A New Hampshire Biosolids* Update

by Ned Beecher, Coordinator
New England Biosolids and Residuals Association (NEBRA)


Critical events in 99

The millennium ends with another active year in the biosolids world in New Hampshire.

- In March, the Department of Environmental Services (DES) adopted the revised Env-Ws 800 regulations, requiring additional testing for sludge quality certification (SQC) and increased site management and monitoring requirements.
- In May, the lawsuit brought by the local Sierra Club chapter against the state of New Hampshire — which may have led to a ban on land application of biosolids — was dismissed by the court.
- Two other court cases progressed: 1) a farmer is suing the town of Haverhill for not allowing him to continue to use biosolids, and 2) in the suit by parents of a Greenland man, pretrial deliberations continue (for a copy of NEBRAs preliminary report on this case, contact NEBRA).
- The legislative session ended with votes generally supportive of biosolids recycling, but only after considerable effort to provide accurate and detailed information on the part of the NHWPCA Biosolids Committee, DES, NEBRA members, and several operators and public work officials.
- In August, the federal government promulgated the latest round of amendments to the 40 CFR Part 503 rule.
- In August, DES convened the Sludge Management Advisory Committee (SMAC) to provide guidance on issues raised during the process of the latest rule changes. NHWPCA is represented by Shelagh Connelly for the Biosolids Committee and Roger Descouteaux for pretreatment interests. NEBRA is represented by Coordinator Ned Beecher with backup by Fred McNeil of CDM.

If you need more information about any of the developments mentioned above, feel free to contact the NEBRA office at 603-323-7654 (fax -7666) or check out www.nebiosolids.org.

NHWPCA Spring Outing

This year the Spring Outing was held at Ellacoya State Park. The day was perfect and a good time was had by all. NHWPCA thanks all sponsors of this event for their support.

* Do you recognize yourself or others in these pictures? Anyone holding a cup no doubt enjoyed this year's lemonade that came with a head on it.
NHWPCA OFFICERS

President Mary Dowse
Vice President Doug Steele
Secretary George Neill
Treasurer Mike Hanscom
State Director Victoria Abbey
Past President Doug Steele

Director Kenneth Lowe
Director Rick Cantu
Director Tom Steele
Director John Scott
Director John Grout

Newsletter Committee: Dana Clement, Beverly Drouin, Harvey King, Kenneth Lowe, Dave Sircle, 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

NHWPCA Director’s Meeting
July 30, 1999

Attendees: Mary Dowse presiding; Doug Steele, Rick Cantu, John Grout, Mike Hanscom, Kenneth Lowe, George Neill, Tom Steele, Victoria Abbey.

Mary welcomed John Grout as the new Vendor Director on our board who replaces Everett Blaise. Welcome John!

1. Minutes: Minutes of the last directors meeting were read and accepted.

2. Summer Meeting: George reported that in spite of a lower than average turnout, the outing was a terrific success. All volunteers have their respective jobs down pat so everything went off without a hitch. We’ll probably have next year’s outing back here at Ellacoya, as all attendees seemed to really enjoy this location.

3. Trade Fair: Mary and Doug recently met with staff at the Bedford Wayfarer in order to clarify a number of issues surrounding setting up next year’s Trade Fair. Things should be resolved at this point. Next year, the business meeting will be held in the same room so as to minimize down time and confusion. The Fair is planned for April 6, 2000.

4. Fall Meeting: George reported that things are coming together for tours at the North Conway POTW which will be followed by a luncheon meeting at the Red Jacket Hotel. The date is Thursday, September 23. Tom and George will be working on the meeting notice within the next 2 weeks. Speakers have already been arranged. This should be a most interesting day as this facility is the first “Bardenpho” biological nutrient removal facility in the Northeast.

5. Winter Meeting: Kenneth reported that all arrangements for the winter meeting have been made. The December 9 gathering will be at Waste Management, Inc.’s Turnkey Landfill in Rochester and will include tours of that entire facility including a sophisticated leachate treatment system. Lunch and business meeting will be down the road at the Rochester Country Club.

6. Operators Challenge: Kenneth gave the directors an update of both the Operations Challenge dry run held at Franklin and the full blown event in Newport, Rhode Island. Both went extremely well, however, one again, there was no team to represent New Hampshire. Needless to say, we’d all like to see the Granite State represented next year. Kenneth said that the Operators Challenge Committee of NEWEA may be interested in having the dry run again in Franklin next year.

