



# ENVIRONMENTAL ENGINEER

VOLUME 42 NUMBER 1 — MARCH 2006

The 2006 **8**  
Kappe Lecturer

The Class of 2005  
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**FEATURE:**

Upgrade and Expansion  
of the Stamford  
Water Pollution  
Control Facility



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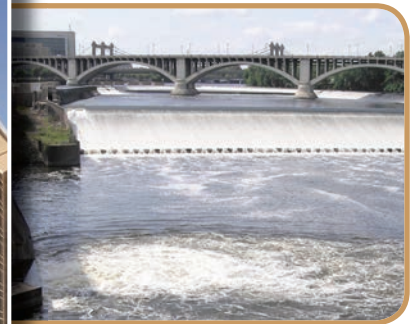


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# ENVIRONMENTAL ENGINEER



## 11 FEATURE:

### UPGRADE AND EXPANSION OF THE STAMFORD WATER POLLUTION CONTROL FACILITY

by Jeanette A. Brown, P.E., BCEE

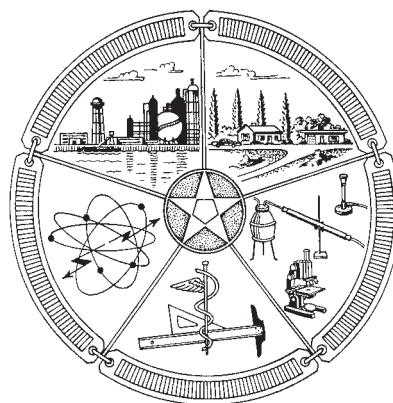
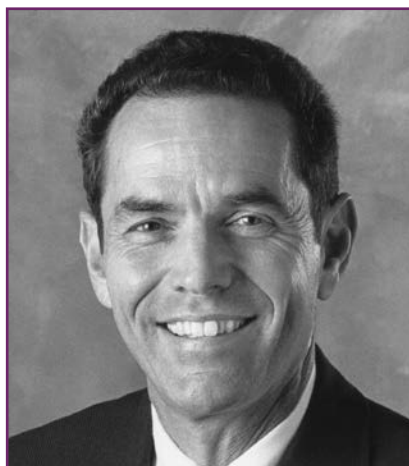
The \$105M upgrade of the Stamford Water Pollution Control Facility is detailed.

## 8

### KAPPE LECTURER 2006

*Jerome B. Gilbert, P.E., BCEE*

Jerome Gilbert, Past President of AAEE (1992), is the Kappe Lecturer for 2006. Included are his profile and abstracts for the lectures he will be presenting.



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### THE CLASS OF 2005

*Compiled by J. Sammi Olmo*

Bios of AAEE's newest Board Certified Environmental Engineers. In AAEE's trend of increasing membership, 142 became certified in 2005.

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BY ALAN H. VICORY, JR., PE., BCEE

## 2006: THE FIRST OF THE ACADEMY'S SECOND 50 YEARS

**THIS YEAR THE ACADEMY EMBARKS** on its second 50 years of service to our profession. If you have been following developments within AAEE, you are thus aware of the significant developments, decisions and initiatives your Board of Trustees have set in place that will serve to broaden the pool of practicing environmental engineers, qualified for certification, and create a governance structure that provides more representation from our ranks. It indeed has been a challenge arriving at this point, but I am pleased to have the honor of serving as your President at a time where the Academy is poised and positioned for growth and influence.

Revealing a bit of my personal and professional background, I have had the pleasure of directing the programs of a government agency whose mission it is to abate interstate water pollution in the Ohio River Valley. During the fall, I don the stripes of a football referee. So, you ask, why is he telling me this? Because this vocation and advocacy speaks to my desired areas of emphasis for my term. Professionally, my energies are generally focused on relationships. Refereeing football is a matter of being "in the game."

There you have it. In addition to continuing with the reinvention of the Academy, we, as I see it, must create, build and strengthen relationships with organizations where such relationships provide mutual strategic benefits. This is already beginning with a focused effort, in 2006, to identify and implement a customized program of mutual support activities between AAEE and its sponsoring organizations. In addition, and I believe facilitated by our opening of eligibility of membership to non-PEs who are, otherwise, fully quali-

fied for certification, we have begun discussions with AEESP whereby this important organization, which is the supplier to our profession, will work hand-in-hand with us to address needs such as introducing environmental engineering to primary school students, encouraging graduating environmental engineers to acquire professional credentials, creating new student chapters of the Tau Chi Alpha Environmental Engineering Honor Society. Throughout 2006, and hopefully beyond, we will continue to seek cooperation, collaboration where it serves our interests; the interests of Environmental Engineering.

