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EPA POSTPONES REVIEW OF NORTH CAROLINA HAZARDOUS WASTE PROGRAM, STATE ASKS FOR DISMISSAL OF ORDER

The North Carolina Attorney General's office has asked the

Environmental Protection Agency to withdraw the order to consider whether to revoke the state's authority to regulate hazardous waste. The motion was filed in February after EPA postponed a hearing to review North Carolina's hazardous waste regulation program until after it has conducted a nationwide review of state programs. EPA wants to determine if any other states have hazardous waste treatment and disposal regulations which are more stringent than federal regulations before proceeding with an investigation of North Carolina's program.

The agency had previously scheduled a hearing for February to review the effects of a law passed by the N.C. General Assembly in June 1987 prohibiting commercial hazardous waste treatment facilities (or wastewater treatment facilities receiving effluent from a commercial hazardous waste treatment facility) from discharging hazardous or toxic effluent into a river upstream from a public drinking water supply intake in North Carolina unless there is a dilution factor of 1000 or greater. The hearing had been scheduled in response to petitions from GSX Chemical Services, Inc. and the Hazardous Waste Treatment Council alleging that the law discriminates against commercial hazardous waste treatment facilities and essentially makes it impossible for new commercial facilities to be permitted in the state.

Confrontation Centers on Proposed Facility on the Lumber River

While the hazardous waste treatment and disposal issue is one of major national significance, the specific circumstances that brought GSX and the State of North Carolina into conflict arose when GSX proposed to construct a treatment facility on the Lumber River upstream from the Lumberton water supply intake. GSX had proposed to discharge 500,000 gallons of treated wastewater per day into the Laurinburg-Maxton Airport Commission wastewater treatment plant which discharges effluent into the Lumber. The new law cut the facility's allowable discharge to 71,000 gallons per day, an amount GSX said makes the treatment facility uneconomical to operate.

GSX Alleges Discrimination Against Commercial Facilities

GSX petitioned EPA to review North Carolina's hazardous waste program in 1987. Official responses by the State of North Carolina to GSX and by GSX to North Carolina in January 1988 reveal the points of contention:

* GSX alleges that the law (N.C. General Statute 130A-295.01) "discriminates against commercial hazardous waste treatment facilities, which normally accept both in-state and out-of-state waste for treatment."

In its response, the state acknowledges that the law treats commercial hazardous waste treatment

facilities differently in certain respects from other classes of waste treatment facilities. (In fact, the law specifically excludes "any facility owned or operated by a generator of hazardous waste solely for his own use, and does not include any facility owned by the state or by any agency or subdivision thereof.")

However, the state contends that while commercial facilities are treated differently, there is nothing to keep them from accepting both in-state and out-of-state waste. The state notes that commercial facilities are treated differently under the Resource Conservation and Recovery Act (RCRA) and contends that commercial facilities should be treated differently because, among other things:

- 1) commercial facilities handle more kinds of hazardous wastes than non-commercial facilities, and "the effects of multiple hazardous substances are additive," and
- 2) it is likely that commercial facilities will not be able to identify many of the substances they receive for treatment.

GSX contends that constituents of wastewater discharged after treatment by commercial hazardous waste treatment facilities are not significantly different from constituents of discharges from noncommercial hazardous waste facilities, municipal wastewater treatment plants, and industrial wastewater treatment plants.

* GSX alleges that "the dilution requirement of the Act will make operation of some or all new commercial treatment facilities within the State of North Carolina economically unfeasible."

The State of North Carolina responds that it has no way of deciding what would constitute "economic feasibility" for proposed facilities and that "economic feasibility is not a criterion relevant to the bases upon which the statute must be judged."

The State further responds that commercial hazardous waste companies may avoid the dilution requirement by siting facilities downstream from the last North Carolina drinking water intake on any river or stream in the state.

GSX contends that the dilution requirement will render many otherwise suitable locations (principally those that offer adequate highways and publicly owned wastewater treatment plant capacity) in North Carolina prohibitively expensive for a commercial hazardous waste facility by making it necessary to reduce the size of the facility, install expensive systems to reduce the volume of wastewater, or send pretreated wastewater offsite for disposal.

* GSX alleges that "the Act appears to be without basis in human health or environmental protection."

The State of North Carolina responds that treatment of the 165 hazardous substances GSX proposes to handle at the facility in question will produce unknown compounds that may then react with other chemicals discharged into the Laurinburg-Maxton

Airport Commission wastewater treatment plant to form other unknown substances whose effects on human health and the environment cannot be predicted. The dilution required will diminish the risk from these unknown substances.

The State further responds that the dilution requirement is necessary to offer adequate public health protection because a GAO study has shown EPA inspections of hazardous waste treatment facilities to have failed to identify most violations and that the state's annual environmental review shows only 75 percent of small wastewater treatment plants in the state in compliance with effluent standards. In addition, the State contends that the holding period for wastes at the proposed facility is not long enough to allow testing for chronic effects, and scientific literature calls for a safety factor of 1/1000 when chronic effects are unknown.

GSX argues that existing federal and state regulations are sufficient to protect human health and the environment from possible ill effects of a commercial hazardous waste treatment facility.

