ODORS

Others don’t want ‘em / we can’t do our job without ‘em!

by Larry Anderson

As you well know, in this business typical comments from the general public include, “It stinks around here!” “What are you doing at the Plant?” “Why does the wastewater facility smell so bad?” Although we try to do what we can about odor problems, it never seems to be quite enough to satisfy all of our neighbors. Built in 1981 on Route 101A and a quarter mile from the junction of Route 101 in Milford, much traffic passes by the access road to the Milford WWTF, and there are substantially more business and residential neighbors today than in 1981. Without a doubt, occupants of nearby businesses and residences clearly understand their proximity to the wastewater treatment facility when they decide to become our neighbor. Wouldn’t you agree they should expect some residual effects, wind or no wind?

Fortunately for all involved, we don’t receive many odor complaints, but we can attest, on the day one comment is received it seems that many more are sure to follow. If your facility is like ours, you have both neighbors and concerns about odor control. Undertaken in the spirit of being a responsible neighbor, we in Milford have implemented a couple of low cost measures in an attempt to curtail errant odors.

Toward the end of 2001, we became aware of an increase in odor complaints from residents and motorists in the immediate area of our facility. Our first goal was to locate the most prominent source of odor, and decided that the Gravity Thickeners (used for sludge storage) won the prize for that category. In our case, WAS (Waste Activated Sludge) is co-settled with the primary sludge and stored as a blended sludge in the Gravity Thickeners. Of course, the problem with this setup is that once secondary and primary sludge is mixed, unpleasant odors are produced. So, with some guidance from Ed Rushbrook of Dufresne-Henry, an engineering consulting firm, we looked at some of the options that are available in regard to “Odor Control”. After much consideration,
NHPCA OFFICERS

President: Rick Cantu
Vice President: Tom Steele
Secretary: George Neill
Treasurer: Steve Clifton
NEWA Director: Ed Rushbrook
Past President: Kenneth Lowe
1st Director: Fred McNeill
2nd Director: Sarah Goyette
3rd Director: Rick Seymour
Director at Large: Paula Anania
Director at Large: John Grout

Newsletter Committee: Dana Clement, Bryce Fletcher, Harvey King, Editor – Tom White
Send articles to: State of New Hampshire Department of Environmental Services P.O. Box 95 Concord, NH 03302-0095 Attn: Tom White

NHPCA Director’s Meeting
February 14, 2002

Attendees: Fred McNeill, George Neill, Thom Steele, Sharon Ostrander, John Grout, Sarah Goyette, Ed Rushbrook, Paula Anania, Steve Clifton, Rick Seymour and Rick Cantu presiding. This meeting was to mainly work out 2002 budget and related issues and finalize our calendar for the year.

Sharon Ostrander informed us about some items regarding Ops Challenge – Donations included pipe, uniforms and some equipment; the budget for that line item (Ops Challenge) should remain the same as last year; the finals will be held in Chicago this year; we should solicit support at the Trade Fair and the summer golf tournament. The goal for support and donations is HALF the cost of our team’s expenses, and we will provide the remaining money.

Discussion was held about placing our money into a larger interest bearing account – but Steve informed us to keep in mind that we are not only non-profit, but that we may need cash on hand on short notice.

Regarding the Golf Tournament: Lochmere – Thursday, August 15th. We will present gift certificates as some of the raffle prizes from the Pro Shop at the course, in support of the course.

Regarding the Summer Outing: (Ellacoya State Park – June 21st) Main menu item will be lobster.

The money in the bank that is earmarked for the Education Committee (collected by DES for permit violations) will be spent on equipment, materials, and education of NH facilities and facility operators, for the purposes of technical assistance for maintaining compliance. The committee is accountable to DES and NHPCA.

A course will be established by DES/George to take place late April/early May – costs and expenses will be established accordingly. We will count on auditorium attendance, and will send mailings to regions regarding details. Ed will make sure that it gets in the NEWA State Director’s notes.

Regarding Legislative Issues: In the past, Steve DelDeo monitored legislative environmental issues and used to be on our payroll to do so. We feel comfortable that George is “in the loop” and can keep us informed.

Regarding the Newsletter and our Website: Tom White tries to get enough support through sponsors and advertisements so that it breaks even. He feels the newsletter can stay self-sufficient. Tom is researching the hiring out of the newsletter publication; it may be worthwhile to have someone else put it together for us. We don’t want to second-guess Tom, he has done a fabulous job thus far – and we don’t want him to feel as though he has to fix something that’s not broken! We support Tom in his decision, whatever it may be.

It is questionable if we can/should get money for ads on the website, as we are non-profit and it would generate income. We will try to find out if we can receive money for ads if the money is to be used for a specific purpose (Ops Challenge, for example). Currently, the only charges related to the website are for the domain name and server charges.

It was Voted: To increase our Administrative Assistant’s (Therese Bonnett) pay.

We will add money to the general expenses budget for trophy purchases and plaques for awards. That line item will be up this year, due to the expense of production of and purchase of membership cards and the increase in our Administrative Assistant’s pay.

During National Engineer’s Week, we will submit articles to the Union Leader and Foster’s Daily Democrat for display in the insert they produce.

