

# Northern Flows



Alaska's Drinking Water Program Newsletter

Issue 18 • Summer 2004

## Important Information



### For Water System Operators and Owners

## Northern Flows

### Drinking Water Program Directory

#### STATEWIDE FUNCTIONS

James Weise, DGS	Program Manager	269-7647
Vacant.	Field Operations Manager	269-xxxx
Vacant	Comp Tech Svcs Manager	269-xxxx
Vacant	Statewide DW Engineer	269-xxxx
Kathaleen Kastens	Project Coordinator	269-7639
Margaret Hansen	Administrative Clerk	269-7656
Sherri Trask	C/E Coordinator	269-3075
Jeanine Oakland	Environmental Spec.	269-2007
Karen Leis	Regulations Spec.	269-3082
Vacant	Regulations Spec.	269-7653
Maria Ridgway	Analyst Programmer	269-7625
Daniel Rogers	Analyst Programmer	269-2008

#### DRINKING WATER PROTECTION

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Michael Knapp	DW Protection	269-0292
Chris Miller	DW Protection	269-7549
Sarah Rygh	DW Protection	269-3076

#### ANCHORAGE FIELD OFFICE

Heather Newman	Program Coordinator	269-7619
Vanessa Blevins, P.E.	Env. Engineer	269-7696
James Elam	DW Compliance	269-7518
Jamie Stazel	DW Compliance	269-7624
Doug Zellmer	DW Compliance	269-7623
Kathleen Free	Environmental Tech	269-7618
Leticia Tadina	Environmental Tech.	269-7517
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#### WASILLA FIELD OFFICE

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Tee Little	DW Compliance	376-1860
Kellie Alvstad	Environmental Tech.	376-1859
Allan Nakanishi, P.E.	Env. Engineer	376-1862

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Carrie McMullen	DW Compliance	465-5333
Catherine Tide	Environmental Tech.	465-5325
Maggie Stumme	Administrative Clerk	465-5350

#### SOLDOTNA FIELD OFFICE

Vacant	Program Coordinator	262-5210
David Litchfield	DW Compliance	x224
Scott Forgue, P.E.	Env. Engineer	x243
Vacant	Environmental Tech	x

#### FAIRBANKS FIELD OFFICE

Cindy Christian	Program Coordinator	451-2138
Lee Johnson, P.E.	Env. Engineer	451-2179
Linda Grantham	DW Compliance	451-2137
Marci Irwin	DW Compliance	451-2168
Johnny Mendez	Env. Engineer Assist.	451-5193
David Schleiger	Environmental Tech	451-2170
Xenia DeVito	Administrative Clerk	451-2108

### Message from the Manager

Our late spring and early summer days have been great. What a refreshing change some warmth and sunshine can make. As we plan for our summer activities and "fun stuff" lets not forget the necessary requirements of our water systems. Please take the time to review your monitoring summaries recently received from Drinking Water Program staff, get the routine and required monitoring completed as soon as possible, and schedule your sanitary survey due this year, or perhaps overdue, from last year.

The restructure within the Alaska Department of Environmental Conservation (ADEC), Division of Environmental Health, Drinking Water Program and the "new" Water Division is almost complete. Transition issues are still occurring; however, they are minor and mostly infrequent. The Onsite Domestic Systems (OSDS) Section that includes domestic wastewater and

onsite systems is moving forward. Currently, there are several vacancies in the OSDS Section; however, David Johnson and other Water Division staff are working to fill them quickly.

