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EDITORIAL

FLOOD INSURANCE?
By Neil S. Grigg

A new book is out describing the U.S. Flood Insurance Program. The title is *Disaster Insurance Protection* by Howard Kunreuther of the Wharton School of the University of Pennsylvania. (John Wiley & Sons, \$20.95). It was reviewed in the *Wall Street Journal* of August 1, 1978. Some interesting points have emerged.

(continued on page 2)

It seems that one factor preventing the success of the Flood Insurance Program is that Americans are reluctant to insure themselves against disasters when the probability of the disaster is below some threshold. When you add to this the fact that our population is rather mobile, you see that many people are unlikely to get excited about the availability of flood insurance.

As an example, if the probability in a given year of flood damage is 1% (from a 100-year flood), the probability of having damage during a normal five-year occupancy of a house is still very low, on the order of 5%. Many people would perceive this to be an insignificant probability and would ignore the danger.

Another aggravating factor has been that the government has provided disaster assistance after the fact to help flood victims. This leads people to think that if they do not have flood insurance, the government will help them anyway.

We do need a Flood Insurance Program. Government should be eager to educate the citizenry and to make them aware of its availability. As we see with many other programs, however, the government probably will never be able to make sure that everybody is taken care of all of the time under all circumstances.

EDITORIAL

NEW FEDERALISM IN WATER MANAGEMENT

By Neil S. Grigg

Last month in the newsletter we carried an article by James B. Coulter, Secretary of Natural Resources in Maryland, entitled "State Response to the New Federalism in the Environment." Secretary Coulter described a dramatic change in the relative authorities of states and the federal government in managing water and the environment. The upshot of his remarks was that the federal government has taken over pollution control and will only relinquish small prerogatives to state government. This does not remove the responsibility on state government for certain parts of environmental management, but leaves the authority for final approval at the federal level.

These shifts in federal-state responsibilities have been described before. Henry Caulfield, former Executive Director of the Water Resources Council, and now Professor of Political Science at Colorado State University, described the shifting federalism in a 1975 talk before the National Water Conference. Professor Caulfield stated that the federal government was getting out of the water development business but increasing its profile in pollution control. He stated that the states should assume major responsibility for intrastate water development and the federal government should get out of that business.

What we see is a major shift in the pattern of federal involvement in water management. They are moving away from water development but toward regulation and perhaps ultimately control of most water management programs at levels above local government.

It was Congress that started the federal government on the road to national water management. Congress speaks for the people, so this must be their desire for the style and arrangements of water management. Those who work with the federal government in water management have a right to ask for the highest possible level of professionalism on their part in dealing with the states and with local government. They have a right to expect a minimum of bureaucratic delays and a maximum of agency efficiency and effectiveness. Programs should be clear and ample opportunity should be left at the state level for initiative and imagination in implementing state programs. Mutual respect will be the key to advances in the future.

We hope that the State of North Carolina will move rapidly to consolidate the remaining water management prerogatives that it still has and lead the way in demonstrating to the federal government and to other states what an individual state can do in water management.

McRORIE LISTS ENVIRONMENTAL MANAGEMENT GOALS

At the WRI Water Management Luncheon on August 9, Mac McRorie announced his reorganization of the Environmental Management Division and described his goals for improving environmental management in the State.

The Division will be restructured into three main divisions: Environmental Planning, Environmental Operations, and a Technical Support Division. These divisions will be headed by Robert Van Tilburg, Page Benton, and J. A. McColman. The reorganization was announced to Division staff at a meeting Wednesday morning, August 9, at 10:00.

McRorie described his vision and goals for improving environmental management in North Carolina during the talk. The full text of his talk appears on pages 17-20 of this newsletter. McRorie basically reviewed the different areas of program needs in the State and described their approach to meeting these needs. This included: a solution of the toxic wastes problem, improved 208 and water quality planning, improved comprehensive water planning, improved programs for air and water pollution from point sources, and solutions to other pressing environmental management problems such as hazardous wastes and groundwater management.

ENVIRONMENTAL MANAGEMENT COMMISSION MEETING

A number of items of particular interest were discussed at the August 10 meeting of the North Carolina Management Commission. These included the PCB problem, proposed new

water use classifications, and a study of seasonal effluent limits.

Bob Carter briefed the Commission on the recently discovered discharges of oily wastes containing PCB along roadsides in North Carolina. The first report of the illicit dumpings was received on August 2. This involved State Route 210 in Johnston County. After this news broke, it was found that an earlier episode in Warren County had been called in to the central office on July 27. Fort Bragg then notified the State that a similar discharge involving 15 miles of reservation roadway occurred in June. This is the earliest reported episode. Other recent events bring the total roadside involved to about 150 miles. Contrary to newspaper reports, there is no evidence that an out-of-state source is involved. All dumpings have been well identified roads tributary to major arterial highways. Spills generally involve 1 to 2 feet of the roadway shoulder adjacent to the paved system. The cost of scraping and disposing of PCB-soil mixtures is going to be very high. Mixtures containing PCB in amounts less than 500 ppm can be

taken to State disposal sites for permanent storage. However, no such sites have yet been designated. Soil mixtures containing higher concentrations will have to be taken to a federal site in Alabama. Discharges in Fort Bragg raise the possibility of entry of federal investigators. The Commission expressed interest in swift apprehension of those responsible and maximum penalties provided by law. See related story p. 5.

Paul Wilms briefed the Commission on proposals for a special water use classification for the designation and protection of waters of exceptional recreational or ecological significance. This was precipitated by EPA comment that the State's antidegradation statement does not cover means to identify and designate waters in which no degradation is to be allowed. He also discussed an additional freshwater classification for the designation of public water supplies. This would result in three classifications in lieu of the present A-I and A-II. They would be A-I for wilderness-type basins with no land disturbances, A-II for basins with no point-source waste discharges, and A-III for waters subject to potential degradation from point sources. During the ensuing discussion, Commission Member Stafford asked the staff to investigate proposals for scenic river designations involving the Black and South Rivers. He feared that such designations would interfere with a CP&L plan to site a nuclear plant on the South River and the anticipated location of a food processing plant on the Black River. The Commission instructed staff to look into this in cooperation with the Wildlife Resources Commission and Parks and Recreation Division staffs.

Mike McGhee then discussed a study of the application of seasonal effluent limits to the State's treated wastewater discharges. This would permit larger discharges during winter months. The staff feels the proposed modification would reduce the cost of pollution abatement while maintaining ambient water quality standards. The Commission endorsed the study and an early report on conclusions and recommendations.

WATER POLLUTION A BIG PUBLIC CONCERN

A recent Harris Survey of 1,567 adults nationwide showed that pollution of lakes and rivers has now risen to top place among

the environmental worries of Americans. Some 69 percent of those surveyed feel that "pollution of lakes and rivers" is very serious compared to 54 percent in a 1971 survey.

When asked about 13 different kinds of environmental pollution, other water concerns were: 66 percent worried about "pollution of lakes and rivers" by toxic substances from factories, 63

percent "pollution by chemicals," 55 percent "pollution of the oceans," 42 percent "pollution caused by liquid waste and sewage from households."

