



ENVIRONMENT MIDWEST

LAKE ERIE:

*A New U.S. Source
of Natural Gas?*

(Story on page 12)



Canada's Mr. Neil drilling rig

Photo: Mr. Neil Drilling, Ltd.

LIVE! ON THE RIVER

A one-of-a-kind musical comedy program that looks at environment, energy growth, and development is playing cities and towns throughout the Ohio River Valley this summer.

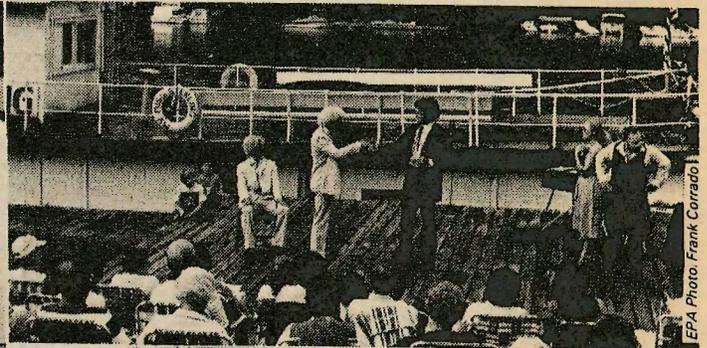
"Live! On the River," produced by the Cincinnati Institute, with assistance from the Mead Johnson Foundation and EPA, will play over 70 performances in 35 river valley communities this summer, according to Project Director Bob Robbins.

"We want to talk to the people of the valley about their future and heritage," says Robbins, "and we think the arts are an excellent way to deal with tough issues like energy, growth, and environment.

The Ohio River Valley has been identified recently as a prime candidate for expanded energy development in the coming years, says Robbins, as well as a major source of U.S. air pollution.

The show revolves around a hot-shot New York film crew that comes to the community to get some grass roots input for a TV special on rivers. The show is interrupted by Mark Twain (the reports of his death again exaggerated), and some good-natured give and take ensues. The show features traditional folk songs, dancing, fiddle playing, and original Broadway music.

It's free and, judging by early performances, a real hit with the public.



EPA Photo, Frank Corrado

EPA Photos/Leah Wilson

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	Environment Midwest is a monthly newsletter published by the Office of Public Affairs, U.S. EPA Region V, 230 S. Dearborn St., Chicago, IL 60604.		Val Adamkus	Deputy Regional Administrator
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A Slick Solution For Used Motor Oil

by Marjorie Borchard

Used motor oil—that dirty, slimy black stuff you drain out of your car's crankcase. What do you do with it?

Many States are hoping you'll recycle your used motor oil. Currently, 18 States have used-oil recycling programs, although the programs vary somewhat from State to State. While some States have legislation regarding the recycling of oil, others conduct their programs on a voluntary basis. Some States have one or two oil re-refiners or reprocessors; others have haulers who sell the oil without re-refining it.

But the important point is that used motor oil can be recycled, virtually forever. As the Association of Petroleum Refiners says, "Lubricating oil never wears out—it just gets dirty!" Not only does recycling motor oil keep it out of the ground and water, but it also reuses a valuable resource. With rising prices and current shortages of oil, it makes sense to recycle all the oil we can.

Just how much oil is out there, available for recycling? According to the American Petroleum Institute (API), about 190 million gallons of oil is generated each year by do-it-yourselfers who change their own motor oil. While some of this oil is recycled—either through re-refining or through use as a fuel or lubricant—most of it is dumped in sewers, in driveways, in trash cans, or even in the neighbor's backyard. Each year, as more and more people decide to change their own motor oil, this amount of used, potentially recyclable oil will increase.

Re-refined oil can be just as good as new oil, and even the API agrees. In Germany, where a government subsidized oil recycling program recovers 70 percent of the used motor oil, each new Mercedes-Benz contains re-refined oil. In Minnesota, the State's only re-refiner has used the stuff in his Lincoln Continental for years and swears by it.

Minnesota law requires all retailers EM/AUGUST 1979



MPCA Photo/Marjorie Borchard

State law and a public education program team up in Minnesota to give old oil new life

who sell motor oil to either provide a collection tank for the deposit and collection of used oil, or to post a notice indicating the nearest oil collection site.

Although there is no exact count on the number of used-oil collection sites in Minnesota, they can generally be found at most service stations that change oil, at discount stores, at suburban shopping malls, and at multi-material recycling centers. There are also a number of State and city government garages that provide oil collection sites for the public.

The used oil is then picked up by the State's 15 private oil haulers for fuel or lubricating purposes. In Minnesota, a large portion of the collected oil is used to lubricate railroad or farm machinery. Although little oil is re-refined for sale to motorists in Minnesota, this is a growing trend in many other States.

The Minnesota Pollution Control Agency (MPCA) has promoted an education program to encourage the public to recycle their used oil. Recently, the MPCA used TV news coverage and newspaper articles to publicize the program, which resulted in over 200 telephone calls from citizens with questions about oil collection sites. Many people said they were glad to hear about the program, as they had been saving their old oil and didn't know what to do with it.

Besides Minnesota, two other EPA Region V States—Illinois and Michigan—have statewide motor oil recycling programs. A fourth, Indiana, plans to begin such a program this month. Ohio and Wisconsin do not have State-sponsored recycling programs, although some private recycling does occur there.

For more information on used oil recycling, please contact Marjorie Borchard, Minnesota Pollution Control Agency, (612) 296-7294.  Marjorie Borchard is a Public Information Officer with the Minnesota Pollution Control Agency.

getting hazardous
wastes in hand



Minnesota Regulates

After three years of study, public hearings, and considerable input from industry and environmental groups, Minnesota's comprehensive hazardous waste regulations came into effect on June 16.

Thus Minnesota has joined about a dozen other States with regulations on the books that come to grips with the management of hazardous wastes — ranging from oil and paint wastes to cyanide and polychlorinated biphenyls (PCBs).

Minnesota's regulations are designed to monitor and control hazardous wastes by giving complete "cradle to grave" responsibility to the generators of such wastes, subject to review by the Minnesota Pollution Control Agency (MPCA). This means that it is up to the waste generator to ensure that its wastes are transported, stored, and ultimately delivered to a permitted processing or disposal facility.

One of the key provisions of the new regulations is the requirement that industries submit detailed disclosure forms describing all hazardous wastes they generate. This information is vital to MPCA for the development of a long-term hazardous waste management plan for the State.

"Until now, there has been no uniform, in-depth method to gather information on exactly how much and what type of hazardous wastes exist in Minnesota," said Marjorie Borchard, Public Information Officer with MPCA. "All we knew is that in Minnesota, as elsewhere in the country, chemicals were being dumped illegally, causing pollution of the surrounding land, water, and air," she said.

Once hazardous wastes are identified, proper containers and labelings must be used, according to the new regulations. Each container of waste requires shipping papers to accompany it from the location where the waste is generated, through the shipping process, and then to the waste's final disposal point. Shipping papers also include instructions on what to do in case of a spill.

"Each year, Minnesota industries produce an estimated 128,000 tons of hazardous wastes," said Borchard. "Some of these dangerous materials are properly disposed of, but MPCA is unable to determine where 57 percent of these wastes end up. It can be safely assumed that each year thousands of tons are illegally dumped into sewers, lakes, rivers, and into the ground."

The new Minnesota regulations

require industries to dispose of their hazardous wastes at a permitted facility. "Aside from a few private industry sites, there are currently no permitted hazardous waste disposal or processing sites in the State. Those that exist are owned by a few oil refiners. Plus, there are two large on-site facilities: one owned and used exclusively by the 3M Company, and the other by the Federal Cartridge Company," Borchard said. Nearly 16 percent of Minnesota's hazardous wastes is shipped to other States, such as Illinois, she said.

The regulations create an incentive for private industry to develop safe, permitted hazardous waste management sites, MPCA said. In addition, they are also expected to cause a reduction in hazardous waste generation.

"Since the new regulations require industry to bear long-term liability for improper disposal, it will eventually become more economical to find ways to reduce or recycle hazardous wastes whenever possible," Borchard said.

The MPCA staff has planned a series of workshops and meetings with industry representatives, to launch a cooperative effort of managing the State's hazardous wastes. MPCA will

"Each year, Minnesota industries produce an estimated 128,000 tons of hazardous waste...each year thousands of tons are illegally dumped into sewers, lakes, rivers, and into the ground."

"Cradle to Grave" Concept Introduced

Hazardous Wastes

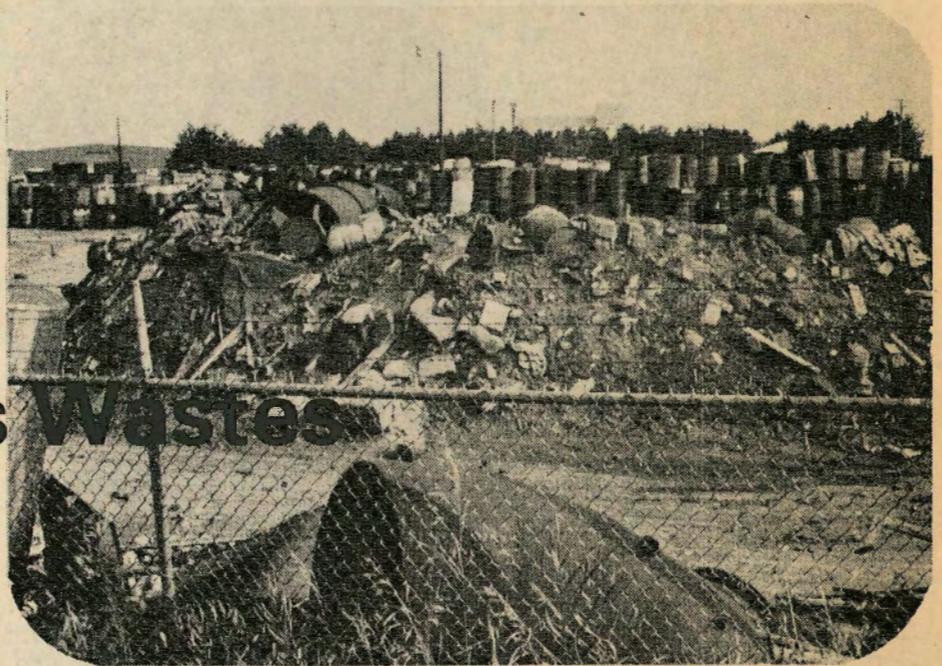
work with industries to gather information needed to properly plan for the treatment, recycling or disposal of these wastes, and to assess training needs for hazardous waste handlers and transporters.

States which do not develop hazardous waste regulations that are at least as stringent as upcoming Federal rules, will have their hazardous wastes managed directly by EPA.

The proposed EPA regulations will govern wastes that are determined to be either corrosive, carcinogenic, flammable, explosive or otherwise harmful to human health or to the environment. A by-product of many manufacturing processes, hazardous wastes are created by the production of such diverse items as telephones, TV sets, books, automobiles, newspapers, clothes, and processed foods.

EPA has been providing grant support and technical assistance for several years to help MPCA in the development of these new regulations.

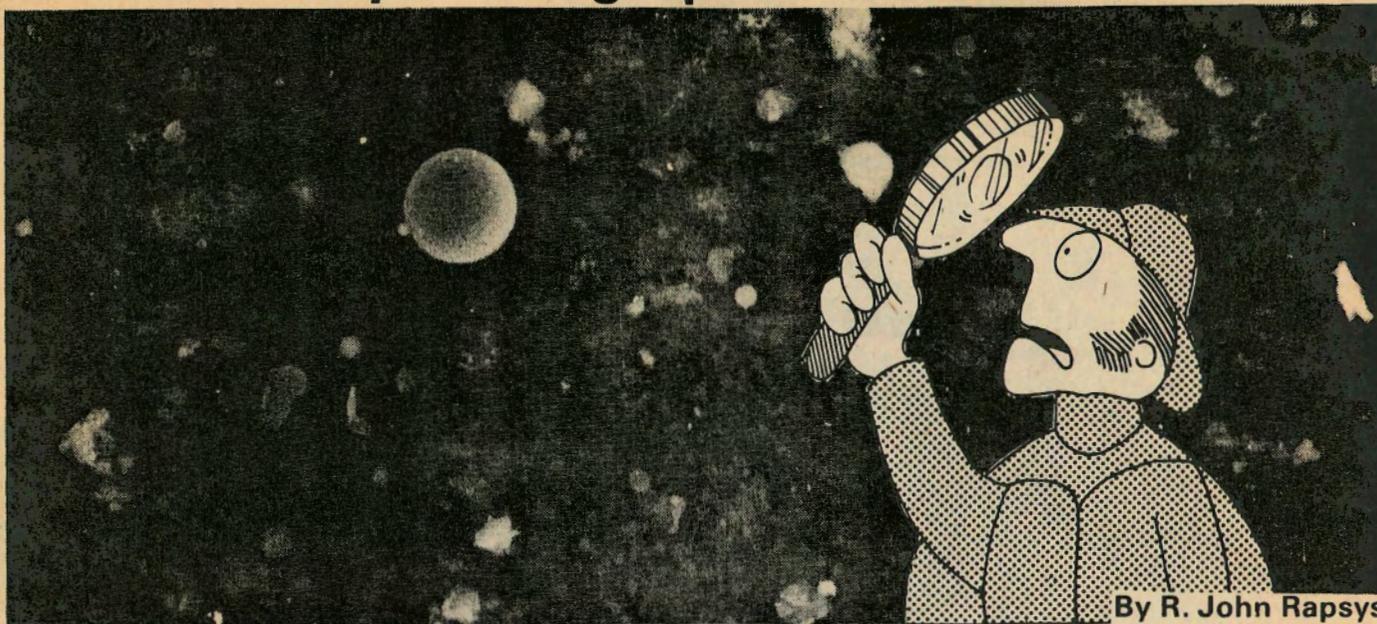
 Information for this article was provided by the Minnesota Pollution Control Agency (MPCA).



