EPA bulletin

Vol. 1, No. 2
Sept. 1, 1971

PUBLISHED BI-WEEKLY BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY

INFANT MORTALITY STUDY

An Environmental Protection Agency researcher has made a study of infant mortality in the vicinity of three nuclear electrical power plants. Her conclusion was that she was unable to detect any changes in infant death rates which might be associated with emissions of radiation from the reactors.

The research was conducted by Mrs. Edythalena A. Tompkins, Human Studies Branch, in EPA's Division of Radiation Research. The reactors she selected were the Humboldt Bay Reactor at Eureka, California; the Dresden Reactor at Morris, Illinois; and the Big Rock reactor at Charlevoix, Michigan.

The results of Mrs. Tompkin's investigation do not corroborate reports by another researcher, claiming a correlation between the operation of the same three reactors — as well as certain other nuclear facilities — and increased infant deaths.

Mrs. Tompkins chose the reactors at Humboldt Bay, Dresden, and Big Rock because they were among the first large reactors to become operational and therefore provided a longer timespan for study, and also because in comparison with newer reactors, the three reactors had a relatively high rate of radioactive discharge.

She used the same method for each reactor. For the time period in which to compare infant mortality rates she chose the five year period before the reactor went into operation and the five year period—four years in the case of Humboldt Bay—following start-up. Then she examined the infant mortality rate—the number of infants under one year who died per one thousand live births—in each of four concentric geographical bands around each reactor site: one band from zero to 25 miles; one from 25 to 50 miles; one from 50 to 100 miles; and one from 100 to 200 miles.

In the case of Humboldt Bay and Big Rock, she found no evidence to suggest an increase in infant mortality associated with these reactors. In both cases, the infant mortality rates continued to decline in the off-site population after the reactors started up.

In the case of Dresden—the patterns of live births and infant mortality rates were quite different from those at Humboldt Bay and Big Rock. Dresden, about 30 miles southwest of Chicago, is in a heavily urbanized area, whereas the other two reactors are in relatively sparsely populated regions.

SEE MORTALITY PAGE 4

LEAD-FREE FUEL

Lead-free gasoline apparently could be made generally available by 1975 at an increase in cost to consumers ranging from two-tenths to nine-tenths of a cent per gallon, according to a study done for the Environmental Protection Agency. The variation in cost would depend upon how soon industry would have to provide the lead-free gasoline and whether it would have to be for all grades. However, it will be 1976 before all gasoline grades could be made lead-free, the study reports.

The availability of a lead-free grade of gasoline having a research octane rating of 93 is envisaged. Gasoline having a research octane rating of 93 is adequate for cars made in 1971 and later. The 93-octane gas would be an addition to the conventional regular and premium leaded gasolines.

Using this three-fuel approach, the study said, various regulatory strategies could be devised to remove the lead from gasoline at different rates of speed.

EPA announced in January its intention to propose regulations on the use of lead additives in gasoline. It is now anticipated that enough information will be collected in time to allow publication of a notice of proposed rule-making by mid-December 1971 on allowable levels of lead in the various grades of gasoline, including a proposed schedule for achieving these levels.

TOXICOLOGY CENTER COOPERATIVE RESEARCH

On November 25, 1969, President Nixon officially announced that all U.S. germicidal warfare weapons would be destroyed. As a result, the Pine Bluff, Arkansas, Arsenal, formerly used by the U.S. Army for research and storage of biological warfare weapons, has been ordered disarmed. The facility, recently transferred to the U.S. Department of Health, Education and Welfare under an Army permit, is now to be used as the National Center for Toxicological Research; it will be administered by the Food and Drug Administration to "... study the biological effects of potentially toxic chemical substances found in man's environment.

The objectives of biological research to be conducted at the Center will include: 1) information concerning adverse health effects of long-term, low-dose exposure to chemical toxicants; 2) determination of metabolic processes for chemical toxicants in animal organisms; 3) initiation of improved methodologies for evaluation of the safety of chemical toxicants; 4) development of scientific research data which may facilitate accurate application of animal data to man. As a "National resource," the work of the Center will be accessible to other U.S. governmental agencies, industrial firms, and universities.

