EPA bulletin

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U.S., Soviet Union Plan 30 Projects

The United States and the Soviet Union have embarked on 30 specific cooperative projects in environmental research and technology.

The first working meetings are expected to start next month in St. Louis, when EPA will be host to Soviet specialists in air pollution modeling and instrumentation. Throughout 1973 extensive visits and joint symposiums are scheduled in both nations for the setting up of combined research projects and the exchange of information on pollution abatement.

The groundwork for the cooperative program was laid last May in Moscow when President Nixon and U.S.S.R. President Nikolai V. Podgorny signed a formal agreement for the two nations to work together in 11 environmental problem areas, ranging from air and water pollution control to urban problems, weather research, earthquake prediction, and arctic ecology.

Meeting in Moscow

The 30 specific projects were established by a joint committee of experts from both countries at a meeting in Moscow Sept. 18-21. Russell E. Train, Chairman of the President's Council on Environmental Quality, headed the U.S. delegation, which included John R. Quarles Jr., EPA Assistant Administrator for Enforcement, and representatives of seven cabinet departments, the National Science Foundation, and two national conservation organizations.

The committee designated EPA as the "lead agency" for the United States in 12 of the 30 projects: those concerned with air and water pollution, with broad effects of pollution on the biosphere, with effects on marine organisms, and with genetic effects. EPA will have a large supporting role in many of the other 18 projects, including those concerned with agriculture and pesticides, urban problems, climate research, and nature preservation.

Matching Problem Areas

An unusual feature of many of the projects will be the direct pairing of Soviet and American cities, lakes, river basins, and other environmental problem areas for comparative studies. St. Louis and Leningrad will be matched for air pollution modeling. Lake Tahoe, on the California-Nevada border, and one of the Great Lakes will be paired with Lake Baikal, in Siberia. Reston, Va., and Columbia, Md., will be matched with Togliatti, near the Kuybyshev Dam on the Volga River, and Akademgorodok, the new "science city" in Siberia, for studies of environmental management in new communities.

For urban environmental studies in established cities, Atlanta and San Francisco will be paired with Leningrad and another Soviet city still to be chosen. Earthquake research will concentrate on the San Andreas fault in California and the Garm-Dushanbe region of the Alai Mountains in Tadzhik SSR. Tsunami (tidal wave) warning systems in Hawaii will be integrated with those of the Kurile-Kamchatka region of eastern Siberia.

The wide scope of the cooperative programs reflects the fact that both nations are industrially advanced, both have large and diverse land areas, and both experience almost every type of environmental problem, Train said. He hailed the projects as going far beyond past arrangements for scientific and cultural exchange between the two nations.

Previous Exchanges

There have been limited exchanges with the Soviet Union on air and water pollution as long ago as 1963, when a team of Soviet water experts visited this country. An EPA air pollution team visited U.S.S.R. last year and a water pollution team earlier this year.

The joint projects are scheduled to continue for five years, under the bilateral agreement, which is to be extended for successive five-year periods unless one party wishes to stop. The five-year term reflects the long-range nature of environmental problems.

Three other cooperative agreements were signed at the May meeting in Moscow: one in space technology, with the National Aeronautics and Space Administration as the U.S. agency participating; one in health and medical research, with the Department of Health, Education and Welfare; and one in science and technology generally, with the President's Office of Science and Technology in charge.

17 Implementation Plans Are Approved

State plans for achieving the air quality standards set by EPA under the Clean Air Act of 1970 have been fully approved for 17 of the 55 States and jurisdictions.

Ten others have had the regulatory portions of their plans approved; 12 have had regulations promulgated by EPA, under the law; and the remaining 16 have had EPA regulations proposed but not yet promulgated.

This was the status of the State implementation plans on Oct. 28, after the fifth action to approve, reject, or revise the complex and varied plans.

The adjoining table summarizes each State's present status in the approval process, with the date of the latest EPA action.