Open-air dumps containing hazardous wastes, such as at PCI in Shakopee, near Minneapolis (above), and at Arrowhead Refining in Duluth (below), present a danger to health and the environment. They are constant eyesores as well.



New Technique "Fingerprints" Air Particles



By R. John Rapsys

What fingerprinting of people has done for crime detection, "fingerprinting" of air particles now promises to do the same for pinpointing the often elusive sources of air pollution.

A new technique, known as Suspended Particle Evaluation and Classification (SPEC), identifies the individual air particle and — more important — tells where that particle came from: an electric generating plant, quarry, steel mill, or any other source.

"The bottom line is effective control of air pollution," said Edward Fasiska, president of Material Consultants & Laboratories (MCL). "But first comes source identification — we must know where all that pollution is coming from."

Fasiska founded MCL in Monroeville, Pa., nine years ago and personally conceived the idea of "fingerprinting" air particles. But to turn the idea into an effective technique, he needed help. Luckily, help was readily available at the U.S. Steel Research Laboratory nearby. He teamed up with Dr. Richard Lee of U.S. Steel to develop the technology that evolved into SPEC.

Fasiska, who has a Ph.D. in crystallography, went to the Allegheny County Bureau of Air Control about a year ago and applied the SPEC technique for the first time. In that study he found to his surprise that air pollution in Allegheny County came mostly from dust particles rather than industrial sources, as he first suspected.

All told, Fasiska completed about 100 environmental studies, helping small businesses in the Pittsburgh area,

including helping the City of Pittsburgh with the State Implementation Plan for clean air. It has been presumed that most air pollution comes from industry sources, said Fasiska. But, as his SPEC technique demonstrated, Fasiska found that only about half of the total air pollution came from local industry. The other half came from such non-point sources as road dust or agricultural soil particles.

The SPEC "fingerprinting" technique consists of identifying thousands of air particles, one by one. Size, shape, chemical, and other characteristics are then stored into computers for ready reference. Two types of air samples are collected on filter media, or thin sheets of film: one comes from the surrounding air of a region, the other from a suspected source of pollution. By matching the characteristics of the two samples, scientists can tell what pollutants are in the air, where they come from, and how much pollution comes from the suspected source.

To identify the air particles, the SPEC technique uses a scanning electron microscope, an X-ray fluorescent chemical analyzer and an X-ray defractor, plus two computers. With these tools, scientists are able to identify, or "fingerprint," air particles, even those invisible to the naked eye.

Robert K. Stevens, chief of the inorganic pollutant analysis branch at EPA's laboratory in Research Triangle Park, N.C., said: "EPA's major thrust is toward quantitative analysis — to identify as many sources of pol-

lution as possible. In that respect, the SPEC technique certainly helps.

"With SPEC," he said, "we are not jumping off into the dark when we say that in a certain area 10 to 20 percent of air pollution comes from auto exhaust, 10 to 40 percent from combustion of fossil fuels (coal, oil), and the balance from a combination of industrial, agricultural, and natural sources, such as windblown dust." But he added, "No single technique can be expected to do all things; there has to be a combination of analytical methods." There must also be a change in the sampling method, he said. "We must have a lot more air samples to look at."

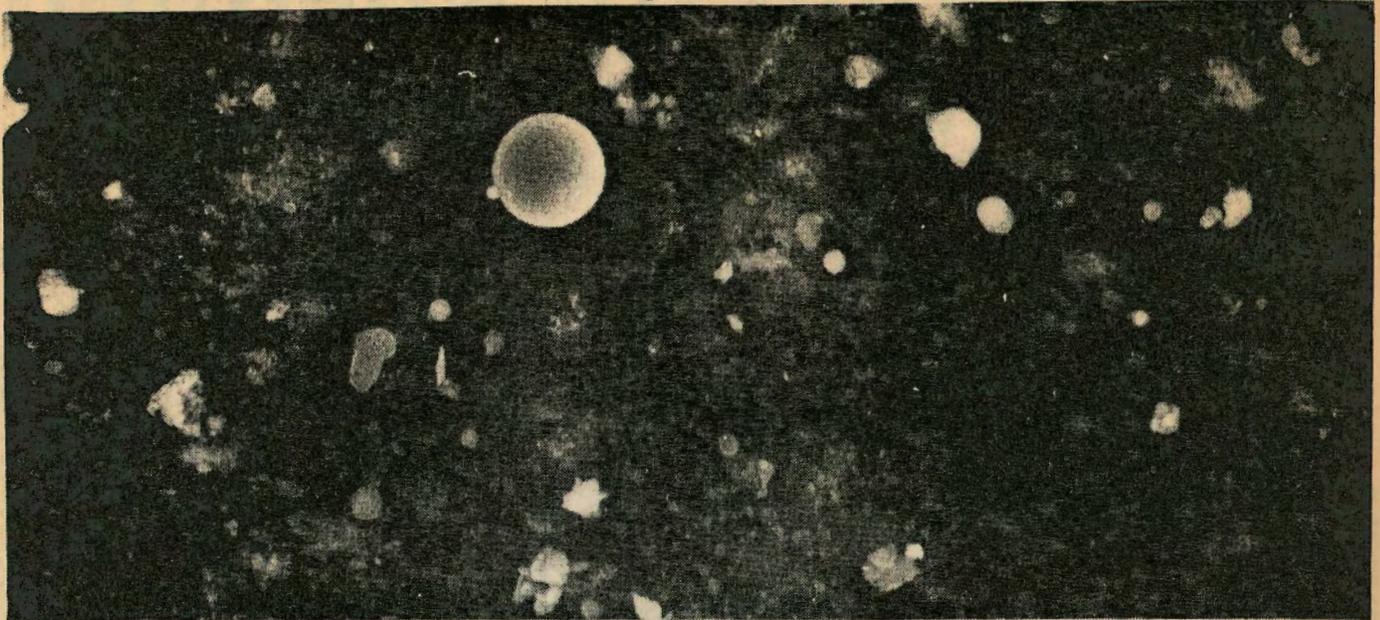
Up to now, EPA has been using the bulk analysis technique for identifying pollutants in the air. However, this technique needs to be modified, Stevens said, so that an air sample may be collected and analyzed directly by the scanning electron microscope and other instruments right on the filter. This is different from the SPEC technique, which requires the transfer of the air sample from one filter to another, Stevens explained.

The idea, he said, is to use both the SPEC technique and the bulk analysis technique, so that they could complement each other.

Fasiska's laboratory (MCL) presented the new SPEC technique at an EPA seminar earlier this year. "The unique thing about SPEC is that it's an automated procedure capable of analyzing hundreds of air samples instead of the usual two or three,"

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Source identification is the key



Peter Busech-Gary Aden/Arizona State

said Stevens. The laboratory is not under EPA contract now, but MCL hopes to get one within the next year or so.

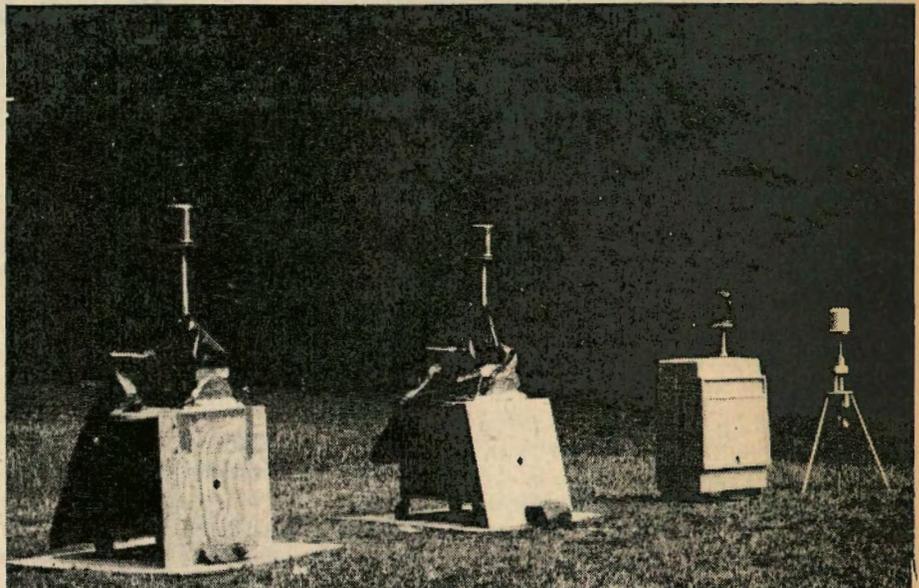
Besides having been used in the Pittsburgh area, the SPEC technique is scheduled to analyze air pollution around Philadelphia, Denver, Huston, and Champaign, Ill. Here, too, dichotomous (two-part) samples will be taken: one from the general air, one from a suspected pollution source.

"Once we receive the air samples, we'll be able to identify sources of urban and nonurban pollution right here in North Carolina, without actually going to the areas concerned," said Stevens.

Initially, all air samples will come to Research Triangle Park in North Carolina. They will then be sent to Fasiska's laboratory or similar ones for subsequent analysis, Stevens said.

"By 1980-81, we will probably be analyzing air samples from urban areas all across the country," he said. "By then, it should be possible to trace many — if not all — sources of pollution, especially those particulates that stay suspended in the air for many hours."

The SPEC technique promises to benefit the industry as well, said Fasiska. Industry has spent money on pollution controls that have not always worked perfectly, but with information from SPEC, companies will now be able to allocate their pollution control funds much more effectively, he said.



EPA Photos

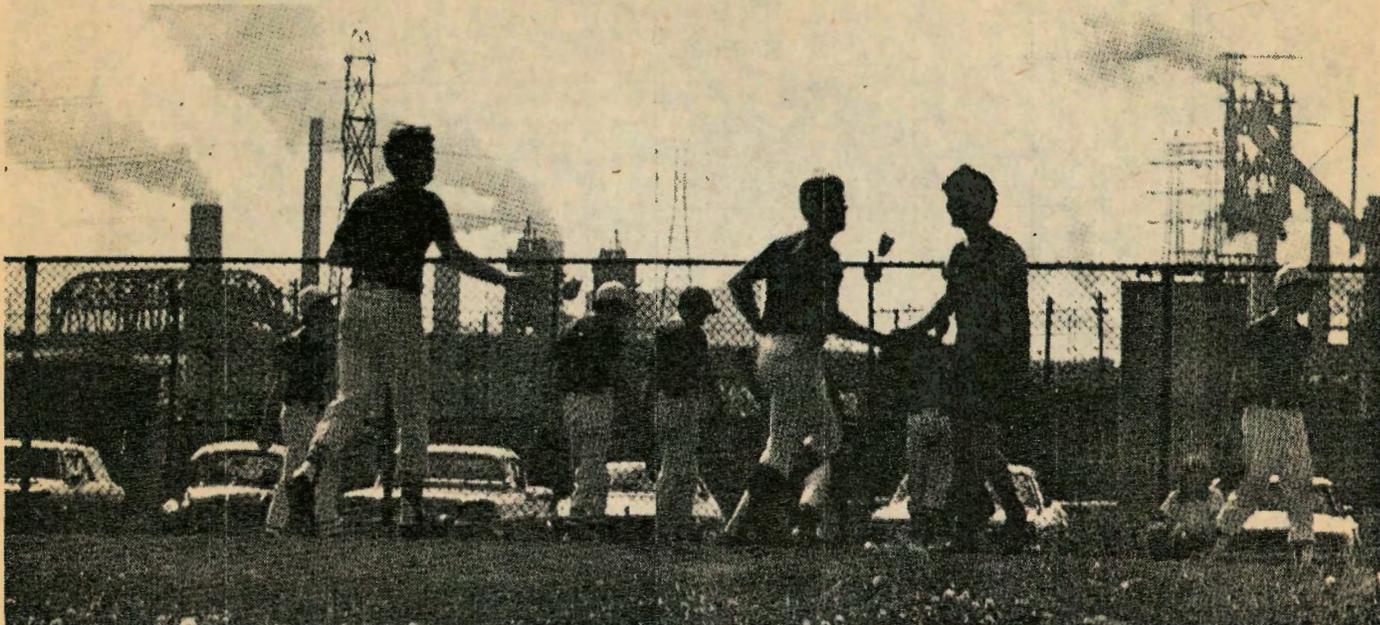


Moonlike surface (top) is actually a greatly enlarged coarse air particle fraction. Each air particle has a unique composition that helps identify its source. Three automated and one manual dichotomous samplers (above) were used by EPA to study sources of air pollution in the Smoky Mountains. EPA scientist Robert K. Stevens (left) with an X-ray fluorescence instrument used to analyze air particles.