* GSX alleges that "the Act will prohibit GSX from operating at Laurinburg..."

The State responds that it has not been shown that the 71,000 gallons-per-day limit will prevent GSX from operating the facility at Laurinburg and that to avoid the dilution factor, GSX needs only to site its facility downstream from the Lumberton water supply intake.

GSX contends that the wastewater it will discharge will come from several sources besides extraction from the hazardous waste itself. Those sources will include mixing, process, cleanup, and rain water and taken all together will account for a large volume of wastewater when compared to the small quantity of waste to be treated each day. GSX contends that in order to cut the wastewater volume to meet the dilution requirement it would have to operate at such a small fraction of its capacity the plant could not be commercially feasible. In addition, GSX contends that its facility is designed so that effluent will be nontoxic when discharged.

* GSX alleges that "the Act restricts and impedes the free movement of hazardous waste across state borders for purposes of treatment, storage, or disposal."

The State responds that the statute contains "no reference to any distinction between in-state and out-of-state wastes."

GSX contends that the North Carolina law effectively places a moratorium on the construction of commercial hazardous waste facilities in the state, which has the effect of restricting the inflow of hazardous waste from other states for treatment and disposal.

Shrinking Hazardous Waste Treatment Capacity Alarms Some, Pleases Others

Some business leaders warn that lack of adequate hazardous waste treatment capacity in North Carolina threatens the state's economic health and

increases the risk associated with such wastes. On the other hand, some regulators and observers argue that shrinking hazardous waste handling capacity may encourage waste minimization.

GOVERNOR'S PLAN FOR REORGANIZATION OF ENVIRONMENTAL REGULATION CALLS FOR NEW DEPARTMENT

Responding to criticism of the way the state's environmental regulation pro-

grams are organized, Governor James G. Martin proposed to a legislative study committee in February that environmental regulatory, environmental health, and natural resource programs be consolidated into a new department to be called the North Carolina Department of Health and Environment.

The governor proposed that the new department combine:

- * a consolidated Division of Environmental Management comprising programs now in the Department of Natural Resources and Community Development (NRCD) and the Department of Human Resources (DHR);
- * a Division of Health Services taken mostly from DHR;
- * a Division of Natural Resources, taken largely from NRCD; and
- * a management division.

He proposed that the remaining community development and community assistance grant programs be transferred to the Department of Commerce and DHR and that other functions of NRCD be realigned with Commerce or the Department of Administration. Under the governor's plan, the NRCD, as such, would be dissolved.

In his presentation to the Legislative Study Commission on Environmental Consolidation, Governor Martin reviewed the history of the consolidation issue and said his recognition that a consensus was beginning to form led him to make his specific proposal.

The issue first emerged, according to the governor, in about 1980 when environmentalists and business leaders began to complain about fragmentation of regulatory functions. Environmentalists charged that fragmentation of regulatory responsibility relieved state environmental officials of accountability for their decisions and insisted that environmental and economic development programs should be separate. Businessmen charged that lack of coordination among regulatory agencies made acquiring various permits needed to do business a nightmare.

Subsequent efforts by the legislature and the previous and current administration to address the problems of fragmentation resulted in a series of interdepartmental memoranda of understanding which served to improve coordination somewhat but did little to remove the image of confusion and eliminate conflicting recommendations. In 1986, the legislature created a committee to

study the issue. A working group from the Department of Human Resources and a task force from the Department of Natural Resources and Community Development both prepared reorganization options. The options fell into three groups:

- * Options that emphasize the public health/ environment relationship
- * Options that put the emphasis on environmental regulation (the Mini-EPA model)
- * Options that put the emphasis on the relationship between natural resources and the environment

Governor Martin said that he realized after a public meeting in February that consensus was forming around another option.

First, he said, the state's public health directors expressed support for consolidating environmental regulation as long as it was not separated from health services. Second, environmentalists began to drop insistence on separating environmental management and health services as long as environmental regulation and natural resources programs remained together, he said.

He then directed the Governor's Task Force on Reorganization of Environmental Agencies to prepare an additional option--"a new department combining environmental management with both health services and natural resources and not much else."

A major consideration in designing his proposal, said the governor, was the need to maintain ties with local health department programs and to make it possible for them to deal with a single state agency for health and environmental issues. Since most counties are organized with health and environmental programs in a single health department, a network is already in place to deliver many environmental services at the local level, he said.

"More than 700 environmental health employees in local health departments currently conduct over 89,000 site investigations for on-site sewage treatment and disposal systems each year, sample wells serving private residences and facilities..., provide staffing for the State's food, lodging and institutions sanitation programs...and provide the citizens a link with government in a wide variety of other sanitation programs," said the governor in his written proposal.

He said the state cannot afford to lose the local link between health and environmental programs.

In addition, the governor said, his proposal takes into account the relationship between public health and natural resource management and reduces the perceived conflicts between environmental protection and development interests.

At the same time, he noted that pesticide and radiation regulation are not included in the proposed new department.

