Water 2000 Update: $211 Million Awarded for Water Projects

by Mark Kemp-Rye, Water Sense Editor

For the fourth year in a row, the U.S. Department of Agriculture (USDA) announced funding for the Water 2000 project in a July press conference. USDASecretary Dan Glickman said that the agency will fund nearly $211 million in drinking water and wastewater projects, distributed through the Administration’s Water 2000 program. The latest funding—for more than 100 projects in 40 states—represents the largest package of financial assistance since the program was conceived in 1994. (See the Winter 1999 and Winter 1998 issues of Water Sense for more information about Water 2000.)

According to Glickman, at least two million rural residents in the U.S. live with serious drinking water problems, including an estimated 740,000 who have no running water at all. “That’s a crime and we need to do better,” he said.

“There are still areas, particularly farming communities and smaller rural towns, that are not sharing in our generally strong economy,” continued Glickman. “The President’s New Markets tour [President Clinton, Glickman, and other officials made a six-stop tour during July] helped demonstrate that areas like these represent a tremendous untapped potential for business investment. But, before companies will invest in poverty-stricken communities, there has to be some basic infrastructure.”

Vice President Al Gore concurred. “The need for clean water is not only a critical public health issue, it is also a key factor in promoting rural economic development. Without safe, reliable drinking water, no community can attract new businesses needed to provide America’s families with good-paying jobs.”

How are Water 2000 communities selected?

The initiative’s primary aim is to help people without drinking water in their homes. Most Water 2000 communities were identified through a 1995 survey conducted by USDA. Others qualified for Rural Utilities Service (RUS) water and wastewater grants and poverty-rate loans, which are made only to communities with the most severe needs. RUS grants and loans are administered through state Rural Development offices, which also provide the local link to the Water 2000 program. (See the end of this article for information about how to contact the Rural Development office in your state.)

Children and the elderly are at particular risk from illnesses caused by unclean drinking water. The USDA awards target communities plagued by some of the nation’s worst water quality and dependability problems.

A significant number of Water 2000 beneficiaries are also home to African American, Hispanic, Native American, and Native Alaskan families. USDA reports that many of these places have experienced “varying degrees of dangerous waste dumping from public and private sources.” These heavily burdened communities receive at least partial protection from continued environmental and public health degradation when public investments help them secure new water sources, improved source protection, and Continued on page 3
NDWC Explains TA Services, RESULTS

If you read the National Drinking Water Clearinghouse (NDWC) publications On Tap or Water Sense, you are aware that the NDWC offers technical assistance (TA) and information to drinking water systems serving fewer than 10,000 customers. But what kind of information is available?

Databases Offer Technical Information

Many callers to the NDWC have specific questions about contaminants, treatment methods, and public health issues. Staff TAspecialists talk with callers to better understand their questions.

“When I get a call, I spend a few minutes talking with the person to understand the problem or issue,” says TAspecialist Mohamed Lahlou, Ph.D. “The call I receive may involve searching the 1,500 entries in the Bibliographic Database and selecting articles I feel will be most helpful to the caller.” Research material is sent to callers free of charge.

Organizations Are Easy To Find

Babu Madabhushi, TA specialist, oversees the Organizational Database and says he puts people in contact with other organizations that offer information, TA, and funding.

“We may have a community activist calling looking for information about organizing or educating a community about water issues,” he says. “I can provide them with a list of organizations that focus on education as part of their mission. The caller can then call, write, or reach the organization through the Internet with information I provide.”

Madabhushi says he draws information from the database about many issues, including funding sources, groups that offer training, nonprofits that provide TA, and drinking water organizations.

RESULTS Works for You

Those interested in learning about treatment technologies will find the RESULTS [Registry of Equipment Suppliers of Treatment Technologies] database very useful. Accessible online or by having an NDWC technical assistant run a free search, the database allows users to easily compare their system’s needs with those of systems around the U.S. and Canada.

The database lists more than 1,100 drinking water systems and more than 200 vendors. Five search categories—state, contaminant, vendor, technology used, and population size—allow users to zero in on the information they need.

“For instance, if system personnel need to treat water for iron, RESULTS lists more than 180 other small systems treating for the same contaminant,” says Vinip Bhardwaj, TAspecialist in charge of RESULTS. “The database provides population size, equipment and maintenance costs, and whether the equipment installed was certified, as well as contact information for both the system operator and the equipment manufacturer.”

Users can now find system information about drinking water plants by searching the database online. Log onto the NDWC Web site at http://www.ndwc.wvu.edu and follow instructions for adding information or searching the database. Those without Internet access may contact a NDWC TAspecialist for a printed questionnaire. TAspecialists run RESULTS searches free of charge.

If you have a drinking water question, call the NDWC at (800) 624-8301 or (304) 293-4191 and ask to speak with a TA specialist.
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expanded water treatment and distribution capabilities.

The average median household income for a family of four in communities receiving Water 2000 investments is approximately $18,000. More than 40 percent of the recently announced Water 2000 communities have median household incomes less than the national poverty level—currently $16,700 for a family of four.

“People in these communities work every bit as hard as people in other parts of the country,” observed John Romano, RUS deputy administrator, “they just don’t make as much money as those elsewhere.”