7. Director Notebooks: Doug passed around 3 ring binders and duties of almost every officer’s position in our association. The idea is to update these when warranted and to promote consistency and fairness for all directors and also to spell out what is expected of every officer from year to year.

8. NEWEA Update: Victoria will be looking at NEWEA’s constitution and by laws to see if there is anything applicable to our association that would help clarify directors’ responsibilities and give us some insight with which we can improve our association. A committee consisting of Vicky, Mary and past president Keith Gilbert will be meeting to review this information and will then recommend some constitutional and functional changes to the Board of Directors. Vicky also reminded us that we will be exchanging operators with Connecticut this year.

9. WEB Site: Rick Cantu reported that he’s making in roads into establishing a web site for the association. He’s going to contact personnel at DES to see if an arrangement can be made through them to tie into a server. Stay tuned as we attempt to bring the association into the 21st Century! Rick has been graciously volunteering his time to be web master for this site after he gets it up and running. Our sincere thanks to him.

10. Other Business:

A. George reported that things are all set with the Annual Science Teachers Environmental Education Program. This year, it will be held in Franklin and will include a plant tour and the usual printed material and portable field water test kits.

B. Doug told the board about the newly formed Sludge Management Advisory Committee (SMAC) which will be dealing with biosolids and residual issues. The association will have two representatives; one will be Roger Descoteau and the other is Shelagh Connolly. This group consists of individuals representing a wide variety of viewpoints toward beneficial use of biosolids.

C. A “Request for Proposal” has been sent to five different concerns regarding licensing the association administrative assistance. The chosen individual would be responsible for data base management for mailing lists, handling dues and meeting notices and payments, developing and mailing announcements, etc. We hope to hear back from them by the beginning of September.

11. Next Directors Meeting: The next Directors’ meeting will be held on Tuesday, September 21, 1999 at 6:00 p.m. at the Eagles Nest Restaurant in Concord. The Exchange Operator will be our guest.
Scholarship Committee Update

Have you NHWPCA members stopped getting educated or has the Scholarship Committee been too quiet? One of the primary goals of the association is encourage growth in the wastewater field, both for our membership and for young people interested in pursuing a related career.

One of the ways we promote this growth is through the award of scholarships. We offer two types of scholarships. One is our Member Scholarship, available to current members who are taking classes to advance their knowledge about issues related to their work. The application for funds is simple, the requirements are few and yet we still receive very few requests.

We also offer a Student Scholarship. This program awards $1,000.00 to a graduating high school senior who is pursuing a career in a field related to ours. The selection is based on an essay that should outline the career goals of the student and relate past experiences to the environmental field. Preference is given to the children of Association members. In all the years we have offered this scholarship, no children of members have applied.

Requests for scholarships should be mailed to the association address. You can contact Keith Gilbert at 428-3525 or Tom White at 271-3549 for additional information.

Get educated. Get reimbursed. Put your association to work for you.

ESSAY
by Lindsay Shaw

Ever since I was a little girl I have always loved water. I used to go down to Amey Brook behind my house and play in it. I used to try to reroute small streams. I always found that the water had its own direction that it wanted to flow, and that despite all my efforts, it was going one way and that was that. I used to spend my afternoons picking up trash that my brother's older friends had left. By the end of the afternoon, that small beach that was created by the spring flooding had been transformed into a beautiful clean beach. I knew from those afternoons that I wanted to make the rest of the world's rivers and brooks look the same way as that beach looked.

My ideal career would be to have a job at the Environmental Protection Agency. I would preferably like to specialize in groundwater. This year in my Environmental Science class we did a unit on the Contoocook Watershed Association. We learned how to do water tests, how to treat and prevent pollution and the overall history about New Hampshire waterways. This unit lead me into the world of groundwater. After seeing movies and slides of our state's waterways in the 1950's through the 70's, it astonished me that people didn't care about their environment. Ever since I found out about how I can make a difference in my environment I have tried to make a difference. While visiting Saint Anselm College in Manchester, New Hampshire, I was introduced to many professors in the science department. The professors in the Environmental Science department astonished me.

They were writing grants for endangered species studies. They had just received a grant to do some work with an endangered plant. They were doing experiments to try to reproduce the plant. What amazed me was the fact that they found the plant in a junkyard. We ourselves almost destroyed a species.