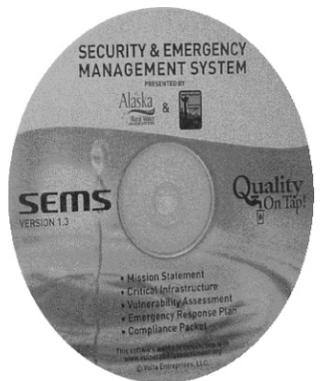
The Drinking Water Program continues its internal restructure plans, this time in response to general fund budget reductions. For FY 2005, the program will have a legislative applied \$45,900 General Fund reduction and has been told to begin phase out of support for Class C Drinking Water Systems. These are the "state-regulated" systems and not the federally-regulated Class A and B systems. Our plan is to repeal all reference to Class C public water systems (PWS) in the Drinking Water Regulations, 18 AAC 80, before December 31, 2004. It is also planned that reference to Class C PWS in other regulations, such as 18 AAC 72, Wastewater Disposal, will also be repealed at the same time.

The responsiveness summary for the comments received during the public comment period for the proposed Drinking Water Regulation package, DW 2003-1 is nearly complete. The extended comment period for this proposed regulation package closed September 16, 2003. This proposed regulation package included changes to the Class C PWS (which now will be repealed); Variances and Exemptions, 18 AAC 80.370 and 375; Sanitary Survey Inspector requirements, 18 AAC 80.435; and some new fees and fee increases. We are working diligently to finalize the responsiveness summary for this

proposed regulation package and move forward with adoption by early August 2004. Several other proposed regulation packages are in progress and future issues of *Northern Flows* will keep you "in the know" on the proposed changes.

Over the past six months, 11 public water system security and emergency response planning workshops were completed across the state. Over 167 participants, which included PWS owners, operators, technical service providers, and ADEC Drinking Water Program staff, attended the workshops.

These workshops were taught by Chris Ross with the NANA Training Services under contract with the Drinking Water Program. Most attendees at the workshops had the opportunity to complete their PWS vulnerability assessment and either developed, or began to develop, a written emergency response plan for their system using an interactive Security and Emergency Management Systems (SEMS) CD. The success of this initial series of training workshops indicates the potential and need for additional workshops of this nature over the next year.



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Have I got a deal for you. Anyone with an email address can now get a free set of the Code of Federal Regulations (CFRs) Parts 141, 142, and 143 which relate to public drinking water systems from the ADEC Drinking Water Program. All anyone who wants a copy of these rules to read at their leisure needs to do, is to email me at the address at the end of this column. Why, if you were to try to buy these rule books in a store, they would cost you over \$70...and further, they are not available in any store. You would have to contact the Office of the Federal Register, and wait weeks to have your copy sent. No doubt, this is the best deal going, to get your own personal copy, for quick and frequent reference, for free, on your own computer desktop.

But wait. There's more. Better than any Ginsu knife deal, you can have not just one extra set of these CFRs, but you can make as many printed copies as you want to from this free file. Please share this information, or your CFR file, with anyone who wants to read them.

Why am I pushing the CFRs?

What I really wanted to do is write all about my fresh, new regulations package, Public Notification, because it just became effective in Alaska's Administrative Code on May 2, 2004. I wanted to let everyone know that they needed to



read the updated Appendixes A, B and C of Part 141, located just after 40 CFR 141.210. I even wanted to hijack the centerfold section of this newsletter with these fetching appendixes. Unfortunately, they were too long, or the print would have been really too fine to easily read. I really do want you to read them, though.

Karen Leis' fascination with drinking water systems goes back many years.



So, this column is a thinly veiled plug for reading the CFRs which contain the federal Public Notification Rule that was published in final form May 4, 2000.

Who should read them? Every employee of a community water system, non-transient non-community water system, transient non-community water system, and every water drinking citizen who is interested in understanding more about the water and protection of public health in his or her

community. Even for those of you who read them a few years ago, it would be a good thing for you to get a copy and read this section again. As there are more rules to comply with, and as enforcement standards become more strict, just knowing what is expected becomes more important every day. This Rule is all about open communication with the people served by a public water system. The more your customers know about the water they drink and the system that serves them, the more support they can give you when you need it.

