

A Selected Annotated Bibliography of
Water and Water Issues
Relating to the Hospitality Industry

Prepared for the
Executive Engineers Committee
of the
American Hotel and Motel Association
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Scope Note



This selected annotated bibliography was prepared to summarize in one source the key water literature for hotel engineers. Compiled during spring 1991, this bibliography contains English Language Materials published between 1965-1990. Sources used to compile this information include, but aren't limited to, trade and technical society publications, on-line databases such as the Cornell on-line catalog, the Research Library Group's CIT file, AWWA's Waternet, and Water Resources Abstracts.

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Table of Contents

	<u>Page</u>
Scope Note	ii
Table of Contents	iii
Definitions/Overview	1
Government Regulations	2
A. General	2
B. State Regulations	2
C. Federal Clean Water Act	3
Water Usage at Hospitality Properties	3
Landscape Irrigation	4 & 5
Water Supplies - Pricing	6
Water Supplies - General	6
Water Supplies - Treatment	7
Water Supply - Recycling	8
- Desalination	9
- Quality	10
Wastewater	11
Water Distribution Systems/Equipment	12
Water Conservation	13
A. Equipment/devices	13
B. Leak Detection	13
C. Water Conservation Programs	14
Keeping Current with Additional Information Sources	16
Periodical Sources	16
On-line Sources	17

DEFINITIONS/OVERVIEW

Ershaw, A. Total Water and Tapwater Intake in the United States: Population Based Estimates of Quantities and Sources, Bethesda, MD: National Cancer Institute, 1989.

Good summary data of U.S. water consumption in the commercial and residential use sectors.

Jenkins, D. et. al. Water Chemistry Laboratory Manual 3rd ed. New York: Wiley, 1980. Prepared under the auspices of the Association of Environmental Engineering Professionals; a companion volume to Snoeyink, V. and Jenkins, D., Water Chemistry.

A very good source for water chemistry issues, water testing, water quality standards and professional practice.

National Referral Center for Science and Technology, A Directory of Information Resources in the United States: Water. Washington, D.C.: U.S. Government Printing Office, 1966.

An old but excellent summary of sources of information on water.

Nelson, A. Directory of Water and Water Engineering. Cleveland: CRC Press, 1973.

An excellent reference work to find other sources of data.

Speidel, D.H., Ruedisili, L.C., and Agnew, A.F., eds. Perspectives on Water: Uses and Abuses. New York: Oxford University, 1987.

This book does a good job making the case that water is priced far below its true value. Bibliography is well done.

VanderLeeden, F., Troise, F.L., and Keith, D. The Water Encyclopedia, 2nd ed. Chelsea, MI: Lewis Publishers, 1990.

A compendium of useful information on water resources, ie., sources, usage, standards, and other data.

GOVERNMENT REGULATIONS - GENERAL

Goldfarb, W. Water Law, 2nd ed. Chelsea, Michigan: Lewis Publishers, 1988.

A concise (292 pages) summary of the water laws in the U.S. at the federal level.

International Conference of Building Officials, Plumbing Code. Whittier, California: The Conference, Current Edition.

Manas, V.T. National Plumbing Code Illustrated. Washington: Manas Publishing Co., Current Edition.

Rodgers, W.H. Environmental Law. St. Paul, Minnesota: West Publishing Co., 1986.

Volume II contains information on all relevant federal water laws.

Tarlock, A.D. Law of Water Rights and Resources. New York, NY: C. Boardman, 1988.

A looseleaf text on water rights law. Updated yearly. Covers Federal and selected state law.

GOVERNMENT REGULATIONS - STATE REGULATIONS

Clark, R.E., Editor. Water and Water Rights: A Treatise on the Law of Water and Allied Problems: Eastern Western, 3rd ed. Charlottesville, Virginia: Michie, 1988.

A detailed summary of water law, broken down by eastern states and western states.

Dewsnup, R.L. and Jensen, D.W., eds. A Summary Digest of State Water Laws. Arlington, Virginia: National Water Commission, 1973.

A detailed, state-by-state study of water laws.

GOVERNMENT REGULATIONS - FEDERAL CLEAN WATER ACT

The Clean Water Act as Amended by the Water Quality Act of 1987. Washington, D.C.: United State General Printing Office, 1988.

Call your Congressman for a copy of the slip law.

Houghton, M.J. The Clean Water Act Amendments of 1987. Rockville, Maryland: Bureau of National Affairs, 1987.