I want to make sure that our neglect to certain important things doesn't make an impact that will hurt us in the future. If we destroy our water sources then we are destroying ourselves, our surroundings, and our world. By having a job that I am passionate about, I can make a difference because I care.

My main goal is to go to school to study Environmental Science and Chemistry. Hopefully, by majoring in Chemistry, I can use that knowledge and apply it to my other major – Environmental Science – and be of more use to the environment.

“Liquid A” Pasteurization Unit

Dave Brennan, Superintendent of the Sunapee WWTF recently piloted a “Liquid A” pasteurization unit. This unit basically heats the liquid sludge and raises the pH for long enough to meet the class A sludge stabilization requirements. This unit can also be used on septage and on dewatered sludges. For more information or to possibly pilot this unit at your plant contact Dennis M. Geran, FR Mahony & Assoc., Inc. 131 Weymouth St., Rockland, MA 02370. Tel. (718) 982-9300.

Left to Right: Dick Christy, Mike Dashner, Dennis Geran, Steve Judd, Dave Brennan, Gary Dashner.

FOR SALE

- 1 VWR Model 2005 Cabinet Type Low Temp Incubator, Excellent Condition
- 1 All American Electric Pressure Sterilizer, Good Condition
- 1 Stevens Strip Chart Recorder, Good Condition
- 1 Millipore Field Bacteriological Testing Kit
- Best Offer
Call Brent or Dave at 224-0184
UNH Research Progress:
Monitoring Demonstration at Gravel Pit Reclamation Sites in New Hampshire

NEBRA has been supporting a major research effort here in New Hampshire. NEBRA is proud to report that, at the close of the 1999 legislative session, NEBRA members, DES, and other supporters convinced the legislature to provide partial funding to support this expensive but critical research.

NEBRA members are providing crucial matching funding in support of this research. Because it may help develop environmentally sound practices for using biosolids for land reclamation—a promising outlet for biosolids—this research deserves your support. For more information on how you can become involved, contact the NEBRA office. Project progress reports are available upon request.

NEBRA and the National Biosolids Partnership (NBP)

NEBRA has also been working with national biosolids organizations, including the National Biosolids Partnership and other non-profit regional biosolids information networks (e.g., the Northwest Biosolids Management Association and the Mid-Atlantic Biosolids Association). NEBRA has a committee of New England representatives that provide input to the NBP. Currently, Chip Chesley of Merrimack Public Works is the only NH representative, but anyone interested is welcome to participate. The NBP is developing several programs that should help with public acceptance of biosolids, including a national website, CD-ROM collections of documents, an improved national information-sharing and communications system and the following:

A national biosolids data management system is now available!

Anyone managing biosolids recycling programs should check out US EPA’s Biosolids Data Management System (BDMS). It can be downloaded from the address www.bio-
solids.com and an article about it appeared in the June issue of Biocycle. The goal is to have biosolids managers and state and federal regulatory programs utilize the BDMS. This will increase data consistency, reporting efficiency, and allow for fast and efficient retrieval of current biosolids quality information. NH DES is considering using the BDMS, but may modify its existing system instead, since the current system works with other departments and programs at DES. For DES, it may be possible to create data export functions that allow for efficient transfer of data into the BDMS for submission to USEPA. NEBRA strongly supports the use of the BDMS or a compatible system, given that one of the major concerns consistently voiced by the public is the apparent lack of accessible biosolids quality data. Take the time now to implement the BDMS in your organization. If you have difficulties, NEBRA can put you in touch with someone who is using the system or other experts.

Environmental management systems for biosolids products and programs

The National Biosolids Partnership (NBP) has obtained major funding from Congress to encourage the use of environmental management systems (EMS) in biosolids programs. A biosolids EMS is a management tool designed and created by the managers and operators of a POTW, a biosolids processing facility, and/or a biosolids management company.

You may have heard of the international ISO system of standards that companies adopt. ISO has an environmental management system called ISO 14000. You sometimes see companies advertise that the are ISO certified. If companies become ISO 14000 certified, it means they have adopted an environmental management system that meets the ISO environmental management standard. For companies in the private sector, this tells their customers and the public that they are paying close attention to the environmental impacts of their businesses. ISO 14000 certification gives companies a competitive advantage in the marketplace and builds their image as good neighbors. It is like a Good Housekeeping or UL – Underwriters Laboratory seal of approval.

