Department of Environmental Conservation to include pollution controls. The Department is headed by an aggressive, articulate conservationist-engineer, Eskandar Firouz. One indication of the priority given to his Department's work is that besides being Director of DOE, Firouz is also one of a limited number of Assistant Prime Ministers. Also, the Environmental High Council, which formulates fundamental policies and oversees their execution, is headed by a member of the royal family, Prince Abdorreza.

Iran's parliament has given the DOE a strong law to combat air pollution, particularly that from motor vehicles, the Clean Air Act of 1975. The law authorizes the DOE to establish air quality standards and emission limitations, although the two are not linked as closely as in our Clean Air Act. DOE can also require permits for

Roger Strelow is EPA's Assistant Administrator for Air and Waste Management

stationary sources of pollution. Broad authority is given to control vehicular pollution, including authority to regulate emissions from new vehicles and to require inspection and maintenance.

In our efforts to assist DOE in controlling motor vehicle pollution, we found that rather than suggesting new ideas we were focusing on the need to set priorities and to appreciate and anticipate the many complexities and details of implementation. DOE has a very small (12 people) but able air pollution control staff. One member is an American who first went to Iran in the Peace Corps after working for the Kentucky air pollution control program. He has been particularly helpful in bringing the extensive U.S. literature into DOE's work. In preparing a possible motor vehicle program, however, the DOE was, if anything, over inclusive rather than under inclusive!

Given the size of the present staff, the limited number of trained Iranian professionals in this area, and the lack of any motor vehicle control program at present, we felt that it was imperative for DOE to focus its limited resources on a few of the most essential, high-impact measures. Therefore, we suggested that measures such as possible conversion of taxis to gaseous fuels be given less immediate attention than the two programs that appear to deserve most effort—setting standards for new vehicles (the projections are for continued rapid expansion of Tehran's vehicle population) and developing inspection and maintenance. Unfortunately, the tremendous sophistication and complexities of the present U.S. motor vehicle standards program, to say nothing of the present unavailability of unleaded gasoline in Iran, make it highly questionable for Iran to attempt immediately to emulate our program. Rather, we felt that for the near term, DOE could best begin with a simpler but still quite effective program patterned along the lines of the U.S. program of the late 1960's and early 1970's. We also recommended, however, that in order to prepare for future catalyst-based standards as well as to protect public health, lead should be phased out of gasoline as soon as possible. (Ideally, the phase-out could be completed by the time catalyst-based standards were feasible, so that there would be none of the problems of the dual fuel system we now have in the U.S.)

Keeping in mind the need to focus on a limited number of implementable measures that could have near-term benefits, we also urged that appropriate authorities—probably the City of Tehran rather than DOE directly—implement certain "transportation" or traffic controls to reduce congestion and unnecessary vehicle use. The Tehran Development Council Secretariat has made an extensive study of Tehran's traffic problems, although not for the principal purpose of reducing air pollution, and we commended its recommendations to the DOE. In particular, we expressed hope for the feasibility of a program that recently was demonstrated quite successfully in Singapore—the designation of certain critically congested areas which are off-limits to vehicles not displaying a special and rather costly permit. Offenders are not blocked from access but are ticketed and fined stiffly, analogous to U.S. parking violations. We also highlighted the need for much stricter enforcement of traffic laws and expansion of both public transit (most buses you see are crowded during most of the day) and the already significant number of employer-operated transit services.

Street traffic outside Sepahsalar Mosque in Tehran.

Some people with whom I have discussed our trip have commented, only half-facetiously, that it must be a lot easier to get pollution controls implemented under a strong monarchy such as Iran's. Undoubtedly there are some advantages of the sort assumed, but to me one of the most striking features of our discussions was the constant appearance of remarkable similarities in the fundamental features of U.S. and Iranian government institutions. These familiarities really are not surprising when carefully considered. For example, it is quite natural that a government with substantial revenues (particularly from oil sales) but even more substantial economic development and military preparedness goals should have a strong "OMB." Sure enough, Iran's Plan and Budget Organization seems to be a mirror image! Interagency rivalries, sensitivities concerning the roles of local governments, shortages of certain types of skilled professionals—the parallels abound even though the two systems of government obviously are quite different.

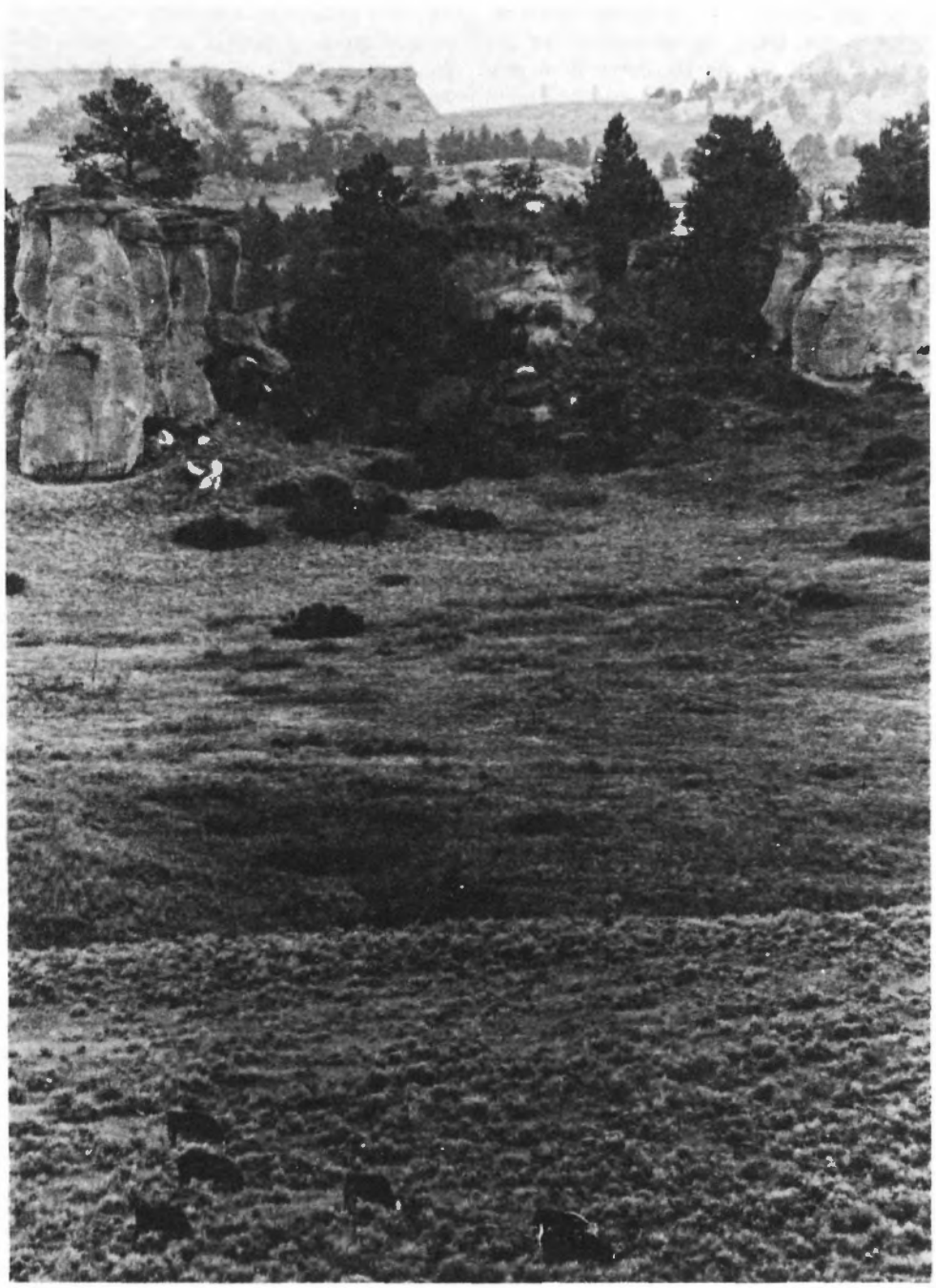
I should add at this point that recommendations such as I have outlined were not arrived at unilaterally after formalized briefings and tours. Rather, we had what I believe was an excellent atmosphere of "give and take" discussions and mutual "brainstorming" with the air pollution staff of DOE and also with Mr. Firouz. This approach was critical to achieving a final report to Mr. Firouz which reflected very substantial participation, feedback, and consensus. This fact greatly enhances the probability that our recommendations will be useful and feasible to implement.

On the subject of general stationary source controls, we struck a particularly responsive chord. Having in mind EPA's recent strengthening of emphasis on proper controlling and siting of new stationary sources—whether in non-attainment or in pristine areas—we were most interested to find that Mr. Firouz had already oriented DOE's stationary source program very heavily towards new sources. In view of DOE's staff limitations, the relative technical and economic ease of applying technology requirements to new rather than existing facilities, and the tremendous economic growth that Iran is experiencing, we urged that this emphasis on new sources be continued and strengthened to require "best available control technology," at a minimum, regardless of location and air quality conditions. Again, we arrived at a strong consensus with our "clients."

It was an exciting experience to step back briefly from the relatively well-established air pollution control program that exists in the U.S. and to work intensively with dedicated professionals who are in the early stages of trying to both solve and prevent air pollution problems in a rapidly developing nation. The problem in Tehran is present and obvious. It certainly warrants priority attention. However, the few days I was able to spend in two of Iran's national parks—Kolah Ghazi near Isfahan and Lake Rezayeh (a large salt lake with 92 islands)—reminded me of the great attention now being focused on preservation of our many scenic Western parks and wilderness areas. In both cases, failure to preserve these national treasures would be tragic. ■

RESEARCH ON THE PLAINS

By Charles Pierce



Barely visible in the center of the horizon line in this Montana plains scene are the tips of the twin stacks of a new power plant several miles away from where cattle are grazing in the foreground.

This dragline works through the night to strip the earth from rich coal seams near Colstrip, Mont.

Standing on a butte in southeast Montana you could see a herd of cattle grazing on the bronze-colored grasses of late summer. A whinnying sound floated in from the distance where the tiny figure of first one horse and then several could be seen galloping down a slope toward a ranch for their evening feed.

All around was a countryside bathed in shadow and sun under the cloud-streaked big sky. To the south was the Rosebud Creek Valley where Custer camped on his way to doom at the nearby site of Little Big Horn.

Now, however, even the memory of this old battle could not disturb the peace of this scene where the only noise was a breeze ruffling the branches of the butte-top ponderosa pines.

Then you noticed on the far horizon the electronic aircraft warning lights pulsing rhythmically every few seconds on the barely discernable tops of the twin towers of a huge power plant seven miles away at Colstrip.