Summary of Clean Water Act.

WATER USAGE AT HOSPITALITY PROPERTIES

American Hotel and Motel Association Technology and Information Department, 1986 Survey of Energy and Water Use in Hotels and Motels. New York: American Hotel and Motel Association, 1986.

Last of a series of reports that summarize energy and water usage in hospitality properties. Good source of aggregate, industry specific data.

Arnold, Marilyn A., Water Resources: A Critical Constraint to Development, Monograph (M.P.S.) - Cornell University, School of Hotel Administration, 1990.

An excellent study of water rights, water usage, and the constraints that access to water put on the hospitality industry. Excellent bibliography.

Barclay, D.S. "Retrofitting Apartment Buildings to Reduce Costs and Water Demand." Canadian Water Resources Journal, Nov. 1984, pp. 45-47.

"Hot Water Controller Lowers Cost of Hospitality." Energy Management Technology, Vol. 9, No. 7 (Oct. 85) pp. 18-20.

Succinct article on application of hot water temperature controller to a medium sized motel.

Lam, S. and Hughs, T.C. "Water Demand at Recreation Facilities." Water Resources Planning Series, UWR4P-80/06. Logan, UT: Utah Water Research Laboratory, Utah State University, December 1980.

Excellent summary of water usage at various types of recreation facilities; including picnic areas, campgrounds, and motels.

Lent, D.S. and Ross, R.G. Treatment of Wastewaters from Military Field Laundry, Showers, and Kitchen Units. Springfield, VA: National Technical Information Service, 1973, Report 2061. Prepared for the Army Mobility Equipment Research and Development Center, Fort Belvoir, VA.

A good discussion of treating hospitality-type wastes in temporary or semi-permanent venues.

Redlin, M. H. and deRoos, J.A. Water Consumption in the Lodging Industry. New York: American Hotel and Motel Association, 1990. Prepared for the American Hotel and Motel Association and the School of Hotel Administration.

The most current study on hospitality industry water consumption. Good treatment of aggregate data, submeter data and water consumption prediction models.

Siegrist, R.L. "Minimum-Flow Plumbing Fixtures." Journal of the American Water Works Association, July 1983, pp. 342-347.

A short article on the types of plumbing fixtures available for hospitality applications designed to reduce water consumption by 50 to 90 percent. Very extensive bibliography.

LANDSCAPE IRRIGATION

Camenga, B. "Wasting Water." Irrigation Journal, Vol. 31, No. 3 July/Aug 1981, pp. 22-26.

A short article on designing irrigation systems to minimize wasted water.

Desai, J.B. Water Requirements of Urban Plants. Springfield, VA: National Technical Information Service 1981. (NTIS Pub. PB82-197880).

A study of irrigation practices on the growth and vigor of sixteen common urban plant materials. Drip irrigation is a focus of the study. Master thesis.

Gibealt, V.A., et. al. "Turf grass Alternatives with Low Water Needs." California Agriculture Vol. 43, NO. 6 (Nov/Dec 1989) pp. 20-22.

Results of testing irrigation rates on 27 species of turf grass and ground covers. Good piece for those with needs for covering large areas with turf or equivalent ground covers.

Keller, J. and Bliesner, R.D. Sprinkle and Trickle Irrigation. New York: VanNostrand Reinhold, 1990.

A comprehensive work.

McPherson, E.G. and Sacamano, C.M. Southwestern Landscaping That Saves Energy and Water. Tucson, AZ: University of Arizona, 1989 (Extension Publication 8929)

Short (61 p) piece that summarizes low water irrigation techniques. Illustrations.

Miller, J.D. Design and the Desert Environment: Landscape Architecture in the American Southwest. Springfield, VA: National Technical Information Service, 1978. (NTIS Publication PB-289 955).

Good discussion of design for human comfort, drought resistant plant material and irrigation design in a low water environment.

Nelson, J.O. "Water Conserving Landscapes Show Impressive Savings." Journal of the American Water Works Assoc., Vol. 79, No. 3, March 1987, pp. 35-42.

This article presents the results of research at seven residential developments. Shows that significant water savings can accrue to water conserving landscape designs. A significant portion of the savings is due to labor savings.

Pair, C.O. ed., with Hiaz, W.H. et. al. Irrigation, 5th ed. Silver Spring, MD: Irrigation Assoc., 1985 (formerly Sprinkler Irrigation).

A comprehensive treatment of irrigation.

