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#444:16

Pollutants include toxic PCBs

Invisible menace threatens Great Lakes

By JONATHAN HARSCH
The Christian Science Monitor

WAUKEGAN, ILL. — Waukegan Harbor, perched on the shores of Lake Michigan 35 miles north of Chicago, is as picturesque as its name. But it also is polluted.

The harbor has become the center of a new phase in the ongoing fight against pollution in the Great Lakes — a fight which has had some resounding successes in recent years. No one talks about the Great Lakes "dying" anymore. But by no means is the fight over.

The problem no longer is with the visible, nasty-smelling, foul-tasting pollutants which a first and relatively easy round of controls has for the most part cleaned up.

Waukegan's problem — shared by the Great Lakes — is with the next generation of pollutants which leave no telltale traces in the clear lakes' waters. Some of the new man-made, non-degradable chemicals now slipping into the lakes so far are defying researchers' attempts to find ways to break them down.

Waukegan, a little harbor crowded with pleasure boats, fishermen and swimmers, has been identified as a major source of PCB (polychlorinated biphenyl) pollution. And toxic PCBs, though outlawed, remain a major challenge because of their heavy concentrations in many areas after years of industrial use. Some firms continue to store PCBs, with no way to get rid of the chemical safely.

Four separate research teams in Akron, Ohio; Philadelphia; Los Angeles, and Japan each are offering possible ways to break down PCBs for safe re-use. If at least one can successfully and profitably recycle the pollutant, the news will be most welcome in Waukegan.

To combat PCB discharges, which were finding their way back into humans through Great Lakes fish, the federal Environmental Protection Agency (EPA) filed suit two years ago against Waukegan's Outboard Marine Corp. (OMC), headquarters for the manufacture of Johnson outboard motors.

This spring, however, EPA checks revealed continuing high PCB levels in the soil at the manufacturer's site on the harbor's rim.

One OMC sample showed PCBs at 14,000 parts per million, with others up to 1,000 ppm. (The permissible federal standard is 50 ppm.)

EPA officials are confident that they have the legal power and the monitoring equipment to locate and eventually eliminate such pollution sources.



Christian Science Monitor photo

Despite the Great Lakes' surface sparkle, invisible pollutants are lurking within.

There has been much visible improvement on all the Great Lakes; the warnings no longer are dire. Yet no one disputes the size of the challenge facing the 11 federal agencies and wide variety of state, local and private groups involved in the Great Lakes cleanup operation.

Part of the challenge lies in the size of the project — cleaning up 94,710 square miles of water. The size of the population affected adds urgency: The Great Lakes' supply drinking water, transportation, an industrial base, an energy source, fisheries and recreation to one-quarter of U.S. industry, one-fifth of the U.S. population and over one-third of the Canadian population.

Another part of the problem is that the most serious pollution today, whether from farmland

runoff, urban discharges or industrial wastes, can be traced back to the chemical industry. That booming, \$160-billion-a-year industry has as an annual end product of 57 million tons of chemical waste. The EPA currently estimates that 90 percent of these chemical wastes are disposed of without proper treatment to control their toxic effects.

A related problem is that these pollutants travel far and wide, often by air. One new pollutant showing up in the Great Lakes is Toxaphene, a pesticide used mainly in the distant cotton belt.

The EPA's past success in dealing with Great Lakes pollution has been dramatic.

Government regulations forced the closing of a number of steel plants that were major polluters, including one near Waukegan.

Other plants stayed open and took corrective action. U.S. Steel Corp., under court order, installed a complete water-recycling system in its South Works in Chicago in 1970. With complex air-emissions controls also installed, South Works is a part of a vastly changed Great Lakes steel complex that produces 55 million tons of steel in the United States and 12 million tons in Canada each year — quite cleanly.

The International Joint Commission (IJC) of the United States and Canada reported in 1978 that Great Lakes steel plants from 1967 to 1977 reduced overall discharges by 78 percent for ammonia, 74 percent for suspended solids, 80 percent for phenols, 77 percent for oil and 69 percent for cyanide.

