President’s Address
by Ken Kessler

Common among individuals moving into the position of president of NHWPCA is an overwhelming concern about surviving the year, and accomplishing some particular need of the organization, while remaining employed.

It occurred to me that perhaps the best way to get input about these concerns would be by asking the people that were recently in the position. The first board of directors meeting was an open session with several past NHWPCA presidents. We requested their feelings about what they accomplished, what goals were unfinished, what they would have done differently if, God forbid, they had to do it over again, and what they felt were the most important issues facing the association. It was a very positive exchange of ideas and a nice way to keep their collective experience and knowledge alive in the organization. The board of directors is very grateful to the past presidents that attended the meeting — Bryce Fletcher, Vicki Abbey, Dale Sprague, Chris Hipkiss, Mike Butler, Lorraine Sander (by telephone), and Tom White.

Our association outwardly appears to be very healthy and we should all be proud of, and happy with its activities and accomplishments. Its board of directors is a cooperative group of individuals that has been active in the wastewater business for many years. Association committees are active and carry out their intended functions on their own initiative. The training center courses and certification program are among the best in the region and New Hampshire has a reputation for being one of the strongest wastewater organizations in New England. However, in spite of all the positive aspects and good health, the focus of the first meeting became the possible “chinks in the armor” of the association. There were clear messages of concern about the relevance of the association for its members, that there has been a steady decline in membership and function attendance, and that the work for association activities falls on to few shoulders. Also, it is difficult to approach members about getting involved because there are no published descriptions for board or committee positions outlining the degree of commitment that might accompany these positions. All of this was very valuable feedback because perhaps we are guilty of relying on the way things have been done in the past. None of the topics discussed will be answered easily or quickly but they provide a collective goal that can be worked on for the years ahead.

Experimentation, new ideas, and suggestions from all association members about making a good organization better is the desire for my year as president. We must find out what people expect from such an organization to give them the incentive to join and be active at any level. The intent of the association is to pool the operational talent in New Hampshire and to help one another out with wastewater issues.

Perhaps the best way to close is with the words from Article II of the NHWPCA Constitution:

The purposes of this association shall be:

(a) The acquisition and dissemination of knowledge concerning the nature, collection, treatment and disposal of water-carried wastes and the design and operation of wastewater systems.

(b) The promotion of good public relations and sound legislation relating to wastewater control systems.

(c) The advancement of the status of personnel engaged in the control of water pollution.

(d) The improvement of wastewater collection and treatment and thereby the quality of New Hampshire waters resources.

The board of directors hopes to receive your input.
5. John proposed that the board accept as a gift a 386, 100 Meg drive Dell computer. The board unanimously accepted this, as our computer is getting tired and is not very powerful. This will improve our data management capabilities.

6. The proposed technical meeting is to be held at the New England Center in Durham on December 8, 1994. Sessions will focus on safety and permitting issues. Ed Rushbrook and Lorraine Sander are the leads on this.

7. Moe & Dave presented a draft version of a proposed informational pamphlet that would be printed up and mailed to prospective members. Discussion ensued as to content and target audience. They will contact the newsletter committee regarding help with pagemaker & layout.

8. Ron reported the results of a telephone poll he undertook during which he discussed the Trade Fair with participating vendors. He’s trying to solicit input and feedback from them in order to give the association direction regarding the future of the Trade Fair, and find means of improving it. He got good information from participants and some interesting ideas which we will consider implementing. We should try to enlarge our audience, perhaps mail to public works directors and town managers, etc.

   Mike Martin spoke about means of expanding our vendor list by asking association members, via the newsletter, to submit business cards to him of all vendors that they already deal with so that he can expand and establish a large data base of vendors. George mentioned that he recently mailed away to get an Eastern New England industrial “Yellow Pages” which may be useful.