To find the Alaska Drinking Water Regulations currently in effect, 18 AAC 80, you can go to: [www.epa.gov/safewater/smallsys.html](http://www.epa.gov/safewater/smallsys.html). You can email me for your own personal copy of the CFRs currently in effect at [Karen\\_Leis@dec.state.ak.us](mailto:Karen_Leis@dec.state.ak.us). Further information can also be obtained about the Public Notification Rule by searching the website of the Environmental Protection Agency at [www.epa.gov.us](http://www.epa.gov.us).

[www.state.ak.us/dec/regulations/index.htm](http://www.state.ak.us/dec/regulations/index.htm)

### Question:

Most pumps in a suction lift condition require a \_\_\_\_\_ valve on the end of the suction line to prevent the pump from losing prime.

- A) Ball
- B) Backflow
- C) Isolation
- D) Foot
- E) Check

See page 7 for the answer

system operations. New or expanding PWS must develop and submit documentation regarding the systems organization, ownership, management qualifications, management training and policies.

For more detailed information on capacity development, you are encouraged to visit the EPA website at [www.epa.gov/safewater/smallsys.html](http://www.epa.gov/safewater/smallsys.html).

### Capacity Development and the PWS Engineered Plan Review Process

Although the capacity development concepts are an important factor in the successful operation of all PWS, the Alaska Drinking Water Regulations, 18 AAC 80.207 requires that a Class "A" PWS has the managerial, financial, and technical capacity to operate. Approval to construct or operate may not be issued if the capacity development information for the PWS is not submitted as a part of the engineered plan review. A *Capacity Development Self Assessment Guide for Class A Systems* is available on the ADEC website at [www.state.ak.us/dec/eh/docs/dw/a\\_assess.pdf](http://www.state.ak.us/dec/eh/docs/dw/a_assess.pdf)

A PWS with 15 or more service connections is considered a public water utility and must submit an application to the Regulatory Commission of Alaska (RCA). The RCA is the state agency that regulates the rates, services, and practices of utilities that provide a service to the public for compensation. Some PWS, such as trailer parks, water haulers,

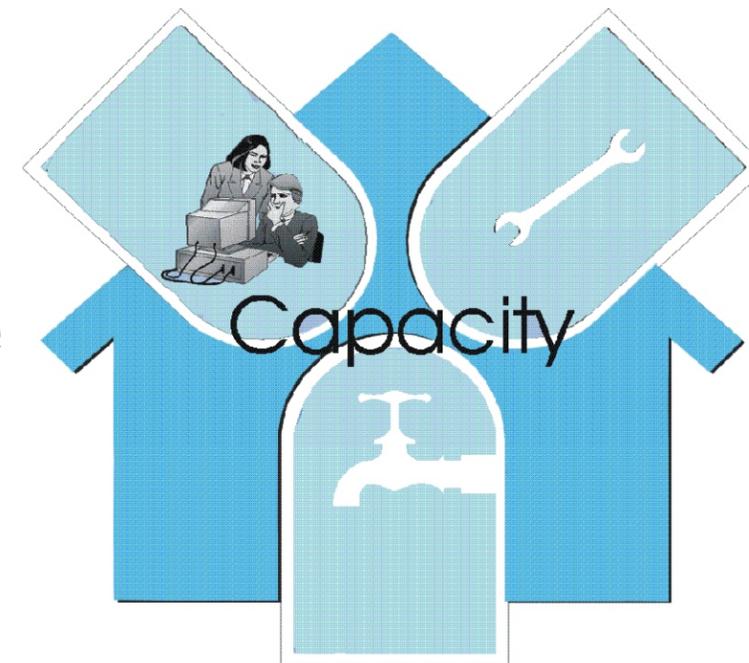
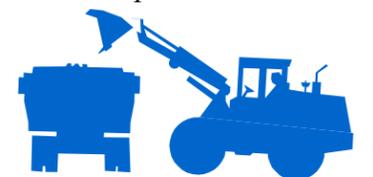
and some village utilities are exempt from RCA regulation and a prospective owner should review 3 AAC 52.700 for verification. Upon finding that the applicant is "fit, willing, and able" to provide the utility service, RCA may issue a certificate of public convenience and necessity. Since there is a shared responsibility for oversight on the installation, operation, and