Today, however, the IJC warns there is more work to be done. A recent IJC report concluded that "the disposal of hazardous or toxic liquid and solid wastes, generated by the intense industrial activity in the Great Lakes basin, is a matter of urgent and immediate concern." A recent Library of Congress report issued a similar warning.

Another group deeply concerned with Great Lakes pollution is the Great Lakes Basin Commission, representing all eight Great Lakes states (Illinois, Indiana, Michigan, Minnesota, New York, Ohio, Pennsylvania and Wisconsin).

The basin commission is campaigning hard at state and local levels to prove that even hazardous wastes can be reprocessed and marketed.

One of the leaders in this new field is the 3M Co. of St. Paul, Minn. Its experimental "3P" program — "Pollution Prevention Pays" — already has saved \$32.1 million, according to 3M officials.

One company reprocessing used automobile oil, Berks Associates, Inc., of Pottstown, Pa., created a market for the pollutants cleaned out of the oil: Rather than becoming a contributor to future Love Canal sites, it is being packaged and sold for tarring roofs.

Only 7 percent of motor oil currently is being reprocessed. The rest, one way or another, is not simply being wasted — it's going underground, adding to the future costs of cleaning up our soil and water.

Getting full value of "waste" motor oil, the Great Lakes Basin Commission points out, pays many dividends: a new product from waste, profit for the clever producer, a cleaner environment for all — and it's all being done without adding a single new government regulation or employee.

High court voids OSHA benzene rules

Supreme Court rules 5-4 against tough benzene exposure rules on grounds OSHA couldn't justify the 1-ppm rule. OSHA says it will continue effort to regulate benzene and other cancer causing and toxic substances.

THE U.S. Supreme Court has voided the Occupational Safety and Health Administration's tough benzene exposure rules on the grounds that OSHA couldn't justify them.

The 5-4 ruling is regarded as a major—but not sweeping—victory for U.S. industry in its battle against bludgeoning government regulations.

OSHA announced after the high court decision that it is undeterred in its effort to regulate benzene and other cancer causing and toxic substances.

The case stemmed from OSHA's 1977 order that U.S. firms reduce workers' exposure to benzene in air to 1 ppm/8 hr from 10 ppm. An estimated 30,000 U.S. workers are exposed to 10 ppm or more.

The American Petroleum Institute and other business groups sued to block the standard and won in lower courts. The Fifth Circuit Court of Appeals ruled OSHA hadn't collected data to substantiate the need for its 1 ppm rule and the agency was obliged to weigh the cost of such safety standards against their benefits.

A sharply divided Supreme Court sidestepped the cost/benefit issue but ruled against OSHA on the grounds there was no evidence the 1 ppm rule would improve workers' health.

The high court is due to hear a case this fall on the cost/benefit question involving a suit by Republic Steel Co. against OSHA's coke oven emission standards. The court is expected to rule on that case in 1981.

The issues. More than 11 million lb/year of benzene is produced in the U.S. The chemical is used as a solvent or a raw material in the manufacture of paints, plastics, and other products.

Workers exposed to large amounts of benzene in the air have developed leukemia—a fatal form of cancer—but no one has been able to pinpoint the level of exposure at which benzene becomes dangerous to human health.

Therefore, OSHA adopted the policy of cutting exposure to the lowest possible level obtainable under latest technology.

OSHA said that would require industry to make modifications costing \$266 million in the first year of enforcement and \$34 million/year there-

after.

Industry placed the cost of compliance at \$500 million or more and argued the rule was unreasonable from the cost/benefit standpoint, especially because the benefit was questionable.

The Supreme Court heard several days of arguments last October and mulled its decision for 9 months. Even then, it only reached a bare majority—and the majority consisted of three opinions based on different arguments.

The court was careful to note it was not deciding whether exposure to 1 ppm or 10 ppm of benzene is safe.