9. Clean Water Week is scheduled for June 5-11, 1994. We have arranged for Governor Steven Merrill to sign proclamation of this effect on June 7, 1994. The poster contest winner will be invited to attend the signing ceremony as will President Kessler. We will be encouraging WWTF to sponsor open houses throughout the state during this week and will ask operators to contact local media outlets to spread the word.

10. Rich Roy presented the financial breakdown of the Trade Fair. We fared rather well and managed to make some revenue. We will be signing a contract with the Center of New Hampshire for next year’s Trade Fair, scheduled for March 30, 1995.

   Regarding dues, we have received dues from only 267 members as of May 5, 1994, down from around 350 from last year.

   The board voted to increase the budget for clerical help as Jane has been given substantially more paper work to do by both directors and committee chairs.

11. NEWEA Update — John mentioned that the New England association has determined the site for the spring 1995 meeting to be at Bretton Woods, N.H. Linda Carroll, NEWEA president, thanks our association for inviting her and involving her at our Trade Fair. He was also requesting nominations for the Hatfield award.

12. Bryce discussed a checklist that he has developed which will be mailed to all those involved in bulk mailings. This will detail what individuals have to do to streamline the bulk mailing process and assure keeping costs down as much as possible.

13. Next scheduled Director’s Meeting is July 14, 1994.
Ask The Operators

This column is for you, the operator, to solicit answers to real questions that you might have concerning your treatment process, mechanical problems, laboratory, a general curiosity (such as how many days would it take one paramecium to fill a Volkswagen bug through cell division), or anything wastewater related. Those of you that can offer answers, help, or provide advice to those questions posed are encouraged to submit your responses to this column. This could be a useful column for us all, if we participate. Please send your questions/answers to: Sharon J. Ostrander, Coca-Cola USA, 600 Amherst Street, Nashua, NH 03063.

Q: During the spring and fall, despite no change in my process control, my system produces an effluent with a higher B.O.D. and chlorine demand. What is causing this condition?

A: Your system is probably experiencing a transition into (spring) and out of (fall) nitrification. Nitrification microorganisms are very slow growing, particularly during the cooler temperatures experienced in the spring and fall months. If populations are less than adequate, nitrification will be incomplete and thus your effluent will consume more oxygen to complete the nitrification process, which is being reflected in your B.O.D. analysis. Also, incomplete nitrification creates a higher nitrate accumulation in your chlorine contact chamber and nitrite will combine with the chlorine and produce a less effective disinfectant. Therefore, more chlorine will be needed to achieve the same disinfection level. To improve conditions in your plant, you will have to either increase your MCRT to encourage nitrification microorganism growth, or decrease your MCRT to waste them out of your system.

Q: Our facility is facing a permit with very low limits on metals. Our activated sludge system has been unable to remove enough metals to meet these limits. What options do we have for meeting these limits either through enhancing our own process or a capital improvement project?

A: ??? This is a tough one. Can any of you help us out?

How Can Septage and Sludge Be Used Beneficially?

DES Makes Audiovisual Presentations Available

DES, in conjunction with the New England Interstate Environmental Training Center (NEITC)/New England Interstate Water Pollution Control Commission (NEIWPCC), recently produced two new audiovisual presentations. Made possible through an EPA grant award, the two slide/tape/video presentations were developed to provide an overview of the use and disposal options for both septage and sludge. The presentations are intended for distribution throughout the state for use with public information meetings, planning board meetings, agricultural groups, or interested citizens. People may contact Selina J. Makofsky at 271-2457 for further information.

1994 NHWPCA Summer Outing at the Seashore

by Rick Seymour, Activities Committee Chairman

The 1994 edition of the NHWPCA Summer Outing or Lobsterfest will be held at the Odiorne Point State Park located on the historic and beautiful New Hampshire sea coast. The outing site overlooks the craggy coast and the Atlantic ocean.