DEPARTMENT OF HEALTH AND ENVIRONMENT

GOVERNOR'S WASTE MANAGEMENT BOARD

SECRETARY
DEPUTY
SECRETARY

WILDLIFE RESOURCES COMMISSION

ASSISTANT SECRETARY FOR NATURAL RESOURCES

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CHS

EMC

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MATERNAL AND CHILD CARE SECTION

ADULT HEALTH SECTION

DENTAL HEALTH SECTION

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ENVIRONMENTAL HEALTH DIVISION

PUBLIC WATER SUPPLY SECT.

PLAN REVIEW
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TECHNICAL ASSISTANCE
REGIONAL STAFF
GRANTS
OPERATOR TRAINING

SANITATION AND VECTOR CONTROL SECTION

VECTOR CONTROL
FOOD & LODGING
BEDDING
MILK
SHELLFISH
MOSQUITO GRANTS
INSTITUTIONS/DAYCARE
SUBSURFACE SEWAGE
TREATMENT & DISPOSAL
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WATER RESOURCES DIVISION

COASTAL RESOURCES DIVISION

LAND RESOURCES DIVISION

GEOLOGIC SURVEY
DAM SAFETY
SEDIMENTATION CONTROL

SOLID WASTE MANAGEMENT DIVISION

SOLID WASTE HAZARDOUS WASTE CERCLA

ENVIRONMENTAL MANAGEMENT DIVISION

AIR QUALITY SECTION

MONITORING STANDARDS REGION. STAFF

WATER QUALITY SECTION

PLANNING NPDES
LAND APPLIC. OPER. TRAIN. REGION. STAFF

GROUNDWATER SECTION

PLANNING LEAKING UNDG. STOR. TANKS UNDG. INJECT. CONTROL REGION. STAFF

CONSTRUCTION GRANTS SECTION

LABORATORY SERVICES DIVISION

BUDGET OFFICE

PERSONNEL OFFICE

GENERAL SERVICES OFFICE

EDUCATION AND ASSISTANCE DIVISION

POLLUTION PREVENTION
PAYS WASTE MINIMIZATION
HEALTH EDUCATION

LAND RESOURCES INFORMATION SYSTEMS DIVISION

PUBLIC AFFAIRS OFFICE

LEGAL ASSISTANCE OFFICE

DATA PROCESSING DIVISION

PLANNING OFFICE

"Including pesticide control (a responsibility of the N.C. Department of Agriculture) would simplify the internal organizational diagrams...at the expense of farmers," he said. "Radiation Protection is to remain at DHR because of its organic relationship with license and permit services to hospitals and other health facilities."

According to reports in the Raleigh News and Observer, the governor's proposal has met with favorable response from environmentalists.

Although Governor Martin proposed the consolidation as a budget amendment which could be passed by a simple majority, lawmakers were quoted by the News and Observer as saying that it is uncertain whether the proposal can be addressed in the legislative short session, which starts in June and lasts about six weeks. The proposed department would have a total budget of more than \$277 million and a total staff of nearly 3,200. The proposed organization is detailed in the accompanying organizational chart which was part of the governor's written proposal.

WASTEWATER MANAGERS CONFRONTED WITH MORE SLUDGE AND MORE DISPOSAL RESTRICTIONS

the estimated 100,000 tons of wastewater sludge and an undetermined amount of other waste sludges generated in North Carolina every year may be the biggest problem facing the state's municipal and industrial wastewater treatment plant managers today. And, as the state's population grows and more advanced treatment of waste (including phosphorus removal) is required, the volume of sludge produced annually will continue to increase, with some experts predicting a doubling by the year 2000.

For years it was considered acceptable practice to simply dump sludges into the local landfill. However, as the connection between landfill leachate and groundwater contamination became evident, that practice came to be viewed as dangerous, and on February 1, 1988, a N.C. Division of Health Services regulation went into effect providing that wastewater sludges may only be incorporated into the final two feet of landfill cover as a soil conditioner. This action greatly limits the volume of wastewater sludge that can be disposed of by landfilling.

Sludge Disposal Is Major Part of Wastewater Treatment Cost

Sludge management and disposal is a major part of the cost of wastewater treatment programs. For some major wastewater treatment facilities sludge management can account for 30-40 percent of capital costs and up to 50 percent of operating costs.

Characteristics of sludges produced at various treatment plants can vary; therefore, management programs must be designed to handle specific sludges. Some sludges contain higher levels of phosphorus and nitrogen than others; some are anaerobically digested, and some are not.

Waste managers have several remaining options for handling sludges: land application of liquid sludge

to both dedicated sites and regular agricultural operations, composting (mixing sludge with sawdust and wood chips) to be used for landscaping and as a soil amendment, and incineration. These options have different costs and various advantages and disadvantages depending on the size of operations, location, and other factors.

With increasing frequency, generators of waste are considering reusing sludges and sludge composts rather than emphasizing sludge disposal. When compared with possible environmental costs associated with other forms of disposal, land application of sludge is an attractive option in many situations.

The Division of Environmental Management strictly regulates all land application of sludges. Regulations require an analysis of the sludge, monitoring, reporting, and record keeping. Groundwater is monitored from approximately two to five wells in locations where sludge is applied. Monitoring requirements are site specific and waste specific and take into consideration, waste composition, site topography, soil type, frequency of application, and proximity to water courses and public water supplies.