ENFORCEMENT TIGHTENS SAFE DRINKING WATER PROVISIONS

North Carolina communities which fail to meet the coliform bacteria maximum contaminant level for drinking water now must notify their customers of the deficiency. The Federal Safe Drinking Water Act requires public notification when standards are not met. In the event that the local water suppliers do not respond to letters from EPA and do not notify their consumers and the public as required by law, then a notice is sent to the local news media. The law requires that public notice be provided in the area served by the local water system within two weeks of the date of the letter indicating that the samples tested exceeded the maximum contaminant level. In early August, at least six water systems were announced as having failed to meet federal drinking water standards according to EPA.

Failure to respond with notices results in a violation of the Safe Drinking Water Act. Those not in compliance are then referred to the Enforcement Division of EPA for further legal action.

Some problems have been experienced in getting small suppliers to respond with monthly samples required under the law. The number not responding has been dropping in recent months as enforcement action intensifies.

North Carolina Human Resource officials and EPA are currently operating under a memorandum of agreement under which they jointly regulate the better than 3000 existing water supply systems. It is anticipated that North Carolina will assume primacy for administering the provisions of the Safe Drinking Water Act by July of 1979.

INFLUENCE OF WATER-TABLE AQUIFER ON SHELLFISH WATERS STUDIED

A recently completed study by the Groundwater Section of the Division of Environmental Management examined the possible influence of water-table aquifer on shellfish waters near Surf City and Old Settler's Beach, North Carolina. The study results are printed in Report 12 by the Groundwater Section. Data from the report include information gained from 15 wells which were constructed in the water-table aquifer at selected sites to monitor water levels, chemical quality, and the progress and direction of dye movements. As a result of the study, the following

summary and conclusions were obtained:

"Hydrologic conditions at the study sites are unsuitable for septic tanks and nitrification operation, primarily because the water-table is too near land surface. Densely concentrated septic tanks in these areas are the source of coliform and other contaminants entering adjacent shellfish waters during periods of moderate intensity rainfall. Water in the water-table aquifer was contaminated by leachate from septic tanks, and was subsequently discharged into shellfish waters. More significantly, recharge to the water-table aquifer during periods of moderate intensity rainfall caused water levels in the aquifer to rise above land surface which forced leachate to the land surface. Surface runoff waters then diverted leachate into shellfish waters. Rising water levels in the water-table aquifer in response to aquifer recharge therefore functioned indirectly to contribute coliform to shellfish waters.

"Subsurface waste disposal systems installed where hydrologic conditions are unfavorable for such systems create environmental hazards. Even when effective, the degradation of valuable groundwater resources by subsurface waste disposal practices merits consideration of alternative waste disposal methods where possible."

These findings are part of the results of a joint effort begun in 1975 by the North Carolina Groundwater Section, the Water Quality Section, the North Carolina Shellfish Sanitation Unit, and the Surveillance and Analysis Division, Region IV of the Environmental Protection Agency in a comprehensive investigation of the closed shellfish waters. The purpose of the investigation was to determine the source of coliform and other contaminants in the closed shellfish waters.

As of August 1, 1978, there are 452,762 acres of shellfish area in North Carolina closed primarily because of high coliform bacteria counts. Inspection of the 2.3 million acres of estuarine waters in North Carolina is a responsibility of the Shellfish Unit of the Division of Health Services. The program has a staff of fifteen and operates three microbiological laboratories located in Morehead City, Wilmington, and Manteo, and is headed by Bob Benton.

ALGAL BLOOM IN THE CHOWAN RIVER

Dr. David Adams, Mr. Page Benton of the N.C. Department of Natural Resources and Community Development, and Dr. Augustus M. Witherspoon, Algaologist in the Department of

Botany at N.C. State University, responded on July 18 to a request by the business community along the Chowan River to investigate an algal bloom over approximately 25 miles of the river. Low flights over the river by Drs. Adams and Witherspoon clearly revealed pockets of thick, green slime localized in inlets and 50 to 500 meters from the shoreline out into the main body of the river. Closer examination by boat on the river and subsequent analysis of samples indicated that a tri-species biomass of approximately 4.1 mg/l of blue-green algae was present in the river proper. A substantially higher level (60.4 mg/l) of these three species was estimated in the localized pockets along the shoreline. Total river biomass was in excess of 120 mg/l.

A meeting between the Chowan area business community and the State official and University scientist was held in an effort to determine a possible cause for the algal bloom. Even though the river is subjected to small seasonal pluck blooms, the magnitude of this bloom far exceeded expectation. No conclusions were reached as to the cause of the bloom. Discussions centered around the Farmers Chemical Plant located at Tunis, N.C., but no scientific or monitoring data indicated that FC had released any growth nutrients into the river. Dr. Witherspoon pointed out that either reduced river flow, which would increase "algal-nutrient" residence time in the river, evaporation due to drought, which would tend to increase nutrient concentrations in the river, and/or the addition of new nutrients to the river, coupled with good light penetration and increased water temperature, were perhaps contributing factors that could have potentially initiated the bloom.

The Chowan business community who expressed strong feelings that FC was again releasing excess nitrogen into the river requested and was assured an investigation by State officials of the Department of Natural Resources and Community Development.

FORMALDEHYDE SPILL UNRESOLVED

Three formaldehyde spills in March and July in the Cape Fear River are still unresolved. The Division of Environmental Management has

been investigating the chemical spills to determine the source and if deliberate dumping is occurring. Formaldehyde was detected at the Sanford water plant on Sunday morning, July 16. Discovery of the chemical forced water plants serving five cities to restrict at least temporarily withdrawals from the Cape Fear. Formaldehyde is used in embalming and wood treatment as an ingredient of plywood glue.

Bob Carter, with the Division of Environmental Management, said the spill "doesn't make sense

when there are so many alternatives available to properly dispose of formaldehyde, and particularly when those responsible could face criminal or civil charges and some pretty hefty penalties."

PCB'S DUMPED ALONG NORTH CAROLINA HIGHWAYS

The toxic chemical polychlorinated biphenyl (PCB) and other industrial chemicals were dumped along 250 miles of highway in as many as a dozen locations in a fifteen-county

area in North Carolina during July and early August. The dumping covers the largest area ever for PCB's in this county.

State officials speculate that the dumping may be the result of efforts to avoid the new disposal rules of the the Federal Toxic Substance Control Act that went into effect August 1. The case is under intensive investigation by the SBI.

PCB's must be incinerated at high temperature to be destroyed. New Jersey and Missouri are the only states with approved, licensed facilities to handle the PCB's. It will be illegal to manufacture the chemical after January 1979.

Removal of the toxic substance could run into millions of dollars, and technical questions of how to properly dispose of the substances in North Carolina have not been resolved. The use of an activated charcoal spray to chemically bind the PCB's and removal of contaminated soil are among the alternatives being considered.

JAIL SENTENCE GIVEN TO WATER POLLUTER IN PENNSYLVANIA

The recent precedent-setting jail sentence given to a Pennsylvania man for dumping poisonous chemicals into the Delaware River together with upcoming

federal hazardous waste regulations should result in a significant reduction of the harmful chemicals entering our nation's waters, according to EPA Region 3 Administrator Jack J. Schramm.

Schramm said that the six-month sentence handed down by a U.S. District Court Judge on June 19, 1978, to Manfred DeRewal for pouring harmful wastes into the Delaware River in March 1977 marked the first time that anyone has been sent to prison for violating the federal Clean Water Act. DeRewal was also fined \$20,000 and placed on four and one-half years probation.

RECORD FINE FOR DUMPING GIVEN IN CONNECTICUT

A Connecticut man recently received the largest criminal fine assessed for illegal dumping of toxic chemicals.