An inter-agency agreement, indicative of the facility's "National resource" status, was recently reached between the FDA and the U.S. Environmental Protection Agency. In order to foster a more indepth analysis of food, therapeutic drugs, and environmental contaminants, the two agencies are acting in a cooperative effort to improve the Nation's knowledge of chemical toxicants.

Each agency is expected to designate $4 million in fiscal year 1972, to be spent as determined by a pre-established Policy Board. Composed of three representatives from DHEW and three from EPA, the Board will serve as the point of coordination of Center activities where project objectives of both FDA and EPA can be considered, developed and applied.

NOISE POLLUTION HEARING

"Noise is the ultimate insult," a Chicago naturalist told the 200 people attending EPA's noise hearing in Chicago July 28-29.

"It belittles us. It gives nothing at which to strike back. It kills what is left of many things we have loved — music, beauty, friendship, hope and excitement — and the reassurance of nature," Dr. Alfred Etter of the Morton Arboretum said. He was one of 27 public witnesses to appear at the second of a series of hearings on noise pollution being held in eight cities across the country by the Office of Noise Abatement and Control.

The hearings which were authorized by the Noise Pollution and Abatement Act of 1970, are being conducted to determine the state-of-the-art in noise control technology and to get public attitudes about the problem and current abatement efforts at all levels of government. The information gathered at the hearings will be included in a special report on noise which EPA will submit to Congress by the end of 1971.

In addition to public witnesses, representatives of industry and the scientific community are participating in the hearings. In Atlanta, the theme of the hearing was construction noise, and in Chicago aircraft noise was the principal topic of discussion. The locations, dates and themes of the other six hearings are: Dallas, August 18-19, urban planning, architectural design, and noise in the home; San Francisco, September 27-29, standards, measurement, legislation and enforcement; Denver, September 30-October 1, recreational and agricultural noise; New York, October 21-22, rail transportation and urban noise and social behavior; Boston, October 27-28, physiological and psychological effects; and Washington, D.C., November 9-12, technology, economics, and national, State and local control programs.

There has been, so far, general agreement among industry and professional witnesses that the technology exists to control most sources of environmental noise — cost and lack of public demand being the principal reasons why it has not seen wider application.

The principal complaints of the public witnesses has been against airport jet and highway traffic noise. Most of the latter group have stressed the need for some sort of mass transportation as one means of correcting the problem.

SPOTLIGHT ON RESEARCH: SLUDGE DISPOSAL

Disposal of large quantities of sewage sludge, in a safe and economic manner, is a problem for many large metropolitan areas. With EPA grant support, the Metropolitan Sanitary District of Greater Chicago is now demonstrating the agricultural benefits to be obtained from applying digested sludge to field crops. Criteria are also being developed for use in selecting such disposal sites.

Preliminary laboratory, greenhouse and field investigations were conducted by the Agronomy Department of the University of Illinois to determine: 1) the effects of the amount of sludge applied and the frequency of its application; 2) information concerning contamination of surface and ground waters with pathogens and organic and inorganic ions; 3) changes in the physical and chemical characteristics of the soil when subjected to heavy and frequent use of sludge; 4) identification of crops and crop systems which absorb the maximum amounts of essential and non-essential elements transferred to the soil from sludge fertilizer; 5) the effects on the food chain of a buildup of trace elements in crops.

Results of the preliminary investigations were encouraging from the standpoint of increasing crop yields, and from the all-important public health considerations. Soybean and corn plots were administered an average of 10 inches of sludge during the growing season, with 1-inch doses applied at 8-day intervals. Plants treated with sludge displayed more vigorous growth than did untreated control plants. In 1970, for example, the average corn yield in bushels per acre amounted to 88 bushels without sludge fertilization, whereas 137 bushels were produced in the same year, using 9 inches of sludge.

The Sanitary District of Chicago has recently acquired 7,000 acres of strip mined land in Fulton County, Illinois, to be used in a large scale demonstration of sludge disposal on land; future plans are to accommodate the digested domestic sewage sludge from the entire Chicago area — 1000 tons of dried sludge per day.

Ultimately, it is planned to move the sludge by pipeline to the disposal site — a distance of 160 miles. However, full-scale operation of the project must await acquisition of the pipeline right-of-way, and other necessary financial arrangements.