Both sites set aside to be managed primarily for waste management (dedicated sites) and regular agricultural operations where agronomic rates are used for crop production are options for those applying sludges to land. Dedicated sites require considerably more monitoring even though sludges are applied at agronomic rates.

Regardless of where sludge is used it must be stabilized by aerobic or anaerobic digestion or lime stabilization to reduce odors and pathogens prior to application.

EPA Must Issue Sludge Regulations

Under the current Water Quality Act, EPA is required to produce municipal sludge regulations to protect the public from toxics, pathogens, and other undesirable elements in sludge. It is not clear when the EPA regulations will be finalized. It is anticipated that the regulations will favor recycling or utilization of sludge where possible.

WATER MANAGERS FACE MAJOR CHALLENGES AS RULES FOR USE AND MANAGEMENT CHANGE

Population shifts, changing water laws, declining ground-water quality,

massive reduction in federal spending, and increased state control over water management are forcing changes in the way water is used, priced, and allocated, says Christine Olsenius in an article in the September-October 1987 issue of the Journal of Soil and Water Conservation. Vice president of the Freshwater Foundation of Navarre, Minnesota, Ms Olsenius says that these and many other social, political, economic, and environmental forces will have major impacts on how we manage water in the next 20 years and that twenty-first century problems cannot be solved with nineteenth century mentalities.

In the following excerpt from her article,

reprinted by permission, Ms Olsenius points to new rules for water use and management:

- * Water managers trained to function under one set of criteria will be asked to perform under an entirely new and different set of rules. For example, people and agencies that were designed to manage dams and reservoirs for agricultural purposes are now finding themselves in the recreation, fish and wildlife, and water quality business.
- * The interdisciplinary nature of water problems will mean that the water manager of the future must be able to pull information from a variety of specialties to develop sound management strategies.
- * Management must be more interrelated, cutting across bureaucratic, geographic, and political boundaries.
- * Regional planning and regional planning entities will increase.
- * Managers must integrate surface and groundwater, quantity and quality, structural and nonstructural approaches.
- * Water is changing from a free, surplus commodity to one that is chronically in short supply and of increasing economic value. Water will cost more in the future. Water will never be cheap again.
- * Most easy technological answers to increase water supplies have already been implemented, and most easy solutions, like massive transfers, will be too costly. Instead of supplying the demand, we will be managing water demand through conservation and other nonstructural measures.
- * Any long-term water management scheme must include some degree of reduction in use and recycling of limited supplies.
- * For the first time in the United States, we have reached a period where it is no longer possible for all of us to do anything we want to do, wherever we want to do it. Priorities for water use must be established.
- * States will continue to take the lead in developing innovative management and policy strategies.
- * Health implications of groundwater pollution will force a more preventive, proactive approach to management and policy.
- * Water managers will be more "society-wise" than "technology-wise" as they develop strategies that are socially acceptable, politically viable, and economically feasible.

No longer are the principal responsibilities for water supply vested in the hands of a few highly trained hydrologic engineers. The water manager of the next decade will be more involved in managing the use, the users, the finances, and the public attitudes toward water than with actual management of the water supply itself.

Institutions are changing and must continue to change to meet emerging needs as we move from an era of unconstrained growth to one that must focus more on equity, preservation, rehabilitation, conservation, and the best use of limited resources. Our basic and professional educational process must incorporate this changing mindset into its training to help water managers meet the new challenges of the 21st century.

In the final analysis, our approaches to water management must be as integrated, comprehensive, and fluid as the resource they serve.

EPA ANNOUNCES GRANTS FOR WASTE MINIMIZATION TECHNICAL ASSISTANCE AND PILOT PROJECTS

Funds allocated by Congress for goal-oriented waste minimization pilot programs

are now available to states through the Environmental Protection Agency's RCRA Integrated Training and Technical Assistance program. EPA announced in January that \$3.2 million will be distributed in the form of grants to create state-run technical assistance programs and waste minimization demonstration projects. According to the Environment Reporter published by the Bureau of National Affairs, Inc., a second EPA grants program, designed to help states set up general programs to encourage waste minimization in industry, will begin in late summer.

Both grants programs are administered by EPA's newly created hazardous waste minimization office, which borrowed the director of one of North Carolina's waste reduction programs to serve as a consultant during its start-up phase. Roger N. Schecter, Director of the Pollution Prevention Program in the Division of Environmental Management, worked with EPA in Washington from August 1987 to March of this year. The program Schecter heads in North Carolina was the nation's first state program aimed at encouraging and assisting voluntary waste reduction by business, industry, and government and incorporates many of the principles EPA is using to develop its national initiative.

EPA has also established a waste minimization program in its Office of Solid Waste. This program will address nonhazardous solid wastes, including solid wastes handled by municipalities.

The Environment Reporter quotes EPA officials as saying that the money currently available will fund about 10 demonstration projects and that the grants must be used to set up and run waste minimization pilot projects that involve working with generators to cut hazardous waste output.