R. John Rapsys is a writer with EPA Region V and editor of Environment Midwest.
Cartoon: Bob Nagel

Monitoring Air Pollution

PSI aims at a common denominator



By Kent Kozina

Henry Hartmann recently had open heart surgery. His doctor told him that from now on, ozone is one of his biggest enemies, and that he should avoid it whenever possible. Hartmann's wife has respiratory problems which become aggravated whenever ozone levels are high.

The Hartmanns live about 10 miles north of a major Midwestern city, in an area frequently recording ozone levels twice the national health standard. The Hartmanns want the most up-to-date information they can find on ozone levels in their community.

The city reports ozone levels hourly by means of a recorded message, which gives the latest measured concentrations of ozone in parts per billion parts of air; it also gives the level of the man first listened to the message, however, it left him confused.

"I found the report very interesting," Hartmann said, "but I didn't know what all of it meant. If the reporter levels are half the standard, for example, should I just take it easy when I go outside, or should I jump in the car and get out of town?"

Hartmann is one of millions of Americans suffering from cardiovascular disease. His wife is one of an estimated 10 million Americans with

asthma, chronic bronchitis, or emphysema. These people are especially susceptible to the five major air pollutants: sulfur dioxide, suspended particulates (dust), nitrogen dioxide, carbon monoxide, and ozone. They can perhaps benefit most from accurate and understandable air quality information.

Many air pollution monitoring agencies use an air reporting system which distills the technical measurements for several of the pollutants into a single number, or index. The index number corresponds to a general description of the air quality for that day, such as "good", "fair", or "poor."

This has the benefit of interpreting pollution measurements for those, like Hartmann, who don't yet understand how various levels of pollution can affect their health.

In 1975, the Council on Environmental Quality (CEQ) and the U.S. Environmental Protection Agency (EPA) surveyed the 55 largest air pollution control agencies in the U.S. and Canada. Thirty-three of those agencies reported air quality levels with some form of index — but no two were exactly alike.

An index number of 100, for example, could mean anything from "unsatisfactory" air quality in Minneapolis, Minnesota, to "severe air pollution"

in Phoenix, Arizona, depending upon the index calculation method and the pollutants reported. In all the joint CEQ/EPA survey found 44 different descriptive words and 14 different index calculation methods in use nationwide.

consistencies among the different reporting methods, the survey recommended a standardized air pollution reporting method which would meaningfully relate urban air pollution levels to the public health.

Based on that recommendation, EPA announced this spring new rules for such a standardized nationwide reporting system, known as the Pollutant Standards Index (PSI).

According to the new rules, authorized by Section 319 of the 1977 Clean Air Act Amendments, the PSI must be used in all urban areas with more than 500,000 population by 1981; areas with more than 200,000 population must use the PSI by 1983.

The PSI works basically like this: Each daily measured concentration of each of the five major air pollutants is divided by the short-term national health standard for that pollutant, yielding an index value for each pollutant. The PSI is then reported as the maximum of these values.

Local newspapers, radio, and

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INDEX VALUE	AIR QUALITY EPISODE LEVEL	OZONE LEVELS (1-hour), ppm	HEALTH EFFECT DESCRIPTOR	GENERAL HEALTH EFFECTS	CAUTIONARY STATEMENTS
500	SIGNIFICANT HARM	60	HAZARDOUS	Premature death of ill and elderly. Healthy people will experience adverse symptoms that affect their normal activity.	All persons should remain indoors, keeping windows and doors closed. All persons should minimize physical exertion and avoid traffic.
400	EMERGENCY	50		Premature onset of certain diseases in addition to significant aggravation of symptoms and decreased exercise tolerance in healthy persons.	Elderly and persons with existing diseases should stay indoors and avoid physical exertion. General population should avoid outdoor activity.
300	WARNING	40		Significant aggravations of symptoms and decreased exercise tolerance in persons with heart or lung disease, with widespread symptoms in the healthy population.	Elderly and persons with existing heart or lung disease should stay indoors and reduce physical activity.
200	ALERT	20	UNHEALTHFUL	Mild aggravation of symptoms in susceptible persons, with irritation symptoms in the healthy population.	Persons with existing heart or respiratory ailments should reduce physical exertion and outdoor activity.
100	NATIONAL HEALTH STANDARDS	12	MODERATE		
50	50% OF HEALTH STANDARDS	06	GOOD		
0		0			ppm = parts per million

COMPARISON OF PSI VALUES WITH OZONE CONCENTRATIONS, DESCRIPTOR WORDS, GENERALIZED HEALTH EFFECTS, AND CAUTIONARY STATEMENTS

television stations pick up this air quality information and include it in their weather reports. Some air pollution agencies, like the one in Chicago, report more frequently via taped phone messages.

At a minimum, the PSI report includes the geographic area monitored, the pollutant with the highest measured concentration within the previous reporting period, the PSI number (from 1 to 500), and a description of air quality which corresponds to the PSI number. When more than one of the five major pollutants violates the national health standards, each pollutant is reported.

A typical report might contain the following statement: "Today's air quality index is 120, which is regarded as unhealthy. The responsible pollutant is ozone. This report represents conditions prevailing over most of the suburban north side area for the previous 24-hour period ending at noon today." If the index were forecast for the next day, the following additional language might also be used: "The current forecast is for improved

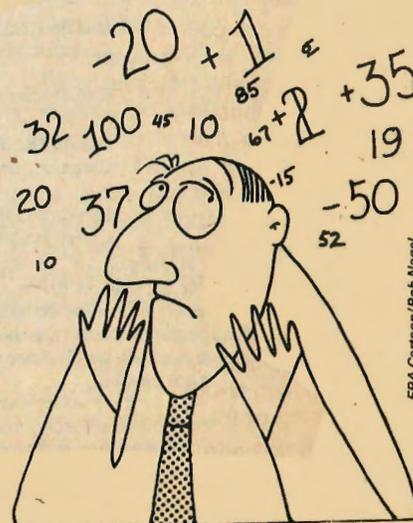
air quality tomorrow with the index not expected to exceed 80."

According to Wayne Ott of EPA's Office of Research and Development, the public's response to the index has been good. Ott, who was instrumental in development of the PSI, said some agencies nonetheless have been reluctant to use the index.

"Many agencies are afraid that if they say the word 'unhealthy,' the world will end," said Ott. "When the PSI was presented in Mexico City, for example, the local agency said it could never do this, because if it said 'unhealthy' on the public airwaves, everyone would commit suicide. When they tried it, however, they discovered it was no problem at all."

In the Midwest, all major cities with a population of more than 500,000 now use the PSI, except for Minneapolis-St. Paul and Chicago. According to spokesmen for the two State air pollution control agencies, Illinois will implement the PSI system statewide by January 1980, and Minneapolis will start using it before the January 1981 deadline.

With the PSI in widespread use, persons sensitive to air pollution can easily interpret the effect of daily changes in air quality on their health, whether they are in Los Angeles or New York City. And with clearer information, citizens can more easily monitor their city's progress in the fight for cleaner air.



EPA Cartoon/Bob Nagel



LETTERS

Dear Editor:

Usually, I am thoroughly impressed with the quality of work evidenced in the magazine, and appreciate the interesting style in which it is conveyed.

However, I feel compelled to respond to two small news items that appeared on page 19 of the June 1979 edition. In particular, the first news item referring to the Flambeau Mining case has several inaccurate statements:

1. The out-of-court settlement "will delay development of a copper mine." This is not true. The mining company, a wholly owned subsidiary of Kennecott Copper Corporation (which fact is important), had determined some time ago that it would not be mining in Wisconsin because of the current low market price for copper. The court case had nothing to do with that decision.
2. New mining legislation passed last year by the State legislature precludes any mining permits in the State until rules are promulgated by the State agency to carry out the new law. Again, entirely unrelated to the court case.
3. The company will "apply for new permits," as the article states, but not as a result of the court settlement; rather, because its prior permit application was dismissed by a State hearing examiner, which decision was affirmed by a circuit court!
4. The statement that the company "will prepare a

new environmental impact statement" is, again, totally untrue and would lead the readers to believe that applicants prepare EISs. Now, as a practical but illegal matter, that may be true in some instances; as a general statement of the law, clearly the EIS responsibility lies with the agency.

The sixth news item concerns the 7th Circuit Court decision regarding the Milwaukee Metropolitan Sewerage District mess:

1. The 7th Circuit did not rule that the city "does not have to embark on a multi-million dollar program to upgrade its sewage treatment system." Quite the contrary. All but one of the lower court's orders were vigorously upheld.
2. You mention that the case was brought by the State of Illinois and was joined by the State of Wisconsin, implying that both States were on the same side. Again, this is totally untrue. Credit should go where it is due, to Illinois, and not to the State of Wisconsin, which intervened on the side of the City of Milwaukee and fought the Federal court decision. (Note also that if the State of Wisconsin had enforced the applicable water laws in Milwaukee for the past eight years, the State of Illinois might not have had to go to court and litigate for five years.)

Kathleen M. Falk
General Counsel

Wisconsin's Environmental Decade

What do you think of the articles appearing in Environment Midwest? What kind of articles would you like to see? Do you know something about local environmental issues that we might not be aware of? Send us your comments, ideas, and suggestions. As space permits, we'll include your comments in the "Letters" column.

— The Editor



FINDINGS OF NO SIGNIFICANT IMPACT

Project Location	Estimated Project Cost	Potential EPA Share
Delphos, OH	Design \$392,350 Construction \$4,095,250	Design \$294,263 Construction \$3,071,437
Galesburg San. Distr., IL	Construction \$642,000	Construction \$481,500
Cottage Grove, WI	Design \$82,800 Construction \$542,000	\$468,600
Carmel, IN	Design \$13,980 Construction \$136,400	Design \$10,485 Construction \$102,300

A Finding of No Significant Impact (FNSI) is a notification to the public, prior to the grant award, that EPA believes the project's environmental impacts are not significant and that, as a result, an Environmental Impact Statement is not needed.

If you have comments or questions regarding the above projects, contact Eugene Chaiken, Chief, Facilities Planning Branch at EPA Region V offices in Chicago (312) 353-2124.



OFF

THE PRESS

Environmental Hotline '79. The 7-page guide, published by EPA Region V, lists telephone numbers for environmental emergencies, names and phones of key EPA Region V personnel, EPA and other Federal agencies, Regional commissions, State and local government agencies, citizen and environmental groups, colleges and universities. For easy reference, information is grouped under six Region V States: Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin. Available free from U.S. EPA Region V, Office of Public Affairs, 230 S. Dearborn St., Chicago, IL 60604.

Around The Region...News...News...News...News

ILLINOIS

• By a vote of 77 to 69, the House rejected a bill that would have banned the shipment of **spent nuclear wastes** into the State for storage.

• "Illinois is becoming the nuclear garbage dump of the Nation," said **Sen. Charles Percy (R)** as he registered his opposition against Federal takeover of the General Electric nuclear waste storage facility near Morris.

• One man was killed and 18 others hospitalized when toxic fumes escaped from a leaking chlorine storage cylinder at a smelter plant in **East Alton**.

• The Senate passed a **hazardous waste disposal bill** by a vote of 49 to 2. Two sets of restrictions on the location of hazardous waste landfills were approved by the General Assembly and sent to the Governor. Although similar in most respects, the Senate bill also requires the investigation of alternate disposal methods and gives county boards **veto power** over landfill sites.

INDIANA

• A survey by the Department of Natural Resources shows that since 1907 man has filled in 3,688 acres of land along the Indiana shore of **Lake Michigan**.

• U.S. Army Corps of Engineers approved a new port complex on the Indiana shore of the Ohio River, east of **Jeffersonville**. Dredging of the Ohio to make room for barge anchorages was also authorized.

