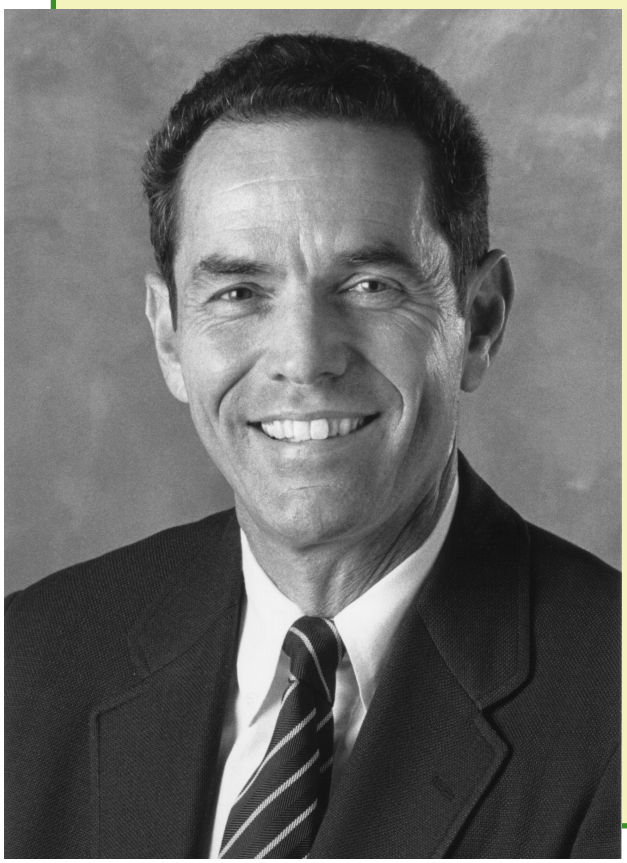
# the KAPPE LECTURE Series

Sharing the knowledge of today's practitioners with tomorrow's engineers

2006

AMERICAN ACADEMY OF ENVIRONMENTAL ENGINEERS®

# THE 2006 KAPPE LECTURER



**JEROME B. GILBERT, P.E., DEE**

Consulting Engineer, Orinda California

## PROFESSIONAL CREDENTIALS

Registered Professional Engineer in Ohio and California
Diplomate, American Academy of Environmental Engineers
Member, National Academy of Engineering
Fellow, American Society of Civil Engineers

## PROFESSIONAL HONORS

Abel Wolman Award of Excellence, American Water Works Association
Medal of Outstanding Service, American Water Works Association
Distinguished Alumnus Award, College of Engineering, University of Cincinnati
Friendship Medal, Institution of Water Engineers and Managers, UK

Mr. Gilbert's career includes a wide range of engineering and executive responsibilities for water resources and water quality. He has managed two California water utilities, most recently as the General Manager and Chief Engineer of East Bay Municipal Utility District (1980s), a retail water and wholesale sewerage authority. As Executive Officer of the State Water Resources Control Board in California, he authored state laws, major elements of federal clean water laws, implemented basin planning, water rights, and pollution controls in the 1970s. His practicing consulting engineering work has included the planning and design of water supply facilities including major treatment plant upgrades, and managing the contracting of large public works water projects. His work is emphasized the need for investing for the future, and economy and efficiency in development of water projects and programs.

In 2005, he was the recipient of the Abel Wolman Award of Excellence from the American Water Works Association, and the University of Cincinnati has awarded him a Distinguished Alumnus Award, and he has a Master's Degree from Stanford University he has been President/Chairman of AWWA, the AWWA Research Foundation, International Water Association's Scientific Council and Program Committee, the American Academy of Environmental Engineers, and he has been a Member of the National Academy of Engineering since 1989. The Water Science and Technology Board has selected Gilbert for a number of study committees including the Potomac River, New York Watersheds, Privatization, and Southwestern Pennsylvania Water Quality.

Mr. Gilbert is a registered engineer in California and Ohio, where he was born. After graduating from the co-op program at the University of Cincinnati he decided to focus on construction economics, which he studied at Stanford. His first employer asked him to temporarily participate in some water supply planning and design work-and this determined the direction of his career. He now lives in California and practices consulting engineering as an expert witness, advisor on large treatment plant projects, and has developed strategies for use of reclaimed wastewater and reallocation of water supplies from agricultural to urban uses.

# ABSTRACTS OF LECTURES OFFERED

## Lecture A: Engineering for Water Quality, Institutional Limits on Optimization

The water environment has been greatly improved. In the US and in much of the rest of the developed world, increasing expenditures for pollution control have been made through existing companies and institutions. The great leap forward that occurred after World War II provided the basis for a new era in the 1970s with the Clean Water Act, the Safe Drinking Water Act, and the creation of USEPA. Many states matched the federal government with new organizations and laws. But except for administrative reorganizations and some inter-basin planning groups, the agencies building and operating new facilities, and planning for environmental management, are not matched to the problem. The development of plans, regulations and projects to control and improve water quality for both drinking water and environmental benefits takes place in the context of the existing institutions and the laws that govern them. By and large, they were established to achieve different objectives and within a geographical and political jurisdictions that do not reflect today's engineering, scientific and technical needs for water management.

Engineers have designed individual projects and plan regionally to achieve water quality objectives; notwithstanding the impediments that prevent them from considering and achieving the best results. Regulators and project funders have continually emphasized the need for consolidation and regionalization of water and wastewater systems, while local institutions have fought to preserve their territorial and jurisdictional entitlements. These conflicts make it difficult for engineers to achieve the best results. Engineering planning requires a new level of creativity that would include a rebirth of "engineering economy", an emphasis on effectively using data sources, and creative ways of developing projects to involve these mismatched institutions in achieving solutions.

