# Water Pollution: Officials Goaded into Raising Quality Standards

Last fall the U.S. Department of the Interior, custodian of the federal anti-water-pollution program, was being criticized by some conservation groups and members of Congress for having played into the hands of polluters. One of the major complaints was that Interior had approved state water quality standards which, instead of safeguarding unpolluted streams, would permit their degradation. In the Water Quality Act of 1965, a landmark antipollution measure, Congress called for effective state water quality standards which, once approved by Interior, would become the federal standards. These state-federal standards, Congress said, should require improved water quality in polluted streams and the protection of unpolluted waters. Thus, the "degradation issue," as it came to be known, called sharply into question the adequacy of Interior's implementation of the act.

However, last week it was clear that Interior had surmounted this crisis of confidence. Senator Edmund S. Muskie of Maine, chairman of the Senate Subcommittee on Air and Water Pollution and a prime mover in the antipollution field, praised Secretary of the Interior Stewart L. Udall and two lesser officials —Commissioner Joe G. Moore, Jr., of the Federal Water Pollution Control Administration and Assistant Secretary of the Interior (for FWPCA) Max N. Edwards—for their policy statements on the degradation issue and other questions. In an interview with *Science*, a spokesman for the National Wildlife Federation, the group which had taken the lead in bringing the degradation issue to public attention, also expressed approval of Interior's new policies.

The story of how these policies have evolved would seem to contain an important moral: The sponsors and other supporters of a newly enacted conservation measure cannot afford to fall into the comfortable assumption that it will be implemented as they had intended. The federal officials who administer such laws often are under pressure from industry and state and local officials who would have them soften the laws' requirements. Even though their intentions may be of the best, these officials are likely to seek an accommodation, not infrequently one that falls short of the intent of Congress. Countervailing pressures from conservationists and the congressional sponsors are necessary if the purposes of the legislation are to be realized.

The Water Quality Act required that all states submit to the Secretary of the Interior by 1 July of last year their proposed water quality standards. By 19 July Secretary Udall had approved the standards submitted by Georgia and Indiana, and had notified the governors of Alabama and a number of other states that their standards were acceptable, or substantially so, for all or most of their waters. Udall had, of course, acted with the advice of his principal antipollution advisers. At the time, these were Frank C. Di Luzio, assistant secretary for water pollution control, and James M. Quigley, commissioner of FWPCA.

### Disturbing News

Some time thereafter officials of the National Wildlife Federation received information from friends in Alabama that they found deeply disturbing. The water quality standards for Alabama which Interior had approved, it seemed, included standards for dissolved oxygen and water temperature that did not meet the recommendations of Interior's own National Technical Advisory Committee on Water Quality Requirements for Fishes, other Aquatic Life, and Wildlife. Twice during the early fall Thomas L. Kimball, executive director of the Wildlife Federation, together with representatives of a number of other conservation and citizens groups, met with Interior officials for a discussion of the policies being followed in the review of state standards. Kimball, for one, found no comfort in these discussions.

In a letter to Secretary Udall on 18 October, Kimball said he and other leaders of the Federation were "shocked" to discover (i) that FWPCA officials felt they had no authority over the classification by use of interstate streams, believing that such classification was the sole prerogative of the states, and (ii) that "pure water can be downgraded and polluted legally under the terms of the federal act, as long as it meets standards accepted by [Interior] for the specific use designated by the state."

Kimball said that FWPCA was acting contrary to its own guidelines (promulgated by Interior in May 1966) for establishing water quality standards, and observed:

> As I understand the discussions with the administrators and technicians of [FWPCA], they are placing all of their hopes to improve the water quality throughout our nation on agreements from the states that they will provide primary and secondary treatment for domestic sewage and industrial effluents. Again, most conservationists were disheartened with this half-hearted approach and negative attitude toward our entire water pollution abatement program. In the first place, primary and secondary treatment doesn't remove heavy metals which are extremely toxic to the aquatic environment. Nor do they remove the fertilizing chemicals which account for algae and other oxygen-depleting growth which adversely affects water quality; nor does it even consider thermal pollution. Furthermore, the accumulative effect of several plants with primary and secondary treatment of even 85 percent effectiveness can completely degrade a stream and ruin it for most beneficial uses. Here again, such a policy represents an important retreat from the original basic concept that polluters would eventually be required to construct whatever treatment facilities are necessary to keep water pure enough for all legitimate water uses. . . .
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> In summary, we are dismayed and bitterly disappointed at the current trend in the water pollution abatement efforts. . . . In fact, unless the present trend is reversed, there is a good probability that the [Water Quality Act] will turn out to be nothing more than a license to pollute the pitifully small remnants of pure water in America.