GROUNDWATER BILL AWAITS SENATE ACTION

House Resolution 791, a bill authorizing a

comprehensive federal groundwater research effort by the U.S. Geological Survey (USGS), Environmental Protection Agency (EPA), and U.S. Department of Agriculture (USDA), has passed the U.S. House of Representatives by an overwhelming vote of 399 to 15. It has been referred to the Senate Committee on Environment and Public Works where hearings are being held. Many congressional staffers feel it will be law by early 1988.

The bill has four parts that distribute authority for assessing U.S. groundwater quantity and quality. Title I authorizes USGS to undertake a program of water resource research and to establish a groundwater information clearinghouse. Title II directs EPA to improve its existing research effort and to develop a risk assessment analysis program. USDA is directed by Title III to investigate the relationship between agricultural practices and groundwater contamination, especially the water quality effects of using nitrogen fertilizers on crops. Finally, Title IV directs EPA to help local governments mitigate radium contamination of groundwater.

**Hydrilla and Alligator Weed
Remain High on N.C. Aquatic
Weed Agenda**

The control of undesirable aquatic weeds in drainage canals, rivers, and lakes in North Carolina continues to be of concern to water managers. According to David De Mont with the North Carolina Division of Water Resources, in 1987, the Corps of Engineers/State Aquatic Weed Control program in the N.C. Division of Water Resources spent a little more than \$36,000 on hydrilla and alligator weed control activities. Hydrilla infestations were treated with Sonar SRP (one lake) and triploid grass carp (three lakes).

The lion's share of aquatic weed control field time and funds were spent controlling alligator weed, using one percent Rodeo at 100 gallons of spray per acre. Approximately 100 acres were treated at 17 sites in seven eastern counties. The Lumber River, a candidate for State Scenic River status, was the largest project, accounting for about one-third of all alligator weed work.

Surveys conducted last summer and fall by staff of the Division of Water Resources determined that at least 36 of the state's 100 counties are currently infested with alligator weed and revealed hydrilla in three more small lakes in Wake County. In addition to addressing some of these new problems in 1988, the North Carolina Aquatic Weed Control program will be undertaking several projects under the Division's Water Resources Development Grant (WRDG) program. The WRDG program will allow the state to cost share 50 percent with local governments on weed control projects without federal assistance.

The WRDG program, unlike the Corps/State projects which are restricted to hydrilla and alligator weed, is expected to attack problems involving eight different weeds ranging from algae to waterlilies in 1988.

A meeting of the North Carolina Interagency Council for Aquatic Weed Control is scheduled for 1 p.m. on May 5 in the Ground Floor Hearing Room of the Archdale Building in Raleigh. The organization composed of representatives of state and federal agencies, universities and industry addresses a wide range of aquatic weed concerns including control programs, research, education, and legal issues.

Major items to be considered by the Council at its May 5 session are new projects under the Corps of Engineers/State Cost Sharing Memorandum of

Agreement and applications from local governments for control of aquatic weeds under the Water Resources Grant Program.

**USGS ISSUES REPORT ON
NORTH CAROLINA
GROUNDWATER QUALITY**

The U.S. Geological Survey has issued a brief report

describing current knowledge of groundwater quality in North Carolina. The report indicates overall good water quality with most groundwater meeting drinking water standards. It includes a summary of data from 1932 through 1986 from the principal aquifers in North Carolina for dissolved solids, hardness, nitrate (as nitrogen), chloride, and fluoride.

The report also points to some problem areas. For example, the state has identified more than 700 sites with potential groundwater pollution associated with man's activities such as leachate from landfills; seepages from waste lagoons, underground storage tanks, and septic tanks; and accidental spills of chemicals. Leaking underground storage tanks, primarily for gasoline, are the largest source of man-made contamination, accounting for 48 percent of the confirmed cases, the report states. Other important pollution sources include waste lagoons, 15 percent; chemical spills, 12 percent; and landfills, 10 percent.

Information provided by the N.C. Department of Human Resources indicates that pesticides have been identified in 202 private wells according to the USGS report.

The report says that about 3.2 million people, or 55 percent of North Carolina's 5.9 million residents, rely on groundwater for their supplies.

For additional information regarding the report, write to the District Chief, U.S. Geological Survey, P.O. Box 2857, Raleigh, NC 27602. The report is titled "North Carolina Groundwater Quality" and is referenced as open-file report 87-0743.

**BOOK DETAILS FOREST HYDROLOGY
AND ECOLOGY RESEARCH
AT COWEETA LABORATORY**

A book detailing long-term studies of the

hydrological and ecological responses of baseline and managed Southern Appalachian hardwood forests conducted by the U.S. Forest Service's Coweeta Hydrologic Laboratory in southwest North Carolina is now available from Springer-Verlag publishing company. The book is a compilation of papers presented at a symposium commemorating 50 years of research at the Coweeta laboratory.

Edited by W.T. Swank of the Southeastern Forest Experiment Station, the book will be of interest to researchers and undergraduate students in all disciplines related to forestry and hydrology. The hardback version, titled Forest Hydrology and Ecology at Coweeta, is available for \$98.00 plus \$2.50 for shipping from Springer-Verlag New York, Inc., P.O. Box 2485, Secaucus, New Jersey 07096-2491.