Being "in the game," or perhaps better stated as at the table, is also critically important if the Academy and the practice of environmental engineering is to respectively grow and become more influential. By way of example, I had the pleasure, along with our Executive Director David Asselin, of participation in a September, 2005 Roundtable on Non-Governmental Organization Activities in Response to Hurricane Katrina. In a packed room at the Army-Navy Club in Washington D.C. numerous organizations representing professional societies, construction, building standards and the military discussed our respective concerns, actions and capabilities. This presented an opportunity for others to be advised that environmental engineers are critical to meeting the challenges of recovery, that AAEE is the place where the country's top environmental engineers can be located. Has this opportunity created opportunities and more influence for environmental engineers? I cannot say. However, I can say AAEE has increased its visibility and is likely better known.

I strongly encourage all Board Certified Environmental Engineers and Members to seize every opportunity to convey the existence of the Academy and the indispensable importance of environmental expertise in addressing our environmental needs. Such action was recently taken by one of our members, Walter Lyon, who was astonished to learn of a General Accountability Office Report assessing progress and problems with the implementation of the Chesapeake Bay Program. That Report was developed with the assistance of an advisory panel that included no environmental engineers! In reaction, Walt personally communicated with the GAO official responsible for the report, bringing to her attention this oversight and its implications. As Walt correctly observes, it is imperative that evaluation of a program to restore a body of water (in this case the Chesapeake Bay) must involve an evaluation of the underlying science. And, as engineers are trained to design the systems, such as models, that set the management framework as well as the systems employed to accomplish the cleanup, this expertise is a critical. Certainly, related scientific disciplines must be on the team, but engineers are trained and experienced in addressing the management problems essential to the attainment of goals.

I look forward to 2006 being yet another positive and forward movement year for our Academy. But the extent to which this, and the following 49, unfolds in a way that AAEE will achieve great things, depends in large part on growing our impact and influence. This, in turn, requires solid organizational alliances and our individual diligence to assure that environmental expertise is sought after and employed. **A**

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### THE STATE OF THE ACADEMY

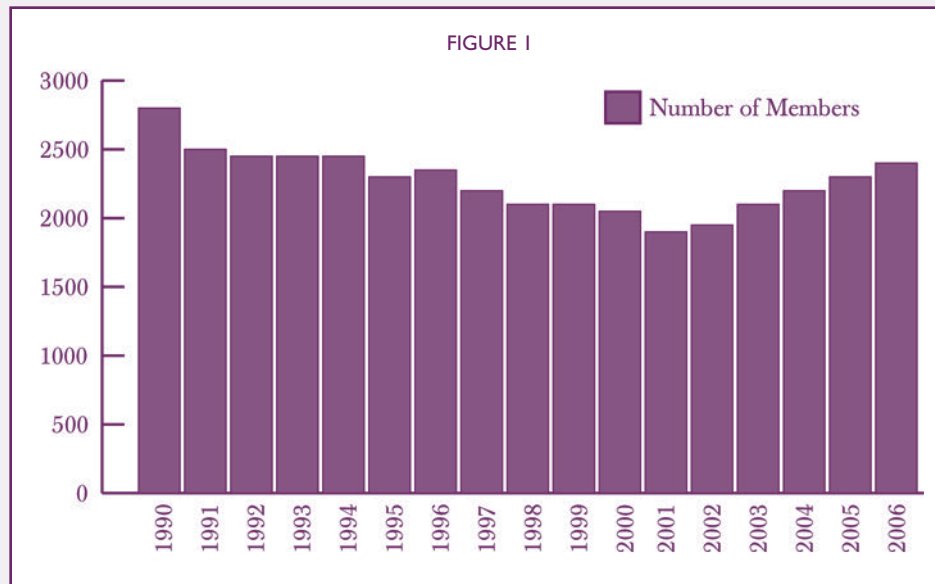
In the beginning of most years, Mayors, Governors and even the President deliver “State of” speeches to update their constituents on how their respective localities are fairing. Following is a State of the Academy as of the beginning of 2006.

All in all, AAEE is doing well. Our membership is continuing its upward growth, our financial position has improved, and interest in Specialty Certification and other Academy programs is on the rise. At the same time, the Academy’s volunteer leaders have been acting to ensure the continued longevity of AAEE as we move into our next fifty years of activity.

### MEMBERSHIP

Renewals for 2006 have been very strong with over 90% of the membership renewing their specialty certification by the end of January. Non-certified members have now been put on the same annual renewal cycle and those renewals are coming in equally as strong.

The number of AAEE Board Certified Environmental Engineers as of this January is 2,407; rapidly approaching the Academy’s all-time high of 2,600 (1990). (See Figure 1)



This is a growth of more than 26% since the same time in 2002. A great number of things can be attributed to this growth, but the most important is our own members who have gone out to encourage new Certificants and raise the awareness of Specialty Certification.

Of those 2,400 some-odd certified members, a full 1,900 are listed as “Active” which mean they adhere to the Academy’s requirement of a minimum of 40 Professional Development Hours (PDH) in the preceding 24-month period. An additional 383 members are “Life” members, which means they have been with the Academy for more than 20 continuous years and have attained the age of 65. Only 4% of the certified members self-report as “Inactive” meaning they have not been able to adhere to the PDH requirement.