Water 2000 Has a History of Helping

According to the RUS document Water 2000: A Plan for Action, this initiative had a simple premise: “Safe, affordable drinking water in virtually every home—no matter how remote or distressed—is necessary to improve the health and productivity of our nation’s rural communities, and to control long-term public costs related to drinking unsafe water.”

Launched in 1994, Water 2000 has funneled millions of dollars into rural communities around the country. (See sidebar on page 4 for more detailed information about Water 2000 funding.) It is estimated that, once construction is complete, projects funded through October 1998 will benefit more than 2.5 million people, including an estimated 380,000 people who will receive water from public (and therefore properly maintained and tested) sources for the first time.

The most recent loans and grants include:

- $24 million for 12 projects serving low-income, rural towns in Appalachia;
- $13.7 million for seven projects in seven Federal Empowerment Zones or Enterprise Communities;
- $12.3 million for six impoverished colonias in four southwest states;
- $7.8 million for eight projects on federal-recognised Indian reservations; and
- $7.2 million for five projects in impoverished Mississippi Delta communities.

“USDA’s financial assistance will leverage more than $84 million from local water districts, county governments, state agencies, and other federal sources to help improve drinking water quality and dependability,” said Romano. The 106 projects awarded funding include 79 water projects, 17 sewer projects, and 10 combined water and sewer projects.

In order to get an idea of how this funding works in the real world, we examine five communities across the country, one in each of five unique areas: the Mississippi Delta, an Alaskan Native Village, an Indian Reservation in the Rockies, a colonia on the U.S.–Mexico border, and in the heart of the Appalachian Mountains.

Renovations Funded in the Delta

Fans of popular music may recognize Ferriday, Louisiana, as the birthplace of pioneer rock ‘n’ roller Jerry Lee Lewis. It is also one of 106 Water 2000 projects announced this summer.

Unlike Lewis’ timeless classics, the Ferriday water system hasn’t stood the test of time. It needs an existing intake structure and treatment plant renovation to eliminate significant manganese contamination. The Ferriday Water System is a municipal water system located in the slough area of Concordia Parish, on the Mississippi River north of Natchez, Mississippi. The water system serves approximately 4,111 rural residents, including those in the town of Ferriday and the surrounding rural areas.

Concordia Parish is a rural area that produces cotton, soybeans, rice, and cattle as the primary

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“The need for clean water is not only a critical public health issue, it is also a key factor in promoting rural economic development. Without safe, reliable drinking water, no community can attract new businesses needed to provide America’s families with good-paying jobs.”

Vice President Al Gore

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miles northwest of Nome in the western part of the state.

Currently, water supplied by Shelman Creek is treated and then stored in a 100,000-gallon tank located at the washeteria [laundromat]. This tank is filled monthly. Many residents also collect their own, untreated water from Shelman Creek.

Water from the storage tank is piped to the school; however, the area’s residents must haul their water using either all-terrain vehicles or snow mobiles.

For waste disposal, they use “honey buckets,” agricultural activities. The population has been stable over the last few years. The land is flat and there are no ecological or historical areas affected by the project. The environment will not be adversely affected by the project.

RUS funds will be used to renovate an existing intake structure located on Old River and for improvements to an existing water treatment plant. The total cost for the project is $1.137 million. RUS funding is a $362,000 loan and a $775,000 grant.

New System Constructed in the North

In Brevig Mission, Alaska, 274 native residents look forward to construction of a community-wide gravity wastewater collection system, as well as components for the piped water distribution system. Brevig Mission is located approximately 65

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“There are still places in the United States of America, in rural areas, where people do not have access to safe drinking water. We are determined to correct that problem.”

President Bill Clinton

$211 Million Awarded for Water Projects

The Administration’s Water 2000 Initiative, launched in 1994, has already invested in projects to improve drinking water for more than 2.8 million Americans. Since 1994, U.S. Department of Agriculture (USDA) has invested nearly $2 billion in Water 2000 projects in more than 1,600 rural communities nationwide. Since 1940, USDA loans and grants have totaled almost $16 billion.

The table below shows Water 2000 funding for each of the last four years:

### Water 2000 Summer Rollout Totals 1996 through 1999

<table>
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<th>ROLLOUT YEAR</th>
<th>USDA FUNDS</th>
<th>NON-USDA Funds</th>
<th>TOTAL PROJECT</th>
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<td>GRANT</td>
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As of May 1999, there were 1,542 loan applications pending, totaling more than $2 billion dollars and 1,055 grant applications pending for approximately $1.02 billion. According to Larry Bowman, USDA Rural Utilities Service head of operations for water and environment programs, the backlog has been approximately $2 billion for several years.

Bowman also reports that, as of May 1999, the delinquency rate for water and environmental loan programs was less than 1 percent. By comparison, commercial loans (i.e., those offered by banks and savings and loans) typically have a default rate of between 1.5 and 1.6 percent. Bowman credits the low delinquency rate to “sound credit and business management by our customers and the assistance provided by our field staff to the many successful water and wastewater system owners.”

Source: Rural Utilities Service
Continued from previous page

which are then hauled to bunkers and deposited in a sewage lagoon.

