

# Operator Facts

TECHNICAL FACTS FOR WASTEWATER TREATMENT PLANT OPERATIONS  
New York State Department of Environmental Conservation

## New York State Department of Environmental Conservation Presents Andrew M. Weist Operation & Maintenance Excellence Awards

Congratulations to the staff and communities of the Old Forge Sewer District Wastewater Treatment Plant (WWTP), the Village of Saranac Lake WWTP and the New York City Department of Environmental Protection (NYCDEP) Grand Gorge WWTP for being selected as winners of this year's New York State Department of Environmental Conservation (NYSDEC) Andrew M. Weist Operation & Maintenance Excellence Award.

The NYSDEC Division of Water Selection Committee selected the Old Forge WWTP as the winner in the Small Secondary category, the Village of Saranac Lake WWTP winner in the Medium Advanced category and the NYCDEP Grand Gorge WWTP as the winner in the Small Advanced category.

The NYSDEC Andrew M. Weist O&M Excellence Awards honor wastewater treatment facilities that implement innovative and outstanding operations, maintenance



Sandra Allen, Director, NYSDEC Division of Water presents (from left to right) Tom Berger, Fritz Carlson, Dave Underwood, Larry Moore, Tim Clark and Salvatore Palazzolo of the Grand Gorge WWTP the NYSDEC Andrew M. Weist O&M Excellence Award in the Small Advanced Category.

and management programs that result in high levels of continued performance and efficiency.

Municipal wastewater treatment facilities are the backbone of New York's water quality protection efforts and these awards recognize municipalities that have gone the extra mile to protect the water quality of this state. The awards also recognize the entire staff at wastewater treatment facilities for their fine work and dedication to protecting public health, the environment, and the public's investment.

The staff of the NYCDEP Grand Gorge WWTP received their award on September 30<sup>th</sup> at the

Grand Gorge facility. Sandra Allen, Director of the NYSDEC Division of Water made the presentation to the plant staff. Highlights of the Grand Gorge award application included outstanding biosolids management and a focus on pollution prevention and resource conservation. Chief Operator Sal Palazzolo and his staff are committed to operating the Grand Gorge WWTP to produce an effluent that goes well beyond regulatory limits.

*(Continued on Page 3)*

Winter 2005

## Operator Facts

The purpose of this technical bulletin is to inform wastewater operators about various operational practices, problem-solving approaches, technical developments and certification and training issues.

The bulletin is produced by:

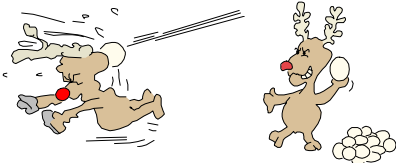
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You are invited to submit technical articles or other information of interest to operators for publication in **Operator Facts**.

Be sure to notify us of a change of address if you wish to continue to receive **Operator Facts** and training notices. Please include your certificate number.

The mention of any product or listing of any company's seminar is not an endorsement by this department.

Send all correspondence to: **Operator Facts**, NYSDEC, 625 Broadway, Albany, New York, 12233-3506, Phone (518) 402-8089 or Fax (518) 402-8082. Visit our website at: [http://www.dec.state.ny.us/website/dow/bwcp/foas\\_main.html](http://www.dec.state.ny.us/website/dow/bwcp/foas_main.html)



# Training Needs Survey Update

NYSDEC, with the aid of its partners: New York Water Environment Association (NYWEA), New York Rural Water Association (NYRWA), New York City Department of Environmental Protection (NYCDEP), Municipal and Industrial Operators, and others, developed and mailed training need surveys to municipal and industrial wastewater treatment plant operators and NYSDEC, NYCDEP, and county wastewater treatment plant inspectors.

These surveys were developed because NYSDEC and its partners believe the identification of training needs has significant value toward development of training programs that produce qualified and competent wastewater staff.

These responses, and others beyond the top 20 topics, will be prioritized by NYSDEC and its partners. Prioritized results will be used by NYSDEC to develop the new Five Year Training Plan (2005-2010). The responses will also be provided to the partners to aid them in developing and delivering training programs.

Thank-you notes were mailed or e-mailed to all responders. If you returned a survey and did not receive a thank-you letter or e-mail, or if you would like a copy of the entire response list, please send an e-mail request to Robert Wither at:

[rewither@gw.dec.state.ny.us](mailto:rewither@gw.dec.state.ny.us)

Look for a summary of our new Five Year Training Plan in the next issue of **Operator Facts**.