Regarding Safety: We feel there is more that we can be doing to ensure the safety of NH’s operators. We need to have a way to find out if and how NH operators are getting hurt.

Regarding Scholarships: There is money in the scholarship account that goes UNSPENT year after year. Please pass the word to apply for a scholarship while you are furthering your education. The only stipulation to receiving money is that you are a NHPCA member.

Meeting – Continued on page 6
Awards Given to New Hampshire Operators and WWTF’s

Operations and Maintenance Excellence Award
Given to publicly owned WWTF for commitment to improve water quality through continued permit compliance, excellent plant O+M and Operator Training.
This year’s recipient was
Hopkinton, New Hampshire Lagoon WWTF
operated by Steve Clough – Supt.

EPA
New England’s Most Improved Plant Award for demonstration of improvements in effluent quality and O+M.
Rollinsford, NH WWTF
operated by Peter Hellbach and John Hladick
also
Operations Section WWEB NHDES
Wes Ripple and George Neill

EPA National O+M Excellence Award
Lebanon, NH WWTF – 1st place in Medium Secondary Category
operated by Kevin Kingston and Don Schagen

Operator Award
Given annually to recognize an individual who has contributed to excellence in plant operations
Don Schagen, Lebanon, NH WWTF

Alfred E. Peloquin Award
Given to an individual showing a high quality of interest and performance in wastewater operations
Tom White, NHDES Operations Section

WEF Service Award
Lorraine Sander, director 1998-2001

Laboratory Analyst Excellence Award
Timothy Loftus, Webster, MA
This is the lab guru who has contributed numerous articles to “The Collector”

Congratulations to George Lane, Newmarket WWTF on his appointment as NEWEA President

Awards
NEWEA Operator Challenge Competition 3rd place Award to
The New Hampshire Crustaceans Scott Butler, Max Driscoll, Sean Greig, David Lovely and Sharon Ostrander, Coach.

Trade Fair 2002

This year’s annual trade fair will be held at the Wayfarer Inn in Bedford, NH. The date is APRIL 11, 2002 and will be from 9:00 a.m. until 1:30 p.m. There will be between 55 and 60 vendors set up displaying their products and services. The Annual Poster Contest winners will be announced about 11:00 a.m.

This year’s raffle will close out the day, but the Association has added a new feature. There will be two raffles from two different set of tickets. There will be the usual raffle of vendor gifts, certificates and merchandise from the tickets that are purchased throughout the day. Also, each vendor will have a handful of a different colored ticket for a no-cost participation raffle. Each time a member stops by to visit a vendor booth (and asks for information, has questions or wants a demonstration) they will be given a ticket by that vendor. There must be interaction greater than the usual stop and pick up a brochure, pens or other offered display items. This is being done to encourage an even greater membership participation and allow for a continued higher presence in the vendor display area. These prizes will be in addition to the usual prizes raffled off and one will be a special grand prize of significant worth.

Every attendee has a chance to gain in this special raffle without the need to purchase any additional tickets. All it requires is a little of your time and effort. If you come early, make all the rounds and stay for the final raffle you could have between 55 and 60 chances to win some significant prizes. It may indeed be worth your while to come early, plan to spend the day and have a much greater chance at some nice prizes. Consider bringing fellow workers, supervisors, councilors and fellow colleagues from other departments to this event.

The Association is hoping to have a listing of the additional prizes posted on this site by April 1st. This way the membership can see what they could be winning and maybe make the effort to come by for the day. This should increase the volume of traffic at the Trade Fair and keep this a viable component of the Association for years to come.
is simple. The warm air from a small blower is forced through the evaporator/reservoir tank, which causes the Evane/Scent to evaporate, saturating the air. The treated air is then discharged into the area via the distribution piping, which then encapsulates and neutralizes the offending odors.

The small size enabled the unit to be tucked into an out-of-the-way place, this helps keep the unit clean and accessible.

The Hinsilblon unit that was chosen for our application is quite small in size, measuring only 3 ft. long by 2 ft. high and 14 inches wide, which gave us the flexibility to locate it practically anywhere. Once the unit was put into place, we installed a ½” PVC pipe around the belt filter press with a small nozzle approximately every 3’. This essentially created an “invisible curtain” which encapsulates and neutralizes odors before they are discharged into the atmosphere via the current exhaust fan (which is located directly above the BFP).

Since the installation in December, results have proven to be quite impressive. (The crew is almost volunteering to run the belt filter press — Almost!) Curtis Smith from Custom Environmental Technology, Inc. welcomes your questions at (207) 966-2858 regarding the Hinsilblon and Evane/Scent.

The results of our effort were almost instantaneous, and we were quite pleased that after only a short time in operation, the odors were greatly reduced in the immediate areas of the thickeners.

Another area that tends to make itself known, when in operation, is the belt filter press (BFP). Despite the use of Potassium Permanganate, an unmistakable peculiar odor is in the air during its operation. A limitation of the product, Potassium Permanganate, tends to leave residual odors. So when we were introduced to the odor control unit called the Hinsilblon, we agreed to give it a trial run. This type of system uses a patented product called Evane/Scent. The operation of this unit

Air is suctioned at a higher elevation to minimize the potential of liquids entering the air train.