Finally, 25 certified members are listed as “Emeritus” meaning they no longer actively practice in the profession. (See Figure 2)

The Academy’s Board Certified Environmental Engineers (BCCE, or formerly DEE) are broken out into seven different specialties – Air Pollution Control, General Environmental Engineering, Hazardous Waste Management, Industrial Hygiene, Radiation Protection, Solid Waste Management and Water Supply and Wastewater. There is also the old category of Sanitary Engineering which was dissolved in 1986 but in which we still have several Cer-

❖ Continued on 10 ❖



BY DAVID A. ASSELIN

# R.E.S.P.E.C.T.

engineers... “the fry cooks of the technical world.”

RECENTLY, I WAS LISTENING TO THE NEWS on NPR, which had done a great piece on Engineering Careers in association with Engineers Week.

However, what really struck me was a response to the story a week later by an electrical engineer who wondered if he made the right career choice. He went on to grouse about the lack of respect that engineers receive from the public and employers finally referring to engineers as “the fry cooks of the technical world.”

My first reaction was to think, “Well, that guy’s just bitter.”

Engineers everywhere work to increase the visibility, value and professionalism of the trade. Look at the 142 people in this issue of *Environmental Engineer* who care enough about their careers and profession to get Specialty Certified – joining the 2300 other Board Certified Environmental Engineers at the Academy. Look at the memberships of our sponsoring organizations – some with tens of thousands of engineer members banded together for the good of the profession.

There are even organizations like the National Society of Professional Engineers (NSPE) and the American Association of Engineering Societies (AAES) whose main missions are to advance the interests of Licensed PEs and the engineering profession as a whole, respectively.

A lot of people work very hard to enhance the reputation of engineers. The most important of those are the engineers themselves out working in the field every day. Engineers make sure we have clean, safe drinking water, make sure the air we breathe is clean and pure, keep our roads and bridges safe and modern, design technology to make us work smarter and more efficiently, hold our infrastructure together.

Engineers research, develop, design, invent, plan, construct, operate and maintain a myriad of systems, components and products to enhance our daily lives and make our world an easier, healthier and safer place to live.

How could anybody not respect The Engineer?

But then you begin to analyze data, look at statistics, read reports – the numbers tell a different story and forecast a potentially unhappy trend.

The number of Bachelor’s degrees awarded in engineering has been continuously declining since 1985, when it peaked at over 77,000. The most recent figures from the National Science Foundation are now hovering just around 60,000. (There has been a slight up-tick beginning in 2002.)

In a recent report from the National Academies titled *Rising Above the Gathering Storm*, the report’s authors were

deeply concerned that “the scientific and technical building blocks of our economic leadership are eroding at a time when many other nations are gathering strength.” And, “fear the abruptness with which a lead in science and technology can be lost – and the difficulty of recovering a lead once lost, if indeed it can be regained at all.”

One alarming statistic from that report: For the cost of one engineer in the United States, a company can hire about 11 engineers in India. Also, in 2004 China graduated around 500,000 engineers, India graduated some 200,000 and the US around 70,000 (including post-Baccalaureate). Only 4.7% of degrees awarded in the US in 2002 were in engineering.

As the report’s authors note, if the United States does not put more of an emphasis on science and engineering in our elementary and middle schools, this country will find itself being a net importer of scientific and engineering services from other countries.

America must begin now to invest in our scientific and engineering future. We must all do our part so that the general public perceives engineering as a profession as important as the legal and medical professions.


Let’s not have any more engineers rethinking their career choice. ▢

**C. DALE JACOBSON, P.E., BCEE**, received the Richard S. Englebrecht International Development Service Award from the Water Environment Federation at WEFTEC '05 on November 1, 2005. Mr. Jacobson is a former WEF President and a current AAEE Trustee. He has been certified by AAEE since 1988 in Water Supply/Wastewater.

### IN MEMORIAM

**HARRY H. CURTIN, JR., P.E., BCEE**, passed away on November 29, 2005. Mr. Curtin was certified in Sanitary Engineering in 1966.

**RICHARD C. MILLS, P.E., BCEE**, passed away on May 3, 2005. Mr. Mills was certified in 1980 in Water Supply/Wastewater.

**RONALD D. SADOW, P.E., BCEE**, has passed away. Mr. Sadow was certified in 1969 in Sanitary Engineering. 

## Officer Nominees 2 • 0 • 0 • 7

Full profiles and voting ballots will be available in the Spring issue of *Environmental Engineer*.