The surveys were mailed in Spring 2004 and the responses have been received and ranked. The top 20 topics selected by survey responders are:

- Overview of SPDES Program and Regulations
- Flow Measurement Technique
- Legal Responsibilities and Reporting Requirements
- Confined Space
- Potential Hazards at Wastewater Treatment Plants
- Wastewater Operator Certification/Recertification
- Stormwater Regulations and Compliance
- Basic First Aid/Life Saving/CPR
- Laboratory Procedures for Common SPDES Parameters
- Personal Protection Equipment
- Process Control Sampling Procedures
- Lockout/Electrical Safety
- Overview of Applicable Water Laws and Regulations
- Treatment Plant Health and Safety Programs
- Sludge Disposal Sampling Requirements and Regulations
- Emergency Preparedness and Response
- Pumps
- Completing the Discharge Monitoring Report
- Biohazards, Pathogens, Blood
- Clarifiers

# Excellence Awards

(Continued from Page 1)



**Sandra LeBarron, Regional Director, NYSDEC Region 6, presents Ted Reihl (middle) and John DeVoldre (left) with the NYSDEC Andrew M. Weist O&M Excellence Award for the Old Forge WWTP in the Small Secondary Category.**

The Old Forge WWTP staff received their award on July 19<sup>th</sup> at the treatment facility. The award was presented by Sandra LeBarron, Director of NYSDEC Region 6. Highlights from the Old Forge award application package included, Chief Operator Ted Riehle and staff installing an anoxic zone in the aeration tank to



**Vince Kavanagh, P.E., NYSDEC Region 5, presents staff from the Village of Saranac Lake WWTP the NYSDEC Andrew M. Weist O&M Excellence Award in the Medium Advanced Category. (From left to right) Vince Kavanagh, Kevin Pratt, Robert Durfee, Dustin Martin, Wayne LaVair and Dave Lewis.**

control denitrification problems in the secondary clarifiers, and installing a “foam wasting system” in the aeration tank to control nocardia blooms. The plant staff take great pride in an excellent compliance record.

The staff from the Village of Saranac Lake WWTP received their award on July 20<sup>th</sup> at the treatment facility. The presentation was made by Vince Kavanagh, P.E. from the NYSDEC Region 5 Office. The Village of Saranac Lake award application focused on an outstanding process control program and an excellent biosolids management plan. Chief Operator Kevin Pratt and his staff have established an excellent process control program which is a key ingredient in producing a high quality effluent.

The Weist award memorializes Andrew M. Weist for his many positive contributions, which enhanced wastewater treatment plant operations in this state and also at a national level. Andy’s efforts played a significant role in improving the quality of our waters. He was the section chief of DEC’s Facility Operations Assistance Section for 15 years, and worked at DEC for over 32 years before retiring in 1995. Andy passed away in 1999.

Congratulations to the staff and communities of all three of these well operated and maintained wastewater treatment facilities. The communities should be proud they have front-line protectors of the environment that not only meet effluent discharge limits but make the extra effort to excel in their field.



Our thanks to NYSDEC Regional staff for their O&M Excellence Award nominations.

Dave Marcisofsky (Region 6) for the Old Forge WWTP, Vince Kavanagh (Region 5) for the Saranac Lake WWTP and Peter Freehafer (Region 4) for the Grand Gorge WWTP.

# RENEWAL TRAINING & UPCOMING MEETINGS



## News and Events

NYWEA, Inc.  
126 North Salina Street - Suite 200  
Syracuse, NY 13202  
(315)422-7811  
<http://www.nywea.org>

### State Events

77<sup>th</sup> Annual Meeting  
Marriott Marquis  
New York City, NY  
February 6-9, 2005

21st Annual Legislative Forum  
Albany, New York  
May 3, 2005

Spring Technical Conference  
and Exhibition  
Grand Island, New York  
June 5-8, 2005

### Western Chapter

Greater Buffalo  
Environmental Conference  
Buffalo, New York  
March 16, 2005

## Future ABC Exam Dates

Applications for ABC exams must be postmarked by the filing deadline. Those people retaking the ABC exam must have their checks for \$35.00 postmarked by the filing deadline. Applicants who miss the deadline will be scheduled for the next exam.

<u>Exam Date</u>	<u>Filing Deadline</u>
February 23, 2005	January 12, 2005
August 31, 2005	July 20, 2005
February 22, 2006	January 11, 2006
August 30, 2006	July 19, 2006

## Get Training News Faster

Our new certified WWTP operator e-mail list is up and running. We have about 250 operators who receive their training notices, *What's New at DEC* and *Operator Facts* this way. The mail list allows us to get information out to operators in an efficient and timely manner.