As much piping as possible was kept below ground to eliminate potential tripping hazards. Valves were installed to enable us to isolate and remove a tank from service.

The compost blowers that we used are rated at 370 CFM, which provides up to 12 air changes per hour at maximum operational levels. For the biofilter media we used a mix of ½ finish compost, ½ unscreened compost and ½ new wood chips. Using new wood chips as a dressing on the sides makes the project a little easier on the eyes.
Peterborough, New Hampshire WWTF
Lagoon Aeration System Retrofit

The original design for the Peterborough, New Hampshire WWTF was a three cell stabilization pond. Pond #1 was modified after some time with two baffles that ran the width of the pond separating it into, in essence, three equal cells. A Hinde Engineering slit tube aeration system was installed in the first pond in a tapered pattern and blowers were added in a building that was provided on the berm of the existing lagoon. The system operated for several years and performed well; however, the aeration system is now outdated and has not been providing enough oxygen for proper treatment.

The need for a new aeration system in the lagoon was complicated by the fact that the plant was under further scrutiny as the Contoocook River is the receiving stream for the wastewater effluent. Woodard & Curran Engineers was hired to study the requirements for a facility upgrade to meet the more stringent water quality limits. A portion of their study actually became a preliminary design for an initial aeration system to improve the dissolved oxygen levels within the first pond. The Town had acquired floating mechanical aerators to supplement their aeration system; however, they needed additional oxygenation.

Woodard & Curran Engineers solicited information from aeration system vendors who had experience in supplying floating lateral fine bubbles diffused aeration systems for wastewater lagoons. After reviewing pricing and delivery information provided in system proposals from a few vendors, the engineer and owner selected Environmental Dynamics, Inc. (E.D.I.) to supply the aeration system. E.D.I. worked closely with Woodard & Curran and the Town of Peterborough to come up with an arrangement that would provide enough supplemental oxygenation to work in tandem with the floating mechanical aerators. Using the floating lateral arrangement, the system could be installed without having to drain the lagoon. Furthermore, it offered the flexibility where the aeration system could possibly be reused in a plant upgrade to assist in meeting the future more stringent effluent limits. Another goal was to have the system delivered and installed to beat the winter season so that they could have the aeration capacity for the increased demands in the springtime.

Once the layout was approved by the owner and engineer, the system was placed on order and subsequently delivered approximately eight (8) weeks later. The crew from the Peterborough Water and Wastewater Department installed the system themselves within a short time and the new floating lateral fine bubble diffused aeration system was immediately started up without incident. The air supply header is mounted along the top of the lagoon berm and was laid out with additional attachments to increase the number of air supply laterals, thereby simplifying the expansion capabilities of the system. The Town of Peterborough and Woodard & Curran Engineers, working closely with Environmental Dynamics, Inc., have provided a system which cost-effectively provided the Town with an interim aeration system retrofit that has to date met the needs of the community. By performing their own installation services, the Town was able to modify the aeration system arrangement to better meet the immediate needs while keeping the construction costs to a controllable level.

Thanks to Steve Hodge and Mike Sullivan for writing this article.

THANK-YOU TO PHIL MALTAIS

The NHDES Wastewater Certification Committee would like to extend its sincere thanks to outgoing committee member Phil Maltais for his hard work and thoughtful input with the committee over his 2-year tenure. The committee consists of three members from the regulatory committee (George Neill, Brian Hilliard and Carroll Brown), and two members from the regulated community (presently Ray Vermette from Dover and Arnold Greenleaf from Newport). The regulated community is typically represented by licensed operators from municipalities, who each spend a two-year term on the committee. Phil's term included some tough issues that the committee had to come to grips with, including disciplinary action against two licensed wastewater operators and development of our current policy on exam conditions for learning disabled individuals. Phil was instrumental in the committee resolving these issues, as well as helping us wade through our usual workload. Thank-you Phil on a job well done.
Meeting – Continued from page 2

After discussion regarding specific line item issues – the 2002 budget was OFFICIALLY ACCEPTED – SO VOTED.

Regarding Membership Cards: All members will receive a membership card with this year’s renewal or new member status. Lifetime status will be awarded at the discretion of NHWPCA – it will be noted on membership cards, as well as receive recognition in local publications.

Regarding a Year-End Award Presented by NHWPCA: Based on EPA standards, awards will be presented for O&M Excellence. We will be screening for flawless records pertaining to permit issues/violations, PR, outreach, clever/technical innovations, and anything we consider “above and beyond”. We will try to keep awards fairly general to incorporate everyone. We will develop criteria that is unique and that has meaning. We will include compliance, safety, participation in professional organizations, professional development; and will consider distance regarding participation in affiliated events. A committee will narrow choices to three and the entire board will vote on the finalists.

We are considering a separate mailing to each plant as opposed to only publishing the “contest” in the newsletter, as some plants are not members of NHWPCA. Applications will be included in the newsletter, or in the mailing, whichever pertains.