And you were reminded of a new and often bitter struggle in the plains country over the issue of whether the grasslands should be stripped for coal to help fuel power plants not only in Montana but for energy-hungry cities elsewhere in the Nation as well.

Immediately below was another reminder, a fenced-in acre of grassland and a mobile air quality monitoring trailer, part of a major project being conducted by EPA's Environmental Research Laboratory headquartered at Corvallis, Ore.

EPA is attempting to learn how this beautiful countryside can be protected from coal fumes discharged at the Colstrip power plant, some 100 miles east of Billings, Mont.

Dr. A. F. Bartsch, Director of the EPA laboratory at Corvallis, explained that "this project has national significance because we are attempting to develop information which can be used to minimize the environmental impact of all coal-burning plants.

"Recognizing that the United States is moving toward the use of coal as the primary fossil fuel, EPA is seeking to reconcile the Nation's energy needs and our obligation to protect the environment.

"The study, which is being carried out by EPA scientists with the aid of researchers from three State universities, is attempting to determine the effect of the power plant

Charles Pierce is Editor of EPA Journal

fumes on the grassland's animals, insects and plants. An important objective is to determine which forms of life are the most sensitive and reliable measures of air pollution.

"Once the information is obtained, it can be developed into a protocol or guidebook on how to site power plants so that they will do the least damage to the environment. Information accumulated in this research project, which is also expected to prove enormously valuable in developing improved air quality standards for the future, is being analyzed at the Corvallis laboratory."

The setting for the Colstrip power project is spectacular.

Towering draglines work day and night seven days a week to remove the earth covering the huge coal seams 30 to 160 feet below the surface. The coal is then loosened with dynamite and loaded by enormous shovels which can bite off 15 tons of coal with one sweep of their buckets. After being loaded onto heavy duty motor carriers the coal is taken to conveyor belts. The belts take the coal either to the nearby power plant or to a site where it is loaded into 100-car trains. Autos back up on the highway at the main rail crossing outside Colstrip as rail cars roll by carrying the fuel which will light homes and power factories in the Middle West. An estimated 11 million tons of low-sulfur coal will be mined in the Colstrip area this year.

Nearby are enormous earthen furrows largely barren of vegetation which were left after strip mining started in this area 50 years ago to provide coal for steam locomotives.

The new power plant rises like a giant battleship riding the prairie sea. At night, with its hundreds of lights, it sparkles like a great beacon. From outside voices can be heard booming over the plant's internal loudspeaker system.

A short distance away is the company town of Colstrip with its scattering of permanent homes, trailer camps and new recreation building and park still in the process of being built.

The surrounding silent prairie seems to stretch forever under the star-drenched night.

"A raw, vast, lonesome land, too big, too empty," wrote A. B. Guthrie about Mon-

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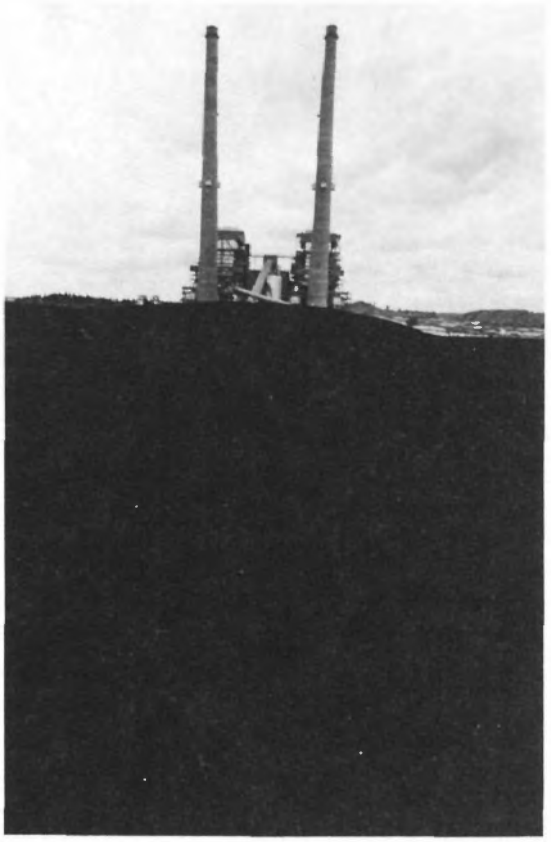
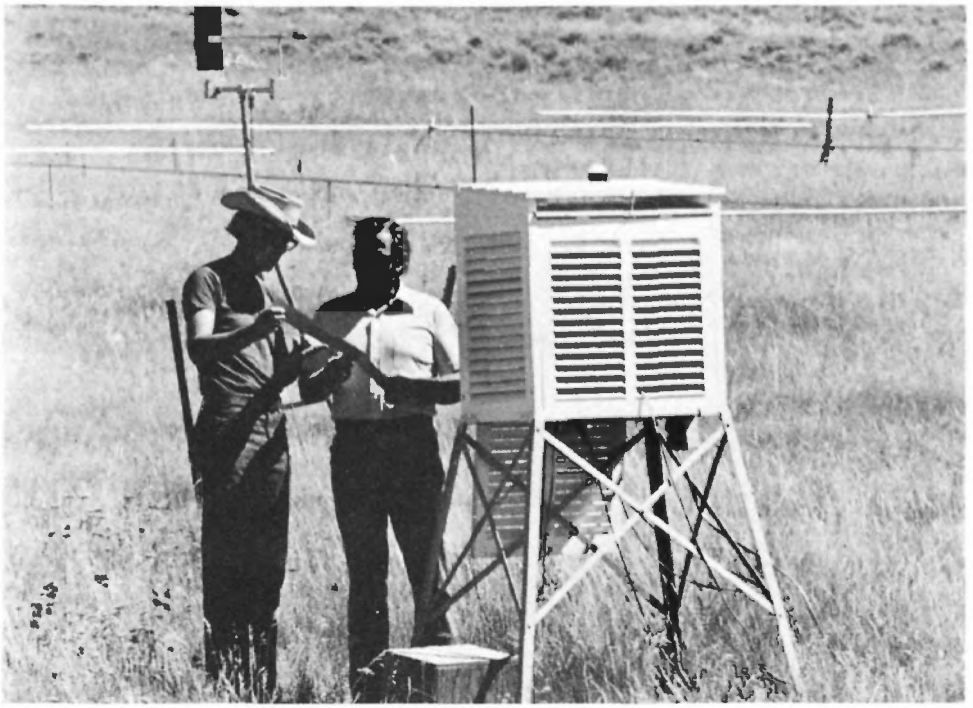


Coal is stockpiled in front of towering power plant.



Dr. Eric Preston (left) and Dr. Norman Glass , two EPA scientists, review data from a meteorological station at a "ZAPS" site. In the background are the pipes used to stress the area with sulfur dioxide fumes.

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tana in his novel, *The Big Sky*. "It made the mind small and the heart tight and the belly drawn, lying wild and lost under such a reach of sky as put a man in fear of heaven."

At night the plains are alive with deer mice, voles and other nocturnal creatures, some of which are caught in traps set as part of the EPA research project. They are released the next day after being weighed, measured and thoroughly checked for indications of pollution injury.

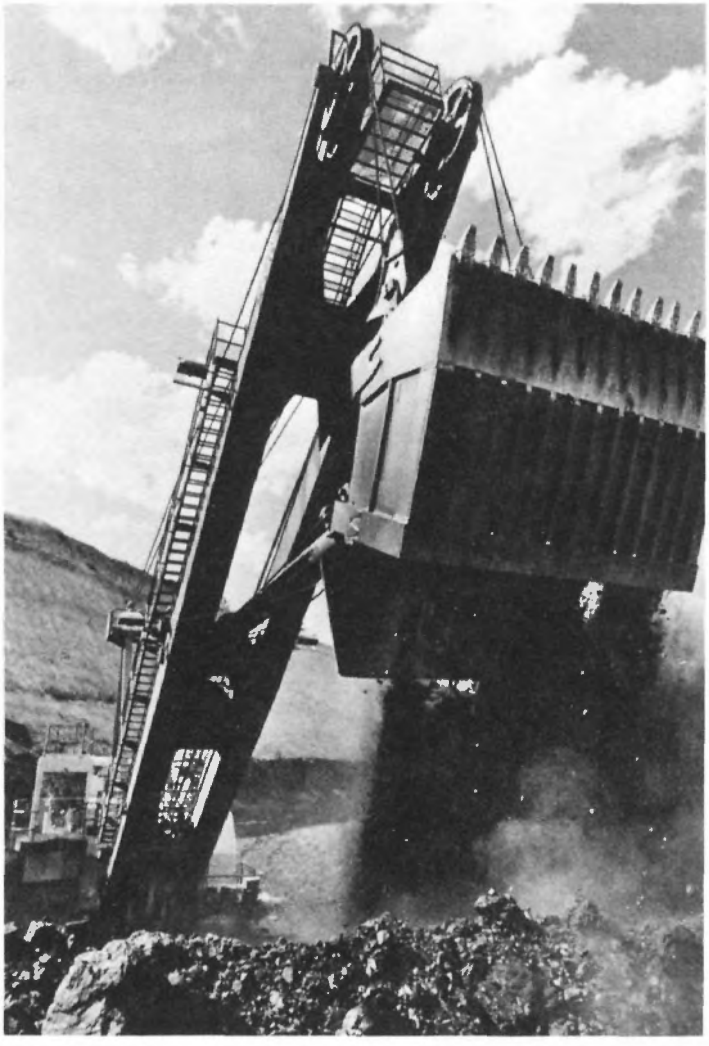
In the daytime as one walks across the plains, jillions of grasshoppers explode under foot, flying off like so many tiny firecrackers.

Driving along the bumpy prairie roads frequently crossed with metal cattle guards, you pass fields studded with hay stacks and occasional lofty buttes. Flocks of mourning doves and meadow larks burst into the air sporadically as the car goes by.

While the grasslands in this semi-arid region are fragile, they teem with life. And all forms of this life are being screened by the project scientists for possible duty as early warning sentries of sulfur dioxide pollution.

One of the humbler forms of life, the mosslike lichen, promises to be one of the more effective in detecting the presence of the pollutant.

The two main research areas are at Hay Coulee, about nine miles southeast of the power plant, and at Ft. Howes, a site



Shovel takes huge bite of coal.

In this aerial view the power plant can be seen behind the twin towers. Railroad cars that carry coal to the Midwest are in the right foreground. Near the tracks are the scars left by strip mining of an earlier era.

Giant shovel dumps coal from huge seam into waiting carrier.

about 65 miles further southeast in the Custer National Forest.

At the coulee (a dry gulch or ravine) site, an air quality monitoring trailer records the amount of sulfur dioxide and other pollutants as well as wind speed, humidity, rainfall and solar radiation to collect complete data.

