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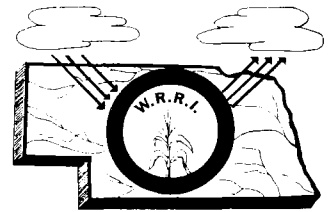
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# WATER RESOURCES NEWS

NEBRASKA WATER RESOURCES RESEARCH INSTITUTE  
212 AGRICULTURAL ENGINEERING BUILDING

THE UNIVERSITY OF NEBRASKA  
LINCOLN, NEBRASKA 68503



Volume 3 Number 7

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## IRRIGATION AND DRAINAGE SPECIALITY CONFERENCE

The American Society of Civil Engineers Irrigation and Drainage Division and the Soil and Water Division of the American Society of Agricultural Engineers will sponsor a three-day Irrigation and Drainage Speciality Conference on October 6-8, 1971. The conference will probe better production at lower costs through the optimization of irrigation and drainage systems. The conference theme is designed to explore means to optimize the efficiency of planning, design, construction, operation and maintenance of these important water resources systems.

For further information and registration forms contact Dr. Warren Viessman, Director, Water Resources Institute, 212 Ag. Engineering Building, University of Nebraska, Lincoln, Nebraska 68503.

## FIRST ANNUAL MEETING OF THE NEBRASKA SECTION OF THE AMERICAN WATER RESOURCES ASSOCIATION

At one p.m. on October 20 at the New Paxton Hotel in Omaha the first annual meeting of the Nebraska Section of the American Water Resources Association will be held. This will be concurrent

with the joint annual convention of the Nebraska Irrigation and Water Resources Associations. An interesting program has been prepared which is designed to demonstrate some of the current water related research in the state. The following papers will be presented: "Economic Analysis of The Costs and Returns for the Production of Corn Using Center-Pivot Irrigation Systems, Southwest Nebraska, 1970," Leslie F. Sheffield; "A Simulation Model of the Ground Water Resources of Hall, Hamilton, and York Counties," Peter Huntoon and Warren Viessman, Jr.; "A Linear Analysis of an Urban Water Supply System," Susan K. Hoppel and Warren Viessman, Jr.; "Computerized Mapping of the Correspondence Between Statistical Surfaces," Merlin Lawson; "Non-Structural Programs of Flood Damage Reduction," Albert E. Mathews; "Management of Ground Water," Loyd K. Fischer.

Immediately following the presentations, a short business meeting will be held. Deane Manbeck, President, encourages all active members of A.W.R.A. to attend.

## AMENDMENTS TO WATER RESOURCES RESEARCH ACT

The House Committee on Interior and Insular Affairs has reported

out a clean bill, H.R. 10203, to amend the Water Resources Research Act to provide for the following:

(1) Increase of annual allotment to Water Resources Research Institutes from \$100,000 to \$250,000.

(2) Authorize scientific and technical information dissemination activities.

(3) Require annual allotment programs to be developed in close consultation with leading state water resource officials to promote research, training, and other work meeting the needs of the state.

The measure will come up for passage before the House of Representatives late in September.

TESTIFIED THAT CORPS WOULD BENEFIT  
FROM NEW DEPARTMENT OF  
NATURAL RESOURCES

The first full-scale hearing on the Administration's proposed new Department of Natural Resources was held last month before the Senate Government Operations Committee. The Corps' planning overview, policy formulation, project evaluation, and budgeting review functions would be transferred to the new department under this proposal. Rogers C. B. Morton, Interior Secretary, testified the reorganization plan would enable all natural resources programs to be "harmonized with the most practicable possible means to protect and preserve the environment, consistent with the social and economic needs of the country."

Under Secretary of the Army, Thaddeus R. Beal, testified in favor of the proposal, stating: "As a result of being assigned this overall responsibility for shaping environmentally sound water

resource development programs of the Secretary of Natural Resources can, in coordination with other agencies, particularly the Environmental Protection Agency, most effectively respond to our Nation's water resources problems. There is no question that the water planning and related efforts now executed by the Corps of Engineers, Bureau of Reclamation, Soil Conservation Service and Water Resources Council will benefit from the central direction and unity of purpose provided by the Department of Natural Resources.\*\*\*"

INDUSTRIES MUST FILE  
PERMIT APPLICATIONS OR  
FACE LEGAL ACTION

William D. Ruckelshaus, Environmental Protection Agency Administrator, told his ten regional offices to begin working with the Corps of Engineers in notifying industries which have not filed applications for Refuse Act discharge permits that they face the possibility of legal action for failure to comply with the program. All industries that discharge material into navigable water or their tributaries were required to apply to the Army Corps of Engineers for a permit by July 1.