The standards—set by EPA in April, 1971—define for six major types of air pollutant the reductions required to protect public health (primary standards) and to protect property and enhance public welfare (secondary standards).

The law requires the States to regulate air pollution sources to achieve these standards, and if State implementation plans are deemed insufficient, then EPA must step in and order adequate controls.

The latest actions on Oct. 28 imposed EPA regulations on five jurisdictions. Louisiana, Michigan, Missouri, New Jersey, and the Virgin Islands.

The EPA-imposed regulations generally concern the reporting of emissions data and making them public; setting compliance schedules; handling pollution emergencies; and preventing construction of new pollution sources that would violate the State's control strategy, or interfere with attaining the standards, or with maintaining them. The final regulations do not differ from those proposed except for setting at least one location in each affected State where emission data will be available to the public As proposed, the data would have been available only in the EPA Regional Office.

The actions approved one or more previously unacceptable portions of plans from 12 jurisdictions —Louisiana, Maine, Maryland, Massachusetts, Michigan, Missouri, New Jersey, South Carolina, Tennessee, Texas, the Virgin Islands, and Washington. For two of these —Maine and Washington—the plans are now fully approved.

For six States (Massachusetts, Maryland, Michigan, Missouri, New Jersey, and Texas), regulations had been proposed to control emission of nitrogen oxides. These have been held up pending a revision of nitrogen oxide measurement methods that have been found to be faulty.

The implementation plan for each State, mandated by Section 110 of the Clean Air Act, is a very vital link in the chain of actions required by the law. Success of the national effort to achieve compliance with the air quality standards by 1975 hinges on effective, enforceable implementation plans.

The plans necessarily involve highly technical concepts and procedures. They are also legal documents requiring precise, though often repetitious, phrasing, since they must specify violations of law, enforcement procedures, civil and criminal penalties, and relations among various levels and branches of government.

Court Orders Air Plans Revised

State plans to achieve the national air quality standards will have to be revised to include a "non-degradation" provision, the U.S. Court of Appeals for the District of Columbia ruled Nov. 2.

This provision would require a State to forbid any "significant deterioration" of air quality in areas where the air is now cleaner than the established standards.

EPA promptly complied with the Appeals Court ruling by issuing a formal notice on Nov. 9 that the State plans were technically deficient insofar as the non-degradation provision was concerned. The review of State plans to see how they should be corrected was already under way, said Administrator William Ruckelshaus.

The three-judge court upheld without comment a previous ruling by a U.S. District Court judge against EPA in a suit brought last spring by the Sierra Club and three private organizations from Washington, D.C., New Mexico, and San Diego.

The Agency contends that the non-degradation provision would block further economic development of any kind in clean-air areas, even though such development would not violate the national standards.

EPA plans to appeal the matter to the Supreme Court.

The EPA Bulletin is published monthly by the Office of Public Affairs to inform State and local environmental officials of EPA's research, standard-setting, and enforcement activities.

The Bulletin will welcome letters, contributed articles, and photos suitable to its purpose and audience.

Van V. Trumbull, Editor
Room W239, Waterside Mall
Washington, D.C. 20460
Tel. (202) 755-0883