• Sludge from sewage treatment is no longer available to the residents of **Hammond**. The sludge, commonly used as garden fertilizer, showed traces of cadmium and lead. Not enough to cause harm, but "we don't want to take a chance," officials said.

• Indiana University is conducting a \$60,000 State-funded study of **Cedar Lake** to see if the lake can be restored. More than 80 percent of the residents approved some kind of effort to save the lake. The study should be completed by November.

• The Indiana Stream Pollution Control Board approved the construction of a 42-inch sewer line between **Merrillville and Gary**. The board requested a \$7.6 million grant from EPA to cover 75 percent of construction costs. By 1981, the new line is expected to carry more than twice the

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4.2 million gallons of sewage the district is handling now.

OHIO

• Ohio EPA signed an agreement with U.S. EPA to improve the coordination and control of environmental incidents involving **pesticides**. The State will report all pesticide incidents to U.S. EPA, which will provide technical assistance, pesticide analysis data, and help with pesticide safety educational programs.

• Disposal of **nuclear wastes** in the State will not be authorized before January 1, 1983, according to a bill passed by the Senate and sent to the House. Salt, limestone, and shale deposits have been considered as possible disposal sites. In the meantime, the State will study the disposal problem to see if the ban should be extended past 1983.

• The City of **Columbus** must undergo an environmental review by the Ohio Power Siting Commission before the city can build an \$118 million trash and coal-fired power plant. This ruling by the Franklin County Court of Appeals last year was recently upheld by the Ohio Supreme Court.

MICHIGAN

• The controversial **wetlands protection bill**, in a 25 to 8 vote, was finally passed by the Senate and sent to the House. The bill applies to wetlands of five acres or more and carries two maximum penalties: \$10,000 for development with out a permit and \$25,000 for violating a permit.

• Michigan's 2,232-mile **Great Lakes shoreline** will get a face-lift with the help of \$647,000 in Federal grants. A 12-month program was started in July to restore neglected or unused beaches, public parks, and historical sites.

• **Macomb County** will spend \$35.6 million to modernize its wastewater treatment facility, which will include 12 miles of new connecting sewers and pumping stations. The project is expected to clean up more thoroughly the wastewater going into Lake St. Clair. It will also prevent basement flooding in **northern St. Clair Shores** and offer some relief from flooding to **Roseville and East Detroit**.

• By a vote of 98 to 0, the House

passed a **hazardous waste management bill** and sent it to the Senate. One provision calls for a nine-member committee that would have power to approve or disapprove requests to establish hazardous waste dump sites. **Maximum fines** of \$25,000 per day for first offenders and \$50,000 per day for repeat offenders are provided.

MINNESOTA

• Minneapolis-St. Paul are chief suspects in a joint **Minnesota-Wisconsin** study to determine if air pollution from the Twin Cities steals across the Wisconsin border. And if it does, how far into Wisconsin does it reach? Data monitoring stations set up in Minnesota (Hastings, Roseville, East Bethel, Dayton and Anoka County) will be compared with data from similar stations on Wisconsin's side (at East Farmington and Park Falls).

WISCONSIN

• U.S. Soil Conservation Service study of land use says **62 million tons** of Wisconsin soil are being washed away each year. Two-thirds of such soil is from cropland.

• A ban on laundry detergents with more than one-half of 1 percent of phosphorus by weight became effective on July 1.

• A statewide poll shows that **76 percent** of the residents want to halt or at least delay the construction of nuclear power plants. Pennsylvania's Three Mile Island nuclear accident triggered the \$3,000 study.

• The Fox River Valley Water Quality Planning Agency approved steps leading to clean up of waters in the area. However, it warned that the cleanup might increase the presence of **sea lampreys**, which destroy game fish. Native lampreys have been moving upstream in the Fox River, and there is concern that sea lampreys might follow. Both kinds of lampreys do not thrive in heavily polluted waters.

• The Southeastern Wisconsin Regional Planning Commission unanimously adopted the areawide water quality management (208) plan and presented it to the Wisconsin Department of Natural Resources at its July 25-26 board meeting.

LAKE ERIE

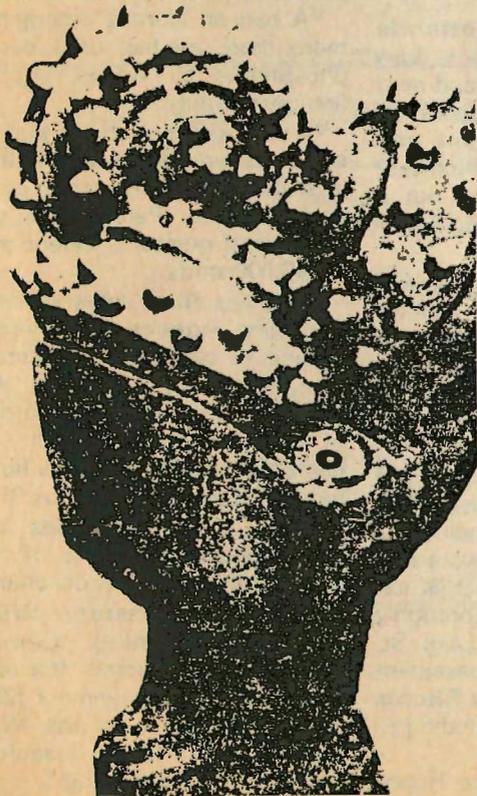
By Susan Nelson

It is not news that there are deposits of natural gas beneath Lake Erie. Canadian rigs began drilling for and extracting it early in this century, and they began in earnest to withdraw significant amounts of natural gas during the 1950s.

What is news, especially during the energy crisis, is a cooperative study by EPA, the Army Corps of Engineers (COE), and the Department of Energy (DOE) that began quietly last year. Its purpose is to take a careful, thorough look at environmental and economic issues involved in drilling for natural gas before any more exploration occurs beneath U.S. waters of Lake Erie. (An invisible line stretches across the Lake — see map — and forms the U.S.-Canadian boundary)

Officially called "Assessment of the Development of Natural Gas in U.S.

A drill bit used for natural-gas exploration, shown approximately one-quarter size.



Lake Erie," the study began last September and is scheduled to last 18 months. COE and EPA are funding the study, which is divided into three phases. Phase I ended in March; a 194-page report, "An Examination of Issues Related to U.S. Lake Erie Natural Gas Development," has been prepared as a result. (To receive a copy, write to Paul J. Horvatin, U.S. EPA Great Lakes National Program Office, 536 S. Clark St., Chicago, IL 60605.)

Phase II of the project is now in progress. It is a 6-month field study to assess the environmental impacts such drilling could be expected to have upon Erie, the shallowest and most troubled of the five Great Lakes. This phase is being conducted by specialists from Argonne National Laboratory, a DOE facility. EPA specialists from the Great Lakes National Program Office in EPA Region V, Chicago, and specialists from COE's Buffalo, N.Y. district are keeping in close contact in order to draw their own conclusions.

An Environmental Impact Statement (EIS), prepared by the COE, will result from Phase II. EPA will draw up guidelines based on the EIS. These guidelines will govern development that does occur, should environmental studies now under way suggest that natural gas development in U.S. Lake Erie can be carried out without environmental danger. COE will use the EIS in its imminent job of deciding whether or not to grant construction permits. Public hearings will be held when the EIS is completed. Arrangements will be announced when they

have been made.

The study is significant because it is being done before an immediate need for it exists. Although drilling is permitted by New York, Ohio, and Pennsylvania (where limited exploration has taken place), no one may drill for gas beneath Lake Erie until after the EIS and guidelines are ready. At this writing, no companies have applied for licenses to exploit for gas beneath Lake Erie on the U.S. side. If any should, they will require to await the results of the 18-month study.

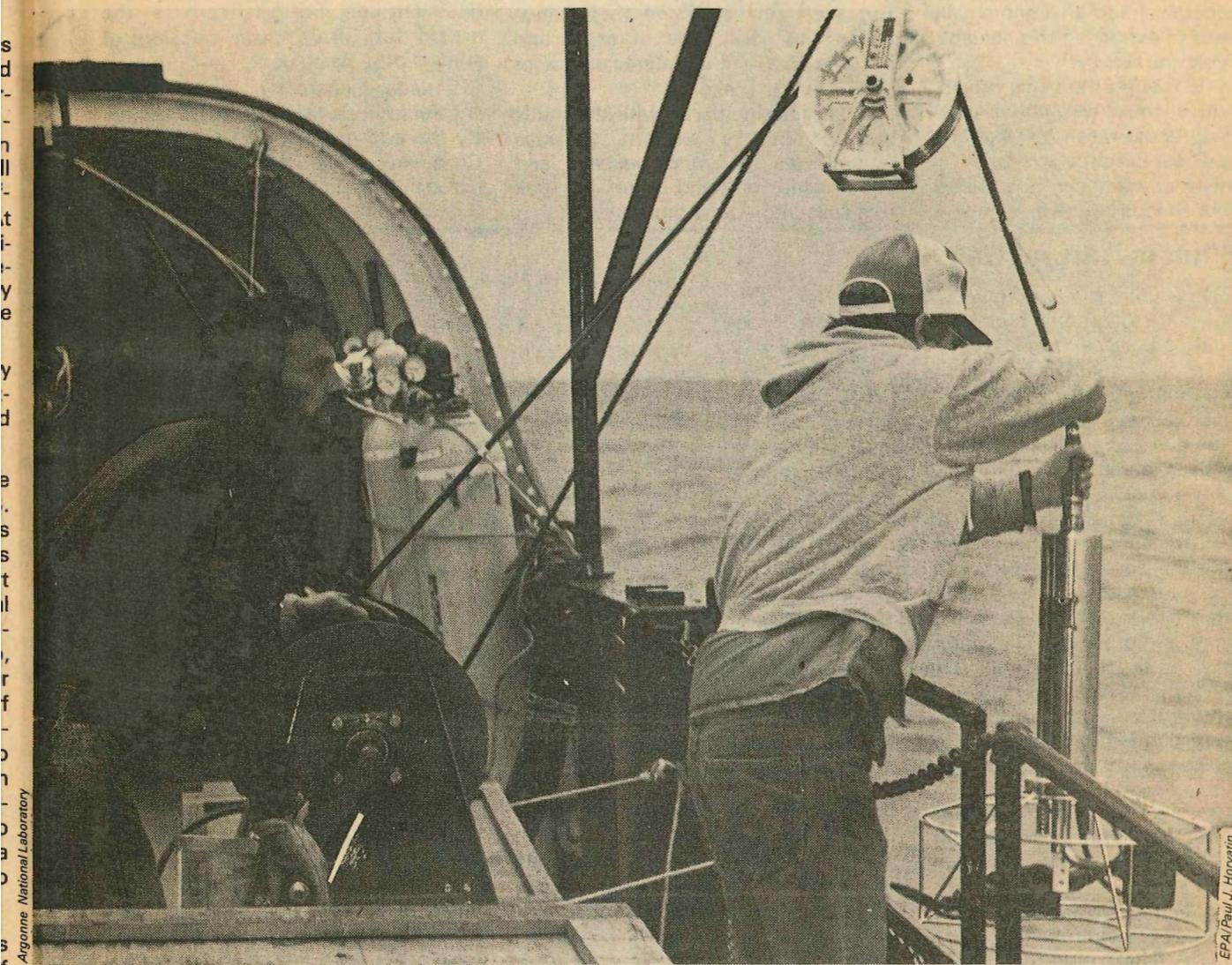
In other words, there cannot be any drilling before mid-1980, and its doubtful that any U.S. Lake Erie gas would enter the market until after that time.

The study is also significant because it is not limited only to the three U.S. Government agencies. It also involves cooperation from Canada, which shares cleanup of and concern for the Great Lakes with the U.S. The international Joint Commission (IJC), the binational body that oversees cleanup, in 1970 advised against drilling for natural gas in the eastern section of Lake Erie, east of a north-south line extending from Point Pelee, Ontario, to Marblehead, Ohio. The lake bottom east of that line is considered too unstable for such exploration — and too likely to produce oil, which would be a serious new source of pollution to drinking water for millions of people.

Because the U.S. Government is looking at the effects and methods of drilling for gas, it only makes sense to spend time on rigs that already are

Source of

IE: *a New*



Scientists collect water samples for Phase II of the joint Federal study to assess possible effects of Lake Erie drilling.

U.S. Natural Gas?

A New Source of U.S. Natural Gas?

drilling. The Province of Ontario welcomed U.S. specialists onto the rigs they regulate so that they might see what Canada has found to be the most economical and environmentally sound ways of extracting this valuable source of natural energy.

EPA is involved in the study project because it is concerned about what such drilling could mean to Lake Erie and to the Great Lakes ecosystem.