Ruckelshaus indicated in a letter to Regional Administrators that: "The District Corps Offices have already been instructed by their headquarters to contact companies that have not filed applications. You should work with the District Engineers Offices to see that such companies apply for a permit within a specified time, not to exceed thirty (30) days,

or provide in writing legitimate reasons for failure to comply with the requirements of the program. Companies which do not respond affirmatively to these instructions will be referred by this Agency to the Justice Department for appropriate action under the Refuse Act."

### PRICE OF AIR AND WATER POLLUTION CLEAN-UP AT \$105 BILLION

The second annual report issued by the Council on Environmental Quality, (C.E.Q.), states that the cost of meeting air and water quality standards for 1970-75 will be \$105 billion. Citing the growth of the "environmental movement," the report said there are now 3,100 environmental organizations in the United States and that membership in the five largest national organizations grew by 33 percent in the last year. The C.E.Q. also reported that of 695 bills signed into law during the 91st Congress, 121 were identified as "environment oriented."

### UCOWR ANNUAL MEETING

The annual meeting of the Universities Council on Water Resources (UCOWR) was held at Oregon State University August 2-4. The theme was the role and relevance of university water resources research and interrelationships with research in other phases of the environment.

Speakers for the meeting included Economist Emery Castle, Oregon State University; John Carlson, Deputy Director, Office of Management and Budget; Dan Drefus, Senate Committee

on Interior and Insular Affairs; and Lt. General F. J. Clarke, Chief, Army Corps of Engineers. Discussion groups produced some 26 resolutions initiating a wide variety of actions on behalf of UCOWR which ranged all the way from national policy to university research and education. All but two of the resolutions were adopted by the delegates at the business meeting on August 4.

### SENATE SUBCOMMITTEE APPROVES WATER POLLUTION CONTROL LEGISLATION

The Senate Subcommittee on Air and Water Pollution has approved new water pollution control legislation which is expected to receive full Public Works Committee action by mid-September. The principal points are:

Construction Grants - \$20 billion authorizations over a 5-year period

Water Quality Standards - W.Q. standards under Water Quality Act of 1965 to be implemented by January 1, 1976. A national water quality standard to be achieved by 1980

Industrial User Chargers - Federal share of municipal sewage treatment works cost attributable to industrial users to be returned to Federal Treasury

Non-Point Sources of Pollution - Incentives to states for programs to control pollution from diffuse sources

Regional Waste Management - Metropolitan area waste management plans to be developed by designated planning agencies

New Pollution Sources - Uniform national minimum performance standards for industrial waste control

Toxic and Pretreatment Standards - of marketable fertilizer from the Toxic waste standards, prohibition, and pretreatment requirements sewage sludge."

Hazardous Substances - Includes designated hazardous substances in oil pollution liability section of Act

Ocean Dumping - Federal permits to regulate discharges

1899 Refuse Act - Transfer of permit program from Corps of Engineers to EPA

Enforcement - Mandatory enforcement of standards, civil and criminal penalties up to \$50,000, citizen suits, and mandatory monitoring and record keeping.

### RHODE ISLAND RESEARCHERS PROPOSE BENEFICIAL USE OF WASTE HEAT

A sewage treatment plant providing Rhode Island with pure drinking water; a warm-water aquaculture, fishing, and swimming area; and enormous man-made recreation islands, all using waste heat from a proposed nuclear power plant, have been envisioned by two University of Rhode Island professors.

Dieter Hammerschlag, associate professor of urban design, and Dr. Vincent C. Rose, associate professor of nuclear and chemical engineering, have proposed, as part of their concept of a totally planned "new town for Rhode Island", that the waste heat from a nuclear power plant could be used to completely treat a major part of Rhode Island's municipal sewage.

"This would both rid Narragansett Bay of one of its chief pollution sources, and provide Rhode Island with a new source of clean drinking water," says Professor Hammerschlag. "An additional plus is the production

Copies of the publication "Nuclear Energy for a New Town" are available from the Community Planning and Area Development Program, University of Rhode Island, Kingston, Rhode Island 02881.