Intensive studies are conducted on such plants as bluejoint, needle and thread, crested wheat and blue grama—all grasses eaten by cattle and sheep on these rangelands.

As part of the study Dr. Eric Preston, EPA field project manager, conducts a periodic bird census in the area. Beginning a half hour before dawn he stops at stations every half mile along a 30-mile route around the plant to record either by sight or song the number and variety of birds present.

So far no significant impact on the grasses or other forms of life has been detected at the Hay Coulee site. However, the project scientists report that so far the power plant has not been in full operation.

Dr. Norman Glass, Director of the Corvallis Laboratory's Ecological Effects Research Division, explains that the study is "the first major attempt to develop methods that can predict bioenvironmental effects of air pollution before damage is sustained."

The project was started in 1973 to obtain useful "before" and "after" data on the impact of fumes from a coal-burning plant. The first 350-megawatt unit of the Colstrip power plant began operation spasmodically in 1975 and the second unit started intermittent operation last summer. The two 500-foot power plant stacks are equipped with "scrubber" devices, pollution control mechanisms designed to reduce the amount of sulfur in the emissions from the plant. Construction of two additional larger generating units at Colstrip has been proposed by Montana Power and four other utilities from the Pacific Northwest.

In the past air pollution field research has concentrated on the direct impact of air pollution on vegetation after the damage has occurred. Also little information has been available on the effect of relatively long-term low-level pollutants.

The Colstrip area was picked for the study for many reasons, including the fact that it is representative of a relatively large portion of the North Central Great Plains. It is a rangeland where the vegetation and the non-migratory animals have had to endure such environmental problems as drought, freezing temperatures, and scorching heat but never the added stress of air pollutants.

At a remote grassland area in the Custer National Forest, near the Ft. Howes site, experimental stressing of two four-acre sites, known as "ZAPS" (zonal air pollution systems) tracts, is under way.

Each tract is criss-crossed with what appear to be metal irrigation pipes. However, instead of water the pipes are releasing the fumes from tanks of sulfur dioxide

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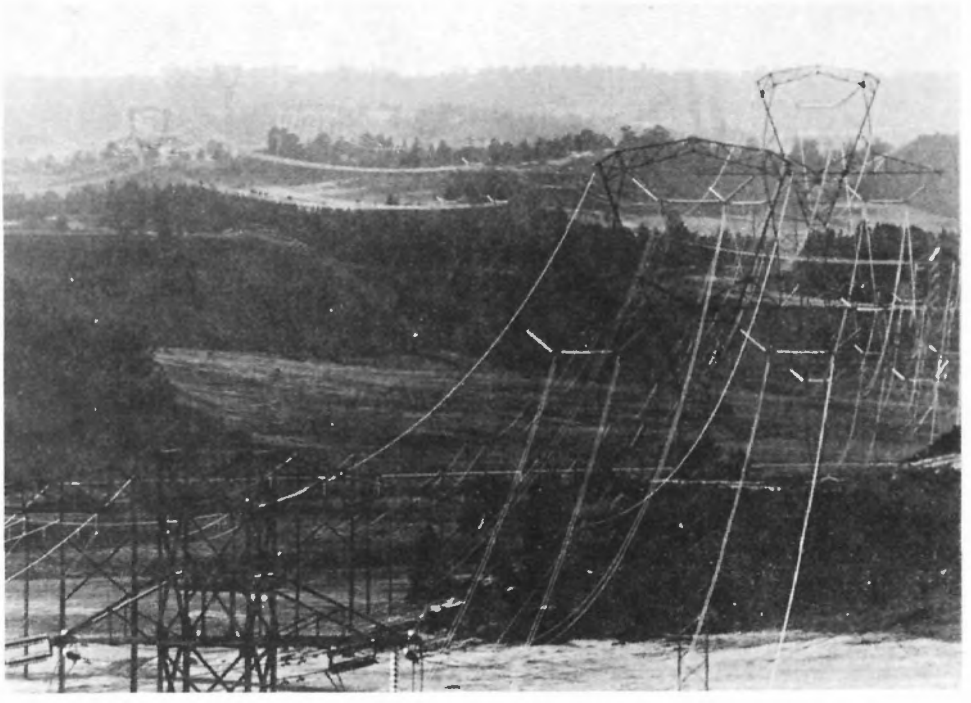
The large net is dropped from its boom to collect insects for EPA's study of the impact of sulfur dioxide fumes. Resting on the pipes used to distribute the sulfur dioxide is a "sticky cup," a trap used to catch flying insects.



Power lines stride across the Montana plains.

Rabbit outside his lair at the base of a Montana butte.

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at carefully controlled concentrations.

Progressively greater amounts of this pollutant are released on the plots in each tract.

Dr. Glass remarked on an inspection tour of the site that the "sulfur dioxide pollution here is equivalent to that on an average summer day in Philadelphia. We tried to get the pollution up to the Chicago level, but we didn't quite make it."

Dr. Glass explained that EPA is fumigating two four-acre sites and may start a third one if funding can be found because "we don't want to put all our eggs in one or even two baskets."

At the ZAPS sites various types of traps are used to collect insects and small animals, and detailed studies are made of all plant forms.

Dr. Sharon Eversman, a lichenologist and biology instructor at Montana State University at Bozeman, reports that at the ZAPS location, as in other areas around the world, lichens show great sensitivity to the sulfur dioxide fumes.

"After no more than 30 to 60 days of exposure to the sulfur dioxide, the lichen respiration rate goes down and the algal cells begin to bleach," Dr. Eversman reports. "The whole appearance of the lichen which is normally a greenish gray becomes yellowish.

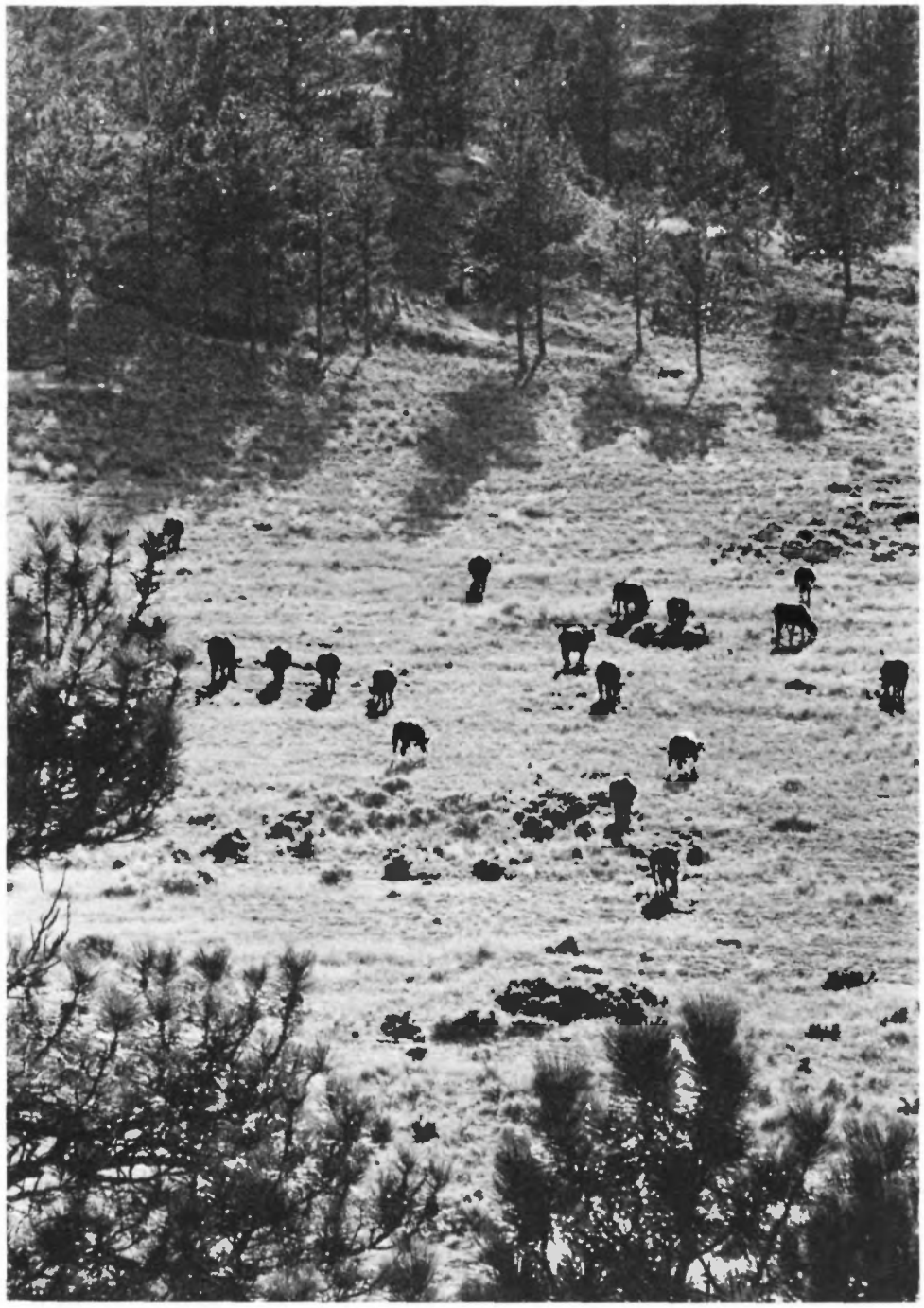
"While the grasses don't appear to show much difference between the progressively more polluted ZAPS sites, the lichen certainly do. I think this is because the lichen get all their water and nutrients through the air. They have no roots and so there is no filtering by the soil before the water and nutrients are received."

Universities and their team leaders working on the research project under contract with EPA are:

Colorado State University, Jerry Dodd; Montana State University, John Taylor, and the University of Montana, Clancy Gordon.

Strip mining of the enormous coal supply available in seams averaging 25 feet in thickness was started by the Northern Pacific Railway at Colstrip in 1924. At that time the coal was used to fuel steam locomotive boilers. However, the railroad discontinued its mining in 1958 when its steam engines were replaced by diesel locomotives.

In 1959 the Montana Power Company acquired the Northern Pacific's large mining machinery, the townsite of Colstrip and mining leases covering 75 million tons of coal resources. Western Energy, a coal mining subsidiary of Montana Power, later obtained additional leases in the Colstrip area to bring the total to about 850 million tons of coal resources.



Cattle browse on plains grass.

Some of this coal is shipped to midwestern utility companies in Illinois, Wisconsin and Minnesota and much of it is used by Montana Power Co. plants, including the two new generating units in the coal mining area known as Colstrip 1 and 2.

