A North Carolina Solution Through Self-Help Methods and a Regional Approach

by Beth Cahape
NDWC Staff Writer

Some small towns have taken a closer look at their drinking water difficulties and come up with inspiring solutions. With the assistance of a New York-based self-help education center, Connelly Springs, North Carolina, is one such town.

This rural mountain community, located in the western part of the state, has been trying to get a water system started for at least 25 years, says the local water project organizer, Kermit Holshouser.

A community of about 1,500 people, Connelly Springs has faced serious water quality and quantity problems for decades. The local springs—which, until the 1930s, benefited the community by supporting several health resorts and an early bottled water industry—have tainted existing water wells with their high mineral content. In addition, the area’s groundwater is diminishing. “Water levels in this area have always been low, but they’re getting worse,” explains Holshouser.

Consequently, the private wells in use by most area residents were not only producing inferior water (with both odor and color problems), but many wells were also going dry. It was obvious that this problem was not going away, so Holshouser and others began meeting to discuss possible solutions. At first, they had little hope of gaining the funds to match potential government grants.

Learning About Self-Help

“Then a couple years ago, we heard about this self-help program and called them,” explains Holshouser.

FDA Proposes Strict Bottled Water Monitoring, Labeling

The bottled water industry is big business, with consumers paying an estimated 200 to 1000 times more for bottled water than for drinking water from their taps. On January 5, the Food and Drug Administration (FDA) proposed new rules governing the bottled water industry, which now grosses more than $2 billion a year. Public comment on these rules concluded in April and the agency “would like to have completed rules by the end of the year,” said Shellee Davis, FDA’s project officer for bottled water.

Recent articles in the New York Times quote Michigan Representative John Dingell, chairman of the House subcommittee that has been examining this issue, as saying he was “dismayed at how long the FDA took to issue regulations,” but that “consumers will now have more accurate and complete information about the source and content of bottled water.”

A serious focus on the quality of bottled water—over which the Environmental Protection Agency (EPA) has no jurisdiction—began after a February 1990 contamination incident with Perrier water. Benzene, a cancer-causing contaminant, was detected in some Perrier bottles at levels four times higher than the established EPA tap water standard. The result was a Perrier recall of more than 170 million bottles.

Continued on page 11

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Continued on page 11
The Small Systems Technology Initiative has regrouped and is back on track and moving forward again,” said U.S. Environmental Protection Agency (EPA) Small Systems Coordinator Peter Shanaghan.

Begun in 1988 as part of the EPA’s Office of Ground Water and Drinking Water’s “mobilization” strategy, the Initiative includes a coalition of representatives from EPA, the American Water Works Association, the Association of State Drinking Water Administrators, the Water Quality Association, the National Drinking Water Clearinghouse (NDWC), and several states and manufacturing companies.

One of the mobilization program’s goals is “strengthening small drinking water systems and promoting regulatory compliance,” Shanaghan said. The Initiative contributes by promoting the development of lower-cost drinking water treatment technology.

Since the Initiative’s start five years ago, “a lot has been learned,” Shanaghan said. Two of the Initiative’s five demonstration projects have been successfully operating for more than a year, and a document has been issued that details the first project: an ion exchange system in Texas that removes radium. (For document availability information, call the EPA’s Safe Drinking Water Hotline at 1-800-426-4791; ask about document # 812-R-93-001.)

Currently, the Initiative is “extending the demonstration period for another year” in a Virginia community “to better document and demonstrate the central management of point-of-use technology” and is also working to implement two additional demonstration projects.

Several Initiative meetings and teleconferences have been held since January, when three distinct committees were formed. However, these committees are not “cast in concrete,” Shanaghan said. “We are willing to listen to all parties with a legitimate interest to gain the benefit of their expertise.”

The committees and their duties include:

• the Strategy Committee, which assesses the big picture related to small system technology and plans for future Initiative goals;

• the State Design Review Protocol Committee, which is charged to recommend a protocol that states can adopt for reviewing the “package-type” technologies that spring from the Initiative, thereby “breaking down the barriers that make it difficult to put these into practice,” Shanaghan said;

• the Cost Reporting Committee, which is working to develop a consistent format in which data can be collected and reported.

This latter committee’s work ties in to the NDWC’s Small Drinking Water Systems Database (SDWSD), which is “absolutely essential” to ensure that “information about these package plants is available to state design engineers,” Shanaghan said.

“There appear to be a number of package-type treatment systems that may offer meaningful cost savings to small communities,” Shanaghan said. However, “one of the biggest obstacles to widespread use of this technology is there has not been a readily available source of information about technology that has already been installed.”

By populating and maintaining the SDWSD, the NDWC hopes to work through the Initiative to fill this void. Information about package plants and other lower-cost drinking water treatment technologies is continually being collected. (To request an SDWSD questionnaire, call 1-800-624-8301.)

Overall, “the Initiative has been a remarkably successful cooperative effort between EPA, the states, and the equipment suppliers,” Shanaghan said. He urges small communities with treatment needs to “give consideration to some of these package treatment systems. Equipment suppliers are developing the capability to better serve small communities; so explore what they have to offer, and encourage your consulting engineer to explore these options and consider using them.”

Small System Monitoring Begins this Summer for the Lead and Copper Rule

Lead and Copper monitoring requirements are scheduled to begin in July for small systems serving less than 3,300 people. Current U.S. Environmental Protection Agency (EPA) figures show that this requirement will take effect for 78,225 systems, or about 90 percent of the nation’s total community water suppliers.

As with EPA’s large- and medium-sized systems, small systems must complete six months of monitoring before reporting the results to their state regulators. (See box on this page for small system sampling specifics.)

Large and medium systems should have completed monitoring and reported their sampling results by the end of 1992. In fact, says Environmental Protection Specialist Lonnie Finkel of EPA’s Office of Ground Water and Drinking Water, the agency has been carefully tracking these monitoring results. Thus far, he has seen a 13 percent non-compliance rate.

Information collected for the medium-sized systems is less complete. The data thus far reviewed from the second round of monitoring indicates that 71 percent of large systems and 58 percent of medium-sized systems have submitted monitoring results.

What sort of enforcement has occurred for those large systems that have not reported their results and are currently in non-compliance? Finkel explains that “with those large systems that did not send in their results—and these were mostly in California—we [EPA] just sent out administrative orders.”

One state drinking water administrator recently told On Tap that, ultimately, his state was anticipating a 30 percent non-compliance rate among small water systems. “We think that most of those systems who don’t monitor are probably going to be the ones who are too scared to do anything, so they’ll just be sitting on their hands.”

EPA officials are anticipating this sort of anxiety about monitoring, and in response, the agency has produced a number of informational materials for small water system personnel. Among the numerous resources available are small system monitoring guidance manuals, fact sheets, and manuals on public education requirements and corrosion control. (See back page for information about one such document.)

“If small systems have any questions at all,” says Finkel, “they can call EPA’s Safe Drinking Water Hotline, their regional EPA office, their state regulatory agency, or any number of other state or national assistance organizations. Don’t get confused, and then frustrated, and decide not to do the monitoring at all. There are lots of resources out there for you.”

Some of the organizations available to answer the questions about the Lead and Copper Rule are the national and state chapters of the Rural Water Association and the American Water Works Association. The National Drinking Water Clearinghouse is also equipped to answer questions and distribute information about this rule (see box below).

Finkel urges small system personnel to consider seeking out EPA offices for assistance. “Don’t be afraid to ask us for help because that’s what we’re here for. The Lead and Copper Rule is one of our highest priority drinking water rules right now, and we want to help systems comply as much as possible.”