Pettygrove, G.S. and Asano, T., eds. Irrigation with Reclaimed Municipal Wastewater. Chelsea, MI: Lewis Publishers 1985 (Prepared by University of California - Davis - Dept. of Land, Air, and Water Resources.)

The book is aimed at engineers and agricultural extension agents, but contains a large amount of information of practical use by hospitality operators. Primarily for operators with large irrigation water demands.

Robinette, G.O. Water Conservation in Landscape Design and Management. New York: VanNostrand Reinhold, 1984.

A focused work, comprehensive in scope. Well illustrated.

Watkins, J.A.; revised and updated by Choate, R.B. Turf Irrigation Manual : The Complete to Turf and Landscape Sprinkler Systems. Dallas, TX: Telsco Industries, 1987.

The updated edition of a classic book aimed at sprinkler installation professionals.

WATER SUPPLIES - PRICING

Gibbons, D.C. The Economic Value of Water. Washington, DC: Resources for the Future, 1986 (Distributed by Johns Hopkins University Press.)

An analytical view of the value of water, with recommendations for pricing in line with value.

Lynne, G.D., Luppold, W.G., and Kiker, C. "Water Price Responsiveness of Commercial Establishments." Water Resources Bulletin Vol. 14, No. 3 (June 1978) pp. 719-729.

Authors present results of research on usage changes in the face of price changes. Results for various classes of users are analyzed.

WATER SUPPLIES - GENERAL

Hammer, M.J. Water and Waste-water Technology. New York: Wiley, 1975.

A comprehensive overview of the topic. Not highly technical.

Hundal, H.S., Tratter, R.B., and Cheremisnoff, P.N. "Choosing a Potable Water Supply: What You Need to Know." Water and Sewage Works, Vol. 126, No. 3 (March 1979) pp. 78-80.

Brief but comprehensive article on the types of surface and subsurface waters. These are discussed in terms of their quality and treatment requirements for potable use.

Office of Air and Water Programs - Environmental Protection Agency, Manual of Individual Water Supply Systems, Springfield, VA: National Technical Information Service, 1975 (NTIS publication PB-258 402).

A venerable, but excellent guide to planning individual water systems including sources, treatment, pumping, distribution, and storage.

WATER SUPPLIES - TREATMENT

Bond, R.G. and Straub, C.P. eds.; Prober, R., coordinating ed. Water Supply and Treatment. Cleveland: CRC Press, 1973.

A truly comprehensive reference work. (Volume 3 of the CRC Handbook of Environmental Control).

Boby, W.M. Water Treatment Data: A Handbook For Chemists and Engineers in Industry. London: Hutchinson, 1965.

A compilation of water treatment statistics and data for use in system design and operation.

Das, G. "You and Your Drinking Water: Health Implications for the Use of Cation? Exchange Water Softeners." Journal of Clinical Pharmacology, Vol. 28, No. 8 (1988) pp. 683-690.

Discusses the use of water softeners, specifically those using salt as the exchange medium. Water quality and health impacts are emphasized.

Hoover, C.P. Hoover's Water Supply and Treatment, 10th ed. Washington, DC: National Lime Assoc., 1970.

Solid, well respected source on water treatment. Oriented toward operating personnel.

Kemmer, F.N. ed. The NALCO Water Handbook, 2nd ed. New York: McGraw-Hill, 1988.

The very good source for data on water treatment of all kinds; potable, boiler, chilled water, condenser water, process control water, etc.

McClelland, N.I. "Drinking Water Additives Program." Water Engineering and Management. Vol. 133, No. 12 (December, 1986) pp. 18-20.

Description of the programs and services available to determine applicability of drinking water additives at the individual property level.

National Sanitation Foundation, Standard No. 44 For Cation Exchange Water Softeners Relation to Supplementary Treatment of Potable Water, Revised Edition. Ann Arbor, Michigan: 1973. National Sanitation Foundation.

Includes cost-benefit analysis of installing water softeners. The impact of cation exchange softeners on health, water quality, and sanitation are discussed.

Stoddard, B.L. "What to Do About Drinking Water Additives Testing." Water Engineering and Management. Vol. 136, No. 2 (February, 1989) pp. 30-31, 40.

Discussion of the impact of privatizing testing and standards setting for drinking water additives. Describes the EPA's past actions, compared to private organizations.

"Water Treatment: Iron, Boiler Water and Water Analysis." Ground Water Age. Vol. 13, No. 1 (September, 1978) pp. 19-23.