And it left the door open for OSHA to set any benzene exposure level—even 1 ppm—if the agency could justify the regulation with facts that a higher level would pose "significant" risks to workers.

Majority decision. Associate Justice John Paul Stevens, writing for himself and two other justices, said the court's ruling wouldn't strip OSHA of its regulatory ability, "nor will it require the agency to wait for any deaths to occur before taking any action."

But because OSHA failed to determine that "a significant risk of harm exists" from current benzene exposure levels, Stevens said, the Supreme Court could affirm the lower court ruling on that issue without addressing the cost/benefit question.

Stevens said the requirement that OSHA determine a significant risk exists "is not a mathematical strait-jacket." And OSHA wouldn't be required to base future rules on "anything approaching scientific certainty."

Yet, Stevens said, to permit the agency to cut exposure levels to the lowest feasible point "would give OSHA power to impose enormous costs that might produce little, if any, discernible benefit."

He said the law requires OSHA to insure that workplaces are safe—"but 'safe' isn't the equivalent of risk free."

"The statute wasn't designed to require employers to provide absolutely risk-free workplaces whenever it is technologically feasible to do so, so long as the cost isn't great enough to destroy an entire industry."

Associate Justice Lewis F. Powell Jr. was the only member of the court

to say OSHA should be held to a cost/benefit test and that the case should be determined on that point.

The fifth justice in the majority, William Rahnquist, ruled against the agency on the grounds that Congress had given OSHA so much power it amounted to an unconstitutional delegation of legislative authority.

"The decision of whether the law of diminishing returns should have any place in the regulation of toxic substances is quintessentially one of legislative policy," he said.

In a strongly worded dissent, Justice Thurgood Marshall, writing for himself and three other justices, adopted OSHA's argument that a link between the regulated substance and the harm it causes often can't be established.

"Risks of harm are often uncertain. But inaction has considerable costs of its own," Marshall declared.

Reactions. Although it wasn't a complete victory, the decision buoyed the petroleum industry.

Charles J. DiBona, API president, said, "The landmark decision recognizes that health regulations in this country must be made on the basis of scientific facts rather than pure speculation."

DiBona pointed out that the oil industry has known of benzene's toxicity for years. And it has imposed its own protective standards, as well as complying with government's.

"The issue is one of government regulation in the total health interests of the nation. In this case, the regulators wanted to change standards on benzene when there was no showing whatever that this arbitrary change would improve public health," DiBona said.

Edmund B. Frost, general counsel of the Chemical Manufacturers Association, said the ruling will require federal agencies to weigh more closely the public's interest.

He said, "Congress did not mandate—nor can OSHA achieve—a perfectly risk-free society. OSHA can now regulate only significant—not theoretical—risks."

Basil Whiting, deputy assistant Labor secretary, said OSHA would "press forward in regulating benzene as well as in regulating other cancer causing and toxic substances."

He conceded that the court ruling

would make that task "more difficult." But "it is still a task which can and must be accomplished."

Steven Jellinek, the Environmental Protection Agency's assistant administrator for pesticides and toxic substances, charged that the court may have set an impossible standard.

"By the time the proof arrives in the form of dead bodies it will be too late," he said.

Jellinek said the court's decision may delay new benzene exposure rules for years because companies can challenge the new regulations in court on the grounds that they are based on faulty evidence.

Shell, Sabic to construct Jubail petrochem plant

SHELL Oil Co.'s Pecten Arabian Ltd. affiliate and Saudi Basic Industries Corp. (Sabic) have reached agreement on construction of a \$3-billion petrochemical complex at Jubail, Saudi Arabia.

Final documents will be signed late in September.

Each partner will invest about \$400 million in the joint venture. The balance of project funding will be provided by Saudi public investment funds and commercial banks.

As part of the deal, Shell earns the right to purchase Saudi crude oil on a long-term basis as well as some chemical raw materials.