In a repeat of last year at Mt. Sunapee, the infamous lobster-bakers will be doing all the cooking, food preparation and coordination of all the events. The menu will consist of lobster, marinated grilled chicken breast, Italian sausage, kielbasa, peppers and onions, coleslaw, potato salad, strawberry shortcake, fine beers and wine coolers. A hard working crew of 22 volunteers is already busy at work making the event a successful one.

A disc jockey will provide music for the outing. Volleyball, nature hikes, seagull watching and beer tasting will be some of the scheduled activities.

Tickets are limited and the deadline for purchase of tickets is June 15, 1994. Contact Rick Seymour for details at 594-3365. Hope to see you there!

New Faces in Familiar Places

Stuart McLoud was recently hired by the Eastman Sewer Company in Grantham, NH to perform the daily duties at their wastewater treatment facility. Stuart is a new addition to the wastewater field, but is very motivated and doing a great job.

Good luck Stuart!

Mario Leclerc accepted the superintendents position at the Milford WWTF, leaving Dana in Allenstown scratching his head.

Good luck Mario!

Joe Ducharme is the not so new man in charge of Operator Certification and Training at D.E.S. Joe has been digging in, trying to correct the many deficiencies in the system — mostly inherited ones.

The Milford WWTF has lost a skilled person, but only to pitch in as Superintendent at the Franklin WWTF. Steve Dolloff has taken on the challenge at Franklin. With his proven talents, Steve will do well.

Dana Clement, Superintendent at Suncook WWTF, has taken over as Chief Operator at his own facility??
When Your Landfill Closes, Will You Be Ready?

by Wes Ripple, NHDES

Screenings, grit, grease, and biosolids; are all by-products of wastewater collection and treatment. Years ago, these materials weren't a cause for concern as they were readily disposed of in our many landfills. Today, however, with new EPA regulations designed to protect groundwater supplies from contamination with landfill leachate, the situation is rapidly changing. The number of active landfills in N.H. will dramatically decrease within the next few years as many communities opt for the easier transfer station/recycling center alternative.

This raises one important question: What are the options available to treatment plant operators for disposal of these materials once the town landfill does close? Hopefully, you will have already answered that question and have a plan ready to implement when the time comes. Otherwise, you may find yourself in the situation of stockpiling the material until a solution can be found.

In order to provide the most informative response to those still seeking a solution, a survey was conducted from a random sampling of treatment plants to identify current disposal practices and hopefully establish some viable options. Since considerable attention in the past has already focused on various biosolids disposal/utilization methods, this survey was limited to include only screenings, grit, and grease.

Unlike biosolids, these substances do not easily lend themselves to recycling or beneficial reuse programs. In the vast majority of cases it appears they will continue to be handled as municipal solid waste. The two most likely options then become: disposal to a commercial landfill or incineration. This choice will no doubt be governed by your geographical location.

There are currently two commercial landfills operating in New Hampshire; the Sanco landfill in Bethlehem and the Turnkey landfill in Rochester. The requirements for disposing of these materials varies somewhat between each facility. Turnkey considers grit and screenings as special wastes and must be permitted as individual waste streams. This involves at least one initial test of the material to determine its composition. The minimum analyses are: TCLP metals, total volatiles, total semi-volatiles, % solids (minimum 20%), pH (2.0 - 12.5), reactivity, and the paint filter test (no free liquids). Odor control may be requested, which means adding lime or potassium permanganate. Additional types of analyses may be required if your town or city has a strong industrial base. One treatment plant reported that the lab bill for the one initial test came to slightly over $1,000. The frequency of testing is determined on a case by case basis. If your plant is a large generator or there are a substantial number of industries in town, you may need to test more often.

The Sanco landfill, on the other hand, does not have testing requirements for grit and screenings. Their research has indicated that these materials are not harmful in any way and should not cause any problems. Grease, however, may have to be looked at on a case by case basis and might require some testing.

From a regulatory standpoint, the NHDES Waste Management Division does not consider any of this material hazardous and therefore requires no testing prior to disposal in a landfill.