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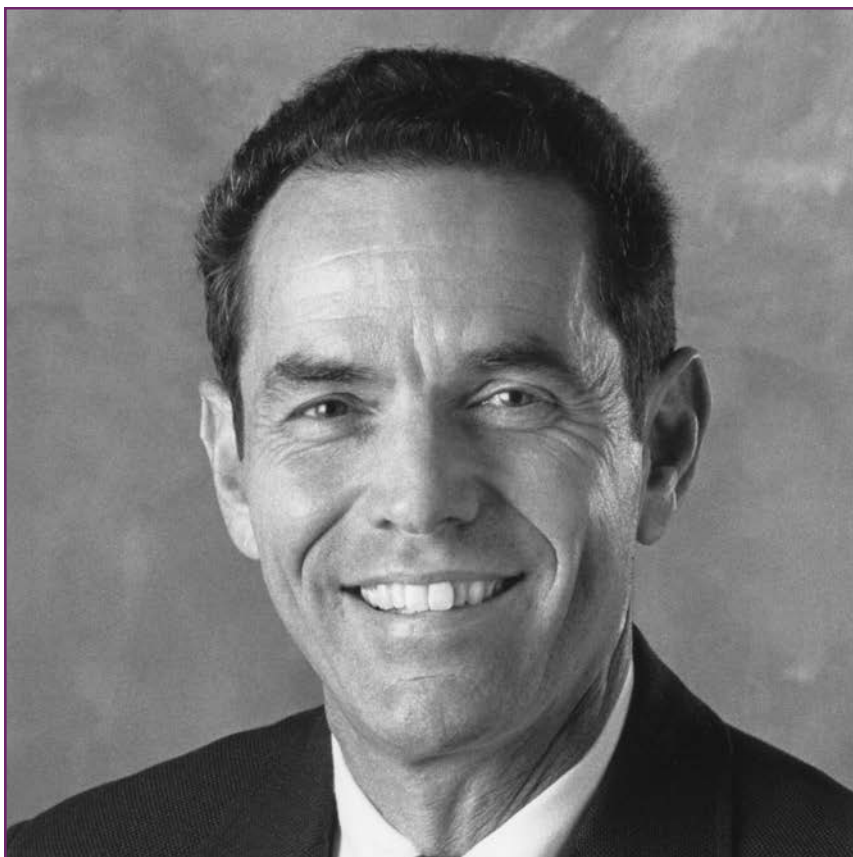
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## The 2006

# KAPPE LECTURER



## Jerome B. Gilbert, P.E., BCEE

Consulting Engineer, Orinda, California

### PROFESSIONAL CREDENTIALS

Registered Professional Engineer in Ohio and California  
Board Certified Environmental Engineer, 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 has 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. 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 Mr. 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 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.

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*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.*



## Academy News, continued from page 5

tificants. Figure 3 illustrates the distribution of Specialties amongst our current BCEE's. (See Figure 3)

We also have over 200 non-certified Members of AAEE. These are members of the Academy who do not possess the minimum qualifications for certification or who have not yet applied to take their examination. Non-certified members receive the same benefits of the Academy and are strongly encouraged to apply for Specialty Certification as soon as they are eligible.

### FINANCIAL

The past several years have seen the Academy struggle financially. Earlier difficulties put the Academy in a deficit situation that has hindered our ability to fully reach out to the various constituencies necessary to move the Academy into greater prominence. It is a testament to our recent Leadership and members that the Academy has continued to grow in numbers over this difficult time and everyone is to be commended.

Due to the hard work of your Board of Trustees in identifying the needs of the Academy and working to contain costs while maintaining the organization's core programs, the Academy has been able to greatly reduce the deficit and return AAEE to a stable financial footing. As we move through 2006 and look to 2007, it is expected that the Academy will erase its deficit entirely and begin to look to an even brighter financial future.

### SPECIALTY CERTIFICATION APPLICATIONS

While it is too early to have a final count on the number of applications for the 2006 certification cycle, Board Certified Environmental Engineer (BCEE) and Board Certified Member (BCM) applications have begun to come in and we expect to have another large class this year based on the number of requests for applications.

With the addition of the Board Certified Member this year, the Academy created a second certification program to capture

those experienced and qualified degreed environmental engineers who are not state-licensed for a variety of reasons. The Academy will continue to report on the interest of this program as it goes forward.