The NBP is developing its own, separate program for biosolids environmental management systems (EMS). Each individual facility or program that chooses to participate in the voluntary NBP EMS program will develop their own unique EMS following the guidelines set forth by the NBP. Thus, each biosolids facility or program will have an EMS designed to meet its unique needs and the needs of the people that work there. The NBP is currently developing manuals that will provide step-by-step guidance on how to set up an EMS.

NEBRA has been working with the NBP, stressing local needs such as how smaller facilities (<10 staff) might be able to follow a simplified EMS approach. If you are interested in learning more about the NBP’s biosolids EMS program, NEBRA can send you a booklet and other information. If you are interested in joining the next round of the EMS pilot program — which is likely to include funding up to $10,000 for each facility implementing an EMS — contact NEBRA immediately.

What you can do every day for biosolids

Most legislators, local officials, and members of the public — your friends and neighbors — know little about biosolids recycling, and those that know something are sometimes skeptical. Questions and concerns are natural and will continue, requiring continuing efforts to provide accurate technical information and opportunities for learning about biosolids recycling. NEBRA was formed to do just this.

Right now, NEBRA members around NH are assisting with the second annual “Take a Closer Look at Bio-solids Recycling” series of demonstration field events and open houses at wastewater and compost facilities. From late September into November, there will be a series of events that will help treatment plant operators, farmers, public officials, the media, and the general public learn more — first hand — about biosolids recycling. You can help make this series a success by contacting people who you think might be interested in attending an event. Call NEBRA for a copy of the schedule.

Please support NEBRA now

NEBRA’s work costs money. To date, New Hampshire has reaped more benefits of NEBRA’s work than any other state. NEBRA has given you . . .
support for two important major UNH biosolids/residuals research projects;
- development of reports on two NH cases where biosolids have been wrongly accused of causing harm;
- information sharing and education of environmental, conservation, legislative, municipal, and biosolids interests;
- lots of representation in the annual demonstration series and on the NEBRA website;
- educational forums like the 1998 First Annual Meeting & Conference in Concord; and
- a NH-based NEBRA office!

NHWPCA kindly provided NEBRA a start-up grant of $500 in 1998. Now it is time for individual facilities and stakeholders – you – to help. Right now, only five NH POTWs are members of NEBRA! Monadnock Paper Mills, Pinetree Power, Bio Gro, BFI Organics, White Mountain Resource Management, Camp Dresser & McKee, Piscataqua Environmental, many farmers and a few other individual biosolids stakeholders have all taken on their responsibility of supporting NEBRAs cooperative efforts.

Each facility that produces biosolids, or is considering biosolids recycling as an option, and private firms involved in biosolids recycling, should be a NEBRA member. There is no better way to address biosolids management issues than to do so together. Over the years, you will get far more value through NEBRAs efficient information-sharing and research programs than the money you spend on your NEBRA membership.

Imagine stable long-term biosolids/residuals markets supported by a happy public! The only way there is through efforts like NEBRA. Please help.

**Optional addition:**

As a local leader in wastewater management, your viewpoint is sought out and trusted. Remind New Hampshire citizens that . . . 

... biosolids recycling returns valuable nutrients and organic matter to soils, reduces erosion, and reduces the need for chemical fertilizer inputs – goals shared even by organic farmers;

... more than thirty years of research shows biosolids recycling provides benefits to soils, crops, and communities and poses minimal risk;

... biosolids recycling has been chosen as the preferred option for biosolids management by state environmental regulatory agencies and the US Environmental Protection Agency (USEPA);

... there are many other organizations that have studied biosolids recycling and have concluded that properly-managed biosolids land application programs that comply with all federal and state regulations are acceptable, including the National Research Council, U.S. Department of Agriculture, the U.S. Food and Drug Administration, the National Association of Conservation Districts, and this region's Farm Credit banking system; and

5) biosolids recycling is a local recycling solution for managing a waste stream to which we all contribute – even those with septic systems.

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**COURSE ENROLLMENT FORM**

Fall 1999 DES Wastewater Operator Training

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<th>Course Description</th>
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<td>SEP 22</td>
<td>Introduction to Labor &amp; Employee relations</td>
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<td>DEC 1</td>
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<td>DEC 9</td>
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**NOTE:**

See course description sheet for cost of each class.