Iron and manganese cause many problems in water use. This study outlines the problems and offers solutions for three different levels of concentration.

WATER SUPPLY - RECYCLING

Ahlgren, R.M. "Potential for Water Reuse in Conjunction with Desalination Systems." Desalination Vol. 75, No. (1989) pp. 315-328.

Article discusses potential for achieving high levels of recycling using a packaged system designed to purify hotel laundry wastewater. Application to areas with high water cost is discussed.

Dean, R.B. and Lund, E. Water Reuse: Problems and Solutions. New York: Academic Press, 1981.

A test that discusses the technological and behavioral solutions to recycling wastewater.

Popkin, B.P. "Land Application of Selected Home Wastewater." American Society of Agricultural Engineers Technical Paper Series, Paper No. 78-2062, 1978.

Case studies of four sizes of users, ranging from a 100 unit trailer park to a single family dwelling. Costs and considerations are discussed.

Snell, J. and Naito, S. "Water Recycling: Necessity and a Profit" in Proceedings of Water Reuse Symposium, March 25-30, 1979 sponsored by the American Water Works Assoc. 1979, pp. 1020-1022.

Good discussion of water reuse and water supplies on island resort locations.

Water Pollution Control Federation. Water Reuse, Washington, DC: Water Pollution Control Federation, 1983.

Prepared by the Technical Practice Committee and the Task Force on Water Reuse of the WPCF. Presents facts of the industry and recommended practice. Good bibliography.

Williams, R.B. "Wastewater Reuse - An Assessment of the Potential and Technology." Water Reuse. Ann Arbor, Michigan: Ann Arbor Science, 1982, pp. 87-136.

Discussion of reasons and potential for water reuse, using current and emerging technologies. Five methods of reuse are covered in depth, including application to different user types.

WATER SUPPLY - DESALINATION

Katz, W.G. "State of the Art Electrodialysis Reversal (EDR) Process." Industry Water Engineering Vol. 21, No. 1 Winter 1984, pp. 12-20.

Written from an industrial engineers standpoint, this article profiles the dominant desalination technology.

Spiegler, K.S. and Laird, A.D.K. eds. Principles of Desalination, 2nd ed. New York: Academic Press, 1980.

A comprehensive two-volume reference work.

Spiegler, K.S. Salt Water Purification, 2nd ed. New York: Plenum Press, 1977.

A short volume that gives a comprehensive overview.

WATER SUPPLY - QUALITY

Fresenius W., Quentin, K.E., and Schneider, W. eds. Water Analysis: A Practical Guide to Physio-chemical, Chemical and Microbiological Water Examination and Quality Assurance. New York: Springer Verlag, 1988. (Translated from German edition)

A highly technical, but excellent work.

Keleti, G. and Shapiro, M.A. "Legionella and the Environment." CRC Critical Reviews in Environmental Control Vol. 17 (1989) pp. 133-185.

Excellent summary of Legionnaire's Disease and it's control. Good bibliography.

Schenk, R.U., Bjorksten, J., and Yeager, L. "Composition and Consequences of Aluminum in Water, Beverages, and Other Ingestibles" in Lewis, T.E., Environmental Chemistry and Toxicology of Aluminum, Chelsea, MI: Lewis Publishers, 1989.

A definitive discussion of aluminum's impact on water quality.

Sly, L.I., Hodgkinson, M.C., and Arunpairojona, V. "Importance of High Aesthetic Quality Potable Water in Tourist and Recreational Areas." Water Science and Technology Vol. 21, No. 2 (1989) pp. 183-187.

Summary of current methods of maintaining high aesthetic quality in water.

Tebbutt, T.H.Y. Principles of Water Quality Control, 3rd ed. New York: Pergamon Press, 1983.

A concise reference on water quality management.

WASTEWATER

Center for Environmental Research Information, Environmental Protection Agency, Sewage Treatment and Disposal Handbook. Cincinnati, Ohio: EPA, 1984.

The Environmental Protection Agency's guide to waste water treatment.

Cornwell, D.A. Handbook of Practice: Water Treatment Plant Waste Management. Denver, Colorado: American Water Works Association, 1987.

Lists specifics on several wastewater treatment systems. Includes a discussion of government regulations. Glossary.

Cotteral, J.A. "Septic Tank Systems." Journal of the Sanitary Engineering Division, American Society of Civil Engineers. Vol. 95, No. SA1 (February, 1969).