The incineration option appears to be relatively straightforward. This was not thoroughly investigated, but it appears that the only stipulation may be a certain minimum % solids content on grease. The high BTU value makes grease well suited for incineration. The one possible drawback to incinerating grit is the potential for small stones to cause problems with some of the incineration equipment.

One obstacle that will need to be overcome is how to get from point A to point B. If you are in close proximity to the landfill or incinerator, you can most definitely haul with your own town trucks. Otherwise, you can hire a private hauler. Refuse containers are also available for rental. Some plants are bagging the screenings and dumping them into the dumpster on site along with their own trash. If your town operates a transfer station and has dumpsters available there, mixing it with the town trash is also a possibility. Work with your transfer station operator to find the most practicable approach.

In all cases it is advisable to inform your trash hauler or transfer station operator as to the nature of the material. It is also recommended to remove as much of the free standing water as possible. This not only makes handling easier but may also reduce the costs. Turnkey landfill has a $70 per ton minimum charge.

Some treatment plants have devised alternative methods for handling and disposal. Several have eliminated screenings altogether by installing Muffin Monsters. This process grinds the rags and keeps them in the flow stream. Eventually, the grindings will settle to become a component of the sludge.

Grit disposal has been successfully eliminated at one facility by adding the grit to their dewatered sludge and then composting the mixture. This technique is in full compliance with the 503's as long as the grit is added prior to the composting process.

Several small facilities surveyed are using on-site burial as their ultimate means of disposal. This method is in a regulatory gray area as there is no formal policy in place to deal with this material outside of a permitted landfill.

Grease disposal for many communities has always been a problem. Many plants with belt presses are now mixing the grease with sludge and dewatering them together. This appears to work quite well but frequent attention to belt cleaning is usually necessary. If you are located in southeastern New Hampshire, there is a business called Stewart's Septic Tank Service, from Bradford, MA., that specializes in pumping out restaurant grease traps and grease from wastewater treatment plants. Their tanker truck separates the water from the grease, which is then disposed of in a Mass. landfill. Stewart's will also take grease that has been placed in plastic bags or other containers. Another business, Venturi Aeration, Inc., located in Pelham, N.H., currently has a biooxidation grease treatment process that handles strictly restaurant grease traps. They contract with sewage haulers to bring the grease to the treatment facility. Unfortunately, they are not taking on any additional customers at this time. Venturi Aeration is currently awaiting financing to build a large, new, grease dewatering plant that will dewater grease to 45% solids. This plant will also take only restaurant grease trap waste. It is expected to process 4 million gallons per year and hopefully be able to market the product.

I hope the results of this survey have given you some food for thought. Clearly, the days of dropping this stuff off at the town dump are over.
Clean Water Week
June 5-11

The NHWPCA encourages all wastewater treatment facilities to open it's doors to local schools and residents in your community. Take advantage of this opportunity to demonstrate to all, the important role you and your facility play in maintaining good, clean water in our state. Please call your local school and invite classes down for tours or maybe contact your local newspaper or radio station and ask them to generate an article. The importance of Clean Water Week is to educate the public on the environmental role we play. Please support Clean Water Week in your town.

Operator Exchange

Any association members interested in participating in this year’s operator’s exchange program please contact Ken Kessler at 883-7001 or George Neill at 271-3503.

This event has been well received by past participants, and provides a great opportunity for operators to meet other wastewater personnel, and tour unique wastewater treatment facilities in another New England state.

This year New Hampshire will be exchanging an operator with Rhode Island; the selected NHWPCA operator representative will be heading down to Rhode Island in August.

