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NATIONAL WATER COMMISSION REPORT

Commencing with this issue of the News the Institute will summarize the more important findings and recommendations of the National Water Commission in its report to the Congress and the President.

Many of the ideas expressed in the report are highly relevant to North Carolina and offer means of strengthening water resource planning and management in this State. The Report should be required reading for all persons with responsibilities in this field.

Chapter 1

Water Supply and Water Use

This introductory chapter deals with the available supply, trends in water use, the future water situation, and the use of alternative futures for predictive purposes.

Past estimates of future demands for water and water-related activities in the U. S. have generally been based upon a single projection of the important variables affecting water requirements. Future water demands, however, will depend on a number of variables including:

1. factors affecting demands for food and fiber,
2. government programs dealing with resource development and distribution, such as environmental quality, farm price support, etc.,

3. rate of technological advance,
4. municipal, industrial, and recreational uses, and
5. the price of water to various users.

The Commission believes that in formulating national water policy the Nation should not be bound by any particular projection or forecast of the future. Rather, alternative forecasts should be made to ascertain the effects of alternative courses of action. The concept of alternative futures, says the Commission, should become a part of the basic framework of future water resource planning and decision-making.

Results from the Commission staff's analysis show that the rate of growth of the population and the economy and the alternative water policies and water use technologies that are adopted would have very significant effects on future water demands. The following more specific conclusions with respect to water use in the year 2020 were reached in the study:

1. Water withdrawals in the year 2020 may range from 570 billion gallons per day (b.g.d.) to 2280 b.g.d. depending on the combination of variables that are assumed. In comparison, the Water Resources Council projected the total withdrawals at 1368 b.g.d. under a continuation of policies and trends in effect in 1968.
2. Water consumption in the year 2020 may range from 150 to 250 b.g.d. in comparison to the Water Resources Council's projection of 157 b.g.d.
3. Greater recycling of industrial process water and recirculation of water used for cooling would significantly reduce water withdrawals in the Nation without any substantial increase in water consumption. This would be particularly true for steam-electric power generation where the studies indicate that water withdrawals would be four times greater in the year 2020 under a continuation of present technology than with substantially advanced technology which would increase consumptive use only about one percent.
4. Water withdrawals for steam-electric generation cooling purposes would be significantly affected by water quality standards. A limit on temperature increase in water at the point of discharge of no more than 5.4°F. could reduce withdrawals for this purpose about 75 percent from the levels forecasted for the year 2020 based on extension of present trends.
5. Increasing the water quality standard of dissolved oxygen from 4 to 6 mg. per liter for all fresh waters in the Nation, to reflect greater concern for environmental quality, would increase the cost

of treating wastewaters about 50 percent. Also, the analysis indicates that use of the natural assimilative capacity of water to the maximum extent permissible to meet presently approved water quality standards, in conjunction with reduced levels of treatment of wastes would cost the Nation about 15 percent less than would treatment of all wastewaters to a tertiary level.

FOLDER DESCRIBES USGS WATER STUDIES IN NORTH CAROLINA

A new folder describing present and past water resources investigations in North Carolina by the U. S. Geological Survey is now available free upon request from the Survey.

The North Carolina folder includes a large map that shows the location of over 250 ground-water, surface-water, quality-of-water, and sediment measuring sites, as well as the location of 12 areal studies that are now underway. Smaller maps show the general availability of ground water, the general pattern of minimum streamflow that can be expected, the average runoff of streams, the general pattern of annual rainfall, and the dissolved solids content of streams and ground water.

The folder also lists over 250 water-resources reports by Geological Survey authors that may be of interest to North Carolina residents. These reports range from general basic data, such as "Surface-Water Records of North Carolina," to detailed interpretations such as "Geology and Ground-Water Resources of New Hanover County, North Carolina."

Among the water-resources investigations now in progress are:

- * Evaluation of effects of stream-channel improvements on hydrologic conditions in the Creeping Swamp watershed
- * Ground-water resources of Wilson County
- * Public water supplies--quantity and quality
- * Magnitude and frequency of floods

The folder, and other information about the local water resources, may be obtained from the North Carolina District Chief, Water Resources Division, U. S. Geological Survey, Post Office Box 2857, Raleigh, North Carolina 27602.