The total project construction cost is $2.5 million. RUS will supply a $1.875 million grant and $625,000 will come from Village Safe Water Funding, a program funded by the Alaska Department of Environmental Conservation. (For more information about Alaskan Native Villages, see the Spring 1998 issue of Water Sense.)

**Rocky Mountain Town Gets Water**

Arlee, Montana, is an unincorporated town of 200 homes and 500 people on the Flathead Indian Reservation of the Confederated Salish and Kootenai Tribes. Located approximately 20 miles north of Missoula, Arlee has no municipal water system. Water service consists primarily of private wells, many of which are shallow—less than 50 feet deep—and a small, 40-user public water system.

A history of bacteriological water quality violations at the Arlee pubic schools culminated in a 1993 Notice of Violation and Administrative Order issued by the Montana Department of Environmental Quality (DEQ).

A series of studies documented the water quality deterioration of the aquifer underlying the district. A moratorium on all new construction is in place, which has brought a halt to new construction and new businesses in the town.

The Lake County/Arlee Water and Sewer District proposes to construct a new municipal wastewater system to solve the water contamination problems. It will consist of a conventional gravity collection sewer, aerated lagoon with tertiary treatment provided in constructed wetlands, and discharge to the Jocko River.

Total construction costs for the project are approximately $2.837 million. RUS will supply a $1.143 grant and a $495,000 loan. The Tribe will contribute $25,000 in a grant, the Indian Health Services will supply a $250,000 grant, the district will fund $11,388, the Montana DEQ will fund $500,000 in grant money, the Treasure State Endowment will provide $500,000, and the U.S. Housing and Urban Development (HUD) agency will furnish a $400,000 grant (For more information about Indian Tribes, see the Spring 1998 issue of Water Sense.)

**Wastewater Plant Is Constructed in California**

Heber, California, approximately 10 miles north of Mexicali, Mexico, will be getting a new wastewater treatment plant to replace the one that has reached capacity. The new plant will serve 1,100 of Heber’s 3,300 residents. The old plant, which is under a compliance order from the Regional Water Quality Board, will also receive improvements. These will include a second oxidation ditch, clarifier, disinfection, and other system equipment to increase the capacity from 400,000 gallons per day (gpd) to 800,000 gpd.

Funding for this project resulted from a collaborative effort between USDA, the North American Development Bank (NADB), and the State of California Water Resources Control Board Small Community Grant Program.

The total project cost is approximately $4.3 million. A RUS grant and loan package will supply more than $2.9 million and a RUS colonias grant will kick in $384,000. NADB grant funds will be $800,000, and a California state grant...
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will chip in $211,788 toward the project. (For more information about colonias, see the Summer 1998 issue of Water Sense.)

Water Is Supplied to Rattlesnake Ridge

Rattlesnake Ridge, Kentucky, currently purchases its water from Grayson, the county seat for Carter County. But, due to the unexpected growth of Rattlesnake Ridge, the community now needs its own source of drinking water. Grayson does not have the capacity to provide the quantities of water needed by Rattlesnake Ridge.

To meet the requirements of the community, the Rattlesnake Ridge Water District proposed construction of a 1.5 million gpd water treatment plant at the west end of Grayson Lake. The project includes a 500,000 gallon water storage tank and one booster pump station. The water district also proposed construction of approximately eight miles of 8- to 10-inch water lines to connect to a proposed 900-bed prison in neighboring Elliot County.

Total construction costs for this project are $4.3 million. Rural Development’s participation is a $900,000 loan and a matching $900,000 grant. Funding will also be provided by the Appalachian Regional Commission ($466,000) and $2 million from HUD. (For more information about Water 2000 projects in Appalachia, see the Winter 1999 issue of Water Sense.)

W2K Plans Go Beyond Y2K

Although the initiative is called Water 2000, USDA officials and those working in communities without clean, safe water know that all of the goals won’t be met by the start of the new millennium. After this round of funding, there will still be upwards of half-a-million people in the country without water in their homes and there will still be old water systems to repair and replace.

Even though much work remains to be done, the impact of Water 2000 and other RUS-funded projects has been great. Between 1980 and 1998, for example, the number of Americans without water in their homes dropped from 2.1 million to 730,000. After the latest funding, this figure should drop by an estimated 380,000 and plans are to continue the program. “We are determined to correct these very real problems,” says Romano, “and will keep investing in the goals of Water 2000 into the first year of the new century and beyond.”


The National Drinking Water Clearinghouse (NDWC) offers a compilation of articles from the publications On Tap and Water Sense. “The Water 2000 Information Package,” is available by calling (800) 624-8301 or (304) 293-4191 or via e-mail at ndwc_orders@mail.estd.wvu.edu.

For the phone number of your state Rural Development office, contact the NDWC at one of the numbers listed above. The list is also available on the RUS Web site at http://www.usda.gov/rus/water/states/usamap.htm. $
Avoid Pitfalls in Choosing a Water Meter

When it comes to installing and using a propeller meter, whether you’re an end user operating an agricultural irrigation system or a consulting engineer for a municipal installation, choosing the right meter is vital to the success of the project. With so many choices in meter technology and products, it is difficult to know what the best solution is—one that will be reliable and cost-effective over the long-term.