### OTHER ACADEMY PROGRAMS

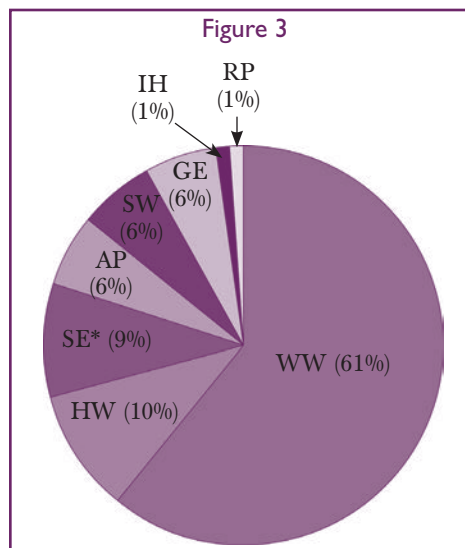
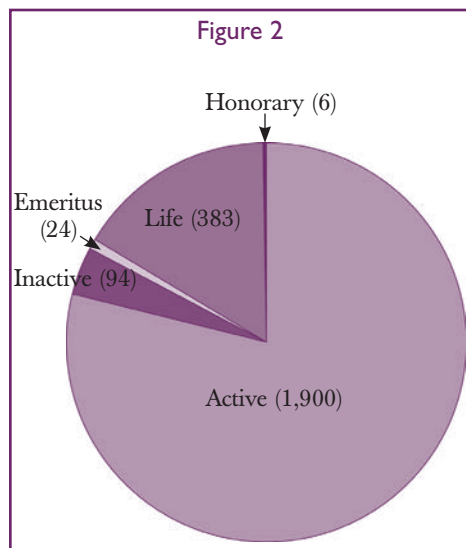
The AAEE's Excellence in Environmental Engineering award competition continues to highlight some of the best and most innovative projects each year. Beginning this year, the Academy is partnering with the International Water Association (IWA) so that qualified winners of the AAEE competition will move on as the US entries to the IWA International Competition, which will take place this fall in Beijing, China. By working with IWA, AAEE hopes to enhance recognition of the Academy on an international scale and begin promoting specialty certification to new audiences.

The Academy continues to sponsor the annual Kappe Lecture on University campuses and interest in that lecture series remains high year after year.

In addition, circulation of the *Who's Who in Environmental Engineering* and the *Environmental Engineering Selection Guide*, both in bound form and on the web, are some of the most useful tools to promote the need for Specialty Certified Environmental Engineers to potential clients and other constituencies throughout the US and abroad.

### SUMMARY

The State of the Academy is strong and continues to strengthen with time. As we move forward into the coming years, the dedication of our Members and the hard work of our Volunteers will help to ensure the growth and success of AAEE and spread the recognition of Specialty Certification to increasingly wider audiences. **A**



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With the readership representing a wide range of environmental engineers from leaders of consulting firms to government agencies, educators and students, the *Environmental Engineer* is an excellent resource for advertising directly to others in the industry. For information on issue availability and rates, call Academy headquarters at 410-266-3311.

# UPGRADE AND EXPANSION OF THE

## STAMFORD WATER POLLUTION CONTROL FACILITY

*by Jeanette A. Brown, P.E., BCEE*

The Stamford Water Pollution Control Authority (SWPCA) has completed an upgrade and expansion of their water pollution control facility. This project was the largest single capital project ever undertaken by the City of Stamford by more than double. The total project cost is \$105M and the project finished on budget and on time. The project was designed by CH2M HILL and constructed by Carlin Contracting, Waterford, CT. CH2M HILL also provided construction management. The project manager for Carlin Construction was Jeffrey Fournier and the project manager for CH2M HILL was Brian Gackstatter. Figure 1 is an aerial view of the plant at the 85% completion stage.

**FIGURE 1**  
**AERIAL VIEW STAMFORD WATER POLLUTION CONTROL FACILITY**





The project was funded almost entirely by the State through grants and loans. Of the \$104,981,705 total project cost, the City received \$23,661,564 in grants and \$73,561,481 in 2% interest loans. The balance of the project cost was associated with an ineligible portion of the project and is funded through general obligation bonds of the City of Stamford.

The Project involved the expansion of the Stamford Water Pollution Control Facility (WPCF) to 24 million gallons per day (MGD) average daily flow and 68 MGD peak flow with upgrades to enhance nitrogen removal, solids handling and improvements to other functions of the plant in accordance with the requirements of the Connecticut Department of Environmental Protection. The project was required for several reasons:

1. The existing plant reached its design capacity and equipment was at the end of its useful life.
2. Significant growth is projected for Stamford thus increasing the volume of wastewater that must be treated.
3. The water quality issues with Long Island Sound require much higher levels of treatment for the removal of nitrogen.

The 24 MGD average daily flow capacity was based on population and commercial growth projected over a 20-year period for both Stamford and Darien. The results of these evaluations indicated an increase in sewered population in Stamford from 87,336 in 1997 to 100,497 in 2017. For Darien, the sewered population increase was from 12,200 in 1997 to 14,996 in 2017.

Because of the need for land area for the new biological reactors and clarifier, it was necessary to relocate the recycling center and highway maintenance garage which were next to the existing treatment plant and the SWPCA was able to obtain in excess of \$7 million in grant and low interest loan (2%) to construct new facilities. The former garage (20,000 sq ft) was almost 100 years old and in dire need of upgrading and expansion. Because of the upgrade and expansion of the treatment facility, the City was able to capitalize on this funding and ended up with a modern and very user friendly Recycling Facility and a 40,000 square foot Highway Garage (Figure 2), including a salt and sand shed, covered bin



**FIGURE 2 HIGHWAY GARAGE**

*This project was the largest single capital project ever undertaken by the City of Stamford by more than double.*