ATTITUDES OF FEDERAL WATER PLANNERS

A recent report of the Environmental Protection Agency (EPA-R5-73-015) March 1973, covers a study of attitudes, opinions, and perceptions of field level planners and their supervisors in the Corps of Engineers, Bureau of Reclamation and EPA. Performed under a research grant by R. H. Wilson of Stanford University, the

report, "Toward a Philosophy of Planning: Attitudes of Federal Water Planners," is enlightening reading.

The investigator concludes, "It was clear that the planners did not hold very high opinions of the public's competence and ability to aid their plans." Most planners demonstrated something of an elitist outlook. Public involvement was desired primarily as a means to expedite final acceptance of the planner's ideas, not to ensure the responsiveness of his plans.

The planner's knowledge of the laws and understanding of the goals controlling their agencies' functions was poor. Awareness of the social impact of water resource projects and the need to include social considerations in what has hitherto been largely a technical task was almost non-existent. However, it was evident that knowledge of goals and exposure to planning done under a multi-objective approach was accompanied by a growing social consciousness.

Young planners were not less and were often more distrustful of public motives and the political process than their seniors. Their knowledge and understanding of the principles and laws governing planning were more limited than older men or those in higher grades. Thus, more emphasis on multi-disciplinary planning education in engineering schools is needed. Greater emphasis should be given to economics, political science, ecology, and descriptions of the various models and requirements of the planning process.

On the whole, few differences between the three agencies were found. Planners' personal philosophies do not necessarily follow their agencies' priorities.

ENVIRONMENTAL COST INDICES

The EPA sewage treatment plant and sewer construction cost indices continue their sharp rise. April 1973 data (most recent) show the following:

	<u>STP Cost Index</u>		<u>Sewer Cost Index</u>	
	<u>April 1973</u>	<u>% Charge April 1972</u>	<u>April 1973</u>	<u>% Charge April 1972</u>
Atlanta	167.99	7.1	177.85	12.1
Baltimore	171.25	7.0	208.06	24.5
National	181.62	6.9	196.54	8.0

FINAL REGULATIONS ON WASTE PERMITS ISSUED

EPA has promulgated final regulations for the issuance of waste discharge permits under the 1972 FWPCA. The Act requires EPA to issue the permits when the states do not have acceptable permit programs or when the states choose to let the federal government run the program.

The regulations require all permit applicants to achieve the best practicable control technology currently available by July 1, 1977. In the case of cities and other public bodies this means secondary treatment. All applicants must also comply with applicable water quality standards.

The regulations increase the scope of public participation by requiring the preparation of draft permits available to the public before the final permit is prepared. EPA must also maintain a mailing list to permit any person or group to receive copies of notices of all applications rather than requiring such persons to request copies of each individual application.

The EPA Regional Administrator is authorized under the regulations to hold a public hearing if he finds "a significant degree of public interest" in the issuance of such permits.

WASTE TREATMENT USER CHARGES

On May 22 (38 FR 13524) EPA proposed regulations governing the application of user charges to offset the costs of maintaining and operating waste treatment facilities. They would require all grant recipients to recover from industrial users of treatment facilities that portion of the grant (75%) allowable to those users. User's share would be based on waste strength, volume, and flow characteristics. The cities involved would be permitted to retain 50 percent of the amount recovered with the remainder returned to the Federal Treasury. Of the money retained, 80 percent must be spent solely for costs of reconstruction and expansion of treatment works.

AREAWIDE WASTE MANAGEMENT

The EPA has published its proposed regulations for areawide waste treatment management planning and responsible planning agencies (38 FR 14230). These will guide state and local officials in the identification of areas which, as a result of urban-industrial concentrations or factors, have substantial water quality control problems which require an areawide approach in planning for and implementing corrective action, and in designating agencies capable of developing waste treatment management plans for such areas.

For purposes of these regulations EPA has defined an urban-industrial concentration as that portion of a standard metropolitan statistical area (SMSA), or portions thereof, having substantial concentrations of population and manufacturing production or other factors which result in substantial water quality problems. Such areas may be increased to include areas outside SMSA's of similar impact. The agency shall be a representative organization whose membership shall include but need not be limited to

elected officials of local governments, or their designees, having jurisdiction in the designated planning area.

RECENT LEGAL OPINIONS OF NOTE

1972 FWPCA Amendments - Impoundment of Sewage Treatment Funds

EPA Administrator must allot no less than full amount authorized to be appropriated.