EPA Actions on State Air Plans

State	Plan fully approved	Regulatory portions approved	EPA regulations promulgated	EPA regulations proposed
Alabama	May 31			
Alaska		July 27		
Arizona				July 27
American Samoa	May 31			
Arkansas		Sept. 22		
California				Sept. 22
Colorado		May 31		
Connecticut	May 31			
Delaware	Sept. 22			
Dist. of Col.				Sept. 22
Florida	May 31			
Georgia	Sept. 22			
Guam	May 31			
Hawaii			Sept. 22	
Idaho				July 27
Illinois				July 27
Indiana				July 27
Iowa			Sept. 22	
Kansas			Sept. 22	
Kentucky		July 27		
Louisiana			Oct. 28	
Maine	Oct. 28			
Maryland		Oct. 28		
Massachusetts		Oct. 28		
Michigan			Oct. 28	
Minnesota			Sept. 22	
Mississippi	May 31			
Missouri			Oct. 28	
Montana				July 27
Nebraska				July 27
Nevada				July 27
New Hampshire	May 31			
New Jersey			Oct. 28	
New Mexico				July 27
New York				Sept. 22
North Carolina	May 31			
North Dakota	May 31			
Ohio	July 27			
Oklahoma				June 14
Oregon	May 31			
Pennsylvania				July 27
Puerto Rico	May 31			
Rhode Island			Sept. 22	
South Carolina		Oct. 28		
South Dakota		May 31		
Tennessee		Oct. 28		
Texas		Oct. 28		
Utah				July 27
Vermont			Sept. 22	
Virgin Islands			Oct. 28	
Virginia				July 27
Washington	Oct. 28			
West Virginia	May 31			
Wisconsin				July 27
Wyoming			Sept. 22	

TVA Plan Helps Junk Car Drive

A practical and inexpensive means of collecting junked automobiles for recycling has been developed by Tennessee Valley Authority engineers.

The big Federal electric power producer—often at odds with EPA and environmentalists over its coal-burning plants—has found a common cause with them—the cleanup of rusty cars abandoned on rural lanes and hollows in the TVA service areas.

Starting first with cars junked on TVA property, the Authority devised a way of converting an ordinary truck chassis into a collection vehicle for less than $1,200. These conversion plans have been made available to town and county governments, and TVA has also lent its vehicles for use in local cleanup drives.

The conversion involves fitting the truck with a winch and extensible ramps up which the derelict vehicle can be hauled so it can be taken to a recycling center.

Charles Orr, Director of Solid Waste Management for the Tennessee Department of Public Health, said the program had the full approval of his State and of EPA solid waste officials. Orr was formerly a regional official of EPA's predecessor agency, the Bureau of Solid Waste Management, and was project officer for the well-known rural waste collection system in Chilton County, Alabama.

TVA reports that more than 16,000 junked cars have been collected since the program started two years ago. Twenty-two city and county governments in six States have participated during the last year. Twelve communities have built their own wreck-removal trucks.

Blueprints for the conversion are available from the TVA office in Knoxville, Tenn.

Chicago Sewer Sludge Becomes 'Liquid Fertilizer'

A 7,000-acre strip-mined area in Fulton County, Ill., is being reclaimed for farming and recreation by "liquid fertilizer" from Chicago sewage.

The project, dubbed the "Prairie Plan" by officials of the Metropolitan Sanitary District of Greater Chicago, got into high gear late this summer after more than five years of planning and preparation, and the expenditure of $15 million on research and prototype land reclamation.

Basic idea of the Prairie Plan is the beneficial use of sewage sludge, the organic material left after sewage has been digested and disinfected.

Sludge in wet slurry form is barged from Chicago's sewage treatment plants to East Liverpool on the Illinois River about 180 miles southwest of the city. There it is pumped through an 11-mile pipeline to holding basins at the reclamation site. The liquid fertilizer is then distributed by pipeline and standard spray irrigation equipment to the fields.

The holding basins are necessary because, although the sludge is delivered at a fairly constant rate of 7,500 wet tons a day, its application to the land must vary with the seasons, the weather, the crops involved, and the types of land.

This summer 800 acres were planted in corn, and this fall an additional 300 acres are being planted in wheat or legumes. Next year the District plans to have 4,650 acres planted in these crops and grasses.

This recreation area is part of the 7,000-acre site receiving "liquid fertilizer" from Chicago sewage treatment plants. It is now a county park, including lakes formed from strip-mine pits and the best of the natural vegetation.