C. Stanton Gallup was convicted of criminally and negligently dumping toxic chemicals on his property

in Plainfield, Connecticut, without a permit. The fine was for \$790,000, which included a maximum penalty of \$25,000 for the criminal charge, \$750,000 for cleanup costs, and \$15,000 for police security of the dumping sites since detection.

Evidence indicates that tanker truckloads of "scavenger waste," including acids, chlorinated and nonchlorinated solvents and flammable sludges from within and outside the State were dumped into two pits.

EPA PROCEDURE PREDICTS CHEMICAL PATHS IN WATER

Procedures for predicting the environmental pathways followed by potentially harmful chemicals in lakes, rivers, and other freshwater systems are described

in a two-part report published recently by the U.S. Environmental Protection Agency's Environmental Research Laboratory in Athens, Georgia. The ability to predict the movement of pollutants is a key element in preventing extensive environmental damage.

Based on concepts developed over several years at the Athens Laboratory, the procedures integrate independent transport and transformation processes with hydrologic parameters in a computer model that provides information on potential environmental exposure for many kinds of aquatic environments.

The report, "Environmental Pathways of Selected Chemicals in Freshwater Systems," was written by Dr. J. H. Smith and seven other researchers at SRI International, Menlo Park, California, under an EPA contract. The study is part of EPA's research to protect the environment from adverse effects of pollutants associated with energy production.

In Part I, laboratory procedures are described for measuring the sorption partition coefficients on sediments and biomass and the rate constants for volatilization, oxidation, hydrolysis, photolysis, and microbial transformation. The results of the laboratory procedures are integrated with a simple computer model to predict the pathways for chemicals in the aquatic environment.

In Part II, the application of the laboratory procedures and assessment model to 11 chemicals of environmental interest is described. The chemicals were p-cresol, benz[a]-anthracene, benzo[a]pyrene, quinoline, bebenzo[f]quinoline, 9H-carbazole, 7H-debenzo[c,g]carbazole, benzo[b]thiophene, and dibenzothiophene, which might be found in the effluents of plants using or processing fossil fuels, and methyl parathion and mirex, which are agricultural pesticides.

The report (EPA-600/7-77-113 and EPA-600/7-78-074) is available from the Environmental Research Lab., USEPA, College Station Rd., Athens, GA 30605.

YADKIN-PEE DEE STUDY MANAGER APPOINTED

Mr. Thomas W. Nelson has been appointed Study Manager for the Yadkin-Pee Dee River Basin Level B Study. He will begin work

September 1, 1978, at the Study headquarters in Winston-Salem, North Carolina.

Nelson will work with the North Carolina Department of Natural Resources and Community Development and the South Carolina Water Resources Commission on the two-year study of water problems and needs in the 14,000 square mile basin. The 30 counties in the North Carolina portion of the study area include the cities of Winston-Salem, Salisbury, Albemarle, Lexington, High Point, Laurinburg, Lumberton, and Rockingham.

Results of the study will be a proposed basin-wide water management plan. This will include a set of development alternatives which are approved by all state, local, and federal agencies with water resources responsibilities in the basin and recommendations for basin-wide flood management plans and water budgeting strategies. Recommendations which come out of the Level B Study will be used to guide federal and state project funding decisions over the next 15 to 25 years.

Nelson, 50, has been Director of Operations for Lawler, Matusky and Skelly, a 200-man environmental engineering firm in Pearl River, New York.

FLOOD FORECAST CAPABILITY FOR YADKIN

The U.S. Army Corps of Engineers is using the upper Yadkin Basin as a test case for forecasting floods.

Their innovative new procedure is using the National Weather Service (NWS) river forecast system model. The Corps Hydrologic think tank, called the Hydrologic Engineering Center, or HEC, located in Davis, California, is using the NWS model in conjunction with their own runoff model (HEC-1) to forecast flows which can be used to make operational decisions for the W. Kerr Scott Reservoir. We are pleased to note the application of this advanced technology for management of Corps projects in North Carolina.

MEMORIES HAUNT SURVIVORS OF TEXAS FLOODS

Rivers swollen by 20 inches of rain sent a 20-foot wall of water into some areas of Texas that had just experienced a 50-day drought. At

least 20 people died in the flood, 16 of them in Hill County northwest of San Antonio, and perhaps 30 others are missing.

Kim Tomes of Houston, Miss USA of 1977, barely escaped drowning in the flood by clinging to a tree after being routed from her bed by high waters

at a dude ranch. The grave of Lyndon B. Johnson was covered temporarily with 20 feet of water from the flooding of the Pedernales River.

**STUDY OF
NORTHEAST'S
WATER
RESOURCES
RELEASED**

Northeastern North Carolina possesses an abundance of water; however, potable supplies are limited throughout much of the area according to a recent U.S. Geological Survey, Department of the Interior report entitled

Water Resources of Northeast North Carolina.

The report, which was prepared in cooperation with the U.S. Army Corps of Engineers, describes the hydrology of the seventeen most northeastern counties in the State. It emphasizes the total amount of water from each source. "More than one-fourth of the area is covered with open water," observed Hugh B. Wilder, Assistant Chief of the North Carolina District and senior author of the report, "and wells only a few feet deep yield water anywhere in the area. However, being so near to the coast, most of the surface water is contaminated by salty water from the ocean; and, even underground, more of the water is salty than is fresh..."

The report points out that groundwater in the area occurs in three major aquifers. The deeper two aquifers yield the most water to individual wells, but the uppermost aquifer has the greatest potential for long-term development because of the large amounts of rainfall available to it for recharge.

"There is some fresh water to be found in all three of the aquifers," said Wilder, "however, potential groundwater users must know where and how deep to look for a supply that will meet their needs. We are past the time when we can assume that there is enough good-quality water for everyone to use as much as they need for any purpose. This report will provide a general guide for planners in the area who must make decisions about how the water resource will be used in the future."

The report is one of the Geological Survey's Water Resources Investigation series and may be obtained at no charge from: District Chief, U.S. Geological Survey, P. O. Box 2857, Raleigh, NC 27602. It will also be available from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22151.

**NORTH CAROLINA'S
WATER SUPPLY A
PLUS FOR NEW
INDUSTRY**

Recruiting of new industry to North Carolina is big business and growing. In 1976, the State had \$1 billion

and the outlook for 1978 is good with new industrial investment running about 30 percent higher than 1977.

D. M. Faircloth, Secretary of the Department of Commerce, says that North Carolina has the basic ingredients that attract industry: a good highway network; solvent railroads; a labor force willing to work and augmented by a tested industrial training program; and a water supply that will improve our position as growth states in the West find this essential increasingly harder to provide.

**PANEL STUDIES
S.E. VIRGINIA'S
WATER NEEDS**

A panel of representatives from North Carolina and Virginia met July 18 in Elizabeth City, N.C., to discuss possible proposals

and strategies for meeting future water needs in southeastern Virginia.

Howard N. Lee, Secretary of the N.C. Department of Natural Resources and Community Development, said at the meeting that he recognized the problem of water supply for southeastern Virginia and stated that North Carolina is prepared to work through the committee processes toward arriving at an acceptable solution. Lee indicated that the committee will investigate:

- The impact downstream of a large, continuous withdrawal of water from the Roanoke River or Lake Gaston.

- The projected growth and water needs of southeastern Virginia and northwestern North Carolina.

- Other sources of water for Virginia, including the James River and the Nottingham River, both in Virginia.