——— Env. Reporter
May 18, 1973

NEPA - Truman Dam

Federal District Court did not abuse its discretion in permitting Corps of Engineers to continue certain minimally environmentally adverse construction, pending completion of environmental impact statement.

——— Env. Reporter
May 18, 1973

Refuse Act - Absence of Permit Program

Secretary of Army's failure to promulgate formal regulatory permit program (under 1899 River & Harbors Act) to authorize otherwise prohibited discharges into navigable waters does not bar Federal Government's prosecution of industrial plant for alleged violation.

——— Env. Reporter
May 25, 1973

NEPA - Corps of Engineers Permit

Corps of Engineers determination not to prepare NEPA environmental impact statement covering dredging permit for North Carolina marina based on fact that no public agency certified permit would have significant and adverse effect on human environment was not arbitrary and capricious.

——— Env. Reporter
May 25, 1973

Maine - Oil Spill Suit

Maine's independent interest in preserving, on behalf of its citizens, water quality and natural resources of its coastal waters permits it to maintain suit as *parens patriae* for recovery of monetary damages for harm caused by tanker's discharge of oil.

——— Env. Reporter
June 1, 1973

STATUS OF STREAMS AND GROUNDWATER IN NORTH CAROLINA

Heavy rains caused severe flooding in western North Carolina May 27-28. Twelve persons were killed in flood-related incidents and flood damage to highways, bridges, private property, and agriculture was estimated at about \$25 million. Maximum stages for the period of record occurred at the East Fork Pigeon River near Canton, South Fork Mills River at Pink Beds, and Allen Creek near Hazelwood. The recurrence interval is about 100 years for the flood crests at the above gaging station. The most severe flooding occurred on the smaller headwater streams.

Streamflow in May was generally near normal in the Coastal Plain and eastern Piedmont and about 2 1/2 times normal in the western Piedmont and mountains.

During the month groundwater levels rose slightly in most wells in the mountains and Piedmont and declined in the Coastal Plain. Water levels generally remained well above average throughout the State except in several heavily pumped areas in the Coastal Plain.

— U. S. Geological Survey

LAND USE BILL

The Senate Interior Committee has reported Senator Jackson's bill to establish a national land use policy (S 268).

The bill does not include provisions for sanctions, though Jackson plans to offer amendments to this effect when the bill reaches the Senate floor. It would authorize grants to assist states in development and execution of land use programs and to coordinate land use planning in interstate areas. The Secretary of the Interior, who would administer the program, would be directed to coordinate federal programs with a land use impact, to coordinate planning and management of federal lands and of adjacent non-federal lands, to encourage research and training and to make grants to Indian tribes for land use programs.

SENATE COMMERCE COMMITTEE ACTS ON TOXIC SUBSTANCES AND DRINKING WATER STANDARDS

The Senate Commerce Committee has reported out S. 426 to regulate interstate commerce to protect health and the environment from hazardous chemical substances. An amendment to the original bill would require EPA to develop a list of chemicals which it has reason to believe are hazardous. Test protocols would be issued and chemical manufacturers would be required to submit test data to EPA on each of the substances identified on the list. For every other chemical manufacturers would have to notify

EPA 90 days prior to proposed production. Another amendment would repeal the indemnities provision under the Federal Environmental Pesticide Control Act.

Also reported out by the committee is a bill (S. 433) to establish minimum federal drinking water standards. This includes two important amendments. One would require EPA to study the contamination of groundwater resources utilized for drinking water. Another would require that each state receive at least one percent of the annual amount appropriated for program grants unless reduced by regulation. The bill would require EPA to develop standards to assure aesthetically pleasing drinking water and bottled drinking water. It would also require EPA standards for operation and maintenance of drinking water systems and for surveillance, monitoring, site selection, and construction of public water supplies.

WATER RESOURCES LEGISLATION IN THE CONGRESS

Bills Introduced:

Senate

- S. 1720 To amend the Water Resources Planning Act to extend the authority for financial assistance to the States for water resources planning.
- S. 1877 To create river basin waste treatment authorities for the purposes of assuming control over, planning, construction, and operating waste treatment facilities throughout the U.S. in order to eliminate water pollution in our Nation's rivers and streams.

