

New York Water Environment Association, Inc.

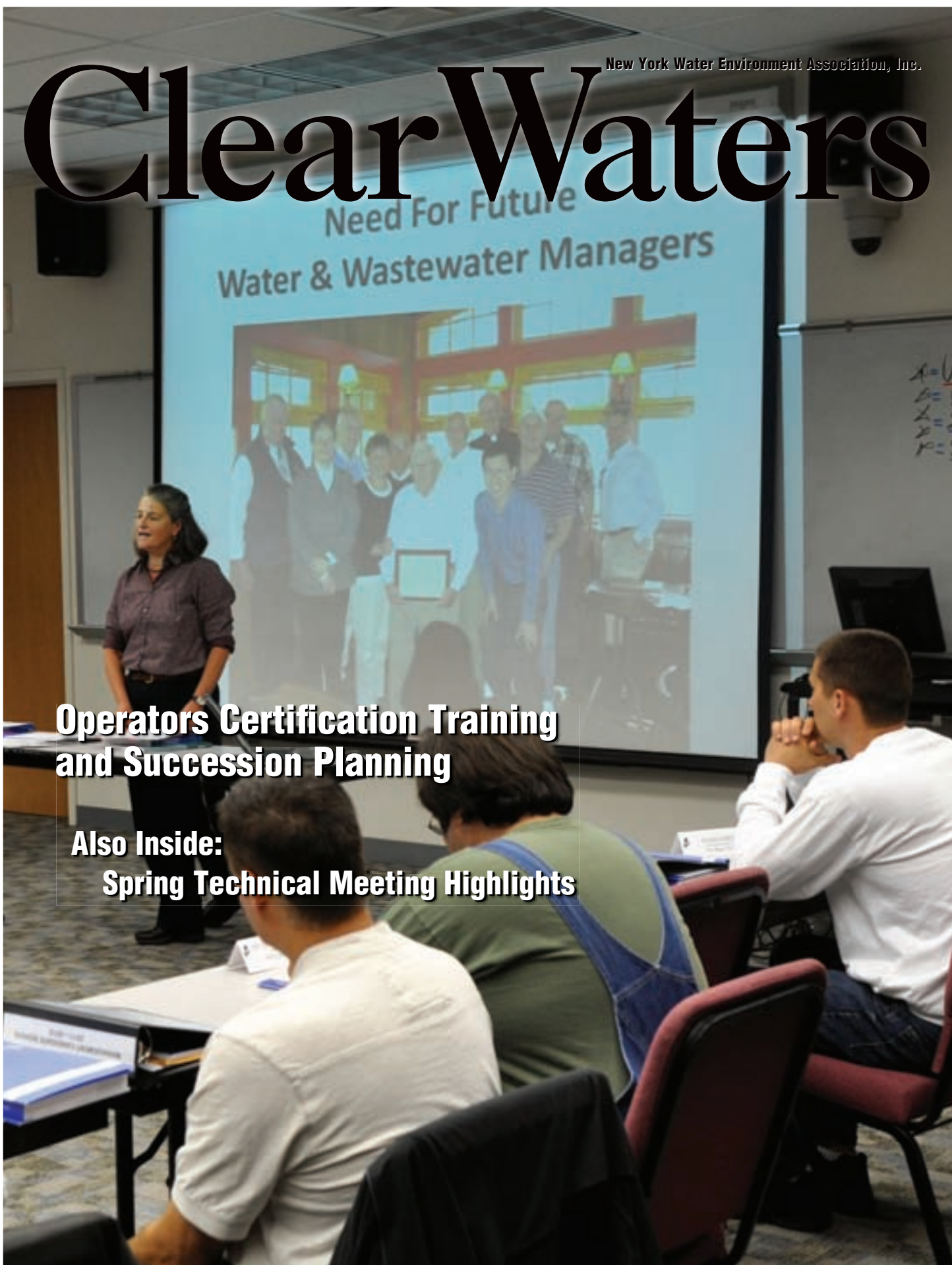
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and Succession Planning**

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Spring Technical Meeting Highlights**





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Clear Waters Magazine

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Cover Image: A Management Candidate School classroom held in Maine addresses the demand for water/wastewater facility operations specialists/managers. The instructor is Leeann Hanson, employed by New England Interstate Water Pollution Control Commission and coordinator of the Maine Joint Environmental Training Coordinating Committee. *Photo courtesy of NEIWPCC*

The concepts, ideas, procedures and opinions contained in the articles in this publication are those as expressed by the various authors who submit the material for publication. The New York Water Environment Association, its board of directors, the editor, the executive director, and administrative staff hereby assume no responsibility for any errors or omissions in the articles as presented in this publication; nor are the concepts, ideas, procedures and opinions contained in these articles necessarily recommended or endorsed as valid by NYWEA, its board of directors, the editor, the executive director, or staff.

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Human Capital

This issue of *Clear Waters* provides a focus on operator certification, succession planning and operator training. In recent years, a majority of the publicity about our publicly owned treatment works (POTWs) has been aging infrastructure and the lack of funding, capital planning and investments resulting in permit violations. We have now also reached a critical point in the aging of our “human capital.” Even if we had a perfect world in regards to available monies for investment

in wastewater infrastructure, I believe we would still have issues in advancing water quality. **The fact of the matter is, we need educated, well trained and certified operators to effectively meet the goals of the Clean Water Act (CWA).** Without qualified operators, mechanics, laboratory technicians and other needed disciplines, the return on investment in our utilities would provide minimal value.

Due to increased regulatory requirements, technology and the overall sophistication of process units, treatment plants are becoming more difficult to operate. Also, with the 2008 economic downturn and the resulting reduced governmental revenues, we all have been asked to do more with less. The theme has been to reduce staffing as much as possible through attrition, early retirement incentives and, in some cases, layoffs. These reductions have come at a cost, with the departure of experienced staff with decades of institutional knowledge. The loss of this institutional knowledge without proper planning, could impact permit compliance and utility efficiencies.

Our organization, the New York Water Environment Association, has made tremendous strides in the areas of operator certification, succession planning and training. September 1 marked the one year anniversary of NYWEA being the administrator of the operator certification program. I had the privilege of being a member of the task force that facilitated this change from the NYS Department of Environmental Conservation to NYWEA. I am very proud of the commitment of our Certification Governance Council and Tanya May Jennings, the Wastewater Operator Certification Administrator.

At the June Board of Director's meeting, our POTW Succession Planning Task Force, led by Jon Ruff, Claire Baldwin and Vincent Cordi, presented a white paper that addresses the issues of succession planning. We are hopeful that this paper will provide a valuable tool to utilities in meeting present and future staffing needs and challenges. Also, our Member Education Committee has provided tremendous support to the local chapters by distributing a catalog of diversified training opportunities. Peter Radosta and Ken Skibinski have been doing a great job leading this initiative with complete transparency to the local chapters.

I believe all of the above initiatives have increased the branding of our organization and will provide tremendous value to our members.

Succession Planning at Albany County Sewer District (ACSD)

The facility where I work (ACSD) is facing numerous retirements due to the aging “baby boom” generation. The ACSD has initiated a formal process to address the future loss of skill sets, institutional knowledge and related concerns. The process began with defining

the mission critical positions with an outline of their responsibilities, and the anticipated retirement dates of the employees. Based on projected retirement dates, we filed requests with the county's Department of Civil Service to establish a qualified list of the appropriate tests that would be issued once employees retire. An aggressive educational program has commenced in the operations sector to provide required courses to interested employees to become NYS certified wastewater system operations specialists. The ultimate goal is that through education, NYWEA's training and transfer of institutional knowledge will assist ACSD to continue our mission of “protecting public health and the water environment” effectively and efficiently.

The issue of succession planning has been brought to the attention of the Albany County Executive and NYWEA's planning white paper has been provided to the county's human resources and civil services departments. I have also mentioned with emphasis the importance to invest more, *not* less, in education and training. Of interest are the following district demographics as of August 2012:

- Total budgeted employees: 78
- Vacant positions: 6
- Average employee age: 48.3
- Average years of service: 15.6
- Number of employees that could retire now (30 years of service and 55 years of age): 6
- Number of employees that can be eligible for retirement within 2 years: 16

Some other interesting facts on these statistics are that five of the six employees that could retire now are in top or upper management positions, and nine out of 16 that can retire within two years are in supervisory positions. The graying of the profession and transition from experienced to others less so, is not unique to Albany County – it is the trend across the state and nation. This transition will be challenging; however, with challenges come opportunities. I believe with continued focus and the proper resources, we will be up to the task. Making the right decisions will result in what matters most – the protection of public health and improved water quality.

November 15, 2012: Energy Specialty Conference, Hotel Albany

The planning has been completed for the Energy Specialty Conference with the program and registration forms available on the website: www.nywea.org. I am very excited about the program, which includes an opening assembly and six other sessions. The sessions consist of: Innovative Technologies and Process Optimization (3 sessions); and, Renewable Energy Resources (3 sessions)

I thank our partners from NYSEFC, NYSERDA and NYSDEC, along with the Planning Committee members, Sandra Allen, Kathy Macri and Kathleen O'Connor, for all their great work and commitment to this special meeting.

I am thoroughly enjoying my year as NYWEA President, and appreciate all the support I have received.

I welcome feedback on this message and can be reached at rlyons@albanycounty.com.

A handwritten signature in black ink, appearing to read "Richard J. Lyons". The signature is fluid and cursive, written on a white background.

Richard J. Lyons



The NYWEA Executive Office faced a major transition over this past year becoming the administrator of the state's Wastewater Operator Certification Program. The NYWEA Executive Office hired a full time administrator, certified nearly 150 operators, and fielded hundreds of phone calls and emails regarding this program alone. Our organization has worked hard to make this transition a positive one for operators and, as we pass the one year anniversary of this shift of program responsibilities from NYSDEC to NYWEA, it

seems most appropriate to devote this entire edition of *Clear Waters* to "Operator Certification and Succession Planning."

Many thanks go out to members of the Wastewater Operator Certification Council, Tom Groves and Robert Wither, for contributing articles, as well as for assistance from the Publications Committee. We are especially grateful to Tanya May Jennings as NYWEA's Wastewater Operator Certification Administrator in serving the operators of New York State, and assisting in the coordination of this issue of the magazine.

In this issue (*on page 13*), you'll see that NYWEA signed onto the Proclamation set forth by the New York Rural Water Association to use the term, "Water and Wastewater System Operations Specialist," instead of "Operator." This change in terminology still needs to be incorporated into the regulations, however, it does aptly describe that there is expertise, knowledge and skill involved in these positions. We know this is something that needs better acknowledgement within the industry and in the eyes of the general public. As noted in Rich Lyon's President's Message and in the article by Jon Ruff and Claire Baldwin,

succession planning is of critical importance and is tied ultimately to the performance of a utility. The NYWEA Board of Directors has approved the White Paper on Succession Planning that is now available on the website. This insightful guide will help you be prepared when your employees move on.

Tied closely with the topic of succession planning, we also have a challenge put before us by Tom Groves in the Management Revolution article: Is anyone interested in helping New York State establish a boot camp program for wastewater treatment facility managers? Help us make a difference for the utilities in New York State! If this is of interest to you, I encourage you to let me know at: pcr@nywea.org.

I would like to express my sincere gratitude to the dedicated operators around the state, like Steve Giarrusso below, who make a difference every day when they go to work. We recognize the importance of your hard work, and dedicate this issue to all of you!

Tap into the Toolbox!

Be sure to take advantage of all the tools both NYWEA and WEF provide! Tap into the "Water's Worth It!" effective public messaging campaign (www.watersworthit.org), if you haven't already. There's also a new virtual workspace titled, WEFCOM, empowering members to network and collaborate online through the combined power of LISTSERVs, discussion forums and resource libraries. Build a profile today and start a discussion, share a resource and check out what is available. For more information, go to <http://wefcom.wef.org>.


Patricia Cerro-Reehil

Operator SPOTLIGHT: Steve Giarrusso

There are not many of us who can say they find joy in going to work every day, so it speaks volumes that Steve Giarrusso wakes up three hours early to start each work day. While an unassuming man, Giarrusso knows how to get the job done as the Chief Operator for the Village of Minoa Wastewater Treatment Plant. Everyone who knows him agrees he radiates love for his job and profession, and it's contagious. Recently, he was spotlighted in the *Syracuse Post-Standard* for over the past two decades helping to forge, "Minoa's reputation as a leader in renewable wastewater treatment technologies."

A highlight of his job is sharing his knowledge and collaborating with students of various levels, from high school to college undergraduate, graduate and doctoral students. "It's invigorating to teach students and watch them learn and implement their findings. These students are the future and will improve the way of life for many years to come."

Everyone is encouraged to voice their ideas as the group works through problems. Also, no idea brought to the facility is ever turned away, he commented: "If you want to do something with water, then we can do it."

In another aspect of his work, Giarrusso helps improve lives in third world countries through projects to find water and energy resource solutions for farmers, along with ways to reduce costs for villages while improving their water quality.

A graduate of LeMoyne College with a degree in biology, Giarrusso also completed graduate courses and doctoral work through Syracuse University and SUNY ESF. He began work at

the Minoa WTP in 1995. Fifty-eight years young, he's been married 37 years to his wife, Vanessa, and his family, like his job, brings joy and meaning to his life. His wife believes her husband may be "insane" for loving his work so much, but she knows his happiness stems from "making a difference".

He has earned numerous awards for his efforts and professionalism, including NYWEA's Uhl T. Mann Award, and the NY Rural Water Association's Manning Award. In 1998, Giarrusso also demonstrated courage during an emergency when he rescued two people from a fire. He received the Medal of Valor from Onondaga County for the act of bravery in which he and a co-worker entered a burning building, saving a grandmother with her granddaughter from harm. Giarrusso also met a serious challenge to his health when, in 2000, he was diagnosed with cancer. He battled the disease and in his own words, "My life was spared." Since that time, he made this his purpose: "If I can improve the quality of life for one person, then my life has meaning."

– Tanya May Jennings



Photo courtesy of John Champagne

Hyatt Regency, Buffalo, NY

June 4-6, 2012

Spring Technical Conference and Exhibition



NYWEA President Richard Lyons presents Mike Garland with a plaque of recognition for participating in the WEF/AWWA Joint Fly-in.



