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RESEARCH and DEVELOPMENT News

WATER SUPPLY WASTE DISPOSAL CONSERVATION

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"Waste Disposal Effects on Ground Water: A Comprehensive Survey of the Occurrence and Control of Ground-Water Contamination Resulting from Waste Disposal Practices," edited by David W. Miller, Vice-President of Geraghty & Miller, Inc., consulting ground-water geologists and hydrologists, describes the impact of waste disposal in the United States on ground-water quality. Chapters cover ground-water resources; how ground water is contaminated; industrial wastewater impoundments; land disposal of solid wastes; septic tanks and cesspools; municipal wastewater disposal; land spreading of sludge; brine disposal; mine wastes disposal; waste disposal through wells; animal feedlot waste disposal; contamination sources not related to waste disposal; existing federal legislation; and state and local alternatives for ground-water quality protection. The 512-page paperback book which contains 84 figures and 80 tables, is a reprint of a report to Congress submitted in 1977 by the U.S. Environmental Protection Agency pursuant to requirements of the Safe Drinking Water Act. Copies are available for $16 from Water Information Center, Inc., The North Shore Atrium, 6800 Jericho Tpke., Syosset, NY 11791.

"Adsorption of Energy-Related Organic Pollutants: A Literature Review," by Dr. K.A. Reinhold and others, Dr. D.S. Brown, project officer, discusses the adsorption of organic compounds in general and summarizes the analytical methodology in soil thin-layer chromatography and chemical analysis as applied to measurement of sorption properties. Also included is an extensive tabulation of solubility, octanol-water partitioning, and sorption isotherm data on hundreds of organic compounds on sediments and soils. A second phase of the study will consider the sorption behavior of eleven energy-related organics on 14 natural sediments. Copies of the report, EPA-600/3-79-086, are available from the Environmental Research Laboratory, U.S. EPA, College Station Rd., Athens, GA 30605.

"Developments in Geochemistry I: Fluids in the Earth's Crust," by W.S. Fyfe, N.J. Price, and A.B. Thompson, synthesizes metamorphic petrology and structural geology to explain the interaction between stress-strain and chemical processes. The processes explain the generation and migration of fluid in the earth's crust, the influence of fluids upon structures and their collection and concentration in reservoirs which are commercially viable, or their fossil trace of ore bodies when conditions of chemistry and rock provide suitable environments. Knowledge of fluid movements has greater importance on determining sites for suitable radioactive waste disposal. Copies of the 383-page hardcover book are available for $61 from Elsevier North-Holland, Inc., 52 Vanderbilt Ave., New York, NY 10017.

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A seminar on Industrial-Municipal Pretreatment Program Implementation: Can It Really Be Done? is scheduled for Chicago, Ill., March 20-21. Discussion will center on the national pretreatment program; national pretreatment standards; removal credits: fact or fiction?; industrial variances from categorical standards: more fact or fiction?; achieving compliance: the paperwork hurdle, the technology and cost hurdles, the sludge disposal hurdle, the financing hurdle; and, cooperation between regulators and regulatees: the bottom line. Further seminar information may be obtained from the Association of Metropolitan Sewerage Agencies, 1015 18th St., N.W., Suite 200, Washington, DC 20036.

"Evaluation of Operation and Maintenance Factors Limiting Municipal Wastewater Treatment Plant Performance," by Bob A. Hegg, Kerwin L. Rakness, and James R. Schultz attempts to identify, quantify and rank the causes of the poor performance of wastewater treatment plants constructed with federal grants which have not met design or NPDES permit standards. Comprehensive evaluations at thirty wastewater treatment facilities were conducted and results indicate the two highest ranking factors were inadequate operator application of concepts and testing to process control and sewage treatment understanding. A lack of sewage treatment understanding resulted from untrained operators, but even trained operators failed to apply concepts of operation to process control. The third highest ranking factor identified in the study was improper technical guidance from authoritative sources, which have dramatically affected the capability of existing operations personnel. Six of ten highest ranking factors were also related to improper plant design. Because existing correction programs designed to address specific performance limiting factors were found to be limited in their ability to achieve performance, a supplemental program to improve facility performance was developed. The program described can potentially reduce plant construction costs and improve plant effluent quality. Copies of the study, PB-300 331/6WP, are available for $8 from NTIS, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161.

"Systematic Development of Methodologies in Planning Urban Water Resources for Medium Size Communities," by J.W. Delleur, J.M. Bell, W.N. Melhorn, W.L. Miller, and H.R. Potter, reports a systems analysis study involving interaction between several research disciplines and with community groups. Disciplines investigated were sociology, geology, surface and ground-water hydrology, water quality, economics, and land use planning. The two-phase study addressed the methodologies of models for estimating population growth, water demand, quantity and quality of surface runoff and availability of ground water sufficient to supply increasing demand and for determining economic trade-offs between alternate drainage systems. A simple ground-water model was developed and new causal stochastic modes of ground-water levels were tested and existing models for planning and design of urban runoff quantity and quality were extended and improved. Model improvements and analysis allowed design alternative urban drainage systems with several degrees of storage detention and pollution treatment. Copies of the report, PB-300 833/1WP, are available for $6.50 from NTIS, U.S. Dept. of Commerce, 5285 Port Royal Rd., Springfield, VA 22161.

Development of Design Criteria for Wastewater Treatment Processes will be held in Nashville, Tenn. April 14-18. The seminar will explore laboratory and experimental procedures needed to develop process design data for the biological treatment and physical-chemical treatment of municipal and industrial wastewaters. Laboratory equipment and instrumentation will be demonstrated. Also to be presented are correlation and handling of laboratory and pilot plant data. The seminar is sponsored by Vanderbilt University's Environmental and Water Resources Engineering Program and the Center for Environmental Quality Management. Further information may be obtained from Janet Vance, Vanderbilt University, Box 6222, Station B, Nashville, TN 37235.