For the telephone numbers of the organizations mentioned above, call the National Drinking Water Clearinghouse at (800) 624-8301.

<table>
<thead>
<tr>
<th>System Size (Population)</th>
<th>Samples Required</th>
<th>Sample Indicating 90th Percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>501 to 3,300</td>
<td>20</td>
<td>18th highest sample</td>
</tr>
<tr>
<td>101 to 500 ≤ 100</td>
<td>10</td>
<td>9th highest sample</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>average of 4th and 5th sample</td>
</tr>
</tbody>
</table>

Also listed is the “90th percentile” sample number that EPA will use to gauge your lead and copper levels. After operators list each sample’s lead or copper level on a chart, from lowest to highest, they should look at the following sample numbers to determine if the lead action level (0.015 mg/l) or copper action level (over 1.3 mg/l) has been exceeded.

For further details, call the NDWC at (800) 624-8301 and request a Lead and Copper Diagram (Item # DWBPRP10). This item is free; however, we ask that you complete a brief survey about the diagram when you receive it. The survey is postage-paid and will be included with each order.

Public Notification Requirements Are Criticized

No one can predict with certainty that the Safe Drinking Water Act (SDWA) will come up for reauthorization this year. However, there has been—and continues to be—a great deal of discussion about possible revisions to the act when reauthorization does occur. Included in those revisions will likely be changes to the public notification requirements.

According to investigators with the Government Accounting Office (GAO), EPA’s original intent with the public notification requirements was to warn the public of actual health hazards, educate consumers, and build local support for drinking water systems. However, the investigators found that the existing requirements have achieved limited success.

Their GAO report, published last year, contains numerous criticisms of the public notification program and will almost certainly be used by Congress to re-evaluate this portion of the SDWA. Entitled “Drinking Water: Consumers Often Not Well-Informed of Potentially Serious Violations,” the report states:

“...the efficacy and effectiveness of the notification requirements are in question. EPA’s own surveys indicate that only about 30 percent of consumers have heard of the requirements to notify them of treatment violations...
By now, almost everyone realizes that to get optimum performance from your filtration plant, it is necessary to do what are commonly known as “jar tests.” Good operators may make treatment adjustments as they notice changes in raw water quality or temperature, judging their results by the look of the floc in the clarifier or filter. However, to ensure maximum efficiency, you should at least conduct jar tests.

A jar test is simply a pilot-scale test of the treatment you are using in your plant, and is used to determine if you’re using the right amount of chemicals.

I can hear some of you saying, “But I don’t have all that fancy lab gear—or the time to use it.” However, jar testing need not be difficult or expensive, in time or equipment. You can get started with substitute or make-do equipment; then buy the proper laboratory equipment and supplies as the need arises or as funds are made available. One should always acknowledge that tests to control a process do not need to be as precise or follow the exact specification as analyses that are used to verify compliance with regulations.

For instance, I can look at a sample of water through a 24-inch-long tube and be reasonably certain that the sample is less than one Nephelometric Turbidity Units (NTUs), but, if it were possible, I would prefer to have a turbidimeter on my bench (at a cost of around $850) to be sure.

Why perform jar tests?

By performing jar tests, you can:

• try alternative treatment doses and strategies without altering the performance of the full-scale treatment plant, and
• easily compare the results of several different chemical treatments for time of formation, floc size, settleability, and perhaps filtration characteristics.

One cannot make such comparisons with the full plant’s treatment. Therefore, when the quality or temperature of your raw water changes, do a jar test before you change the chemical dosing pumps, and you will likely get the right results the first time: no turbidity breakthrough, no unusual bacterial counts, and no complaints from your customers.

Jar Testing: Getting started on a low budget

by David Pask
NDWC Technical Services Coordinator

How are they done?

Jar tests simply entail adding treatment chemicals in the right amounts and sequence to a sample of raw water, which is in a jar or beaker. The sample is then stirred, so that the formation, development, and settle-ment of floc can be watched, just as it would be in the full-scale treatment plant.

A series of tests are then performed to compare the effects of different amounts of flocculating agents at different pH values to achieve the right size floc for the requirements of your particular plant.

What equipment is needed?

The basic equipment requirements include:

a) a stirring apparatus for 2 to 6 jars or beakers;
b) a test kit or meter to measure pH and alkalinity;
c) stock solutions of treatment chemicals;
d) measuring cylinders and pipettes to measure raw water and chemicals;
e) a thermometer;
f) a clock or timer;
g) a measuring tape, calculator, and notebook (used to calculate, to record results, and for future reference). If you are using a new coagulant or filter aid, you will need either pre-weighed samples or a small chemical balance and weights to enable you to make up accurate solutions. Of course, if your system can afford one, a turbidimeter is another useful addition to your equipment supply.

A new six-gang stirrer will cost about $850, but one can perform useful work with two magnetic stirrers, which cost about $250. For occasional use, I have used two-gang stirrers made from workshop scraps, but for this article I made a set from parts available at national hardware

Continued on page 5
and electronics suppliers for a total cost of $25 (excluding labor). This handmade set of stirrers is shown in the photograph on page 4; a complete parts list is available by calling me at (800) 624-8301.

The only awkward part of building the stirrers is reaming out the fitting cross, so that it will slide easily onto the 3/4-inch pipe. To do this, I used a piece of hacksaw blade and set it into a slot that was cut in the end of a section of pipe (see graphic in Figure 1).

Also, the 1.5-volt motors are not really designed to operate at such a low speed; however, they will work if each is controlled with a 25 ohm, two watt, variable resistor. One alkaline “D” cell battery will provide at least 10 hours of continuous stirring. (Of course, using batteries will ease the minds of your safety and insurance officials, who prefer that you do not have any non-certified mains voltage equipment around the plant.)

There also are practical alternatives to using standard laboratory equipment for some measurements. I particularly recommend using plastic disposable medical syringes (without the needles), instead of pipettes. The syringes are accurate enough, and if you have one for each chemical, they can be preloaded for rapid dosing into the jar. I have found the 3-milliliter (ml) and 20-ml size syringes to be suitable (1 ml = 1 cc).

The “square” mason jar has advantages over the standard laboratory beaker when used for flocculation testing. With the mason jar, the turbulence is increased and the overall rate of rotation is reduced, making observation easier.

I still use a readjusted cheap jewelry balance (which costs about $20) with a set of lab weights (about $25) for reagents. A basic laboratory balance weighing to 0.01 gram can be obtained for about $100.

I have a 50-ml lab cylinder, but also use a 500-ml kitchen measuring jug (which I calibrated at 502 ml). These substitutes are about as accurate as your supply meter and should not, therefore, provide misleading results.

What is the proper procedure?

Unless this is the start-up of a new plant, you will already have the chemical dosing rates that provide acceptable treatment results. Our objective with jar testing is to tune the plant for optimum performance; that

Continued on page 6

**Jar Test Calculations**

The following are part of the calculations to set up a plant treating a high color (130), low turbidity, low alkalinity, peaty moorland water. When I conducted the test, the water temperature was 6 degrees C.