Dr. Glass estimates that EPA is spending approximately $900,000 a year on the Colstrip research project, with about half this sum being spent by EPA scientists and the remainder being used to finance work by State universities and other Federal agencies cooperating on this project.

"We hope to complete the project in another year to two," said Dr. Glass "and be in a position then to provide advice on optional siting of power plants with the least amount of environmental damage.

"Also, we hope to develop a protocol or method for determining potential environmental impact of power plant emissions before the power plant is constructed, which could be used by public and private utilities and State and Federal Government agencies in assessing power plant sites before energy development occurs." ■

NEW SPONGES FOUND AT OCEAN DUMPSITE

The sponges are white and vase-shaped. They are three to four feet tall and grow in the Pacific Ocean at a depth of 3,000 feet. As far as is presently known, no one has ever seen them before. Perhaps more intriguingly, they have been found growing on drums of radioactive waste which were dumped into the ocean over 20 years ago.

But, despite considerable conjecture in the news media, there is no connection between the size of the sponges and the fact that they are growing on the drums of radioactive wastes, according to Robert S. Dyer, EPA's Office of Radiation Programs oceanographer, who discovered these sponges.

In early September 1976, a copyrighted story appeared in an Oakland, Calif., newspaper reporting that giant sponges were thriving in a nuclear dumpsite. The story reached the Associated Press, United Press International, the major television networks, and both the British and Canadian broadcasting companies. Mr. Dyer continues to receive many inquiries about the sponges. On September 17, 1976, Dr. William D. Rowe, Deputy Assistant Administrator for Radiation Programs, testified in San Francisco before the House Committee on Government Operations on ocean disposal of radioactive wastes. At the hearing, much interest was shown and many questions were asked about the large sponges seen by Mr. Dyer in the Farallon Islands dumpsite area, 40 miles offshore from San Francisco.

The beginning of the story dates back to July of 1974, when Mr. Dyer served as chief scientist for a unique underwater expedition (first reported in the EPA Journal, July/August, 1975). Using a remotely-controlled submersible (an unmanned diving vehicle equipped with sonar and videotape cameras) Mr. Dyer was able to locate and examine clusters of drums at the now disused Farallon Islands dumpsite. Some 2,500 55-gallon drums of low-level radioactive waste generated by radiation laboratories on the West coast had been dumped there in 3,000 feet of water between 1951 and 1953.

The survey program began with the passage of the Marine Protection Research and Sanctuaries Act of 1972 (commonly known as the Ocean Dumping Act) which called upon EPA to develop regulations and criteria controlling ocean disposal of all pollutants. Since then, the Office of Radiation Programs has concerned itself with implementing the Ocean Dumping Act to control the disposal of radioactive wastes. In the course of this implementation, the Office of Radiation Programs concluded that one of the best approaches would be to survey the old disposal sites, now disused, because at those sites experts could learn about such things as the adequacy of past radioactive waste packaging designs, the biological diversity in the area, the presence of ocean currents which might disperse the radioactivity, and the acceptability of those sites for any future disposal.

One of Mr. Dyer's major findings at the Farallon Islands sites was that up to 25 percent of the approximately 150-200 barrels surveyed had leaked a small amount of plutonium. The radiation levels measured in the sediment were very small but were 2 to 25 times higher than the maximum expected radiation levels that could have occurred from weapons testing fallout. The radioactivity was only measured in the ocean bottom sediment. Mr. Dyer has reported these findings to the House Committee on Interior and Insular Affairs and the House Committee on Government Operations and to the International Atomic Energy Agency (IAEA) in Vienna, Austria.

A secondary finding of the expedition was that large sponges were growing on some of the intact and breached barrels. "My interest concerns whether or not there might be some mechanism by which these sponges could accelerate or decelerate cor-

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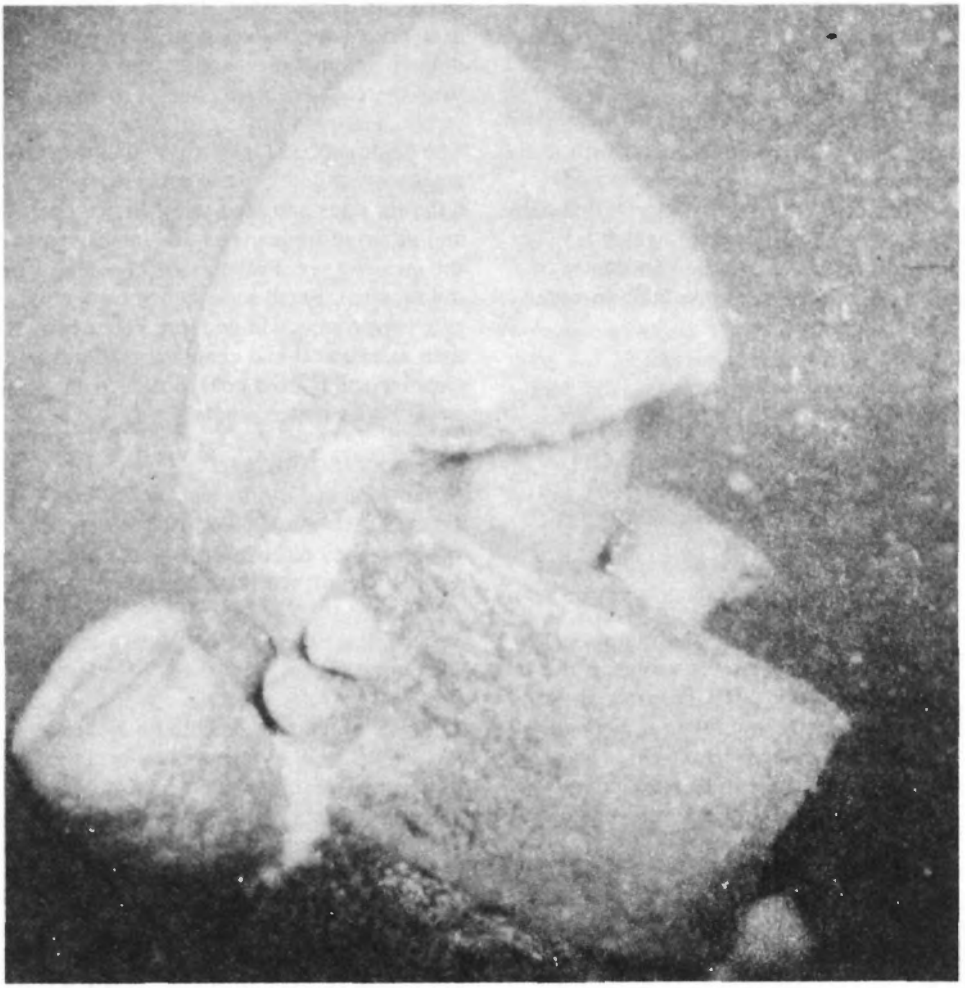
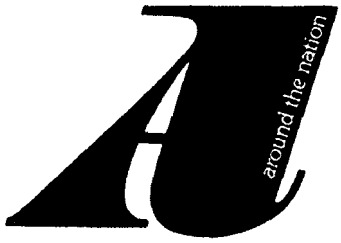


Sponges growing on underwater drums of radioactive wastes.



tainted clams

Region I specialists have found that clams at the mouth of the Acushnet River, near New Bedford, Mass., contain from four to 10 times as much PCB's as the Food and Drug Administration says is safe. PCB's are industrial chemicals that persist in the environment and may cause cancer in humans. There is no immediate danger because clam beds in the area have been closed for many years because of other types of pollution.

city honored

Region I's wastewater treatment plant award this year goes to Somersworth, N.H., for excellence in operation and maintenance. It is the first city in that State to be chosen for the award, which is designed to emphasize the importance of proper treatment plant operation in water pollution control.

'buzz-off'

Sale of an "electronic" mosquito repeller by two New York stores was recently halted after Region II's Pesticide Branch tested the device and found it ineffective. The product, called "Buzz-Off," was the second such device to be withdrawn from the market under an EPA stop-sale order in recent months.

"In general, our experience is that such electronic units do not work," said Regional Administrator Gerald M. Hansler, "but we have to test each brand in the laboratory and the field before issuing the stop-sale order."

u.s. steel pact

Final agreement has been reached on deadlines the U.S. Steel Corporation must meet in controlling its discharges of wastewater at 87 points along the Monongahela River south of Pittsburgh. Specific limits, based on the best practicable technology, must be achieved by next July 1 for 72 of the outfalls. The remaining 15 will be phased into compliance from March 31, 1979 to Nov. 30, 1981. The agreement between the company and EPA follows extensive negotiations with Region III officials over reducing water pollution in the Monongahela Valley, one of the largest concentrations of integrated steelmaking in the Nation.

new sulfur study

A novel technique for removing sulfur from coal before it is burned will be tested under a research contract recently awarded by EPA to the General Electric Co.'s Valley Forge, Pa., laboratory. The GE process uses microwave radiation to drive both organic and inorganic sulfur compounds from the coal and then collects them in stable, gaseous form.

The 18-month, $227,000 study will test the practical feasibility of the process, using different sizes and feed rates for the coal and different frequencies and intensities of the microwaves. Probable costs will also be investigated. Small-scale bench tests indicate the process will be more economical than mechanical and chemical methods of cleaning sulfur from coal to reduce air pollution by power plants.

unexpected hazard

When Region III officials recently inspected a chemical plant's wastewater discharges, they discovered a wholly unexpected hazard: the intake for the plant's own water supply, which included drinking water for 1,300 employees, was a quarter-mile downstream from the wastewater outlet.

Officials of the E.I. duPont de Nemours Co. at Belle, W. Va. promptly arranged to connect to the municipal water system. EPA inspectors had come to the duPont plant to determine if its discharges, for which the company had a permit, contained any dimethyl nitrosamines (DNM), which are toxic and can cause cancer. Small amounts of DNM were found, and they have been eliminated from the plant's discharges into the Kanawha River.

birmingham air

Air pollution in the Birmingham, Ala., area has been reduced about 33 percent since the U.S. Steel Co. was forced to close its open hearth furnaces in June, according to tests made near the plant by the Jefferson County Health Department.

Regional Administrator Jack E. Ravan said he knew of "no more dramatic success" than the Birmingham cleanup. During a severe air inversion five years ago, EPA sought and got a temporary shutdown of 23 large industrial plants.

In the last four years, Mr. Ravan noted, pollution by particulates (dust, soot, and smoke) has been reduced by 81 percent.