To subscribe to this service, please use the following website:

<http://lists.dec.state.ny.us/mailman/listinfo/wwtpcertifiedoperators>.

When you enter the site, you will be asked for your e-mail address, but your name is optional. Instead of your name, please include your operator certification number. You can also create a password or have one generated for you.

The list will not be used for any other purpose. You can unsubscribe from the e-mail list at any time by visiting the website above.

## Can't Wait

If you need our forms and don't want to wait for the mailman to arrive, visit our website at: [www.dec.state.ny.us/website/dow/bwcp/opcert.html](http://www.dec.state.ny.us/website/dow/bwcp/opcert.html)

The **Application for Renewal of Certificate: WWTP Operator** and other certification and training forms are available in pdf format for downloading.

## Looking for Some Training?

March 20-25, 2005

### *Troubleshooting Activated Sludge Problems*

Location: Waters Edge Conference Center, Old Forge, NY

Trainer: NYSDEC

Cost: \$442.00 - Tax Exempt  
\$478.47 - Taxable

For details, contact: Mike Coley  
at: (518) 402-8086



## No Operator Facts ?

The Fall 2004 *Operator Facts* was finally mailed out in late October. If you received a copy in the mail or an e-mail notification that *Operator Facts* is available online, you're all set and you will continue to receive *Operator Facts*.

However, many certified operators did not receive a copy or an e-mail notification that it was available. If you want to resume receiving e-mail notification that *Operator Facts* is available online, subscribe to our new e-mail list (see the adjacent article). If you want to receive *Operator Facts* through the mail, please mail a request to our office (see address on page 2) asking us to resume mailing. Please include your name and certification number in the request.

# Wastewater Treatment Plant Operator Certification

Wastewater treatment plant certification for operators is a requirement because of the recognition of the need to produce quality effluent discharged into New York State's waterways. The criteria for operator certification is stringent to adequately assure a high level of professionalism. Wastewater certification is outlined in detail within NYSDEC's publication titled "*Wastewater Treatment Plant Operator Certification Manual*." The summary of requirements includes:

- Education
- Formal Classroom Courses
- Approved Work Experience
- Application (*Wastewater Treatment Plant Operator Certification Manual*)
- Association of Boards of Certification Examination

Operators already certified are required to renew on a five-year schedule. Renewal training requirements depend on the grade level of certification. When an operator applies for renewal, they **must** complete the NYSDEC Renewal Application Form, list the training they have completed, and attach **copies** of the course completion certificates or letters. Do not send original completion certificates in the event that your application is lost.

Training pertaining to wastewater treatment, safety, first aid, math, computers and supervisor/management is acceptable for renewal. Training approved by NYSDEC will have an RTC number with hours approved. There are many preapproved training courses that do not need an RTC number. If

you submit training **not** evaluated by NYSDEC or pre-approved, you must submit the course agenda, time line and copy of completion certificate. Credit for these courses is subject to the discretion of the reviewer based on the definition of a contact hour for training. If your certification expires, you are no longer a NYSDEC certified operator and you should submit your renewal application as soon as possible to be reinstated.

**If you have moved** and have a change of address, you must notify us of this change. There is no mechanism for us to know your mailing address, and NYSDEC will make no effort to search you out. A current mailing address is important for you to receive our newsletter *Operator Facts*, training notices, and certification reminders. You should also be using current forms that reflect the mailing address below.

**NYSDEC  
Facility Operations  
Assistance Section  
625 Broadway - 4th Floor  
Albany, NY 12233-3506  
Phone #: (518) 402-8177  
Fax #: (518) 402-8082**

Don't wait for deadlines! There is no such thing as an extension. If you do not renew on time, you are no longer certified. You have worked hard to satisfy the requirements for wastewater treatment plant operator, so make sure you renew early and apply for Association of Boards of Certification (ABC) exams early.