House

- H.R. 7454 To establish a national flood plain policy and to authorize the Secretary of Interior, in cooperation with Federal agencies and the States, to encourage the dedication of the Nation's flood plains as natural floodways, to protect, conserve, and restore their natural functions and resources

WATER RESOURCES LEGISLATION IN THE NORTH CAROLINA LEGISLATURE^{1/}

Committee Substitutes and Amendments

Senate

- S. 681 Water and Air Board powers-2 (digested in April News, p. 14 and under H. 992, pp. 15-17.
- Amendments adopted in Senate 5/9/73: (1) provide for enforcement actions, injunctive actions, actions to recover penalties, and actions to recover cost of investigations or abatement, to be brought in superior court of county where violation occurred (was Wake County) or of county of defendant's residence or principal place of business; (2) retain present standard of judicial review over final orders and decisions of Board, as provided now by GS 143-215.5--i.e., hearing de novo on the transcript plus addition evidence submitted by parties (was, "arbitrary or capricious action" in some parts of bill and on "errors of law only" under standards applying

^{1/} Source: "Daily Bulletin," The General Assembly of North Carolina, A Legislative Service of The Institute of Government.

to Utilities Comm'n in other parts of bill); (3) retain initial review of Board actions by superior court (was, Court of Appeals), and review of appeals from superior court to Court of Appeals under Capacity Use Areas Law (was Supreme Court); and (4) correct grammatical errors and make other clarifying and technical changes.

Amendments adopted in House 5/16/73: (1) authorize Board to certify waste disposal grant applications, and in this connection, to require conformance with applicable laws; (2) add severability clause; (3) make clear that the amount of any civil penalty assessed for violation of water or air quality standards is subject to judicial review; (4) conform bill to H. 1143, floodway bill.

S. 692 Sewage and water systems-2 (original bill digested in April News under H. 950, pp. 14-15.)

Amendments adopted in House 5/10/73 changes from 1,500 to 3,000 gallons the capacity of septic tank which determines whether it must be approved by Board of Health or Water and Air Resources (if less than 3,000, by Health; otherwise, by Water and Air).

S. 741 State floodway agreements (iden. to H. 1143, digested in May News, p. 19)

Amendment adopted in Senate 5/14/73 amends GS 143-215.54(b) (5) to include railway lines and rights-of-way in list of uses that may be made of floodway as matter of right and without necessity of permit.

House

H. 297 Control oil pollution (original bill iden. to S. 245 digested in Feb. News, p. 13-14; committee substitute adopted in House 4/27/73)

Amendments adopted in Senate 5/11/73 make following changes: (1) delete provision for standing committee to develop recommendations concerning oil facilities and provide that Sec'y of Natural and Economic Resources recommend further legislation in this area to General Assembly by Feb. 1, 1974; (2) amend definition of vessel to provide term does not apply to pleasure, sport or commercial fishing vessel that has less than 100 gallon fuel capacity and is not used to transport petroleum, petroleum products or general cargo; (3) delete provision giving Board access in conduct of investigation or inspection to records; (4) delete provision authorizing local gov'ts to adopt ordinances governing discharges to streams or on land; (5) remove provision making owner of oil liable for discharge to effect that only person having control over oil liable for discharge; (6) exempt from prohibited discharges those made at direction of law enforcement officer or fireman; (7) require action to recover damages under act to be brought in superior court of county in which violator resides or has principal place of business (was, Superior Court of Wake County); (8) provide that lien on vessel provided for in act does not have priority over perfected interest; (9) delete requirement that oil facility, in seeking registration certificate, furnish information on number of years it has existed and is expected to continue; (10) delete provision authorizing use of Contingency and Emergency Fund for clean-up costs if Oil Pollution Protection Fund inadequate to defray cost; and (11) make several technical and editorial changes.

Amendment adopted in Senate 5/15/73 amends definition of vessel to provide term does not apply to pleasure, sport or commercial fishing vessel that has less than 500 gallons (was 100 gallons) fuel capacity and is not used to transport petroleum, petroleum products or general cargo.