Dave Comerford from the Buffalo Sewer Authority speaks during the Wet Weather/CSO Opening Session Panel.



J. Kirk Rowland, of Tonawanda, addresses the members during the Opening Session panel on Wet Weather/CSOs.



Joe Fiegl from Erie County addresses members during the Opening Session.



Jill Jedlicka, Executive Director of the Buffalo Niagara Riverkeeper, provides remarks at Opening Session.

Below: Vince Cordi (left) and William Supple

Many Thanks to the Exhibitors!



Above: It's a family affair! Jim and Kathy Russell staff the AFTEK booth.



Left: Charlie Kayton from USA BlueBook at his booth

Below: Activity in Exhibit Hall



President Richard Lyons and his wife Marlene celebrate their 30th wedding anniversary during the Spring Technical Conference.



Above: Ann Kupferschmid and Mike Garland



Above: President Lyons and Dave Barnes



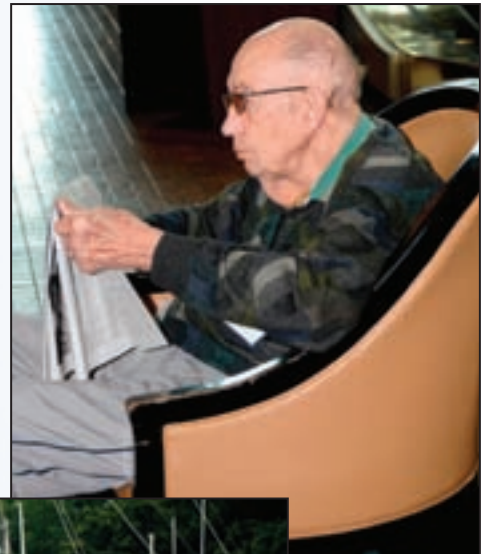
Above: Robbie Gaiek, Chair of the Western Chapter, welcomed NYWEA members to Buffalo.



William Grandner keeping track of time.



Marc Smith and his wife Eileen



Above: Warren Schlickerieder, NYWEA President in 1965, attends the meeting to see old friends and make new ones!



Left: The Young Professionals tour on the Spirit of Buffalo.



Above: Frank Longo (top left) and Dan Glieco (right) from Amherst tour the Buffalo Sewer Authority.



Above left: Members tour the Buffalo Sewer Authority with Mike Letina (lower right).

Right: Members attending the Environmental Science Tour of Squaw Island and the Buffalo Sewer Authority

Left: Wendy Taber from Amherst WWTP

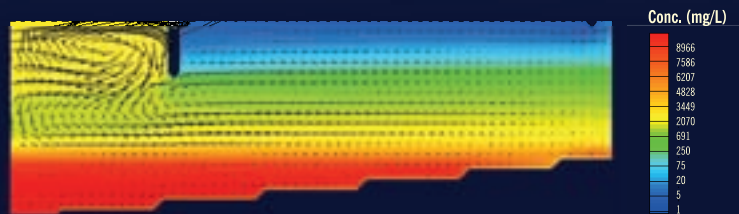


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Critical Operator Training Addressed

Professional, resourceful, committed and hardworking – these are just some of the characteristics that describe wastewater treatment plant operators. Operators need these traits to meet the growing and changing requirements and demands of wastewater treatment. Operators must have a wealth of knowledge to successfully run a municipality's largest infrastructure investment. The New York State Department of Environmental Conservation (NYSDEC) is grateful to partners, such as the New York Water Environment Association (NYWEA), for the support they provide to the wastewater industry.

This is the first anniversary of NYWEA's effort to administer elements of the operator certification program with NYSDEC. In tight fiscal times, NYWEA and NYSDEC made a formal agreement for NYWEA to administer the operator certification applications and certification renewals. The NYWEA receives and processes the applications, while NYSDEC oversees the review and approval of the content of training courses and trainer qualifications. The NYSDEC is also responsible for providing regulatory oversight with the assistance of a governance council created with the agreement. The NYSDEC and NYWEA co-chair the governance council and operators from across New York, representing plants large and small, serve on this council. Among other things, the council is working on improving the passing rate for the certification exams given by the Association of Boards of Certification.

Over the past several years, NYWEA has also taken on a larger role

in operator training and improved the frequency and relevance of the training courses. In 2009, NYWEA and NYSDEC conducted a wastewater training needs survey. Since then, NYWEA has assisted in meeting the training demands identified in the survey, developing a more comprehensive training program that brings low-cost instruction to operators across the state. Its efforts have led to more courses that focus on new and emerging technologies and the most current regulatory requirements. These programs help operators meet professional standards and certificate renewal requirements.

Preparing for Operator Succession

The NYSDEC appreciates NYWEA's efforts to address the aging of the operator workforce. For example, the association prepared a white paper on the need for municipalities to develop and implement a well thought out succession plan. (It will soon be available online at www.nywea.org.) Succession planning is of critical importance to keep plants operating correctly as key personnel retire. It can take several years for an operator to gain the experience, training and certification necessary to become an assistant or chief operator.

I want to commend NYWEA for stepping forward to assist New York with the operator certification program. Through NYWEA's efforts, New York is able to develop some of the most highly skilled operators in the nation. The certified operator is able to operate a community's largest investment and serve as a frontline defender of our state's water quality. These professionals operate highly technical facilities that must meet many ongoing challenges – whether it's nutrient limits, aging infrastructure or reduced staff.

We owe operators statewide a sincere "thank you!"

– James Tierney, Assistant Commissioner for Water Resources
NYS Department of Environmental Conservation



Cross Training and Safety

A growing movement within industry is that of sustainability and its drivers are people, planet and profit. Succession planning touches on the people aspect, as it is a systemized manner of identifying the future human resource needs of the organization and developing the workforce to fill those needs. To help an organization become or remain sustainable, its workforce must be fluid with an identified and planned process to address the movement of employees both into and out of the organization.

Staff movement has always existed – with maternity leaves, promotions, deployments, resignations and retirements. These life events that impact work are somewhat scheduled, however, in these economic times, it is increasingly common that succession is not a planned process, but an abrupt and disruptive event. Frequently, reductions occur through firings, layoffs or retirement packages. Company workforce reductions often mean that experienced staff members with institutional knowledge leave the organization sooner than anticipated, and often without a qualified colleague to step into the vacuum.

These changes force the organization to make quick staffing decisions to fill the gaps. Since the aim of a personnel reduction is not to replace departing team members, it must be expected that

remaining personnel perform their own jobs as well as new duties. Sometimes a remaining worker will have the great advantage of being trained by the colleague leaving, gaining experience until cross trained on the process. However, one cannot count on this.

Many of us come from the great oral tradition of on-the-job training. While it is beneficial to see and hear the process in real time, realities dictate that the steps process be documented to be replicated. The use of various aids, such as documented job instructional training sheets (JITs), job hazard analyses (JSAs), and formalized documented safety procedures, become increasingly important because these identify each step and highlight safety concerns. The departing colleague is invaluable in developing this documentation. Proactive organizations are creating digital records to create a visual library to mimic the OJT format and accommodate the different learning styles. However, the time to create training aids, videos or other documentation is not when the Sword of Damocles is hanging over one's head and the subject matter expert is walking out the door.

Having a formalized cross-training system as an organizational tool cannot be stressed enough as it allows employees to be ready for new roles as needed. This may create some glitches with labor agreements or the traditional division of labor, but the normal way of doing business has to change to accommodate current needs.

– Eileen M. Reynolds, Certified Safety Professional
Owner, Coracle Safety Management

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NYSDEC, NYWEA and Wastewater Operator Certification

by Robert Wither

State regulations require that municipal wastewater treatment plants (WWTP) be supervised by a state certified operator (system operations specialist). The regulations define eight levels of certification (Grades 1, 1A, 2, 2A, 3, 3A, 4, 4A) that ascend in qualifications, training and experience with the size and complexity of the WWTP process. The New York State Department of Environmental Conservation (NYSDEC) managed this program since its inception and provided oversight and services in areas of certification, testing, training and technical assistance.

Declining resources and a reduction of professional staff has strongly impacted NYSDEC programs. Eight staff in the agency's Division of Water implemented the certification and technical assistance program as recently as 2007. During 2010, the number of staff declined to two as a result of retirements and re-assignments. The Division of Water performed a comprehensive review of its legal obligations, environmental priorities and available resources and determined that it could no longer deliver the operator certification, training and technical assistance programs at the level they deserve. The NYSDEC had to find a means to administer the program and provide the level of services necessary to meet the needs of WWTP operators.

Cooperative Agreement with NYWEA

In 2008, NYSDEC collaborated with the New York Water Environment Association (NYWEA) to perform an assessment of training needs for the WWTP operators and engineering communities regarding all aspects of WWTP operations. Since then, NYWEA has developed and is delivering across the state a growing program of low cost WWTP operator training. Based on this successful collaboration, the agency sought NYWEA's assistance in administering the WWTP operator certification program. In June 2011, NYWEA and NYSDEC entered into a five year cooperative agreement for NYWEA to administer operator certification and certificate renewal. Starting on September 1, 2011, NYWEA began administration of that portion of the certification program, and NYSDEC is pleased with how NYWEA is managing it.

*... by partnering with NYWEA,
we are creating a more
responsive program.*

In addition to being a well run program, another positive outcome of this cooperative agreement is the creation of a Certification Council to help guide NYSDEC and NYWEA in administering the WWTP operator certification program. Members of the council are representatives of NYSDEC, NYWEA, New York Rural Water Association, New England Interstate Water Pollution Control Commission, operators, and the operator certification schools. The NYSDEC chairs the council and six of the nine members are certified operators. This council provides input and guidance to NYSDEC and NYWEA on issues related to the administration of the program, including ABC exam review, training, suspension and revocation, and reciprocity.



The NYSDEC will continue its role in the approval of training courses for wastewater renewal credit. Requirements to become an in-plant trainer remain the same and a NYSDEC approved trainer must deliver in-plant training. The trainer still must submit an application to NYSDEC for training course approval. This application includes the course approval form with a brief description of the program, plus a copy of the program agenda and program timeline. The application form and other information is available from this website: www.dec.ny.gov/chemical/8464.html.

Unfortunately, NYSDEC's resource limitations inhibited its ability to deliver the certification program to the level necessary. However, by partnering with NYWEA, we are creating a more responsive program. The NYSDEC will continue to ensure compliance with the regulations and work with NYWEA to update certification exams and other aspects of the program to meet future needs of the wastewater treatment plant operator.

Robert (Bob) Wither, PE, is Section Chief, SPDES Compliance Information Section, Division of Water, New York State Department of Environmental Conservation in Albany, NY. He may be reached at: rewither@gw.dec.state.ny.us.

Proclamation

TO

Advocate the Value of Professional Careers in Water

WHEREAS the following organizations and agencies desire to promote skills, knowledge and expertise in today's water and wastewater industry workforce, and;

WHEREAS this workforce is a critical link to protect public health and the environmental protection of our water sources and;

WHEREAS the skills, knowledge and expertise embedded in the industry should be respected for its complexity and critical infrastructure responsibilities, and;

WHEREAS it is desired that these workforce positions be viewed as a professional career path for the next generation, and;

WHEREAS the organizations listed below provide leadership and continuous communication to the industry, agencies and the public, thus;

THEREFORE from this day henceforth, will endeavor to project the workforce position of operations personnel as
WATER SYSTEM OPERATIONS SPECIALISTS
 and as
WASTEWATER SYSTEM OPERATIONS SPECIALISTS
 in publications, reports and verbal communications,

We hereby set forth our commitment to this proclamation in the year 2012.



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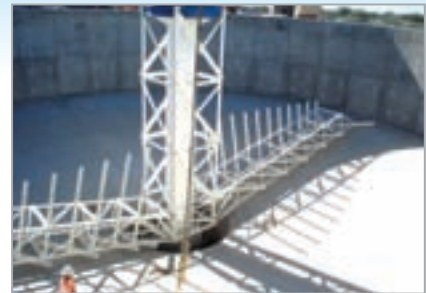
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Overview of Operations Specialists Certifications

by Tanya May Jennings

The Department of Environmental Conservation (NYSDEC) transitioned the administration of the Wastewater System Operations Specialist Certification program to the New York Water Environment Association (NYWEA) on September 1, 2011. Any individual, municipality, organization or operator having questions or needing information related to the wastewater certification program can contact the Wastewater Certification Administrator at the NYWEA Executive Office in Syracuse, NY. All forms, requirements, as well as the Wastewater Operator Certification Manual are available on the NYWEA website at: www.nywea.org/opcert.

Certification Types and Grades

Wastewater certification is made up of *New Certification*, *Upgrade Certification* and *Renewal Certification*. All applications are required to go through the NYWEA office in Syracuse, NY for new, upgrade and renewal certifications.

Both new certificates and certificate upgrades require three key requirements for each certification level:

- Appropriate coursework
- Enough hands-on operations experience
- Correct facility point score

The following forms/materials are required for new and upgrade certificates:

- Application Form
- Statement of Experience Form
- Copies of Coursework (completed)
- Processing Fee

The certification grades are divided into four levels: 1, 2, 3 and 4, with 1 being the lowest and 4 the highest. All *activated sludge* wastewater treatment plant certificates are further designated with the letter "A" (1A, 2A, 3A, 4A). The following is a generalized listing of requirements for each certification level. More detail is available in the Wastewater Operator Certification Manual.

Grade 1/1A: Basic Operations, and Activated Sludge, if required, six (6) months of hands-on experience and Point Score of 30 or less.

Grade 2/2A: Basic Operations, Basic Laboratory, and Activated Sludge, if required, one (1) year of hands-on experience and Point Score of 31-55.

Grade 3/3A: Basic Operations, Basic Laboratory, Supervision and Technical Operations, and Activated Sludge, if required, 4.5 years of hands-on experience (unless applicant has an AAS or approved BS or BA) and Point Score of 56-75.

Grade 4/4A: Basic Operations, Basic Laboratory, Supervision and Technical Operations, Management course, and Activated Sludge, if required, eight (8) years of hands-on experience (unless applicant has an AAS or approved BS or BA) and Point Score of 76-higher.