Rick will enter information regarding our different committees onto the website – to make the information more accessible in case folks want to join in on the fun!

Thom Steele may have to reconsider continuing with the board for the rest of this year and next, as his schedule and demands on his time are discouragingly taxing. He will let us know.

The Laboratory Association of NH invited Rick and George to a meeting to discuss mandating NH’s treatment plants to become lab certified if they do lab work for a neighboring municipality. EPA does not mandate such a provision, and they are the entity that writes the permits. We feel the system functions well enough as it is, and do not feel that certification is necessary.

Meeting adjourned and next meeting set for Thursday, March 21, 2002 – 9:30 a.m. at the Concord WWTF.

Northeast Rural Water Association
To Hold Annual Conference

BURLINGTON, VT – The Northeast Rural Water Association will hold its Annual Conference and Trade Show on May 1, 2002 at the Courtyard Marriott in Concord, NH. The show brings together small water and wastewater operators from New Hampshire, Vermont and Massachusetts for technical training sessions, regulatory updates, a trade show with more than forty exhibitors, and tips from fellow operators. Details and registration are available at www.neruralwater.org or by calling NeRWA at 800-556-3792.

Founded in 1982, the Northeast Rural Water Association is a nonprofit association of small water and wastewater systems in Vermont, New Hampshire and Massachusetts. Services include free training courses for system operators and expert onsite technical assistance.

It was opening night at the Orpheum and the Amazing Claude was topping the bill. People came from miles around to see the famed hypnotist do his stuff.

As Claude took to the stage, he announced, “Unlike most stage hypnotists who invite two or three people up onto the stage to be put into a trance, I intend to hypnotize each and every member of the audience.”

The excitement was almost electric as Claude withdrew a beautiful antique pocket watch from his coat.

“I want you each to keep your eyes on this antique watch. It’s a very special watch. It’s been in my family for six generations.” He began to swing the watch gently back and forth while quietly chanting, “Watch the watch, watch the watch, watch the watch . . .” The crowd became mesmerized as the watch swayed back and forth, light gleaming off its polished surface.

Hundreds of pairs of eyes followed the swaying watch, until suddenly it slipped from the hypnotist’s fingers and fell to the floor, breaking into a hundred pieces.

“Shit” said the hypnotist.
It took three weeks to clean up the theater.
Celebrating 20 Years of Municipal Service

- Wastewater Facilities and Planning
- Solid Waste Facilities and Planning
- Water Facilities and Planning
- Storm Water Management
- Construction Services
- Roads and Bridges
- Site Planning
- Permitting

State Aid Grants
State Revolving Fund
Rural Development Loans and Grants
Community Development Block Grants
Technical Assistance for Town Meetings

Underwood Engineers, Inc.
Civil--Environmental--Structural

25 Vaughan Mall, Unit 1, Portsmouth, New Hampshire 03801-4012
Tel: (603)436-6192 Fax: (603)431-4733 E-mail: uei@underwoodeng.com

MISSION

Service Contracts • Flow, Level, Telemetering • VFD's
Pump and pH Control • SCADA • Programable Controllers
Gas Chlorination Systems • Soft Starts

(603) 382 - 4667
adin@tiac.net
23B S. Main Street
Newton, NH 03858

AD Instruments
Field Service for Water and Wastewater Instruments

FAX 603.382.4608
Sewer anywhere and save.

E/One Sewer Systems can make tough sites buildable — and cut your sewer costs up to 50%.

With an E/One system, there's no need for massive gravity trenches or huge mains. The E/One low pressure system uses a small main in a shallow trench that follows the contour of the land. It lets you sewer virtually anywhere. Including sites where old septic systems may be dying and polluting. And, an E/One system is totally reliable — no preventive maintenance, and all but invisible in place.

HealthTrust

The Last Word
In Municipal Employee Benefits Is Trust

We're HealthTrust, a nonprofit membership organization whose sole purpose is to provide New Hampshire school, municipal, and county employees with quality benefit packages.

The majority of New Hampshire's municipalities already know us, because they work with us. And for very good reasons.

We're not brokers and we're not here to make a profit. Our board is comprised of both management and labor representatives from local government. We provide a unique perspective and all the quality services you need, including:

* program consultation
* various medical plans, wellness programs, and prescription drug coverage
* dental coverage
* vision coverage
* health and dependent care reimbursement accounts
* short- and long-term disability coverage
* group life insurance coverage
* claims processing, competitive rates, and more.

Call on the people who know your people best. Call on HealthTrust.

P.O. BOX 617
CONCORD
NEW HAMPSHIRE
03302
CDS Stops Water Pollution
- Removes 100% of Floatables from Storm Water Flows and CSOs.
- Effective in Capture of Fine Sediment
- Totally Underground
- Non-Blocking Screen
- Non-Mechanical
- Low Maintenance
- Large Flow Range
- Full-Flow Bypass
- Easy Installation
- Easy Debris Removal
- Lowest Overall Cost per CFS Processed

CDS Technologies, Inc. provides products and services to municipalities, public agencies, and industry, based on the unique solids/liquids separation technology known as Continuous Defective Separation (CDS). CDS is an effective non-mechanical method of preventing pollutants from entering our waterways.