### LAKE TAHOE STUDY

The Water Quality Office of the Environmental Protection Agency recently received for review and publication the final report of a five-year study of nutrient enrichment of California's Lake Tahoe. The report, prepared by Dr. Gordon L. Duagn, Project Engineer, and Prof. P. H. McGahey of the University of California, Project Director, covers studies conducted under a series of grants to the Lake Tahoe Area Council involving the sources and effects of nutrients introduced into the lake waters and disposal of sewage collected within the lake basin. The report shows that the normal contribution of nutrients from the surrounding lake basin has been increased some two to ten times by the activities of man -- the exact increase dependent upon the state of disturbance of the specific area at the time of observation.

Previous reports issued by the Area Council have shown that the lake waters were sensitive to influent nitrogen concentration and that the concentration of this nutrient limited the productivity of biomass. Present sewage disposal facilities at Lake Tahoe include extensive tertiary treatment combined with the exportation of the final effluent outside the lake

basin to insure that nutrients from this source are not introduced into the lake water.

### RESEARCH REVIEW

Project Title: A Simulation of the Effects of Dynamic Water Pricing Policies

Principal Investigator: Dr. Marshall Gysi

Dates: June, 1971 to June 1972

The effects of dynamic (changing with time) water pricing policies will be investigated using a digital computer simulation model. The Howe and Linaweaver demand functions will be modified to correlate with an actual community's recorded summer and winter price-consumption points. Stochastic inputs such as evapotranspiration rates and stream inflows will be generated. The effect of predetermined dynamic pricing policies on the long run risk of water shortages for an existing reservoir, or the size of reservoir for a fixed risk, will be determined. An example of a dynamic water pricing policy might be to raise the marginal price by 100 percent when the reservoir reaches the third full stage, and by 200 percent when it reaches the one-sixth full stage.

### NEW PUBLICATIONS RECEIVED BY INSTITUTE - SEPTEMBER

1. "Nebraska Droughts," A Study of Their Past Chronological and Spatial Extent with Implications for the Future, M.P. Lawson, A. Reiss, R. Phillips, K. Livingston, Project Completion Report, A-018-NEB,

University of Nebraska, July 1971.

2. "Seventh Annual Report," University of Idaho, June 1971.

3. "Hydrologic Data For Experimental Agricultural Watersheds in the United States, 1964," J. B. Burford, U.S. Department of Agriculture, June 1971.

4. "Simulation Program For the Transient Hydraulics Produced by Gradually Breached Earth Dams," D. L. Fred, T. E. Harbaugh, University of Missouri-Rolla, May 1971.

5. "Social Status Variations in Attitudes and Conceptualization Pertaining to Water Pollution and Supply," I. A. Spaulding, University of Rhode Island, Research Report.

6. "Concerns in Water Supply and Pollution Control: Legal, Social, and Economics," University of Rhode Island, D. B. Burke, Jr., I.A. Spaulding, A.D. Jeffrey, March 1971.

7. "Annual Report 1971," Michigan State University, July 1971.

8. "Education and Training Programs," July 1971 to June 1972, Environmental Protection Agency, Office of Water Programs.

9. "Animal Waste Utilization for Pollution Abatement - Technology and Economics. Phase I," Project Completion Report, O.E. Cross, University of Nebraska, June 1971.

10. "Seventh Annual Report - Water Resources Research Program for Fiscal Year 1971," University of Wisconsin, July 1971.

11. "Reconditioning of Food Processing Brines," for the Environmental Protection Agency, Water Quality Office, March 1971.

12. "Use of Improved Membranes in Tertiary Treatment by Reverse Osmosis," for the Environmental Protection Agency, Water Quality

Office, December 1970.

13. "Pilot Scale Study of Acid Mine Drainage," Ohio State University, for the Environmental Protection Agency, Water Quality Office, March 1971.

14. "Corrosion Potential of NTA in Detergent Formulations," for the Water Quality Office, Environmental Protection Agency, April 1971.

15. "Santa Barbara Oil Spill: Short-term Analysis of Macroplankton and Fish," University of California, for the Environmental Protection Agency, Water Quality Office, February 1971.

16. "An Investigation of Techniques for Removal of Chromium from Electroplating Wastes," Battelle Memorial Institute, for the Environmental Protection Agency, Water Quality Office, March 1971.

17. "The Impact of Oily Materials on Activated Sludge Systems," Hydrosience, Inc., for the Environmental Protection Agency, Water Quality Office, March 1971.

18. "Underground Coal Mining Methods to Abate Water Pollution," West Virginia University, for the Environmental Protection Agency, Water Quality Office, December 1970.

19. "Impregnation of Concrete Pipe," for the Environmental Protection Agency, Water Quality Office, June 1971.

20. "Preliminary Investigational Requirements - Petrochemical and Refinery Waste Treatment Facilities," for the Environmental Protection Agency, Water Quality Office, March 1971.