Fees: There is a \$150 fee due with the operator's initial application to become certified. This fee is in addition to the \$87 charge that is paid to Applied Measurement Professionals (AMP) for the Association of Boards of Certification (ABC) examination. If the operator fails the exam, he or she is only responsible for the \$87 exam fee to AMP. If an operator decides to apply for a higher certificate grade, the \$150 fee will be charged again.

ABC Exam: Once NYWEA approves the application, applicants are sent information to schedule their ABC exams with AMP for their certification levels. All applicants are required to take and pass

the ABC exam with a minimum score of 70 to receive their certificates. If an applicant does not pass the specified exam, he or she can retake the exam in 90 days by coordinating the exam date and time with AMP. Approximately six to eight weeks after testing, NYWEA will send all new qualified operators a wall document and blue card for their new certifications. The blue card is the actual certificate which shows the operator's name, grade, certificate number and certificate expiration date. All certificates are valid for a period of five (5) years. During this five year period, operators need to complete a specified number of NYSDEC-approved renewal contact hours to renew their certificates.

Renewals: Renewal applications can be submitted anytime within the five year period after the successful examination. Once an applicant renews a certificate, another five years are added on to the existing expiration date and NYWEA will mail the operator a new blue card. The following forms need to be submitted in order to renew the operator's certificate:

- Application
- Copies of Contact Hour Coursework
- Processing Fee

Renewal applicants have to complete contact hours from NYSDEC-approved training programs over this period to renew their certificates. If renewal applicants fail to complete the appropriate amount of contact hours, their certificates will expire. Each certification level has a specified amount of required contact hours that the operator must complete:

Grade 1/1A: 20 Contact Hours

Grade 2/2A: 40 Contact Hours

Grade 3/3A: 60 Contact Hours

Grade 4/4A: 80 Contact Hours

Fee for Renewal: There will be a \$160 fee due with the operator's five year renewal application (this works out to \$32 per year).

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Certificate Expiration: If an applicant's certificate expires, the following rules would typically apply:

If less than one year from expiration date: Applicant can submit the appropriate amount of approved contact hours and renew certificate. Only contact hours earned five (5) years from date of application receipt are accepted.

If more than one year since expiration date: Applicant needs to submit appropriate amount of approved contact hours and then will have to re-take the ABC exam for the appropriate certification level. Only contact hours earned five (5) years from date of application receipt are accepted.

Voluntary Wastewater Collections System

The Voluntary Wastewater Collection Systems program is a voluntary program and is not required for operator certification. Like the Wastewater Certification program, the Voluntary Wastewater Collection Systems program has new, upgrade and renewal requirements for Grade levels 1, 2, 3 and 4. All applicants for Voluntary Collection Systems Certification in New York State must have the appropriate education (minimum of high school or GED), experience and Voluntary Collection Systems Certification training. Applicants must complete the application, pay the appropriate fee, and pass the written exam in order to receive these certificates:

Grade 1: Confined Space, Operations and Maintenance (O&M) of Wastewater Systems Vol. 1, six (6) months of experience

Grade 2: Confined Space, O&M of Wastewater Systems Vol. 1, O&M of Wastewater Systems Vol. 2, one (1) year of experience

Grade 3: Confined Space, O&M of Wastewater Systems Vol. 1, O&M of Wastewater Systems Vol. 2, Grade 3 Basic Supervision and Technical Operations; or equivalent 30-hour Supervision Training Program, 4.5 years of experience with 1.5 of those years at a Grade 3 or 4 Collection System (unless applicant has an AAS or BS Degree)

Grade 4: Confined Space, O&M of Wastewater Systems Vol. 1, O&M of Wastewater Systems Vol. 2, Grade 3 Basic Supervision and Technical Operations; or equivalent 30-hour Supervision Training Program, eight (8) years of experience with 1.5 of those years at a Grade 3 or 4 Collection System (unless applicant has an AAS or BS Degree)

All applications need to be submitted to the NYWEA office by the required deadlines and then testing is given twice a year on the last Wednesday in April and on the last Wednesday in September.

Similar to the wastewater certification program, the voluntary collection system is valid for a five year period, and individuals are required to complete an appropriate amount of contact hours within those five years to renew their certifications.

Grade 1: 10 contact hours

Grade 2: 20 contact hours

Grade 3: 30 contact hours

Grade 4: 40 contact hours

Getting your Voluntary Collection System Certification is an excellent way to improve your career and build your resume!

Tanya May Jennings is the Wastewater Operator Certification Administrator at the New York Water Environment Association's executive office in Syracuse, NY. She may be reached at tmj@nywea.org.

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NYWEA Wastewater Operator Certification Program – *First Year in Review*

by Tanya May Jennings

It's been an exciting year for me as I serve in the new role of Wastewater Operator Certification Program Administrator for the New York Water Environment Association (NYWEA). I thank everyone for their cooperation and understanding during the transitioning of these functions to NYWEA from the NYS Department of Environmental Conservation (NYSDEC) since last September.



Though I have experience in training through my military career, I wasn't sure what challenges I would face administering this program. I looked forward to learning more about this intriguing career field I knew very little about.

The first several operator certification applications were daunting since I had no hands-on experience or knowledge of the wastewater field. With greatly appreciated assistance from Tim Miller, Bob Wither and other NYS Department of Environmental Conservation staff, I was able to work through the stack of applications, begin to process operator certifications, and slowly gain confidence. A few weeks into the program, the technical terminology still seemed foreign, so I knew I had to dig deeper to get a better understanding of the actual processes that take place at a wastewater treatment plant (WWTP).

Going on Tour

I'm a visual learner and reading the words, "bar screen," really didn't translate in my mind to what this mechanical device looked like or did. Tim Miller graciously volunteered his time to take me on tours of several facilities and was there to answer any questions I had along the way. Once I had my first tour of a WWTP, I began to see and understand what Wastewater Treatment Plant Operators do on a day-to-day basis. I grew to have an understanding of what a bar screen was, what a clarifier did, and what was sludge byproduct. I saw first-hand and up close what WWTP Operators do and the equipment involved in the process.

Within my first 10 months with NYWEA, I had toured over 12 plants: Syracuse Metro, Rome, Waterville, Dolgeville, Iroquois Thruway Service Area, Gloversville-Johnstown, Ellicottville, Minoa, Wards Island, North River, Jamaica and Newtown Creek. I was thoroughly impressed with the processes of each plant and quickly recognized that no two plants were exactly the same.

My first tour took me to the Syracuse Metropolitan WWTP facility and I was overwhelmed by the size and complicated processes that are performed to clean wastewater. More people need to understand the significant work performed 24/7 at wastewater treatment plants. I've passed by the Syracuse facility numerous times and I never imagined what really happened there – the biological and scientific processes, and time and effort required there every day. After my tour of the facility, I was intrigued and wanted to tour more utilities. With each new tour, I learned exciting facts about the process of wastewater treatment and witnessed some remarkable things:

- North River has a baseball field and park on top of it!
- Amazing egg-shaped digesters at Newtown Creek

- The mass amounts of sludge hauled away each year from the Syracuse Metro facility
- Anaerobic digestion providing enough methane to generate almost 100 percent of the electricity needed for the Gloversville-Johnstown plant
- The compost that is produced from the waste sludge that is given away to residents from the Waterville plant
- An award-winning energy efficient aeration system at the Rome plant
- Cleanwater Educational and Research Facility in Minoa
- Turtles that have been saved from bar screens at Wards Island
- Many unlikely things getting flushed down the toilet, from jewelry to cell phones!

I also learned about the amazing responsibilities of our Wastewater Treatment Plant Operators. Prior to taking on this position, I was unfamiliar with what happens to water that gets flushed down the toilet and what happens when it arrives at the plant. Visiting the plants and meeting the operators was a profound education for me. I have great respect for the individual operators for what they do on a daily basis and the technological and physical skills it takes to complete the process. Wastewater Treatment Plant Operators are proficient in operations, lab work, mechanical duties, inspection of equipment, daily paperwork, adjustments, scientific processes, biology, chemistry, permit compliance and management. The operators I had the pleasure to meet were hard working, knowledgeable, intelligent and friendly – possessing a genuine love for what they do.

While at the NYWEA Spring Meeting in Buffalo in June, I had the opportunity to watch the Operations Challenge. Wow! What an exciting opportunity this is for operators! The rigorous challenge includes laboratory tests; process control exams; collections systems task, involving cutting a pipe with water flowing through it; a safety event; and a pump maintenance event – none of which is easy. The team building, camaraderie, skills and dedication each team showed was outstanding, and I was so thankful to be a part of the process. Congratulations to all teams who participated and to the North River Harlem Pump Trotters and Long Island Brown Tide moving on to the national competition! (*See pages 34–35 for article on the Operations Challenge.*)

Governance Council Formed

The NYWEA has established a Governance Council that oversees the wastewater certification program and we have worked diligently this first year to make sure issues most important to operators are addressed. The Governance Council is comprised of representatives of wastewater plants, NYSDEC, NYWEA, New England Interstate Water Pollution Control Commission, Westchester County Department of Environmental Facilities, New York City Department of Environmental Protection, Rural Water Association and Morrisville College. Main goals of the Governance Council are to: improve pass/fail rates for operators on the ABC exam; make reference material available for the ABC exam; ease the application process; provide a user-friendly and interactive database, and, provide critical information to certified operators. The council is also focusing on succession planning and the future

of the wastewater industry. We understand that without qualified operators, the water in our rivers, streams and lakes would not be a viable resource for our communities.

Customer Service

Another focus of the Wastewater Certification Program is providing excellent customer service and making sure the certification process is clearly understood and as streamlined as possible. I am available to answer questions regarding this program, and will assist wherever possible in the application process. If you have questions, I encourage you to contact me.

Key points in the website include: a newly certified operator's link; operator specialist search link; PDF application; pre-certification schools information and their training calendars; and an ABC study reference guide available to assist all new applicants for certification within New York State. Other future projects consist of going "live" with online applications for New, Upgrade and Renewal training, in which applicants can enter all their registration information online and submit to NYWEA electronically. The association recognizes the need for timely improvements to help make the submission process simpler, easier and convenient.

Training Sessions

In an attempt to provide more resources for NYS Wastewater Plant

Operators, NYWEA offers training sessions throughout the year to allow specialists to obtain their contact hours for renewal certification credit. Through the Membership Education Committee, each NYWEA Chapter offers training sessions in different subjects that are beneficial to the daily tasks and performances of operators and professional engineers (PEs). Various course topics may include: Nitrification/Denitrification, Confined Space, Asset Management, Sustainability, Pump Hydraulics, and others deemed necessary or insightful. The NYWEA realizes that getting renewal training credit hours can sometimes be difficult due to low staffing at facilities, high training fees, long work hours and the training locations; therefore, NYWEA is bringing the training to the operators and for a reasonably low cost. If you haven't already, come to a NYWEA training session and see what it has to offer!

I appreciate and would like to recognize the following individuals for helping me transition into my new role at NYWEA: Patricia Cerro-Reehil, Bob Wither, Tim Miller, Rich Malaczynski, George Bevington, Walter Dobkowski, Ken Skibinski, Maggie Hoose, Maureen Kozol, and all the plant operators who took the time to give me tours of their wonderful facilities.

Tanya May Jennings is the Wastewater Operator Certification Program Administrator at NYWEA in Syracuse, NY and may be reached at: tmj@nywea.org or (315) 422-7811, extension 4.

NYWEA's Wastewater Certification Webpage

The transition of the Wastewater Operator Certification Program from NYSDEC to NYWEA also brought new and exciting improvements to the NYWEA website.

When visiting the NYWEA website, you will find a section that has useful and important information regarding the Wastewater Operator Certification Program as well as all documents that can be used for the certification process. Simple and efficient, the website has numerous resources listed to help operators prepare for certification and just recently (thanks to SUNY-Morrisville) added an ABC Exam Study Guide to assist those preparing for the ABC certification test. The association's goal is to provide adequate resources to candidates during the testing process and to help improve the pass/fail rate for the ABC exam.

While reviewing NYWEA's website, please pay special attention to areas that provide forms and pertinent information regarding the Operator Certification Program, namely:

Schools for Pre-Certification: All approved pre-certification schools are listed as well as links to their websites or a PDF version of their current course listings. Pre-Certification training is necessary in order to obtain a Wastewater Certification (Grades 1-4).

Renewal Training Courses and NYWEA Training Calendar: All upcoming training sessions available for Contact Hour Credit through NYWEA or other resources are listed. This is constantly updated as we receive new training sessions throughout the year, so be sure to check it regularly.

Renewal Training Pre-Approved Courses: A complete list is here of all NYSDEC *pre-approved* courses available for Contact Hour Credit. These courses do not need an RTC number and can be used for renewal training credits.

Certification Application Tab: Here you will find the Application, Statement of Experience and Plant Scoring Sheet for all New and

Upgrade Applications. Application and Statement of Experience forms need to be submitted along with copies of certificates of course work when applying for certification. In the near future, candidates will be able to submit their certification applications electronically.

Renewal Application Tab: Here is the Application for all renewal candidates that needs to be submitted with copies of contact hour certificates. The renewal application will also be available within the year for submission electronically.

Certification Information: The Operator's Manual found here has all pertinent information pertaining to the Wastewater Certification Program and all necessary grade level requirements for certification. Any and all questions regarding certification can be answered by reviewing the Operator's Manual. Also located under this tab is the "Operator Search" tool to look up currently active certified operators.

Newly Certified Operators: Operators work hard to achieve their certification; therefore, NYWEA added this Newly Certified Operators tab. Every month when NYWEA receives notification of new operators, those names are listed on this NYWEA webpage. If you see someone you know who is listed, be sure to give a pat on the back to congratulate him or her.

Contact Information: Contact information is here for the Wastewater Operator Certification Administrator, Tanya May Jennings. All certification information and questions should be directed to Tanya, as well as all certification packets sent to the Syracuse executive office to the attention of: Certification Administrator.

We hope this new section of the website is a useful tool. Please check it out, let us know if you like it or if it can be improved! Many thanks to Maureen Kozol for all of her work to develop the database and establish the new web page for operators.