**Bench solutions**

a) Alum 1%—dissolve 1 gm in 100 ml water  
b) Soda Ash 1%—dissolve 1 gm in 100 ml water  
c) Polyelectrolyte 0.01%—10 mg in 100 ml water

**Jar test #1**

Try 50 parts per million (ppm) alum, 20 ppm soda ash, and 0.5 ppm poly. in 500 ml raw water (= 500 grams [gm])

Amount of dry alum required = 500 x 50/1,000,000 = 0.025 gm  
Amount of 1% solution required = 0.025 x 100/1 = 2.5 gm = 2.5 ml  
Amount of dry soda ash required = 500 x 20/1,000,000 = 0.01 gm  
Amount of 1% solution required = 0.01 x 100/1 = 1.0 ml  
Amount of poly. required = 500 x 0.5/1,000,000 = 0.00025 gm  
Amount of poly. solution required = 0.00025 x 100/1 = 2.5 ml  

After the chemicals were added, the pH was measured at 5.2.

**Jar test #2**

This was run at the same time as jar test 1, with doses of 50 ppm alum, 30 ppm soda ash, and 0.5 ppm poly., resulting in a pH of 5.6.

**Procedure**

After stirring both jars at a brisk rate for two minutes, the speed was reduced to a slow rate, approximating the turbulence in the plant flocculator (approximately 2 rotations per second, or 120 rotations per minute [rpm], in the stirrer shown in the photo on page 4). This was watched for 20 minutes.

At 15 minutes, a pinhead-sized floc appeared in jar #1 and built up to 3 mm floc size at 20 min. Almost no floc showed in jar #2, as the pH was too high. Stopping the stirrer, the floc in jar #1 settled reasonably quickly, leaving a clear, colorless supernatant water at the top.

Using this result as a guide, two further jar tests were conducted, which established that good treatment would be obtained with doses of 45 ppm alum, 18 ppm soda ash, and 0.4 ppm polyelectrolyte, with the pH still at 5.2. Reducing the alum further began to leave a trace of color in the water.

These results would then be translated to settings on the dosing pumps, using tables in the plant’s operation manual, which are provided by the manufacturer. Without such tables, the process is a careful slog through calculations that involve simple proportions. Make sure you have the fractions the right way round! If the results don’t match previous figures at all, be suspicious and check again. Table 1 shows the most used conversion factors.

Floculation of acid-colored waters is usually achieved only at a pH range of 5.0 to 5.5 and is difficult when the temperature drops close to freezing. Settling and filtration is also affected, as the viscosity is approximately 50 percent greater than at 70 degrees F.

The dose of coagulant required is generally in proportion to the color, hence the rather high dose rate of alum (45 ppm) shown in the example above. The coagulation of more neutral but turbid waters can be achieved with lower doses of alum, and requires a pH value between 6.0 and 7.5.

**Table 1. Conversions**

<table>
<thead>
<tr>
<th>Conversion</th>
<th>Value</th>
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<tbody>
<tr>
<td>1 U.S. gallon</td>
<td>3.785 liters (l)</td>
</tr>
<tr>
<td>1 pint</td>
<td>0.4732 liters (l)</td>
</tr>
<tr>
<td>1 grain</td>
<td>0.6479 milligrams (mg)</td>
</tr>
<tr>
<td>1 grain per gallon</td>
<td>17.12 parts per million (ppm)</td>
</tr>
<tr>
<td>1 pound</td>
<td>0.4536 kilograms (kg)</td>
</tr>
<tr>
<td>1 foot</td>
<td>0.3048 meters (m)</td>
</tr>
<tr>
<td>1 cubic foot</td>
<td>28.32 liters (l)</td>
</tr>
<tr>
<td>1 day</td>
<td>1,440 minutes (min.)</td>
</tr>
</tbody>
</table>
Jar Testing: Getting started on a low budget

Continued from page 5

is, for the longest possible filter runs with the least usage of chemicals to provide consistent, good quality water that is within required standards.

Before you begin jar testing, however, take an hour or two to check all of your equipment.

• Is the inlet flow meter accurate?

Shut off your supply pumps and measure the rise in level of your clear well against the readings of the meter.

• Shut off the filters and do the same test on the supply pumps.

• Check that the chemical dosing pumps are delivering the correct rate by measuring the rate of fall in the daily supply tanks.

• Check that there is no accumulation of solids in the settling tanks and that the filter sand is clear of any “mudballing” and is properly graded and up to level.

• Check also that the backwash pumps are operating at the set flow rate by timing the rise in level at the start of the backwash cycle.

• Correct, or at least make a note of, any deficiencies.

The most awkward part of your jar tests will be the calculations to determine the correct amount of chemicals to add to the raw water in your jar. I find this much easier if you work in metric (SI) units, and then convert back to your own equipment units to transfer your results into practice. See the examples listed in the box on page 5.

What now?

This article only “scratches the surface” of the chemical treatment process for flocculation and filtration. Much more can be learned from a good manual and from the training sessions conducted by your local Rural Water Association and American Water Works Association. (For these organizations’ telephone numbers, call 1-800-624-8301.)

What I have tried to illustrate is that you can achieve useful results with a modest outlay of time and money. The improvement in your plant performance may then help to persuade your manager or community to invest in better laboratory equipment, which you will undoubtedly need in the future.

Public Notification Requirements Are Criticized

Continued from page 3

Investigators audited 28 public water systems in six states for nearly two years. During that time, they looked at 157 violations requiring public notification. Of those 157, only 17 violations were followed up with proper public notification within the required time frame. A full 63 percent of the total violations were never reported through public notice, even though a majority of violations (118) posed serious long-term health risks to the public.

“... is a major contributor to std. non-compliance,” states the GAO report, “... is a serious shortage of resources in the drinking water program.” Investigators found that because enforcement funds are so limited, state regulators and EPA officials have made the decision to primarily deal with “significant non-compliers” and serious contamination problems. Regulators told the GAO that they felt enforcing individual public notice violations inevitably turns out to be a low priority. Investigators also found that “EPA does not specifically require public notification compliance information from the states.”

Regulations Hard to Implement

Even if enforcement funding were adequate, there are other negative aspects to the public notification regulations. “A large part of the problem,” emphasizes the GAO, “lies with the regulations themselves, which many operators—particularly those of small systems—have found difficult to understand and implement.”

Operators in the study told the GAO that often they don’t know what they are required to put in their notices. Plus, the sample mandatory language offered by EPA is difficult to understand. GAO rated portions of this language as being at the college reading level, though EPA requires notices be written at an eighth-grade reading level. Even when notices are properly issued when a violation occurs, the report suggested that consumers would find the required language and mandatory statements too technical to understand.

Lastly, the GAO investigators said that the requirements to issue notices to various media sources—according to the severity of the violation—was too rigid. For example, issuing notices via radio or television within 72 hours of a “Tier 1, acute health risk” violation is impractical and ineffective in many small communities, where there may not even be a local radio or television station. Hand delivery and posting of such notices would be more successful in alerting those communities to a drinking water health threat, says the report.

Others Call for Change

One organization promoting changes to the SDWA’s public notification requirement is the American Water Works Association (AWWA). Explains AWWA Legislative Programs Manager Tommy Holmes, “The key word in our public notice recommendations to Congress is ‘flexibility.’ There is no flexibility for local circumstances. These regulations are unnecessarily restrictive and undermine the public confidence in the notification process. And the public must be able to trust and understand the notices.”

In discussions with both regulators and water system operators, the GAO investigators came to the same conclusion. There was also, they concluded, a “strong consensus that the public notification process would be more effective in informing the public—and easier to implement by the water systems—if it focused more on serious violations.”