## Certification Courses

### Basic Operations

February 10- April 21, 2005  
Ulster Community College  
(845)687-5173

February 28 - March 11, 2005  
SUNY at Morrisville  
(315)684-6670

March 14-25, 2005  
Great Lakes Laboratory - Buffalo  
(716)878-5422

Spring 2005  
Hudson Valley Community College  
(518)629-4830

### Basic Laboratory

February 28 - March 4, 2005  
Great Lakes Laboratory - Buffalo  
(716)878-5422

April 4-8, 2005  
SUNY at Morrisville  
(315)684-6670

### Activated Sludge

February 7-10, 2005  
SUNY at Morrisville  
(315)684-6670

April 4-7, 2005  
Great Lakes Laboratory - Buffalo  
(716)878-5422

### Supervision and Technical Operations Course

April 18-22, 2005  
Great Lakes Laboratory - Buffalo  
(716)878-5422

### Management Course

April 25-28, 2005  
SUNY at Morrisville  
(315)684-6670

May 2-4, 2005  
Great Lakes Laboratory - Buffalo  
(716)878-5422

# Congratulations

## To Our New Certified Operators!



### Grade 1

Terrence S. Anderson	New York City
Kenneth H. Cramer	Fulton
Keith J. Herbert	Sullivan
Dawud A. Jawando	New York City
James W. Jenkins	Saratoga
Joseph A. Menniti, Jr.	Nassau
Evan Moulton	Warren
Lloyd O'Donoghue	New York City
Michael J. Pitzel	New York City
Michael Sollohub	Warren
David Thaisz	New York City
John E. White II	St. Lawrence
Randall J. Whiting	Delaware
Duncan E. Young	Chautauqua
James C. Zacher	Allegany

### Grade 1A

Ethan Allen	Ulster
Richard Artz	Jefferson
Robert Downey	Putnam
Thomas L. Leonard	St. Lawrence
Kevin R. O'Hara	Erie
Gregory R. Phillips	Putnam
Mark S. Rice	Montgomery
Herbert Roberts	Columbia

### Grade 2

Andrew N. Carriero	Cattaraugus
Joseph Condon	Ontario
Paul G. Davignon	Niagara
Philip R. Friedle	Orange
Ronald F. Hull	Ulster
Dennis Johnson	Ulster
John Jones	Orange
Richard A. Kane	Dutchess
Matthew J. Kroog	Orange
Gayle M. Montanya	Orange
Mark Schaaf	Ulster
Brett A. Smetanka	Chemung

### Grade 2A

Jeremy D. Angell	Oneida
Gregory K. Beaumont	New York City
David B. Brown	Broome
Joseph Cellary	Fulton
Jason N. Craig	Delaware
Ronald P. D'Alessio	New York City
Harold E. Gardner	Chenango
Glenn C. Goodfriend	Jefferson
Robert M. Henninger	St. Lawrence
Rafael Ignacio	New York City
Richard J. Kennedy	New York City
David D. Lewis	Franklin
David W. Lockhart	Saratoga

### Grade 3

Donald E. Alesse	Niagara
Jeffrey J. Guido	Ulster
Paul D. Hutchins	Franklin
Mark J. Murphy	Broome
Aaron Philip Palmer	Herkimer
Kenneth R. Taylor	Delaware

### Grade 3A

Thomas M. Bittler	Genesee
John F. Conrad	Suffolk
Andrew T. Coppola	Schenectady
Frederick J. Doyle	Delaware
Michael Greco	Ulster
Kenneth L. Kelsey	Wayne
Emmett R. Morley II	St. Lawrence
Frank C. Sistare	Out Of State
Michael Southworth	Cortland

### Grade 4

Daniel J. McGovern	Chemung
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### Grade 4A

George F Alexander	Jefferson
John H Bailey	Onondaga
Foster E Hopseker	Jefferson
Thomas G Knowlton	Jefferson
Christopher Laudando	New York City
John W Moffett	Delaware
Joseph F Pieklik	Onondaga
Andrew Serrao	Delaware
Thomas J Whitman	Monroe

Edward Mahlstadt	New York City
Seth Mann	Greene
Steven G. Marshall	Jefferson
Thomas R. McCall	Cortland
Michael G. McCarthy	Clinton
Philip R. Nikolaus	Schoharie
Jon C. Norman	Franklin
Caitlin Parker	Otsego
Christopher R. Peacock	Niagara
Randy W. Raymond	Cortland
James L. Reed	Wayne
Dennis J. Roth	Cattaraugus
Francis S. Rufrano	New York City
Jeffrey M. Rupert	St. Lawrence
Marc C. Shultes	Albany
Joshua R. Vital	Greene

## ABC Exam Statistics

for  
August 25, 2004  
Exam



Grade	% Passing	# of Exams	Average Score
1	54	28	71
1A	100	8	85
2	55	22	70
2A	56	52	72
3	43	14	70
3A	45	22	70
4	100	1	79
4A	47	17	71

# S.O.U.R.

**S**pecific Oxygen Uptake Rate (SOUR) is also referred to as oxygen consumption rate or respiration rate. The test is primarily used to help operators determine the biodegradability of the influent and assess settling characteristics. The test is conducted in accordance with Standard Methods; 2710 A, 2710 B. Apparatus needed are a 300 ml bottle, dissolved oxygen (D.O.) meter and bottle probe, magnetic stir plate and stir bar, stopwatch and an aeration device. At the Old Forge Activated Sludge Troubleshooting Course, FOAS uses aquarium bubblers to keep the mixed liquor sample well aerated. The picture to the right shows a typical setup.