- Tanya May Jennings

Guidelines to Building an Effective Succession Plan

by Jon P. Ruff and Claire Baldwin

Over the next two decades, 78 million baby boomers will turn 65, the traditional retirement age. In 2005, workers over 55 represented 16 percent of the workforce; by 2020, that will rise to almost 25 percent. Although these numbers are staggering, they come as no surprise based on the mass exodus the public entities have been experiencing. This mass exodus, taking with it years of rich technical know-how, leadership skills and detailed onsite experience, will occur without a formalized succession planning program in place – leaving a void in organizations that is all but impossible to fill!

There is also some irony in this for, as Mike Rowe, the host of Discovery Channel's "Dirty Jobs," recently testified before Congress on the US skilled labor shortage: "People can't find jobs and yet good jobs can't find qualified people. We're surprised that high unemployment can exist at the same time as a skilled labor shortage." This seems to characterize the present predicament experienced by wastewater utilities.

For a number of reasons, including demographics and early retirement incentives, many publicly owned treatment works (POTWs) have been experiencing a large departure of veteran employees. The loss of these employees has created voids in leadership, skills and technical experience. This pressing problem has brought to light the following issues that POTWs are facing:

- Institutional knowledge loss
- Weak or non-existent leadership development programs
- Heavy reliance on on-the-job training (OJT) rather than formal training and development
- Employee retention

While a number of issues and barriers to adequate and timely succession planning exist, these concepts should be considered within the context of the unique workplace needs of each utility as this context may affect each workplace differently. For example, some utilities might like to hire or promote from within, while others might not. Some facilities might have separate positions for operators, maintenance and lab staff, while others might cross train as part of "the way we do business." Some might have proactively dealt with a specific issue, such as diversity, while others are just approaching the same issue as it exists within their own community and political environments. Each utility, like the community it serves, is unique with different needs. However, every utility has some things in common. The first is that employees leave – they're always leaving. Presently, they happen to be leaving at a faster pace than ever before in the industry's history. As an industry, these utilities must have:

- **A detailed succession plan** – to know not only when key employees are leaving, but also for a solid understanding of what skills and critical knowledge each employee holds in order to properly find and train new replacements with the necessary qualifications and competencies.
- **A suitable replacement candidate pool available** – both entering the organization and moving up into leadership roles.
- **Documentation/transfer of veteran employee knowledge base:** When veteran employees leave, they take with them a unique understanding of effective leadership and incredible amounts of institutional knowledge often regarding undocumented

asset information. Employers need to document and transfer this knowledge in a usable form so that it is captured for future users.

Utilities, therefore, need to develop a succession strategy comprised of the following components:

1. **Succession Planning**
2. **Recruitment, Retention, Candidate Pool Development**
3. **Leadership Development**
4. **Knowledge Capture and Sharing**

Succession Planning

Every utility needs an adequate succession plan so it knows when it is likely to need to replace particular employees; what type of employee it will need to replace; as well as the core competencies those individuals need to be successful in each role. The first steps to create such a plan are:

- A comprehensive database of employees who are leaving in the next two, five, seven and 10 years, to begin to identify the gaps in the organization and future needed key resources.
- Succession planning training for key leaders and managers to broaden the organization's understanding of this complex process.
- An implementation plan for identifying and capturing critical skills and knowledge of these employees to assure the organization keeps and leverages this information into the recruitment and training processes.

Recruitment, Retention and Candidate Pool Development

Ideally, utilities would have a continuous sufficient supply of properly educated and well trained candidates from which to select. Healthy and dynamic organizations seek to have a balance of candidates with aligned educational backgrounds, institutional knowledge, skill sets and leadership abilities in their resource network so that the bigger and broader the pool is, the more likely it is to find better candidates. However, many utilities are finding it difficult, if not impossible, to find suitable replacement candidates. They find themselves in the position of needing to meet their own needs by actually developing their own replacement pool.

There are initiatives in progress to assist with such issues, including:

- Generating more occupational interest by altering the image of utility operations and "rebranding" it as a "green" occupation.
- Expanding the potential candidate pool by reaching out to a broader demographic base that might not have been aware of these employment opportunities.
- "Growing Our Own" candidate pool by developing interest and recruiting potential future employees by partnering with educational institutions including high schools, BOCES, trade schools, the military and colleges.

After recruiting the right person and training him or her, keeping that person can be a challenge. Having invested a great deal of resources in this employee, it is important to continue the focus on employee development. While salary is the low hanging fruit of retention efforts, utilities need to identify other ways of maintaining and supporting their workforce, including:

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- Establishing clear and well displayed career paths
- Creating policies that reward employees who are certified or actively pursuing their certifications – policies giving preference for transfer or training opportunities show employees that their efforts are appreciated.
- Paying for memberships to professional organizations
- Providing funding for licensing and recertification
- Creating recognition programs so employees know they are valued – this can positively impact an organization's retention rate.

Leadership Development

Many retiring employees are, by choice or expertise, often in some type of leadership role. Replacement leaders need to be developed, both from a technical and managerial aspect of the business. It is, therefore, important that utilities provide leadership development training.

Formalized Leadership Development Programs (LDPs) should be developed and tailored to the various levels of leadership. This tiered approach to the LDP will ensure each level of management and leadership has the appropriate understanding of the competencies related to the specific position's roles and responsibilities, yet focusing on future role development and evolution caused by technology. Formal programs, such as the LDP, broaden the learning scope for the employee, give a well-rounded perspective on being a successful leader and, in fact, validate leadership as a skill. This can also help operations staff feel empowered by their work to protect the environment and public health.

Coaching and mentoring also play a large role in the LDP process by pairing the program participants with the valuable knowledge of the incumbent and initiating a formalized knowledge sharing process. By anticipating the need for replacements and implementing a formal succession planning process, there will be a seamless transition of key positions when they are vacated.

Institutional Knowledge

Most retiring staff, whether they are in formal leadership roles or not, possess considerable amounts of general knowledge of utility history, where things are and how things work both internally and with external vendors and partners. This information also needs to be transferred to new or remaining staff through formal institutional knowledge transfer programs.

Utilities that follow these recommendations will be well positioned to benefit before critical talent and knowledge is forever lost.

Thus, through these simple steps, utilities can begin the process of being properly staffed and trained to meet the changing demands of the future in a consistent and thoughtful manner. This will also ensure they remain ready and able to protect the public health and enhance the water environment with the best talent and leadership available.

Jon P. Ruff, PE, is the Environmental Manager for the City of Plattsburgh, NY, and may be reached at: ruffj@plattsburgh-ny.gov. Claire Baldwin is Senior Management Consultant and Principal at CDM Smith, and may be reached at: baldwincr@cdmsmith.com.

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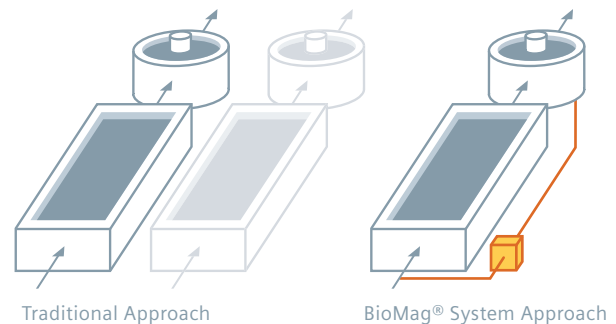
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The Management Revolution – Boot Camps for Operator Advancement on the Rise

by Thomas W. Groves

Another revolution recently began in New England, a place well known for its storied history and revolutionary battles. This modern revolution is non-violent and uncontested. An entire professional sub-group – wastewater treatment facility managers – is vanishing and the resulting upheaval is driving the rapid transition of wastewater treatment operations specialists into management.

It has increasingly become apparent that management positions at many wastewater treatment facilities (WWTFs) are or will become vacant as many current managers have either reached, or soon will reach, retirement age. With the average age of those in the wastewater field steadily increasing, retirements are a fact of life. Unfortunately, many facilities did not foresee the impending need to replace its managers. Such facilities will not only lose their managers, they will also lose valuable institutional memory and historical knowledge that was never documented. Exacerbating the problem is the fact that there were no established programs in place to train the next generation of industry managers.

Operator Boot Camp Begins

Seeing a tremendous need and unique opportunity, a few motivated individuals and organizations – including the Rhode Island Department of Environmental Management (RIDEM), the Narragansett Water Pollution Control Association (NWPCA), and the New England Interstate Water Pollution Control Commission (NEIWPCC) – began developing the first management training program for wastewater operators in the State of Rhode Island. The group envisioned an intense, multi-course, multi-day program to meet the training needs of the many qualified individuals in the wastewater field who could make good managers if provided the necessary skills and training. The program was appropriately named the Rhode Island Operator Boot Camp. Many of the program's students had never considered management as a career path. However, after investing long hours learning about the wastewater field through this program, many have found themselves aspiring to long-term management careers in the field.

The first Rhode Island Boot Camp began in Fall 2007 with 13 individuals. The goals of that first boot camp were to help build the knowledge base, confidence and contacts of potential future wastewater treatment facility managers. This was accomplished through a series of training sessions on a variety of topics pertinent to management, such as performance management, labor relations, budgeting and media relations.

Above, right: Management expertise is shared with participants in Rhode Island's First Year Operator Boot Camp classroom, an effort that spearheaded the management training revolution in New England. The Rhode Island Department of Environmental Management, Narragansett Water Pollution Control Association (NWPCA), and New England Interstate Water Pollution Control Commission developed the program.

Right: Rhode Island's first class celebrates graduation.

To keep program costs as low as possible, the RI organizers took advantage of homegrown talent by asking existing WWTF managers, local and regional associations, and local and regional training organizations to deliver the training, which was provided in the form of one class per month over a 12-month period. Students were accepted based on self or peer nominations with a final review and acceptance of the applications by the state wastewater association (NWPCA). Applicants were not being charged anything for their acceptance to the program. Each accepted applicant was required to attend every session and their employers were asked to support this by not requiring them to take vacation or personal time to attend. Some of the costs of the programs were donated by individuals or organizations, and some costs were reimbursed from a small amount of training and technical assistance funds that were provided by the US Environmental Protection Agency under section 104(g) of the Clean Water Act to NEIWPCC for the State of Rhode Island. Unfortunately, 2007 was the last year of USEPA funding for this program.

Students who completed this program saw their professional pride soar as a result of participation. Employers noticed these

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Photos provided courtesy of NEIWPCC



continued from page 25

individuals developed a new found appreciation for the issues that management wrestles with on a daily basis. Furthermore, each individual gained a close network of their peers which developed over the course of the year-long, collegial program.

The Rhode Island Boot Camp continued for two more years: with 2009/2010 having 11 participants. At the conclusion of the third year, the program was put on hold temporarily since the demand had been met for RI, and it had become extremely difficult and time-consuming to maintain a voluntary, no-cost program with state staffing and resources being reduced and refocused.

Boot Camp Moves to Maine

Based on the success of the RI Operator Boot Camp model and faced with the same need for qualified management personnel, the Maine Joint Environmental Training Coordinating Committee (JETCC) began exploring efforts to duplicate the Boot Camp program for Maine. With additional sponsors – Maine Department of Environmental Protection (MEDEP), Maine Waste Water Control Association (MWWCA) and NEIWPC – the JETCC Board of Directors was prepared to kick off its own version of the program in Fall 2009. The Maine program had to be somewhat self-sustaining; therefore, unlike the Rhode Island program, applicants paid a program registration fee – \$500 per student the first year. In addition, due to Maine's large geographic size, the JETCC board realized it could not draw applicants from across the entire state as Rhode Island did. Therefore, it chose one location (Saco, Maine) with the hope of moving the program in subsequent years to other areas of the state. The JETCC board also decided that Operator Boot Camp should be renamed the Maine Management Candidate School (MCS) to better convey the management objective of the program.

The MCS program used a similar nomination and selection process as Rhode Island and had a successful first season, graduating 17 individuals in September 2010 at the annual MWWCA

convention. Unfortunately, the costs for the first year of the program were not fully self-sustaining. With financial commitments from MWWCA and the MEDEP, the JETCC board still needed to significantly subsidize the program. The board approved this in the first year, but subsequent years would require more cost efficiency. For its second year, the program was located in Bangor, Maine and open to candidates from drinking water system operations. This influx of new candidates to the pool necessitated a slight change to the curriculum, but not significantly so, since management is largely comparable, whether in a water or wastewater treatment facility. With the addition of drinking water professionals, the MCS was able to attract sponsorships from the water supply industry. Maine Water Utilities Association and the Maine Department of Health and Human Services contributed to the program, along with MWWCA, MEDEP, and the participants or their respective communities.

Year two of the program successfully graduated 22 individuals (five of whom were drinking water operations specialists) at the annual MWWCA convention in September 2011. This, the third year held in Portland, ME, has been similarly successful, graduating another 20 candidates, even though the registration fees were increased per applicant to \$750. Applicants were not deterred by the increased costs. The program's year four is currently in the nomina-

Right: A Maine Management Candidate School classroom addresses the demand for wastewater facility managers.

Below: Graduates of the 2011 Class held in Bangor, Maine



Photos provided courtesy of NEIWPC



tion/application process with the kickoff expected October 2012 in Waterville, Maine.

Trend Spreads through New England

Continuing off the success of the Rhode Island and Maine programs, other New England states have begun or will soon begin their own versions of the RI Operator Boot Camp program. Massachusetts conducted their first successful program in Fall 2010, graduating 22 individuals from their Massachusetts Wastewater Management Training Program at the annual Massachusetts Water Pollution Control Association's (MWPCA) convention and trade show in September 2011. The Massachusetts program is sponsored by NEIWPC, the MWPCA and the Massachusetts Department of Environmental Protection with a fee of \$500 per applicant. Unlike previous versions of boot camp, NEIWPC directly leads the majority of the Massachusetts program under a contract between the Commission and State of Massachusetts to coordinate the state's wastewater systems operations specialist training and certification programs. Year two of the Massachusetts program began in February 2012 and will conclude with a graduation at the annual New England Water Environment Association's (NEWEA) January 2013 conference in Boston. Year two of the Massachusetts management program included a new feature – it offered selected sessions

graduating. Year two has been postponed until early 2013.