Steve Huth, president of Water Specialties Corporation of Porterville, California, offers the following advice for specifying engineers and purchasers who wish to avoid the most common pitfall associated with flow meter selection.

“Engineers who are drawn to a lower bid simply because it will keep up-front costs low commit the most common mistake when it comes to purchasing water meters,” noted Huth. “Such short-sightedness can jeopardize the economic health of an entire system.”

“We’ve become, unfortunately, a bargain basement world,” continued Huth. “Sure, you might save $100 up front on a cheaper product, but with a capital expense like this you have to look into the future and amortize the overall expense on a yearly basis. What if that meter fails or needs maintenance? That can run you up to 50 percent of the original cost. It’s a lot more economical to buy a proven, longer life device to begin with.”

On a $50,000 project, for example, a bid might come in 3 to 4 percent lower than another. That would save approximately $1,500 to $2,000. If that bid is for a meter with lesser grade components, however, the repair costs that meter might incur over the next few years can end up costing much more than the original savings.

To guard against making a selection that could come back to haunt you, purchasers and specifiers should take the time to evaluate the durability of the components that make up the meter, advised Huth.

For example, some modern meters take advantage of ceramic bearings instead of stainless steel ball bearings. The propeller is attached to a water lubricated sleeve that rides on a ceramic-coated stainless steel spindle. This type is abrasion resistant, requires less maintenance, and provides greater longevity under rugged conditions.

“I don’t care who makes them, or what design, ball bearings just won’t work in this kind of water,” said Ram Dhan Khalsa, of the U.S. Department of the Interior, Bureau of Reclamation, referring to the Grand Valley Project in Arizona that draws water directly from the Colorado River. “The silt gets in and packs the ball bearings tight. On the other hand, we have some meters with ceramic bearings in operation that are over ten years old.”

Also of concern is the strength and performance of the propeller. Huth advised that for maximum reliability, the propeller should be made of injection-molded engineer-grade thermal plastic that is durable, resilient to impact and resists bending, as opposed to soft compression-molded plastics, which can fold back at higher flow rates, affecting the accuracy of the meter. The propeller should also be designed in a conical shape so dirty irrigation water, sticks, leaves, and other matter will be deflected.

Huth also suggests that all meter heads and tubes employ advanced internal-coating, such as fusion-bonded epoxy. The 100 percent solid thermosetting coating is National Sanitary Foundation (NSF) approved for potable water and provides corrosion protection with five times the impact resistance of a liquid coating. The process lends itself to bonding complex corners and edges, so it provides uniform coverage over awkward shapes.

To save money in the long run, look for such design features and materials that can assure longevity of performance. One way to guarantee this is to find a manufacturer who is willing to offer an extended policy on their meters.

For more information, contact Water Specialties, 191 W. Poplar Ave., Porterville, CA 93257. You may also call (800) 800-3544 or (209) 784-3544 or log onto their Web site at http://www.waterspecialties.com. $
Catching Flies with Honey

Tact Helps You Collect What’s Past Due

by Kathy Jesperson
NDWC Writer/Editor

Anytime you sell or service something on credit, you will eventually be faced with the inevitable—collecting past due accounts. This chore can be quite frustrating, but it is necessary nonetheless. No one wants to be “the bad guy” in this situation. But you need to collect the money that’s owed to you so that your own operating expenses don’t find their way to someone else’s collection department.

However, collection practices don’t have to cause you to resort to strong-arm strategies. The key to collecting past due accounts is to use tact. As the old saying goes: “You can catch more flies with honey than you can with vinegar.”

Tact Works Best

According to Joseph Arkin, certified public accountant, in the December 1996, Water Conditioning and Purification, article “Collecting Past Due Accounts—Tactfully,” if you have some customers who typically pay on time and then mysteriously become past due on their payments, they may be experiencing “unforeseen and unavoidable” financial problems.

“Their intent to pay on time exists, but their financial ability to pay on time evaporates,” explains Arkin. A sympathetic phone call to these customers to inquire about the problem in a nonconfrontational manner may result in a payment plan that satisfies you both. “The point here is not to assume that the customer is a ‘deadbeat.’”

Send a Letter

A compassionate and understanding attitude should be reflected in all of your collection procedures, including collection letters. Arkin notes in his article that “a positive approach to collecting past due accounts is imperative and an often used approach is the collection letter.” He does warn that many slow paying customers will pay little or no attention to these letters. Often, these folks view collection letters as something to be ignored. However, the majority of your customers will respond to a well-thought out and well-written collection letter.

“It is a good idea to have several on hand so that the letters appear ‘fresh’ and not, as some slow paying customers believe, merely a ‘canned’ administrative response,” writes Arkin. A good collection letter should:

• never be confrontational;
• briefly explain the nature of the problem—such as how much the past due

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Customer representatives should be as tactful as possible. But just like the customer, the utility needs to pay its bills and can have financial difficulties as well if too many customers' accounts remain delinquent."

And termination can be a very powerful tool, explains Bagnes. "Nothing else can state your case with quite the same effect."

