Big Sky Clearwater

Montana Department of Environmental Quality

Volume XXXVI1, Issue 1 — Spring 2007

Lead and Copper Monitoring – MT Update

By Greg Butts, Kalispell DEQ

The monitoring requirements for the Lead and Copper Rule are about the most confusing of all the compliance monitoring rules for public water supplies. There are several reasons for this.

First, the number of samples required changes within the first year of monitoring and sometimes later on. The number of samples taken is based on the population served and whether your system is doing standard monitoring (baseline) or reduced monitoring (see table in 40 CFR § 141.86 (c)). In addition, as the population increases for a public water supply the number of lead and copper samples required may increase.

The second reason this rule is confusing is that the monitoring schedule changes three times in the first four years of sampling. All systems start out taking the required number of samples in six month intervals. You must complete two consecutive six-month sampling events with sample results below the Action Levels (AL) for both contaminants. Once this is completed your system can move to reduce monitoring. This could be annual sampling or triennial (every three years) depending on the amounts of lead and copper in your samples. The move to annual monitoring is automatic once the

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Inside This Issue

Big Sky Clearwater

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The ***Big Sky Clearwater***,
a publication of the Montana Department of Environmental Quality,
is for water and wastewater operators and managers. The Department welcomes articles of interest and suggestions for articles related to water quality, water and wastewater treatment and the water environment. Articles may be about your treatment plant experiences, or those of others, technical papers or any information that may benefit other operators or managers.

Please submit articles 30 days before publication (*August 1 and February 1*) to:

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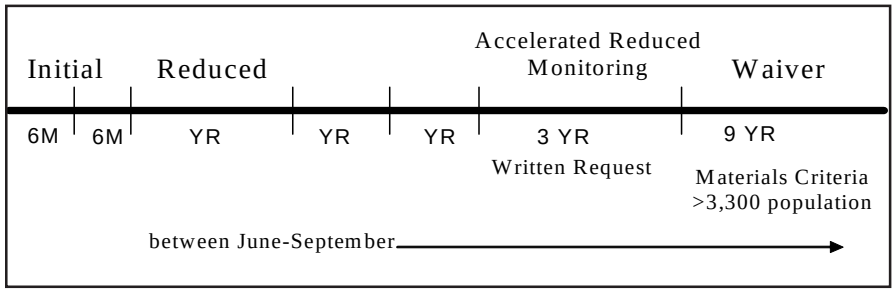
Lead and Copper Monitoring - MT Update - *continued from page 1*

two six-month sampling events are complete, but the move to triennial sampling requires a written request from the water system. This change in the monitoring schedule is called 'accelerated reduced monitoring' and requires the results of the two six-month sampling events to have 90th percentile values less than or equal to 0.005 mg/L for Lead and 0.65 mg/L for Copper. If your system does not qualify for accelerated reduced monitoring, you must complete three rounds of annual sampling events to qualify for triennial monitoring. All of these changes in monitoring frequency are balanced on the 90th percentile values that are determined by your sampling. If your system exceeds the Action Level for either Lead or Copper, there are other sampling requirements that will not be discussed in this article.

Are you confused yet? I hope not. The third thing that makes this rule confusing is the timing of the sampling events. During the baseline monitoring, the samples can be taken any time during the six month period. But, during annual and triennial monitoring the samples must be taken between June 1st and September 30th. Samples taken outside this time period will likely not be allowed for compliance.

The final issue that causes confusion and problems for the lead and copper rule is that we ask untrained individuals to collect the 'first draw' samples for us. This rule requires that water samples are taken from a drinking water tap where the water has not been run for at least 6 hours. The sample is then taken as the first water comes from the tap. This usually requires that the homeowner take the sample, very different from the other chemical sampling that operators do.



Reducing monitoring frequency and number of samples certainly saves a water system money and we are all for that. The Minor Revisions of the Lead and Copper Rule became final in January 2000 and made provisions for a monitoring waiver (further reduced monitoring). This rule revision allows a water system to reduce their monitoring frequency to every nine years. This reduced monitoring waiver is available only to water systems serving less than 3,300 persons and who meet the materials and monitoring criteria specified in the rule. Several public water systems currently have a reduced monitoring waiver for Lead and Copper, but a problem has recently been discovered with the way the state has issued many of those waivers. Some waivers were issued to systems that serve more than 3,300 persons and some were issued without a thorough review of the materials criteria. These problems will be corrected through contact by mail and/or phone with the water systems affected.

The monitoring criteria for the waiver is a minimum of one round of sampling, with the correct number of samples demonstrating a 90th percentile value for Lead of 0.005 mg/L, or less, and a 90th percentile value for Copper of 0.65 mg/L, or less.

The materials criteria for the waiver require supporting documentation that the distribution system contains no copper or lead containing components. This includes the distribution system, service lines and all drinking water supply plumbing for all building connected to the system.