October 2012 launches the first class of the Connecticut Leadership Training Program with 20 students. Co-sponsored by NEIWPC and the Connecticut Department of Energy and Environmental Protection, the program is being led by the Connecticut Water Pollution Abatement Association.

Lastly, Vermont has expressed an interest in following these models and developing a program in conjunction with the Vermont Department of Environmental Conservation and the Green Mountain Water Environment Association. Program planning is in the early stages, but NEIWPC has met with the groups involved to educate them on the different styles of boot camps available and to discuss how Vermont and NEIWPC can best deliver a program.

Lessons Learned

Although these state management training programs have different names, the goal remains the same – to train applicants and provide them with the knowledge base, confidence and contacts to become future wastewater treatment facility managers. With the amount of money invested into wastewater infrastructure, properly trained managers are essential. This is especially true as many facilities face budget constraints along with more stringent permits that require upgrades on aging, crumbling infrastructure. There is no guarantee that any of these management program attendees will be successful managers, but each graduate has shown the initiative needed and been provided with the tools and the contacts to succeed. Management personnel shortages and the potential loss of historical knowledge is a serious concern, and these state programs proactively attempt to resolve these issues.

The revolution is not quite complete. It's time now for New York State to take the plunge. It will be a challenge, but other states have paved the way for this worthwhile cause. All that's required is a *need* (which is seen across the state); a *champion* (someone to step forward and lead the charge); *groups* willing

to help (I'm sure there are many); and the *applicants* (build it and they will come!).

For information on any of these programs, please contact the following:

- RI Operator Boot Camp, Bill Patenaude, RI DEM, 401-222-4700 (ext.7264)
- Maine Management Candidate School, Leeann Hanson, JETCC, 207-253-8020
- Massachusetts Management Program, Jim Laliberte, NEIWPC, 978-323-7929

Thomas W. Groves is Director of Wastewater and Onsite Programs for the New England Interstate Water Pollution Control Commission, and may be reached at: tgroves@neiwpc.org.




Photo provided courtesy of NEIWPC

At the Massachusetts Water Pollution Control Association's annual convention in September 2011, graduates of the state's first Wastewater Management Training Program were recognized. The training program is sponsored by MWPCA, NEIWPC and the Massachusetts Department of Environmental Protection.

opened to other operations specialists not enrolled in the year-long program. This was done primarily for financial reasons to help defray the costs of the year-long program for topics of interest to many. It also provides potential future management students with an alternative self-paced version of the training. However, because team and relationship building is an important part of the boot camp model, some sessions in the Massachusetts program are kept open only to year-long program enrollees. Unlike the Maine MCS, the Massachusetts program is limited to only wastewater treatment system operations specialists for the time being.

In addition to Massachusetts, the remaining New England states are moving forward with similar programs. New Hampshire conducted a successful one-year management training program through the New Hampshire Wastewater Pollution Control Association (NHWPCCA). The NH program began in 2010 with 16 students



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Wastewater Operators: Then and Now

by Richard Wager, Tim Miller and George Bevington

Forty years ago ... Was it more or less difficult to be a wastewater operator then than now? This question is not meant to be a contest between the vintage old school 1970s operator and today's operator, but rather a perspective on the evolution of the profession over four decades. The authors of this article were involved in wastewater operations in the 1970s and all remain active licensed 4A operators (but maybe just not *as* active.)

Safety

One area of the wastewater profession in which possibly the most dramatic change has occurred, is safety practices. Many of the safety practices that the wastewater operator adheres to today were not routinely utilized or may not have existed long ago. Confined space entry, respiratory fit, material safety data sheets (MSDS), personal protective equipment (PPE), forklift training, and many other standard safety programs were uncommon. For example, one of the authors was told to "hold your breath" when entering an active manhole in the 1970s. There was no gas meter, no entry permit, no harness, no tripod – it was best to "work fast." No wonder so many fatalities had occurred. Today's confined space programs, calibrated multi-gas meters, and rescue equipment are mandatory and routine. As far as PPEs back then, workers were lucky if they received a pair of work gloves, eye protection and/or protective suits when handling chemicals. The MSDS sheets were non-existent, so operators had little information if the chemical to be added in a process was flammable, acid or base, hazardous, or what to do if in contact with the chemical. Many manufacturers routinely did not specify what the chemicals were in order to prevent other vendors from learning "trade secrets." Certainly, wastewater operators in 2012 are more highly trained on safety procedures than in the "good old days." The New York Water Environment Association has histori-

cally praised and awarded facilities with stellar safety programs and positive results, since safety should always come first.

Equipment and Technology

We know that the wastewater profession requires manual labor – always has, always will. The fire hose to clean a tank, the beloved squeegee and the shovel – all have had a role in wastewater operations over the decades and will continue to for the foreseeable future. However, new technology and equipment does provide an assist to current wastewater operators compared to the past.

Chemical feed is typically more automated now – the days of manual chemical feed are greatly reduced. It wasn't uncommon for grease removal to be a 100 percent manual skim, using shovels and buckets to do the job. Today, many wastewater plants have new equipment that automates the grease skimming process, reducing the manual labor required. One of the authors recalls in the 1970s removing grease every day in a time consuming manner, including cutting frozen blocks of grease from a primary tank with a chain saw on a cold winter day. (But maybe that was more of a safety issue ...?)

For wastewater plants that accept industrial discharge, the evolution has been significant with comprehensive sewer laws, adoption of federal and state pretreatment rules and regulations and, in some cases, installation of complex pretreatment systems. The operator of the past had little control of what was sent down the sewer. Huge pH swings, slug loads of high strength waste, and discharge of toxic substances were common, causing turmoil to plant operations in the 1970s. The engineering analysis conducted today to calculate sewer limits for industry, together with monitoring of individual waste-



Above: Tim Miller does samples testing at a wastewater facility in 1970s; and, at right, doing solids profile monitoring using a TSS meter today.



Photos courtesy of Tim Miller

Photo courtesy of Richard Wager



Richard Wager receiving an Operations Excellence award in 2008.

water streams, provides today's operator with more tools to properly operate (and protect) the collection system and treatment facility.

All wastewater operators then and now are aware that the "real workers" at a wastewater plant are microorganisms – either anaerobic or aerobic. These same "volunteer" workers have been cleaning wastewater for decades, or more accurately, for centuries. Forty years ago, Al West developed the West method, with its language of ATCs and XSCs. The method was a huge step forward for activated process control. However, 40 years ago, we watched the sludge blanket go up and over the secondary clarifier weir, and didn't know why. Thanks to Jenkins, Strom and Richard, operators learned about filaments and controlling them with chlorine, process changes and selectors.

Primary sludge pumping used to consist of a visual check (lumpy or watery) with the volume pumped determined by a counter. Now we have density and flow meters to more precisely control the pumping rate.

Mechanical aeration has been replaced by fine bubble diffusers. In the 70s, centrifuges and vacuum filters were used for sludge dewatering, yet both disappeared in the 1990s (except for a few exceptions). This year sees a re-birth of an improved centrifuge and the belt filter press dominating the dewatering field. Small packaged plants are more common, creating more job opportunities for current wastewater operators or even a nice part-time wastewater job for the semi-retired operator. Treatment equipment to reduce nitrogen or phosphorus, and disinfection with ultraviolet was unheard of 40 years ago.

The push for energy conservation at a wastewater plant also is a necessity today since the 3 cents per kilowatt days are long gone. The simple Pan Alarm systems, notifying operators of problems have been replaced by sophisticated SCADA systems. Transducers, VFDs, millivolt signals, fiber optic cables, PLCs, in-line analyzers, and other devices have certainly made the 2012 operator job tremendously more technical than in the past.

Finally, the discharge permit limits have certainly become tougher. One of the authors started his career working at a primary treatment plant (the secondary upgrade was under construction). The goal was to remove the sinkers and floaters. The operation strategy consisted of keeping the "sludge" moving. Very soon most plants were required to meet secondary limits – 30 mg/L of BOD and TSS. In the 1980s, operators heard about nitrification and work with denitrification at the Owego WWTP. Now plants in the New York City watershed are putting out effluent close to drinking water standards by using nutrient removal and microfiltration. This is quite a change from that primary treatment plant.

Certification Training

The operators of yesterday and today have received extensive certification training, although there certainly are more training

requirements today. Early on, Dr. Rand of Syracuse University, Walt Flanders and Doug Nelson from Morrisville, Andy DiClemente in New York City and the Pieczonkas from Buffalo, provided certification training to lay the foundation for today's certification trainers.

Another intense certification debate is the exam itself. Forty years ago the Grade 1A exam (equivalent to today's 4A) was a six-hour exam – one-third multiple choice, one-third math and one-third troubleshooting essay – with no formulas provided. The minimum passing grade was 65 percent. Today, we have a computerized three-hour exam containing 100 multiple choice questions, with formulas provided. The passing grade is 70 percent today. Which exam is tougher? We are sure that question will always be in debate between the wastewater operator generations.

Four decades of differences and similarities exist between the operator of then and now. But the bottom line mission for the wastewater operator – to protect New York's water bodies – remains at the core. The days of the "dead" streams, creeks, rivers and lakes of New York State are past. They have been replaced by hundreds of environmental success stories because of the Clean Water Act and the skilled wastewater operator. These system operations specialists are on the frontline operating the massive infrastructure investments we know as wastewater treatment facilities.

Richard (Dick) Wager is Chief Operator for the Mayfield Wastewater Treatment Facility, and may be reached at: rawager@nycap.rr.com. Tim Miller continues to maintain his operator license and has provided technical assistance/training at more than 100 facilities statewide. George Bevington is employed by Gerhardt LLC, and serves as Chief Operator of Gloversville-Johnstown Wastewater Treatment Facility.



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Operations Challenge Tests Team Knowledge and Skill

by John Fortin



Brown Tide team members work in concert to perform a pipe repair at the Operations Challenge.

July 7, 1988, Lake George, NY – Three teams, one each from the New York Water Environment Association’s (NYWEA) Central, Long Island and Metropolitan Chapters, kicked off the inaugural NYWEA Operations Challenge by competing in the **Process Control** portion of the event. This part consisted of a 30-minute written test on various process scenarios.

Then, after much haggling among the Operations Challenge Coordinators over which equipment to use for the competition (each team had brought their own equipment), the physical portion of the Challenge was held, which included the following tests:

Laboratory: The laboratory test had two components that had to occur separately because there was only one laboratory judge. That consisted of calibration of a pH meter and changing the membrane on a DO (dissolved oxygen) probe.

Maintenance: The maintenance event consisted of replacing parts and repacking a vertical pump.

Safety: The safety event was a confined space entry to stop a leak on a 150-pound cylinder.

Collection: For collection, each team reviewed a video of a sewer line and made recommendations based on the findings.

When the dust had settled, there was a tie for First Place between the Central Chapter and Long Island Chapter teams. Rather than try to devise a type of tie-break system to determine which team would represent NYWEA at WEFTEC as the first place winner, the decision was made to send both those teams. This proved to be a precedent, the first and second place teams both compete at WEFTEC every year.

Fast-forward to June 5, 2012, in Buffalo, NY – Four teams competed this year in the 25th Annual NYWEA Operations Challenge. The Long Island Brown Tide group (Walter Westhoff, Dale Grudier, Patrick Scanlon, Aaron Adesso and Brian Blouin – Alternate) were strong competitors having won every NYWEA state event since 2005.

The Genesee Water Recyclers (Steve Reiter, Ken Smith,

Alan Oates, Michael Burkett and Tim Keegan – Alternate) were in their third year of competition and have been steadily improving from year to year.

The two teams from the Metropolitan Chapter – the North River Harlem Pump Trotters (Justin Manfredi, Joseph Ricardi, Mike Leone, Bill Sedutto, Dave Taylor – Alternate) and the Jamaica Sludge Hustlers (Robert Ferland, Ettore Antenucci, Dennis Marotto, Salvatore Scapelito and Mohammad Rhiman – Alternate) – were composed of relative newcomers with only Sedutto, Scarelito and Marotto having competed previously.

The day started with the team meeting followed by the written test portion of the Process Control event. For NYWEA, the **Process Control** event is a combination of a written test worth 75 points maximum, followed by a Jeopardy-style question-and-answer session worth up to 25 points. (The national WEFTEC contest only requires a written test in this.) This event awards 100 points to the team that places first.

The other four events were held simultaneously – Laboratory, Maintenance, Safety and Collection.

Laboratory: Teams in the laboratory event performed all the steps required for a BOD (biological oxygen demand) analysis.

Maintenance: The maintenance portion consists of safely removing a submersible pump and a submersible mixer from service,



Top: North River Harlem Trotters are congratulated by NYWEA President Richard Lyons with the First Place state trophy. Bottom: The team is shown competing in the Jeopardy challenge. They took the “Gold Plunger” with the highest score.

Photos by Mithy Kurok

performing and documenting the required service to repair the units, and then placing them back into service.

Safety: For the safety event, team members must enter a confined space designated manhole, and remove a victim to a decontamination area while also performing CPR on a team member that had a heart attack.

Collection: The collection event requires team members to replace a section of leaking PVC pipe and identify images of known pipe defects and observations with the correct terminology from the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Certification Program (PACP).

In a surprising upset, the North River Harlem Pump Trotters came in first, well ahead of the pack. Second place went to the Long Island Brown Tide, and third to the Genesee Water Recyclers, who were separated by three points overall. The North River Harlem Pump Trotters and the Long Island Brown Tide are representing NYWEA at the WEFTEC Operations Challenge in New Orleans, LA, October 1–2.

The number of teams competing has varied year to year, from three, the minimum, to nine, the maximum, since the event's

inception in 1988. Each year has brought exciting Operations Challenge scenarios that involve teams of knowledgeable and enthusiastic system operations specialists from the field.

If your municipality is interested in competing in Syracuse, NY, in June of 2013, please contact the author (*see below*).

John Fortin, a Senior Associate with Hazen and Sawyer PC, is a NYWEA Operations Challenge Coordinator and was a member of the 1988 North River Team. He may be reached at: jfortin@hazenandsawyer.com.



The second place statewide winning team, Long Island Brown Tide. Both teams compete in the national WEFTEC Operations Challenge.