To obtain a free copy of this GAO report, call (202) 512-6000, and ask for document # GAO/RCED-92-135.
“Consider Alternative Approaches”
A Talk with EPA’s Small Systems Coordinator about Restructuring

This past winter, the U.S. Environmental Protection Agency (EPA) created a new position to specifically deal with the challenges that small drinking water systems will face in the coming years: the Office of Ground Water and Drinking Water’s (OGWDW) small systems coordinator. Peter Shanaghan, formerly the chief of the OGWDW Mobilization and Training Section, was appointed to this post. (See accompanying article.)

Shanaghan recently took time out to talk with NDWC Staff Writer Beth Calahpe about an issue that is on the minds of many people involved in the drinking water field: the role restructuring will take in the future of small community drinking water systems. What follows are highlights of that conversation, with Ms. Calahpe’s questions (in bold), followed by Mr. Shanaghan’s replies.

How does EPA define restructuring, and does it primarily refer to regionalization?

While the term is new, the concept of “restructuring” is time tested, and it’s been happening more than many would realize over the last 10 years. Restructuring is really a broad array of approaches that small systems can take that involve cooperation or collaboration among a group of systems. [See box on next page.]

On the one hand, there’s the softer approach of a simple cooperative arrangement, where a group of systems purchase chemicals or equipment together. At the other extreme, there’s actual consolidation of several systems either physically or by a common management agreement. And, of course, there are lots of different shades of restructuring that you can identify in between these two.

Many small communities and systems owners are dead-set against losing local control of their water utility. How do you respond to this concern, and do you see this as a serious barrier?

I know this whole concept is tied up with issues of local control, but I’m encouraged at how often restructuring is taking place anyway. It appears to be a much more common occurrence than I’d have imagined even a few years ago. Once small systems understand the specific health benefits of the regulations and what their options are to be able to provide that service, they’re more open to it.

When many of these systems were first established at the turn of the century, it took lots of cooperation to make them happen. In some ways, what they face now requires an approach similar to this long tradition in small communities; pulling together and working cooperatively.

Is EPA going to actively promote restructuring, and what are the barriers to attempting such an endeavor?

Restructuring is very high on our list. I’d be the first to acknowledge that restructuring is not a panacea; it’s not a remedy for all the problems small systems face. But when everyone evaluates what they have to do [to comply with the Safe Drinking Water Act regulations], they’ll probably realize that restructuring will look more and more like the way to go.

My own perceptions—from talking to people out in the field, at state agencies, and with the technical assistance providers—are that over the last 10 plus years, restructuring has been occurring where people have understood its economic benefit. I believe that there are many other systems which could benefit from restructuring. People’s concerns about losing local control over their water system is probably one of the major barriers to restructuring. Another major barrier involves the lack of incentives available to viable systems to take on troubled systems through consolidation. There are other barriers and procedural things that need to be removed, such as how a system is regulated by a state public utility commission. Out West you also have major questions about water rights. I do think these have been real barriers in preventing some restructuring from taking place, and EPA, the states, and water systems will need to work together to overcome these barriers.

I think, too, that a general issue for all technical assistance providers—be they state regulators, third party groups, or whoever—is how much technical assistance a system should receive. Continually propping up a system that just can’t sustain compliance in the long term doesn’t seem like a realistic option.

Continued on page 8

Plans to create the small systems coordinator position were announced last fall by Jim Elder, director of OGWDW, at the first National Small Systems Assistance and Training Coordination Conference. Five major areas of emphasis are encompassed within the position, Shanaghan said. These areas include:

1. assisting with the development of the State Revolving Fund (SRF) for drinking water;
2. providing a liaison with the U.S. Department of Agriculture’s Rural Development Administration;
3. leading the development of an office-wide small systems strategy within EPA’s OGWDW;
4. helping to coordinate the Small Systems Technology Initiative (see related article on page 2); and
5. advocating small system concerns with respect to small system development and Safe Drinking Water Act reauthorization.

In the coming months, Shanaghan plans to attend a number of conferences and meetings to discuss small drinking water system issues with the various people and groups interested in addressing them. He said, “I am anxious to work very closely and cooperatively with all interested parties and to hear people’s thoughts about those efforts showing the greatest promise for helping small systems comply [with regulations].”

EPA Appoints Small Systems Coordinator

The U.S. Environmental Protection Agency (EPA) has appointed a full-time small systems coordinator to help address the problems faced by small drinking water systems.

Peter Shanaghan, former chief of the EPA Office of Ground Water and Drinking Water’s (OGWDW) Mobilization and Training Section, began his duties as small systems coordinator on April 5.

Continued on page 8
“Consider Alternative Approaches”

Continued from page 7

a wise use of resources. It might be better to offer technical assistance to help a system restructure, so that it can fully benefit from subsequent training and technical assistance.

Are there some types of small systems that EPA is targeting more than others?

There are lots of different types of small systems, and we have to understand these issues of restructuring in the context of this diversity. We don’t just have traditional small systems in established rural communities.

We’ve got to distinguish between these kinds of systems and the kind of fly-by-night systems put in during recent periods of rapid development. Many housing developments were inadequately set up around a single well system the developer put in. These systems are now in the hands of homeowner associations, and they, along with mobile home parks (which, incidentally, account for 25 percent of all small systems), have their own distinct problems.

In every type of small system category, you’ll probably find some viable water systems. You will also find some systems having real problems. With many of these problem systems, restructuring is the obvious solution.

To that end, do you foresee most state regulatory agencies following the lead of Pennsylvania, Washington, and Connecticut, and enacting some sort of mandatory take-over laws?

Yes. I believe you’ll see more and more of that. I’d hasten to say that it’s important for recalcitrant systems (that know they have a bad situation but refuse to do anything about it) to just know that a state has this authority.

The intention of the states currently having or developing take-over laws is not to order the wholesale consolidation of small systems. Most states prefer to offer incentives to encourage restructuring to happen.

But incentives won’t always work and the state needs some authority to force problem systems to clean up their act. Take-over authority is expensive and time consuming to exercise, and it’s not something you would want to use a lot. But you’re always going to have the need for some fall-back authority. If a problem system knows that this is a possibility, they’re more willing to cooperate.

Many small systems simply don’t have the knowledge or resources to find out if restructuring is a good option for them. Where do they start and what resources can they turn to for help?

I would plead with systems to look, first, to their states for possible assistance. My experience has been

Continued on page 9

<table>
<thead>
<tr>
<th>Option</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperative Arrangements</td>
<td>No loss of local control; increases economies of scale; easily set up and structured to accommodate needs and interests of systems involved.</td>
<td>A limited solution; takes coordination; communities may have historical antagonisms toward one another.</td>
</tr>
<tr>
<td>Contract Operation and Management</td>
<td>Increases economies of scale; allows for local control; increases level of technical expertise; allows for flexibility of service.</td>
<td>May be expensive; cannot remedy severe system problems; availability of service companies varies.</td>
</tr>
<tr>
<td>Contract Operation and Management with Capital Infusion</td>
<td>Solves more severe system problems; increases access to capital; allows for some local control.</td>
<td>May be expensive; availability of service companies varies.</td>
</tr>
<tr>
<td>Satellite Management</td>
<td>Increases economies of scale; allows for some local control; increases level of technical expertise; allows for flexibility of services.</td>
<td>May be expensive; may not remedy severe system problems; availability of service companies varies; community may bear loss of control.</td>
</tr>
<tr>
<td>Public Mergers or Acquisitions</td>
<td>Increases economies of scale; increases level of technical expertise; solves more severe system problems; increases access to capital; may increase eligibility for public funding; reduces size of regulated community.</td>
<td>Loss of local control; new system formation can be complex; financial disincentives may deter; existing franchises and service areas may impede; compensation for acquisitions may be inadequate.</td>
</tr>
<tr>
<td>Private Mergers or Acquisitions</td>
<td>Increases economies of scale; solves more severe system problems; increases access to capital; reduces size of regulated community; increases level of technical expertise.</td>
<td>Ineligible for public funding; loss of local control; financial disincentives may deter; existing franchises and service areas may impede; compensation for acquisitions may be inadequate; new system formation can be complex.</td>
</tr>
</tbody>
</table>

Source: U.S. Environmental Protection Agency
Continued from page 8

that states are anxious to work with systems because they really want to get their systems into compliance. And a small system could find a lot of support from their state regulators. You’ll find, in many states, that they have several options and programs that might be helpful for a small system.