This lecture will discuss three cases and provide alternative ways for engineers to address impediments to effective planning, and project development. The cases include the City of Pittsburgh's attempt to control combined sewer overflows and the resulting Water Science and Technology Board 2005 Study; the conflicts between in-stream objectives and drinking water quality in the Sacramento River and San Joaquin Delta area of California; and the relationship between land-use controls and the construction of filtration plants for the City of New York, Seattle, and San Diego County Water Authority.

• • • • • • •

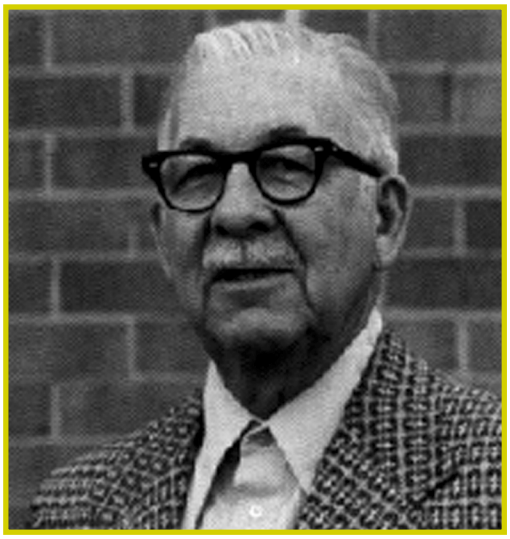
## Lecture B: Improving Drinking Water Quality, Enforcing Standards versus Requiring A Technology

Drinking water quality standards have been developed to protect public health. They are adopted sometimes with considerable controversy, by the federal government and the individual states. They serve as the basis for the design of drinking water treatment works, and the future planning of water supply development. They are based on a fundamental concept that "maximum contaminant levels" (MCLs) should be set for each contaminant with planners and engineers designing systems to achieve these levels. In addition the requirements include goals that are frequently established at zero. Representatives of water professionals had advocated this approach over a technology-based approach. The time has come to reconsider this concept since in the last 50 years there has been a significant improvement in the knowledge base used to establish standards and in the technology available to meet them.

The threat of litigation and public reaction to the presence of detectable contaminants create imprecise and expensive design targets. But water rate payers would benefit by using new sources of information and tools for improvement in an integrated and balanced way to achieve the best result for the investment. This presentation will discuss the impact of current standard setting, and concepts of regional planning. It will describe conflicting objectives and attempts to achieve an optimal result in drinking water quality and treatment projects and source development. Case studies will focus on contaminant control requirements of California's Proposition 65, attempts to respond to the presence of MTBE in groundwaters at South Tahoe, Santa Monica; control of a perchlorate in Sacramento in Southern California, and standards for the control of cryptosporidium and giardia organisms that have affected the relationship between technology and land-use controls at Seattle, San Diego, and in the New York City watershed.

• • • • • • •

*The Kappe Lecture Series was inaugurated by the Academy in 1989 to share the knowledge of today's practitioners with tomorrow's environmental engineers. It is an annually recurring series of lectures presented on college campuses during the Fall academic term. This focus enables it to complement the lecture series sponsored by the Association of Environmental Engineering & Science Professors which brings renowned research engineers to universities in the Spring term.*



"A man's debt
to his profession
is to help
those that follow"

**STANLEY E. KAPPE, P.E., DEE**, a successful environmental engineer, believed he owed a debt to the profession that rewarded him so well. During his life, he gave of himself to his university and to his profession through countless hours of volunteer activity. And, through this Lecture Series, he continues to share his good fortune with tomorrow's environmental engineers.

He graduated from Pennylvania State University in 1930 with a bachelor's degree in sanitary engineering. He served with the ennsylvania State Health Department and the U.S. Army Corps of Engineers before joining the Chicago Pump Company as its Eastern Regional Manager in 1935. In 1945, he founded Kappe Associates, Inc., a water supply and wastewater equipment company headquartered in Rockville, Maryland, and continued as its Chief Executive Officer until his death in 1986.

His peers recognized his contributions to the profession by numerous awards, including the AWWA Fuller Award, the WPCF Arthur Sidney Bedell Award, the WPCAP Ted Moses and Ted Haseltine Awards, and the AAEE Gordon Maskew Fair Award. In 1985, Pennsylvania State University named him Outstanding Engineer Alumnus.

Stanley E. Kappe was an activist member and leader in several national and Chesapeake region professional societies. He served as the Executive Director of the American Academy of Environmental Engineers from 1971 to 1981.

AMERICAN ACADEMY OF ENVIRONMENTAL ENGINEERS®

SPONSORED BY

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS
AMERICAN PUBLIC HEALTH ASSOCIATION
AMERICAN PUBLIC WORKS ASSOCIATION
AMERICAN SOCIETY FOR ENGINEERING EDUCATION
AMERICAN SOCIETY OF CIVIL ENGINEERS
AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AMERICAN WATER WORKS ASSOCIATION
ASSOCIATION OF ENVIRONMENTAL ENGINEERING AND SCIENCE PROFESSORS
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS
SOLID WASTE ASSOCIATION OF NORTH AMERICA
WATER ENVIRONMENT FEDERATION

130 HOLIDAY COURT, SUITE 100, ANNAPOLIS, MD 21401 • (410) 266-3311

FAX: (410) 266-7653 • E-MAIL: INFO@AAEE.NET • WEBSITE: HTTP://WWW.AAEE.NET