Volume of crude will be set according to a Saudi formula, but details on how much crude Shell will receive haven't been determined, a Shell source said. Saudi Arabia has discussed formulas in which participating firms receive options to buy 500 b/d of Saudi crude for each \$1 million they invest (OGJ, May 5, Newsletter).

Plant feed will be methane and ethane from associated gas now being flared. Mechanical completion of different units at the facility will begin in 1984, with product exports slated for late 1985.

Products will include ethylene 656,000 metric tons/year, chlorine 333,000 metric tons/year, caustic soda 377,000 metric tons/year, ethylene dichloride 454,000 metric tons/year, ethyl benzene 327,000 metric tons/year, styrene 295,000 metric tons/year, and crude industrial ethanol 281,000 metric tons/year.

Ships, terminals, and other infrastructure facilities are included in the agreement.



with JOHN H. JENNRICH

WATCHING WASHINGTON

In defense of DOE

A RECENT newspaper series here pointed out that government agencies—the Department of Energy among them—spend a lot of money on outside contractors and consultants, and the government doesn't always spend this money wisely. The articles highlighted conflicts of interest and poor management practices.

Also tossed into the journalistic stew was a figure that caused some congressional consternation—87% of DOE's budget is spent outside the agency.

Now, two Capitol Hill solons—Sen. David H. Pryor (D-Ark.) and Rep. Herbert E. Harris II (D-Va.)—are upgrading a summertime front page potboiler into congressional hearings. They recently grilled DOE's chief financial officer, John A. Hewitt Jr. (OGJ, July 7, p. 55) and made something of a stir about DOE's size and management of its \$11-billion budget.

This column is certainly not an apology for system mismanagement which left contracts poorly supervised or for individual lapses of judgment that put government officials in embarrassing positions.

STILL, something should be said on behalf of DOE.

First, it isn't evil. It's just not well coordinated. It's like a St. Bernard puppy loose in a house full of antiques, where little bumps can have costly consequences.

Second, large size alone isn't bad. DOE combines a broad range of government activities and deals with some huge industries. In some areas, in fact, it's short staffed.

Third, while DOE may be best known in the oil and gas industries for its regulatory impact, it is involved in a great deal of technical work that by necessity requires outside expertise. Richard J. Pierce Jr.'s "Natural Gas Regulation Handbook," for example, says, "Most of DOE's activities are not regulatory. Its responsibilities include, for instance, research and development related to potential new sources of energy, administration of energy-related grants to state and local governments and private industry, and formulation of major energy policy initiatives."

Fourth, the use of outside expertise was contemplated when the Energy Department was set up. Despite its large size, DOE is hardly capable of building synfuels demonstration plants or conducting nuclear power experiments in the basement of the Forrestal Building.

All this is by way of saying that lawmakers should think before they act on stories of startling statistics and human frailty. It's one thing to call the bureaucrats on the carpet, as should be done. But it's quite another to jerk the rug out from under the entire department.

Gravel seen balancing Senate environmental approach

CONGRESSIONAL observers predict the Senate environment committee will steer a more balanced course with Sen. Mike Gravel (D-Alaska) at the helm.

Gravel became chairman of the panel May 15 when Sen. Edmund Muskie (D-Me.) resigned to become secretary of State.

Muskie was the father and protector of the Clean Air Act, the Clean Water Act, and numerous other environmental laws of the 1970s.

His departure came at a sensitive time because the air and water acts are up for reauthorization next year. They face concerned opposition from business groups.

Last January Muskie predicted the laws would be subjected to harsh review "in the name of energy and in the guise of cutting red tape."

Gravel's views. Whether Gravel chairs those review hearings depends on his success in a tough reelection campaign this fall.

In an interview with Oil & Gas Journal, Gravel stressed that he favors a balanced approach toward the effect of environmental legislation on business.

He opposes "unreasonable" environmental regulations which add great expense or bureaucratic obstacles to business. For instance, he opposed legislation last year which would have added regulation to disposal of drilling mud and produced brine at a cost of billions of dollars to the petroleum industry.