I’d also recommend that small systems seek advice from any of the technical assistance providers out there [i.e., Rural Community Assistance Program, National Rural Water Association, American Water Works Association, and the National Drinking Water Clearinghouse].

Both the states and technical assistance providers can show a system its options and identify sources for possible funding. EPA promotes a close relationship between the states, technical assistance providers, and other federal funding agencies like RDA [Rural Development Administration].

The next step is to conduct a feasibility study, which is a formal study of what might be the best restructuring option for that system to pursue.

Are there funds out there to help a small system pay for a feasibility study?

First off, I doubt that a small system will get one of these studies done for free. A significant barrier to restructuring is a lack of available funding for feasibility studies. This is a major obstacle, too, because you need these studies done up front.

State drinking water programs and technical assistance providers can help systems identify sources of assistance. Some states offer assistance for systems to conduct these studies. Depending on the specifics of the case, Rural Development Administration or Community Development Block Grant funding may be available to help.

How long might the typical restructuring effort take?

It will depend a lot on what resources a community has available. If they can pull together their own resources, maybe they can identify sources of funding through the RDA or from the yet-to-be-created drinking water revolving loan program. If a community goes to a self-help group, [see cover story on STEP] clearly this will take a lot of effort.

I would counsel people that they need to be patient, to persevere. Restructuring certainly takes time, but it need not take forever. If that community is committed to change, it doesn’t have to drag on for years and years.

Once a community is behind the idea, we are a resourceful people. We find ways to get things done. However, the biggest challenge is developing the consensus about what needs to be done. There’s no single answer in doing this, but you have to educate your community—through town meetings, task forces, or whatever else works.

Once several systems get together and decide how they’ll work together, then they may recognize they’ll need additional treatment technologies. That’s where EPA will bring in our Small Systems Technology Initiative. [See article on page 2.] They’ll continue to need technical assistance, too, and we will endeavor to offer this in ways that will most benefit them.

What will the status of small water systems be in the future?

I’d say we’ll see a lot fewer separate systems than now, but we’ll still see a lot of diversity, lots of different kinds of water systems. There will be a lot more cooperatives, a lot more satellite management, much more contracting of operation and management services. And as a result, customers will be provided with the kind of health protection they deserve.

Certainly, people are going to be paying more for drinking water than they are today. And an important point for small system decision makers to keep in mind is how they’re going to present these costs to their communities.

An important point to note is that a substantial part of increases in water bills will be because small water systems, as a whole, haven’t kept on top of their maintenance. The installation of treatment systems is going to reveal a lot of problems with infrastructure: leaky pipes, leaky storage tanks, etc.

Years ago, the drinking water system was out of sight and out of mind for most communities. Nobody noticed that their system was deteriorating. But that can’t be the case anymore.

What key point would you stress to small systems about the issue of restructuring?

I want to stress that there are a lot of options available for small water systems. Try and avoid the knee-jerk reaction to the restructuring concept and be willing to consider alternative approaches. You owe it to yourselves and your customers to think through the possibilities.
What Is STEP? The Self-Help Program at a Glance

This is accomplished by providing communities with an outline to follow, which encourages them to use what resources are already on hand, including volunteer labor and municipal work forces. Also important to the program are innovative approaches to cost-cutting and a focus on simpler equipment and treatment technologies. Presently, STEP is involved in a number of demonstration projects in the states mentioned above, and will consider working with a community if it meets these guidelines:

1. There is support from state decision makers and key staff in the agencies involved.
2. There are clear signs of “community capacity,” such as:
   • “Spark plugs” (or leadership) present in the community
   • Success in previous community involvement projects
   • Unified community atmosphere
   • Residents with the specific skills for the job
3. There are signs of community readiness, such as:
   • Consensus on the problem and the need to solve it
   • Conviction that self-help is the best solution
   • Confidence that local residents can get the job done
   • Support for the project from local government
   • No other competing community issues

For further information about STEP, or to purchase a copy of the Self-Help Handbook, call the Rensselaerville Institute at (518) 797-3783.

Self-Help Methods and a Regional Approach

Continued from page 1

That program, the Small Towns Environment Program (STEP) located in upstate New York, had already been invited by the state of North Carolina to assist with the establishment of a self-help initiative there. STEP promotes the self-help approach to water and wastewater challenges through a partnership of the non-profit Rensselaerville Institute, which operates the program; the Environmental Protection Agency; and the Ford Foundation.

Basically, STEP works with cooperating states throughout the country to, as one of its publications states, help small communities “achieve compliance with health standards...with more initiative and less money.”

STEP’s staff encouraged the Connelly Springs group to re-think how they might come up with matching funds for a grant. Ultimately, by offering their community’s volunteer, “in-kind” labor to install water lines, the community was able to save $67,000 in contracting costs. That agreement, along with a $60,000 low-interest STEP loan (which are awarded to demonstration communities in targeted states), has helped Connelly Springs receive a $200,000 Appalachian Regional Commission grant.

The community now maintains four core committees, which includes volunteer groups in charge of construction, utilities, purchasing, and meters. Of these volunteer groups, Holshouser says, “We’re trying to keep things rolling, but keep them low-key at the same time. We don’t want to put too much pressure on anybody to make it uncomfortable.”

Now, when weather permits, volunteer work crews are out routinely laying water lines. “We are people who work in the mills through the week, and on Saturdays, we dig,” says Holshouser.

To that end, they have one backhoe and assorted equipment from the area’s farms. “We’re not professionals,” Holshouser explains, “but we’re trying to do the best job possible. Our goal is to do 500 feet a day.” That goal doesn’t include the difficult stretches under the two railroad lines and interstate highway. For these areas, the community decided to hire contractors, as the requirements were too complex for volunteers to attempt.

However, the construction volunteers are a dedicated group: “We’ll jump on it at 7 a.m. and wind down around 3:30 p.m. Then there’s still the clean-up and equipment maintenance to do. It’s a hard day’s work. We’ve been fighting it all winter, though. Haven’t worked a Saturday since February 6th because of bad weather. It’s slow, but when you’re volunteering, you don’t push. We’ve been waiting 25 years for water—no sense to rush now.”

Partnerships, Cooperation

Turning to an outside source for assistance in operating and maintaining their future water system was something the citizens of Connelly Springs knew they would need to pursue from the start. “But they needed a system, first, just to get water for the community,” says Chris Conway, a senior associate for STEP. “They were certainly aware, too, of what the environmental regulations would mean for their community,” explains Conway. In short, the community knew that they had to pursue some sort of consolidation or contractual option.

Conway explains that the STEP program also seeks to promote some of the simpler restructuring solutions. “Cooperative agreements, satellite management— these approaches can help small communities retain local control,” says Conway. “And frankly, there are many situations where it’s impossible, or undesirable, to regionalize water systems, such as with geographic or topographic problems. So we promote partnerships and ways that communities can cooperate with one another.”