County Park Formed

A 700-acre area at the southern edge of the site has been set aside for a Fulton County Park. It has some natural forest and several ponds and lakes that formed in pits left by the strip mining operations. The county has developed picnic and camping areas here and plans to extend them. Sludge application in the park will be limited to selected fields, with careful controls so that wildlife habitats and recreational values will be maintained.

All areas to which the liquid fertilizer is applied have been checked to assure that the sludge will be absorbed into the soil and not run off into streams. Where necessary the land contours have been modified, dikes and impoundments constructed. All surface and subsurface waters were analyzed before hand to establish benchmarks on water quality. They are monitored periodically to assure that this quality is maintained. Similar benchmark and operational analyses are made with soils, plant tissue, and aquatic organisms.

The District engineers and agronomists are determined not to overfertilize the Prairie Plan sludge disposal site. During the first year of application to any area, they plan to use 75 dry tons per acre (1,250 wet tons), a heavy rate they feel is justified by the barren state of the strip-mined land. In succeeding years, the application rate will be reduced by stages to a steady maintenance rate of 30 tons per acre per year.

'Natural' Recycling

The Fulton County site is the first large-scale attempt by the District to employ the "natural recycle concept" in sewage sludge disposal. They expect the Greater Chicago sewage system—long regarded as one of the engineering wonders of the world—eventually could use four times as much agricultural land, 28,000 acres.

In the Prairie Plan, the District has found "a way to realize the now popular goals of recycle and reuse," said John E. Egan, District President.

EPA and its predecessor agencies have assisted the District in the Prairie Plan since its inception with funding aid and technical advice and consultation. A similar EPA-sponsored project for on-land disposal of sewage sludge and effluent is under way in Michigan, serving a dozen cities and towns in the Muskegon area.

Tighter Enforcement Seen Under New Water Law

The new Federal Water Pollution Control Act will bring "profound and far-reaching change" in EPA's water pollution control programs, Assistant Administrator John R. Quarles Jr. announced last month.

Speaking at a meeting of the American Bar Association in New York City only a week after the new law had been passed by Congress over the President's veto, Quarles said the new law would permit EPA to establish a "tight regulatory system," with precise requirements that can be promptly and effectively enforced.

"In my judgment," he declared, "these changes are going to revolutionize the social structure of water pollution control. Within a few years the new law will end the reign of evasion and emotion . . . (and) in their place establish the rule of law."

Five Strong Points

Quarles listed five ways in which the new law would strengthen water quality enforcement:

- Specific numerical requirements on wastes discharged. The absence of specific yardsticks to measure performance in the past has permitted polluters to claim that they were meeting requirements based on receiving water quality standards in spite of inferior control systems and sloppy operation.
- Higher standards. The law specifies that each industry must achieve the "best practicable control technology" by July, 1977, and even more stringent control in the certain cases. "By ending the total reliance on receiving water conditions, the new standards immeasurably simplify problems of evidence," Quarles said.
- A national permit program, replacing the one started under the Refuse Act of 1899 and halted by a court ruling that every industrial outfall had to have an environmental impact statement.

The permit program will not "begin from scratch," Quarles said. Some 23,000 applications already on hand have been processed. EPA's efforts will be concentrated on about 2,700 "major dischargers" believed to account for most waterborne wastes. He said more than 1,000 individual permits have been drafted, setting forth firm targets, timetables of compliance, monitoring provisions, and public disclosure.

- Tough penalties. Violations will be subject to civil penalties of up to $10,000 per day; willful or negligent violations to criminal penalties of up to $25,000 per day. "This is a fundamental and indispensable (though previously missing) element of any regulatory system."
- A firm technical foundation based on Federal and State experience. "The concept of effluent limitation has been commonplace for several years," Quarles said. "Until recently, however, its feasibility has been in doubt. . . . I believe the enforcement record . . . of EPA, supporting the enforcement programs of State agencies, has established adequate credibility to assure that the new requirements will be enforced and that foot dragging will be harshly punished."