Poster Contest Winner

1994 Annual Trade Fair. Derek Deline presents his award winning poster to Congressmen Dick Swett. (Picture: left Ed Schmidt, NHDES, center Derek Deline, and right N.H. Congressman Dick Swett)

Used Laboratory Equipment For Sale

Hey Bunky, it’s been three years since your last salary raise, and your boss is drinking coffee and eating doughnuts deliberating over next years budget. “BUNKY” the boss needs some more laboratory equipment, and is thinking of cutting your salary to buy it. Put down that bar rack rake and wave this add under his nose, before he cuts your salary as quick as a comminutor can shred toilet paper. Tell him to contact the Eastman Sewer Company at 863-4444 and ask for Nancy Rechisky. The Eastment Sewer Company has some used laboratory equipment that will solve his budget problems. All prices are negotiable. Schedule a visit and make an offer.

1. Laboratory Scale — Mettler, Model H30, Serial No. - 673296

2. Dryer Autoclave — National Heinicke Co. Steril-Quick 704-9000-D

3. Magnetic Stirrer — Vanulab, Dyla-Stir Model 58935-250

4. Temperature Controller — GCA Precision Scientific (5° to 50°C)
   Serial No. - 12AH10,
   Catalog No. - 31211

5. Single Wall Transite Oven — Blue M, Model SW11TA (40°-200°C)

6. Constant Temperature Laboratory Apparatus — Ekonap, Type (AH-I), Serial No. - 780507

7. Mega Pure Water Still — MP-1, One Liter, Corning

8. Misc. Glassware, and Laboratory Apparatus

1994 Annual Trade Fair. Well deserved Rich Roy (left) receives 1994 President’s Award from now past president Bryce Fletcher. Congratulations Rich on your award and many years of outstanding service.
Let's put Sludge Front and Center!

The New England Interstate Water Pollution Control Commission’s Residuals Workgroup wants to promote the beneficial use of biosolids. We want to introduce this message through a lively and meaningful 2-color T-shirt, which we’ll promote through the workgroup and our NEI Catalog.

Imagine—if you will—hundreds, perhaps thousands of people sporting your vision of the ultimate sludge management “call to action”.

It’s a T-shirt that no one will want to be without.

The winning designer will receive a T-shirt and free admission to our 2-day Residuals Technology Transfer Forum next February. A photo of the winner, wearing the T-shirt, will appear in NEIWPCC’s newsletter, Water Connection. The runner-up will receive a T-shirt and a 1-day free admission to the forum.

Entries must be received no later than September 2, 1994 and should include the designer’s name, address, and telephone number. Please submit your 2-color design on an 8” x 10” format.

Send drawings to: Carolyn Jenkins, NEIWPCC, 255 Ballardvale St., Wilmington, MA 01887. If you have any questions, call Carolyn at 508/658-0500. Winners will be announced as soon as the judges have reviewed all designs and made their decision.

Here’s to the beneficial use of biosolids!
WANTED
Some Help From Operators

Dear Fellow WWTP Operators:

The Association needs your input and help. The Trade Fair is in need of additional vendor support. Especially vendors who help us do our jobs better and who deserve our business.

The following request is a painless way for you to participate in the planning of the 1995 NHWPCA Trade Fair.

What I need are business cards, (a copy will do), of your favorite vendors. You know, those people you buy from on a regular basis. For example, uniforms, chemicals, tools, lab and janitorial supplies, and the like. Or, how about a capital improvement item such as a clarifier drive, lagoon aerators, or pump station pump and motor.

So please take a moment and place a few vendor business cards in an envelope and mail them to:

Michael Martin
NHWPCA Vice President
132 Exeter Road
Newmarket, NH 03857

LabWise

Are you wise in lab ways?

Test your lab knowledge by answering the following questions.

1. All thermometers used in the lab should be certified by the National Institute of Standards and Technology (NIST).
   True/False

2. Grasp samples collected at the same sampling point at different times and mixed together are considered composite samples. True/False

3. Turbidity is measured using which of the following?
   a. Matched neessler tubes
   b. Nephelometer
   c. Spectrophotometer
d. None of the above

4. Define the meaning of TD on glassware.

5. Calculate the total solids (mg/L) given the following data:
   weight of drying dish = 2200 mg,
   weight of dried residue + dish = 2257 mg, and
   sample volume = 100 ml.
   6. Biochemical oxygen demand measures all the organics in a sample. True/False

A Special Thanks Goes Out To
E.J. PRESCOTT

for donating the pipe for this year's Operator Challenge.
Good Luck to the team.