Visit Our Website: www.cdstechnology.com
CDS Technologies, Inc
PO Box 249
Ashburnham, MA 01430-0249
MA Office (978) 827-2378 ph
(978) 827-9983 fax
FL Office (800) 849-9555 ph
(407) 681-4916 fax

Creating Better Places To Live, Work And Play

Professional Wastewater Engineering Services
- Wastewater Treatment and Collection Systems
- Biosolids Management
- Industrial Wastewater Evaluation
- CSO Evaluation and Abatement
- Contract Operations
- Construction Services
- Permitting Assistance

Dufresne-Henry
Engineers . Planners . Landscape Architects
R.G. Sullivan Building . 175 Canal Street . Manchester, NH 03101
Tel: 603-669-8072 Fax: 603-669-7988
manch@dufresne-henry.com . www.dufresne-henry.com

BioSolids Recycling Services
- High Quality Turnkey Recycling Solutions for your BioSolids
- Complete Nutrient Management Plans by Certified Crop Specialist
- Representing Our Clients Interests Locally, at the State House, and Nationally to Protect Their BioSolids Recycling Option
- Currently Managing BioSolids Recycling Management Plans for over Fifty New Hampshire Farmers from Coos County to the Seacoast

Resource Management Inc.
PO Box 1081 Ashland New Hampshire 03217
(603) 536-8900 www.RMI-recycles.com

Environmentally Sound Solutions
Wastewater Collection, Treatment & Disposal
Interceptor Microtunneling
CSO & SSO Management
Environmental Planning
Environmental Assessments
Industrial Waste Management
Permits Assistance & Coordination
Alternative Funding Strategies

Hoyle, Tanner & Associates, Inc.
150 Dow Street • Manchester, NH 03101
603 669 5555 • Fax 603 669 4168
www.hoyletanner.com

Down to Earth Recycling Solutions
Leading the way in New England

Environmental Engineering Information Management/SCADA Wastewater & Water Engineering Contract Operations Training

WOODARD & CURRAN
Engineering • Science • Operations
Manchester, NH • 1-888-611-7272 www.woodardcurran.com

Offices throughout New England. Operational offices across the U.S.

MIKE SULLIVAN

DAVID F. SULLIVAN & ASSOCIATES, INC.
Manufacturers' Representatives
727 LAFAYETTE ROAD SEABROOK, NH 03874

(603) 474-2484 FAX (603) 474-3682

Q.C. SERVICES, Inc.

8 Smith St.
P.O. Box 68
Harrison, ME 04040

207-583-2980 Fax: 207-583-6936 qcservices@maine.com http://www.mainecom/qcservices

RICHARD SCHIEFERSTEIN
Sales & Service Laboratory Equipment ME-NH-VT
O.C. Services, Inc. ISO 9002 Certified

TURNER GROUP

CIVIL ENGINEERS ENVIRONMENTAL CONSULTANTS PLANNERS

Contact:jducharme@hltturner.com www.hltturner.com

TTG Environmental Consultants

CORPORATE OFFICES:
27 Locke Road Concord NH 03301 (603) 228-1122
Additional Techniques and Hints for Accurate BOD Results

by Tim Loftus

The previous BOD article reviewed what quality control measures indicate a "good" BOD run. These measures include test-defined limits for the blank, standard, and seed, as well as limits on dissolved oxygen (DO) residuals at the end of the analysis. This article will cover additional techniques and hints to get accurate and valid BOD results.

As with any biological system, pH affects the efficiency of the bacteria breaking down organic matter in the sample. Adjust the pH of all samples for BOD analysis to between 6.5 and 7.5 SU using 1 N sulfuric acid or 1 N sodium hydroxide.

Any sample that has been chlorinated, even if no chlorine residual is left, must be seeded with viable bacteria so that the organic strength, or BOD, of the sample can be measured. Samples that show chlorine residual must also be dechlorinated using sodium sulfite (see Standard Methods for the recipe). But be careful, excess sodium sulfite in the sample will exert an oxygen demand giving false high BOD readings. It's important to remember that the dechlorinating agent for coliform/E. coli analysis cannot be used for BODs. It is not the same chemical.

Most of us use electronic dissolved oxygen probes to measure the DO in the BOD bottles. These probes usually calibrate to an air setting rather than DO saturated water. If your probe is an air calibration type, calibrate to the barometric pressure in your lab rather than to 760 mm (sea level) or to a calculated air pressure based on your topographical elevation (which is commonly done). Air pressure often changes daily and sometimes hourly. Most likely the air pressure is not the same the day of the BOD setup and five days later when the BODs are read again. This will be important when measuring the BOD blank. Since the DO change of the blank should not exceed 0.2 mg/L, you can see where calibration accuracy would aid in validating the analysis.

Bubbles in a BOD bottle also invalidate that bottle's DO measurement. Algae in a BOD sample and left out on a lab bench exposed to sunlight can be a source of bubbles. Always put the BOD bottle in a dark incubator soon after the initial DO is measured and the bottle sealed. But a more common source of bubbles is from dirty glassware. Even though we should try to fill BOD bottles with sample and dilution water as bubble free as possible, there seems to always be tiny bubbles generated. If the glassware is not thoroughly cleaned, then the bubbles stick to the side of the glass and will eventually collect near the bottle's seal during the five-day incubation period.