On the other hand, Gravel said he won't sanction a wholesale rollback of the nation's bank of environmental laws.

"I would not be a party to any



Sen. Mike Gravel
"Excesses and extremes" must
be purged from environmental laws

regression. But I know we have to have a strong economy if our political and economic system are to survive. I believe we can have a clean environment and a strong economy."

Gravel hopes his committee, during oversight hearings in the next few years, "will be able to ferret out the excesses and extremes in environmental laws and boil them down to an effective and reasonable process."

New directions. Although Gravel hasn't had time to leave his imprint on environmental legislation, Muskie's departure has had considerable effect. For example:

- Only 15 hr after Muskie resigned, the Senate environment committee unanimously approved repeal of a provision of the Clean

Water Act which required industries to pay part of the construction cost of sewage treatment plants that clean their waste water.

Muskie had opposed repeal of the measure for 8 years, although federal agencies had branded it "unworkable" and hadn't enforced it for 3 years.

Beer and food processing companies had lobbied for years to get the provision repealed, claiming it placed them under a severe economic burden.

The environment committee substituted a provision forbidding the use of federal grants to finance treatment of the industrial wastes. The bill passed the Senate 93-0.

- Muskie wasn't on hand to carry through his plans to battle the administration's oil-backout on the Senate floor.

His subcommittee had held hearings on the acid-rain pollution consequences of shifting more utility power plants from oil use to coal.

He had intended to fight for a provision limiting increases in air emissions from the coal burning plants. Other senators tried and failed to get such an amendment passed.

- Observers say Muskie's departure is likely to facilitate a conference committee's work in reconciling the tough Senate hazardous wastes superfund bill with a weaker House version.

Muskie scuttled an oil superfund conference in the closing days of the 95th Congress when he insisted that chemical spills also be covered. He was expected to be equally intransigent this year.

—PATRICK CROW
Congressional Editor

EPA sets deadline for uniform injection regs

THE Environmental Protection Agency has given all U.S. states 9 months to adopt plans incorporating the agency's new rules governing underground injection wells.

Most states already regulate underground injection of fluids to some degree. But EPA feels that greater uniformity and higher standards are needed.

EPA estimates that in 1977 dollars the cost beyond the sum already be-

ing spent will be \$744.246 million during 5 years for industry and another \$31.211 million for states.

Of the industry burden, \$191 million will be fixed costs, such as permit application, permit issuance, inspection, surveillance, monitoring testing, and reporting. The remaining \$553 million, during 5 years, is EPA's estimated cost of reworking faulty injection wells, replugging wells improperly abandoned, and recement-

ing improperly completed producing wells.

Of the \$744 million industry cost, \$569 million will fall on class II wells, those injection wells associated with oil and gas production and hydrocarbon storage.

EPA estimates that in 1980 dollars, the entire cost of the regulations would be \$1.2 billion, or about \$230 million/year.

The agency says there are 650,000

injection wells in the country—85% of them in 22 states.

EPA Administrator Douglas M. Costle, noting that half the U.S. population depends on underground water for drinking, said, "The sheer number of the underground injection wells, the growing extent of the practice, and the widespread potential for contamination demand that steps be taken to insure that subsurface injection is done in an environmentally sound manner."

EPA's rules were issued under the Safe Drinking Water Act. They form one part of the agency's overall groundwater protection effort. Other parts include the hazardous waste management and solid waste disposal programs, both required by the Resource Conservation and Recovery Act.

What the rules do. The new rules set minimum requirements for five types of underground injection:

- Disposal of oil and gas drilling fluids and injection of fluids underground to assist oil and gas recovery.

- Industrial and municipal disposal, including sewage sludge and various

manufacturing wastes.

- Wells used to pump liquids below ground in certain minerals mining and energy operations.

- Hazardous waste disposal wells.

- All other injection wells such as those used to capture storm water runoff or to return air conditioning water underground.

Requirements differ by type of well, but in general they say that:

- Wells leaking fluid into underground water must be corrected.