**FIGURE 3 METHANOL BUILDING**



FIGURE 4 ULTRAVIOLET DISINFECTION

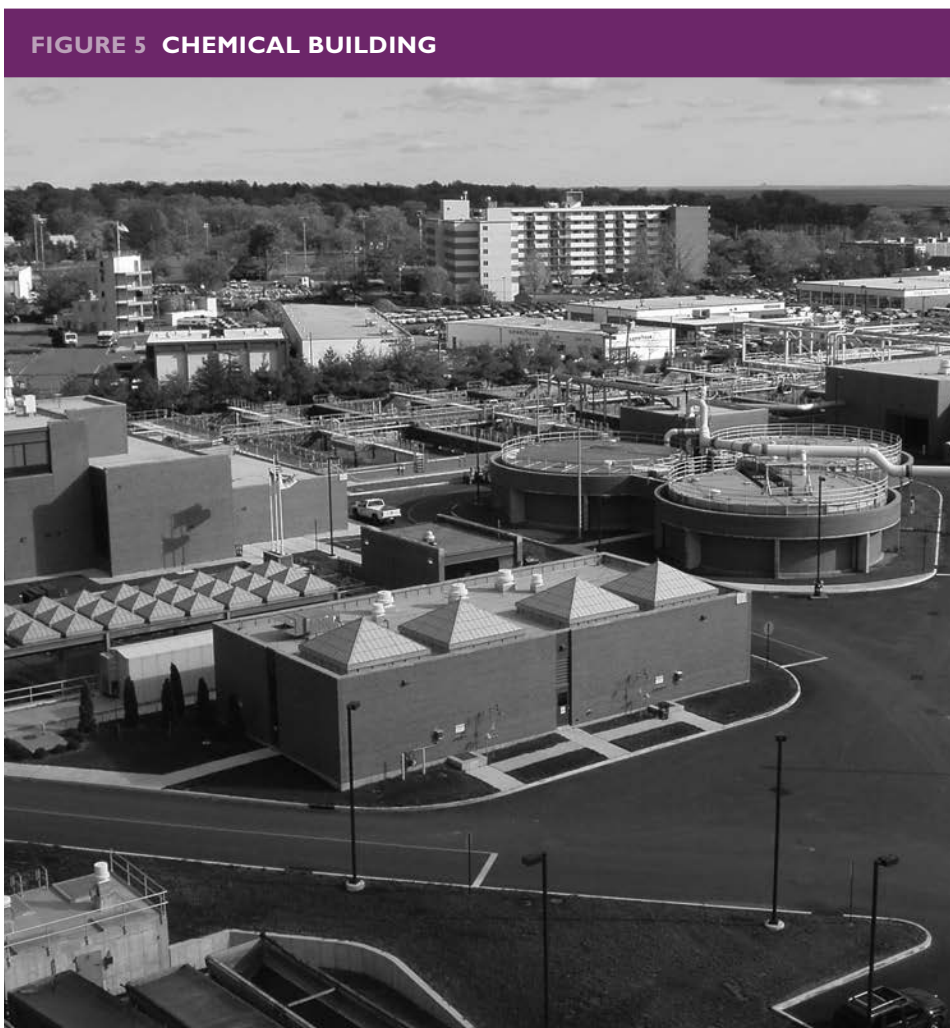


FIGURE 5 CHEMICAL BUILDING

storage, equipment storage and catch basin debris drop off station.

The principal areas of work for the treatment plant in the liquid treatment processes were upgrades and/or expansions in the following plant facilities: screen building and raw sewage pumping station, primary clarifier flow distribution structure, primary clarifiers, new and renovation of existing biological reactors, methanol building (Figure 3), new and existing secondary clari-

*The plant itself is over 100 years old and the majority of the improvements were to be constructed on manmade land which included a retired City landfill.*

fiers, secondary clarifier flow distribution structure, UV disinfection facility (Figure 4), chemical building (Figure 5), and an effluent flow meter vault. The chemical building is the centralized location for chemical storage (sodium hypochlorite and sodium hydroxide) and pump distribution systems for odor control and for other process requirements.

The principal areas of work in the solids processes were upgrades and expansions of the following plant facilities: primary sludge pumping station, sludge thickening and dewatering facility, and the installation of new belt filter presses (Figure 6), new polymer system (Figure 7) and new gravity belt thickeners. It also included the renovation of an old incinerator building built in 1941 to house the new solids processing equipment.

The requirement for nitrogen removal had the biggest impact on the project. The



new biological reactors (Figure 8) necessary to meet permit limits are 300 ft by 350 ft. An additional secondary clarifier was also required because of nitrogen removal.

The project also consists of an upgrade and expansion of the power distribution system, a switchgear/generator building, expansion of the operations building including a 2400 sq ft laboratory, a maintenance and blower building, three odor control facilities, and a SCADA system that monitors and controls plant processes and communicates with 25 remote pumping stations.