Photo by Mitty Krook

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Please help us update our files. If you have been inducted into the Golden Manhole Society and your name does not appear here, we sincerely apologize. Please help us correct this by contacting Tanya May Jennings at tmj@nywea.org to have your name added to the list.

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are 35 years or younger who have made significant contributions to the water environment field and/or to NYWEA. The Silver category are honorary members, dedicated to the advancement of wastewater treatment other than onsite operations, such as researchers, educators, designers, manufacturers’ representatives, vendors, public officials or administrators. Listed here by Category are those awarded the SSSSS with Chapters (if known) and the year awarded.

Please help us update our files. If you have been inducted and your name does not appear, we sincerely apologize. Contact Tanya May Jennings at tmj@nywea.org to have your name added to the list, or to make a correction.

Gold

1984

Harold Beardsley, Central
John J. Karanik, Central
Mike Tremper, Lower Hudson
Emil Zenie, Genesee

1985

Ray Clauser, Lower Hudson
Douglas Connor, Central
Thomas Eldridge, Genesee
Gary Gleason, Central
William Hartman, Long Island
Francis Joy, Metropolitan
David Katz, Lower Hudson
Douglas Kuhn, Capital
Gilbert Lorenz, Metropolitan
James McConie, Long Island
Douglas Miller, Central
John Saraceni, Central
Roger Stiner, Genesee

1986

William Borfitz, Metropolitan
Ernie Bower, Genesee
Charles Defazio, Capital
Ronald Delo, Lower Hudson
John Donnellon, Metropolitan
William Graf, Long Island
John J. Hennigan, Central
Norman Melbinger, Long Island
David Millis, Genesee
William Smith, Genesee
Richard White, Central

1987

James Cunningham, Central
Harvey Davis, Capital
Joe Fiorito, Lower Hudson
Peter Francavilla, Long Island
Paul Gromer, Metropolitan
Richard Hulst, Long Island
John Jankiewicz, Lower Hudson
Larry Marble, Genesee

Greg Miller, Capital
Jonathan Pitts, Genesee
Keneck Skibinski, Central

1988

Van Bartlett, Central
Thomas Clarke, Central
Thomas Lauro, Lower Hudson
Stephen Martin, Central
James Renk, Central
John Ruggiero, Metropolitan
Alfred Schmidt, Long Island
Edward Wagner, Metropolitan
Ronald Warren, Long Island
Fred Wurtemberger, Capital
Adam Zabinski, Lower Hudson

1989

Robert Adamski, Metropolitan
Albert Adduce, Lower Hudson
Walter Borowicz, Metropolitan
Robert Cumm, Central
John Demaio, Long Island
Joseph Halupa, Long Island
Joseph Hines, Lower Hudson
Terence Hopper, Long Island
John O’Brien, Capital
Kenneth Price, Long Island
Thomas Roshick, Genesee
Thomas Roszak, Genesee
Michael Schifano, Genesee
Thomas Varley, Long Island
Mark Wagner, Long Island
Dan Wallace, Capital

1990

James Brady, Central
Matthew Bucaro, Long Island
John Camilleri, Western
William Clark, Genesee
John Connor, Metropolitan
Joe Covati, Long Island
Richard Crist, Western
Alfons Farina, Long Island

Tony Girard, Capital
Robert Gomperts, Genesee
James Luz, Central
Michael Masterleo, Central
Elmer Michaelis, Metropolitan
David Smith, Western
Louis Spiro, Metropolitan
Harry Torchio, Lower Hudson
Ronald Wolrath, Lower Hudson

1991

Thomas Balco, Lower Hudson
Leonard Bower, Genesee
Gary Cole, Central
Andre Dumas, Capital
William Fuccillo, Metropolitan
Kermit Hultberg, Western
Joseph Kalpching,
Lower Hudson
Paul Krasnoff, Metropolitan
Bryan Lampen, Long Island
Jerry Lusk, Genesee
Frank Nerone, Western
Maurice Osman, Long Island
Joe Sanfilippo, Central
Gale Wolfe, Genesee

1992

John Addeo, Metropolitan
Peter Anderson, Genesee
Andrew Clifton, Western
Anthony D. Ambra, Jr.,
Metropolitan
Walter Dobkowski, Metropolitan
William Fitzgerald,
Lower Hudson
Robert Hanley, Central
Steve Leona, Long Island
Donald McCabe, Metropolitan
James Morris, Lower Hudson
Angelo Musone, Ohio
Floyd Russo, Capital
John Salvatore, Metropolitan
Phil Salvatore, Metropolitan

Greg Toepfer, Long Island

1993

Ken Bisbee, Capital
James Boslinski, Lower Hudson
John Brown, Genesee
Rolf Brown, Central
Santo Corigliano, Long Island
Jack Gaasch, Western
Bob Game, Western
George Gonos, Lower Hudson
William Grandner, Metropolitan
David Johnson, Genesee
T.W. Lesperance, Capital
Alfonzo Lopez, Metropolitan
Ken Maving, Western
David Morgan, Central
Brian Romeiser, Genesee
Anthony Schiavone, Long Island

1994

Donald Constantino, Western
Leslie Crouse, Capital
Andrew Di Clemente,
Metropolitan
John Egitto, Lower Hudson
Tim Elston, Genesee
David Flaumenbaum,
Long Island
Kenneth Grauer, Lower Hudson
Paul Gutman, Capital
Braden C. Halsey, Central
Joseph Hurley, Long Island
Edward Jersey, Lower Hudson
James Johnson, Metropolitan
Thomas Littlefield, Central
George Lutzic, Metropolitan
Larry Nichols, Lower Hudson
Bryan Rainboth, Lower Hudson
Wesley Rice, Lower Hudson
Phil Rocle, Metropolitan
Richard Roll, Western
Lee Sackett, Genesee

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1995
David Baldrini, Central
Ben Basora, Metropolitan
Donald Becker, Western
Angelo Bennice, Central
Daniel Bentivogli, Western
Anthony Canna, Western
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Bart Crary, Capital
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Charles Mendes, Lower Hudson
Tim Miller, Capital
James Oates, Genesee
Nick Passerino, Lower Hudson
Daniel Peterson, Lower Hudson
Peter Pianelli, Metropolitan
Tom Sinclair, Genesee
Edward Smith, Lower Hudson
Herm Thein, Genesee
Carroll Weeks, Metropolitan
Ben Wright, Long Island

1996
Robert Caddell, Lower Hudson
Chet Canary, Genesee
Tom Cherry, Western
Gordon Eddington, Genesee
Eric Haack, Long Island
William Kelly, Long Island
Dean Merritt, Central
John Petito, Metropolitan
Bobbie Sablinski, Lower Hudson
Tracy Smith, Capital
Joseph Wilkinson, Capital
John Yaw, Central

1997
Barry Andres, Long Island
Patrick Arbolino, Long Island
Richard Brochon, Long Island
Daniel Ramer, Central
Ben Rowlinson, Genesee
Andy Scarbrough, Genesee

1998
John Amend, Genesee
Robert Cleeton, Central

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Ray Grube, Long Island
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Michael Ventrone, Long Island
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William Wolff, Central

1999
Kevin Cleary, Long Island
Anthony Conetta,
Lower Hudson
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Joseph Marcin, Genesee
Joseph Massaro, Metropolitan
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Rob Bennett, Genesee
Lisa Betty, Metropolitan
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Metropolitan

2002
Jim Carpenter, Genesee
John Manahan, Genesee
Don Pecor, Genesee
Steve Peletz, Genesee
Russell Scott, Genesee
Scott Tozier, Genesee
Robert Wither, Capital

2003
Doug Alaimo, Genesee

2010
Theodore Riehle, Jr., Central

2011
George Bevington, Capital
Francis Bridges, Long Island
Donald Chase, Western
Anthony Zaccardo, Capital

Silver

1984
Anthony Borowiec,
Metropolitan
Virginia Buechele, Lower
Hudson
Robert Burns, Long Island
George Cacchio, Lower Hudson
Libby (Mary) Ford, Genesee
Mary Ann Halevy,
Lower Hudson
Robert Hennigan, Central
Richard Hyams, Long Island
John J. Keegan, Central
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Peter Mack, Capital
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Walter Saukin, Metropolitan
Kevin Walter, Capital
Richard Walter, Metropolitan
John Yessis, Lower Hudson

1985
William Graner, Long Island
Nick Ilijic, Metropolitan

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Lower Hudson
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William Borghard,
Lower Hudson
Claire Dunn, Capital
Charles Masopost, Metropolitan
Frank Padar, Long Island

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Andrew Weist, Capital
James Zaganino, Lower Hudson

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Raul Cardenas, Lower Hudson
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Abraham Studnick,
Metropolitan

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John Cameron, Long Island
Pradeep Jangbari, Genesee
Fotios Papamichael,
Metropolitan
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Elliot F. Sachs, Metropolitan

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David Ellis, Metropolitan
Frank Flood, Long Island
Frank McGowan, Lower Hudson
Michael Morris, Lower Hudson
Arnold Nappi, Metropolitan
David Roecker, Capital

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Scott Sellers, Central

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Mike Lannon, Central
Dave Marcisofsky, Central
Joe Mastriano, Central
Daniel O'Brien, Lower Hudson
Dianne Philipps, Lower Hudson

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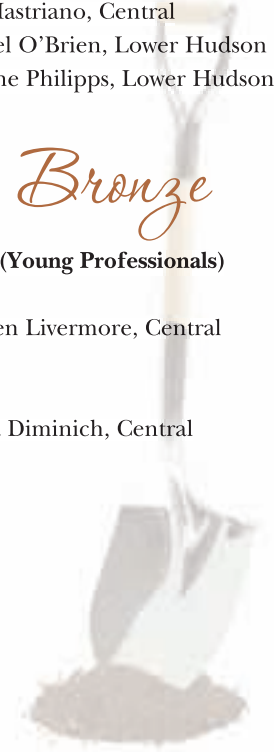
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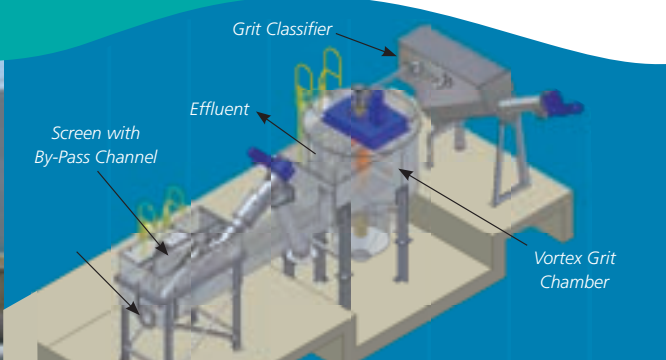


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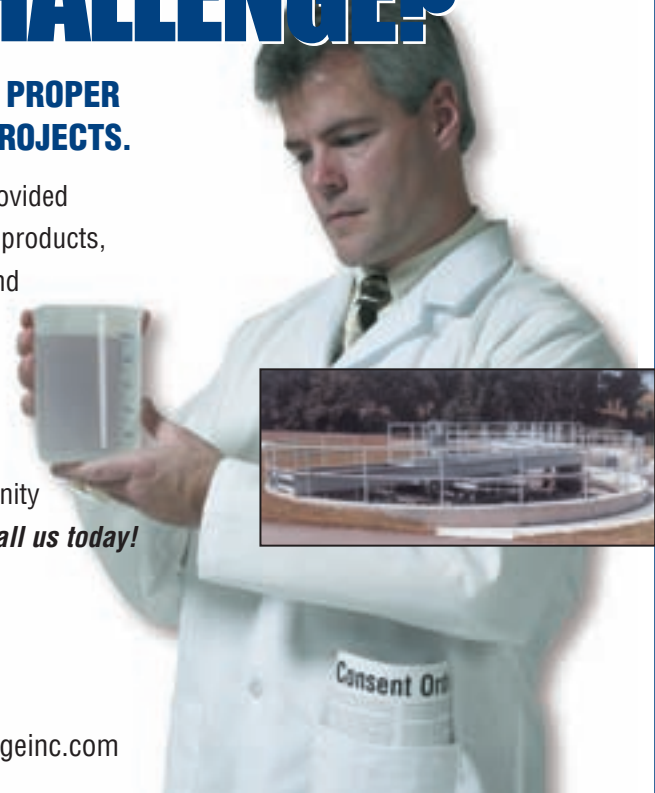
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An Opinion

Operator Recertification Program – You Make the Call!

by Joseph Marcin

With the football season here, we will hear the words, “Upon further review ...,” from the official on the field while we sit anxiously awaiting the outcome of a controversial call. The result will elicit either a resounding, “Yes!” or “You’ve got to be kidding me!” response from fans on both sides of the ball. Although there is always an equal chance of a favorable or unfavorable outcome, the process is still frustrating to many watching the game, but most would agree further review improves the chances of making the right call.



So what do a football game and an official’s ruling have to do with the Wastewater Treatment Plant Operator Recertification Program? Nothing really. But instead of just listing bullet points and displaying charts and graphs, I thought it would be more interesting to create an analogy to communicate an important message taken from many operators that I have met across the state regarding the current operator recertification program and this wastewater profession in general.

Rookie or Veteran Player

As a rookie quarterback, there are many demands required when initially joining a team – studying the playbook, getting to practice on time, attending all practices, performing physical drills, etc. As he gains experience and becomes proficient at his position, he spends more time applying his experience by analyzing game films, reading defenses and developing game plans with coaches and less time studying the basic fundamentals of the game.

Similarly, rookie operators spend some of their time acquiring a certain number of credit hours during their first and subsequent five year periods to qualify for operator recertification. Operators believe that experience has value and should be recognized as part of the qualifying criteria when recertifying. Like a quarterback, operators become proficient in the fundamentals of operating a treatment system during their rookie seasons. So, in order to minimize the time and expense needed to accumulate the required recertification classroom credit hours for each five year period, operators can take advantage of their experience, allowing years of experience to be factored in when establishing a set number of recertification credit

hours for a specific Grade Level. For example, a Grade 3A operator credit hour scale would look something like this:

- 0–5 yrs. experience = 60 credit hours
- 6–10 yrs. experience = 50 credit hours
- 11–15 yrs. experience = 40 credit hours
- 16–20 yrs. experience = 30 credit hours
- 21–25 yrs. experience = 20 credit hours
- 25+ yrs. experience = 0 credit hours

One might ask how many times do operators have to attend a training session on nitrification, or how to calculate a food-to-mass ratio when they’ve been doing it every day for the past 25 years? This would be like showing a quarterback how to place his hands on the laces of the ball to properly throw it when he’s been doing it correctly since high school. Operators need to spend more time in the field actually operating treatment systems and applying learned skills and spending less time in the classroom.