**Register with NEIETC**

Separate Registration Req'd.

Register with NEIETC

Register with NEIETC

Register with NEIETC

Separate Registration Required

Separate Registration Required

NO CASH ACCEPTED!

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TREASURER-STATE OF NEW HAMPSHIRE

State of New Hampshire DES, Water Division

ATTN: Wastewater Operations Section

6 Hazen Drive, Concord, NH 03301

Facility Name: ___________________________
Facility Supt: ___________________________
Facility Phone: ___________________________
Date: ___________________________
Facility Fax: ___________________________
Type of Payment: _______________________
Background information: the Warner Village Water District's Wastewater Treatment Facility (the Plant, or we, or us, or our) was constructed and brought online in 1976. It was designed as an Extended Aeration Facility, though today it is called (tip my hat to George) Modified Conventional Activated Sludge. The Plant had preliminary treatment, two oxidation ditches, one tiny peripheral-feed secondary clarifier, two chlorine contact tanks, one aerobic digester (oops, Georgie) one aerated sludge holding tank, and four puny sludge drying beds. In 1987 the drying beds were converted to reed beds.

The Plant was under an Administrative Order (AO) because we could not meet our newly issued (September 19, 1995) NHDES Permit limits for Total Chlorine Residual and/or Escherichia Coliform (e-coli). Our new monthly average chloride limit is 0.26 mg/l with a daily maximum of 0.45 mg/l, the e-coli monthly average is 126 colonies/100 ml with a daily maximum of 406 colonies/100 ml.

The AO was issued on January 22, 1997, and all conditions were to be met within a year after receipt of the AO. By May 15, 1997, we were to submit to DES an engineering evaluation of the causes of violations and a detailed scope of work and schedule for compliance.” Once DES approved this submittal, we would “enter into an AO by consent,” which would allow us to report permit violations of total residual chlorine and e-coli as non-violations with permission (but not without regret). There was no specific date to comply, but we knew we could not drag our heels.

We secured a grant of $150,000 from Community Development Block Grant (CDBG) funding, and were looking at an additional grant from State Revolving Fund (SRF) monies of $73,000 (the final pay out from SRF was about $59,000). Provan & Lorbar did the initial engineering evaluation, scope of work and schedule for compliance. A CDBG and SRF requirement made us seek a state qualified engineering firm. A Request for Proposal garnered many fine firms, but we chose Wright-Pierce (WP), of Topsham, Maine.

WP thought we had a bundle of money, we did too, as well as DES, but the truth was, we didn’t. The original RFP for the contractor, required installation of the new chlorination/dechlorination (chlor/declor) facility. To improve solids handling: modifications to the cement walls of the oxidation ditches, re-routing the Raw and RAS flow in the ditches, floating mixers for the ditches, a second secondary clarifier, and raising the sludge drying beds walls by three vertical feet. The old clarifier was to be retrofitted with a scum skimmer. What we ended up with was the chlor/declor facility, re-routing of the Raw and RAS flows, the sludge drying beds walls raised by three vertical feet, and a scum skimmer for the clarifier. Daniels Construction, of Ascutney, VT was chosen as the contractor. They did exceptional work on what little construction we could afford.

The new chlor/declor building houses both the sodium bisulfate and sodium hypochlorite. We have chemical storage space for 165 gallons (55-gallon drums) for each chemical, an approximate 3-month supply. This building includes both chemical-feed systems, which can be operated in manual or flow-proportional mode. Metering of the chlorine is by LMI pumps; ProMindent pumps handle the bisulfite. Current chemical consumption is approximately 6:1, hypo to bisulfite. Rerouting of the Raw and RAS flows has eliminated a short circuiting effect in the oxidation ditches. The scum skimmer is keeping the clarifier cleaner, and has reduced the manual labor of surface skimming for scum to a minimum. The extra three feet of drying bed walls is allowing us to keep up with the added sludge produced by our new Modified Conventional Activated Sludge Treatment Facility (no hats to be tipped here). All construction was completed on March 31, 1999, and since then the Plant has performed exceptionally well. We are meeting the limits for Total Chlorine Residual, however, because of nitrifying/denitrifying we have slipped a couple of times with the Escherichia coliform maximum daily limit (but that’s another story, something about, “What, you’ve only got one clarifier?”)