Working With States

Prompt and effective relationships with States agencies are "perhaps our most important concern under the new law," Quarles said. States can assume operating responsibility for the new national permit program, and the law provides for such delegation of authority. In many cases new State legislation will be required, but Quarles pointed out that EPA can, under the Federal law, authorize a State to take over on an interim basis for as long as five months.

"In the meantime we will move forward to issue permits out of EPA," he said, "though in these cases also we will seek active participation by the States. We will need to establish effective arrangements so that the issuance of permits will go ahead at full speed whichever level of government has the formal authority."

The scope of coverage under the Refuse Act has been "dramatically expanded" by the new law, Quarles pointed out. "All municipalities will be required to obtain permits. Feedlots and irrigation return flows will also be brought into the system. Because in these areas we do not have the same background of advance preparation, we must anticipate that implementation of these parts of the permit program will not proceed quite as rapidly. . . .

"Effective regulation . . . will provide substantial benefits to the regulated industry," he concluded. "These benefits will include clarity, predictability, and assurance that competitors are being subjected to comparable requirements. . . .

"The negative and often unfair image of corporations as dodging their responsibilities will change once the responsibilities are clearly defined and, in fact, complied with."

Manual Issued On Fluoridation

A new manual on fluoridation of municipal water supplies is being distributed to State and local water supply agencies by the Office of Air and Water Programs.

It is designed to assist engineers in planning fluoridation equipment and to help water plant personnel to operate and maintain such equipment, so that full benefits of the fluoridation can be achieved.

More than 5,800 water systems serving about 86 million people now treat their water with fluorides to protect children's teeth from decay. Recent EPA surveys in nine States have shown that about half the fluoridated supplies did not contain the proper amounts of fluorides.

Kentucky Air Rules Explained Over Television

Kentucky's Air Pollution Control Commission used a novel and inexpensive method last summer to explain the State's implementation plan to industrial representatives, local officials, and the public.

The Commission held an all-day meeting in 17 places at once without leaving Lexington.

Using the Kentucky Educational Television's closed circuit network, six members of the commission staff explained the new regulations and surveillance procedures to invited audiences throughout the State. The audience members, on their part, could ask questions via telephone and receive answers from the commission staff over the monitor screens.

The meetings combined television teaching techniques with a TV call-in talk show, according to Marva Gay, Technical Information Officer for the Commission. Using the TV method saved both time and money compared with such conventional approaches as mass mailings or roadshow workshops, said Ms. Gay. KET's closed circuit network was already established and available, with outlets in four universities, 12 community colleges, and the originating studio in Lexington.

Individual workshop meetings, at which commission staffers answer questions directly, are suitable for a local control agency, Ms. Gay pointed out, but would be expensive and time-consuming for a state agency that must cover a large territory.

Time, Money Saved

In 1969, she said, the commission staff spent over 50 man-days conducting eight workshop sessions, and 16 of the man-days were outside the commission offices. Staff time for preparing and presenting the closed circuit TV meetings was 15 man-days, of which nine were outside the offices.

Although the meetings were aimed at industry and business people primarily, anyone could attend. Announcement letters, press releases, and broadcasts encouraged any interested persons to participate. No fees were charged.

A coordinator greeted attendees at each viewing site. Throughout the day the coordinators collected questions from the audience and telephoned them to the central studio, identifying the questioners and their locations and affiliations.

The entire day-long program was recorded on tape and may be used again, in whole or in part, Ms. Gay said, for future meetings of persons interested in Kentucky's air pollution control regulations.

Answering questions about Kentucky's air pollution regulations over closed circuit TV from observers in 17 cities are, from left, Hisham M. Sa'aid, Director of Technical Services; Engineers Roger Blair and Don Wills; and Attorney Robert Trevey. Invisible behind the camera crew is emcee Frank Partee, Technical Director of the State's Air Pollution Control Commission.