RADER ACCEPTS POST WITH NORTH CAROLINA ENVIRONMENTAL DEFENSE FUND

Dr. Doug Rader, who has held the position of Project Director of

the large Albemarle-Pamlico Estuarine Study for the past year, has accepted the position of North Carolina senior scientist and national coastal scientist for the new North Carolina Environmental Defense Fund.

Dr. Rader previously was Special Projects Group Leader in the Water Quality Planning Branch of the Division of Environmental Management. He holds degrees in biology and zoology from the University of North Carolina and the University of Washington.

The Environmental Defense Fund is a national advocacy group. The new North Carolina regional office headquartered in Raleigh is expected to give added legal and scientific strength to the environmental movement in North Carolina. The office is being funded by the Environmental Defense Fund and grants from the Z. Smith Reynolds and Mary Reynolds Babcock Foundations. The North Carolina office is headed by Steven J. Levitas, a lawyer.

WORKSHOP WILL FOCUS ON DESIGN OF STORMWATER CONTROL FACILITIES FOR COASTAL AREA

A workshop designed to be of benefit to professionals involved in the

design or construction of stormwater control facilities will be held Wednesday, May 4, 1988, at the Jane S. McKimmon Center on the NCSU campus in Raleigh. Aimed at engineers, landscape architects, land surveyors, local and state engineers and technicians, and contractors, the workshop is sponsored by the Water Quality Section (N.C. Division of Environmental Management) and the Professional Engineers of North Carolina (PENC).

Program topics are as follows:

- * North Carolina's Coastal Stormwater Regulations
- * How to Get a Coastal Stormwater Project Approved
- * Detention as an Option in Stormwater Management
- * Analysis of Stormwater Infiltration Ponds on the Barrier Islands
- * Practical Experience with Stormwater Management in Florida
- * Stormwater Regulations from the Design Engineer's Perspective

In a panel discussion at the end of the day, all workshop speakers will discuss with the audience design techniques and interpretation of current regulations.

The registration fee of \$65 includes lunch and refreshments throughout the day.

For additional information or a registration form, write PENC, 4000 Wake Forest Road, Suite 108, Raleigh, NC 27609 or call PENC at (919) 872-0683.

CONFERENCE WILL FOCUS ON MANAGEMENT OF URBAN STORMWATER CONTROL PROGRAMS

Providing local government officials background on storm-

water management and up-to-date information on current federal and state stormwater programs is the purpose of a conference to be held Friday, April 29, 1988, at the UNC-Asheville Owen Conference Center. The conference is sponsored by the City of Asheville, the Land-of-Sky Regional Council, UNC-Asheville, the UNC Water Resources Research Institute, the N.C. Department of Natural Resources and Community Development, and the U.S. Geological Survey.

Among the program topics are the following:

- * A Historical Perspective on Stormwater Management
- * The Water Quality Impacts of Stormwater Runoff
- * A Framework for Urban Stormwater Management
- * Federal Stormwater Discharge Permits and Their Potential Impact on Local Stormwater Programs
- * North Carolina's Current and Future Stormwater Management Programs
- * The Utility Concept: An Innovative Approach to Stormwater Management
- * Stormwater BMPs for Quantity and Quality Control
- * Local Government Approaches to Stormwater Management
- * Putting the Stormwater Management Tools in Place: The Asheville Experience

The \$20 registration fee includes lunch and breaks. A program and registration form is included in this issue of the WRRRI NEWS and can be found on the tan insert.

AMERICAN WATER RESOURCES ASSOCIATION NATIONAL SYMPOSIUM TO BE HELD MAY 22-25 IN WILMINGTON

More than 110 papers are scheduled for presentation during the

Symposium on Coastal Water Resources to be hosted by the North Carolina Section of the American Water Resources Association May 22-25 at the Wilmington Hilton in Wilmington, NC. Topics to be addressed include groundwater, wetlands, estuarine water quality, and shoreline erosion. In addition, invited speakers will address coastal water management issues in the plenary sessions.

Technical tours are planned for May 22, the Sunday preceding the first symposium session. These are trips to the Cape Lookout National Seashore and a number of locations in the Wilmington area, including the CP&L Brunswick Nuclear Station. An evening dinner cruise on the Cape Fear River is planned for Monday, May 23.

Urban Stormwater Management Conference

Friday, April 29, 1988
8:00 am to 4:30 pm

University of North Carolina Asheville Owen Conference Center

Sponsored by

City of Asheville □ Land-of-Sky Regional Council □ UNC Asheville □ UNC Water
Resources Research Institute □ N.C. Department of Natural Resources and Community
Development □ U.S. Geological Survey

**Morning Chairman: Dr. Richard Maas, UNC
Asheville Environmental Studies Program**

12:00 pm

Luncheon and Speaker
UNC-A Highsmith Student Center

8:00 am Registration opens

Introduction: *Mrs. Norma Price
Chairman, Land-of-Sky
Regional Council
and Asheville City Councilman*

9:00 Welcome
*Mayor Louis Bisette, Jr.,
City of Asheville*

9:10 Introduction and
Historical Perspective
on Stormwater Management
*Dr. David H. Moreau
UNC Water Resources
Research Institute*

The Utility Concept: An Innovative
Approach to
Stormwater Management
*Mr. Damon Diessner
Director, Storm and Surface
Water Utility
City of Bellevue, Washington*