These charges became more widely known in early November after Representative John D. Dingell of Michigan, chairman of the House Subcommittee on Fisheries and Wildlife Conservation, placed Kimball's letter to Udall in the *Congressional Record*. Dingell had become concerned and was pressing Interior to require higher water quality standards of the states. Senator Muskie, too, was afraid that Interior, in its haste to approve some standards, might let the states get by with standards which would be less than adequate. On 9 August, during a hearing conducted by his subcommittee,

# NEWS IN BRIEF

● **SCIENCE DEVELOPMENT**: Six universities have been awarded grants to strengthen specific areas of their science or engineering programs under NSF's Departmental Science Development Program. The new awards bring to 14 the total number of institutions supported under the program since its beginning last year. The program offers support over a 3-year period to institutions with graduate programs in science education at either the master's or doctorate level. Latest recipients of the awards, which ranged from $447,000 to $600,000 for the initial grants, are: University of Delaware, physics; Ohio University, physics; Rensselaer Polytechnic Institute, mathematics; Southern Methodist University, electrical engineering; University of Wisconsin, Milwaukee, surface studies laboratory; and University of Wyoming, geology.

● **WATSON APPOINTMENT**: James D. Watson, Nobel laureate and author of the *Double Helix*, a personal account of the discovery of the structure of DNA, has been appointed director of the Cold Spring Harbor Laboratory of Quantitative Biology. The laboratory, a small, private institution on the north shore of New York's Long Island, was once one of the most productive centers in basic biological research. The New York *Times* reported on 28 March that Watson hopes to convert the laboratory "into a major center of basic cancer research and training." Watson was reported to be planning to retain his post as professor of biology at Harvard University while directing the laboratory.

● **BRAIN DRAIN**: Since 1956 the number of scientists, engineers, and physicians emigrating from the developing countries to the United States has more than quadrupled, rising from nearly 1800 in 1956 to almost 8000 in 1967, according to a report by a subcommittee of the House Government Operations Committee. *Scientific Brain Drain from the Developing Countries* is the latest report on the brain drain problem by the Research and Technical Programs Subcommittee, chaired by Representative Henry S. Reuss (D–Wis.). The report is available without charge from the subcommittee, B377-A Rayburn House Office Building, Washington, D.C. 20515.

● **JET POLLUTION STUDY**: A 3-year, $250,000 program for the study of air pollution produced by jet aircraft has been announced by Secretary of Transportation Alan S. Boyd. Boyd said, "Preliminary studies indicate that airplanes contribute only about one-percent of the total waste matter in the air in metropolitan areas. But if we can trim even that small amount, we want to try." Objectives of the program, which will be directed by the FAA, include research on cleaner jet engines and fuels, and the establishment of standards for measuring aircraft-engine pollution.

● **OBSERVATORY SITE**: Big Bear Lake in the San Bernardino Mountains of southern California has been selected as the site for a $500,000 advanced solar observatory. The facility will house a telescope with a tube 42 inches in diameter. Two lenses mounted at the top of the tube will enable scientists to make motion pictures of the sun simultaneously at different wavelengths of light. The observatory will be managed by the Mount Wilson and Palomar observatories, which are operated by Caltech and the Carnegie Institution. NASA is financing the telescope, a spectrograph, and dome, while the observatory buildings are being financed by grants from the Max C. Fleischmann Foundation of Nevada and the National Science Foundation.

● **DRAFT SUIT**: A U.S. District Court judge has ruled against a suit which attempted to overturn a draft recommendation issued by Selective Service Director General Lewis B. Hershey (*Science*, 15 December). The suit by the National Student Association was in response to a memorandum Hershey issued 27 October and a letter dated 8 November. The memorandum sanctioned local draft boards to declare registrants delinquent and to reclassify them into a class available for induction "whenever a local board receives an abandoned or mutilated" draft card. The letter authorized draft registrants to be reclassified for induction if they participated in activities not in the "national interest." Judge George L. Hart, Jr. ruled on 7 March that Hershey's letter "merely expressed his personal opinion" and had no binding effect on draft boards.

Muskie asked Udall whether, if such errors were made, he might not find himself "locked in" beyond any power to correct them.

Despite assurances from Udall that all was well, Muskie felt that Interior would do better, in its initial evaluations of state standards, to make its approvals conditional and to leave the standards subject to revision (without formal hearings) in case they proved inadequate. Interior should, he believed, allow itself flexibility, with respect both to the specific standards appropriate under various conditions and to the degree of waste treatment required. The proper test of the adequacy of such standards and treatment, he felt, was whether they led to improvements in the quality of polluted waters and to the protection of unpolluted waters.

Essentially, this is the position at which Interior has now arrived, but before getting there the department experienced some painful tensions within its own official ranks. Assistant Secretary Di Luzio, in a memorandum to Udall on 22 November, criticized FWPCA, then still under Commissioner Quigley, for excessive leniency in its review of state standards. While he had at first believed, Di Luzio said, that the standards being approved were adequate, he had now concluded that "our critics are right."

### No Bloodletting

Although Di Luzio apparently has won the argument, the fortuitous circumstance that both he and Quigley were on the point of leaving Interior allowed their differences to be settled without bureaucratic bloodletting. Quigley is now with United States Plywood–Champion Paper Corporation, as vice president in charge of pollution control. Di Luzio is a vice president of a major engineering firm, Edgerton, Germeshausen & Grier, and president of its Las Vegas subsidiary, Reynolds Electrical and Engineering Company.