Another source of bubbles can come from aerated dilution water or from samples that are at a lower temperature that 20 degrees C. Since cold water will hold more dissolved air, aerating cold dilution water will give a higher oxygen content than if the dilution water was aerated at 20 C. After placing the samples in an incubator at 20 C, the water will warm and not be able to hold as much DO. As a result, bubbles may form in the bottles. This can also happen with a low dilution sample, such as an effluent composite sample that was collected at 4 C and not warmed to temperature. It's important to always warm samples to 20 C, then shake the sample to remove excess dissolved oxygen before setting up for BOD. If your laboratory has heating problems, as they all seem to have, try storing the dilution water in your incubator overnight to stabilize the temperature to 20 C. This will help remove excess dissolved oxygen from the dilution water.

As will all analyses performed in your lab, always record the actions of what you do to samples on the data sheet or in a bound notebook specifically for that analysis. For these BOD examples, record sample temperature, pH of BOD sample (before and after adjustment), chlorine residual and amount of dechlorinating agent used (if needed), and the barometric pressure that the BOD probe was calibrated to.

BODs are a lot of work to do. And it's often harder to get them to come out right. With the right techniques and some foresight of potential problems, your results will not only be accurate, but will be valid as well.

The information in this article is based on an EPA accepted test method for NPDES monitoring. As usual, check your federal, state, and local regulations. You may have additional regulations or reporting requirements that you must meet.

If you have any questions, suggestions, or comments, please contact NEWEA Lab Practices Committee Chair Phyllis Arnold Rand at (207) 782-0917 (r rand@wgi.net) or Tim Loftus at (508) 949-3865 (timloftus@email.msn.com).
Edward A. Kowsz Memorial Scholarship
Criteria

1. Must be a member of NEWEA and/or State Association for at least two years to be eligible for consideration.
2. Must be actively employed in the field of wastewater treatment or related field. As competition for this award is growing, a priority system of selection criteria is established as follows, in descending order of importance.
   1st) Operators, laboratory analysts and others, private or public, who are directly involved in the operation of wastewater treatment facilities.
   2nd) Persons working for non-profit organizations who routinely provide training and/or technical assistance to wastewater personnel.
   3rd) Persons working for profit making organizations who routinely provide training and/or technical assistance to wastewater personnel.
3. Must make application for the scholarship to the Personnel Advancement Committee prior to attendance at the training program. Application periods will be from July to January (closing January 1 with the awards being made by February 1) and February to June (closing on June 1 with award being made by July 1).
4. Must submit application to the Personnel Advancement Committee via the Executive Director. The Executive Director will confirm applicant’s membership in NEWEA for the minimum two years.
5. A scholarship sub-committee consisting of 3 members of the Personnel Advancement Committee (PAC) will review, rank and recommend applicants and the scholarship monetary award amount for each successful applicant. A response to the applicant will be provided within 30 days following the application closing dates in #3 above. The recommendation shall be made to the PAC at the Winter and Spring NEWEA meetings.
6. The Executive Committee will establish the amount of the scholarship annually (Historically a minimum of $1,500.00).
7. At the Winter and Spring meetings, the PAC will vote on the recommendations of the sub-committee. Awards increments will be whatever is necessary as determined by the PAC, but not to exceed $300.00 per application. The $300.00 award cap may be waived based on availability of funds and by vote of the PAC.
8. Award of the scholarship shall be made at the time of selection and vote of the PAC. The award shall be in the name of the applicant.
9. The applicant must return any unused portion of the scholarship. If the applicant leaves the Association after application, but prior to award, the applicant will no longer be eligible for the Award.

What’s It Worth?
In this age of privatization and large sewer districts, there are often a few laboratories sharing the workload for a number of wastewater treatment plants. While these laboratories are under the umbrella of one parent company, and often share resources, they do work independently from each other. There is also that unwritten code of competition, especially around bonus time, when the Chief Chemists of each laboratory try to show headquarters how fiscally efficient their group is.

Such is the case at Super Sludge Sanitary Services, which operates three laboratories for their fifteen sewer plants. This past year when budgets started to get tight and the chemists had to request supplies from a sister laboratory... let’s just say nothing was free. To handle this, the chemists developed a rating system for requested supplies. Two beakers are worth three Petri dishes and an Erlenmeyer flask. They will also trade 25 filter papers for three beakers, two Erlenmeyer flasks and a Petri dish together.

Knowing this, how many filter papers will be accepted in trade for each item separately?
Answer:
One beaker is worth 5 filter papers; one Petri dish is worth 2 filter papers; and one Erlenmeyer flask is worth 4 filter papers.