Keep in mind that there is a difference in plan review response times between ADEC (30 days) and RCA (90 days). It's important to note that ADEC will not issue approval to construct without RCA's certificate. Information on the RCA certificate application can be found on their website at [www.state.ak.us/rca/business/applications/newcvr/tr.html](http://www.state.ak.us/rca/business/applications/newcvr/tr.html)

As a footnote, RCA is scheduled to issue updated regulations affecting PWS on June 19, 2004.

Capacity Development is a continuous process that should be monitored throughout the life of the PWS. As the drinking water regulations change, becoming more stringent, it could have a dramatic affect on the technical and financial requirements of the system. Management plays a key role in ensuring that these regulatory changes can be handled by the PWS infrastructure. Operator

training and certification, increased water sampling frequency and types, additional treatment requirements, or system modifications and upgrades will increase the cost of system operations. A periodic review of anticipated operational costs versus future income needs to be evaluated to prevent budget shortfalls and keep the PWS in compliance.



Answer: D) Foot Valve. Most foot valves are large globe valves.

Staff Profile - Environmental Specialist II- South-central Area *by Cindy Christian*

Jamie Stazel is an Environmental Specialist II for the South-Central Drinking Water Program area in the Anchorage Office. She is responsible for a wide range of activities, including compliance assistance, technical assistance, and enforcement for all of the Class A Community and Non-transient, non-community and Class B Transient non-community public water systems (PWS's) within the Municipality of Anchorage and along the Pipeline Corridor. Jamie provides compliance assistance and enforcement for all of the Safe Drinking Water Act Rules and technical assistance for both surface water systems and groundwater systems. She works with PWS operators and owners to make sure that they remain in compliance with all of the drinking water rules and are providing safe drinking water to their communities. She is very active in providing technical assistance to PWS's and also conducts sanitary survey inspections and other inspections for PWS's. Jamie is also the Drinking Water Program's technical expert on the new EPA Radionuclide Rule.

Jamie is a 2001 graduate of Western Washington University with a BA in Environmental Policy and Planning. She was born and raised in Anchorage and returned to Anchorage after her college graduation to pursue her career. She came to work at ADEC as an Environmental Specialist in the Drinking Water Program in April 2002. Jamie was interested in using her knowledge of environmental policy and planning to assist public water systems in delivering safe drinking water to their customers. Over the past two years, she has worked diligently to make sure that her assigned PWS are in compliance with the increasingly complex federal and state drinking water rules and that public health is protected. She really enjoys having daily contact with the owners and operators of public water systems and building the supportive relationships with other agencies necessary for the protection of public health.

Jamie is actively involved in many



activities outside of ADEC. She loves to travel and has been to China. She recently returned from a trip to New Orleans and plans on a trip to Thailand in the near future. Jamie is also an avid runner and sea-kayaker and is currently training for the Mount Marathon Race in Seward. She enjoys spending lots of time with her puppy, Ping. In the winter, she volunteers as a chair-lift operator at the Alpenglow Ski Area. Jamie is a very important member of the Drinking Water Program team, working to ensure the protection of public health by offering compliance and enforcement assistance to public water systems in the South-central area of the state.

Message from the Manager cont'd. *by James Weise*

Drinking Water Program staff continue to focus their efforts and activities towards required PWS compliance and public health protection. Since our Spring 2004 issue of *Northern Flows*, the Drinking Water Program has added several new staff, they are: Tee Little, Environmental Specialist in the Wasilla Office; and Jeanine Oakland and Doug Zellmer, both are Environmental Specialists in the Anchorage Office. Several current vacancies in the Drinking Water Program are scheduled to be filled over the summer.