**Pay Your Own Bills**

Delinquent accounts can sometimes leave a utility in the red. "Small utilities often operate on a shoestring budget and have difficulty paying their bills," says Richardson. "My advice would be do not go to the regulator for a rate increase until you have used all of the channels afforded you. Look through your state's service regulations or rules and regulations governing service supplied by the utility. These rules are issued and approved by the regulatory utility commission or board of directors, and include such guidance as requiring customer deposits, collecting late payment charges, and reconnect charges."

Remember to check the legality of your collection practices. "A simple answer to legality is this," explains Richardson, "if it's in the state or federal code of laws or the rules and regulations approved by the regulatory agency, then it is legal. It may not be legal to discontinue or deny service for things, such as failure to pay for merchandise purchased from the utility, for non-payment for service by a previous occupant of the premises to be served, etc."

**Any last words?**

According to Arkin—and it’s just common sense—"a supplier has a legal right to be paid for consumer credit purchases." But there’s no clear criteria that govern how to collect past due accounts while still maintaining customer goodwill. That part will be up to you. Just remember to follow your state’s guidelines and try to maintain a positive approach.

"For more information about your state’s termination and collection guidelines, view the Web site of state public utilities commissions put together by the Consumer Information Center of the U.S. General Services Administration http://www.pueblo.gsa.gov/crh/utility.htm."

"The Public Service Commission of South Carolina has a Web page at http://www.state.sc.us that contains all of its rules and regulations governing all of the disciplines, the Bill of Rights for customers, and much more useful information."
Editor’s Note: This checklist is based on a section from the Self-Evaluation Guide for Decision Makers of Small Community Water Systems, published by the Community Resource Group, Inc., Southern Rural Community Assistance Program.

A community water system is a business. Yet it is often operated by individuals who are unfamiliar with the latest business and financial practices. More than just keeping the books, good financial management, according to Community Resource Group (CRG), means “planning for the future, estimating expenses and revenues, keeping records, and providing internal controls to guard system assets.”

The following checklist will help communities assess their financial management practices:

### Annual Budget
1. Does your local board prepare an annual budget before the beginning of each fiscal year?
   
   As a written financial plan or road map for the next 12 months, an annual budget is the primary means of controlling costs and ensuring revenues to meet the costs of the operating system.

2. Does your annual budget take into account the past year’s costs of operation into account?
   
   In order to project the system’s future expenses, it is advisable to review previous expenses. For the best prediction, the past several years’ costs of operations should be taken considered.

3. When preparing the annual budget, do you consider possible changes in operations?
   
   The costs of doing business change from year to year. Your budget should provide for these anticipated changes.

4. When developing the budget, are both board members and employees involved in the process?
   
   Although board members are responsible for the administration of the budget, the employees have valuable information critical to the development of an accurate budget. The day-to-day experiences of the staff are invaluable in making some of these decisions and predictions.

5. Does your annual budget separate the revenues generated by each type of utility that your agency may be involved in besides water (such as collecting wastewater, trash disposal)?
   
   It is essential that budgets for additional utilities/services are kept separate. Lumping together the accounts masks the real cost of providing each service.

6. Are all interest and principal repayments due on debts included in your budget?
   
   The annual expenses to lenders and financing agencies must be included. Often, state statutes require that these debts be paid first.

7. Are all operating and maintenance expenses such as repairs, supplies, salaries, chemicals, and power and telephone fees included and separately identified?
   
   All operating and maintenance expenses must be included and identified as line-item details.

8. Do the Financial Reserves cover the costs of Debt Service Reserves?
   
   The Debt Service Reserve is a special account required if you borrowed money through a bond issue or a direct loan from an agency, such as USDA’s Rural Utilities Service (RUS). You are usually required to set aside a percent of the annual repayment in a Debt Service Reserve until a certain dollar level is reached.

9. Does your annual budget include financial reserves to cover the costs of planned expansion or improvements and/or emergencies?
   
   A reserve to fund system improvements, such as equipment replacement or expansion should be created. Even if the reserve can only fund part of the cost, it will reduce the amount you’ll need to borrow. An appropriate emergency fund can be calculated by estimating how many times service has been interrupted over the last four to five years and the average cost to restore service each time.

### Financial Reporting
10. Are monthly expense and revenue reports generated for board members?
   
   Current monthly statements are required to determine whether the system is making or losing money from operations. In order to notice trends as they start to develop, it’s important that you review

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Transfers between operating accounts and other accounts must be tracked monthly to determine where water revenues are going and if funds from other accounts are subsidizing the system.

11. Do monthly reports include past due accounts?
Delinquent accounts must be handled before they become a financial burden on the system. Board members must determine the measures necessary to collect these funds.

12. From the monthly reports, can you determine whether the revenues from the sale of water are meeting your operating expenses?
Revenue from water sales should be enough to meet the system’s annual operating expenses. Other income, such as interest on accounts and refunds, shouldn’t be counted on to meet operating expenses. If water sale revenues are not meeting expenses, the system is losing money—you should review and revise the water rate structure at least every two years.

13. Do you have a policy in place that allows for the revision of the budget as needed during the year?
In many states, overspending a budget is prohibited by law. A procedure for amending the approved budget is mandatory.