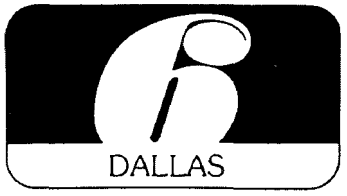
ohio sulfur

New regulations designed to cut sulfur dioxide pollution in Ohio by 31 percent were announced recently by Region V Administrator George R. Alexander Jr. The plan identifies 100 specific industrial sources and 40 municipal sources and calls for step-by-step compliance within three years, either through use of low-sulfur fuels or installation of control equipment.

Mr. Alexander said the plan allows industries some flexibility in cleanup methods while protecting public health. Its total cost will be less than half the $1.23 billion originally estimated.

bloomington sewage

A final environmental impact study for sewage treatment facilities at Bloomington, Ind., has been completed. The plant will handle 15 million gallons of sewage per day, using a two-stage activated-sludge process, with sand filtration of the liquid effluent. Treated sludge will be disposed of by landfilling, and by composting and spreading on cropland, or both. The new plant will supersede an old one two miles away.



spill prevention

Region VI officials have inspected nearly 500 oil handling and storage facilities so far this year to check on their plans for spill prevention, control, and countermeasures. Only about half were found to be in full compliance with EPA guidelines. The inspection program, still under way, includes off-shore wells and pumping stations in the Gulf waters of Texas and Louisiana.

seminars

EPA representatives are taking part in a series of seminars on Federal "block grants" for housing and community development at various Texas cities. The two-day meetings started in September and will reach about 250 municipal officers. Six State agencies, the Department of the Interior, Department of Housing and Urban Development, and the Council on Environmental Quality are also involved. Regional Administrator John C. White is scheduled to speak at the Corpus Christi seminar Dec. 9.

prairie photos

One of the Midwest's natural beauties, the tall-grass prairie, has been captured in photographs by Patricia Duncan of Lake Quivira, Kan., one of EPA's Documerica photographers, in a show that opened late last summer in Kansas City.

Ms. Duncan has recorded the changing moods of the prairie, its landscape, plants, animals, and people over the last 20 years. The multimedia show used nearly 1,000 slides displayed through nine projectors and keyed to stereophonic music. It also shows more than 40 still photographs with captions describing various prairie scenes and lifestyles.

The exhibit is now touring the country as part of the Smithsonian Institution's Traveling Exhibition Service.

waste conference

Missouri legislators and State officials from Kansas, Iowa, Nebraska, and Illinois will meet in Jefferson City, Mo., Dec. 6 and 7 for the Missouri Hazardous Waste Legislative Conference. EPA is funding the meeting, which will discuss both State and Federal roles in dealing with the disposal and control of waste materials that are toxic or otherwise perilous to man and the environment. Case studies will be presented, including the mercury poisoning episode in Minamata, Japan, and the dioxin incident in Missouri.

Chester McLaughlin, an engineer with Region VII's Waste Management Section, is assisting the Missouri League of Women Voters in preparing for the meeting.

high-altitude driving

A year-long program for testing car and truck performance at high altitude is nearing completion at Automotive Testing Laboratories, Inc., in the Denver suburb of Aurora. The firm, under contract to EPA, has been checking various makes and models to see how well their emission control equipment operates in the thinner air that prevails 6,000 feet above sea level.

Final phase of the work involved tests of some 40 different recent models, whose owners volunteered for the program after being solicited by newspaper and radio announcements.

The car owner received a $25 savings bond if his car showed low levels of pollutant emissions. If the car did not "pass," the owner got a $50 bond and a rental car while the ATL mechanics gave his car a free tune-up.

listening sessions

Citizens concerned with environmental quality had a chance to hear what is being done about it and to sound off with questions and criticisms in three Colorado cities recently at "listening sessions" (other Regions have called them Town Meetings). They were sponsored by the Colorado Municipal League, EPA, and the city governments of Grand Junction, Durango, and Pueblo.

Region VIII Administrator John Green attended the first two sessions to speak for EPA, and Dr. Cooper H. Wayman, Energy Activities Director, attended the third.

managing growth

Region IX was host to a Growth Management Seminar Sept. 12-14 on the effects EPA programs may have on housing, land use, coastal zones, and related issues. Representatives from four EPA Regions, Headquarters, other Federal agencies, and State and local governments attended, as well as private lawyers and real estate developers. The seminar dealt with conflicts that can occur between economic growth and environmental protection and discussed methods of resolving such conflicts. Its recommendations were discussed at the September meeting of Regional Administrators. The Office of Land Use Coordination is planning to conduct a similar seminar on the East Coast.

contaminated gas

The Tesoro-Alaskan Petroleum Co. of Anchorage has been assessed a civil penalty of $19,500 for violating EPA regulations on unleaded gasoline. Routine EPA inspections last March found that the firm was selling "unleaded" gasoline that contained more than 0.5 grams of lead per gallon at four retail outlets on Alaska's Kenai Peninsula.

The company signed a consent agreement with EPA, neither admitting or denying the violations, but acceding to the recommended penalty. Region X Administrator Donald P. Dubois said it was the largest penalty ever levied for such a violation.

The contamination is believed to be due to use of a common pipeline for both leaded and unleaded gas at the company's refinery. Leaded gas "poisons"—permanently spoils the effectiveness of—the catalytic converters that control air pollution from most late-model automobiles. An independent distributor, Doyle's Fuel Service, Inc., Kenai, agreed to pay a civil penalty of $900. Both companies have taken steps to prevent further contamination, Mr. Dubois said.

PEOPLE

A newly formed position, Deputy Assistant Administrator for Mobile Sources Enforcement and Noise Enforcement, has been filled by **Norman D. Shutler** who has been acting in that capacity since last May. Dr. Shutler's former posts included serving as Acting Deputy Assistant Administrator for General Enforcement and Director, Mobile Source Enforcement Division. He received an EPA Bronze Medal for Commendable Service in 1973.

EPA Printing Management Officers were honored twice in October for their two-year-old program that employs mentally handicapped persons. Through the efforts of **Henry Washington,** EPA Printing Officer, and **Roland Sorenson,** EPA Deputy Printing Officer, nine people are working at copy centers located at Waterside Mall and Crystal Mall. On October 1 the District of Columbia Association for Retarded Citizens presented an award to Mr. Washington as an Outstanding Employer of Persons with Mental Retardation. The National Association for Retarded Citizens chose EPA as the third place winner in the Employer of the Year government category. Mr. Sorenson accepted that award for the Agency on October 20.

Two men from EPA Headquarters have been named to participate in the President's Executive Interchange Program. They are **Gregory Ondich** of the Office of International Activities and **Dennis Tirpak** of the Office of Research and Development. The EPA executives are among 18 who were picked for this year's program. The seven-year-old program, which selects government employees to work in private industry for one to two years, is designed to familiarize Federal executives with the perspectives, goals, and operations of their counterparts outside the government service. Mr. Tirpak has already started working for the Aluminum Company of America in Pittsburgh, Pennsylvania. Mr. Ondich will be leaving soon for his assignment with Gulf Oil Company in Denver, Colorado.

Mark Pisano, Director of the Water Planning Division, Office of Water and Hazardous Materials, has resigned to take the post of Executive Director of the Southern California Area Governments, a council of governments in the Los Angeles area.
Mr. Pisano joined EPA's Program Development Office in April, 1971. Since his appointment to the Planning Director's post in 1972 he has been working with State and regional governmental agencies to plan water resources management, including the 208 areawide water quality management program.

Race car driver **Bobby Unser** has joined the effort to clean up the environment. As part of a program sponsored by EPA's Region V office, the two-time winner of the Indianapolis 500 is appearing at clean air clinics to answer questions about auto maintenance and performance and to tell drivers in the Midwest how they can get better gas mileage while keeping the air clean. Local environmental groups and agencies in Region V and the Chicago EPA staff are sponsoring clean air clinics and follow-up meetings about clean air strategy. Motorists drive in for a three-minute test that analyzes pollutants in auto exhaust. They get the results of the emissions test and guidelines for tuning to improve the car's performance. Most cars tested fail to meet auto emission standards. "I'm doing this to show people that if their cars are out of tune they are losing money by buying more gas and getting the air dirty," said Mr. Unser at a clean air clinic in Cleveland. In addition to his six-city tour promoting tune-ups the veteran of 27 years in car racing is making TV and radio spot announcements for Agency use and a public service film about the role of engine maintenance in preventing air pollution.

Henry Longest, Director of the Water Division in Region V, has been chosen to succeed **Louis Decamp** as Associate Deputy Assistant Administrator for Water Program Operations at headquarters. The appointment was announced by **John T. Rhett,** Deputy Assistant Administrator for Water Program Operations. Mr. Decamp is retiring.

Richard G. Rhoads has been named Director of the Control Programs Development Division at Research Triangle Park. He has been acting director since May of this year, replacing Jean J. Schueneman. Mr. Rhoads, who has a bachelor's degree in aeronautical engineering from Rensselaer Polytechnic Institute, was formerly Chief of the Standards Implementation Branch. He joined EPA in 1973 after working as an aircraft designer and an operations analyst for the Department of Defense.

Richard D. Wilson, Former Director of the Stationary Sources Enforcement Division, has been named Deputy Assistant Administrator for General Enforcement. He succeeds **Robert L. Baum,** recently named Special Assistant to the Administrator. Previously Mr. Wilson has been Acting Deputy Assistant Administrator for General Enforcement and Special Assistant to the Deputy Assistant Administrator for General Enforcement. He received an EPA Silver Medal for Superior Service in 1975. Before joining the Agency he was a Technical Advisor to the Assistant Commissioner of the National Air Pollution Control Administration.

Administrator **Russell E. Train** has announced the appointment of **Harriet Marple** to fill the new post of Judicial Officer. She will act as the Administrator's principal advisor in judicial decisions arising out of EPA's regulatory programs. Ms. Marple is an honors graduate of Radcliffe College and was graduated from Harvard Law School. She comes to EPA from a post as counsel for environmental matters at International Paper Company. Previously Ms. Marple was Deputy General Counsel for the New York City Environmental Protection Administration, and served for four years as an associate with the law firm of Kelley, Drye & Warren in New York City.

On October 1 **Alvin Alm,** EPA Assistant Administrator for Planning and Management and William Pierce, Acting U.S. Commissioner of Education, signed a cooperative agreement to promote the training of environmental quality management personnel. The EPA/USOE agreement notes a demand for more and better qualified workers at all professional levels to meet environmental objectives. EPA will support interagency efforts to fill these needs through existing programs. The agreement stresses the career possibilities and employment opportunities that can be developed by training people in environmental technologies. Manuals and technical assistance will be available to State and local environmental and educational groups through the Regional Offices.