Smoke Marks Clean Air Day

Twenty minutes of outpouring smoke from industrial stacks marked the observance of Clean Air Day in Chattanooga, Tenn., Oct. 13.

The pollution was deliberate, to let Chattanooga citizens see what their air used to be like, before the city began a concerted drive to curtail air pollution.

City officials asked all local industries to shut off their scrubbers and filters and precipitators for 20 minutes to show how far the city had come since a Public Health Service survey in 1966 ranked it third in the nation for air pollution problems, topped only by Gary, Ind., and Phoenix, Ariz.

At that time the average level for particulates (smoke and dust) in one area of the city was 323 micrograms per cubic meter, and officials began to fear that the city's growing notoriety for smoke and soot would hurt its thriving tourist business.

New regulations were adopted in October, 1969, requiring local industries to reduce particulate emissions to a density no greater than 40 percent visibility within three years. The burning of coal containing more than two percent sulfur was banned, and a permit and inspection system was instituted for all fume-emitting equipment. Fines of $50 an hour were levied on violators.

Altogether, about $600,000 in public funds has been spent by the Air Pollution Control Bureau, $400,000 of which has been Federal aid.

Chattanooga's air problems, unlike those of many other cities, come principally from industry rather than motor vehicles. The city is surrounded by low mountains, and pollutants are frequently trapped by air inversions.

Noise Office Working to Meet New Federal Requirements

Noise is now officially recognized as an environmental hazard subject to Federal control.

A new law, the Federal Noise Control and Abatement Act of 1972, was approved by both houses on Oct. 18, in the final hours of the 92nd Congress. It was signed by President Nixon on Oct. 28.

The measure makes EPA responsible for setting and enforcing standards on noise from construction and transportation machinery, motors and engines, and electric and electronic equipment. The Agency is also required to propose standards for noise from aircraft, but the Federal Aviation Administration was given the final say on aircraft noise.

The new law's enactment found EPA's Office of Noise Abatement and Control hard at work preparing to expand its operations from a role of study and consultation to one of standard setting and enforcement.

Dr. Alvin F. Meyer, Director, said he and his small staff were working to meet the various deadlines set in the law·

- Listing for preferential purchase by Federal agencies, products that are quieter than usual—six months from the law's enactment.
- Criteria on health effects (nine months), noise levels to protect health and welfare (12 months), and major noise source identification and control techniques (18 months).
- Aircraft noise levels proposed (nine months).
- Railroad noise emission standards (nine months)
- Motor carrier noise emission standards (nine months)
- Product regulations proposed (18 months) and issued (24 months)

The new law authorizes funding of $21 million over a three-year period for EPA's noise abatement work. This funding authority was cut from $35 million during the final hours of debate on the bill in a compromise move to secure agreement on the Senate and House versions of the legislation.

Assignment of final authority on aircraft noise control to the FAA was also a compromise, although EPA Administrator Ruckelshaus had previously testified that EPA would accept Congress's decision on this matter. FAA must begin its rule-making on aircraft noise within 30 days after receiving EPA's recommendations, and hold public hearings within 60 days.

The new law carries penalties for violators ranging up to $25,000 per day, or a year in prison, or both.

Sulfur Dioxide Found to Disrupt Growth of Cells

Evidence that sulfur dioxide—a common air pollutant caused by burning fuels that contain sulfur—can disrupt the growth of living cells has been reported by two biochemists from New York University.

Dr. Robert Shapiro and Barbara Bravermen found that one form of sulfur dioxide, applied to a key component of the cell's genetic messenger substance made it "unable to perform its usual function" in cell division and growth.

"This gives us occasion for real concern," Dr. Shapiro told a news conference after reporting the research to the American Chemical Society in New York City recently. Further research is needed, however, before it can be determined if such damage can reach the gonads, or sex cells, of an organism and cause defects that can be transmitted to successive generations.