2002 NHWPCA Golf Tournament
The 13th Annual NHWPCA Golf Tournament will be held on Thursday, August 15th at the beautiful Lochmere Golf & Country Club in Tilton starting at 8:00 a.m. Last year’s tournament at Lochmere was our largest with 68 wastewater professionals enjoying a day of golf, food and fellowship. This year we will be adding a putting contest to help support the Crustaceans as they enter this year’s WEFTEC Operations Challenge. So please mark your calendars for August 15th and join your fellow association members for a day of golf at Lochmere Golf & Country Club.
Every year NEWEA has scholarship money to award to NEWEA and/or State Association members interested in improving themselves through various forms of education. This could be for short courses or seminars you may want to attend. The scholarship fund is $3000. Surprisingly, most years not all the money is awarded due to lack of applications. The scholarship is not competitive and you need only to apply to be considered. There are no tests to take or papers to write. Anyone interested in applying is encouraged to apply. You can receive up to $300 for the educational use of your choice if you are selected. Additional details are available through Tom White at NHDES (603) 271-3503.

New England Water Environment Association
Edward A. Kowsz Memorial Educational Scholarship Award
(established 1979)
Application

Name: ________________________ Date: ________________________
Last First M.
Address: _____________________________________________________

Membership Information

NEWEA Membership ID # ____________ Date of Membership ____________
Type of Membership (check one) ☐ Active
☐ PWO ☐ Student
State Association Membership (circle all that apply): CT MA ME NH RI VT
Date of Membership ____________________

Employment/Certification Information

Current Employer ____________________ Are you certified? ☐ Yes ☐ No
Supervisor ____________________
Address: ___________________________________________________

Telephone ____________________
Position/Title ____________________
Status (check one) ☐ Operations ☐ Maintenance ☐ Laboratory ☐ Other
Brief Description of Duties: ______________________________________

Training Program Information
Name of training program for which scholarship will be used: ____________________
(attach a brief program outline or program brochure)

Are you in a position to provide or share acquired information to others? ____________________
(explain)

Estimated Cost of Training

<table>
<thead>
<tr>
<th>Tuition</th>
<th>Room &amp; Board</th>
<th>Travel</th>
<th>Total</th>
</tr>
</thead>
</table>

Mail to: NEWEA
100 Tower Office Park
Suite L
Woburn, MA 01801
Phone: 781-939-0908
Fax: 781-939-0907
email: mail@newea.org

For Office Use
Approved by ____________ Date ____________
Signature ____________
Amount of Award ____________
## COURSE ENROLLMENT FORM
Spring 2002 DES Wastewater Operator Training

<table>
<thead>
<tr>
<th>Date</th>
<th>Course Name</th>
<th>Registrant Name(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MARCH 20</td>
<td>Basic Activated Sludge</td>
<td></td>
</tr>
<tr>
<td>MARCH 25</td>
<td>Water Supply Security and Preparedness</td>
<td>Separate Registration Required</td>
</tr>
<tr>
<td>MARCH 27</td>
<td>Grades 3 and 4 Math Review/ Practice Exam</td>
<td></td>
</tr>
<tr>
<td>APRIL 3</td>
<td>Creativity and Laughter: Workplace Essentials</td>
<td></td>
</tr>
<tr>
<td>APRIL 10</td>
<td>Progressing Cavity Pumps</td>
<td></td>
</tr>
<tr>
<td>APRIL 11</td>
<td>NHWPCA Annual Trade Fair</td>
<td>Bedford Wayfarer, Bedford, NH</td>
</tr>
<tr>
<td>APRIL 17</td>
<td>Optimizing Sequencing Batch Reactor (SBR) Performance</td>
<td>Register with NEIWPCA</td>
</tr>
<tr>
<td>APRIL 23-24</td>
<td>Advanced Process Control for Activated Sludge</td>
<td>Register with NEIWPCA</td>
</tr>
<tr>
<td>MAY 1</td>
<td>Current Biosolids Issues</td>
<td>Register with NHWPCA</td>
</tr>
<tr>
<td>MAY 8</td>
<td>Sampling and Laboratory Analysis Overview</td>
<td>Register with NEWEA</td>
</tr>
<tr>
<td>MAY 16</td>
<td>Biological Nutrient Removal</td>
<td></td>
</tr>
<tr>
<td>MAY 22</td>
<td>Introduction to Collection Systems</td>
<td></td>
</tr>
<tr>
<td>MAY 23</td>
<td>Collection System Safety</td>
<td></td>
</tr>
<tr>
<td>MAY 23</td>
<td>NEWEA Collection System Exam</td>
<td>Register with NEWEA</td>
</tr>
<tr>
<td>MAY 29</td>
<td>Applied Wastewater Math Review</td>
<td></td>
</tr>
<tr>
<td>JUNE 6</td>
<td>Basic Collection System Surveying</td>
<td>Separate Registration Required</td>
</tr>
<tr>
<td>JUNE 12</td>
<td>CERTIFICATION EXAMS—ALL GRADES</td>
<td>Register with NHWPCA</td>
</tr>
<tr>
<td>JUNE 20</td>
<td>Submersible Pump Technology</td>
<td></td>
</tr>
<tr>
<td>JUNE 21</td>
<td>NHWPCA Summer Outing</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** See course description sheet for cost of each class. NO CASH ACCEPTED!