Nullified Points

With seconds remaining in the game, the field goal kicker kicks a 64-yard field goal into the wind only to have it taken away because the opposing coach called a time out on the field from the sidelines seconds prior. The play is stopped, the field goal is nullified. It’s not the kicker’s fault. He physically made the play and the ball did travel 64 yards to go through the goal post. But an obscure rule just erased a record breaking field goal and the kicker’s name will not be inscribed in the record books.

Under the current recertification program, credit hours earned above the required number during the five year recertification period are also nullified and cannot be applied to the next five year recertification period. Once again, a time out is called by an official when a certain number of credits are exceeded resulting in an automatic loss of recertification credits. Unlike the football game, taking away the credits does not affect the outcome of the game but, like the kicker, it does penalize the operator. Why are these credits nullified? Having a few extra earned credit hours can be helpful to an operator if attendance at a future training session is not feasible due to unforeseen circumstances. There is a significant expense in both time and money for operators to obtain extra credit hours and they should not lose them because of this current requirement. The NFL recognized the time out rule, mentioned above, was not intended when written in the rule book and is considering changing this rule so as to no longer penalize a player’s successful kick. This would also be a great time for state officials to change the no credit carry-over rule in the recertification program as well.

Hall of Fame Induction

The most experienced quarterbacks can read a defense and call an audible play at the line of scrimmage to successfully move the ball down field. Their experience and leadership skills make them exceptional players. These are learned attributes that have been mastered over a number of years of hard work and dedication to the sport. For their efforts, many are handsomely rewarded financially and will eventually be inducted into the football Hall of Fame and be historically recognized.

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Based on my 35 years of wastewater treatment experience, I can safely say that wastewater operators will never see salaries equal to professional football players but unlike a professional football player, you will find operators who have been in the profession for greater than 25 years and have mastered the operational requirements at their facilities.

So to recognize certified operators for protecting the waters of New York State for most of their lives, when they reach the Quarter Century milestone, why not present them a Lifetime NYSDEC Wastewater Treatment Plant Operator Certification for the grade level they are qualified in? This can be the "Hall of Fame" recognition that they undoubtedly deserve for dedicating 25 years of service to the profession.

Play Books and Game Plans

Since the onset of free agency, players and coaches alike change teams frequently, and with that, valuable knowledge is carried along with them. Although team play books and game plans are not posted for use by other teams, training regiments, team organization and plays that worked for one team can certainly work for another.

Because operators are not competing against each other (except for the prestigious Operators Challenge title) play books can be shared. Under the NYSDEC training recertification program, facilities can submit in-house training programs to NYSDEC for approval to conduct internal training for operator recertification credits. This is an excellent program that provides wastewater professionals within a municipality an opportunity to conveniently and inexpensively conduct recertification training for their operators. The list of potential topics on the NYWEA website (www.nywea.org) is an excellent reference for trainers to access when developing programs for their facilities.

Operators would also benefit if these in-house training programs were available for them to use at their facility. Perhaps NYWEA can develop an electronic Share Point link on its website for municipalities to post previously approved training modules that can be shared with other municipalities for their in-house recertification training. This share site would also be a great location for municipalities across the state to post their in-house training schedules to allow operators from other municipalities to participate within their region, if they so choose. Not only will this establish a training network of regional wastewater professionals to share experiences, troubleshoot problems and develop or improve operating procedures, it will also reduce training expenses for operators and municipalities.

Future Investments – "Show Me the Money"

Getting a first round draft pick to sign a contract or to develop an exceptional team of professional athletes takes millions of dollars and incentives. Keeping exceptional players can cost even more, but in return, the investment often results in capacity-filled stadiums and record revenues for the team. Fortunately, teams receive monies from TV contracts, ticket sales and stakeholders to help finance these lucrative player contracts.

The NYWEA also helps to develop environmental professionals and is very generous when awarding scholarship money to students entering the environmental playing field. Operators overwhelmingly agree that this is a valuable resource to those seeking an environmental education and should be continued. Although the scholarships benefit environmental students on a college level primarily, it does not provide monetary support for current or future wastewater treatment plant operators.

It may be possible for NYWEA to consider implementing a Wastewater Treatment Plant Operator Training and Education

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Scholarship Fund that could be used to cover expenses for recertification and educational programs specifically for operators. Funding for this can come from allowing options to current scholarship donors for how they want their contributions distributed within the organization, such as: College Scholarship Fund; or Wastewater Treatment Plant Operator Training and Education Scholarship Fund.

Under the Wastewater Treatment Plant Operator Training and Education Scholarship Fund, monies could be awarded to qualified operators enrolled in approved certification courses at local universities/institutions, or to help defray the cost of successful completion of correspondence courses. Applications can be submitted to regional chapters on an annual basis for review and approval based on specified criteria established by the association. Operators are part of the environmental team and would be grateful for being considered for scholarship funding.

AFL/NFL – What’s the Difference?

Years ago, two professional football leagues were established: the National Football League (NFL) and the American Football League (AFL). Later, these franchises merged, but there are still separate divisional designations. Nothing really changed – the players still play football, but now are required to play under the same set of rules and regulations.

Unlike the NFL merger, there are significant differences in regard to operator certification requirements for wastewater treatment plant (WWTP) operators. Municipal operators are required to obtain a NYSDEC Certification, but private or industrial operators are not required to be certified at any grade level. Any wastewater professional will tell you this makes no sense at all because they all

serve the same purpose, which is to protect the waters of the state. The vast majority of operators I have spoken with believe a NYSDEC Operator Certification should be a minimum requirement for all industrial and/or non-municipal facilities that are regulated in accordance with SPDES permits. Now that NYWEA and NYSDEC have merged the administrative duties of the operator certification program, it’s time non-municipal operators play by the same rules and be required to be certified in the state of New York. Not only will this change increase the number of certified operators, it will also benefit operators seeking employment and the industry in filling positions with highly qualified employees.

Promoting the Game

Professional athletes in any major sports league usually begin developing their skills and selecting the sport they want to pursue while attending high school. Later, most will attend a college and some will be fortunate to have developed exceptional skills to be considered for a professional team. If you ask professional athletes who had the most influence on their lives and successes, many will tell you it was the support and encouragement from their families and from their high school coaches. High school is where it all began, and it is where most athletes learned the fundamentals of life and the game they play.

Attend any WWTP operator seminar today and you will see many of the same faces that you’ve seen for the past 25 years. There will be only a small handful of new attendees. Operators believe that there is a lack of interested or qualified wastewater treatment plant operators available to fill the positions of retiring professionals. There are probably many factors that contribute to this, but one factor may be the lack of an educational curriculum at the high school level to

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prepare students for this career. Because the minimum educational qualification for a wastewater operator is a high school diploma, emphasis should be placed on informing and preparing students for potential career opportunities as wastewater operators at the high school level.

The NYS Education Department, along with local high schools and the Board of Cooperative Educational Services (BOCES) may provide a solution to this concern. A short curriculum for students enrolled in a BOCES science program could provide the basic training that, at the time of graduation, would satisfy initial requirements for an entry-level position at a local municipal treatment system. Through the assistance of NYWEA, an introductory operator certification training program can be proposed for these institutions to consider. High schools across the state spend millions of dollars on sports programs annually that provide a large pool of athletic candidates that continues to promote the game. There also needs to be an academic program at this level to provide candidates who will promote the wastewater operator profession as well.

The Backup Quarterback

Every football team needs a backup quarterback in the event the starting player gets hurt. Without one, who would you have to lead the team?

Based on personal experience, both certification training and help from the NYSDEC Operator Assistance program were an integral part in successfully troubleshooting and optimizing wastewater operations to meet consistent compliance at the facility I operated and managed. The team of individuals from this group was my backup quarterback. Of all the environmental programs I have known involving regulatory agencies, this wastewater operator


assistance program was “THE” program offered by NYSDEC that provided a hands-on approach to identify problems and develop solutions for operating challenges with essentially no cost to the permittee. Not only did the efforts of this group help municipal and industrial operators meet compliance and provide valuable training, it also bridged the gap between regulators and the regulated community to work collectively in protecting our most valued resource, water. Operators are currently playing the game without a backup quarterback. I believe this program is essential for the continued success of wastewater treatment in New York, and it needs to be put back into action.

Bottom Line

Evaluating the current operator recertification program in this state is more than just measuring its effectiveness – it’s about finding ways to improve on the process and take necessary steps to meet the bottom line – *operator sustainability*. No matter how I have approached this topic, if taken into consideration and acted upon, the outcomes suggested will provide additional benefits to current and future WWTP operators. A positive outcome of the game, however, hinges primarily on the actions of regulatory officials and legislators to develop and implement laws and regulations to make these changes happen.

So its 4th down, the clock is running, but there’s time for one last play. Will they pass or run it into the end zone for the score? You make the call.


Joseph Marcin is the EHS Manager at Worthington Cylinders in Medina, NY. He may be contacted at: joe.marcin@worthingtonindustries.com.



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Village of Minoa Wastewater Facility Strives for Sustainability

by Steven Giarrusso, Tanya May Jennings and Richard Donovan

The Wastewater Treatment Plant in the Village of Minoa, serving roughly 3,345 residents, is not your average treatment plant. It is also a Cleanwater Educational and Research Facility (CERF) that has partnered with the SUNY College of Environmental Science and Forestry (SUNY ESF), as well as East Syracuse-Minoa (ESM) High School students to help improve water quality, energy and sustainability.

The Research Facility is managed by the Chief Operator and Research Biologist, Steven Giarrusso, and Operator Pat Meehan. The facility also has the support of Mayor Richard Donovan; liaison and trustee, John Champagne; the Minoa Village board; President of SUNY-ESF, Dr. Neil Murphy, and SUNY ESF professors, Dave Johnson and Klaus Doelle. Also active are several SUNY ESF students and volunteers. Under Giarrusso's direction, the goal is to make the facility sustainable by turning solid waste into energy, lowering the cost on the village and taxpayers, and improving the quality of life through environmental education and research.

Biological Reactors

The Minoa facility is comprised of three different kinds of biological reactors: plastic media trickling filters, sequencing batch reactors, and wetlands. The facility recently received a \$563,886 grant from the NYS Environmental Finance Corporation to implement improvements, research projects, and a biodigester to help convert waste into energy. The plant also received a NYS Energy Research and Development Authority grant to convert a truck that normally runs on diesel fuel, to run on compressed natural gas (CNG) only. This conversion allows the facility to purchase gas at \$1.40 per gallon instead of roughly \$4 per gallon for fuel – an incredible savings. Plans are underway for improving the process so that, eventually, trucks will run on solid waste, further reducing expenses.

Some innovative ideas for water processes come thanks to participating SUNY-ESF professors. The trickling filter used at the facility, for example, is different from most others in that it allows algae growth on top. The algae create a productive atmosphere for removing phosphorus, unlike other wastewater plants that use a chemical process. The facility also produces nutrient-rich water that will be used in a greenhouse to grow flowers and small vegetation for the village. The greenhouse and its influent water will be heated with a special reactor that uses zero energy and is self sufficient, enabling the greenhouse to run all year long with no energy costs.

About 130,000 gallons of wastewater per day flows through the facility's constructed wetlands, meeting effluent permit limits. A natural filter, the wetland system requires zero maintenance and zero chemicals, and flows all year long. This green system has the ability to remove complex compounds, such as pharmaceuticals, that pass through a normal treatment plant and into our streams. With a NYSEFC grant, the facility will look at increasing this removal process and improving its efficiency. The wetlands approach, with the use of gravity and the microorganisms doing



Photo by Tanya May Jennings, NYWEA

Village of Minoa's wastewater plant's truck that was converted to operate on compressed natural gas only – a real savings in fuel for the municipality.

all the work, can lessen expenses as well as the normal energy consumed. In the future, this process could be used in less fortunate countries to help improve their water quality.

The hybrid biodigester that will be built will produce methane. This biogas will be cleaned and used to power the new CNG pickup truck for free. By using this process, Minoa will also be utilizing its biosolids instead of trucking them offsite, creating more savings.

"The goal is to be sustainable, and as budgets everywhere get cut, the idea is to trim expenses and reuse our byproducts," according to Giarrusso. "This is an innovative way of doing it. By the plant being more sustainable this, in return, reduces the burden on taxpayers."

continued on page 50



Photo by Tanya May Jennings, NYWEA

Algae is shown growing on a trickling filter which helps to remove phosphorus from waste naturally.



Photo by Tanya May Jennings, NYWEA

The facility's wetland with reed grass, filters contaminate compounds from wastewater.

They take unused food to CERF daily where it is then processed to produce fuel using a biodigester. The intuitive project is made from plastic pipes and insulation and can have application in the third world as a free energy source. Students are also learning problem solving, project management, time organization and hands-on experience they wouldn't get in a normal classroom. The program, which provides college credit, helps encourage students interested in science careers.

Thanks to the vision of leaders at the treatment plant, academe and the community, the Village of Minoa's WTP/CERF is committed to making the world better, and it starts by helping the Village of Minoa first!

Steven Giarrusso is the Chief Operator and Research Biologist for the Village of Minoa Wastewater Treatment Plant/Cleanwater Educational and Research Facility. Tanya May Jennings is the Wastewater Operator Certification Administrator at NYWEA and may be reached at tmj@nywea.org. Richard Donovan is the Mayor of the Village of Minoa

Students and CERF

The WTP/CERF also works with the ESM High School through the program, "SUNY ESF in the High School: Global Environment." The program initially had five students, but rapidly has grown to 21 students now enrolled in this exciting research opportunity. Students are redefining the value of the food scraps they throw in the trash during lunch hour by using them to convert food into fuel.