As Secretary Udall explained to the Muskie subcommittee on 27 March, Interior has resolved the degradation issue by requiring that all state standards submitted for approval include a statement substantially in accord with the following:

> Waters whose existing quality is better than the established standards as of the date on which such standards become effective will be maintained at their existing high quality. These and other waters of a state will not be lowered in quality unless and until it has been affirmatively

demonstrated to the state water pollution control agency and the Department of the Interior that such change is justifiable as a result of necessary economic or social development and will not interfere with or become injurious to any assigned uses made of, or presently possible in, such waters. This will require that any industrial, public or private project or development which would constitute a new source of pollution or an increased source of pollution to high quality waters will be required, as part of the initial project design, to provide the highest and best degree of waste treatment available under existing technology, and, since these are also federal standards, these waste treatment requirements will be developed cooperatively.

Udall said that as social and economic development occurs, particular attention should be given to designing and locating industrial facilities in such a way as to minimize hurtful effects on water quality. Given the inevitable pressures for economic development, Interior's no-degradation proviso is perhaps as strong as any that would be politically viable. It is not, however, free of ambiguity.

### How Clean is Clean?

Interpretation of the phrase "highest and best degree of waste treatment available under existing technology" is sure to vary according to the pressures of the moment and the predilections of state and federal officials. Currently, this language is, for the most part, being interpreted as meaning secondary treatment, rather than tertiary or "advanced" treatment which removes all or nearly all pollutants.

On the other hand, a higher degree of treatment may be demanded where necessary. For example, at a recent pollution abatement conference for Lake Michigan, FWPCA and the states agreed that phosphates should be removed from effluents, although to accomplish this some advanced treatment will be essential.

Water quality standards for 28 states have now received at least partial approval. Thus far only five states have adopted acceptable no-degradation language, but all will be asked to do so, including the ten states for which standards were approved before the new policy on the degradation issue had been announced. The standards could, of course, turn out to be meaningless unless water quality is carefully monitored and unless polluters are required to clean up their effluents according to a specific timetable.

According to Assistant Secretary Max Edwards, all of the approved state standards include implementation plans, usually providing for a cleanup over a 3- to 7-year period. "Regional offices of the FWPCA are putting all these timetables and dischargers [polluters] into computers so that we are able to assess progress with implementation measures all along the line," Edwards said. "We will not wait until the final compliance date to assess a discharger's progress and possible violation of the timetables."

From the foregoing the conclusion that Interior has recovered from its embarrassment of last fall seems justified. But one must note the object lesson: it was the protests of vigilant conservationists and members of Congress that led Interior to rethink its position.—LUTHER J. CARTER

## Privacy: Curb Sought on Census

Fear that census questionnaires are encroaching on individual privacy has led to the introduction of a series of bills in Congress which seek to eliminate many compulsory questions on the 1970 census form. Although none of the bills has been reported out of committee, the measures have already encountered stiff opposition from the Bureau of the Census and it appears there will also be considerable opposition from organizations that use statistical information. The questions that would be eliminated pertain to the number of units at each address, the access to the units, whether the units have flush toilets, bathtubs, or showers, the type of heating equipment, whether the residents have a telephone, and the length of time occupants have been at that address. Other questions eliminated would be the length of time the property may have been vacant, the value of the property, whether the rent is paid under contract, and whether there are complete cooking facilities, a basement, or a commercial establishment on the property.

H.R. 10952, the bill that is the model for most of 22 House bills on the limitation of census questions, was introduced by Representative Jackson E. Betts (R–Ohio). A single Senate bill, S. 2966, which was introduced by Senator Frank J. Lausche (D–Ohio), is identical to the Betts bill. The bills advocate removing penalties for failure to answer all but seven types of census questions–all providing basic population information. Categories that would remain compulsory are: name and address, relationship to head of household, sex, date of birth, race or color, marital status, and visitors in the home at the time of the census. Betts has stated he favors limiting the number of compulsory census questions because, in his view, the Census Bureau is threatening the privacy of individuals by gradually increasing the number of questions at each census. For the 1970 census, the Census Bureau has proposed 21 questions, four more than were asked in 1960. In addition, some 16 million households will be given forms containing 67 compulsory questions, 11 more than in 1960, on such subjects as the components of their gross rent, the year their housing was constructed, and whether they possess air conditioning. Failure to answer questions is punishable by a $100 fine and up to 60 days in jail.

A subcommittee of the House Committee on Post Office and Civil Service held hearings on H.R. 10952 in October, but the committee has yet to act on the bill. Hearings have not been scheduled for S. 2966. A. Ross Eckler, director of the Census Bureau, opposed H.R. 10952 during the hearings because "Its enactment . . . would constitute a clear reversal and retrogression from a policy position the Congress has expressed repeatedly over the 177 years of census history in this country," and because under the proposed bill "the census data might have serious gaps." The odds the legislation may face, should it ever come to a vote, are anyone's guess. However, the origins of the legislation are in the national fear of large-scale statistical collections, computerized data banks, and infringement of individual privacy, and it should be noted that these concerns are growing.—K.S.