9:25 The Water Quality and
Quantity Impacts
of Stormwater Runoff
*Mr. Marshall Jennings
U.S. Geological Survey*

**Afternoon Chairman: Mr. Jim Stokoe, Land-of-Sky
Regional Council**

1:45 pm

Stormwater BMPs for Quantity
and Quality Control
*Mr. Tom Schuler
Metropolitan Washington
Council of Governments*

10:15 Break

10:30 A Framework for Urban
Stormwater Management
*Dr. Raymond Burby
UNC Chapel Hill*

2:25

Local Government Approaches
to Stormwater Management
*Dr. David H. Moreau
UNC Water Resources
Research Institute*

10:50 Federal Stormwater
Discharge Permits
and their Potential Impact on
Local Stormwater Programs
*Mr. James Gallup
U.S. Environmental
Protection Agency*

2:45

Break

3:00

Asheville's Road to
Stormwater Management
*Mr. Tom Tarrant
City of Asheville*

11:25 North Carolina's Current and Future
Stormwater Management
Programs
*Mr. William Kreuzberger
N.C. Division of Environmental
Management*

3:30

Concluding Remarks, Questions,
and Adjournment
*Dr. Richard Maas
Mr. Jim Stokoe*

PURPOSE

This conference is designed to inform stormwater managers and elected officials of water quality and quantity problems associated with stormwater runoff and of management strategies to address these problems.

The conference will also highlight existing and future federal and state stormwater quality regulations and their impact on city and county stormwater programs.

WHO SHOULD ATTEND

Local elected officials, city and county managers, planners, engineers and public works officials, state and federal officials, consulting engineers and landscape architects, developers, educators, media representatives and citizens interested in water resource issues.

ACCOMMODATIONS AND SOCIAL

All conference participants will be responsible for their own accommodations. A block of rooms has been reserved at the Great Smokies Hilton located near downtown Asheville. Special rates are \$40.00 single, \$50.00 double. To obtain this special rate, contact the Hilton Reservations Office at (704) 254-3211 and mention that you are attending the Urban Stormwater Management Conference. This block of rooms will be reserved until April 14th, after which they will be opened to the public.

A social will be held at the Hilton on Thursday evening, April 28 from 6:00 pm to 8:00 pm. This will provide participants and speakers an opportunity to meet and discuss stormwater problems and management strategies.



**Registration Form
Urban Stormwater Management
Conference and Luncheon
Cost: \$20.00**

I plan to attend the April 29 conference and luncheon to be held at the University of North Carolina at Asheville campus. Enclosed is my check for \$20.00 to cover both the luncheon and the conference. I will receive a second information package upon receipt of payment.

PLEASE PRINT

Name: _____

Telephone: _____

Address: _____
Street or box number City State Zip

I do do not plan to attend the social at the Great Smokies Hilton on Thursday evening April 28.

Make checks payable to UNC-Asheville. Mail check with form to
**Bill Eaker, Land-of-Sky Regional COG,
25 Heritage Drive, Asheville, NC 28806**

**PLEASE DETACH AT DOTTED LINE AND
RETURN BY APRIL 22, 1988.**

Due to the limitation in parking and luncheon space, attendance at the conference will be by preregistration only. Any surplus funds remaining after the conference expenditures will be placed in a special fund to establish a student internship at UNC-Asheville to study water resources protection measures.

Conference proceedings will be published before the meeting and will be available at the symposium. Book and journal, commercial, and educational exhibitors will be on hand.

A copy of the preliminary program can be obtained from Douglas Harned with the U.S. Geological Survey in Raleigh at (919) 856-4791. For information about registration, please contact the AWRA, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814-2192 (301) 493-8600.

POSITIONS AVAILABLE

Polytechnic University invites

applications for two tenure tract positions starting September 1988. Desirable credentials for the position in **Environmental Engineering** include bachelor's degree in engineering, doctorate in civil or environmental engineering and strong background in hazardous/toxic waste studies or other environmental specialty with good potential for sponsored research. Knowledge of laboratory development and operation an asset. Desirable credentials for the position in **Water Resources and Hydraulic Engineering** include bachelor's degree in civil engineering, doctorate in civil engineering, and strong background in groundwater studies or other specialty area in water resources and hydraulic engineering with good potential for sponsored research. Resumes, including lists of graduate courses taken, should be sent to Head, Civil and Environmental Engineering Dept., Polytechnic University, 333 Jay St., Brooklyn, New York 11201.

Water Quality Specialist to set up and operate small wet chemistry laboratory and collect field samples. Must be able to work independently. April 1988 anticipated starting date. Bachelor's degree in chemistry or natural science required. Master's degree or equivalent experience in water quality preferred. Send resume to: Mr. W. Dean Kaiser, Forsyth County Environmental Affairs Department, 537 N. Spruce St., Winston-Salem, NC 27101 (919) 727-8060.

Principal Environmental Planner with master's degree and five years experience in environmental planning is sought by planning agency. Responsibilities include preparation and evaluation of technical reports for water supply, water quality, and air quality; management of river water supply system; and evaluation of environmental impacts of proposed major developments. To apply contact Atlanta Regional Commission, 100 Edgewood Ave., NE, Suite 1801, Atlanta, GA 30335 (404) 656-7750.