Accountability

14. Are there policies in place that restrict the use of funds?
This includes the transfer or expenditure of funds from reserve accounts, as well as the use of system funds to approved purposes. These financial transactions should be governed by board-approved rules and procedures.

15. Are there written procedures in place regarding the use of purchase orders or pre-authorization forms for purchasing goods or service?
The purchase order or pre-authorization system for the expenditures of funds for supplies, goods, or services is recommended. Submitting these purchase orders, before the actual expenditure of funds, allows for better control.

16. Is there a policy for assuring a division of tasks and responsibilities between two or more people in the finance and accounting function?
The receipt and expenditure of funds should be shared by two or more persons. The same person should not have complete control over these processes.

17. Are all persons who have access to system funds adequately bonded?
The amount of bond coverage may be specified by state statues, or by loan agreements, if the system has borrowed funds. Generally, bond coverage should be equal to or greater than the amount of funds on hand at any one time.

18. Does the system maintain adequate insurance coverage for general liability, fire and property damage, and Workers’ Compensation?
Insurance coverage is necessary to protect workers as well as protecting the system from potential losses.

19. Does an independent auditor perform an annual audit of the system’s financial records?
An independent, annual audit discloses any problems with the financial management and the accounting system. The board should review the audit report and implement any recommendations the auditor suggests to strengthen the accounting system and safeguard financial assets.

20. Are system financial reports submitted in a timely manner to lending agencies or state regulatory agencies?
External agencies often require financial reports. Typical agencies expecting these reports are the public service commission, the state auditor, or a lender, such as RUS.

How did you score? Obviously, the correct answer to the 20 questions listed above is “yes.” If you answered “no” to several of them, perhaps it’s time to review your system’s financial management practices.

Simple Ratios Allow Systems To Check Financial Health

The 1996 Safe Drinking Water Act (SDWA) Amendments require that water systems have adequate managerial, technical, and financial capacity (see the Fall 1998 Water Sense for more information about capacity development). Prior to the amended SDWA, many small systems had less than adequate financial management practices. Now, increasing attention is being paid to making sure that water systems are in good financial shape.

The U.S. Environmental Protection Agency (EPA) has come up with two simple ratios that a water system can use to determine its financial health: an operating ratio (OR) and a debt service coverage ratio (DSCR). Both are easily constructed using readily-available data.

**Operating Ratio Measures Overall Health**

A water system can have the cleanest, safest drinking water around, but if it isn’t covering its expenses, it can’t keep it up forever. The OR shows whether or not a system has enough revenues to cover its expenses. An operating ratio of 1.2 or greater indicates that a system is in good financial health. A ratio of less than 1.0 means that expenses are more than revenues.

**Debt Service Coverage Ratio Measures Ability to Pay**

As with the operating ratio, a system must have adequate revenue to cover its debt service. The DSCR measures a system’s ability to cover its debt, over and above its operating expenses. A debt service ratio of 1.5 or greater is considered very good; a ratio of between 1.0 and 1.5 is considered acceptable; and a ratio of less than 1.0 means that there is inadequate revenue to cover the systems debt service.

<table>
<thead>
<tr>
<th>System Size</th>
<th>Percentage of Systems with Operating Ratios:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Than 1</td>
</tr>
<tr>
<td>25-100</td>
<td>61%</td>
</tr>
<tr>
<td>101-500</td>
<td>43%</td>
</tr>
<tr>
<td>501-1,000</td>
<td>29%</td>
</tr>
<tr>
<td>1,001-3,300</td>
<td>23%</td>
</tr>
<tr>
<td>3,301-10,000</td>
<td>17%</td>
</tr>
<tr>
<td>10,001 +</td>
<td>13%</td>
</tr>
</tbody>
</table>

Source: 1995 Community Water System Survey

Why are these two ratios significant?

According to EPA’s National Characteristics of Drinking Water Systems Serving Populations Under 10,000, as the size of a drinking water system increases, these ratios improve. Conversely, small systems are most often the ones in financial peril. For example, 61 percent of systems serving fewer than 101 customers and 43 percent of systems serving between 101 and 500 customers have an operating ratio of less than one. (See the table at left.)

The same study found that the “vast majority of small systems have no debt. Of those systems serving fewer than 100 people that do have debt, however, most have debt service ratios below one.” (See the table on page 13.) Achieving financial health is an important component of the SDWA and of particular concern for those responsible for small systems.

Experts point out that these ratios do not represent a complete financial assessment. Rather, they should be viewed as a general way for a small system to judge whether or not they are on the right track. “Achieving the public health protection objectives of the SDWA requires systems with strong technical, financial, and managerial capacity,” says Peter Shanaghan, EPA small systems coordinator. “Financial ratios are an exceptionally important indicator of a systems financial capacity.”

Continued on next page
**NDWC Catalog, Resource Guide Available**

Two updated information resources are now available from the National Drinking Water Clearinghouse (NDWC).

The *Drinking Water Products Catalog* lists more than 240 educational products to assist small communities with their drinking water system needs. It includes resources covering financial topics, management issues, regulations, research, and technologies.

The *1999 Outreach Resource Guide* lists information about nearly 90 federal, national, professional, and trade organizations that have drinking-water-related interests. It includes each organization’s mission, water-related activities, publications, address, Web site, and phone and fax numbers.