21. "Carbon Column Operation in Waste Water Treatment," Syracuse University, for the Water Quality Office, Environmental Protection Agency, November 1970.

22. "State of the Art of Textile Waste Treatment," Clemson University, for the Water Quality Office,

Environmental Protection Agency, February 1971.

23. "Evaluation of Current Techniques for Nutrients Removal From Wastewaters," A. Shindala, Mississippi State University, June 1971.

24. "Acid Mine Waste Treatment Using Reverse Osmosis," for the Environmental Protection Agency, Water Quality Office, August 1971.

25. "Utilization of Phosphate Slimes," for the Environmental Protection Agency, Water Quality Office, August 1971.

26. "Rotary Precoat Filtration of Sludge From Acid Mine Drainage Neutralization," for the Environmental Protection Agency, Water Quality Office, May 1971.

27. "Studies on Densification of Coal Mine Drainage Sludge," for the Environmental Protection Agency, September 1971.

28. "Urban Runoff Characteristics," University of Cincinnati, Division of Water Resources, for the Environmental Protection Agency, Water Quality Office, October 1970.

29. "Combined Sewer Overflow Abatement Alternatives - Washington D.C.," R. F. Weston, Inc., for the Water Quality Office, Environmental Protection Agency, August 1970.

30. "Dispatching System for Control of Combined Sewer Losses," for the Environmental Protection Agency, Water Quality Office, March 1971.

31. "Seventh Annual Report - FY 1971," University of North Dakota, North Dakota State University, July 1971.

32. "Abstracting and Indexing Guide," Water Resources Scientific Information Center, Washington, D.C., 1971 Revised.

33. "Thirty-Eighth Biennial Report of the Department of Water

Resources," to the Governor of Nebraska, 1969-1970.

34. "Seventh Annual Report," University of Wyoming, August 1970. FY 1971.

35. "Water Resources Data for Nebraska - Part 2. Water Quality Records," U.S. Department of the Interior, Geological Survey, 1969.

36. "Proceedings - Street Salting Urban Water Quality Workshop," State University College of Forestry, Syracuse, New York, July 1971.

37. "Report on The Framework Study - Appendix D - Survey of Nebraska Water Law," Nebraska State Water Plan, June 1971.

38. "Community Organization and Rural Water System Development," J.H. Peterson, Jr., Mississippi State University, 1971.

39. "Changing Attitudes Toward Watershed Development," J. H. Peterson, Jr., P. J. Ross, Mississippi State University, 1971.

40. "Cost and Effects of A Water Quality Program for A Small Strip Mining Company," G. R. Drees, West Virginia University, H. L. Bryant, Xavier University, August 1971, Institute for Water Resources.

41. "A River, A Region, and A Research Problem," Institute for Water Resources, C. L. Leven, R. B. Read, Washington University, June 1971.

42. "Evaluation of Natural Rivers," M. Morisawa, State University of New York, September 1971.

43. "The Effects of Various Gas Atmospheres on the Oxidation of Coal Mine Pyrites," for the Environmental Protection Agency, Water Quality Office, August 1971.

44. "Decision Processes in Water Quality Management," R. M. Males, W. E. Gates, April 1971.

45. "Development of Immobilized

Enzyme Systems for Enhancement of Biological Waste Treatment Processes," for the Environmental Protection Agency, Water Quality Office, July 1970.

46. "Annual Report - FY 1971," Utah State University, August 1971.

47. "Pharmacological Testing of Blue-Green Algae For Constituents Having Therapeutic Value," for the Water Quality Office, Environmental Protection Agency, June 1970.

48. "Infiltration Rates and Groundwater Quality Beneath Cattle Feedlots, Texas High Plains," Texas Tech University, for the Water Quality Office, Environmental Protection Agency, January 1971.

49. "The Oxygen Uptake Demand of Resuspended Bottom Sediments," Seattle University, for the Water Quality Office, Environmental Protection Agency, September 1970.

50. "A Method for Predicting the Performance of Natural Draft Cooling Towers," Environmental Protection Agency, Water Quality Office, December 1970.

51. "Factors Affecting Pollution Referenda," for the Environmental Protection Agency, Water Quality Office, June 1971.

52. "Inorganic Sulfur Oxidation by Iron-Oxidizing Bacteria," Syracuse University, for the Environmental Protection Agency, Water Quality Office, June 1971.

53. "Impact of the Water Resources Research Act on Water Resource Research and Development in Utah," D. F. Peterson, Utah State University, May 1971.