D.O. meter and probe, timer, 300 ml bottle and stir plate

The procedure starts with calibration of the dissolved oxygen meter. A fresh sample of mixed liquor is taken from the aeration tank and kept aerated. The stir bar is inserted into the 300 ml bottle and filled with the sample so no air gap exists when the bottle probe is inserted. The stir plate is turned on, and a dissolved oxygen reading is immediately taken at time zero. A D.O. reading is taken every minute, and the results are recorded. When the last three readings show no change in D.O., the test is concluded. The oxygen consumption rate (or sample depletion) should be approximately the same for every reading until the end of the test. To compute the respiration rate, the formula is:

$$\text{SOUR (mg/g)/hr} = \frac{\text{oxygen consumption rate (mg/L)}}{\text{minute}} \times \frac{60 \text{ minutes}}{\text{hour}} \times \frac{1000 \text{ mg/g}}{\text{VSS mg/L}}$$

Every treatment plant will have SOUR values that should be determined as plant specific. For conventional activated sludge, the following can be used as guidance:

- >20 High may indicate insufficient solids for BOD loading, high F/M ratio
- 12-20 Normal usually produces good BOD removal and good settling sludge
- <12 Low may indicate too many solids or possible toxicity

SOUR is also used as a test for stabilized sludge to meet the criteria of 40 CFR 503 regulations. The SOUR must be less than or equal to 1.5 (mg/g)/hr of total solids at 20°C. The equation is very similar to a mixed liquor evaluation:

$$\text{SOUR (mg/g)/hr} = \frac{\text{ox. cons. rate (mg/L)}}{\text{minute}} \times \frac{60 \text{ minutes}}{\text{hour}} \times \frac{1000 \text{ mg/g}}{\text{TS mg/L}} \times \frac{\text{diluted vol.}}{\text{original vol.}}$$

The above equation allows for dilution of the sludge, because many times the oxygen consumption is so small on the original sample that it is difficult to detect. The second change is that total solids (TS) are used for sludge rather than volatile suspended solids (VSS) for mixed liquor. Once the sludge SOUR has been determined, it must be corrected for temperature in accordance with the following equation:

$$\text{SOUR}_{20} = \text{SOUR}_T \times Q^{(20-T)}$$

**T = Sample Temperature**  
**Q = 1.05 when T is above 20° C**  
**Q = 1.07 when T is below 20° C**

The SOUR test is most easily performed when a data sheet showing time versus dissolved oxygen has been developed prior to the test. Calculated results may be adjusted for temperature if necessary. Operators can trend the SOUR of their plant throughout the year, thereby keeping close operational control on the process.

# Old Forge Accepts EPA Award

Congratulations to the Old Forge Sewer District Wastewater Treatment Plant staff for winning first place in the Environmental Protection Agency's (EPA) 2004 Clean Water Act Recognition Awards Program. Old Forge, located in Herkimer County, was a winner this year in the New York State Department of Environmental Conservation (NYSDEC) Andrew M. Weist Operation & Maintenance Excellence Award Program and was then nominated by EPA Region 2 to move on to the national competition.

The Old Forge facility was notified in September by EPA that they were selected as the winner in the Small Secondary Category of the EPA 2004 Clean Water Recognition Award. Chief Operator, Ted Riehle and Department of Public



Chief Operator, Ted Riehle (on the right) accepts the award from James Hanlon, Director, Office of Wastewater Management for EPA.

Works Superintendent, Mark Hudon accepted the award on behalf of the Old Forge Sewer District at the Water Environment Federation

Technical Exposition and Conference (WEFTEC) in New Orleans, Louisiana on Monday October 4, 2004.

These national recognition awards, given out by the EPA, honor wastewater treatment facilities for outstanding commitment to protect and improve the quality of the nation's waters. National winners have demonstrated exceptional technological achievements of innovative processes in waste treatment and pollution abatement programs.

We, in the NYSDEC Facility Operations Assistance Section, are very proud of having another national award winner this year. Dave Marcisofsky from the NYSDEC Region 6 Office nominated the Old Forge facility for the awards program.

Visit FOAS' Website:  
[http://www.dec.state.ny.us/website/dow/bwcp/foas\\_main.html](http://www.dec.state.ny.us/website/dow/bwcp/foas_main.html)

New York State DEC  
Facility Operations Assistance Section  
625 Broadway - 4th Floor  
Albany, New York 12233-3506