Effluents that are part of the drilling cycle are of serious concern. Brines —

face in drilling are placed on "shaleshakers," fine mesh screens that both allow the rock chips to fall back into the water and recycle the muds. But a certain portion of these muds adhere to the rock cuttings and become an as-yet-undefined source of pollution to the lake.

Sands that come up with the muds are yet another concern. Because natural gas is found beneath and within sandstone and other soft rock that lies hundreds or thousands of feet

sediments, where contaminants as well as underwater life are found.

To put these issues in their proper perspective and to find answers to the questions of most concern is the reason for EPA's close tracking of studies now being done.

Canada apparently feels it has satisfactorily answered such questions. By the end of 1977, more than 1,042 Canadian wells had been drilled beneath Ontario's section of Lake Erie. (Ontario is the only Canadian province

What is Natural Gas

By definition, natural gas is "a natural fuel containing methane and hydrocarbons that occurs in certain geological formations...either in the gaseous phase or in solution with crude oil in natural underground reservoirs."

Natural gas is highly flammable and nearly odorless — the odor we smell in our house when it is escaping has been added by gas companies to alert consumers to any gas leaks.

Gas is an important source of fuel. Homes use it for heat, heating water, and cooking. Industries use it to fire the boilers that make steel, and for a host of other purposes.

It is not known for sure if gas, like oil, formed during an organic or an inorganic process. The inorganic theory holds that hydrogen and carbon were brought together under great pressure and temperature deep in the earth, and that the gas and oil that resulted found their way through porous rocks

to collect in natural traps in the formation of the earth.

The organic theory, held by most scientists, explains that the hydrogen and carbon needed to form gas and oil came from the decay of tiny, ancient plants and animals. Over a period of millions of years, rivers that flowed down to the seas carried with them great volumes of mud and sand that were spread out by currents and tides over sea bottoms. New deposits were distributed, and tides over sea bottoms. New deposits were distributed, and under increasing weight of the new beds the ocean floors slowly sank. This in time created sedimentary rocks — sandstones and shales, limestones and dolomites — beneath and in which natural gas is found.

The tiny organisms that died and settled to the bottom were buried and sealed off from the air. In time, pressure and warm temperatures, bacteria and chemical combinations of decaying produced both natural gas and oil

— S.N.

salt water — can present greater problems for both drinking water and the living organisms in the lake than was once thought.

The clay and chemicals known as "drilling muds" are another matter that concerns EPA. These muds are pumped from the surface into the cores of the bits that drill hundreds of feet down into the wells, in order to lubricate and cool the bits. Chips and rock cuttings that are raised to the sur-

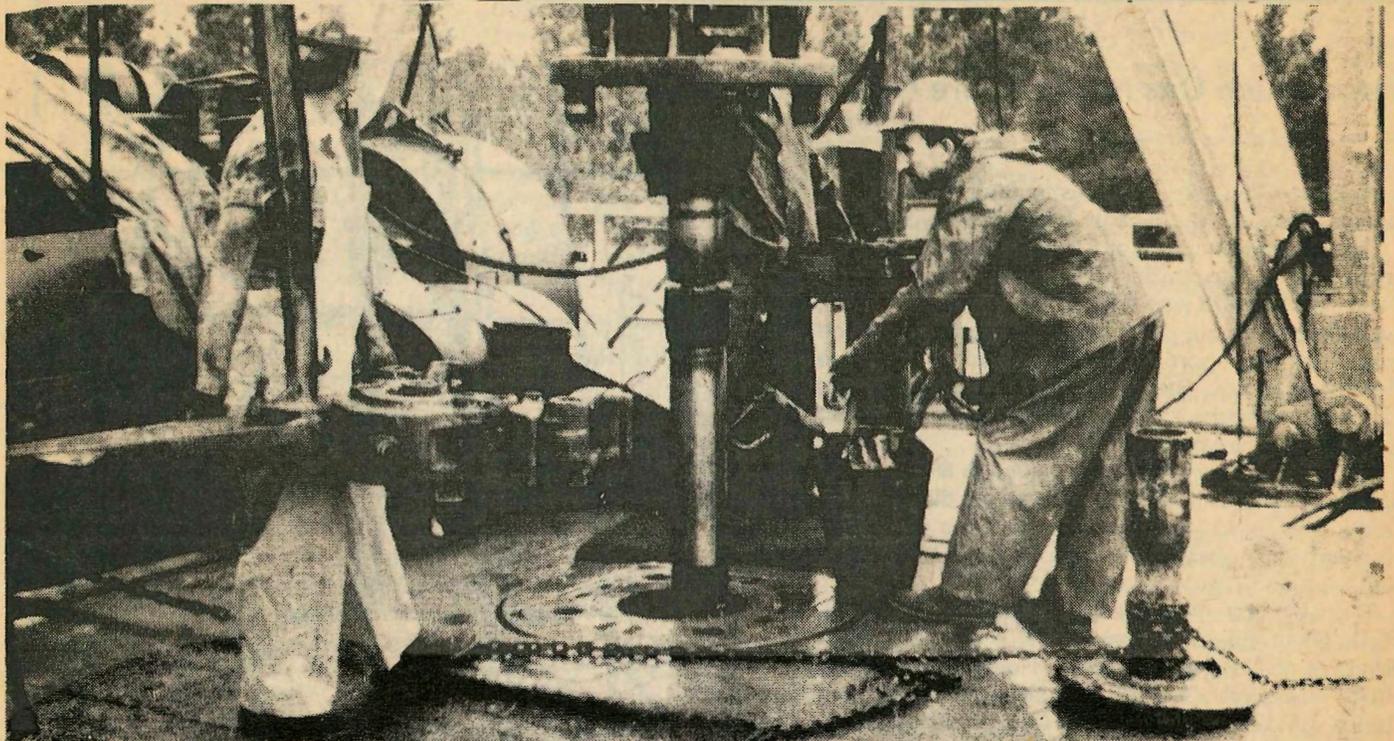
beneath the lake, sand would be a natural by-product of gas drilling.

In the drilling process, strong acids are used to dissolve rocks within wells. These acids and other chemicals are pumped into the wells in order to extract more gas, and some of them could accidentally be let out into the lake.

Even changing the nature of the lake bottom, however slightly, could result in a resuspension of the

that borders Lake Erie—or any of the Great Lakes.) Some 430 wells are currently producing or awaiting hook-up to produce gas for an underwater collection system that includes some 200 miles of pipeline. Since 1971 Canadian wells have produced more than 113.7 billion cubic feet (bcf) of gas, at an annual average rate of 5.6 bcf a year. Ontario's success rate—gas found in holes drilled—is 65 percent.





Two drill-rig workers at a site EPA visited operate equipment similar to that which would be used aboard rigs in U.S. Lake Erie.

The Canadian rigs that are being studied in Phase II are rotary jack-up rigs with floating drill ships. More than 95 percent of Canada's wells in the lake are now being drilled by four rotary units: Timesaver II, the Mr. Neil (on the cover), Telesis, and the Mr. Chris.

The Mr. Neil rig is 118 feet long and 50 feet wide. The rig is propelled, like a boat, to the site of intended drilling, with four legs up. When it is positioned for drilling, legs are lowered and the rig is raised automatically. Such rigs as the Mr. Neil are capable of drilling in water depths of up to 225 feet. (Lake Erie's maximum depth is 210 feet.) When a well has been drilled and gas found, divers connect pipes to it beneath the water. The pipes are connected to compressors on shore, which extract

the gas and force it into distribution into distribution pipelines. They, in turn, direct the gas to industry or to homes.

Whether or not it will be decided that U.S. waters of Lake Erie are worthy of being explored and drilled for natural gas remains to be seen. EPA and COE are withholding judgment until the EIS is completed.

And, if the EIS suggests that drilling could be done without adverse environmental effects upon Lake Erie, any companies that decide they want to explore for natural gas will face a two-step process before they invest in rigs and crews — after they are awarded leases and other approvals by the appropriate State.

First, they will be required to apply for construction permits from the COE,

to get rigs out into the lake and to build pipelines out to them. Second, they will be required to apply for NPDES (National Pollutant Discharge Elimination System) permits from the State to prove to the State and to EPA that whatever discharge associated with the drilling they do will be environmentally sound.

The final question industry will have to ask itself is whether or not the drilling for natural gas beneath Lake Erie will be worth the expense required to maintain whatever environmental balance will be called for—if that is the recommendation of the 18-month study. 

Susan Nelson is a Writer/Editor with EPA Region V who specializes in Great Lakes matters.

How Much Gas Might There Be?

Researchers have been estimating possible reserves of natural gas beneath Lake Erie for years.

Total gas production for the three Lake Erie States interested in gas drilling (Ohio, Pennsylvania, and New York) in 1975 was 178.2 billion cubic feet (bcf), with Ohio producing 85.8 bcf. This supply of natural gas is from on-shore wells, which each of the three States has. The State of Michigan opposes gas drilling beneath its share of Lake Erie and the other Great Lakes it borders.

Over a one-year period that ended in March 1978, Ohio consumed more natural gas than did Pennsylvania and New York combined. Ohio industries consumed 74 percent of the State's total 100.5 bcf.

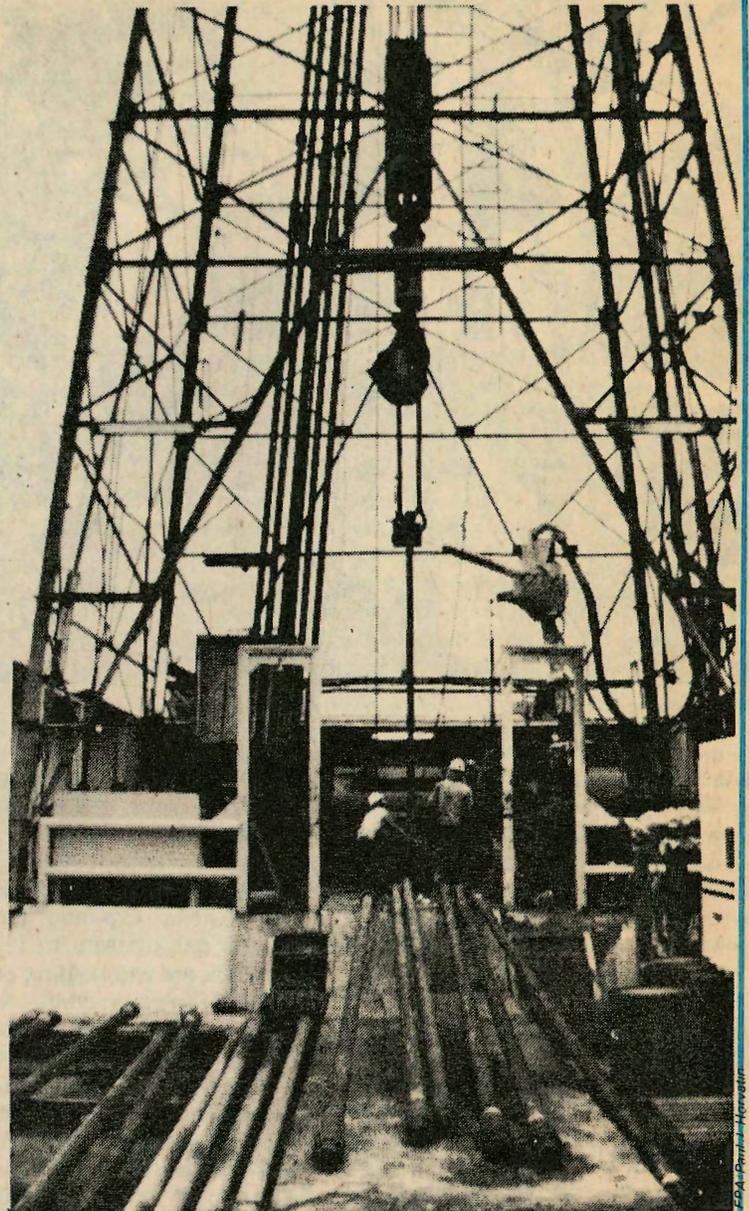
If drilling were permitted, estimates from the New York State Energy Office (1977) and the Ontario Ministry of Natural Resources (Hurd and Kingston, 1978) respectively suggest that between 533 and 888 bcf might be produced over a 22-year period within a 10-county area in the three States.

Hurd and Kingston, both Canadians, in 1978 placed Canadian and U.S. Lake Erie natural gas resources at 1,000 bcf each. Canada, they said, has already exploited 10 percent of that potential, and they estimated that another 20 percent is extractable with current knowledge. They also suggested that 50-90 percent of potential U.S. reserves could be exploited with present knowledge.

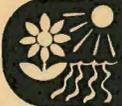
U.S. Lake Erie gas was estimated in 1976 to represent between 0.2 and 0.4 percent of total proved U.S. natural gas reserves.