EPA Award winning Milford, N.H. WWTF. "Congratulations!"

Congratulations Milford!

Each year EPA evaluates the performance and efforts of publicly owned treatment works (POTW's) throughout the region and presents awards in various size and treatment categories to those facilities most deserving. This year one of New Hampshire's own took Region I first place honors in the medium sized advanced treatment category. The Milford WWTF was chosen due to their consistently excellent effluent quality and, just as important, to their tremendous effort in undertaking numerous improvements to the facility.

Not only have they continuously strived to make process improvements, but they have shown initiative in retrofitting better equipment and establishing other pertinent programs. These efforts range from installing VF drives on all prime movers, replacing vacuum filters with a belt press and switching from chlorination to UV, to construction of a composting operation and giveaway program just to name a few.

Since winning regional recognition, they will now be nominated automatically for the national award. Our hats off to the crew at Milford, including Steve Dolloff who, although he has left the town's employment, should still get his share of credit for this award. Best wishes to all and keep up the good work!
Troubleshooting a Pump Problem at Coke

We had replaced some troublesome pumps at our facility with centrifugal pumps. These pumps were to return the sludge from the two clarifiers to the aeration basins. The original pumps had been a maintenance nightmare and were therefore very unreliable. After much research, we settled on the centrifugal pumps, believing that they would require less maintenance and would deliver a steady flow in this application.

After installing these pumps, we were ready to celebrate a trouble-free future. But to our disappointment, when these pumps started we found that the pumps would not draw equally from the two clarifiers, which would lead to a rising sludge blanket in one of the clarifiers. Each pump had an independent suction line and both discharged into a common return line.

We began asking questions until we found the answer at the Franklin Treatment Facility. They ran their centrifugal pumps in an alternating mode and found this to work very well for them. We set our computer up to alternate the pumps according to a time span that we were free to change. At first it appeared that this might work, but we found that every time the pumps would alternate, the on-coming pump would be air bound. We then installed check valves in each pump and this cured the problem. Now the pumps are running trouble-free and we can rest easy.

Fire Extinguisher Basics

by Chuck Terry

As simple as a fire extinguisher may seem there are several necessary inspections and tests that need to be accomplished on a regular basis as prescribed in the Code of Federal Regulations CFR 29 PART 1910.157.

Monthly – Extinguishers shall be visually inspected. This would include checking tank, nozzle and gauge. The pressure gauge should always be in the green area. Completing the monthly inspection can also include a dry wipedown and initializing the inspection tag. Fire extinguishers needing recharge should be handled promptly, and should have a backup while being serviced.

Yearly – Fire extinguishers must be given an annual maintenance check by a qualified technician. He will also issue new monthly inspection tags at this time. Documentation of all maintenance must be kept on record.

6 Years – Every six years it is necessary to empty the fire extinguisher, check internal operating parts and recharge by a qualified technician.

12 Years – A hydrostatic test will be performed, along with the 6 year test.

Abreviated NHWPCA Directors Meeting 2/24/94


1. The minutes of the December 15, 1993 Directors’ meeting were accepted as read.

2. The bulk mailing application was originally rejected due to our not being registered with the NH Secretary of State. We have since registered at the annual fee of $75.00 and have received approval — finally! This will save us hundreds of dollars in postage per year, providing that various stipulations are met, such as sorting by zip code, etc. A minimum of 200 similar pieces per mailing is required.

3. Discussion centered around the use of advertising inserts in the newsletter on a routing basis. It was decided that the Newsletter Committee would establish rates and allow advertisers in the newsletter in every issue instead of just the one prior to the Trade Fair.