- H. 460 Appalachian Trails Act (original bill iden. to S. 354, digested in March News, pp. 11-12) amendment adopted
Amendment adopted in Senate 5/15/73 apparently deletes section authorizing Dep't of Administration to acquire land as prescribed in GS Ch. 146 and to acquire land by eminent domain and provides that Dep't may acquire land by donation or by purchase with funds donated for or appropriated for purpose of acquiring lands for system. (Section references in amendment inconsistent with amendment of 4/18/73, so it is not clear which sections are repealed and which are not.)
- H. 950 Sewage and water systems (digested in April News, pp. 14-15). Technical amendment adopted in House 5/10/73.
- H. 1143 State floodway agreements (digested in April News, p. 18).
Amendment adopted in House 5/9/73 amends GS 143-215.54(b)(5) to include railway lines and rights-of-way in list of uses that may be made of floodway as matter of right and without necessity of permit.
- H. 1166 Amend Clean Water Bond Act-3 (iden. to S. 734, digested in May News, p. 22).
Amendment adopted in Senate 5/11/73 deletes provision requiring State to reimburse counties for expense of election.

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 organizations issuing the publication. The addresses are provided by the News for this purpose.)

Abbreviations used throughout as follows:

EPA	- Env. Protection Agency	USDC	- U.S. Dept. of Commerce
NCDNER	- N.C. Dept. Nat'l. & Econ. Res.	USDI	- U.S. Dept. of the Interior
NERC	- Nat'l. Environmental Res. Cen.	USGPO	- U.S. Gov. Printing Office
NTIS	- Nat'l. Tech. Information Serv.	WPC	- Water Pollution Control
NWC	- Nat'l. Water Commission	WQS	- Water Quality Standards
OWAR	- Office of Water & Air Resources	WRC	- Water Research Center
OWP	- Office of Water Programs	WRRI	- Water Resources Res. Institute
OWRR	- Office of Water Resources Res.	WRSIC	- Water Res. Sci. Infor. Center

Water Resource Planning

"Aerial Remote Sensing, A Bibliography," (WRSIC 73-211), ed. by D. B. Stafford, USDI, OWRR, WRSIC, Wash., DC 20240, March 1973.

"Toward a Philosophy of Planning: Attitudes of Federal Water Planners," (EPA-R5-73-015), by R. H. Wilson, Stanford U., for EPA, avail. from USGPO, Wash., DC 20402, Price - \$2.60, Mar. 1973.

"Civil Works Water Resources Development Program, 1972-73," NCDNER, OWAR, Box 27687, Raleigh, N.C. 27611, Apr. 1973.

- "Compacts, Treaties and Court Decrees," by P. A. Rechard, et al, WRRRI, U. of Wy., Laramie, Wy. 82070, 1971.
- "Values and Cost Allocations of Surface-Water Use and Treatment - An Application of Linear Programming to Water Resources Planning," (Sta. Bul. 500), by R. Andrews, et al, N. H. Ag. Exp. Sta., Durham, N. H. 03824, Nov. 1972.
- "Formation of Public Policy on Issue of Out-of-Basin Diversion of Connecticut River Flood Waters to Boston Metropolitan Area," (Pub. No. 28), by B. Berger, WRRRC, U. of Ma., Room 115, Holdsworth Hall, Amherst, Ma. 01002, 1973.
- "Inventory of Estuarine Site Development Lagoon Systems: New Jersey Shore," by G. H. Nieswand, et al, WRRRI, Rutgers-The St. U. of N. J., New Brunswick, N. J. 08903, Sept. 1972.
- "A Proposal for Improving the Management of the Great Lakes of the United States and Canada," (Tech. Rpt. No. 62 - Canada/U.S. U. Seminar 1971-72), WR and Marine Services Center, Cornell U., Ithaca, N. Y. 14850, Price - \$2, Jan. 1973.
- "Lake Property Owners in Northern Wisconsin," (Inland Lake Demonstration Proj.) U. of Wi.-Ext., 215 N. Brooks St., Madison, Wi. 53706, Jan. 1973.
- "The Texas Water Plan and Its Institutional Problems," (Tech. Rpt. No. 37), by C. Jensen, et al, Tx. WRI, Tx. A&M U., College Station, Tx. 77843, Jan. 1973.
- "Wisconsin Land Resources Committee," (Final Rpt.), W. P. Knowles, Chrmn., State Office Bldg., One W. Wilson St., Madison, Wi. 53702, Feb. 1973.
- "Comments on the Proposed Report of the National Water Commission," by W. Whipple, Jr., WRRRI, Rutgers-The St. U. of N. J., New Brunswick, N. J. 08903.
- "Carrying Capacity Controls for Recreation Water Uses," An Inland Lake Renewal and Shoreland Management Demonstration Project Rpt. by J. A. Kusler, U. of Wi. Ext., 215 N. Brooks St., Madison, Wi. 53706, 1972.
- "Utility Analysis in the Valuation of Extra-Market Benefits with Particular Reference to Water-Based Recreation," (WRRRI-17), by J. Sinden, WRRRI, Or. St. U., Corvallis, Or. 97331.
- "Proceedings--International Symposium on Uncertainties in Hydrologic and Water Resource Systems," Vols. I & II, (Sponsored by NSF), U. of Ariz., Tucson, Ariz. 85721, Dec. 1972.