If maximum production and natural gas deregulation both occurred in 1985, a Stanford Research Institute study has suggested that Lake Erie reserves would account for about 1 percent of the reserves estimated for a 13-State region.

— S.N.



Aboard a vessel drilling for natural gas, with drill-rig tower.



EPA Files Lawsuit Under RCRA Against Cleveland Firm

EPA Region V Office in Chicago went to court to clean up hazardous wastes at the Chemicals & Minerals Reclamation Inc. of Cleveland, Ohio.

A civil complaint and a motion for a temporary restraining order (TRO)

were filed on EPA's behalf by the U.S. Attorney for the Northern District of Ohio against the firm in Cleveland. The TRO, granted by the judge on July 11, requires that the firm reduce the risk of fire, explosion, and toxic fumes presented by several thousand carelessly stored hazardous waste drums on the firm's property. The ultimate goal of

the lawsuit is the removal of all drums and the safe disposal of hazardous wastes in the drums.

This is the first case Region V EPA filed under the Resource Conservation and Recovery Act (RCRA) in which the extraordinary remedy of the TRO was sought.

State Clean Air Plans Rolling in: EPA Approval Expected by Fall

In the Midwest, Indiana and Michigan have submitted complete State Implementation Plans (SIPs) for clean air. Minnesota and Wisconsin have submitted partial plans; and Ohio will submit portions of its plan by the end of August. Portions of the Illinois SIP have appeared in the Federal Register and are now open for approval. (See following news brief.)

Under the 1977 Clean Air Act Amendments, the deadline for SIP submission was January 1, 1979 and the deadline for SIP approval was July 1, 1979. The amendments also mandate that issuance of new-source construction permits may be delayed on certain construction projects in States that are late with their plans. However, because of "good-faith efforts of Midwestern

States in developing these clean air plans, Federal funds for highways, sewage treatment facilities, and other projects will not be cut off," said EPA Region V Administrator John McGuire.

EPA Invites Public Comment on Illinois SIP

EPA Region V has proposed to approve specific portions of the Illinois draft State Implementation Plan (SIP), after the public has had a chance to comment on the SIP or on EPA's proposal by August 30, 1979. Details of EPA's decision on this plan were published in the July 2, 1979 *Federal Register*.

The SIP outlines how Illinois plans to reduce air pollution to Federally acceptable levels by 1982, or in some special cases by 1987. The two target years are specified by the 1977 Clean Air Act Amendments. The aim of

Illinois and other State clean air plans is to control the six most hazardous air pollutants: ozone, carbon monoxide, particulates (smoke, dust, fly ash), sulfur dioxide, nitrogen dioxide, and hydrocarbons.

Comments on the Illinois SIP or on EPA's proposed action should be sent by August 30 to: Maxine Borcherding, U.S. EPA Region V, 230 S. Dearborn St., Chicago, IL 60604. Comments are especially solicited for those portions of the SIP that EPA has proposed to approve conditionally.

Copies of the Illinois draft SIP and the July 2, 1979 *Federal Register* are available for public inspection at the above EPA office. In addition, the SIP may be examined at Illinois EPA headquarters, 2200 Churchill Rd., Springfield, IL 62706. Copies of the *Federal Register* may also be available at certain law and public libraries.

NPDES Violators in the Midwest

Below are some of the more serious violators of NPDES permits. Formal Enforcement actions have been initiated against them.

ILLINOIS

- Commonwealth Edison Co., Joliet
- Commonwealth Edison Co., Waukegan
- Commonwealth Edison Co., Will County
- Modern Plating Corp., Freeport
- SCM Corp., (Glidden Durkee Division), Joliet
- Caseyville Township
- City of Chester

- City of East St. Louis
- City of Herrin
- City of Pekin

INDIANA

- Amoco Oil Co., Whiting
- Bunge Corp., Clymers
- Laketon Asphalt Refining Inc., Laketon

- City of Charlestown
- City of East Chicago
- City of Elkhart
- City of Plymouth
- City of Portage

MICHIGAN

- BASF Wyandotte Co., Wyandotte
- Lear Siegler, Inc., Mendon
- National Standard Co., Niles
- Muskegon County, Muskegon
- City of Wyoming

MINNESOTA

- Minnesota Power and Light Co., Aurora
- S.B. Foot Tanning Co., Red Wing
- City of Hutchinson
- City of Moorhead
- City of Rochester

OHIO

- Chemlime Corp., Lisbon
- Standard Oil Co., Lima
- Sun Oil Co., Toledo
- City of Massillon
- City of Mount Vernon
- Summit County #6 Plant, Hudson

WISCONSIN

- Appleton Papers Inc., Appleton
- Niagara of Wisconsin Paper Co., Niagara
- City of Jefferson

Wastewater Dischargers Fail to Comply With NPDES Permits

Of the 1,075 major wastewater dischargers in the six-State Midwest Region, 394 (or 37 percent) were found in violation of their National Pollutant Discharge Elimination System (NPDES) permits.

EM/AUGUST 1979

The Quarterly Noncompliance Report, released by EPA Region V Office, covered violations between January 1 and March 31, 1979. Violations ranged from failure to submit a discharge monitoring report to failure to meet a construction schedule. Violations of the final effluent limitations contained in the per-

mits were also cited.

Major violators by State are: Illinois, 152; Indiana, 22; Michigan, 71; Minnesota, 20; Ohio, 97; and Wisconsin, 32.

All NPDES permit violations are being followed up with appropriate enforcement actions either by the States or by EPA.



Hazardous Waste Enforcement and Emergency Response System Established

In July EPA announced the establishment of a nationwide Hazardous Waste Enforcement and Emergency Response System to deal with hazardous waste emergencies.

Part of the system is a National Hazardous Waste Enforcement Task Force and a new unit in the Oil and Special Materials Control Division. The Enforcement Task Force will coordinate Federal cleanup activities with its regional offices and with the States, including technical, scientific, and legal support work.

The cleanup of hazardous waste dump sites that threaten public health has been assigned the "highest agency priority," EPA headquarters said. EPA has now identified 151 dump sites nationwide that contain potentially dangerous amounts of hazardous wastes. Another 60 dump sites, also presenting potential hazard to public health and the environment, have been just recently discovered.

EPA Launches Chemical Substances Review Program

EPA began reviewing on July 1 new chemical substances before they are manufactured for commercial purposes, to evaluate any possible risks that such chemicals may present to human health or the environment.

If great risks are present, EPA may restrict the use of such chemicals, it may control their production or use, or it may seek an outright ban on production through an administrative order or court injunction.

The program, known "premarket notification," is a major step in EPA's efforts to control toxic substances. EPA expects to receive about 400 of these notifications during the next 11 months.

If EPA believes that it's not necessary to regulate a chemical in any way, the manufacturer may begin production after the advance notification period is complete, without specific EPA approval.

For premarket notification forms and instruction manuals, or further information, call EPA's Region V Toxic Substances Office, Paul Meriage (312) 353-2291.

WHERE THE WASTES ARE: MIDWEST REGION STATUS REPORT

	State legal action in progress	Federal legal action in progress	Remedial action completed	Site cleanup in progress	EPA site assessment in progress	Study in progress by other Federal or State agency	Site actively monitored	Data does not support imminent hazard action
EPA REGION V								
3M				•				•
Woodbury Village, MN								
American Recovery Co., Inc.				•	•		•	•
E. Chicago, IN								
Ansul Chemical Co.				•	•		•	•
Marinette, WS								
Arrowhead Refining Co.					•		•	•
Duluth, MN								
Bofors Lakeway, Inc.	•			•	•		•	•
Muskegon, MI								
Byron Salvage	•						•	•
Ogle County, IL								
Calumet Container	•						•	•
Hammond, IN								
Cast Forge, Inc.	•					•	•	•
Howell, MI								
Central Landfill	•				•		•	•
Montcalm Co., MI								
Cherrington Scrap Metal				•				•
Oak Hill, OH								
Chemical Mineral Reclamation								
Cleveland, OH						•	•	•
Conservation Chemical Co.					•		•	•
Gary, IN								
Fisher-Kalo Chemicals	•					•	•	•
Kingsbury, IN								
Gratiot County Landfill							•	•
St. Louis, MI								
Hammer's Construction Co.						•	•	•
Perham, MN								
Hooker Chemical Co.	•					•	•	•
Montague, MI								
Interstate Pollution Control							•	•
Rockford, IL								
Kerr-McGee Disposal Site							•	•
West Chicago, IL								
Laskin Greenhouse/Waste Oil							•	•
Jefferson, OH								
Lyles Trucking							•	•
Belleville, MI								
Mid-Co #1 and #2							•	•
Gary, IN								
Musket Ranch & Trading Post							•	•
Anoka Co., MN								
Pollution Controls Inc.	•				•		•	•
Shakopee, MN								
Reilly Tar & Chemical Co.	•						•	•
St. Louis Park, MN								
Robert Ross & Sons Inc.							•	•
Grafton, OH								
Seymour Recycling Corp.							•	•
Jackson County, IN								
Story Chemical Company							•	•
Muskegon Co., MI					•		•	•
Summit National Services, Inc.							•	•
Portage Co., MI								
Tipton-Martin							•	•
Winnebago Co., IL								
U.S. Drum	•						•	•
Chicago, IL								
Weisman Scrap Metal							•	•
Winona, MN								
West K.L. Avenue Landfill							•	•
Kalamazoo, MI								



Environmental news briefs...briefs...briefs...

Lake Michigan Researchers Find High Levels of Tin

Two scientist have found organic tin compounds in southern Lake Michigan that exceed the expected levels.

Dr. Thomas Tisue of Argonne National Laboratory in Argonne, Illinois, first came across evidence of the compounds in 1975-76, when he was testing and analyzing those waters for many trace elements. He routinely sent results of his findings to Scripps Institute of Oceanography in La Jolla, California, where researchers noted that levels of tin were very much higher than those found in the oceans.

In September 1978 Dr. Tisue and Dr. Vernon Hodge of Scripps went on a research cruise in southern Lake

Michigan and took independent, concurrent core samples of the sediments. They analyzed their samples by independent techniques in their respective laboratories and both found tin levels at between 1 and 3 parts per billion in the waters—roughly 1,000 times higher than levels found along the seacoasts. Sediment samples from the lake bottom showed concentrations of around 20 parts per million.

The increase in levels of tin, particularly in the sediments, suggests that man's activity is responsible: Sediment samples dating from the 1800s show only about 1 part tin per million.

The organic tin in question has several things in common with lead, another metal that has shown a

marked increase in the Great Lakes. Tin compounds are used to control larvae of the liver fluke and other pests, and they are used in such products as marine antifouling paint.

Dr. Hodge presented a paper on these findings at the American Chemical Society's annual meeting in Honolulu, in May. In June Dr. Tisue presented a paper at ACS's Great Lakes regional meeting in Rockford, Illinois.

Dr. Tisue emphasizes that "all work at this point is preliminary and needs substantiation. We need to make more extensive measurements."

Argonne National Laboratory has a continuing program grant from EPA to cover research on toxic substances in the Great Lakes.

Great Lakes Water Quality Subject of 3-Day Conference

More than 200 scientists, environmentalists, members of the news media, and the general public attended the annual Great Lakes Water Quality Meeting of the International Joint Commission (IJC) July 9-11 in Detroit. They heard that, while the quality of the Great Lakes appears to be improving, many problems continue to plague the world's most extensive freshwater system.

The IJC, consisting of three



Canadian and three U.S. commissioners, is responsible for monitoring water quality cleanup efforts under the 1978 Great Lakes Water Quality Agreement between the two

countries.

Key topics reported on and discussed were acid rain and toxic contamination; long-range atmospheric transport of such pollutants as PCBs; human health effects of pollution in the Great Lakes; phosphorus management programs; and radioactivity levels in the Lakes.

Reports of the conference are available from the IJC. To receive them, state areas of your interest and address your inquiry to Patricia Bonner at the IJC Regional Office, 100 Ouellette Avenue, Windsor, Ontario N9A 6T3.

Minnesota First State to Receive OK for Pretreatment Program

Minnesota became the first State in the Nation to receive EPA approval for its proposed municipal wastewater pretreatment and toxic substances control program. The program, OK'd by EPA in July, will supplement the National Pollutant Discharge elimination (NPDES) program which Minnesota has been administering since June 1974.

The pretreatment program, authorized by the Clean Water Act of 1977, limits the types and amounts of pollutants—particularly toxic substances—that may be discharged by industries into municipal sewage treatment plants. It also seeks to improve the recycling and reclamation of industrial wastewater and sludge.