Before closing, I want to personally thank Mr. Brad Ault for all his assistance to Alaska PWS and the ADEC Drinking Water Program during his tenure with both the National Rural Water Association, and most recently the Alaska Rural Water Association. Brad was very supportive of the ADEC Drinking Water Program and always tried to represent the best interest of Alaska's PWS. Brad recently accepted a new position with the Municipality of Anchorage this past April 2004. Best wishes for success in your new position Brad, and it was great

working with you and the Alaska Rural Water Association.

Continue your proactive approach to PWS management and operations, and enjoy the summer. Remember, what we do every day is not just a job; it is a way of life.

James Weise  
Manager,  
Drinking Water Program

Resources Corner: EPA Website *by Jeanine Oakland*

As a new employee with the Drinking Water Program it was suggested that I explore the EPA drinking water website so that I could become familiar with the information available to me. I have consistently referred back to this website which has proven to be a valuable resource for water system owners/operators, consumers, and even new hires in the Drinking Water Program! Each of the recommended EPA web pages provides excellent information that is worth taking a few minutes to look at.

[www.epa.gov/ebtpages/water.html](http://www.epa.gov/ebtpages/water.html)

**Water on Tap**

[www.epa.gov/safewater/wot](http://www.epa.gov/safewater/wot) This booklet was one of the most helpful overviews of drinking water for both public water systems and private well owners that I have come across so far. Appendix A of this booklet includes a complete list of National Primary Drinking Water Standards (as of 10/03) broken down by each contaminant, which is very easy to read and understand.

**Ground Water and Drinking Water Homepage**

[www.epa.gov/safewater](http://www.epa.gov/safewater) This page is packed full of information about drinking water. One of my favorite links of this webpage was the Local Drinking Water Quality page. As a consumer of water provided by a public water system, I found this to be informative as to the quality of water that I'm drinking. As a public water system operator or owner it would be interesting to see what your customers can read about your system.

**Quick References Guides** This is a link to all of the quick reference guides provided by the EPA.

[www.epa.gov/safewater/publicoutreach/quickreferenceguides.html](http://www.epa.gov/safewater/publicoutreach/quickreferenceguides.html)

**Drinking Water Standards**

[www.epa.gov/safewater/standards.html](http://www.epa.gov/safewater/standards.html) The rules listed on this site are listed as "Priority Rulemakings" providing a list of most recent rules with links to further information about each of them. Good place to get a handle on what changes have recently occurred and what to expect in the future in terms of regulations.



**Drinking Water Data**

This page includes a nationwide inventory of drinking water (Factoids) to compare Alaska and our region (Region 10) to the rest of the nation. It provides official Government Performance and Results Act (GPRA) data, along with violations reported by the nation's PWS. The page also has a link for individual PWS information (Envirofacts).

**Drinking Water Academy**

[www.epa.gov/safewater/dwa.htm](http://www.epa.gov/safewater/dwa.htm) This is an excellent page for anyone interested in training opportunities provided by the EPA. It provides training calendars (including satellite broadcasts), a course catalog, and links to download training courses and materials. The satellite training materials link not only provides downloads to power point presentations, but also provides links to further information concerning the topic (such as fact sheets and rule implementation documents). The amount of information on this webpage is phenomenal and a great resource for anyone involved with drinking water who would like to better understand topics ranging

from regulations to new technology (Enhanced Electronic Sanitary Survey forms) or other issues like capacity development.

**Water Infrastructure Security**

Security of the nation's public drinking water systems is an issue that the EPA has taken steps towards improving in order to protect the public from acts of terrorism involving drinking water. This page gives an impressive overview of these issues and several great links including the Emergency Response Tools which provides several Guides that can be downloaded. These guides address how to plan and respond to contamination threats in public water systems. Another helpful link from this page is the Vulnerability Assessment Tools which include an informative fact sheet along with a self-assessment guide for small systems (serving populations from 3,300 to 10,000). Public education materials are available under the Flyers link with brochures and posters available to order or print directly from the website.