**Make checks payable to:** TREASURER-STATE OF NEW HAMPSHIRE
Send enrollment form w/payment to: State of New Hampshire DES – Water Division
ATTN: Wastewater Operations Section
6 Hazen Drive, Concord, NH 03301

<table>
<thead>
<tr>
<th>Facility Name:</th>
<th>Facility Supt:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility Phone:</td>
<td>Date:</td>
</tr>
<tr>
<td>Facility Fax:</td>
<td>Type of Payment:</td>
</tr>
</tbody>
</table>
NHWPCA Sponsor’s List

AAA PUMP SERVICE, INC.
Paul Croteau
(603) 645-8610

A/D INSTRUMENT REPAIR, INC.
Tom McPherson
(603) 382-4667 • (603) 382-4608

BOETTCHER ELECTRIC INSTRUMENT & INDUSTRIAL CONTROLS
Peter A. Boettcher
(603) 485-5977 • Fax: (603) 485-4179

CAMP DRESSER & McKEE, INC.
Fred McNeill
(603) 222-8300 • Fax: (603) 645-6891

DUFRESNE-HENRY, INC.
C. Jonathan Manning
(603) 669-8672 • Fax: (603) 669-7636

E. R. FIELD, INC.
Rick Field
(207) 782-8243 • (207) 782-5277

F. R. MAHONY & ASSOC., INC.
Dennis Geran
(781) 982-9300 • Fax: (781) 982-6035

HOYLE TANNER & ASSOC., INC.
Nelson Thibault, P.E.
Michael Nolin
(603) 669-5555 • Fax: (603) 669-4168

HYDROPRESS ENVIRONMENTAL SERVICES, INC.
J. Drew O’Hara
(413) 247-9656 • Fax: (413) 247-9401

ITT FLYGT CORP.
John Lord
938-0364

THE MAHER CORPORATION
Paul Sussman
Fred Kibble
(781) 393-0060 • Fax: (781) 396-0239

NEW ENGLAND ENVIRONMENTAL EQUIP.
Dennis Vigliotti
(781) 275-1001 • Fax: (781) 275-1002

NORtheast WASTEWATER/ WATER OPERATIONS
Jim Donnison
529-7070

PIscataqua ENVIRONMENTAL SVS.
Peter Hellbach
(603) 644-7152 • Fax: (603) 644-7152

PRIMARY MEASUREMENTS, INC.
Harry Savage
(603) 431-1020 • Fax: (603) 431-0033

RH WHITE CONSTRUCTION CO., INC.
James McGuigan
(603) 424-2506 • Fax: (603) 424-7624

RED HED SUPPLY, INC.
Mark Champagne
(603) 895-2282 • Fax: (603) 895-4254

RIST-FROST-SHUMWAY ENGINEERING, P.C.
John Scott
(603) 524-4647 • Fax: (603) 528-7653

STULTZ ELECTRIC MOTOR SYSTEMS
Paul Merrill
(800) 244-4160 • Fax: (207) 854-0613

DAVID F. SULLIVAN & ASSOCIATES
Mike Sullivan
(603) 474-2484 • Fax: (603) 474-3682

UNDERWOOD ENGINEERS, INC.
Steve Clifton
(603) 436-6192 • Fax: (603) 431-4733

SEVERIN TRENt PIPELINE SERVICES INC.
George Harrington
(603) 625-1212 • Fax: (603) 623-6680

WASTE INC.
Ken Bradley
(603) 224-6596 • Fax: (603) 224-0093

WATER SYSTEMS OPERATORS INC.
Joe Damour
Keith Gilbert
(603) 428-3525 • Fax: (603) 428-3764

WESTON & Sampson ENGINEERING, INC.
Pete Goodwin, P.E.
1-800-726-7766 • Fax: (603) 433-4358

WHEELABRATOR TECHNOLOGIES, INC.
Bio Gro Division
Ann Bosiak
(207) 878-8177 • Fax: (207) 878-8179

RESOURCE MANAGEMENT, INC.
Charley Hanson
(603) 536-8900 • Fax: (603) 536-8998

WOODARD & CURRAN
Bill Douglass
(603) 224-0184 • Fax: (603) 224-6277

WRIGHT-PIERCE
Richard N. Davee, P.E.
(603) 335-2017 • Fax: (603) 335-5437

---

AQUATIC TOXICITY LABORATORY

Providing Services To:
Municipal & Private WWTPs
WWTP Operating Companies
Analytical Laboratories
Industrial Wastewater Dischargers
Environmental Consultants

---

Services Offered Include:
- Acute Definitive LC50
- Chronic (7-day static renewal)
- Stormwater Runoff Toxicity
- Pass/Fail Screening
- Toxicity Identification Eval. (TIE)
  freshwater and saltwater species

---

ENVIRONMENTAL RISK LIMITED

Call ERL’s Laboratory Manager at
800-883-1568
120 Mountain Ave., Bloomfield, CT 06002
www.erl.com

---

Many solid years of quality data & service

eastern analytical, inc.
professional laboratory services
1-800-287-0525 www.ealabs.com

A n E m p l o y e e O w n e d C o m p a n y
25 Chevell Drive, Concord, New Hampshire 03301