By including the plumbing materials in every building connected to the water system in the materials criteria, EPA has made this waiver very difficult to approve. Not only must the water system look at the type of piping that is used in the distribution system and service lines but now you must know if the water fixtures within the building are made of lead containing brass or bronze alloys. Unfortunately, the time and money associated with finding out all the information needed for the waiver application will likely be more than the cost associated with doing the required samples.

If you are interested in learning more about the Lead and Copper Rule or the reduced monitoring waiver, you can find information at this website: http://www.deq.state.mt.us/wqinfo/pws/leadcopper.asp. ■

Attention Training Providers!
Vacancy Announcement
For The Continuing Education Credit Review Committee

THE CONTINUING EDUCATION CREDIT REVIEW COMMITTEE (CECRC) was formed in August of 1995 at the request of the Water and Wastewater Advisory Council in response to a need for more support for the Certification Office when making decisions on the approval of training for Continuing Education Credits and policy decisions.

The CECRC provides guidance and support to the Advisory Council and the Certification Program concerning issues related to education requirements and to promote consistent and quality training opportunities for certified operators.

Members should be comprised of up to three representatives of the training profession dealing with water and wastewater operators, a representative from each a "large and small" system, a representative from education, and a DEQ member. Members hold 6-year terms with no limit of terms for re-appointment.

The current members are:

Large System (1 each)
Gary Workman, City of Billings

Small System (1 each)
Lee Wolfe, Wolfe Water Management

Education (1 each)
Dr. Carol Reifschneider, MSU-Northern

Department of Environmental Quality member (1 each)
Jenny Chambers

The CECRC currently needs up to three representatives of the training industry and they should be a training professional for water and wastewater operators.

If you'd like to volunteer for one of the vacant slots, please send a letter of interest briefly describing your qualifications to the following address by March 15, 2007:

Montana Department of Environmental Quality
Attention: Jenny Chambers
P.O. Box 200901
Helena, MT 59620-0901

If you have questions about the requirements and the selection process for the CECRC, please contact:

Ms. Jenny Chambers
Montana Department of Environmental Quality
Technical Services Section Supervisor and
Operator Certification Program Manager
(406) 444-2691 or jchambers@mt.gov. ■

2007 Exam Dates

DEPARTMENT OF ENVIRONMENTAL QUALITY
1520 EAST SIXTH AVE
PERMITTING & COMPLIANCE DIVISION
WATER & WASTEWATER OPERATOR CERTIFICATION

METCALF BUILDING,
P.O. BOX 200901, HELENA, MT
59620-0901
406/444-3434 – FAX: 406/444-1374

Operator Name: _____ **Operator #:** _____
(Please print)

Name of System Operated: _____ **PWS #:** _____

Mailing Address: _____

City: _____ **Zip Code:** _____ **Daytime Phone #:** _____

Classification of Exam Registering for: **Class** _____ **Type** _____

To register for one of the examinations on this form, you must send the following to the above address 15 days before the exam date:

1. **A completed application for certification as a water or wastewater operator;**
2. **Application fees: $70 for water, and/or $70 for wastewater;**
3. **Examination fees: $70 for water treatment, $70 for water distribution (2A3B, 3A4B, 4AB, 5AB are combination exams and count as one exam) and/or $70 for wastewater, and;**
4. **A completed copy of this form and the fees for each examination.**

OPERATOR CERTIFICATION EXAM PREP TRAINING, CEC's & DEQ EXAMINATIONS

NOTE: You must also contact the training provider to register for the training (additional fees may be charged).

Training Provider	Location	Training Date	Exam Date	Registration Deadline	(✓)
Small Colony Training (MRWS)	Great Falls	01/17 & 18/07	01/19/07 morning		
MRWS Conference	Great Falls	02/21/07 – 02/23/07	02/23/07 afternoon		
Kalispell Spring School (METC / DEQ)	Kalispell	03/14/07 – 03/16/07	03/16/07 afternoon		
Billings Spring School (METC / DEQ)	Billings	04/04/07 – 04/06/07	04/07/07 morning		
11th Annual Summer Certification School (METC / DEQ)	Location not determined	06/20/07 – 06/21/07	06/22/07 morning		
71st Annual Fall Water School (METC/DEQ/MSU)	Bozeman	09/24/07 – 09/27/07	09/28/07 morning		

HELENA DEQ EXAM PREP

Training Provider	Location	Training Date	Training Provider
METC & Helena DEQ	Helena To be announced	02/28/07 & 03/01/07	WW only Bill Bahr – DEQ
METC & Helena DEQ	Helena To be announced	09/12/07 & 09/13/07	Water & WW – DEQ staff