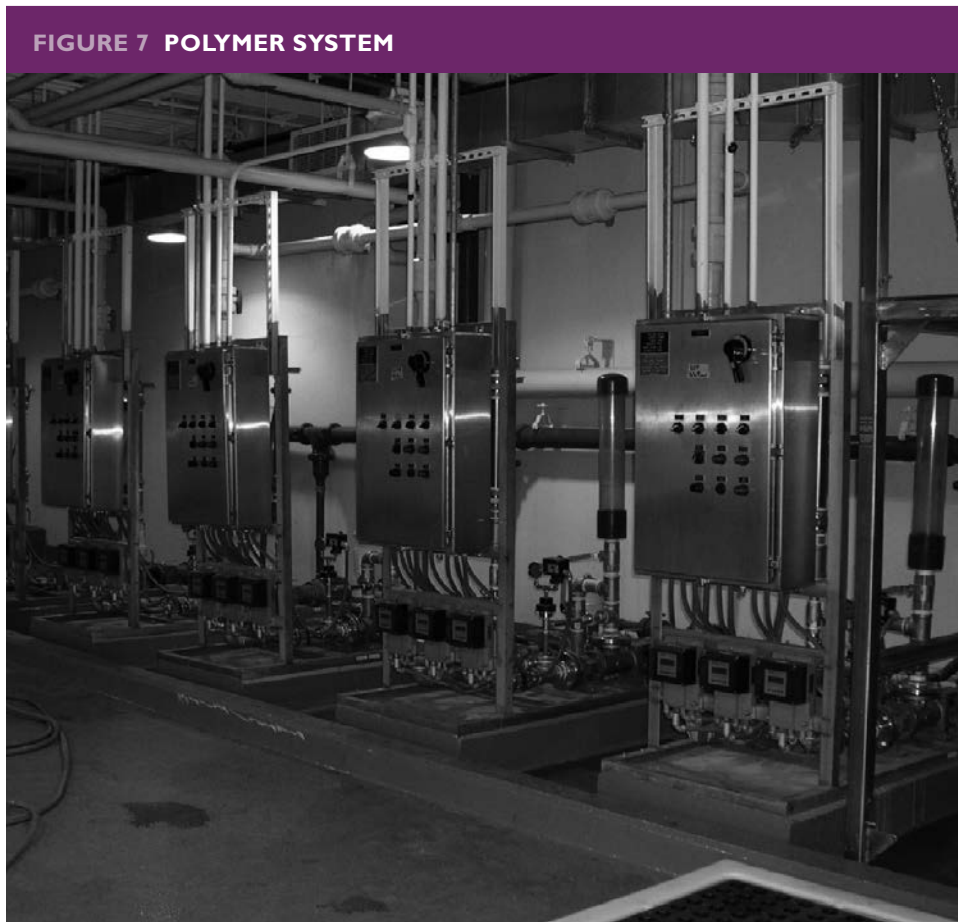
*It is an exceptional accomplishment to finish a project of this complexity and magnitude within budget and is considered by many to be the most successful capital project in the history of Stamford.*

This project had numerous amounts of unknowns. The plant itself is over 100 years old and the majority of the improvements were to be constructed on manmade land which included a retired City landfill. The soils conditions and level of contamination was a tremendous unknown and encumbered approximately 10% of the construction costs.

One of the major costs associated with this project was the testing, removal and disposal of contaminated soils. The contractor removed and properly disposed of



**FIGURE 6 BELT FILTER PRESSES**



**FIGURE 7 POLYMER SYSTEM**

❖ Continued on 23 ❖





# *The Class of* 2005

THESE INDIVIDUALS were Board Certified in November 2005 and are the 50th Anniversary class of the American Academy of Environmental Engineers.

From the first applicants in 1956 to the 142 Board Certified Environmental Engineers listed on the following pages, the Academy has undergone growth and changes, but has never wavered from its core objective to “identify and credential persons with special capabilities in environmental engineering.”

Today, there are over 2,400 Board Certified Environmental Engineers in the Academy and interest continues to grow on an annual basis.

A brief description of the specialty certification process follows: To be included in an annual class, the application for specialty certification must be submitted to the Academy by March 31. Any application received after that date is held over to the next class. The applications received by March 31 are then reviewed by the Admissions Committee for adequacy of education and qualifying experience in April and May. Examinations are administered to the qualified applicants during July and August at convenient locations throughout the country. The examination results are reviewed by the Admissions Committee in September and recommendations for each candidate are presented to the Board of Trustees. Each person's history is reviewed by the Board members at the Academy's Annual Meeting and decisions made to certify or not.