Shapiro and Ms. Bravermen worked with "uracil", a component of ribonucleic acid (RNA) which directs the creation of proteins in the nuclei of living cells. "The results are dramatic," they reported. "One hit (of the sulfur compound) on RNA ruins its ability to function as a messenger."

Sulfur dioxide is widely used as a food preservative and has long been on the Food and Drug Administration's "generally regarded as safe" list.

Recent EPA Publications

Available from Public Inquiries, EPA, Washington, D C., 20460, unless otherwise noted. Single copies free to representatives of State and local environmental agencies. Where prices are given, the publication is also available from the Superintendent of Documents, Washington, D.C., 20402.

Pesticide Use on Non-Irrigated Croplands of the Midwest, 515 p., June, 1972. Analyzes the effects, good and bad, of current pesticide use on major farm crops of Illinois, Iowa, Kansas, Minnesota, and Missouri.

Pesticides in the Aquatic Environment, 181 p. April, 1972. Prepared by five scientists in EPA's Office of Water Programs, this study outlines current knowledge of the transport of pesticides to surface waters, their persistence, their effects on aquatic life, and methods of control.

Pollution Potential in Pesticide Manufacturing, 250 p., June, 1972, $2 Summarizes what is known about chemical pesticide production; sources of environmental contamination, not only from process leakage and primary wastes but also

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Correction

The "Safety Note" in last month's EPA Bulletin said perchloric acid should be used "only in a fume hood." Safety Officer Karl Spence stresses that any old fume hood will not do; tests must be conducted in a hood "specifically designed and built for use with perchloric acid."

The editor apologizes to Spence for trimming his copy.

GPO 940-613

EPA Publications CONTINUED

from by-products; and industry efforts to correct pollution.

The Economics of Clean Water. Fifth in a series of annual reports to the Congress required by the Water Pollution Control Act. It assesses the prevalence and degree of water pollution throughout the country; gives estimates of the capital investment and annual operating costs for municipal and industrial waste water treatment through 1976, based on current Federal and State water quality standards; and estimates for various treatment levels up to zero discharge. The report comes in four parts:

Summary, 33 pages, 55 cents. Major findings and conclusions.

Vol. I, Economics of Clean Water. 157 p., $1.75.

Vol. II, Data and Technical Appendices. 695 p., $4.75.

Vol. III, Industry Expenditures for Water Pollution Abatement. 108 p. published by The Conference Board, 845 Third Ave., New York, N.Y. 10022.

Salvage Markets for Materials in Solid Wastes, 187 p., October, 1972, $2.75. Evaluates uses and demand for reclaimed materials, compared with raw materials from mine and forest; gives data on consumption of the two by various industries; and analyzes the current organization and structure of the secondary materials industry.

Sanitary Landfill Design and Operation, 59 p., October, 1972, 65 cents. A concise, nontechnical description, with illustrations and many practical charts and diagrams. Covers contamination problems, equipment selection, and management functions as well as site design and operation.

An Investigation of the Biodegradability of Packaging Plastics, 80 p August, 1972. This study by the Union Carbide Corporation under an EPA contract confirms the popular belief that the high-molecular-weight plastics now used for packaging cannot be broken down by microorganisms. It recommends further research to develop plastics that will degrade naturally.

Guidelines for Erosion and Sediment Control Planning and Implementation, 228 p., August, 1972. $1.75. Prepared by the Maryland Department of Water Resources under an EPA grant, this study explains how to determine potential erosion problems at a development site and how to plan and manage an effective control program. The guidelines have been incorporated in HUD construction guidelines and in HEW hospital construction programs.

Role of Phosphorus in Eutrophication. 46 p. August, 1972. A brief overview by EPA scientists at NERC-Corvallis of the causes of eutrophication (the aging of a body of water from excessive nutrients), the relation of phosphorus to other nutrient substances, and proposals for control The study concludes that limiting phosphorus is the "single, most important and necessary step."

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