Donald B. Mausshardt has been selected by Peter Cashman as Deputy Director of the Office of Intergovernmental Relations, pending approval by the Civil Service Commission. He replaces George Alexander. Mr. Mausshardt's EPA service includes positions as Chief, Implementation Branch, Solid Waste Management Program; Chief, Technical Support Branch, Region X; and Chief, Laboratory Support Branch, Region X. Previously he worked for the Federal Water Pollution Control Administration and the U.S. Public Health Service. In 1973–74 he was a Presidential Interchange Executive.

Dr. David T. Tingey, a commissioned officer in the U.S. Public Health Service who is assigned to EPA's Environmental Research Laboratory in Corvallis, Ore., as a plant physiologist, has been awarded the Public Health Service Commendation Medal.
The award was presented in recognition of Dr. Tingey's contributions to research on the effects of environmental pollutants on vegetation. He is credited with overseeing development of the Corvallis Laboratory's greenhouse studies after they were transferred to the Oregon laboratory from North Carolina in 1973.

Alexander D. Hicks of the Region X Office in Seattle was honored recently at the first National Conference of the National Council of Minority Engineers. Mr. Hicks, who is the Director of the Regional Office of Civil Rights and Urban Affairs, received a plaque praising his efforts in minority affairs and cooperation with other Federal agencies in that field.

Roger L. Williams has been named by Region VIII Administrator John A. Green to the post of Deputy Regional Administrator of the EPA office in Denver. He will replace Donald R. Dubois, contingent upon approval by the Civil Service Commission. Mr. Dubois is now Regional Administrator in the EPA Seattle office.
Mr. Williams, 38, is presently Assistant to John Quarles, EPA Deputy Administrator, and Director of the Office of Operations Coordination. He served as Director of the Office of Program and Management Operations at EPA from 1972 to 1975.
Before joining the Agency in 1971, Mr. Williams, a geologist, served in the Office of the Secretary of the Interior, providing policy guidance and coordination on energy and mineral resources development.
He also served as senior program advisor, Division of Environmental Activities, Federal Bureau of Mines. He has a bachelor's degree in geology from American University in Washington, D.C., and has done graduate work in his field.

Walter C. Barber Jr., Director of the Planning and Evaluation Division in the Office of Planning and Management, has been selected as Deputy Assistant Administrator for Air Quality Planning and Standards.

He will succeed **Dr. Bernard J. Steigerwald,** who, at his request, is being reassigned to the post of Director of Regional Programs in the Air Quality Planning and Standards Office, Research Triangle Park, N. C. Dr. Steigerwald recently received the Federal Environmental Engineering Award. He was chosen from a field of 35 Federal engineers doing work in environmental fields.

REGION X ON PARADE

By Robert H. Jacobson

Question: What do Pocatello, Idaho, and Fairbanks, Alaska, have in common? Answer: Not much.

Pocatello and Fairbanks are about as different as Russell Train and Muhammed Ali, yet both cities are part of the United States Environmental Protection Agency's largest region, a four-state area that takes in Idaho, Oregon, Washington and Alaska.

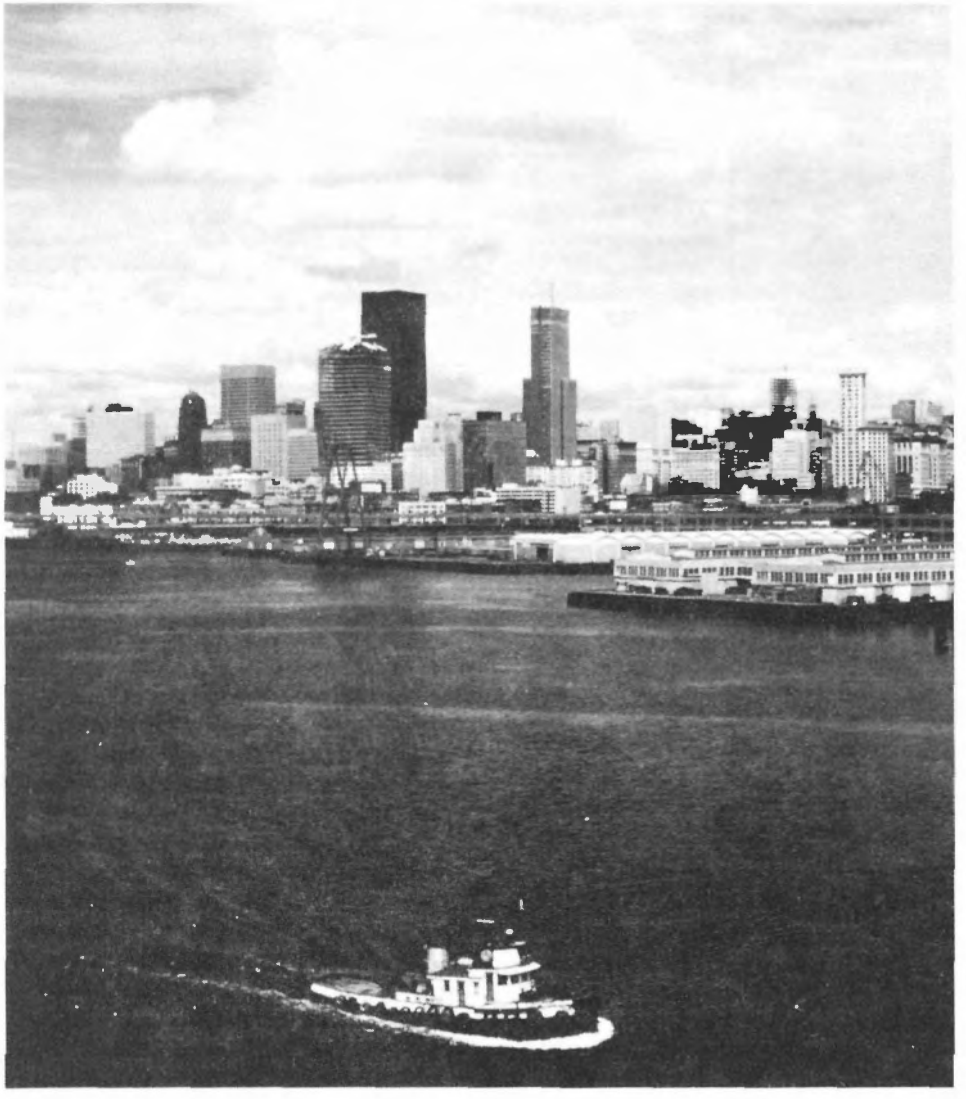
The distance from Pocatello to Fairbanks is 2000 miles, about as far as from Philadelphia to Mexico City.

Yet, unlike as the two cities are, and despite the distance between them, Pocatello and Fairbanks do have similarities, most of which have to do with environmental problems connected with industrial growth.

In Fairbanks, the impact of the Prudhoe Bay oilfield development has already had great impact on the city. And in Pocatello, the planned large-scale development of phosphate mining in southeastern Idaho threatens to change the entire character of the Pocatello region.

Fairbanks and Pocatello represent just two of the more dramatic examples of the single element that is common to the 812,000 square miles that make up EPA's Region X. The single common element: change.

Robert H. Jacobson is a Region X Public Information Specialist.



The Seattle waterfront.

Change is increasing the environmental stresses on Alaska and the Pacific Northwest. Pollution control agencies in the region not only have to prescribe remedies to cure past and present environmental abuses, they must—perhaps more than in any other part of the country—apply preventive medicine to protect natural assets that, as yet, remain unspoiled.

Until the last few years, Alaska and the Pacific Northwest had been thought of as an area of majestic mountains, lush forests, abundant hydroelectric power, lots of fish, pure drinking water, exhilaratingly fresh air, and plenty of beautiful scenery you could look at as long as it wasn't raining.

This popular perception is mostly true. But it's less true now than it was a few years ago.

A more accurate and updated description of the region could be provided by Donald P. Dubois, EPA's Regional Administrator in Seattle.

Dubois would be more apt to discuss Alaska and the Pacific Northwest in terms of such problems as:

Alarming declines in salmon and steelhead populations caused by damming up the Columbia and Snake Rivers, carbon monoxide alerts in Spokane and Fairbanks, the discovery of asbestos in the drinking water of Everett and Seattle, serious soil erosion in the dry-land farming areas of the Inland Empire, the ravages of the tussock moth on Douglas fir forests, aviation noise that may cause the removal of hundreds of homes around the Seattle-Tacoma airport.

The sedimentation of thousands of miles of streams by logging roads, threatened brown-outs by the Bonneville Power Administration, elevated levels of lead in the blood of children living around the Bunker Hill lead and zinc smelter in Kellogg, Idaho, the potential economic extinction of one-company towns where pulp mill owners threaten to close down rather than install pollution control equipment, or the loss of an entire year's grape crop caused by the drift of a pesticide used on another crop in an adjoining county.

Mr. Dubois has his hands full in Seattle. His laundry list of environmental

problems is a familiar litany to EPA Regional Administrators in other parts of the country. A few of his concerns are unique. A good example is the timber industry.

If Joyce Kilmer had been an environmental control officer and not a poet, he might have written that he would never see a poem as troublesome as a tree.

Trees. It's the literally millions of trees in Alaska and the Pacific Northwest that are the source of some of EPA's major concerns in Region X.

A few years ago, the protection of Douglas fir stands in Idaho, Oregon and Washington was one of the Agency's principal preoccupations. Faced with the threatened defoliation of vast tracts of timber because of the tussock moth infestation, EPA granted the U.S. Forest Service an emergency use permit to spray more than 400,000 acres of Douglas fir with DDT. Although the spray operation—coupled with a natural collapse of the tussock moth infestation—saved untold numbers of board feet of timber, EPA's approval of the use of DDT was not a popular one. To some, the approval came too late. To others, the approval should not have come at all.

Late this summer EPA announced a significant breakthrough in handling future outbreaks of the tussock moth by approving a natural virus for use by the Forest Service. The virus promises to prevent outbreaks from becoming epidemics, and advances EPA efforts for integrated pest management on America's forests and farms.

There has been other progress, too.

EPA is moving rapidly ahead with a program to control the nonpoint sources of pollution from all phases of silviculture, and is bringing under control serious problems presented by the Region's pulp and paper mills.

A cornerstone of the Region X approach to environmental problems is the recognition of rapidly changing circumstances.

Things change fast in Alaska and the Pacific Northwest.

At the beginning of the 1970's, a chief environmental concern was whether to build the trans-Alaska oil pipeline. Now, the question is not the pipeline, but what do you do with the oil that comes out of it? Where does the oil go?

One possibility is to bring the Alaskan crude into Puget Sound, where, according to one proposal, oil tankers would have to navigate the tricky narrow straits between the San Juan Islands. Some observers insist the risk of oil spills is high. Others are questioning whether the airsheds around the tanker terminals can withstand the release of hydrocarbons from the unloading and transfer operations. There's concern that the hydrocarbons may generate a widespread photochemical oxidant problem because of their interaction with nitrogen oxides and sunlight.