- The total economic need and feasibility of the water project for both States.

The committee is composed of five members from North Carolina and five from Virginia. Members from North Carolina are Dan McDonald of the N.C. Department of Natural Resources and Community Development, Anne Taylor of the N.C. Department of Administration, Don Baker of the Wildlife Resources Commission, A. F. McRorie of the Environmental Management Division of the Department of Natural Resources and Community Development, and State Senator Melvin Daniel, D-Pasquotank.

Bob Nordstrom of the Norfolk, Virginia, Corps of Engineers office, reviewed six alternative proposals to solve the water problem. He said the choice of Lake Gaston would displace no families, interfere with no highways, and have no unfavorable impact on wetlands. He said the Lake Gaston

alternative is the better option since it can be implemented without the construction of a major impoundment. Less cost is also a factor, he said.

RESOLUTION TO N.C. DELEGATION ON WATER WITHDRAWAL

North Carolina's U.S. Senators and Coastal Congressmen received a resolution from the Coastal Resources

Commission on July 3 to do a detailed study of the long-range water resources in the southeastern United States coastal area, "from the Chesapeake Bay area to the Pamlico Sound." The Commission asked that the study include assessments covering the impact of withdrawing water from coastal area tributaries on coastal waters to the ocean barrier.

Meeting in Edenton on June 28 and 29, the Commission continued its study of the effects of a Norfolk Corps plan to withdraw water from Lake Gaston in Virginia, on North Carolina's Albemarle Sound region. Bob Nordstrom, project manager for the Norfolk Corps' water supply study gave the Commission a review of the Corps' involvement, beginning in 1974, when Congress authorized the study, with a view to determining water supply projects to meet the needs of southeastern Virginia.

The Coastal Resources Commission also resolved to ask Secretary of Natural Resources and Community Development, Howard N. Lee, to request that the Norfolk Corps make no final determination to supply water for the Hampton Roads area prior to consideration by Congress of the proposed study of the southeastern U.S. coastal area.

.....N.C. Office of Coastal Management

IRRIGATION GROWTH HIGH IN SOUTHEAST

Irrigation in the East is becoming more than insurance. Even with rainfalls averaging 50 inches, farmers find it profitable to irrigate. Soy-

beans, corn, tobacco, vegetable crops, and peanuts are showing significantly higher yields and quality from irrigation. Corn yields of 25 to 36 bushels per acre have been shown in southeastern states. A North Carolina study showed that 62.6% of the variation in erratic corn yields was attributed to drought days. Drought stress is especially critical two weeks prior to pollination and two weeks after pollination. Droughts frequently occur in the Southeast during this time.

Research in North Carolina has also shown a 15 percent increase in yields and a 10 percent increase in price paid per pound of irrigated over non-irrigated tobacco. Peanut yields of 500 pounds minimum and up to 2,000 pounds per acre in

critical years have been obtained with irrigation. Results such as these are reasons for much of the increase of 90 percent in Georgia's irrigation acreage per year and a 65 percent increase in Alabama. North Carolina also experienced rapid gains in all types of irrigation.

RISE IN POWER COST SPURS OLD HYDRO DEVELOPMENT

According to an article in *Wall Street Journal* of Wednesday, August 2, there is a renaissance in the use of old hydro-

plants for the generation of electricity. WRRRI has been following with great interest the efforts on the part of the Department of Energy (DOE) to spur low-head hydro development and the retrofitting of existing plants. Now we read that in addition to this government effort, individual citizens all over the country are once again demonstrating their resourcefulness in redeveloping old plants.

The article in the *Wall Street Journal* refers to several antiquated systems which are proving themselves again. One example was a 1928 generator which produced 150 kw from a wooden water wheel in a block house. Another example is a reconstruction by students from Michigan State University of two 55 kw generators designed in 1914 by Thomas Edison. There is a 1904 generator putting out 300 kw in Sanford, Maine.

Out in Colorado I visited at one time the old power station of the City of Loveland which had about four generators built about 1907. Their total capacity was on the order of 1,000 kw. They were lovingly cared for by a gentleman named Tom Patterson, now deceased, who was well known throughout the area. Unfortunately, this hydro-plant was washed away in the Big Thompson Flood of 1976. The generators can still be seen rusting away in the exposed concrete slab of the old generator house.

We are glad to see this new interest in old hydro and the self-reliance in the generation of energy. It demonstrates that when the price is right, the American people are still resourceful enough to find alternatives to paying the OPEC price of oil.

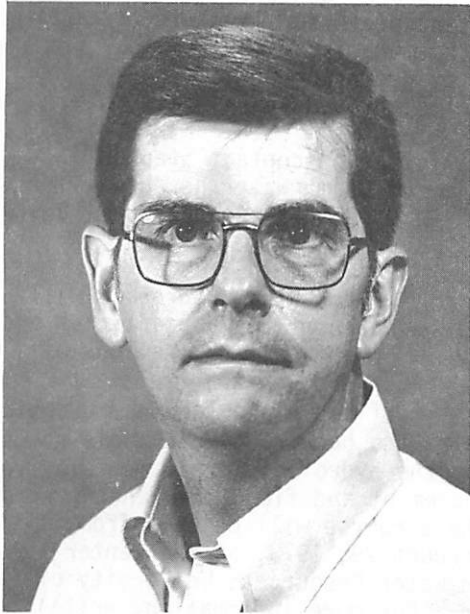
.....Neil S. Grigg

LURIA APPOINTED TO WATER RESOURCES POST

Dr. Donald T. Lauria of UNC-Chapel Hill has been appointed Director of the Water Resources Engineering Program

Area in the Department of Environmental Sciences and Engineering. Dr. Lauria has a great deal of experience in the U.S. and overseas in practical water resources engineering projects. Some of his

current work is of substantial interest and has visibility nationally as well as locally. He succeeds Jim Lamb, who was previously Director.



One project involves a study of water supply in developing countries to select design standards which will maximize the economy and usability of water supply investments in developing countries. Several investigations are planned during the summer of 1978 in Brazil. The study is expected to develop design criteria for the amount of water to be provided per person, the minimum pressures to be maintained in a distribution network, the minimum pipe diameters, and other design information. The study began in 1975.

Another research area directed by Lauria is the development of sewer design models which will predict optimal patterns for the construction of wastewater collection systems. Lauria is using mathematical programming techniques to develop sewer cost functions which can be applied to real sewer design problems in North Carolina and in other locations.

Lauria has been working for several years on a project sponsored by the National Science Foundation leading to the development of a mathematical model to determine the optimal location, construction timing, and capacity of regional wastewater facilities. This model will make it easy to quickly and easily screen numerous alternatives for locating and timing the construction of regional wastewater facilities. The model has been used with the cooperation of Malcolm

Pirnie Consulting Engineers on a 201 planning study in New Jersey and with another firm on 201 studies in North Carolina.

Another line of research conducted by Lauria is developing optimal process design procedures for the activated sludge process. Work is in progress to focus on the optimal operation of existing activated sludge plants. Such operational models can lead to better procedures for design and ultimately reduced costs.

We welcome Donald Lauria to the chairmanship of the WRE Program at Chapel Hill.

NATIONAL ASSOCIATION OF COUNTIES RECOGNIZES THREE N.C. COUNTIES FOR WATER PROJECTS

Counties for significant water-related accomplishments. Guilford County received its award for a new program of sludge application on the county farm. This project involved the cooperative efforts of County and State officials, university specialists, and industry to develop a safe and comprehensive approach to land application of sludge.