In areas without municipal sewage systems, septic systems are a necessary component of water treatment facilities. This article describes the design, installation, operation, and maintenance of such systems.

Galil, N. "Primary Chemical Treatment Minimizing Dependence on Bioprocess in Small Treatment Plants." Water Science and Technology. Vol. 22, No. 314 (1990) pp. 203-210.

Discusses pros and cons of chemical vs. bioprocess wastewater treatment. Shows how each can be used in small plants.

Katsiris, N. "Performance and Operation of Small Activated Sludge Plants in Tourist Areas." Water Science and Technology. Vol. 21, No. 1 (1989), pp. 67-75.

Good overview of hospitality wastewater treatment plants. Discussion of operating and maintenance problems that arise, and some methods of solving them.

Samsel, Anthony, editor. Guide to Water Cleanup Materials and Methods. Cambridge, Massachusetts: Arthur D. Little, Inc., 1974.

Vaananen, P. "Comparison of Centralized Versus Decentralized Wastewater Systems for Tourist Areas." Water Science and Technology. Vol. 21, No. 1 (1989) pp. 87-92.

WATER DISTRIBUTION SYSTEMS/EQUIPMENT

American Water Works Assoc. Sizing Water Service Lines and Meters. AWWA Manual M22. Denver, CO: AWWA, 1975.

A well recognized standard.

Chasis, D.A. Plastic Piping Systems, 2nd ed. New York: Industrial Press, 1988.

The definitive book on using plastic pipe.

Gas Appliance Manufacturers Assoc. Consumers Directory of Certified Ratings for Commercial Heating and Water Heating Equipment. Arlington, VA: GAMA, 1990 (Latest edition, published semi-annually).

Contains GAMA certified ratings. Program administered by ETL Testing Laboratories, Inc.

Jeffcoate, P. and Pond, R. Large Water Meters: Guidelines for Selection, Testing, and Maintenance. Washington, DC: World Bank, 1989 (World Bank Technical Paper No. 111).

King, R.C. ed. Piping Handbook, 5th ed. New York: McGraw Hill, 1967.

A comprehensive volume on piping and pipe applications.

Kira, A. The Bathroom, 2nd ed. New York: Viking, 1976.

A classic book on plumbing fixture design with graphic illustrations.

Miller, R.W. Flow Measurement Engineering Handbook, 2nd ed. New York: McGraw-Hill, 1989.

A general view of flow measurement.

WATER CONSERVATION - EQUIPMENT/DEVICES

Baker, L.K. "Experiences and Benefits of the Application of Minimum Flow Water Conservation Hardware." Proceedings of the National Water Conservation Conference on Publicly Supplied Potable Water, April 14-15, 1981, Denver, Colorado. National Bureau of Standards Special Publication No. 624, June 1982, pp. 281-288.

Discusses principles and practices of conserving water use by reducing/minimizing flow. Details various types of hardware which conserve water.

Water Conservation Devices: Residential Water Conservation. Office of Water Research and Technology, Washington, D.C. National Technical Information Service Report No. PB-281 499.

Consumer based report detailing devices for use in residences and the economic benefits of their use.

WATER CONSERVATION - LEAK DETECTION

Hennigar, G.W. "Water Leakage Control and Sonic Detection." Canadian Water Resources Journal. Vol. 9, No. 3 (November, 1984) pp. 51-57.

Sonic detection devices are surveyed, described, and evaluated.

Lavery, G.L. "Leak Detection: Modern Methods, Cost, and Benefits." Journal of the American Water Works Association. Vol. 71, No. 2 (1979) pp. 61-64.

Describes a California leak detection program. Procedures and equipment are discussed, as well as common leak areas and a cost-benefit analysis.

WATER CONSERVATION PROGRAMS

Planning and Management Consultants, Ltd., An Annotated Bibliography on Water Conservation. Fort Belvoir, VA: Institute for Water Resources, 1979.

Report submitted to the U. S. Army Engineer Institute for Water Resources. Available from National Technical Information Service.

Benenson, P. Water Conservation Scenario for the Residential and Industrial Sectors in California: Potential Savings of Water and Related Energy. National Technical Information Service Report No. LBL-6817, August 1977.

Defines various users of water and prioritizes them according to ability to cut water consumption without affecting public health, safety, and welfare. Presents a plan for water allocation.