- Those that cannot be corrected must be shut in and properly sealed.

- All existing and new injection wells must be operated in ways and in locations that don't pose a threat to subsurface drinking water.

Oil and gas production wells aren't affected by the rules. However, injection wells and wells used to dispose of drilling fluids and other wastes are covered.

At present, the rules don't apply to wells used to store natural gas, but EPA says it will study these to see if requirements are needed.

Industry reaction. Industry sources say EPA doesn't cite specific examples of contamination—only that

the potential is there.

"We know the potential is there," said Barrett B. Russell, counsel on environmental issues to the Independent Petroleum Association of America.

"But how do you know what rules you need when you don't know exactly what the problem is?"

"Our immediate reaction is that the state programs have been adequate in protecting groundwater. The states have been at it for many years. And as far as we know, there are no serious problems."

He said a disproportionate amount of the cost will fall on small producers—those with the least resources to handle extra paperwork.

IPAA is still assessing whether the EPA rules are more stringent than state rules. But EPA requires work that isn't currently required.

"For example," Russell said, "EPA wants extensive logging and other data analysis that we feel isn't necessary and that the agency hasn't documented as necessary."

He said a lot of money and aggravation would be expended for something not proven necessary.

Esso signs big Aussie shale development deal

ESSO Exploration & Production Inc. has signed a deal for development of huge shale oil deposits in Australia.

A "heads of agreement," subject to government approval, has been signed by Esso and two Australian companies—Southern Pacific Petroleum N.L. and Central Pacific Minerals N.L.—which hold rights to the large Rundle shale deposits near Gladstone, Queensland, and other properties.

Although the Australian companies estimate an overall cost of \$3.6 billion for development of full scale commercial oil production, other industry sources say the project could involve \$8-11 billion in 1980 dollars.

There is no provision for government subsidies. Esso would supply almost all the financing.

Esso would have the right to 50% of output, but the other two partners could increase their share to 75%, depending upon capital and operating costs and revenues.

Esso can increase its offtake in the event of higher initial investments. But it can't increase its equity in the joint venture. Australian law prohibits more than a 50% ownership by a foreign participant.

Initial cost of Phase I of the project is placed at \$330 million.

The first phase will involve 2 years for research and planning and 3 more years for construction of units of a prototype shale oil plant of nearly 20,000-b/d capacity to determine the technical and economic feasibility of the project.

Shale oil extraction processes of Lurgi of West Germany and Tosco of the U.S. are to be tested.

If Phase I is successful, go-ahead would be given for Phase II construction of a 180,000-240,000-b/d commer-

cial plant by 1990.

Rundle deposits are estimated to contain the equivalent of as much as 2.3 billion bbl of oil.

The two Australia participants also hold rights to prospective deposits at Duaringa, west of Rundle; at Condor, near Proserpine; and at Stuart, south of Rundle.

Australia currently produces about 440,000 b/d of conventional crude, with 95% coming from fields in the Bass Strait off southeastern Victoria.

OCAW ends strike against Marathon

MARATHON Oil Co. reached agreement with the Oil, Chemical and Atomic Workers International Union last week, ending a 6-month strike at the company's Texas City, Tex., refinery.

Discipline for alleged strike violence was the main issue throughout the last half of the strike. The settlement keeps the discipline intact. One worker was fired and three others given short suspensions—two for 3 days and one for 6 days.

About 230 OCAW members are employed at the plant.

Marathon and OCAW agreed on the same economic package that was ham-

pered out in March by the international union and Gulf Oil Corp. That package includes a 52¢/hr increase on top of a 5% wage increase that had been scheduled to go into effect last January. A 10.5% wage increase will be effective Jan. 8, 1981.

The Marathon settlement leaves only two plants still picketed, compared with the estimated 130 that were picketed last January at the beginning of the first U.S. refinery strike since 1969.

Pickets remain at Tenneco Oil Co.'s Chalmette, La., refinery and Chevron Chemical Co.'s Belle Chasse, La., plant.