Dare County was recognized for its development of a safe, dependable, regional water system. The regional systems now include a number of small communities.

Each of these communities formerly had separate systems with different levels of water quality and source of supply.

Guilford, Davie, and Dare Counties received 1978 Achievement Awards from the National Association of

Davie County was recognized for its nearly 10 years of effort toward successful development of a large county water system to provide an adequate supply of drinking water for its citizens. The system was credited as having been a major factor in attracting R. J. Reynolds Tobacco Company to locate new facilities in the county. This added about \$45 million to the county tax base

PRESIDENT MOVING AHEAD WITH WATER POLICY REFORMS

President Carter directed, through a memorandum on July 12, executive agencies to carry out his new water conservation policy announced June 6. The directive called for improved planning and evaluation of federal water resource projects, increased state-federal cooperation in water management, grant programs to encourage conservation, conservation pricing, and more concern and awareness for water conservation in federal programs.

The memorandum included requirements that agencies making federal loans and grants for water supply or treatment encourage water conservation. Community water conservation programs will be required as conditions to all federal loans and grants after September 30, 1979.

GAO CRITICAL OF WASTEWATER CONSTRUCTION GRANT PROGRAMS

EPA was severely criticized in recent House hearings for purported shortcomings in its wastewater treatment construction grants program. Criticism centered around the cost effectiveness of expensive wastewater treatment. One GAO official said that EPA's program "has been construction oriented - get the money out" without first gathering water quality data. Comptroller General Elmer B. Staats told the House Subcommittee that there was a need to have better water quality data prior to funding for sewage treatment projects and that cost-effective alternatives need to be considered.

CARBON ADSORPTION HANDBOOK

The Institute has available a new publication titled "Carbon Adsorption Handbook" which brings together a significant amount of information on carbon adsorption from many sources. The 1,054-page publication with 27 chapters is offered as a practical book that will be useful to water practitioners, engineers, designers, and plant engineers.

The publication is available from Ann Arbor Science Publishers, Public Information and Publication Department, P. O. Box 1425, Ann Arbor, MI 48106. The price of the handbook is \$39.95.

WATER RESOURCES CONDITIONS IN NORTH CAROLINA

Streamflow during July was near normal in most of the Piedmont and Coastal Plain regions and well below normal in the Mountains. Flows at the USGS index station on the French Broad River at Asheville were only 3/4 of the long-term average for July.

Showers occurred almost weekly during the month and were locally heavy in several areas. Minor flooding occurred on small streams in Catawba County on the 8th and in Guilford County on the 16th. No significant flooding was reported.

Ground water levels declined slightly during the month but were generally above the long-term averages for July.

.....U.S. Geological Survey

POSITION AVAILABLE

Research Faculty Position available at the Guam Water Resources Research Center. The position will be at the assistant professor level in the area of hydrology with an emphasis on mathematical (computer) modeling of groundwater flow. A knowledge of physical modeling procedures is desirable.

For additional information contact Stephen J. Winter, University of Guam, Water Resources Research Center, P. O. Box EK, Agana, Guam 96910.

CONFERENCES, SYMPOSIA, AND WORKSHOPS

Flood Plain Hydrology will present basic principles and practical applications of hydrology that relate to flood plain studies. Participants will acquire the background and tools necessary for solving the hydrologic problems relative to flood plain management and flood insurance programs. The five-day short course will be held from September 25 through 29, 1978, at the Center for Research in Water Resources, University of Texas in Austin. For more information, write Engineering Institutes, College of Engineering Cockrell Hall 2.102, The University of Texas at Austin, Austin, TX 78712. Telephone: 512/471-3506.

Customer Service Seminar - This one-day workshop is designed to foster the development of effective customer service techniques and demand active participation in the development of basic interaction skills related to one's verbal and nonverbal behavior in handling customers. The objectives of the course are to develop active listening skills to promote a better understanding of customer-related problems; to develop human awareness skills used in face-to-face contact, over the telephone, and in writing with customer problems and complaints; to develop telephone courtesy in handling collection problems; and to develop effective and acceptable written business communications.

The seminar will be held in Richmond, Virginia, on September 11, 1978. For details write Curriculum Specialist, American Water Works Association, 6666 W. Quincy Avenue, Denver, CO 80235. Telephone: 303/794-7711, ext. 242.

National Conference on Water Conservation and Municipal Wastewater Flow Reduction - The U.S. Environmental Protection Agency will sponsor a two-day conference in Chicago on November 28 and 29, 1978. Sessions will be held at the Ramada-O'Hare Inn. Conference attendance will be limited to 500, with no registration fee required. Issues covered in the conference will include: water and wastewater management issues; regulations affecting water supply, wastewater and their treatment; water and wastewater conservation technology; public participation, education and information in water conservation; case studies of water conservation, wastewater flow reduction projects.

National leaders will join with state and local officials, water and wastewater managers in presentation formats including speakers, resource panels, and workshops during the two-day conference.

Persons interested in attending or wanting additional information should write: U.S. Environmental Protection Agency, c/o Enviro Control, Inc., P. O. Box 1687, Rockville, MD 20850, Attn: R. E. Tucker.

International Water Reuse Symposium - The American Water Works Association Research Foundation is organizing the symposium under the principal sponsorship of the Office of Water Research and Technology (U.S. Department of the Interior) and U.S. Army Medical BioEngineering Research and Development Laboratory. The Symposium will be held in Washington, DC, March 25-29, 1979. With the theme of "Water Reuse - From Research to Application," it will be the first week-long effort devoted entirely to renovation and reuse of wastewaters. Subjects to be covered include pertinent case histories, new water recycling research, and practical community applications. Selected papers will emphasize innovative approaches, new or unreported system design, and performance data and future water reuse plans.

Technology transfer will be paramount from formal papers at plenary and concurrent sessions, subgroup workshops, and special poster presentations designed to optimize one-to-one communication.

The program is directed to individuals from water/wastewater utilities, consulting firms, federal and state research/regulatory agencies, research divisions of manufacturers, universities, and other water research organizations. Interested authors are invited to submit qualifications information and a detailed 500-word abstract of their proposed papers by September 15, 1978, to: Richard D. Heaton, Conference Organizing Committee, AWWA Research Foundation, 6666 W. Quincy Avenue, Denver, CO 80235. Telephone: 303/794-7711.

National Symposium on Wastewater Disinfection - U.S. EPA OR&D's Municipal Environmental Research Information Center of the U.S. Environmental Protection Agency are sponsoring a National Symposium on Wastewater Disinfection. The symposium will be held at the Carrousel Inn, Cincinnati, OH on September 18-20, 1978.

The symposium will bring together scientists, consulting engineers, municipal design engineers, and federal and state pollution control officials to discuss the latest developments in alternative wastewater disinfection technology. Subject areas include chlorination optimization, dechlorination, chlorine dioxide treatment, ozonation, and ultraviolet irradiation. Several round-table discussions have been scheduled to permit audience participation. All presentations and discussions will be published in a proceedings.

For details call or write Albert D. Venosa, Municipal Environmental Research Laboratory, Wastewater Research Division, U.S. EPA, 26 W. Clair Street, Cincinnati, OH 45268. Telephone: 513/684-7668 or Larry Dempsey, Environmental Research Information Center, (same address). Telephone: 513/684-7394.