While many municipalities have existing pretreatment programs, it is EPA's and Minnesota's intent to upgrade and conform them to the NP-

DES program and to establish additional programs where needed. Together with NPDES program, the pretreatment program will help assure the control of toxic substance discharges and provide better overall wastewater control by bringing Minnesota's industrial dischargers into compliance with Federal and State water, air, and sludge standards and regulations.

\$1.6 Billion Hazardous Waste "Superfund" Proposed

Calling oil spills and human exposure to hazardous wastes two of the worst pollution problems in the Nation, President Carter asked Congress in June to establish a \$1.6 billion "superfund" to help clean up such pollution.

The fund, which will consist of Federal money and fees on the oil and chemical industry, would be built up in EM/August 79

four years: \$250 million the first year, \$375 million the second year, and \$500 million in the third and fourth years.

The proposed legislation requires that Government be notified of spills and the presence of abandoned hazardous waste sites. It would provide emergency authority for the Government to clean up and alleviate the impact of spills and contain pollution at waste disposal sites. Another provision

would allow the Government to recover clean up costs from those responsible for creating pollution hazards. Compensation to innocent victims of spills for property damage or for loss of income because of damage to marine life is also provided.

Eighty percent of the fund would come from fees paid by business and industry; 20 percent from Government appropriations.



Environmental news briefs...briefs...briefs

Stricter PCB Levels Effective August 28

On June 28 the U.S. Food and Drug Administration (FDA) announced new, lower allowable levels of PCBs (polychlorinated biphenyls) for fish, poultry, and dairy products sold in interstate commerce. The effective date for the new requirements is August 28.

Allowable PCB levels for fish will be lowered from 5 parts per million (ppm) to 2 ppm; for milk and dairy products, from 2.5 to 1.5 ppm; for poultry from 5 to 3 ppm; and for eggs, from 0.5 to 0.3 ppm.

In issuing its new, stricter levels, FDA expressed concern about effects on commercial as well as sports fishing

in the Great Lakes. "With few exceptions," the FDA said, "saltwater species, which constitute most of the fish in the American diet, are rarely contaminated with PCBs. The highest levels of PCBs are concentrated in freshwater fish, such as coho and chinook salmon from the Great Lakes, fresh water trout and catfish." FDA estimated that there could be "a loss of about \$6 million worth of fish a year" that cannot be sold under the new rules.

Commercial fishing has already been severely set back as a result of the 5 ppm levels for PCBs, and most Great Lakes issue advisories for persons who catch and can be expected to eat Great Lakes fish.

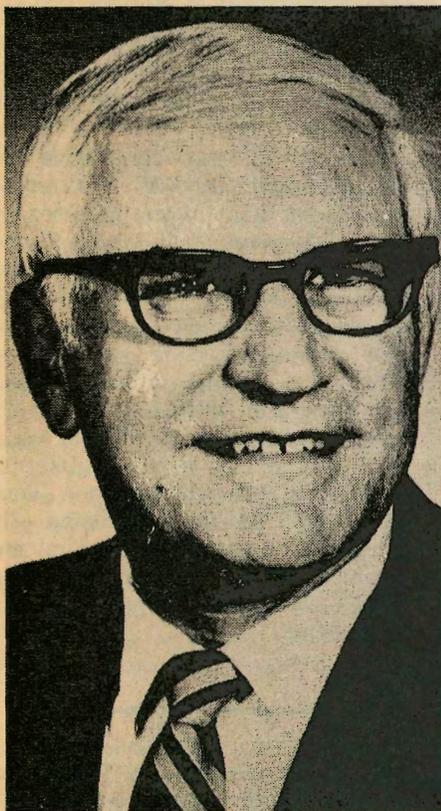
The International Joint Com-

mission's Great Lakes Water Quality 1978 Annual Report notes a continuing decline of PCBs in eastern Lake Michigan coho salmon. The decline is not noted, however, in western Lake Michigan cohos and in the other Great Lakes whose fish or herring gull populations have shown PCB contamination.

Extensive monitoring of the Great Lakes and their fish and wildlife continues. EPA, FDA, and State agencies recommend that fatty portions of Great Lakes fish be removed (see diagram). Great Lakes fish weighing more than 7 pounds may be expected to have higher-than-allowed PCB concentrations.



PEOPLE



Alfred West

Alfred W. West, chief of the Operational Technology Branch at EPA's National Training and Operational Technology Center in Cincinnati, Ohio, received the Distinguished Career Award for his

"outstanding contributions, leadership, and dedication to the control of water pollution." West, a sanitary engineer, is retiring after 18 years with EPA and predecessor agencies. He also holds the EPA Gold Medal for Exceptional Service.

John T. Rhett, since 1973 EPA's deputy assistant administrator for Water Programs Operations, has been nominated by President Carter to the newly created post of federal inspector for the Alaska Natural Gas Transportation System. Rhett's new duties will include supervising the enforcement of all permits and other authorizations issued by any Federal agency relating to construction of the 4,748-mile pipeline.

Dr. Vilma Hunt, deputy assistant administrator of EPA, has been promoted to direct all EPA health research activities.

Warren L. Braun, Virginia State Water Control Board, has been elected to serve a second year as chairman of the Ohio River Valley Water Sanitation Commission (ORSANCO). **Dr. Richard S. Engelbrecht**, professor of environmental engineering, University of Illinois, will serve as vice chairman.

Gordon G. Robeck, director of Drinking Water Research at the EPA Environmental Research Cen-

ter in Cincinnati, received the American Water Works Association's highest award — the Medal for Outstanding Service. It was awarded for his role in promoting the exchange of information on safe drinking water.

The American Water Works Association (AWWA) honored two other EPA scientists in Cincinnati. Taking bows as co-authors of a prize-winning technical paper are **Alan A. Stevens**, chief of the Organic Control — Chemical Studies Section, and **Dr. James M. Symons**, chief of the Physical and Chemical Contaminant Removal Branch. Their paper, "Measurement of Trihalomethane and Precursor Concentration Changes," was cited by AWWA as the "most notable contribution to the science or practice of water works development as recorded in a publication."

Glen Sheppard, editor of the *North Woods Call* in Charlevoix County, Michigan, received the \$1,000 Ben East Prize for excellence in conservation journalism. The award was instituted three years ago by the Michigan United Conservation Clubs. It also selected Assistant State's Attorney General **Stewart H. Freeman** as Michigan's Conservationist of the Year.

August, 1979

CONSTRUCTION GRANTS

Applicant	Award Amount	Date	Applicant	Award Amount	Date
ILLINOIS			Gun Plain Township	1,293,075	6/26
Centralia	\$ 9,675	6/19	Rockford	161,625	6/29
Kankakee	40,350	6/8	Martin	1,480,050	6/26
Ogden	5,130	6/13	MINNESOTA		
Western Springs	20,250	6/25	Norwood	\$ 3,600	6/29
Dolton	10,575	6/23	Monticello	2,925	6/22
Richview	3,750	6/28	Waseca	21,750	6/29
Gibson City	63,225	6/28	Pelican Rapids	900	6/22
Oak Forest	73,500	6/28	Spring Valley	9,750	6/7
Bismarck	16,125	6/28	Metro Waste Control Commission	39,675	6/19
North Riverside	14,400	6/13	Chatfield	18,600	6/29
Crystal Lake	30,000	6/28	Shafer	8,325	6/27
Willow Hill	25,500	6/28	Vergas	12,525	6/27
Phenix Township	2,250	6/12	Wykoff	15,825	6/26
Oquawka	23,700	6/29	Middle River	15,300	6/26
Murphysboro	39,375	6/26	Walnut Grove	24,450	6/27
Vernon	5,700	6/28	Cyrus	20,700	6/28
Dallas City	9,675	6/12	Waldorf	28,800	6/28
Schaumburg	145,650	6/28	Round Lake	22,575	6/28
Sterling	24,644	6/5	Hancock	26,850	6/28
Annawan	3,075	6/25	Hills City	23,250	6/26
Urbana-Champaign Sanitary District	7,500	6/8	Wabasso	24,600	6/28
Decatur Sanitary District	81,150	6/19	Hutchinson	66,675	6/29
Gilman	41,475	6/27	Avoca	22,350	6/27
Bloom Township Sanitary District	146,250	6/25	Northfield	17,625	6/12
Glen Ellyn	1,116,525	6/8	Brainerd	34,950	6/7
Metropolitan Sanitary District of Chicago	6,361	6/6	St. Joseph	525	6/4
Metropolitan Sanitary District of Chicago	29,631	6/4	Caledonia	5,625	6/12
Downers Grove Sanitary District	83,949	6/8	Two Harbors	34,950	6/25
Bureau	339,300	6/27	Metro Waste Control Commission	239,250	6/27
Casey	1,233,150	6/28	Metro Waste Control Commission	31,575	6/25
South Palos Township Sanitary District	162,075	6/29	Red Wing	3,375,750	6/29
Metropolitan Sanitary Egan			Brainerd	6,344,350	6/29
Dewatering Facilities	4,101,000	6/28	Metro Waste Control Commission	505,297	6/25
INDIANA			OHIO		
Indianapolis	\$ 50,325	6/8	Erie County	\$ 12,375	6/27
Dunkirk	159,600	6/29	Muskingum County	337,500	6/8
Jasonville	7,200	6/25	New Concord	3,000	6/25
Richmond Sanitary District	213,600	6/25	Green Camp	750	6/4
Hamilton	2,282,320	6/25	Tiffin	22,350	6/6
Rising Sun	15,150	6/12	Fostoria	80,520	6/27
Delaware	202,200	6/25	Vermilion	21,375	6/4
Carlisle	1,097,025	6/29	Marysville	17,475	6/19
St. John	3,710,175	6/28	Delphos	131,775	6/20
Jasonville	1,089,225	6/29	Uniopolis	450	6/8
Portland	2,676,075	6/29	Eaton	18,300	6/29
Beech Grove	139,350	6/26	Uniopolis	1,500	6/19
Anderson Township	1,139,925	6/29	Columbus	180,000	6/19
MICHIGAN			Rutland	19,725	6/25
Kent County	\$ 19,386	6/6	Erie County	693,975	6/12
Branch County	26,475	6/27	Liberty Center	41,850	6/7
Cumming Township	3,000	6/29	Lorain	2,214,450	6/8
Watertown Township	10,200	6/29	Ft. Loramie	4,500	6/8
Cass County	22,275	6/12	New Holland	507,150	6/4
Detroit	2,833,500	6/28	Solon	10,050	6/8
Albert Township	39,750	6/29	Ashley	23,775	6/14
Vicksburg	537,075	6/19	Clermont County	6,450,825	6/8
Hillsdale	33,149	6/26	Carlisle	482,475	6/25
White Cloud	10,969	6/19	Waterville	29,850	6/25
Dewitt	10,575	6/8	Trenton	138,540	6/25
Peck	2,449	6/19	Xenia	2,652,450	6/26
Pewamo	1,335	6/15	Xenia	1,538,700	6/26
Adams Twp-S. Range Sew. Auth.	253,425	6/26	Urbanna	182,025	6/26
Caro	206,250	6/28	Warren Water Authority	292,950	6/26
Leelanau	7,499	6/27	Yorkville	550,950	6/26
Detroit	1,138,425	6/4	WISCONSIN		
Oakland	121,050	6/19	Blue River	\$ 11,850	6/7
Union Township	1,346,325	6/4	Darlington	55,650	6/7
Genesee County	25,575	6/29	Brookfield	300,600	6/26
Pottersville	8,475	6/27	Centuria	150	6/12
Hart	29,399	6/22	Appleton	252,125	6/12
Ludington	5,250	6/27	Sturgeon Bay	48,842	6/12
Calhoun County	30,675	6/25	Poygan Sanitary District	18,900	6/20
White Cloud	3,363,300	6/29	Poplar	12,000	6/20
Ottawa	2,441,550	6/29	Kiel	14,325	6/7
Nashville	2,838,950	6/29	Madison Metropolitan Sanitary District	95,325	6/7
Coopersville	1,105,650	6/29	Somerset	2,925	6/7
Kalamazoo Township	9,802,800	6/29	Durand	94,575	6/29
			Elroy	7,875	6/20