The Energy and Water Research Center at West Virginia University has an immediate opening for a **Director of the Acid Mine Drainage Institute**, a newly formed program. The position requires an advanced degree and experience in a field dealing with mine drainage and experience in securing support for research projects. Applicants are invited to send compete resumes to Dr. Charles R. Jenkins, Associate Director of the Energy and Water Research Center, 258 Stewart Street, Morgantown, WV 26506-6064.

The School of Forestry and Environmental Studies at Duke University seeks applicants at the assistant

or associate professor level for a tenure track or tenured faculty position in **water resources**. Experience in fields related to analysis of water resources for water supply and water quality is required and experience in modeling and/or experimental approaches to solving water resource problems is desirable. Applicants should send a resume and three letters of recommendation to Dr. Kenneth R. Knoerr, Chairman, Water Resources Search Committee, School of Forestry and Environmental Studies, Duke University, Durham, NC 27706.

The Department of Agricultural Engineering at Cornell University invites applications for the position of **Research Associate in Environmental Quality Engineering**. PhD or equivalent experience in agricultural engineering or a related discipline such as environmental engineering or biochemical engineering is required. For additional information contact Dr. William Jewell at (607) 255-4533 or Dr. Gerald Rehkugler at 607-255-2270.

The University of the Virgin Islands invites applications for the position of **Director/Coordinator of the Water Resources Research Center**. Doctorate in a related discipline and prior administrative and water resources research experience are preferred. A letter of application, up-to-date resume, official college transcripts, and three letters of recommendation should be addressed to Dr. D.S. Padda, Vice President for Research and Land-Grant Programs, University of the Virgin Islands, RR #2, Box 10,000, Kingshill, St. Croix, USVI 00850 (809) 778-0246.

WATER RESOURCES CONDITIONS FOR FEBRUARY

Streamflow decreased throughout the state

during February except in some sections of the Coastal Plain. Streamflow in the Blue Ridge and Piedmont was in the below normal range, and in the Coastal Plain streamflow continued in the below-normal range for the fifth consecutive month. At the Coastal Plain index site, Contentnea Creek at Hookerton, streamflow has been in the below-normal range for seven of the last eight months. Cumulative monthly streamflow of Contentnea Creek since October 1987 was 40 percent of the long-term cumulative median. There were no reports of significant flooding. As compared to the statistics for February for the 30 year reference period, 1951-1980, average streamflow for the month, at selected index stations, was as follows:

French Broad River at Asheville
Mean flow during month (CFS): 1360
Percent of long-term median: 54

South Yadkin River at Mocksville, NC
Mean flow during month (CFS): 259
Percent of long-term median: 58

Contentnea Creek at Hookerton
Mean flow during month (CFS): 595
Percent of long-term median: 43

Groundwater levels in unconfined aquifers rose during the month in the Blue Ridge, remained the same in the Piedmont, and fell in the Coastal Plain. At month's end, groundwater levels were above average throughout the state.

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 Quality Management

"Streambank Protection by Iowa Vanes," (#146), 1/87, by A. J. Odgaard, et al., WRR1, 355 Town Engr. Bldg., Iowa State Univ., Ames, IA 50011. (02J)

"Demonstration of Technology for Reduction of the Contribution of Irrigated Farming Operations to Nutrient and Pesticide Pollution for Surface Waters," (#87-607), 6/88, by J. M. Linker, et al., for NC Pollution Prevention Pays Program, NRCO, POB 27687, Archdale Bldg., Raleigh, NC 27611. (05B)

Water Quantity Management

"Economic Evaluation of Conservation Concepts for Municipal Water Systems," (#UWRL/P-86/01), 12/86, by T. C. Hughes, et al., Utah Water Research Lab. Utah State Univ., Logan, UT 84322-8200. (03D Conservation)

"Incorporation of Uncertainties in Real-Time Catchment Flood Forecasting," (#208), 9/87, by C. S. Melching, et al., avail. from WRC, Univ. of IL, Urbana, IL 61801. (04A Flood Forecasting)

Miscellaneous

"Concrete Dam Instrumentation Manual," 10/87, by C. L. Bartholomew, et al., USDI, Bu. of Reclamation, avail. from NTIS, Operations Div., 5285 Port Royal Rd., Springfield, VA 22161. (08F)

"Proceedings, 21st Annual Meeting Aquatic Plant Control Research Program," 11/87, by Env. Lab., US Army Engr. Waterways Experiment Station, POB 631, Vicksburg, MS 39180-0631. (02I)

"Proceedings - 1987 UCOWR Annual Meeting," 8/87, pub. by UCOWR Executive Director's Office, 4543 Faner Hall, Southern IL Univ., Carbondale, IL 62901-4526. (UCOWR)

NOTE: Twenty-five hundred copies of this newsletter were printed at a cost of \$1,003.50 or 40 cents a copy.

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THE WATER RESOURCES RESEARCH INSTITUTE
OF THE UNIVERSITY OF NORTH CAROLINA
Box 7912
North Carolina State University
Raleigh, NC 27695-7912

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