Request for Papers - The AWWA T&P Research Committee is seeking papers on research work in the water supply field for presentation at the 1979 Annual Conference to be held in San Francisco, California, June 24-29. As in 1978, two sessions have been requested by the Committee for presentation of research papers. Papers will be chosen from abstracts received no later than Monday, December 4, 1978. All persons submitting an abstract will be notified by January 30, 1979, whether or not their paper was selected. Research papers dealing with water quality control, distribution, management, and water resources are desired. Eight copies of both an information sheet and a 300- to 1,000-word abstract of the research paper should be submitted to: E. F. Spitzer, Secretary, American Water Works Association, T&P Research Committee, 6666 W. Quincy Ave., Denver, CO 80235. Abstract information sheets can be obtained from the same source.

Control, Operation and Management of Biological Wastewater Treatment Plants - This seminar is directed toward control and operational procedures for biological wastewater treatment plants. The objective of this seminar is to provide an understanding and methodology for effective wastewater treatment plant management and compliance with effluent standards. The following areas will be explored: monitoring and surveillance for meeting regulatory requirements; operational procedures for process control; methodology for monitoring plant performance and effluent quality; interrelationships between treatment processes.

The seminar will be held in Nashville, Tennessee, September 11-15, 1978, and is sponsored by The Environmental and Water Resources Engineering Program of The Center for Environmental Quality Management. For information call: Janet Vance, Assistant Director, Continuing Education Program, Vanderbilt University, 615/322-2720.

International Symposium on the Environmental Effects of Hydraulic Engineering Works - The symposium, sponsored by the Tennessee Valley Authority, International Association for Hydraulic Research, Oak Ridge National Laboratory, and The University of Tennessee, will be held September 12 to 14, 1978, at the University of Tennessee Student Center, Knoxville, Tennessee.

This interdisciplinary symposium is to bring together aquatic ecologists, limnologists, engineers, and others interested in this topic to discuss problems and solutions associated with the environmental effects of building and operating hydraulic engineering works.

For more information, write to The University of Tennessee, Department of Conferences and Institutes, 432 Communications and Extension Building, Knoxville, TN 37916.

Lake Tahoe Seminar on Wastewater Treatment and Reuse - The seventh annual seminar is scheduled for November 1-2, 1978, at the Sahara Tahoe Hotel, Stateline, Nevada. Topics include wastewater treatment systems for small communities; costs and effects of water conservation programs; sludge management alternatives; land treatment vs. secondary and advanced wastewater treatment. For details write or call: "WWT Seminar," Culp/Wesner/Culp, Box 40, El Dorado Hills, CA 95630. Telephone: 916/677-1695.

Call for Papers - The Committee on Research and Information of the Water Resources Planning and Management Division is sponsoring a session at the February 26-28, 1979, Specialty Conference in Houston. Persons interested in presenting papers on "Water Resources Research Systems: The

Optimal Structure of a National Water Resources Research Program" should submit abstracts of 250 words or less by August 19 to: Dr. Gary L. Lewis, Water Resources Center, University of Nebraska, 310 Agricultural Hall, Lincoln, Nebraska 68583.

This session will consist of five or six papers dealing with the local, regional, and national institutional structure of water resources research. At least one paper will describe the history of federal and other programs in research and will bring the audience up to date on the existing institutional research structure. The remaining papers will argue the ills and advantages of the existing structure, and each author will be asked to advance and discuss suggestions for improvements and efficiencies in developing water research programs which will provide timely and effective solutions to water issues. Papers from members of other divisions of ASCE, and papers from non-members and non-engineers are welcome.

NEW PUBLICATIONS RECEIVED BY THE INSTITUTE

(Residents of North Carolina may borrow these from the Institute for a two-week period. Where individual copies are desired, readers are encouraged to request copies from the organization issuing the publication. The addresses are provided by the *News* for this purpose.)

Water Resources Planning

- "Guidelines for Determining Flood Flow Frequency," 6/77, by U.S. WRC, 2920 L St., NW, Washington, DC 20037. (04A)
- "Floodplain Management Guidelines," 2/78, by U.S. WRC, 2120 L St., NW, Washington, DC 20037. (04A)
- "Development of a Regional Information System for Hydrological Modeling," 5/78, by J. D. Fellows, *et al.*, WRRRC, U. of MD, College Park, MD 20750. (07A)
- "The Nation's Water Resources, The Second National Water Assessment by the U.S. Water Resources Council," (Draft Review Copies) 4/78, avail. from USWRC, 2120 L St., NW, Washington, DC 20037. (WRC)
- Part I Introduction
 - Part II Water Management Problem Profiles
 - Part III Functional Water Uses
 - Part IV Water Supply and Water Quality Considerations
 - Part V Regional Assessment Summaries
 - South Atlantic Gulf Region (03)
 - Statistical Appendix, Vol. A-1, Economic, Social and Environmental Data
 - Statistical Appendix, Vol. A-2, Part 1, Water Supply and Use Data
 - Statistical Appendix, Vol. A-2, Part 2, Water Supply and Use Data
 - Statistical Appendix, Vol. A-3, Water Supply and Use Analyses
 - Summary Report
- "Problem Identification and Ranking - An Assessment of a River Basin Planning Process," (#2), 1/78, by J. J. Waelti, WRRRC, U. of MN, St. Paul, MN 55101. (06B)
- "Municipal and Industrial Water Conservation - The Federal Government Could Do More," 4/78, by Comp. Gen. of U.S., avail. from USGPO, Washington, DC 20548. (03D)

Water Quality Management

- "Viral Control of Blue-Green Algae," 5/78, by P. R. Desjardins, *et al.*, WRC, U. of CA, 475 Kerr Hall, Davis, CA 95616. (02H)
- "Long-Term Effects of Land Application of Domestic Wastewater: Hollister, California, Rapid Infiltration Site," (EPA-600/2-78-084), 4/77, by C. E. Pound, *et al.*, avail. from NTIS, Springfield, VA 22161. (05D-E)

- "Development of an Economics-Based Methodology for Projecting Future Pollution Problems," (EPA-600-5-78-011), 6/78, by G. S. Stacey, *et al.*, avail. from NTIS, Springfield, VA 22161. (05A)
- "Modeling Sediment Movement in the Turbidity Maximum of an Estuary," 6/78, by A. Kuo, *et al.*, VA WRC & St. U., Blacksburg, VA 24060. (05B)
- "Potential Best Management Practices to Control Sediment Non-Point Source Pollution from Agricultural Land in North Carolina," 4/78, USDA, SCS, P.O. Box 27307, Raleigh, NC 27611. (05-208 P)
- "Factors Utilized in Thermal Power Plant Siting: A Review Through the Mid-70's," (#72), 4/78, by B. C. Dysart, III, avail. from WRRRI, Clemson U., Clemson, SC 29631. (Water and Energy)
- "Water Treatment for Small Public Supplies," 6/78, by H. G. Folster, *et al.*, NM WRRRI St. U., Box 3167, Las Cruces, NM 88003. (03)

Water Quantity Management

- "Impact of Urban Runoff on Water Quality in the Occoquan Watershed," 5/78, by C. W. Randall, *et al.*, VA WRC, VPI & St. U., Blacksburg, VA 24060. (05B)

Miscellaneous

- "The Global Environment and Basic Human Needs," 1978, by Worldwatch Inst., for CEQ, avail. from USGPO, Washington, DC 20548. (CEQ)

SPECIAL

MILLIONS AVAILABLE FOR ALTERNATIVE AND INNOVATIVE WASTEWATER TREATMENT UNDER THE CLEAN WATER ACT OF 1977

"North Carolina has a tremendous opportunity to become involved in alternative and innovative wastewater treatment in the immediate future," according to A. F. McRorie, Director of the Division of Environmental Management within the Department of Natural Resources and Community Development.