**Drinking Water for Kids**

[www.epa.gov/safewater/kids/index.html](http://www.epa.gov/safewater/kids/index.html) An important part of protecting drinking water is public education. The EPA supplies a "fun stuff" website filled with games, activities, and classroom experiments, along with specific health information for children. The activities and games are split up into two age groups, K-6 and 7<sup>th</sup>-12<sup>th</sup>. Many of the activities have informative posters and even CDs that can be ordered. The *Children and Drinking Water Standards* is a great handbook written by the EPA to better understand how this vulnerable population is affected by the national standards of drinking water.

[www.epa.gov/safewater/data/getdata.html](http://www.epa.gov/safewater/data/getdata.html)

[www.epa.gov/safewater/security/index.html](http://www.epa.gov/safewater/security/index.html)

Capacity- What is it?

by Allan Nakanishi

Capacity development is not what one does to increase the size of a beer belly. Rather, capacity development refers to a Public Water System's (PWS) ability to plan for, achieve, and maintain compliance with applicable drinking water standards. One of the greatest reasons for the failure of a PWS can usually be attributed in some way to inadequate planning in the capacity development process. As a result, EPA addressed this issue in the 1996 Safe Drinking Water Act Amendments by requiring the states to create capacity development programs to prevent the formation of non-viable PWS. The concept applies to just about any government or business entity and essentially, requires the development and implementation of a "business plan". Whether it is a multi-national corporation, a corner coffee stand, or a community church; success depends

on the application of this "business plan" which consists of management, financial, and technical ability or capacity.

Technical Capacity

This aspect of capacity development will be done by a professional engineer responsible for the PWS design. The engineer designs and oversees construction so that the PWS meets standards of engineering and structural integrity necessary to serve customer needs. Technical capacity also includes the experience and expertise of the owner or operator of the system. For new or expanding Class "A" PWS, technical capacity requirements include the completion of an Operation and Maintenance Plan and an Emergency Management Plan.

Financial Capacity

Financial capacity or capability means

that the water system can raise, and properly manage, the money it needs to operate efficiently over the long term and allow the system to achieve and maintain compliance with drinking water regulations. The cost of operation includes routine maintenance, upgrades, training, water sampling, and administrative overhead to run the PWS. A viable PWS will always have the cost of operation equal to or less than the income to support the system.

Managerial Capacity

Managerial capacity means that the PWS has a management structure identified and authorized to provide proper stewardship of the system. Depending on the PWS, management may include a business owner, governing board, tribal organization, or authority that is actively involved in oversight of

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Water Leaks cont'd.

by Cindy Christian

communities, the number of fire hydrants is limited to prevent freezing in the distribution system, so it may be difficult in some circumstances to use this method of leak detection.

The third method for leak detection involves a permanent installation. This method is useful at stream crossings or in lines that have a history of leak problems. A tap is made on the main line both upstream and downstream of the valve and a household meter is installed between the two taps in the direction of flow. You can then close the valves on each side of the suspect section of pipe or the stream crossing, turn on the meter and see if water continues to flow. If water continues to flow through the meter with both main line valves tightly closed, there is a leak in that section of pipe or water

is going into the stream. Again, this method may be difficult to do in areas of extreme cold temperatures where isolation valves have to be kept at a minimum because of freezing concerns.

The ADEC Division of Water has an Operations Assistance Program to assist communities with leak problems. The program maintains an inventory of emergency equipment, including listening devices that RMW's can use to perform leak detection. Of course, we all know that an ounce of prevention is worth a pound of cure. So with that in mind, the Operations Assistance Program, Village Safe Water Program, and Alaska Native Tribal Health Consortium engineers are working on addressing this problem in the design and construction phase of each project. Well planned access

to underground pipe and strategically placed isolation valves are being included in most distribution system projects. The engineers are also designing better insulation for access points in Arctic Pipe to make it easier to determine where leaks are. They are also developing a program to better train the pipe laying crew. This program will involve training at least two people on each crew to do a destructive test on each joint in the distribution line. The hope is that by doing these tests, the number of leaks in the lines will be reduced and therefore make leak detection less necessary. For more information on the Operations Assistance Program, please contact Kent Knapp at 269-7605 or by email at [kent\\_knapp@dec.state.ak.us](mailto:kent_knapp@dec.state.ak.us). ~