May 23, 1979 — **Rules:** Grants; State and local assistance: Water quality planning; management and implementation. **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Montana. Texas. Air quality implementation plans; delayed compliance orders: Connecticut (2 documents). Kentucky. **Notices:** Air pollution; ambient air monitoring reference and equivalent methods applications, etc.: Model 8850 Fluorescent Sulfur Dioxide Analyzer Pesticide applicator certification and interim certification; State plans: North Dakota. Pesticides; experimental use permit applications: 1-(4)Chlorophenoxy)-3,3-dimethyl-1-(1H-1,2,4-triazol-1-yl)-2-butanone. Chlorothiophus. Water pollution control: Data collection; schedule of surveys. **May 24, 1979** — **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: California (3 documents). Connecticut. Tennessee. Washington. **Notices:** Meetings: Science Advisory Board. Radioactive contamination from specified foreign nuclear detonations, Federal responses; multiagency memorandum of understanding. **May 25, 1979** — **Rules:** Air quality control regions; criteria and control techniques: Pennsylvania attainment status designations; hearings. Air quality implementation plans; delayed compliance orders: Maryland. **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Minnesota. Ohio. Air quality implementation plans; delayed compliance orders: Kansas. **Notices:** Air quality implementation plans; approval and promulgation: Prevention of significant air quality deterioration (PSD); petitions for review (2 documents). Environmental statements; availability, etc.: Agency statements; weekly receipts. Meetings: State FIFRA Issues Research and Evaluation Group. Pesticides; experimental use permit applications: Agrobacterium radiobacter, etc. Toxic and hazardous substances control: Premanufacturing notification requirements and review procedures; interim policy statement; review by Executive Office of the President. **May 29, 1979** — **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Maine. Rhode Island. Air quality implementation plans; delayed compliance orders: Kansas. **Notices:** Air quality implementation plans; approval and promulgation: Fall River, Mass.; sewage sludge incinerator; PSD permit. Improving Government regulations. Meetings: Innovative and alternative technology assessment manual. Scientific Advisory Board. **May 30, 1979** — **Proposed Rules:** Noise abatement programs: Transportation equipment; interstate rail carriers; extension of time. **May 31, 1979** — **Rules:** Air quality implementation plans; delayed compliance orders: Nebraska. Toxic substances: Polychlorinated biphenyls; exemptions from processing and distribution in commerce prohibitions; procedural rules. Polychlorinated biphenyls; manufacturing, processing, distribution in commerce, and use prohibitions. **Proposed Rules:** Air pollutants, hazardous; National emission standards, etc.: "Commenced"; definition. Air quality control regions; criteria and control techniques: Attainment status designations; Ohio. Air quality implementation plans; delayed compliance orders: Alabama. Iowa. Kansas. North Dakota. West Virginia. Toxic substances: Chlorofluoroalkanes, fully halogen-

ated; inkless fingerprinting systems exemption. Polychlorinated biphenyls; chemical waste landfill criteria. Polychlorinated biphenyls, importation and manufacture; exemption petitions and hearing. **Notices:** Water pollution; discharge of pollutants: Maryland. **June 1, 1979** — **Proposed Rules:** Water pollution control: Consolidated permit regulations and underground injection control regulations; hearings. **Notices:** Meetings: Science Advisory Board. Toxic and hazardous substances control: TSCA Interagency Testing Committee report to EPA; priority list for chemical substances testing. **June 4, 1979** — **Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: New Jersey. Pennsylvania. **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Arizona. Water pollution control: Judicial review under the Clean Water Act — forum shopping. **Notices:** Air quality criteria: Ozone and photochemical oxidants; policy clarification. Meetings: State-FIFRA Issues Research and Evaluation Group. Water pollution control; safe drinking water; public water systems designations: New Jersey. **June 5, 1979** — **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Massachusetts. Air quality implementation plans; delayed compliance orders: Ohio (2 documents). **Notices:** Air programs; fuel and fuel additives: Methylcyclopentadienyl manganese tricarbonyl (MMT); suspension. Environmental statements; availability, etc.: Agency statements, weekly receipts. Pesticides; experimental use permit applications: Bacillus thuringiensis Berliner. **June 6, 1979** — **Notices:** Air pollution control, new motor vehicles and engines: Diesel engine technology; 1981 NOx emission standard; waiver applications; hearing. **June 7, 1979** — **Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Tennessee. Air quality implementation plans; delayed compliance orders: Utah. Washington. Pesticide programs: Human use pesticides; exemption from FIFRA; notification to Agriculture Secretary. Water pollution control: National pollutant discharge elimination system (NPDES); revision. **Proposed Rules:** Air quality implementation plans; delayed compliance orders: Kentucky. Minnesota. Texas. **Notices:** Air quality standards: Summit County, Ohio; nonattainment designation for sulfur dioxide; inquiry. Meetings: State-FIFRA Issues Research and Evaluation Group. Pesticide registration, cancellation, etc.: Amitraz. Kabat tobacco protector. Norflurazon. 3,5,6-trichloro-2-pyridinyloxyacetic acid. Pesticides; tolerances in animal feeds and human food: BASF Wyandotte Corp., et al. Pesticides; tolerances in animal feeds and human food: ICI Americas, Inc., et al. **June 8, 1979** — **Rules:** Air programs; fuel and fuel additives: Lead phase-down standard. Air quality implementation plans; approval and promulgation; various States, etc.: South Dakota. Improving Government regulations: Regulatory agenda. **Notices:** Environmental statements; availability, etc.: Agency statements, weekly receipts. Pesticide enforcement policy statements (PEPS); rescission. Pesticides; emergency exemption applications: Dinoseb. Pesticides; temporary tolerances: Ethepon. **June 11, 1979** — **Rules:** Air pollution; standards of performance for new stationary sources: Electric utility steam genera-

ting units. **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Arizona. Delaware. Pennsylvania. Uranium Mill Tailings Radiation Control Act of 1978; implementation, inquiry. **Notices:** Air pollution; ambient air monitoring reference and equivalent methods applications, etc.: Model 8310 Carbon Monoxide Analyzer. Monitor Labs Model 8450 Sulfur Monitor. Air pollution control: Clean Air Act; Federal assistance limitations. Meetings; Federal Insecticide, Fungicide, and Rodenticide Act Scientific Advisory Panel. Pesticides; emergency exemption applications: Triforine (2 documents). **June 12, 1979** — **Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Alabama; correction. Pennsylvania. Air quality implementation plans; delayed compliance orders: Connecticut. Ohio (2 documents). **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: Ohio. Pennsylvania. Virginia. **Notices:** Grants, State and local assistance: Resource recovery project development; President's urban policy class deviation. Pesticide registration, cancellation, etc.: Permethrin Technical. Pounce Technical. Pesticides; emergency exemption applications: Acephate. Permethrin. **June 13, 1979** — **Rules:** Air quality implementation plans; delayed compliance orders: Pennsylvania. **Proposed Rules:** Air quality implementation plans; approval and promulgation; various States, etc.: California. Air quality implementation plans; delayed compliance orders: New Jersey. Pennsylvania. **Notices:** Air quality implementation plans; approval and promulgation: Detroit Lime Co.; prevention of significant air quality deterioration (PSD); final determination. Pesticides, emergency exemption applications: (Z)-9-tetradecen-1-ol, etc.; correction. Pesticides, experimental use permit applications: Bifenox, Ethepon etc. N-tetradecyl formate etc. **June 14, 1979** — **Proposed Rules:** Permit programs, consolidated. Toxic substances: Chlorofluorocarbons; essential use exemption for mold release agents. Water pollution control; National discharge elimination system and State program elements: Toxic pollutant discharge control improvement. **Notices:** Air pollution; standards of performance for new stationary sources: Glass manufacturing plants. Permit programs, consolidated; draft application forms. Pesticides; temporary tolerances: 2-Chloro-N-(2,3-dimethylphenyl)-N-(1-methylethyl)acetamide. Pesticides; tolerances in animal feeds and human food: ICI Americas Inc. Toxic and hazardous substances control: Premanufacture notices receipts. Water pollution control: Manganese; alternate testing procedure. **June 15, 1979** — *See also* Interagency Regulatory Liaison Agency for document relating to the supplemental agreement of the Group. **Rules:** Water pollution control; National discharge elimination system and State program elements: Secondary treatment requirements modification; discharges into marine waters. **Proposed Rules:** Air pollution; standards of performance for new stationary sources: Glass manufacturing plants. Air pollution control, new motor vehicles and engines: Heavy-duty engines; 1983 and later. Air programs; assessment and collection of noncompliance penalties; corrections and republication of appendix.

ENVIRONMENTAL IMPACT STATEMENTS

Sponsoring Agency, Project Number, Type of EIS	Project Location	Description	Summary of Comments	Comment Date Rating
Housing & Urban Development 79-027-1015 Draft Supplement	Montgomery County, Dayton, OH	Acquisition and disposition for Newfields New Community	Impacts should be measured against present conditions, not against original plan. Mass transit should be discussed.	5/23 LO-2
Corps of Engineers 79-010-100 (Draft)	Penn., W. Va., Ohio, Ky., Ind., and Ill.	Operation and maintenance of locks and dams on Ohio River. Dredging navigation channel.	Reservations regarding adverse water quality impacts	5/23 ER-2
Corps of Engineers 78-043-115 (Final)	Ashtabula County, OH	U.S. Steel lakefront plant, east of Conneaut	Most concerns satisfactorily addressed except for (1) use of new far field model to simulate worst case water quality conditions in Lake Erie (2) evaluation of locating offsite solid waste disposal (3) effect of emissions on vegetation, soil, and visibility.	5/29 Draft ER-3
Corps of Engineers 79-014-152 (Draft)	Hancock and Rush Counties, IN	Flood control, water supply, water storage, and recreational facilities on Big Blue River	Concerns regarding wastewater treat- ment and associated water quality aspects of project. Possible adverse impacts on wetlands.	6/7 ER-2
Corps of Engineers 79-021-126 (Draft)	Sheboygan Harbor, WI	Operation and maintenance dredg- ing	Method of dredging and disposal inad- equate, due to polluted bottom sedi- ments. Additional sampling to be done.	6/15 EU-2
Housing and Urban Development 79-012-1024 (Final)	Eagan, Dakota County, MN	Lexington South, planned unit development	No major objections.	6/21 Draft LO-1
Housing and Urban Development 79-003-1024 (Final)	Eagan, Dakota County, MN	Blackhawk Park, planned unit development	No major objections	6/21 Draft LO-1
Housing and Urban Development 79-027-1015 (Final Supplement)	Montgomery County, Dayton, OH	Acquisition and disposition for Newfields New Community	No major objections	6/21 Draft LO-2
Government Services Administration 78-020-1103 (Final)	Detroit, MI	Cargo inspection facility	Lack of noise analysis and definite plans for mitigation	6/25 Draft ER-2
Housing and Urban Development 78-082-1021 (Draft)	Hoffman Estates, IL	Poplar Hills housing development	Concerns regarding health and safety impacts of adjacent landfill, adequacy of wastewater treatment facility, long range availability of groundwater supply	6/25 ER-2

LO - Lack of objections or minor changes suggested.

CODE:

ER - Environment reservations on certain aspects of project; suggest preliminary determination of impact.

2 - Insufficient information, EPA cannot fully assess project but can make further study of modifications or alternatives.



NOTIFICATION OF VIOLATIONS

- FS Services Inc., Albany IL; hydrocarbons.
- Lissner Corp., Chicago, IL; particulates.
- ALCOA, Cleveland, OH; particulates
- Barmet Industries, Uhrichsville, OH; particulates

- Cleveland Electric Illuminating Co., Cleveland, OH; particulates.
- Watervliet, MI; particulates.
- Shell Oil Co., Harristown, IL; hydrocarbons.
- Texaco Inc., Lawerenceville, IL; hydrocarbons.

A Notice of Violation is an official warning from the U.S. EPA that source is not complying with existing air pollution control regulations. The polluter has 30 days from the notification date to negotiate a compliance schedule before EPA can issue a Compliance Order or seek civil criminal actions.



AUGUST 6-7

ERIC — TECHNOLOGY TRANSFER SEMINAR, sponsored by EPA, Office of Research and Development. "Innovative and Alternative Technology Assessment." **Atlanta, GA.** All-day affair, limited to 300 people. Contact D. Lussier, (513) 684-7394.

AUGUST 9-10

ERIC — TECHNOLOGY TRANSFER SEMINAR, sponsored by EPA, Office of Research and Development. "Innovative and Alternative Technology Assessment." **Boston, MA.** At the Boston Park Plaza Hotel. All-day affair, limited to 300 people. Contact D. Lussier, (513) 684-7394.

AUGUST 13-17

ENVIRONMENTAL EDUCATION. To present ecological concepts leading to an understanding of wise environmental practices, receive first-hand experience in soils study, terrestrial and aquatic ecosystems, fish and game management. At Silver Lake College, Manitowoc, Wisconsin. Contact Edward Ehlert, 1115 N. 8th St., **Manitowoc, Wisconsin, 54220.** (414) 684-3144.

AUGUST 28-30

WASTEWATER TREATMENT FOR SMALL COMMUNITIES, an EPA technology transfer seminar. Latest information by experts in the field on plans, design, and management of wastewater treatment facilities. No fee. **Indianapolis, IN.** At the Hyatt Regency Hotel. Contact Marti Velasco, U.S. EPA Region V, Water Division, 230 S. Dearborn St., Chicago, IL 60604, (312) 353-2314.

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