Sunlight? In the Pacific Northwest?

Yes, it's true. The sun does shine in the Northwest. In fact, there was so much sun during the summer of 1973 that the first alarms were sounded about future power shortages. For an area of the country that had relied almost exclusively on hydroelectric power, a sudden and unexpected shortage of rain dried up the flows that kept Northwest turbines spinning, knocked Northwesterners out of their complacency, and sent planners to the drawing boards to plan nuclear plants for future energy needs.

It also stops raining long enough for major cities of the Northwest—Seattle, Spokane, Portland, Fairbanks and, lately, even Boise and Anchorage—to undergo periods of weather inversions that create air pollution alerts. Too many cars, too many people.

If it weren't for the cars and the people, EPA's job would be a lot easier. That's why local environmentalists often try to discourage people from coming to the Northwest.

There's a worn-out joke that some EPA regional staffers like to pull on out-of-towners who drop into the office.

The visitors are told that if they look out the windows in the morning and can see Mount Rainier, that means it will be raining by afternoon.

And, if the visitor asks, what if I can't see Mount Rainier?

Then, the visitor is told, that means it's raining already. ■

REGION X'S LEADERSHIP TEAM

Donald P. Dubois
Regional Administrator

L. Edwin Coate
Deputy Regional Administrator

Michael L. Anderson
Director, Management Division

Douglas C. Hansen
Director, Air and Hazardous Materials Division

Robert S. Burd
Director, Water Division

Theodore R. Rogowski
Regional Counsel

Gary L. O'Neal
Director, Surveillance and Analysis Division

Lloyd A. Reed
Director, Enforcement Division

Alexandra B. Smith
Director, Office of Federal Affairs

Mary M. Neilson
Director, Office of Congressional and Intergovernmental Affairs

Alexander D. Hicks
Director, Office of Civil Rights and Urban Affairs

Donald R. Bliss Jr.
Director, Office of Public Affairs

THE CROWDED OUTDOORS

By Thomas A. Waite

Most of the year, obtaining reservations to stay in a good Seattle hotel isn't much of a problem. The same can't be said of reserving camp sites in Washington State's National Parks.

Within the last three years, crowding and overuse have forced Mount Rainier and the North Cascades National Parks to initiate back country campsite reservation systems and to severely limit the use of fragile high country areas. Olympic National Park is also expected to start a reservations system soon.

I was born in Washington State, and I've lived in Seattle, the largest (and dampest) major city in Region X, for 19 of my 29 years. I started backpacking in the late 1950's. Then I could hike to an alpine lake in the mountains near Seattle on a summer Saturday and see only three or four other people. Now the trail to the same lake is still only an hour's drive from Seattle, but on a July or August weekend two hundred or more day hikers can be found stomping their way through the mud and rocks to the lake.

I've recently backpacked into grand "holes" in the Cascades—high narrow valleys surrounded by glaciated peaks—where my hiking partner and I saw only two people in a week's time. But the trails into those areas typically are several hours' drive from Seattle. Moreover, for the same solitude that was so easily obtainable as little as ten years ago, I must now hike to higher areas of rock, snow, and ice which are accessible only by traversing steep snowfields or roping up to cross some unpredictable glaciers.

This increased use of outdoor areas is producing both reaction and counter-reaction. A prominent Seattle mountaineer is suing the Superintendent of Mount Rainier National Park because of restrictions on the number of climbers who can camp at any one time on the Nisqually Glacier, a several-thousand-acre sheet of ice. The same suit also seeks to halt the Park Service's plan to close certain Park roads and presumably restrict the number of people visiting several popular alpine meadows.

I experienced overcrowding this last Memorial Day weekend (typically rainy) in the beach portion of Olympic National Park. With many people having the same idea, we backpacked our tents and tarpaulins three miles to the beach at Sand Point. For a rain shelter we rigged a collection of ropes, fabric, plastic, and spars that rivaled the Wright Brothers' Kitty Hawk Flyer. Our camp was only one of many that sprouted on two miles of beach, the dozens of shelters testifying to the popularity of the area. Ten years ago at Labor Day I saw only two other groups on the same beach.

My experiences while hiking are not unique. When, as frequently happens, several of us in the Region X office talk about where we're planning on hiking the next weekend, among the first questions is "how crowded is it?"

In addition, I've seen the lines at the nearby ski resorts grow in length in the past three years. My cross-country skiing

Mt. Hood and the Hood River Valley, Oregon.

Thomas A. Waite is a Region X Enforcement Division lawyer.

friends tell me that it's become increasingly difficult to find an area free from snowmobile traffic. Regional Counsel Ted Rogowski, an avid fly fisherman, claims that fishing in the East is better than he's found in Washington State, an area once noted for its trout and salmon fishing.

The same problems are occurring in California and Colorado, and my New England friends tell me Bostonians are heading for the New Hampshire mountains in record numbers. But in the Pacific Northwest I detect that people are thinking "we didn't think rapid development could happen here, but if it's going to, we're going to control *how* it happens." This may be due in part to the high level of formal education among Seattle's population (I'm sure I know far more unemployed lawyers and engineers than my friends in Boston, San Francisco, or Chicago know). A significant portion of the population is opposed to Alaskan oil being shipped into Puget Sound, and a pending controversy in Federal court involves the constitutionality of a State statute limiting the size of tankers allowed to enter Puget Sound.

There have been victories for the environment and for the "Pacific Northwest lifestyle." An Alpine Lakes Wilderness Area has been created an hour's drive from Seattle. No supertanker port inside Puget Sound appears likely for the immediate future. Hells Canyon of the Snake River will be kept free of dams.

But many problems threaten to make the Seattle area another Los Angeles. The Green River Valley truck farms south of Seattle are threatened with industrial development (as are other agricultural valleys in the State); the Trident Naval Base on the Kitsap peninsula west of Seattle will increase that area's population by a quarter in the next three years.

Seattleites, however, haven't yet solved two of the city's major problems (which some say are connected): the long rainy periods and high suicide rates.

Rapid growth is ahead for Washington State and Region X in general. In Anchorage, the bumper stickers, referring to the pipeline boom, say "Happiness is 10,000 Texans going home with an Okie under each arm." In Seattle and Portland, we're a little more sophisticated. We tell visitors Mark Twain's story that the mildest winter he ever spent was a summer on Puget Sound. If you visited Seattle during the last two Augusts, you know just how true that was. ■

sponge

Continued from page 15

rosion of the metal drums at their point of attachment," Mr. Dyer said. He is still investigating potential effects the sponges have on the corrosion rate of the waste containers.

Sponges are plantlike sea animals that attach themselves to fixed objects and grow in colonies. They come in various shapes and colors. Their skeletons are highly compressible and absorbant, making them well suited for cleansing purposes, after softer body parts have decayed or washed away. The sponges discovered by Mr. Dyer are of the class Hexactinellida—having skeletons so translucent that they often resemble spun glass.

"One sponge specimen was brought back by the unmanned submersible", Mr. Dyer reported. "It was analysed, and we didn't find any measurable radioactivity in it. I subsequently sent the specimen to Dr. G. J. Bakus, professor of marine biology at the University of Southern California. He has classified the sponge as a previously unknown genus. I have also shown documentation of the sponge to persons at the Smithsonian Institution. They found it to be rather interesting and made photomicrographs of the sponge spicules, but they also could not immediately identify the sponge as a specifically known genus. If any scientists are interested in this, we do have most of the documentation that would be necessary for at least a preliminary taxonomic look.

"In my opinion, the sponges we observed are not giant mutant sponges. They are simply large sponges, probably of an undescribed genus, that happen to be growing on radioactive waste containers but could just as well have been growing on a rock, or any other hard object on the bottom. In the dumpsite area that we explored, the sea bottom is primarily mud, and sponges need something firm to attach to in order to grow. The drums provided suitable areas of attachment. Even if those drums had been empty, the sponges would have undoubtedly grown in the same way.

"The radioactive waste leaking from those drums contains plutonium. Plutonium emits alpha rays, and an alpha particle does not go very far before it loses energy. If an alpha particle is emitted, and you have water on your hands, the water will absorb the alpha particle before it hits your skin. Thus, even if a drum were leaking low levels of alpha particles, they would not affect the sponge, unless the sponges were ingesting seawater contaminated with the plutonium, but we found no measurable radioactivity in them.

"Most marine organisms are fairly resistant to radioactivity, especially in their adult forms. Sponges are radioresistant, and since the levels of contamination from leaks that we have discovered in the area are extremely small, and since no measurable level of contamination was found in analyzing the sponges, I cannot find any reason at this time to conclude that the plutonium would have any mutagenic effect on the sponges.

"It is interesting to note, however, that the many foundations and groups who have been doing marine research off the West Coast for years have not previously discovered this sponge. This is just one more example of how little is really known about deepsea life. At 3,000 foot depths, biological specimens are normally collected by trawling. Since these sponges have attached themselves to the hard, smooth surface of the barrels they would be very hard to remove by trawl nets.

"So from our point of view, there is nothing threatening about either the radioactivity or the sponges. What is more significant is that we have now completed our fourth submersible survey of deep-ocean disposal sites and have gained much information on the biota found in the dumpsite areas. We again surveyed the Farallon Islands in 1975 at a depth of 6,000 feet; however, we saw none of the interesting sponges discovered at the 3,000-foot depth. We also surveyed an Atlantic site at 9,000 feet in 1975, and we have completed a more comprehensive survey of that site at the same depth in August. We will be learning more about the fate of the radioactive materials in these sites as the analytical results start coming in," Mr. Dyer said.

Asked about any health threat which might be posed by the small levels of plutonium contamination which have been detected, Mr. Dyer replied that "man can't swim down to 3,000 feet and he doesn't drink salt water. The only way man might be affected is through the food chain. Eating a fish, such as sable fish, caught in that area would be the only significant food-chain pathway to man, but plutonium, the radioactive contaminant found in the area, does not appreciably bioconcentrate in marine animals. Plutonium is a heavy metal which generally passes through the digestive tract of fish, without being assimilated. All this means that, beside the fact that the contamination is far below levels which can produce harm to human health, there is no significant pathway for bringing humans in contact with the plutonium.

"If there were a health threat," Mr. Dyer added, "I'd be the first to ring the alarm." ■

INQUIRY

Is interest in the environment waning?

Roy Evans, Chief, Air Quality Branch, Environmental Monitoring and Support Laboratory, Las Vegas, Nevada: "Concern for the environment that led to EPA's creation is not the emotional issue it was some years back. The media today is less strident in calling for immediate environmental cleanup, but it does continue to present news that jars people out of complacency. Coverage of the presence of PCB's in lakes and rivers and the probable threat to the ozone by fluorocarbons refocus public attention on environmental hazards.