**THE ACADEMY** announces the issuance of specialty certificates and Board Certified Environmental Engineers status to those individuals portrayed in this special section of the *Environmental Engineer*®. These persons have demonstrated to their peers that they possess the requisite formal education and environmental engineering practical experience and have successfully completed the Academy's examinations to be board-certified environmental engineering specialists. The special capability of each person is shown after their name using the following codes:

**AP** Air Pollution Control,  
**GE** General Environmental  
Engineering,

**HW** Hazardous Waste Management,  
**IH** Industrial Hygiene,  
**RP** Radiation Protection,

**SW** Solid Waste Management,  
**WW** Water Supply and Wastewater  
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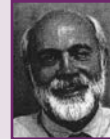
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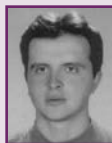
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## Upgrade and Expansion, *continued from page 14*


almost 200,000 tons of contaminated waste, approximately 5000 truck loads. The total cost for soil removal alone was approximately \$8 million.

All of the new processes were on line by December 2005. With the design of the biological reactors, once the plant is in steady state, effluent nitrogen concentrations should be as low as 4 mg/l with the addition of supplemental carbon (methanol). Connecticut has a nitrogen credit-trading program and Stamford's goal is to be the largest seller of credits in the State.

It is an exceptional accomplishment to finish a project of this complexity and mag-

nitude within budget and is considered by many to be the most successful capital project in the history of Stamford. Lastly one of the greatest noteworthy successes is having completed a major construction project without a claim and without legal support. This success is attributed to the partnership formed by the three agencies, SWPCA, CH2M HILL and Carlin Contracting.

### ABOUT THE AUTHOR

*Jeanette A. Brown, P.E., BCEE, is a Past President of AAEE (2004). Currently, she is Executive Director of the Stamford Water Pollution Control Facility. *

**FIGURE 8 BIOLOGICAL REACTORS**







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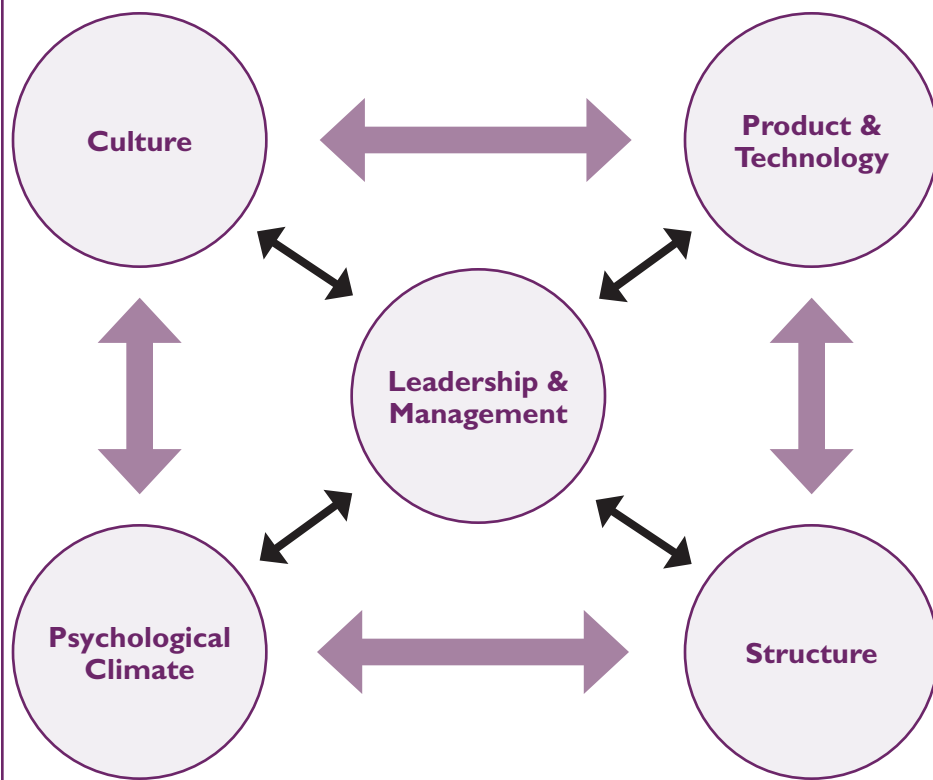
## NOTE FROM EDITOR

Thank you to **CHESTER PAULS, P.E., BCEE**, for catching an error. In our last issue, we printed a story by James T. Ziegenfuss, Jr., Ph.D. (page 17) titled *Systems Thinking Engineers Solve Productivity Problem*. On page 19 a Figure was cited, but we mistakenly omitted said figure. While we apologize for our error, it is a relief to know that our readers are paying attention. Here is the figure that should have run with the story.

## IN THE NEXT ISSUE

The Spring *Environmental Engineer* will include profiles and ballots for voting on the Academy's Officer Nominees for 2007, Honorees for the 2006 Academy Awards, and a special feature on the winning entries of the 2006 Excellence in Environmental Engineering Competition.

FIGURE 1  
Organization and Management Problem Solving:  
The Diagnostics Targets



Source: James T. Ziegenfuss, Jr. *Organization & Management Problem Solving: A Systems and Consulting Approach*. Thousand Oaks, CA.: Sage, 2002, page 13.

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