Water Leaks in Public Water Systems

by Cindy Christian

Water leaks are a major problem for public water systems (PWS) throughout Alaska. Due to the Arctic and Sub-Arctic climate conditions present in much of the state, water leaks can be very costly to detect and repair. Finding a water leak in many distribution systems is a lot like trying to find the proverbial needle in a haystack. However, a water leak is continuously trying to tell you where it is located. Water leaks in a line may rumble, hiss or whisper, but it is always sending out an audible signal. Finding a water leak is made easier to detect by knowing how and where to listen and what to listen for.

Water leaks normally occur due to ground movement, such as earthquakes, pipe corrosion, unstable soil conditions, or when pipes are damaged by other construction activities. In Alaska, most water leaks occur in the spring months due to ground movement that takes place during the spring thaw. If a water leak is surfacing onto the ground, it may be relatively easy to find the source of the leak. This can be done by either adding a dye to the system and seeing if it surfaces or, if the system uses fluoridation, testing for fluoride in the surfacing water. Of course, this can be a problem in the winter, because the water may take a long time to surface due to frozen ground. Obviously, the hardest leaks to find are those that do not surface. Water will take the path of least resistance. It can follow the gravel bedding around the line, go into a broken sewer line, disappear into a ground fracture or percolate down to the water table. Before you can repair a leak, you must first find the general area where the leak is occurring. The most important first step in leak detection is to study available record or "as-built" drawings of the distribution system.



Fully understanding system hydraulics is critical, especially for circulating systems and systems with large elevation changes. Locate all isolation valves and hydrants. These "access points" provide a place to attach listening devices and the exact location of the buried pipe. Remember, pipe is very expensive, and when you have identified the access points it is reasonable to assume the pipe was buried in a

fairly straight line between them. Don't forget to locate other buried utilities before you start digging! Finding buried electrical or telephone lines after you start digging is guaranteed to ruin the best of days.

In most cases, water leaks that occur below the surface are found by using a listening device. In general, there are three ways to find a leak. The first method involves listening for water movement between two valves. When using this method, always move in the direction of the water flow. Pick a valve at the beginning of a stretch of line, then go in the direction of flow to the next valve and turn that valve off. Return to the first valve and slowly turn it

off. Wait for ten minutes and then barely open the first valve. Water that is under pressure moving through a small space will make a screeching or whistling noise. By placing the listening device on the slightly opened valve, it will amplify that noise, if it is present. If there is no sound or the sound stops quickly, the line is tight. If the sound continues, it would show that water is leaving that stretch of line at some point between the two valves. One thing to keep in mind is that if your distribution system is constructed of Arctic Pipe, the sound will be muffled because of the insulation that surrounds the pipe. Also, due to the cold temperatures in Alaska, the distance between isolation valves is longer than in most municipal systems. Both of these special circumstances will make a leak harder to detect.

The second method for leak detection is very similar to the first method and is used when there is a fire hydrant connected to the suspected line. In this method, one hydrant cap is removed and the hydrant is gently flushed to remove any solids that could foul the pressure gage. After flushing, the cap and pressure gage are reinstalled, the cap is tightened and the hydrant is charged. After charging the hydrant, read the line pressure. Two valves on either side of the hydrant are then closed, beginning with the valve downstream of the hydrant. After closing the downstream hydrant, slowly close the upstream valve. With both valves tightly closed, the line pressure should hold. If the pressure drops quickly, then water is leaving the line somewhere in that isolated section. Please remember to always check with your engineer or Remote Maintenance Worker (RMW) before charging a capped hydrant. In many

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