In the meantime, preliminary implementation of the concept has begun. Six hundred of the 7,000 acres of strip

Digested sludge is pumped into and held in this 60 acre lagoon prior to applying it to croplands. Metropolitan Sanitary District of Greater Chicago has acquired 7,000 acres of strip mined land in Fulton Country, Ill., for experimentation and demonstration of agricultural sludge fertilization. The project is being conducted by the University of Illinois with grant support from the U.S. Environmental Protection Agency.

After lagooning, digested sludge is applied to agricultural lands by means of a mobile sprayer.

mined land, have been prepared with construction of berms and terraces to contain the liquid sludge which will be applied to the fields; this will prevent run-off or ground contamination. A two million cubic yard (60 acre) lagoon has been built, in which transported sludge will be held.

Currently, 4 barges are in operation, each carrying 2250 tons of liquid sludge (6% solid). Each travels from local Chicago digesters down the Illinois River, to Liverpool, Illinois. From there, the sludge is pumped to the lagoon through a 10.5 mile pipeline. Only 1.5 miles of the pipeline rests upon district property; the district has leased private property to accommodate the remaining 8.5 miles of pipeline. Because the facility still operates on a small scale, however, the barges do not haul to capacity and the lagoon is not yet filled; as the project progresses, there are plans to haul more sludge and two additional lagoons of 3 million cubic yards each will be built.

There seems to be local enthusiasm for the large scale disposal of sludges for economic reasons. Currently the site of the project maintains a very low tax base due to the poor condition of the strip mined land; it is widely hoped that with application of sludges the ravaged land will be reclaimed for agricultural use, with a consequent increase in land values.

For additional information concerning this project write: Mr. John R. Holloway, U.S. Environmental Protection Agency, P.O. Box 597, Cincinnati, Ohio 45201.

MORTALITY CON'T

In the vicinity of Dresden, she said, "The infant mortality rates in the post reactor period could be interpreted as showing a gradual decline as the distance from the reactor increases." However, she said this correlation could not be attributed to radiation.

Mrs. Tompkins said she suspected the data for Dresden reflected the movement of people from the inner city to suburbia. "The infant mortality rates also appear to be reflecting the known higher mortality rates associated with metropolitan areas and particularly with the nonwhite population in these areas," she said.

Corn and other crop yields are significantly higher in fields which have had doses of sewage sludge. Over a 3-year period, average corn yields in bushels per acre increased from 66.3 to 137.0 in a test plot, with application of 74.9 tons of dry matter.

CENTER DIRECTOR APPOINTED

On August 6, 1971, EPA Administrator, William D. Ruckelshaus, announced the appointment of Dr. Andrew W. Breidenbach to a new EPA post. As the first Director of the Environmental Protection Agency's Cincinnati, Ohio, – based National Environmental Research Center, Dr. Breidenbach will direct the efforts of nearly 1,200 EPA employees in 10 locations throughout the city; he will also be responsible for the $28 million multi-disciplinary environmental research laboratory to be built at the University of Cincinnati by 1975. Under the program direction of Dr. Stanley Greenfield, EPA's Assistant Administrator for Research and Monitoring, Dr. Breidenbach will head up the Cincinnati complex as chief of one of the three National Environmental Research Centers which are being established within EPA; the other two are located in Research Triangle Park, North Carolina, and Corvallis, Oregon.

Dr. Breidenbach, who earned his Bachelor of Science Degree from the University of Cincinnati and his doctoral degree from the University of Florida, is a chemist with wide experience in the environmental field.

While working at Cincinnati's Robert A. Taft Sanitary Engineering Center from 1956 to 1960, he developed short-term graduate level training courses in environmental chemistry, and for two succeeding years, served as assistant chief of the National Air Pollution Training Program. For his work at Taft, he gained recognition as an authority on pollution measurement.

Dr. Breidenbach addresses EPA's Cincinnati staff.

As a Federal water pollution control official from 1962 to 1967, Dr. Breidenbach was again recognized for his work. Anthony J. Celebrezze, former Secretary of the Department of Health, Education, and Welfare, publicly identified him as a member of the team which determined the pesticide, Endrin, to be the pollutant which caused a massive fish kill in the Mississippi River.