Continued on page 11
Continued from page 10

The best, most reliable, source of plentiful water for Connelly Springs was the Catawba River, some 10 miles north of the community. The Icard Township Water Corporation (a non-profit, member-owned water system of some 1,400 service connections) used the river as its water source and already served the eastern half of Burke County. Connelly Springs is located in central Burke County. Icard purchases its water from the town of Valdese, which has a treatment plant located along the Catawba.

When the residents of Connelly Springs approached Icard about hooking up to their system, Icard agreed. Arrangements were made whereby all new household hookups will pay a one-time membership fee to Icard. These households will then be considered as members of the Icard system.

However, the Connelly Springs committees were more comfortable with retaining ownership of their distribution system. By signing a 20-year contract with Icard, they are still assured that Icard will be responsible for maintenance of the lines, billings, and all collection responsibilities. Additionally, Icard will add a five dollar surcharge to the bills of all Connelly Springs customers. This money will go back into the Connelly Springs municipal fund to help with future expansion of the system.

“We knew we needed help maintaining the line, doing billings, and making sure the water was safe,” says Holshouser. “Our town has a real low tax base. As it is, we have only one employee, and she’s just part time.”

Ultimately, the residents of Connelly Springs felt comfortable working with their neighboring water system. “Icard’s a cooperative that comes within one or two miles of us,” explains Holshouser. “Their whole intent is to get water out to the surrounding communities. It was just natural to turn to them to help us with our system.”

Bottled Water Monitoring, Labeling

Continued from page 1

Following this, a Congressional investigation was conducted by the General Accounting Office (GAO) to examine both the industry and FDA’s role in its oversight. The final GAO report stated the FDA had “repeatedly failed to set adequate safety standards for chemical contamination of bottled water and had neglected any responsibility for bottled-water testing.” A congressional hearing followed, and observers agreed that had FDA not acted, Congress would have stepped in with their own legislation.

In most cases, the new FDA proposed standards will be at the same levels, as those currently required by EPA for tap water. The exception will be for lead, where allowable lead content of bottled water may not go over 5 parts per billion (ppb). EPA limits lead to 15 ppb.

Still, spokespersons for both FDA and the bottled water industry maintain that bottled water has always been a safe product. William F. Deal, former chief executive officer of the International Bottled Water Association—a trade group representing 85 percent of the commercial water sold in the U.S.—has stated that bottled water is safer than tap water. During the 1991 to 1992 GAO investigation, Deal told the Washington Post, “There have been no reported illnesses in the U.S. due to the ingestion of bottled water for the past five years.”

Even critics of the industry agree. Claudia Bevil, who served as special assistant to Rep. Dingell’s congressional subcommittee, explained to a Times reporter that bottled water safety was “not a big concern,” but that these new FDA rules will clean up a lot of the misleading labeling messages and lack of information about the sodium content of bottled water. “If consumers are paying extraordinary amounts of money for these bottled waters,” she said, “they should at least be educated about what’s in them.”

FDA’s standards will enable consumers to do just that. New requirements will establish clear definitions for distilled, mineral, artesian, purified, well, and spring water. Until now, those definitions varied from state to state. Non-mineral carbonated waters, such as soda, seltzer, or tonic water, will not be covered under these rules.

Requirements in packaging definitions will also extend to brand names and any images depicted on the labels. For example, a product that doesn’t meet the definition for spring water, but whose name contains those words, will no longer be allowed to advertise as such unless “there is an appropriate qualifying statement that makes clear that the product is not spring water.”

Of special interest to the drinking water community: The new rules also require that, except for purified water and distilled water, “any bottled water from a municipal supply have to declare that source on the label following the name in letters at least one-half as large as the brand name,” states the Times. Estimates vary, but it is generally agreed that at least 25 percent of bottled water comes from municipal water supplies.

Nutritional information must also be listed on packaging if there is a claim on the label, such as “sodium free.” Likewise, mineral water will be defined as water with “at least 250 parts per million of total dissolved solids.” Mineral water must also now come from a protected underground water source. Additionally, bottled water that has been labeled for infant use must clearly state whether or not it has been sterilized.

Under a different set of rules recently finalized—the Nutritional Labeling and Education Regulations—nutrients that occur in “significant amounts” (such as calcium, iron, or sodium) will be required information on bottled water labels after May 8, 1994.

While the “regulations would not increase the FDA’s monitoring of bottled water,” reports the Times, FDA officials “expect the states to be more aggressive in enforcement, because they will have uniform regulations to deal with.”

For more information about bottled water, order the free brochure described on the back page or contact the International Bottled Water Association at (703) 683-5213.

Planning for the Future

Phase one of the Connelly Springs water project is to connect just over 100 homes to the system, and this is nearly completed. These initial homes should have water by fall.

“We have half those taps paid for already,” says Holshouser, and residents are eager to have the water lines in place. But this won’t be the end of the project. Organizers hope to begin work on the next round of hookups right away. The core committees are currently looking into the possibilities for funding this second phase of the project.

Although the project is not finished, Holshouser says, “Overall, I feel good about it. There should be more of this going on around the country. If folks would work together, be good neighbors, they can solve anything. It just takes patience and time. Of course, time is one thing we’ve got plenty of!”

ON TAP
CSUS Offers Water System Correspondence Courses

Four water system correspondence courses are being offered by California State University—Sacramento (CSUS).

Water Treatment Plant Operation, I and II; Small Water System Operation and Maintenance; and Water Distribution System Operation and Maintenance are the names of the drinking water courses available. Several wastewater treatment correspondence courses also are being offered.

Developed for the U.S. Environmental Protection Agency, these home-study training programs are administered and monitored by CSUS, which is fully accredited by the Western Association of Schools and Colleges. Students progress at their own pace and send computer answer sheets to CSUS for grading and remarks. According to the university’s literature, most students require from 50 to 150 hours of study to complete each course.

Students who successfully complete a course receive a certificate of completion. Continuing education units (CEUs) and undergraduate college credit also may be earned.

Each drinking water course and its respective manual totals $50 to $60. For more information, contact the CSUS Office of Water Programs at (916) 278-6142.

Culligan Offers Free Small Water Systems Video

A free informational video that describes Culligan International Company’s small water treatment systems is now being offered.

Compared to conventional systems, Culligan’s systems for small communities are low-cost and are capable of solving such common surface and ground water problems as turbidity, iron, manganese, odor, taste and color, says a release issued by the company. The pre-engineered, compact equipment also requires comparatively low maintenance.

Culligan International Company designs and manufacturers filtering, softening, reverse osmosis, and ion-exchange equipment for residential, commercial, industrial, and municipal customers. It serves its customers through a network of more than 1,350 independently operated dealerships and licensees in 92 countries.

For a copy of the video, call (800) 451-3260.

NATaT Produces Drinking Water Guidebook for Local Officials

A new guidebook for local officials provides information for keeping small communities’ drinking water affordable and safe.

Produced by the National Association of Towns and Townships (NATaT), Tapping Your Own Resources: a decision-maker’s guide for small town drinking water is aimed at managers of small and very small drinking water systems, whether they are elected officials or volunteers on community boards.

The guidebook provides “simple, straightforward management techniques that will help communities avoid many problems that small systems commonly experience,” said Ronnie Kweller, NATaT’s director of publications and media relations.

The book also clarifies local officials’ responsibilities under the Safe Drinking Water Act; describes logical decisions regarding drinking water technology, finances, and management; outlines ways to gain community support for higher water rates; and tells town and township officials how to obtain no-cost and low-cost assistance, grants, and loans. The appendices provide names, addresses, and telephone numbers of federal and state agencies and organizations that can provide assistance.