For free copies of these publications, call the NDWC at (800) 624-8301 or (304) 293-4191 and request item #DWBLPR01 for the catalog and item #DWBKGN36 for the resource guide. E-mail orders may be sent to ndwc_orders@mail.estd.wvu.edu.

**NCSC Publishes Community Resources Guide**

The National Center for Small Communities (NCSC) publishes a free listing of their guidebooks and other materials. In *Helpful Resources for Small Communities*, these communities may find the resources they need to address their concerns.

The guide contains materials explaining time and money-saving tips, worksheets and checklists, ways to turn ideas into action, and references to additional resources and assistance.

**Simple Ratios Allow Systems to Check Financial Health**

Continued from previous page


For a more in-depth look at using ratios to measure financial health, see the Rural Utilities Service Water and Waste Program’s Financial Analysis Course, especially Chapter 11: Financial Analysis. For more information, write to USDA, Rural Utilities Service, 1400 Independence Ave, SW Washington, DC 20250.

**Debt Service Coverage Ratio Breakdown by System Size**

<table>
<thead>
<tr>
<th>System Size</th>
<th>Percentage of Systems with Debt Service Coverage Ratios:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Less Than 1</td>
</tr>
<tr>
<td>25-100</td>
<td>7%</td>
</tr>
<tr>
<td>101-500</td>
<td>18%</td>
</tr>
<tr>
<td>501-1,000</td>
<td>25%</td>
</tr>
<tr>
<td>1,001-3,300</td>
<td>29%</td>
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<td>10,001 +</td>
<td>20%</td>
</tr>
</tbody>
</table>

Source: 1995 Community Water System Survey
Membrane Filtration Makes its Way To Toms Brook

by Mohamed Lahlou, Ph.D., NDWC technical assistance specialist, and Rodney McClain, general manager, Toms Brook-Maurertown Service Authority

Small community officials often think that innovative technologies, such as membrane filtration, are too expensive for them to consider. And all too often the price of installing these types of technologies may make many small community water boards think twice.

However, membrane filtration technology has emerged as a viable solution for complying with the Surface Water Treatment Rule (SWTR). This technology has existed for many years as an industrial filtering process. Basically, bacteria and other organisms are mechanically filtered. The water is then disinfected with chlorine to kill the micro-organisms that are not mechanically filtered and the end product is supplied to the customers.

District Looks for Alternative

Faced with meeting the standards set by the SWTR, the Toms Brook-Maurertown Service Authority needed to consider an alternative to conventional filtration. (See the Summer 1999 On Tap for a related story.) This alternative needed to be simple and inexpensive in order to have low operating costs.

Created in 1969 for the purpose of providing public water service to the Toms Brook and Maurertown area of Shenandoah County, Virginia, the district supplies approximately 425 customers with drinking water. When the original water system was constructed, the district drilled 13 different well sites. However, only two wells proved even marginally acceptable as public water sources.

The geology of the service area is underlain with limestone. Karst topography often yields abundant water supplies; however, karst aquifers are sensitive to influence from surface infiltration. And the new Toms Brook well, even though it was only used on an emergency basis, required filtration due to surface water influences.

Armed with both a grant and loan from the Rural Development Administration, the district constructed a micromembrane filtration treatment plant in 1995 at the Toms Brook Well 2 site to meet the water quality standards mandated by the SWTR. Installing conventional slow sand filtration, which requires chemical addition, flocculation, and settling, would be operations intensive, and regulations require full-time certified operators. Because conventional filtration would make long-term operating expenses considerably higher, the Toms Brook-Maurertown Sanitary District investigated membrane processes.

Pilot Study Examines Microfiltration

A pilot study was set to evaluate the ability of a Memcor 60M10 filter unit to treat the raw source water and comply with the requirements of the Virginia Department of Health (VDH) Waterworks Regulations. VDH developed guidelines that listed the requirements for designing and operating a water treatment plant using membrane filtration.

The membrane technology developed by Memcor, which is considered microfiltration technology, provides direct filtration of Giardia lamblia, Cryptosporidium and other micro-organisms. Some direct filtration of viruses occurs; however, disinfection will be the primary means of this removal. Filter membranes are periodically backwashed to remove particle buildup. The backwash water from this process is discharged to the sewer system, which passes by the Toms Brook-Maurertown treatment plant site. This filtration system is totally automatic and requires only periodic monitoring by the current operator.

SCADA System Installed

A water and sewer system-wide, SCADA-telemetry [Supervisory Control and Data Continued on next page]
Continued from previous page

Acquisition] system is currently being installed. The SCADAsystem is intended to monitor plant performance as well as system tank levels, controls, a booster pump station, the water treatment plant, and a remote well—besides maintaining adequate water levels. The SCADA system will also serve as an alarm system with the ability to warn personnel immediately of low-water levels or mechanical malfunctions. Although the SCADA system will also monitor eight sewage pump stations and the sewage treatment plant at an eventual cost of approximately $30,000, a smaller water-only SCADAsystem that controls just a water treatment plant and tank can be obtained for considerably less.