Under the terms of the Clean Water Act of 1977, the State must set aside 4% of its construction grant monies for FY 79 (approximately \$100 million). This set-aside must be used to fund alternatives to conventional treatment works for communities with a population of 3,500 or less. The law also requires the State to create a 2% set-aside to be used to increase the amount of the federal grant from 75% to 85% for projects using innovative or alternative processes.

In FY 79 North Carolina will set aside nearly six million dollars for special support to innovative or alternative wastewater treatment processes. These special incentive funds, if spent in their entirety, would involve projects with total costs in excess of fifteen million dollars.

The federal law specifies a continuing commitment to innovative and alternative wastewater treatment systems. Over the three-year period set forward in the law the State will be required to direct nineteen million dollars to these two set-aside categories. If all these funds are committed, some seventy million dollars will be spent on total project costs.

The six million dollars in FY 79 and the nineteen million dollars of which it is a part must be used as specified in the law or they return to EPA for reallocation. "It is essential that local officials, contractors, engineers and other professionals in the wastewater treatment field understand how these provisions can be used to solve their local problems. This tremendous resource will be lost if we all cannot mobilize to develop projects to meet these provisions of the Clean Water Act."

"Local governments can use this program to reduce their share of wastewater treatment project costs significantly. The State pays one-half of the non-federal share, so if 85% of the project paid for by EPA and 7.5% by the State, only 7.5% remains for the local governments. As another incentive for trying a new approach, the law provides for 100% funding of modification or replacement costs, at the discretion of the Regional Administrator, should such projects fail to meet design performance specifications," McRorie added.

The Division of Environmental Management and the Water Resources Research Institute are working together to develop a more detailed explanation of these provisions and to provide an opportunity for information exchange. A workshop on this topic is being planned for October.

Under the terms of the federal law, "alternatives" include: land treatment, aquifer recharge, aquaculture, silviculture, direct reuse, on-site systems with sub-surface disposal, facilities for septage treatment, etc. The law views innovative processes or techniques as "developed methods which have not been fully proven under the circumstances of their contemplated use and which represent a significant advancement over the state of the art..." Six criteria are set forth for evaluating "innovative" projects when compared to non-innovative methodologies: (1) at least 15% lower life cycle cost, (2) at least 20% lower net primary energy requirements, (3) improved operational reliability of the treatment works, (4) better management of toxic materials, (5) increased environmental benefits - water conservation, more effective land use, improvements in air or groundwater quality, and (6) new or improved methods for joint treatment and management of municipal and industrial wastes discharged into municipal systems.

....*Todd Llewellyn*
Division of Environmental Management

SPECIAL

ENVIRONMENTAL MANAGEMENT IN NORTH CAROLINA

by A. F. McRorie
Director, Division of Environmental Management
N. C. Dept. of Natural Resources and Community Development

Editor's Note: This is the text of A. F. McRorie's talk at the N. C. "Water Resources Management Luncheon" held August 9, 1978.

Good afternoon, ladies and gentlemen.

I'm happy to be here with you today to discuss "Environmental Management in North Carolina." Of course, this is a topic which concerns all of us. As I'll note in more detail later in my remarks, "Managing Our Environment" is destined to become a bigger and bigger issue in our State, and now is the time for us to begin to face our choices about environmental futures.

Today I'd like to examine the issue of our environmental futures from three perspectives. First is a discussion of the long range trends in the area of environmental control. As my second point, I'd like to tell you what the Division of Environmental Management is doing during 1979 to reach our short term goals. As my third and final point, I want to bring you up-to-date on a reorganization of the Division. This reorganization was announced to my staff this morning, and will become effective on the first of September. I think it's appropriate that the first public announcement of these changes be made to this group. I'll get into these changes and field your questions in a little while.

My first topic is "Trends in Managing the Environment." What we are (and what we have been) headed toward is some form of resource management in dealing with our air and water. This trend is inevitable and I think we can all see the need for resource management rather than a complete resource exploitation or an attitude toward absolutely no resource degradation. The real question is "How will this be done and by whom?" What we have seen so far has been, for the most part, state programming within the general context of federal guidelines. My belief is that the states will be allowed to deal with problems in ways they choose so long as minimum federal criteria are met. This provides a means and opportunity for addressing problems - provided the states are willing.

The 1977 amendments to the Clean Air Act will prove to be as sweeping in their own way as P. L. 92-500 has been for water quality management. This law introduces the concept of growth management in that in non-attainment areas significant new emissions cannot be made unless someone else reduces his emissions. This trade-off policy spells the end of unlimited environmental degradation and marks the turning of the tide on the question of use versus protection in managing our environmental resources.

Section 404 of P. L. 92-500, dealing with dredge and fill operations, has not been applied in its fullest measure. Currently the Corps of Engineers has the responsibility for issuing these permits, but because much of 404 is new and is not widely understood and because - I expect - the Corps has not had the manpower resources, 404 has been used primarily in coastal areas. I believe that we will be seeing great expansion in the issuing of 404 permits for work affecting inland waters. The law provides for delegation of 404 permits issuance to the states and many states are getting their legislation established to assume this authority.

In the realm of construction grants for wastewater treatment facilities, we are already seeing and will continue to see an emphasis on alternatives to conventional waste disposal. There are various set-aside provisions in the law which extend millions of federal dollars as the big green carrot to encourage the states, local governments and private firms. The Division is working with the Water Resources Research Institute in an effort to promote these alternatives.

There is also a strong federal emphasis on ending the discharge of toxics into the nation's water, land, and air environment.

On the subject of toxics, let me briefly call your attention to the recent incidents of chemical dumping along North Carolina's roadways. Four of five cases involved the dumping of polychlorinated biphenyl, also known as PCB. In one instance, an estimated 2,000 - 3,000 gallons of PCB were dumped along a stretch 20 miles long. At the moment there is no known environmental damage from these incidents

although clean up may cost several million dollars. But what prospect would we face today if these incidents had occurred near a municipal water supply? The problems faced by Kernersville as a result of the chemical spill caused by vandals are still fresh in our minds. The people who perpetrate these crimes, whether for profit or for "kicks" are a new order of criminal - saboteurs of the public health and environment. My point is that toxic chemicals and their safe disposal is an issue we will be dealing with from now on.

These are the trends nationally and they will have impact in North Carolina. The special trends which apply to our state include issues of water supply and allocation as well as development of answers to a broad range of water problems. Examples of these are: the capacity use study underway around Southern Pines; the Cane Creek controversy in Orange County; the prospect of water supply problems in Durham-Orange if we have another dry year before the Falls Project is completed. The bottom line on all this is that the state just does not have an effective program for water allocation or water supply planning assistance to local governments.

What has the Division of Environmental Management accomplished during this year? We have moved toward seven goals and these will be reached by the end of this calendar year. Some of these goals are in the development of new programs while others are maintenance of programs already in place. Both functions are important to managing our environment.