NATaT is a nonprofit membership organization that offers technical assistance, educational services, and public policy support to local government officials from more than 13,000 small communities across the country. Through its National Center for Small Communities, the association conducts research and develops public policy recommendations to help improve the quality of life for rural people.

Tapping Your Own Resources is available to NATaT members for $7.95; others may order it for $14.95. Discounts are given for orders of five or more. To order the guidebook, or for more information about NATaT, write, call, or send a fax to: NATaT, 1522 K St., N.W., Suite 600, Washington, DC 20005; telephone (202) 737-5200; fax (202) 289-7996.

AWWA Operates Toll-free Small Systems “Help Line”

A toll-free technical assistance “help line” for small water systems is being offered by the American Water Works Association (AWWA).

Intended for systems serving 1,000 connections or less—or fewer than 3,300 people—the service is aimed at increasing small system viability and compliance, according to Dallas Post, AWWA small systems project coordinator.

A three-member staff, who possess more than 50 years combined experience in the operation and management of small water systems, answer the calls from 8:00 a.m. to 4:00 p.m., Mountain Standard Time.

After hours or when the line is busy, callers may leave their names, telephone numbers, and messages on voice mail, and calls will be returned as soon as possible, Post said. When necessary, callers may be referred to local resources for additional assistance.

Callers need not be AWWA members to use this service. To access the help line, call (800) 366-0107.

ON TAP
Glossary, “Bloopers” Can Help Educate Consumers

We hope that the recent occurrence of Drinking Water Week (May 2–8) has resulted in a heightened awareness of and curiosity about community drinking water issues. However, don’t wait until next year’s Drinking Water Week to build on this awareness. Continue to inform and instruct your community. By doing so, you can help gain support for your community water system and help guard against future water pollution.

To assist in your educational efforts, we have included the glossary below, along with some educational—

“Blue Thumb Bloopers: Embarrassing moments in the life of a water drinker” (at right). These “bloopers” were prepared and distributed by the American Water Works Association.

For more educational information, order the “Blue Thumb Basics” brochure. It lists more than 50 additional ways to conserve and protect your drinking water. To order, send a self-addressed, stamped envelope to “Blue Thumb Basics,” Public Information Department, American Water Works Association, 6666 W. Quincy Ave., Denver, CO 80235.

**DRINKING WATER GLOSSARY**

- **Very Small Water System**—generally defined as a drinking water system that serves less than 500 people.
- **Small Water System**—a drinking water system that serves less than 3,300 people.
- **Medium-sized Water System**—a drinking water system that serves 3,301 to 10,000 people.
- **Large Water System**—a drinking water system that serves more than 10,000 people.
- **Corrosion**—a dissolving and wearing away of metal caused by a chemical reaction.
- **Corrosion Control Treatment**—treatment that minimizes the breaking down of lead and/or copper during water delivery to consumers.
- **Microbes**—microorganisms, which are too small to be seen without a microscope, such as bacteria, protozoa, and viruses.
- **Pathogens**—disease-causing agents, such as the microbe salmonella.
- **Disinfection**—a process that kills or disables pathogens in water, usually through the use of chemicals and sometimes with ultraviolet light.
- **Disinfection Byproducts**—contaminants, including trihalomethanes (THMs), that are formed when a disinfectant is added to water that contains organic matter, such as decaying plant or animal materials.
- **Turbidity**—a measure of the cloudiness of water, caused by suspended material. It can interfere with disinfection by shielding microorganisms. Excessive turbidity can allow live pathogens to enter the system.
- **Filtration**—passing water through beds of granular material, such as sand, to remove a substantial amount of solids, including many microbes. Filters remove solids and large organisms that might interfere with the disinfection process.
- **Chemical Pretreatment**—a process that relies on alum or other chemicals to form clumps of impurities, or “floc.” Most of the floc settles out of the water; what remains can be removed through filtration.
- **Sedimentation**—the process of letting heavy particles in raw water settle out into holding ponds or basins before filtration.
- **Radioisotopes**—radioactive chemicals that usually occur naturally, such as radium. Man-made radionuclides may also contaminate water supplies, as a result of fallout from the use of nuclear weapons or accidental discharge from nuclear power plants.
- **Inorganic Chemicals**—contaminants that may occur naturally in the earth or are caused by mining, industry, or agriculture. Examples include arsenic, barium, fluoride, mercury, nitrate, and selenium.
- **Synthetic Organic Chemicals**—man-made, carbon-contain- ing chemicals, such as pesticides and herbicides.
- **Volatile Organic Chemicals**—organic contaminants that readily volatilize, or travel from the water into the air. Most are industrial chemicals and solvents.

These are sometimes referred to as compounds, rather than chemicals.

**Tossing toxics in the trash.**

Consider batteries, which are a common throw-away. They contain lead and mercury. Some ordinary household cleaners have other poisons that contaminate water. Here’s a tip: drop them off at a special collection site.

**Watering your lawn at high noon.**

Caught with your sprinkler on? The hot sun will evaporate the water your lawn needs. It’s better to water early in the day.

**Slipping used motor oil into a storm sewer or burying it in the trash.**

Oil can leach into lakes, rivers, and wells. Just one pint can expand over an acre of water. Take your used oil to a recycling center.

**Taking a shortcut and using the hot water tap when cooking.**

That’s taboo, and it can short-cut your health. Lead can dissolve into hot water from lead pipes and solder. Cold water is better. Heat it on the stove when cooking or making baby formula.

**Using electricity as if it didn’t affect water.**

It’s time to shed some light on this. It takes more than 130 billion gallons of water a day to generate electricity in the U.S. Conserving energy is conserving water.

**Thinking you can’t make a difference.**

It’s never a bloop to take a stand for clean water through your actions and your words. Put your Blue Thumb knowledge to work and give drinking water a hand every day.
### ON TAP

**CALENDAR OF EVENTS**

If your organization is planning a conference, workshop, exhibit, or seminar that is relevant to the people who work with small water systems, please send information about the event to NDWC Editor at the address listed in the staffbox on page 2.