4. Bryce brought up the issue of making each director responsible for various activities during the year, particularly in setting up meetings, logistics, etc. George was asked to develop a procedural list that can be followed from time to time. It was agreed that more of the work load can be shared.

5. Posters have all been submitted to the Public Relations Committee and a winner will be chosen by early next week. A framed copy will be made up and awarded to Monadnock Paper Co. for their kind donation of the paper for the poster printing; Mike Nolin will handle this. Keith Gilbert will perceive making arrangements for Clean Water Week.

6. The Clam Bake is to be held on June 24, 1994, at Odlum Point State Park in Rye and will be the similar format as last year with volunteers doing all the set up and food preparation. We will be hiring a DJ for the day. Pray for sunshine!

7. John Bush, NEWEA Director, reported on their annual meeting events in Boston. The Association Presidents’ Meeting went well and Bryce reported that our association is quite strong in the region and that NEWEA wants to increase interaction with the State associations. George Laney has done a great job in setting up our booth at this meeting and John has procured two beautiful plaques listing our past presidents and award winners which are displayed with our booth. The directors discussed and voted on sending incoming President, Ken Kessler, to the annual Congressional Breakfast in Washington D.C. At this gathering, we have an opportunity to give input to our congressional delegation regarding numerous water quality issues that impact New Hampshire.

8. The subsidy for the NEWEA Annual Meeting was discussed and it appeared that it didn’t really encourage any additional attendance at this conference. We will still reimburse $25.00 to the handful of people who did make it and we will re-evaluate our approach to increase interest in this annual event, next year.
Care of Dissolved Oxygen Probes
Don't Let Marginal Maintenance Create a Laboratory Nightmare

Carla R. Cunningham

The right tools make any job easier, but even the best tools create problems without proper maintenance. Well-maintained dissolved oxygen (DO) probes, for example, will provide many years of accurate measurements, but ignored ones become terrors lurking in the recesses of the lab, consuming time and patience.

Fortunately, maintenance requires little effort if you follow a few simple suggestions that apply to most polarographic DO probes. (Procedures may differ depending on the manufacturer.)

Daily Care
Properly caring for your DO probe will help you obtain more accurate measurements and avoid problems.

Read the manual. This is the most important step you can take to save time and ensure accurate DO measurements. The manual will show you how to use the equipment—reducing the number of phone calls to the manufacturer.

Know the equipment. Learn what is normal so you will recognize the abnormal. Learn the probe’s component names so you can describe problems quickly and accurately. Practice installing membranes, so you do not have to learn how to at an inconvenient time.

Change old membranes. This component, which lets oxygen enter the electrode while keeping contaminants and interferents out, is the most sensitive to wear and tear. During normal use the membrane can stretch and become clogged with dirt and oil, which reduces the oxygen exchange rate. Meter calibration can compensate for changes in oxygen diffusion rates, but a new membrane eventually will be needed. Change it before a problem occurs. Check with your equipment manufacturer for recommended intervals.

Check the O-rings. Every probe that has a membrane has an O-ring to seal the membrane to the probe. Worn O-rings lead to loose seals, which allow water into the potassium chloride (KCl) solution. KCl solution diluted with external water causes artificially high readings and lets in contaminants that can foul the electrodes.

Warm up the equipment. Most DO probes have a reservoir of KCl solution under the membrane. Oxygen passes through the membrane into this fluid, where it reacts with the electrodes to generate a DO measurement. The KCl solution must be free of residual oxygen when you calibrate or measure samples with the probe, otherwise the probe will measure the oxygen in both the sample and the KCl solution, causing high readings.

To remove residual oxygen, allow the meter and probe to sit with the power on for at least 30 min. before calibrating. Every time you disconnect the probe or install a new membrane, you should allow it to warm up again before recalibrating.