"Out here in the West where there were once large areas of really clean air, people are beginning to worry about the quality of their air. They are aware that large power plants pollute and they wonder whether all progress—the building of large industrial complexes—is necessarily good. The decision not to build the huge Kaiparowits plant in southeastern Utah near Lake Powell was in part influenced by opposition from local people, environmental groups, and the Indian communities there. Generalized emotion about the environment has been replaced by informed concern focusing on specific and local issues."

Warren T. McFall, Coordinator, Construction Grants, Boise, Idaho Operations Office, Region X: "I've been with EPA, and its predecessor agency since 1967, so I've seen the public's interest in the environment gradually grow, peak in the early 1970's and then decline. People, I think, are tired of talking and hearing about the environment and its problems. This happens whenever an issue is given the supersaturation treatment that ecology was given; also, extremists in the movement cried doom and destruction so many times, that, when doomsday did not arrive immediately, many people became cynical about the necessity for environmental protection and were turned off.

"The economic maladjustments of the last few years diverted attention from the long-range problems EPA deals with to the more immediate bread-and-butter issues. If you have a good job and can afford a vacation and use the vacation to explore the beauty of the sea, or of mountains, lakes or the desert, then you are inclined to be concerned about the preservation of these wonders. But today many people have neither jobs nor vacation money, and hence a diminished concern.

"Probably when the economy improves there will be a reawakening of public support."

Esther Reed, Staff Assistant, Office of Legislation, Headquarters: "No I don't think interest in the environment is in decline. There may have been a slump last year, but momentum has been regained in 1976. Now there is not the heady enthusiasm of the first Earth Day, but people are more knowledgeable than they were in 1970 and they are aware of how expensive cleaning up the environment will be. In part their concern may be a spin-off from the Bicentennial celebration and its emphasis upon the American heritage. Also, there has been a lot of bad news this year—the widespread Kepone contamination in the James River and Chesapeake Bay, the toxic chemical compounds of Mirex and PCB's in the Hudson and Lakes Erie and Ontario, the worry about fluorocarbons in the atmosphere and possible carcinogens in some drinking water supplies."

Phillip Retallick, Environmental Protection Specialist, Region III, Philadelphia, Pennsylvania: "The environment, as an emotional movement, has declined I think, since its heyday in the early 70's. Results, or visual improvements in our surroundings—lakes, rivers, city air, seashores, to name a few—did not come quickly enough to keep popular interest at a high peak. However, the specialized environmental organizations like the Sierra Club, the Environmental Defense Fund, or the Audubon Society remain strong and they continue to be effective lobbyists. The general public is not uninterested, but is inclined to leave the active and continuing battles for water and air cleanup to the elitist groups.

"There is a vacuum for EPA to fill here. Our task should be to educate the public so that gradually the country will develop an environmental conscience or ethic."

Dr. Fred K. Kawahara, Research Chemist, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio: "In the last decade, the public jumped on the 'environmental awareness' bandwagon. Ecology suddenly became a common topic of conversation, the latest fad, the 'in' thing in which to become involved. The sheer number of laymen ecologists forced men in high places to realize that people were concerned about the biosphere and the threats to it.

"Today, at first glance, it may appear that the public is no longer so keenly interested, since many of the 'faddists' are missing. However, upon closer inspection, it can be seen that although the quantity of amateur ecologists has decreased, their quality is steadily increasing, to the point that these ecologists can no longer be classified as amateurs.

"Now, many colleges and universities are offering baccalaureate and advanced degrees in the field of environmental studies.

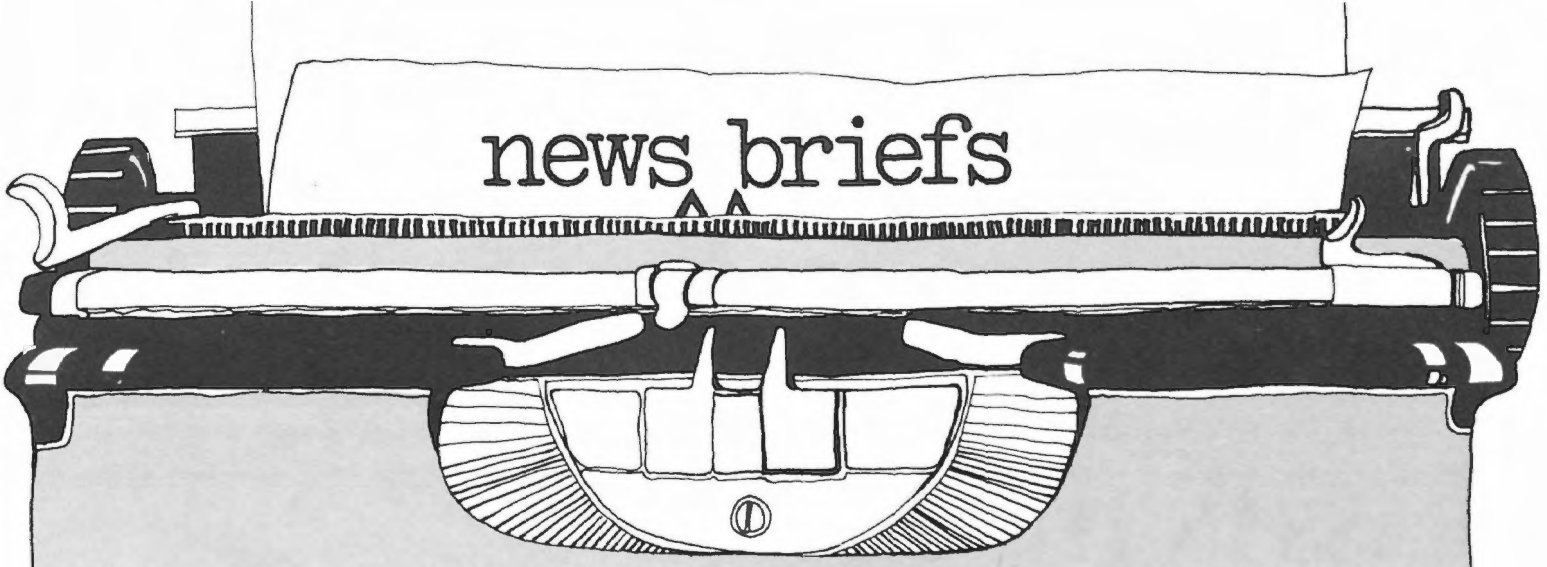
Roy Evans

Warren T. McFall

Esther Reed

Phillip Retallick

Dr. Fred K. Kawahara



DEPOSIT LAWS APPROVED IN MAINE AND MICHIGAN

State laws requiring deposits on all beer and soft drink containers were approved by voters in Maine and Michigan in the Nov. 2 election, but similar referendum proposals were defeated in Massachusetts and Colorado. Oregon and Vermont already have mandatory deposit laws for beverage containers.

JOHNSON NAMED TO NEW POST

Kenneth L. Johnson, EPA Deputy Regional Administrator in Boston, Mass., has been named Acting Assistant Administrator for Toxic Substances. The new Toxic Substances Control Act authorized the formation of a new office of Toxic Substances. Deputy Administrator John R. Quarles Jr., in announcing the appointment of Mr. Johnson, said "We are establishing this Office immediately in order to begin a sound and aggressive toxic substances program. We have an enormous task at hand in developing and carrying out programs under the new Act."

ARIZONA VOTERS SUPPORT AUTO INSPECTION-MAINTENANCE PROGRAM

Arizona voters on Nov. 2 upheld that State's program for inspection and maintenance of automobile pollution control systems. They rejected, 53 to 47 percent, a referendum proposal that would have repealed the State's inspection and maintenance law that took effect last January. The law applies to cars registered in Maricopa and Pima Counties (Phoenix and Tucson).

FEDERAL FUNDS TO BE WITHHELD

EPA has placed Del Monte de Puerto Rico, Inc., on a list requiring Federal agencies to withhold Federal contracts, grants and loans from industries. The list applies to industries found in violation of air or water pollution standards. The Del Monte de Puerto Rico facility, which discharges 2,600,000 gallons per day of tuna processing wastes into the Mayaguez Bay in Puerto Rico, was found in violation of water pollution standards. It is the first facility to be placed on the list.

U.S. ENVIRONMENTAL PROTECTION AGENCY
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BASS IN THE POTOMAC

Largemouth bass, one of America's most popular game fish, are being caught in the Potomac River at Washington, long regarded as one of the Nation's most polluted river areas.

James A. Combs, a program analyst in EPA's Office of Radiation Programs, told EPA Journal he has been catching bass since October, 1975, in the stretch of the river between Chain Bridge and National Airport within the city limits.

"On my best day I caught a dozen keeper bass—over 12 inches long," he said. "The largest bass I've caught in the Potomac weighed about five and a half pounds."

Mr. Combs said that he belongs to an organization called Potomac Bass Masters of Virginia.

"As far as we can determine, serious bass fishermen have not been fishing the Potomac, because they were under the impression the river was too polluted to support game fish. We knew there were catfish and carp, which can tolerate pollution, but we were surprised to find so many bass."

Mr. Combs does not eat his Potomac bass. "I throw them back, although they certainly look as if they are very healthy."

While bass are not as finicky as trout about clean water, Mr. Combs said they are "normally considered good indicators of reasonably clean water." Since he started fishing the Potomac for bass, using mostly artificial worms for bait, Mr. Combs said he has caught nearly 100 largemouth bass. He added that some of his friends have also hooked smallmouth bass in the Potomac.

Mr. Comb's boat is equipped with an electronic depth finder, which can also show the presence of fish. "My scope shows the river teeming with fish life."

William Mason, an aquatic biologist at the Potomac River Commission, said he had not heard of significant numbers of bass being caught in the river, but said he believes the high flows caused by good rains have improved conditions for fish in the Potomac.

Bass caught in the Potomac.

Improved treatment of wastes going into the river have "pretty much maintained the status quo, which is quite an achievement when you consider the increased waste loads pouring into the river in the Washington area," said Mr. Mason. He warned that unless current efforts to clean up the Potomac are continued, "we will have major fish kills and algal blooms, like those we had in the 1960's, when the low-water cycle in the Potomac begins again."

Andrew Uricheck, chief of the Maryland-Delaware-District of Columbia water planning branch of EPA's Region III Office in Philadelphia, agreed that "increased water flow is probably a major reason for better conditions for fishing at this time."

However, he noted that the $300 million improvement program at the Blue Plains treatment plant in Washington should be completed in 1978. "We are definitely making progress in reducing the pollution load going into the river." ■