The District Commissioners and Plant staff thank Wright-Pierce for their engineering skills and Daniel’s Construction for excellent work in upgrading the Warner Wastewater Treatment Facility to a more modern facility.
What’s Up With New Sludge Dewatering/Stabilization Equipment?

Many New Hampshire wastewater treatment plant operators are scratching their heads these days wondering how to solve their solids drying and disposal problems. It may well be the most difficult and costly decision that some plants face currently. There are no simple answers but the choices of equipment available for sludge dewatering and stabilization are increasing.

Exposure to this new equipment is required and one way to accomplish this is to attend a demonstration of equipment at yours or another WWTF. Two WWTF’s recently invited companies to demonstrate their products: the Concord Hall St. WWTF and the Sunapee WWTF.

Mike Hanscom, Superintendent of Concord’s Hall St. WWTF recently piloted the Fournier Rotary Press. This unit claims it can produce cakes of 27% to 33% dryness on 50% primary sludge. Claims are also made of great energy-efficiency and low maintenance. To check this out, contact Stonkus Hydraulic, Inc. Jim Russell, Sales Engineer, P.O. Box 2248, Bangor, ME 04402. Tel. (207) 947-2248 or Fournier Industries Inc. 325 Frontenac Blvd., Black Lake (Quebec), Canada. Tel. (514) 353-8667.
Total Suspended Solids

by Tim Loftus

TSS, or total suspended solids, seems like an easy and innocent enough test to perform. For the most part, it is. But are you following this test procedure as it should be followed? Would the way you perform this test hold up in the legal system? You may get "workable" results for plant operations, but what about reporting these results to a regulatory authority? If you do not follow approved methods – exactly then the results, even if they are accurate, may not be legally acceptable. These are not hypothetical situations. I have been through it, and fortunately, my results were not only accurate, they were performed legally. There was no argument.

Under the Federal NPDES program, you have two approved methods for TSS: EPA method 160.2 and Standard Methods 2540D. It is important that you read the methods for the details of the test. But in general, both methods require that you wash, dry and weigh the glass fiber filters until you achieve a constant weight. A constant weight shows a variation of less than 0.5 mg or <4% of the previous weighing. Only then should you use the filter pads for TSS analysis. Believe it or not, a lot of junk gets washed off the filter pads. If it is not washed, a positive interference often results. The last thing you need when measuring TSS on your final effluent is a few extra milligrams that shouldn’t be there. It can make the difference between meeting your discharge limits or failing them. Wash and dry the pads for all your NPDES reporting and any other situations where the results are legally binding.

Sample size is equally important. Say, for instance, that you are running 50 ml of final effluent through the filter in the TSS test. To report the results in mg/l you must factor the measured TSS mg up by 20 times. In doing so, you are also factoring any error by at least 20 times. This can be significant if you have a low TSS limit in your NPDES permit. In this case, it would be better to use a much larger sample volume.

However, too much sample with high amounts of TSS can be harmful. A water-entrapping crust can form on the filter pad and give a positive interference. This can happen especially with WAS and RAS samples. While these are not considered "legal" samples, the results do affect plant operation decisions. Standard Methods recommends that the final weight on the filter pad be 10 to 200 mg.

Another important aspect of TSS analysis is the filtration apparatus. EPA method 160.2 requires that all filtration apparatus be fitted with a coarse (40-60um) fritted disk. Standard Methods requires only a filter apparatus with a reservoir to have a fritted disk. The fritted disk is a porous glass disk used to support the filter paper. It helps to provide equal suction under the whole filter pad. Many of the filtration funnels out there (Gooch, Buchner, membrane filter funnels) contain perforated disks or bottoms as filter supports. Realistically, perforated disks typically will perform well, but for many samples, they will not.

Finally, don’t forget to repeat the drying and cooling of the filter and sample until a constant weight is achieved.

These TSS method requirements are often overlooked in many places. However, it is important to do them. Read the EPA or Standard Methods test procedures over for the details. Performing the analysis correctly may take a little more time, but by doing so, your results will be accurate and they will be legal. And that is why we do lab work. Otherwise, why bother doing it?

If you have any questions, suggestions, or comments, please contact LPC Chair Paul Fitzgibbons at (401) 222-6780 ext. 118 (lab@narrabay.com) or Tim Loftus at (508) 949-3865. You can also visit our website at newea.org. Once on the website, press the Lab Practices button.