Clean the probes after use. Sometimes the probe must be used in water that is dirty or contains hydrogen sulfide or sulfur dioxide. To clean the probe, rinse it thoroughly with distilled water or a 1:1 solution of isopropyl alcohol and distilled water.

Cleaning up after chemical exposure is not as easy. Hydrogen sulfide and sulfur dioxide react quickly with the sensor, bonding to the anode and interfering with readings. Minimize the sensor’s exposure to hydrogen sulfide and sulfur dioxide, but if you suspect the probe has been exposed to these substances, rinse it in distilled water and then replace the membrane and KCl solution.

Store the probes properly. The probe’s KCl solution is 50% water. If the sensor end of the probe is in less than 100% humid air, the water will evaporate, causing the KCl solution to become saturated and crystals to form inside the probe. This harms the probe.

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This rudimentary cross section of a dissolved oxygen probe shows the position of the membrane, cathode, anode, and O-ring.
Blow Your Own Horn

A regular feature in The Collector is the Plant Profile, which gives the smaller, less well-known plants the chance to see their name in print and get some well-deserved recognition. Well, with the tighter budgets and leaner staffs of the '90's, it's not always possible for us to get out to the plants that could be featured in the Profile. To try to maintain it as a regular feature and give a shot to all plants, we've decided to let the readers submit their own profiles. If you'd like to have your plant included just fill out the form below (or use a similar format) and send it to The Collector. You can highlight any aspect of the plant that you want, be it interesting processes or equipment, plant performance, or accomplishments of the staff. Please include a photo and list of names of the plant's staff if possible.

<table>
<thead>
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<th>Plant Profile</th>
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<tr>
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<td>Town Profile:</td>
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<tr>
<td>Plant Startup Date:</td>
</tr>
<tr>
<td>Service Population, Design Flow, Avg. Daily Flow:</td>
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<tr>
<td>Plant Information:</td>
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<tr>
<td>Operations Staff:</td>
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</tbody>
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(Use additional paper if necessary)
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(617) 762-3113

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Frederick Kibble/Paul Sussman
(617) 933-3210

J.D. MEAGER, INC.
James Meager
(508) 366-6606

METCALF & EDDY
Eric Telttinen
(617) 246-5200

NEW ENGLAND TREATMENT CO.
James Myers
(207) 698-7262

PENN VALLEY PUMP CO., INC.
Allen I. Barry
(617) 696-7450

Q.C. SERVICES
Richard Schieferstein
(207) 583-2980

RED HED SUPPLY
John Grout
(800) 639-9287

RESOURCE CONSERVATION SVCS.
Marty Riehs
(603) 536-5280

RIST-FROST-SHUMAY
John L. Scott
(603) 524-4647

STERNS & WHEELER
William Hall
(603) 622-5838

DAVID F. SULLIVAN & ASSOCIATES
Michael Sullivan
(508) 777-5552

THERMO CONSULTING ENGINEERS
Gary Whitten
(508) 777-5552

TRI-STATE PACKING SUPPLY, INC.
Jim Lee
(207) 883-5218

H.L. TURNER GROUP
Doug Tiltotson
(603) 228-1122

UNDERWOOD ENGINEERS
Steve Clifton
(603) 436-6192

UTILITY PIPELINE SERVICES, INC.
George Harrington
(603) 625-1212

WASTE, INC.
Ken Bradley
(603) 224-6596

ROY F. WESTON, INC.
Bryce Fletcher
(603) 228-1334

WESTON & SAMPSON ENG., INC.
Steven H. Corr
(800) SAMPSON

R.H. WHITE CONSTRUCTION CO., INC.
John E. Handwerk
(508) 832-3295

WOODARD & CURRAN
Ed Rushbrook
(207) 774-2112

WRIGHT-PIERCE ENGINEERS
Charles J. Martin
(207) 725-8721
Monadnock Paper Company
Screw Press

Mike Butler, Chief Operator at the Mill, claims 50-60% cake solids using this press. Details in the next issue.