In our waste treatment management effort, the first plan developed under Section 208 of the Federal Water Pollution Control Act will be completed by January of 1979. This is often called "The 208 Plan" after its section of the federal law. Its more accurate title is "Areawide Water Quality Management Plan." The plan takes a look at the whole water quality picture and prescribes solutions for any problems which are found. This plan will include our first comprehensive examination of non-point sources of pollution - that is to say pollution resulting from rain washing foreign matter into lakes and streams. In earlier years our emphasis was, quite rightly, on controlling pollution from point source dischargers - that is, municipal and industrial waste treatment facilities. Now that point sources of pollution are beginning to be effectively controlled, we are finding that we may still face unclean lakes and streams as a result of non-point runoff. Solutions to non-point pollution are more simple and more energy-efficient than the elaborate treatment facilities required for most point sources. These solutions to non-point water pollution will, however, require changes in the ways we do things on the land. This is a new policy approach and will take some getting used to. However, if we are to maintain environmental quality, we must think and act as ecologists with an awareness and understanding of the interdependence and interactions in the natural world.

Also to be completed during 1978 is the State Water Resources Framework Study. This document is designed to develop a framework of data within which to identify the water policy issues which North Carolina needs to address.

We will never have "more" water. We will very likely have more people and industry - perhaps much more. We have an annual growth rate of about 5% currently. Water and growth must go hand-in-hand. Balancing competing needs and directing growth are major issues we face and water policy is a primary tool in shaping the environmental future we desire for North Carolina.

Among the water policy issues we face are: capacity use, groundwater/surface water allocations, priority of water projects, and instream flow needs. Let me stress here the fact that water quantity and water quality are two sides of the same coin. Either of these without the other will not do. You must have an adequate and clean supply of water. Any planning which does not integrate the two is doomed. I'll get into this more as I explain the reorganization of the Division.

There is a Level B water resources study just about to get underway in the Yadkin-Pee Dee River Basin. North and South Carolina as well as federal agencies are cooperating in this effort. This is the level of detail necessary for adequate water resource planning and we need it statewide. However, the Yadkin-Pee Dee study will address some of our most serious water resource problems first.

North Carolina is in reasonably good shape in terms of air quality. By next July, our program will bring into compliance all 38 major, and 94 minor, sources of air pollution. There are slightly more than 900 major sources of air pollution in our state. We do have four areas of the state which have failed to meet one or more of the standards contained in the 1977 Clean Water Act Amendments. These non-attainment areas include Buncombe, Durham and Mecklenburg Counties as well as the area around Spruce Pine in Mitchell County. We will be working to bring these areas into compliance as soon as possible.

In the area of water quality standards, 92% of our stream segments are in compliance. We will work to bring about 100 dischargers into compliance. This topic relates in many ways to the next point which is funding municipal facilities construction. Inadequate or out-dated treatment systems contribute to the degradation of many stream segments not currently up to par.

These funds to construct municipal treatment works are called "201 grants" and we will provide some 162 million dollars in grants during 1978. We will also certify 700 waste treatment plant operators to contribute trained manpower to match the machinery we're putting in place.

Groundwater investigations and data gathering will continue. We have developed a network of wells to monitor groundwater quality. This is an area of growing importance and we will be doing more and more groundwater investigations as time goes by.

Our seventh goal is to expedite the handling of discharge permits and grant applications. The better we are at handling this paperwork, the sooner we'll see these devices in place improving the environment - it's that simple.

By the way, our program plan for the period of July 1978 through October 1979 is currently being reviewed. There will be a hearing on it on Friday, August 11th. If you'd like more information, my office can send a summary to you or direct you to the entire document. I will welcome your suggestions or comments on the direction the Division is headed whether at the hearing or in a letter.

Now I'd like to tell you about how I am arranging the Division to handle the trends and the specific program objectives I've outlined to this point. Let me assure you that reorganization is not something one does in response to an itch. It takes considerable planning and review and then more planning.

So why have I reorganized the Division of Environmental Management? There are two reasons. The first is to move our concept of management to a level of sophistication commensurate with our environmental skills. It's not enough to have the scientists and the engineers doing the technical work. We must also develop sound environmental policies based on their work and communicate these to field staff for enforcement. To effectively manage we must not only identify the problem but also *follow through with* institutional and legal means to solve it. So my first reason for the reorganization is to better manage our responsibilities.

My second goal in the reorganization is to decentralize as much as possible the responsibility and authority within the Division. In this effort we are moving toward an arrangement where Raleigh serves as the center for planning and policy development while the regional offices administer many of the Division's programs within their area. We want balance and cooperation between planning and operations.

The reorganization was not intended to demote anyone and, although all positions have not yet been settled, it is my hope that no Division employee will suffer because of these changes.

The concepts behind these changes are two. First to group together functions which should be coordinated so that this can take place in the smallest possible unit. Second, to allow for both program identification and integration. We want to keep the programs themselves visible while strengthening our ability to avoid making a decision in one program area in a vacuum.

In short, my goal is to achieve an environmental management program with balance between the media and with flexibility in resources and responses available to handle "environmental" problems and issues.

Taking the macro view first, I have divided the Division into three sections - Environmental Planning, headed by Bob Van Tilburg, Environmental Operations, directed by Page Benton and Program Support, under Jim McColman.

I'll get into each of these three parts in more detail shortly but I want to emphasize here that this arrangement focuses one segment of our shop on each major organizational function - policy development, policy execution and support activities. This is the first time that all support groups have been brought together. It is also the first time that all planning has been in one place and, as I stated during my discussion of trends, truly coordinated planning is essential.

Program support is divided into four groups - Information Services, Administrative Services, Laboratory Services and Training.

Environmental Planning has five groups - Technical Services, Environmental Management Planning, Comprehensive Water Planning, Waste Treatment Management Planning, and Local Program Planning.

Environmental Operations has three Raleigh-based coordinators for Air Quality Management, Water Management and Wastewater Management in addition to seven (7) regional offices. In each regional office there will be one man, the regional supervisor, who will be responsible for all of the Division's programs in that area. Field office responsibilities will include: plans review, monitoring, planning liaison, environmental reviews, operator training, time sensitive laboratory analyses, inspections, investigations and enforcement.

So what are the problems and prospects of this reorganization? What should you as concerned citizens expect to see?

First, let me emphasize that there will be little immediate visible effect from this reorganization. Beginning on the first of September we will move to implement these ideas in as short a time as practical.

Secondly, I'm not yet sure how far we can go in moving down the authority for permit issuance and plan review. We'll have to evaluate this as we go.

A third point I'd make about the reorganization is that its effectiveness hinges on good coordination and lateral communication between the planning and operations functions. We will have to watch to see that this is happening.

Under this reorganization, the regional supervisor will be in a position to increase or decrease emphasis on certain of the Division's programs within his region. This is as it is intended. However, we must be certain to set guidelines for maintenance of proper levels of effort through program planning.

Finally, there is the possibility for inconsistencies to develop between regions. To control this we have established regional coordinator positions to audit activities across the State to assure that all programs are reasonably uniform, effective and efficient.

So this, in a fairly large nutshell, is the status of "Environmental Management in North Carolina" at the moment. I've discussed with you the trends I see both nationally and in North Carolina. You have heard the highlights of the Division's 1978 activities and how I am reorganizing the Division to meet new challenges in managing our resources.

I look forward to your questions today and I hope you will not hesitate to come to us with your questions or comments on the programs we have developed.

WATER RESOURCES RESEARCH INSTITUTE
OF THE UNIVERSITY OF NORTH CAROLINA
124 Riddick Building
N.C. State University
Raleigh, NC 27650

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