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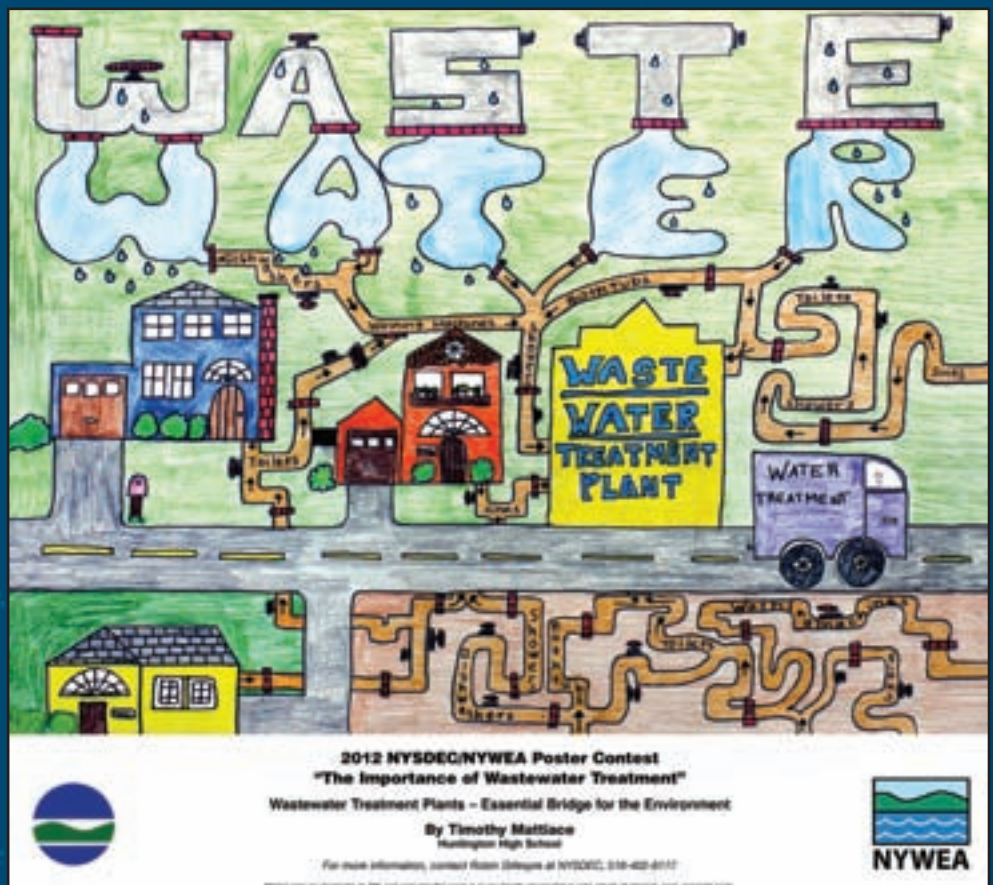
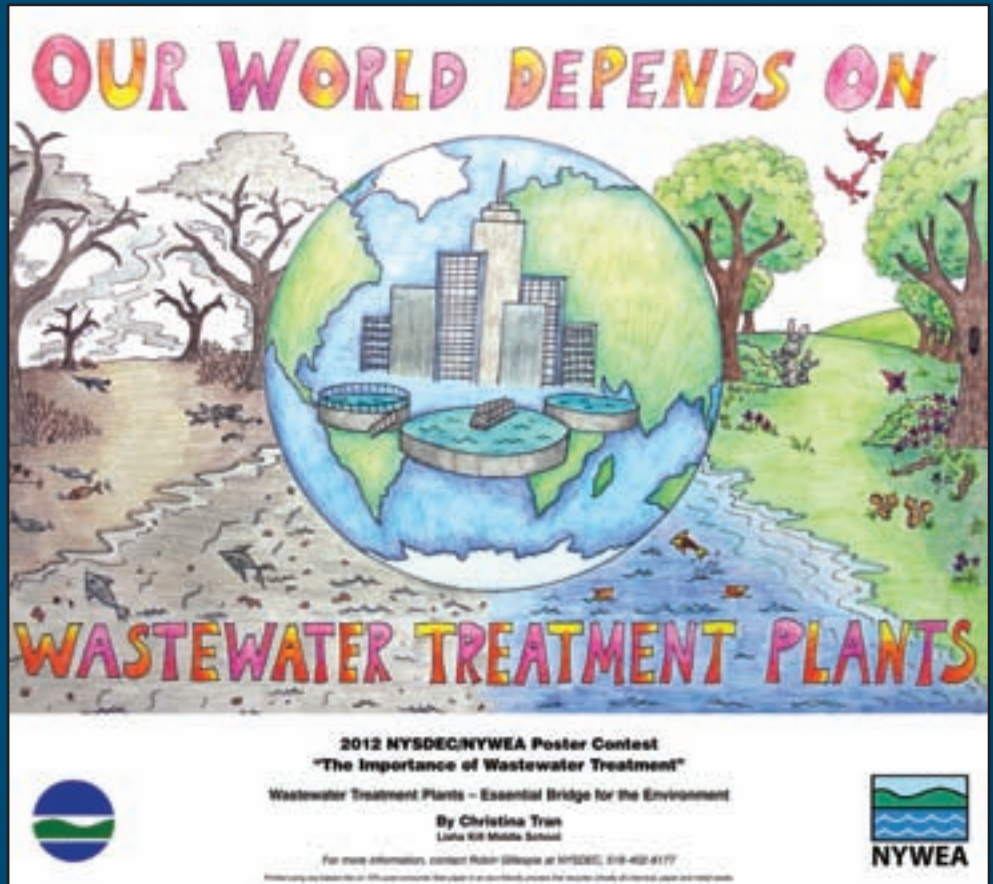
Winning Posters Convey Importance of Wastewater Treatment in Protecting Water Environment

During the 84th New York Water Environment Association Annual Meeting in New York City, winners were selected for The Importance of Wastewater Treatment Poster Competition, sponsored by the NYS Department of Environmental Conservation and NYWEA. Poster entries were judged on how they highlighted the importance of wastewater treatment plants in protecting our waters! Each poster was judged on the following three criteria: clear and correct message conveyed by text and artwork; creativity, originality, artistic quality; and visual clarity.

The competition was open to all middle and high school students in New York State's public and private schools. One winner was awarded from a high school and a middle school. The NYSDEC staff judges reviewed all posters and chose the top-five middle school and top-five high school entries. The NYWEA membership voted for the winning posters during the 84th Annual Meeting in New York City.

The winners received a \$50 award each, as well as a plaque recognizing their accomplishments. Both winning posters will be printed and distributed to municipal wastewater treatment plants throughout New York State. In addition to the winners receiving awards, teachers of the recipients each received an engraved plaque and a Water Test Kit for use in their classrooms.

Congratulations to Christina Tran of Lisha Kill Middle School and Timothy Mattiace of Huntington High School!





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NYWEA Sponsors Winning Student in National Stockholm Junior Water Prize

Photo by Allison O'Brien, WEF



Kunal Sangani of Fayetteville, NY is awarded the US Stockholm Junior Water Prize at the Boston, MA, Water Environment Federation competition.

He entered his project through a regional International Science and Engineering Fair – the Greater Syracuse Scholastic Science Fair – hosted by the Museum of Science and Technology in March 2012. NYWEA judges selected Sangani for the state's top SJWP title from among 26 student water environment projects entered in regional fairs statewide. The association sponsored Sangani's entry in the national WEF competition in Boston, from which he went on to the international competition in Stockholm, Sweden this August.

For the national prize, Sangani won \$3,000 and an all-expense paid trip to Stockholm where he competed against national winners from more than 30 countries for the international honor during World Water Week, August 25–30, in conjunction with the Stockholm Water Symposium. Sangani's school also received a \$1,000 grant toward enhancing water science education. Sangani presented his research to the water quality professionals that attended WEFTEC 2012 conference held in New Orleans, LA on October 1.

Findings:

Kunal Sangani spent many weeks working on his experiments and analyses in laboratories at SUNY Stony Brook and the SUNY College of Environmental Science and Forestry. "I started my research on hydraulic fracturing last summer when I worked under the mentorship of Dr. Miriam Rafailovich at SUNY Stony Brook. In the fall, I continued my research at SUNY-ESF with the help of Dr. Neal Abrams and Sally Mitchell."

He focused his research experiments on two different aspects of hydrofracking, leading to two separate conclusions. First, using a mathematical model, he looked at how much pressure is used to fracture the rock during hydrofracking. He found that if the process used half the amount of pressure (megapascals) it does today, it would cause less overall damage to the rock column. Less pressure would result in a slower, more gradual processing of natural gas, but over a projected 30-year period, the amount produced would be the same, he reported. With less damage done to the rock, he postulated that it would also be harder for toxins and methane to travel into the water system.

The second part of his research tested the chemical composition and environmental toxicity of actual wastewater samples provided by a company hydrofracking in Pennsylvania.

Interviewed by the Syracuse *Post Standard* (Elizabeth Doran, www.Syracuse.com, 6/22/12), Sangani explained: "I performed the chemical tests and found traces of lead and high amounts of barium and strontium, but what was most surprising to me was that they exhibited beta decay." That means they were radioactive, and he noted: "If not handled properly, it could accumulate

and contaminate our ecosystem."

In his paper, he wrote: "These measurements are perhaps the first documentation of metal ion concentrations and radioactivity in hydraulic fracturing effluent." His plant studies further revealed stunted growth and toxicity in increasing effluent concentrations.

To read the entire project paper, "Modeling and Environmental Analysis of Hydraulic Fracturing in Upstate New York," go to www.nywea.org/clearwaters/ and select the 2012 Fall edition of *Clear Waters*.

– Lois Hickey, editor



Photo provided by Kunal Sangani

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The ideal candidate will have a Bachelor's Degree in Engineering, Environmental Science, or related field; supervisory experience in a wastewater treatment plant. Candidates that have completed an Associate's degree with exceptional experience will be considered. Advanced skills, technical knowledge of wastewater treatment attained by specialized courses and on-the-job training required. Grade IIIA Wastewater certification issued by the State of New York is preferred; ability to obtain license in 18 months required. Minimum of five years directly related experience in wastewater treatment/operations, including at least two years in a supervisory role is recommended. Strong technical, supervisory skills required. Computer proficiency in MS Office applications required; experience with CMMS beneficial.

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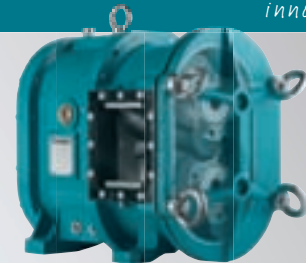
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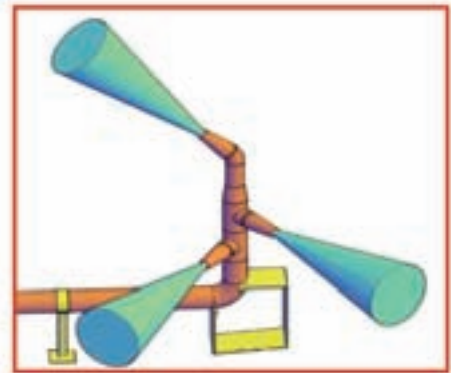
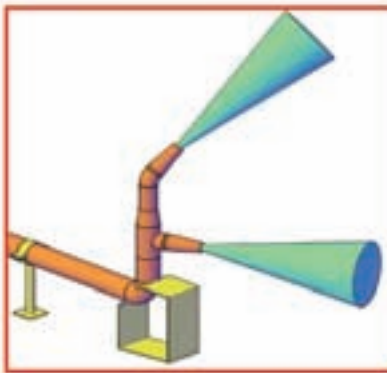
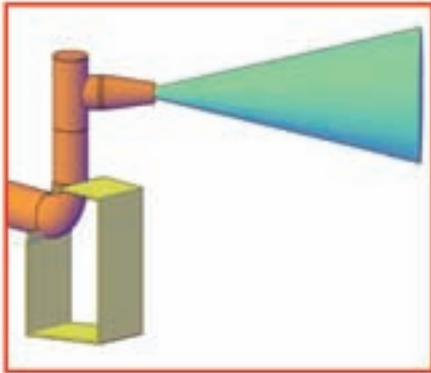
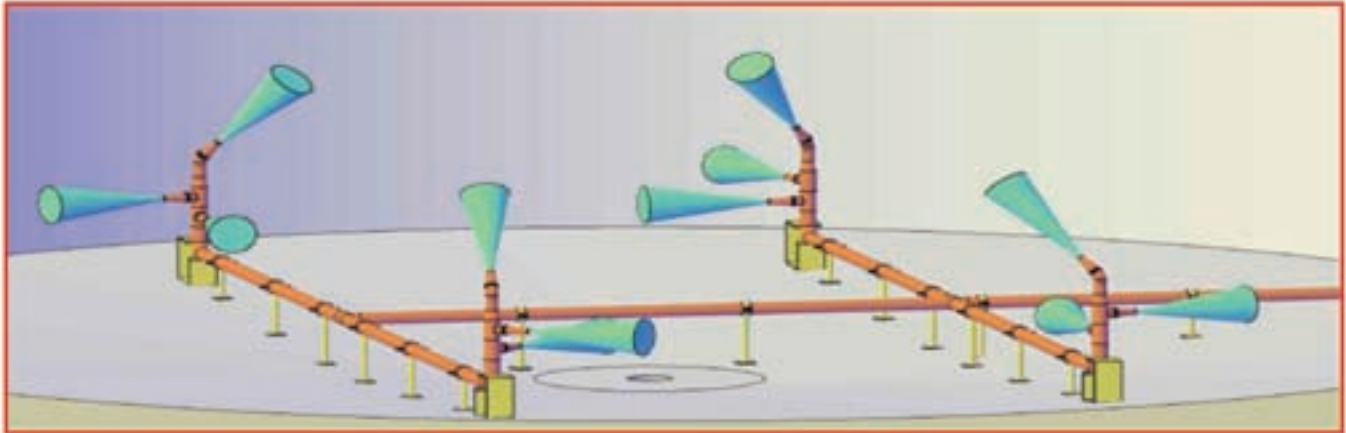
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