Blackwelder, B. Survey of the Water Conservation Programs in Fifty States: Model Water Conservation Program For the Nation. United States Department of the Interior, Bureau of Reclamation. Washington, D.C.: Environmental Policy Institute, 1982.

A detailed description of active water conservation programs in each state.

Bruvold, W.H. "Perception Influences Water Conservation Success." Water and Sewage Works. Vol. 127, No. 2 (February, 1980) pp. 34-36, 58.

Discusses the effects and benefits from implementing an economic incentive program for water conservation during the California drought of 1975-1977.

Cameron, T.A. "Determinants of Household Water Conservation Retrofit Activity. A Discrete Choice Model Using Supply Data." Water Resources Research. Vol. 26, No. 2 (February, 1990) pp. 179-188.

Study illustrating the economic impact of retrofitting water conservation equipment in households. Study is based on survey data.

Hancock, J.C. "Water Conservation in Housing." Proceedings of the Conference on Water Conservation Needs and Implementing Strategies, July 9-13, 1979, Rindge, New Hampshire. 1979, pp. 69-73.

Report by Presidents Task Force on Water Policy. Study shows residential usage data. Presents general water conservation strategy as well as eight specific recommendations.

Lund, J.R. "Evaluation and Scheduling of Water Conservation." Journal of Water Resources Planning and Management. Vol. 113, No. 5 (September, 1987) pp. 696-708.

Compares two economic models used in making treatment plant expansion decisions.

Waite, T.D. Principles of Water Quality. Orlando: Academic Press, 1984.

A solid text on water quality management.

Water Planning Division, Environmental Protection Agency, Annotated Bibliography for Water Quality Management 6th ed. Washington, DC: EPA, 1979.

A source for other sources.

KEEPING CURRENT WITH ADDITIONAL SOURCES OF INFORMATION

PERIODICAL SOURCES

Clean Water Action News; published quarterly by Clean Water Action Project, 317 Pennsylvania Avenue, S.E., Washington, DC 20003

Newsletter on current legislative, policy, and environmental efforts at federal and state level.

Desalination; published quarterly by Elsevier Publishing Co.,

Scholarly and applied articles on desalination technology.

Irrigation Journal; published bimonthly by Gold Trade Publications, Inc., Box 8420, Van Nuys, CA 91409

Formerly Irrigation Engineering and Maintenance, World Engineering. Trade journal devoted to irrigation.

Journal of the American Water Works Association, published by the American Water Works Assoc., 6666 W. Quincy Ave., Denver, CO 80235.

Highly regarded association journal devoted to water works operating professionals.

Power Engineering, published by Penn Wall Publications, 1421 Sheridan Rd., Tulsa, OK 74101

A peripheral journal to water issues but field has high interest in water treatment issues.

Water - Engineering and Management, published monthly by Scranton Gillette Communications, Inc., 380 E. Northwest Highway, Des Plaines, IL 60016.

Formerly Water and Sewage Works. Informational articles pertaining to applied water and wastewater technology. Product and legislative updates.

Water Resources Bulletin, published bimonthly by American Water Resources Association, 5410 Grosvenor Lane, Suite 220, Bethesda, MD 20814.

Current research in water resources. Not referred, but high quality.

Water Science and Technology, published monthly by Pergamon Press, Journals Division, Maxwell House, Fairview Park, Elmsford, NY 10523.

Formerly Progress in Water Technology. A referred journal published under the supervision of the International Association on Water Pollution Research.

Water Well Journal, published monthly by Water Well Journal Publishing Co., 6375 Riverside Dr., Dublin, OH 43017.

A trade journal devoted to those who drill holes in the ground.

ON-LINE SERVICES*

Selected Water Resources Abstracts produced by the Water Resources Scientific Information Center.

This database lists over 200,000 citations and can be searched by author, title, subject, and key words. SWRA includes books, journal articles, reports, patents, and conference proceedings.

Waternet produced by the American Water Works Association, Denver, CO.

This database contains over 20,000 citations and can be searched by any word or term. Books, proceedings, journals, newsletters, standards, manuals, handbooks, and water quality standard text methods are included.

COMPENDEX PLUS produced by Engineering Information Inc., NY, NY

This database of over 2.5 million citations is the world's foremost reference to engineering and technology literature. Over 4500 journals are indexed, as are numerous reports, proceedings, and government documents.

*The Cornell School of Hotel Administration Library will access these databases for the cost of the search. Phone 607-255-9992.