Dr. Breidenbach is a prominent authority on many other aspects of environmental contamination and has frequently been called upon to assist State, local, and industrial leaders with environmental problems.

He has authored numerous papers for such scientific publications as Bio-Science, Science, and the Archives of Environmental Health and has lectured widely at all levels of government and at universities across the country. He is a member of several scientific and environmental science associations, including the American Chemical Society, a working group of the President's Cabinet Committee on the Environment, and the American Association for the Advancement of Science.

In his most recent position as chief of national research and development for EPA's Solid Waste Management Office, he was responsible for identifying national needs in the area of solid waste disposal and establishing research to meet these needs.

TRITIUM SYMPOSIUM HELD

A Tritium Symposium, sponsored jointly by the Environmental Protection Agency and the University of Nevada, is being held in Las Vegas, Nevada, from August 30 through September 2. The conference has drawn the participation of internationally noted environmentalists, conservationists, and nuclear engineers from around the world, and will be the first major world tritium symposium in almost 11 years.

As an isotope which is difficult to detect and measure and which cannot be readily separated from non-radioactive forms of hydrogen, tritium poses a special handling and disposal problem. The Tritium Symposium, prompted by the increasing artificial production of this radioactive element, will feature many prominent scientists, who will discuss those problems peculiar to the production and use of tritium. Among the subjects scheduled to be examined are ". . .the behavior of tritium in the environment and in living systems; ways of detecting and measuring it; its biological effects; its uses in industry, biology and medicine; and safety criteria and protection standards." It is hoped that this exchange of information will be able to clarify some of tritium's more puzzling characteristics and help to develop means of efficient, economical, and safe disposal of this radioactive element.

RECENT PUBLICATIONS

Single copies of all EPA publications listed below are distributed without charge to representatives of State and local agencies. Address requests *in writing* to:

U.S. Environmental Protection Agency
Office of Public Affairs
Public Inquiries Branch
4th & M Streets, S.W.
Washington, D.C. 20460.

Requests for multiple copies will be considered on an individual basis. Prices are given for publications available from the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402.

Investigating Fish Mortalities. Describes methods which would assist state and local officials in most efficiently and accurately determining the cause of fish kills. Includes a chart of fish kill characteristics and fish abnormalities which may help to identify the most common causes of death. 21 p.

An Accounting System for Transfer Station Operations. Discusses cost accounting as an essential part of the information needed to establish an effective transfer station for solid waste. One of a series of accounting booklets concerned with the various aspects of solid waste handling and disposal. 20 p. $ .30

Construction of a Chemical-Microbial Pilot Plant for Production of Single-Cell Protein from Cellulosic Wastes. Describes the development and operation of the protein pilot plant, while providing technical information concerning the techniques used and the economic potential of the process. 126 p. $1.25

NEW FILM AVAILABLE

A new film, of interest to environmentalists, is available on a free loan basis from:

National Medical Audiovisual
Center (Annex)
Station K
Atlanta, Georgia 30324.

The film, described below, explains the new approach to solid waste management which emphasizes recovery, reuse and recycling. It is ideal for the classroom, and for use by community action groups and local officials.

"Recycling" — 21 minutes, 16-mm motion picture, sound, color, 1971. Order no. M-2118-X. Shows a variety of efforts to recover and reuse more of our discards. This approach has the dual benefit of conserving resources while minimizing the expense and difficulty of solid waste disposal. Illustrates techniques that are being demonstrated by the U.S. Environmental Protection Agency, under the Resource Recovery Act of 1970 (P.L. 91-512).

This film has been cleared for use on television.

ENVIRONMENTAL PROTECTION AGENCY
REGION V
9 39 AM '71

Environmental Lead and Public Health. Discusses the effects of lead as related to the general health of the populace and summarizes the Federal role in citizen protection. Specifically mentions the problems associated with lead accumulations in man, his diet, and the atmosphere. 29 p. $ .25

GPO 917-745

Director
Great Lakes Region, EPA
1 North Wacker Drive
Chicago, Illinois 60606

I

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF PUBLIC AFFAIRS
Washington, D.C. 20460

OFFICIAL BUSINESS

POSTAGE AND FEES PAID
ENVIRONMENTAL PROTECTION AGENCY

U.S. MAIL