<table>
<thead>
<tr>
<th>EVENT</th>
<th>DATE &amp; LOCATION</th>
<th>CONTACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>15th Annual AWWA Basic Water Utility Management Institute</td>
<td>May 9–14: Blacksburg, Virginia</td>
<td>(703) 231-5182 Presented by Virginia Polytechnic Institute’s Management Development Center and the Va. section of the American Water Works Association</td>
</tr>
<tr>
<td><em>Planning and Implementing Effective Ground Water Sampling Programs</em></td>
<td>May 11–13: Denver, Colorado</td>
<td>(614) 792-0005 Environmental Education Enterprises Institute</td>
</tr>
<tr>
<td>Small Community Workshop</td>
<td>May 19–20: Kansas City, Missouri</td>
<td>(913) 551-7217 Kelly Beard–Tittone, U.S. EPA Region VII</td>
</tr>
<tr>
<td>AWWA Annual Conference &amp; Exposition</td>
<td>June 6–10: San Antonio, Texas</td>
<td>(303) 794-7711 American Water Works Association</td>
</tr>
<tr>
<td><em>Treatment Technology for Contaminated Soils and Ground Water</em></td>
<td>June 7–9: Baltimore, Maryland</td>
<td>(800) 551-7379 National Ground Water Association</td>
</tr>
<tr>
<td><em>Cross–Connection Control Program Specialist Course</em></td>
<td>June 21–25: Seattle, Washington</td>
<td>(213) 740-2032 Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California</td>
</tr>
<tr>
<td>Environmental Education 2000: Building a Solid Foundation for the Future</td>
<td>June 23–26: Leesburg, Virginia</td>
<td>(703) 253-5812 Alliance for Environmental Education</td>
</tr>
<tr>
<td>Advancing the Environmental Professional: NEHA Annual Educational Conference</td>
<td>June 26–30: Orlando, Florida</td>
<td>(303) 756-9090 National Environmental Health Association</td>
</tr>
<tr>
<td><em>Capture-Zone Analysis for Contaminant Remediation and Wellhead Protection</em></td>
<td>July 12–15: Seattle, Washington</td>
<td>(800) 551-7379 National Ground Water Association</td>
</tr>
<tr>
<td>1st National Youth Environment Summit: Partners for the Planet Branching Out</td>
<td>July 15–18: Cincinnati, Ohio</td>
<td>(800) 473-0263 Hosted by 14 organizations and agencies, including the U.S. Department of Agriculture, EPA, Kids for a Clean Environment, and Tree Musketeers</td>
</tr>
<tr>
<td>NACo’s 58th Annual Conference and Educational Exhibits</td>
<td>July 17–20: Chicago, Illinois</td>
<td>(202) 393-6226 Dottie Byars, National Association of Counties</td>
</tr>
<tr>
<td>Membrane Technology: Offering Solutions to Complex Water Quality Concerns</td>
<td>August 1–4: Baltimore, Maryland</td>
<td>(303) 794-7711 American Water Works Association</td>
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*short course*
Free Water, Wastewater Product Catalogs Are Available

Two free catalogs that describe free or low-cost drinking water and wastewater related educational products are now available through the National Drinking Water Clearinghouse (NDWC) and the National Small Flows Clearinghouse (NSFC), respectively.

The NDWC Products Catalog contains information about nearly 100 products that address various small community drinking water issues. Those who request it will periodically receive “new product listings,” which will describe the new products that have been added to the NDWC Resource Center since the catalog—or last listing—was printed.

Also available is the NSFC’s 1993 Guide to Products and Services. This catalog provides a brief description of each of the more than 250 products that provide information about small community wastewater technologies and related issues.

“Sister” organizations at West Virginia University’s Environmental Services and Training Division, the NDWC and NSFC work cooperatively to provide information and technical assistance to America’s small communities. To order either or both of the product catalogs described above, or for more information, call (800) 624-8301.

Have a Regulatory Question, Comment, or Answer? “Attend” Our Conference from Your Home or Office

Several questions and answers have been entered into the Drinking Water Information Exchange Bulletin Board System’s (DWIE–BBS) regulations “conference,” but more participants are being sought to enlarge the scope of information being presented.

Started late last fall, the DWIE regulations conference is intended to serve as an idea-sharing forum, not as a final or formal regulations reference, according to conference coordinator and National Drinking Water Clearinghouse (NDWC) staff writer Beth Cahape. The conference can be used to pose questions, share experiences, solve problems, or offer suggestions, Cahape said.

Such topics as arsenic removal and fecal coliform testing have been discussed, but a myriad of other regulatory issues have yet to be broached.

Using a computer with a modem and communications software, DWIE–BBS can be accessed 24 hours a day from anywhere in the United States by dialing (800) 932-7459. The regulations conference is just one part of the system, which also includes dialog from users around the country about all aspects of drinking water; a listing of the various products offered by the NDWC; and On Tap articles, which can be downloaded.

A free general brochure about DWIE is now available. To order, call (800) 624-8301.

All NDWC Products 1/2 Off Through June 30

If you’ve been thinking about ordering something from the National Drinking Water Clearinghouse (NDWC), now is a good time to do so.

“We wanted to thank our customers for their continued support by offering a discount on anything in our inventory,” said Paula Thorn, NDWC document distribution supervisor.

“We’ve extended the discount through June to give people more time to take advantage of the offer.”

Many of the NDWC’s products are free, and those for which there is a charge are priced on a cost-recovery basis. Several U.S. Environmental Protection Agency documents that are no longer available through the agency can be ordered through the National Technical Information Service (NTIS). However, the NDWC is offering photocopies of some of these documents for a price considerably less than that charged by NTIS.

A free catalog that lists all of the NDWC’s products is now available (see article on this page). For information about product availability or to place an order, call (800) 624-8301.

NDWC To Move this Summer

The National Drinking Water Clearinghouse (NDWC) will move its offices to another location on the West Virginia University campus this summer. However, the telephone, electronic bulletin board system (BBS), and post office box numbers will remain the same.

The move from the downtown to the Evansdale campus a few miles away may cause temporary telephone, BBS, and product distribution disturbances, although it’s anticipated these will be minor. The NDWC offices will be housed in the new National Research Center for Coal and Energy (NRCCCE) Building, located between the College of Engineering Research Building and the Evansdale Library.

The National Small Flows Clearinghouse and the National Environmental Training Center for Small Communities, which along with the NDWC are part of the NRCCCE’s Environmental Services and Training Division, will also be relocating to the new building.

The NDWC apologizes for any inconvenience this transition may cause.
Corrosion Control Guidance Manual Is Available

Note: Free items are limited to one of each per order. If free items are not available, you will be given the opportunity to receive free photocopies. (See page 15 for special offer information.)

A minimum $2.00 shipping and handling (s/h) charge applies to all orders, unless otherwise noted.

Lead and Copper Rule Guidance Manual, Vol. II: Corrosion Control Treatment
Item #: P000492
This document discusses the procedures that can be used by water systems to determine appropriate corrosion control treatment. Also included are a summary of case studies and a chapter on lead service line replacement requirements.
Price: $18.90

Regionalization Options for Small Water Systems
Item #: DWBKDM08
Regionalization requires the cooperation of system owners and perhaps the consolidation of financial resources, physical plants, and personnel. Many forms of regionalization and their associated financial, legal, organizational, and political ramifications are discussed in this document. Case histories also are given.
Price: $5.75*

Bottled Water: Helpful Facts and Information
Item #: DWBRPE04
This 1990 brochure describes the Food and Drug Administration’s role in regulating bottled water and contains helpful hints about using bottled water with, or in place of, public or private water supplies.
Price: $0.00 (free s/h)

Turbidity Removal for Small Public Water Systems
Item #: DWBKDM11
Such topics as defining a turbidity problem, developing and evaluating proposed solutions, understanding operational considerations, and explaining turbidity to consumers are included in this document.
Price: $0.00

Public Notification: Reporting Violations of Drinking Water Standards
Item #: DWBRRG06
This brochure discusses public notification of drinking water standards violations. Questions pertaining to who, what, when, why, and how are answered.
Price: $0.00 (free s/h)

General Public Notification for Public Water Systems
Item #: DWBKRG05
This manual provides a step by step reference on conducting public notification when Safe Drinking Water Act standards are not being met.
Price: $6.50*

Water Resource Management: Ideas for Community Officials
Item #: DWBLPE14
This foldout examines how five communities were able to implement public education campaigns that resulted in the acceptance of such things as rate increases and water conservation.
Price: $0.00

* indicates a U.S. EPA publication that has been photocopied because it is either out of print or temporarily unavailable in bulk.
It is possible that free copies of these documents may still be available from the EPA Safe Drinking Water Hotline; that number is (800) 426-4791.

TO ORDER:
Call 1-800-624-8301. Shipping and handling charges apply.

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