The system can run up to 24 hours a day to meet demand. Also, the use of this type of system did not require the addition of new personnel, as would a conventional plant, thus reducing operating costs considerably.

**Construction Was Necessary**

There is no question that improvements were necessary to the Toms Brook-Maurertown water system. The deficiency in supply volume has been resolved by the addition of the No. 2 Toms Brook well to the system. However, the implementation of the SWTR has necessitated additional filtration to meet the stricter water quality requirements.

The construction of the new water treatment plant has allowed the district to more than adequately supply their customers with high-quality drinking water. The simplicity of the system, along with its low operating cost compared to conventional treatment, will help the district to reduce the need to increase their water rates, which are already the highest in the area.

**District Works on Rates**

The district has some of the highest monthly water and sewer rates in Virginia. In 1998, the average water and sewer customer using 5,000 gallons of water paid a monthly bill of $59. In addition, all property owners pay a $.05 per $100 real estate ad valorem tax as district customers. The district expects to increase its service connections to 475 within the next two years, which will increase its revenues and prevent rate increases.

Automation of the system has allowed the district to operate and expand treatment capabilities without having to add operators or expensive chemicals. And there are no sludge handling concerns, which reduces overall operating costs.

The construction of the new water treatment plant, along with the associated distribution system improvements, will allow the district to meet the needs and demands of growth in the area. And the use of membrane filtration is the cornerstone of meeting these ever-changing needs. The district has been pleased with the performance, reliability, and efficiency of the membrane filtration plant.

Two other towns in Shenandoah County—Edinburg and New Market—have recently installed membrane plants, partially as a result of the success in Toms Brook.

For more information about this article contact Mohamed Lahlou, Ph.D., technical assistance specialist at the National Drinking Water Clearinghouse (NDWC), Morgantown, WV, 26506, or e-mail him at mlahlou2@wvu.edu. You may also contact Rodney McClain, general manager of Toms Brook-Maurertown Service Authority at Toms Brook, VA, 22810, or e-mail scsd@shentel.net.

For more information about the technology please download Tech Brief: Membrane Filtration from the NDWC Web site at http://www.ndwc.wvu.edu; or call (800) 624-8301 or (304) 293-4191 and request the free item #DWBLPE81. You may also order online at ndwc_orders@mail.estd.wvu.edu.

Privatization: What’s the story?

Mohamed Lahlou, Ph.D., National Drinking Water Clearinghouse technical assistance specialist, is currently analyzing privatization of small water systems serving fewer than 10,000 people. He is examining economic (cost of providing service), and environmental (compliance with the Safe Drinking Water Act regulations) issues, as well as coverage (expansion of service to underserved areas). He is also looking at privatization and consolidation choices available to small water systems as a means of acquiring capital.

If you have contacts, literature, or opinions about the subject, call Lahlou at (800) 624-8301 or (304) 293-4191 ext. 5577 or email him at mlahlou2@wvu.edu.
Water 2000, Financial Products Available

Note: Call (800) 624-8301 or (304) 293-4191 to order products and verify prices. Please allow three to four weeks for delivery. Actual shipping charges are added to each order. National Drinking Water Clearinghouse products also may be ordered via e-mail at ndwc_orders@mail_estd.wvu.edu. Products are subject to availability. Please verify price when ordering.

- Water 2000: A Plan for Action
  Item #DWBLRE02 – 1995
  An outline of the U.S. Department of Agriculture’s initiative to have “safe, affordable drinking water in virtually every home—no matter how remote or distressed” by the year 2000, this booklet discusses the reasons behind a lack of access to water, federal and technical assistance resources, and long-term solutions to community water problems.

- Utility Manager’s Guide to Water and Wastewater Budgeting
  Item #FDDBLFN13 – 1994
  This user-friendly booklet presents financial concepts helpful to water or wastewater utility managers when developing their annual budgets. Offered are possible sources of revenue, expenses to consider, suggestions on gaining public support, and examples to assist with developing revenue and expense trends information.

- Water 2000 Information Package
  Item #DWBLGN35 – 1997
  This document is a compilation of articles published in the National Drinking Water Clearinghouse publications Water Sense and On Tap about the Water 2000 Project. Data presents how many U.S. households are in need of improved drinking water service, as well as the cost for providing that service. A list of sources for additional information is provided.

- Tech Brief: Membrane Filtration
  Item #DWBLPE81 – 1999
  Once considered a viable technology only for desalination, membrane processes are increasingly employed for removal of bacteria and other microorganisms, particulate material, and natural organic material. This Tech Brief provides an overview of membrane filtration processes.

- Water 2000: Rural Safe Drinking Water Needs Assessment
  Item #DWFSRE09 – 1995
  This chart provides a state-by-state listing of the USDA’s 1995 Water 2000 needs assessment. The chart gives estimated financial cost for water service to all residents. The number of households in need is listed for each state.

- Water and Wastewater Manager’s Guide to Staying Financially Healthy
  Item #FDDBLFN03 – 1989
  Designed to help small community water and wastewater utility managers understand some of the important principles of financial management, this booklet provides management tools to help keep utilities financially healthy and running smoothly. It includes information about how to determine the current financial foundation to secure its future.