Water Quantity Management

- "Aquifer Simulation Model for Use on Disk Supported Small Computer Systems," (ISWS-73-CIR-114), by T. Prickett, et al, Il. St. Dept. of Reg. & Educ., Il. St. Water Survey, Urbana, Il. 61801, 1973.
- "A Study of the Hydrochemical Facies of the Cretaceous Aquifers of Northeastern Mississippi," by D. Keady, WRRRI, Ms. St. U., State College, Ms. 39762, 1968.
- "A Study of the Hydrochemical Facies of the Wilcox Aquifers in Mississippi," by D. Keady, WRRRI, Ms. St. U., State College, Ms. 39762, 1970.
- "Application of Moments to Mapping the Vertical Variability of the Aquifer Systems in Mississippi," by D. Keady, WRRRI, Ms. St. U., State College, Ms. 39762, 1968.
- "Water Resource Observatory Climatological Data Water Year 1972," (WR Ser. No. 34), WRRRI, U. of Wy., Laramie, Wy. 82070, Feb. 1973.
- "A Preliminary Report on Flood Hydrology and Urban Water Resources: Oahu, Hawaii," (Tech. Rpt. 64), by Y. Fok, WRRRC, U. of Hi., Honolulu, Hi. 96825, March 1973.

- "HEC-1 Flood Hydrograph Package - Users Manual," (723-010), Generalized Computer Program, Hydrologic Engineering Center, U. S. Army Corps of Engineers, 609 Second St., Davis, Ca. 95616, Jan. 1973.
- "Hurricane Agnes - Environmental and Ecological Impact," (Summary Rpt.), N. Atlantic Div., U. S. Army Corps of Eng., May 1973.
- "Irrigation Efficiency - A Bibliography," (WRSIC 73-214), avail. from WRSIC, OWRR, USDI, Wash., DC 20240, Apr. 1973.
- "Firm Reservoir Yield - How Reliable are Historic Hydrologic Records?" by J. R. Wallis, IBM Thomas J. Watson Res. Cen., Yorktown Heights, N. Y. 10598, Jan. 1973.
- "Urban Hydrology--A Selected Bibliography With Abstracts," (Water Res. Invest. 3-72), by G. L. Knapp, et al, Water Res. Div., USGS, Wash., DC 20244, 1972.
- "Surface-Water Stage, Flow, and Quality and Ground-Water Quality," (Summary of Plans for Acquisition of Water Data by Federal Agencies, FY 1974), USGS, Off. of Water Data Coord., Wash., DC 20244, Feb. 1973.
- "Weather Modification: Precipitation Inducement - A Bibliography," (WRSIC 73-212), avail. from WRSIC, OWRR, USDI, Wash., DC 20240, March 1973.
- "Withdrawal of Water by Industry in Illinois, 1970-1971," (ISWS-73-CIR 115) by D. Schnepfer, et al, Il. St. Dept. of Reg. & Educ., Il. St. Water Survey, Urbana, Il. 61801, 1973.

Water Quality Management

- "Fish and Food Organisms in Acid Mine Waters of Pennsylvania," (EPA-R3-73-032), by R. Butler, et al, Pa. St. U., for EPA, Avail. from USGPO, Wash., DC 20402, Price - \$2.10, Feb. 1973.
- "Aerial Surveillance Spill Prevention System," (EPA-R2-72-007), by C. L. Rudder, et al, McDonnell Aircraft Co. for EPA, avail. from Supt. of Doc., USGPO, Wash., DC 20402, Price - \$3, Aug. 1972.
- "Ultra High Rate Filtration of Activated Sludge Plant Effluent," (EPA-R2-73-222), by R. Nebolsine, et al, Hydrotech Corp., for EPA, avail. from USGPO, Wash., DC 20402, Price - \$2.10, Apr. 1973.
- "Significance of Cellulose Production by Planktonic Algae in Lacustrine Environments," (Comp. Rpt. FY-73-3), by J. Rho, et al, WRRRC, U. of Ma., Rm. 115, Holdsworth Hall, Amherst, Ma. 01002, Nov. 1972.
- "National Animal Feedlot Wastes Research Program," (EPA-R2-73-157), by L. R. Shuyler, EPA, avail. from Supt. of Doc., USGPO, Wash., DC 20402, Price - 75¢, Feb. 1973.
- "Cannery Wastewater Treatment with Rotating Biological Contractor and Extended Aeration," (EPA-R2-73-024), by M. Cochrane, et al, Nat. Waste Treatment Res. Prog., Pacific N.W. Env. Res. Lab., EPA, avail. from USGPO, Wash., DC 20402, Price - 90¢, Apr. 1973.
- "Control of Hazardous Chemical Spills by Physical Barriers," (EPA-R2-73-185), by J. V. Friel, et al, MSA Res. Corp. for EPA, avail. from Supt. of Doc., USGPO, Wash., DC 20402, Price - \$1.25, March 1973.
- "Effects of Chemical Variations in Aquatic Environments - Vol. 1 - Biota and Chemistry of Piceance Creek," (EPA-R3-73-011a), by W. Everhart, et al, Cornell U. for EPA, avail. from USGPO, Wash., DC 20402, Price - \$2.10, Feb. 1973.
- "Effects of Chemical Variations in Aquatic Environments - Vol. II - Toxic Effects of Aqueous Aluminum to Rainbow Trout," (EPA-R3-73-011b), by W. Everhart, et al, Cornell U. for EPA, avail. from USGPO, Wash., DC 20402, Price - 75¢, Feb. 1973.

- "Effects of Chemical Variations in Aquatic Environments - Vol. III - Lead Toxicity to Rainbow Trout and Testing Application Factor Concept," (EPA-R3-73-011c), by P. Davies, et al, Cornell U. for EPA, avail. from USGPO, Wash., DC 20402, Price - \$1.25, Feb. 1973.
- "Chemical and Physical Character of Surface Waters of North Carolina - 1967-68," (Bul. 1, Vol. XII), by E. J. Phibbs, Jr., NCDNER, OWAR, (in coop. with USGS), Box 27687, Raleigh, N. C. 27611, 1971.
- "Chemical and Physical Character of Surface Waters of North Carolina - 1967-70," (Bul. 1, Vol. XIII), by N. O. Thomas, NCDNER, OWAR (in coop. with USGS), Box 27687, Raleigh, N. C. 27611, 1972.
- "Adsorption of Chlorinated Hydrocarbons from Seawater by a Crosslinked Polymer," (EPA-R2-73-177), by G. Harvey, Woods Hole Oceanographic Inst. for EPA, avail. from USGPO, Wash., DC 20402, Price - 55¢, March 1973.
- "Effect of Chlorination on Human Enteric Viruses in Partially Treated Water From the Potomac River Estuary," by O. C. Liu, et al, EPA, Water Supply Programs Div., Northeastern Water Supply Lab., July 1971.
- "Biological Removal of Carbon and Nitrogen Compounds from Coke Plant Wastes," (EPA-R2-73-167), by J. Barker, et al, Robt. S. Kerr Env. Res. Lab. for EPA, avail. from USGPO, Wash., DC 20402, Price - \$2.35, Apr. 1973.
- "Cost Analysis of Water Pollution Control: An Annotated Bibliography," (EPA-R5-73-107), by D. P. Tihansky, EPA, avail. from USGPO, Wash., DC 20402, Price - \$3.95, Apr. 1973.
- "Development of Dissolved Oxygen Criteria for Freshwater Fish," (EPA-R3-73-019), by C. Warren, et al, Or. St. U. for EPA, avail. from USGPO, Wash., DC 20402, Price - \$2.10, Feb. 1973.
- "A Study of the Photodegradation of Commercial Dyes," (EPA-R2-73-058), by J. J. Porter, for EPA, avail. from USGPO, Wash., DC 20402, Price - \$1.25, March 1973.
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