Tentative DEQ Examinations

Examination Location	Exam Date	Exam Registration Deadline	(✓)
*Billings	04/07/07		
Great Falls	04/07/07		
Havre	04/07/07		
Helena	04/07/07		
*Kalispell	03/16/07 afternoon		
Miles City	04/07/07		
Missoula	04/07/07		

***Examination preparation training offered at Billings and Kalispell.**

The deadline to sign up for all examinations is 15 days before the examination date. To sign up for an examination contact Reta Therriault at (406) 444-3434 or rtherriault@mt.gov for application information. An application is also available on the WWOC web site at. http://www.deq.state.mt.us/wqinfo/opcert/index.asp

Class 4 and 5 water exams and Class 3 and 4 wastewater exams can be taken in a DEQ office in Helena, Kalispell or Billings by appointment. Contact Reta Therriault at (406) 444-3434 or rtherriault@mt.gov for application information.

Links to trainers telephone numbers and web sites:

1. Montana Environmental Training Center
   (406) 390-3865
   http://www.msun.edu/grants/metc/

2. Montana Rural Water Systems, Inc.
   (406) 454-1151
   www.mrws.org

3. Midwest Assistance Program
   (406) 273-0410
   www.map-inc.org

4. Montana Association of Water and Sewer Systems
   (406) 273-3336
   http://www.nmclites.edu/grants/metc/!mawss.html

Please bring a photo ID with you to the exam – you will be asked for one.

Exams Passed July 2006 – December 31, 2006

CLASS 1's

CALVERT, CHRISTOPHER	GREAT FALLS	1A	FC
DILBECK, MIKE	BOZEMAN	1A	OT
McINNIS, LOGAN	MISSOULA	1A	FC
MURRAY, GEORGE	BILLINGS	1A	FC
PHILLIPPI, MARK	BOZEMAN	1A	OT
STEINER, ERIC	BOZEMAN	1A	OT
ASK, SCOTT	MILES CITY	1B	OT
RATHIE, ERIK	BOZEMAN	1B	OT
REYNOLDS, ROBERT	NEIHART	1B	OT
RUSSELL, RICK	BILLINGS	1B	FC
LYNCH, RANDALL	MANHATTAN	1C	OT
McCAUGHEY, SHARI	BUTTE	1C	OT
ANDERSON, TRACEY	BILLINGS	1D	FC
McCARTHY, DAVID	ANACONDA	1D	FC
MITCHELL, DONALD	BILLINGS	1D	FC
WHITLEY, WESCOTT	BILLINGS	1D	FC

CLASS 2's

CLOSE, JOHN	BOZEMAN	2A3B	FC
ELLETSON, JASON	SIDNEY	2A3B	2A - OT
ELLETSON, JASON	SIDNEY	2A3B	3B - FC
FOSTER, JAMES	KALISPELL	2A3B	OT
FOUST, JONATHAN	KALISPELL	2A3B	2A - OT
FOUST, JONATHAN	KALISPELL	2A3B	3B - FC
GUCKENBERG, MATT	KALISPELL	2A3B	OT
HAYDEN, RICKEY	BIGFORK	2A3B	2A - OT
HAYDEN, RICKEY	BIGFORK	2A3B	3B - FC
JENSEN, JEFF	HAVRE	2A3B	FC
MULLINS, GLEN	DEER LODGE	2A3B	2A - OT
MULLINS, GLEN	DEER LODGE	2A3B	3B - FC
SCHMOLL, JOHN	BELGRADE	2A3B	OT
SILOTI, MARY	BIGFORK	2A3B	2A - OT
SILOTI, MARY	BIGFORK	2A3B	3B - FC
GUCKENBERG, MIKE	EUREKA	2B	OT
BECKER, DAVID	FORSYTH	2C	OT
CLOSE, JOHN	BOZEMAN	2C	FC

CLASS 3's

GUCKENBERG, MIKE	EUREKA	3A	OT
HOUSE, DENNIS	PHILIPSBURG	3A	FC
FOX, CLYDE	LAME DEER	3A4B	FC
FRANZEN, ROBIN	BELT	3A4B	3A - OT
FRANZEN, ROBIN	BELT	3A4B	4B - FC
LATRAY, HEATHER	BILLINGS	3A4B	FC
LEITZKE, STEVEN	EAST HELENA	3A4B	OT
RICHARDSON, CHAD	CIRCLE	3A4B	3A - OT
RICHARDSON, CHAD	CIRCLE	3A4B	4B - FC
McINNIS, LOGAN	MISSOULA	3B	FC
ARNOLD, TOBIN	CONRAD	3C	OT
DOLAN, MICHAEL	BELT	3C	FC
GUCKENBERG, MIKE	REXFORD	3C	OT
PORRAZZO, TONY	POLSON	3C	FC
SCHMOLL, JOHN	BELGRADE	3C	FC
WISDOM, PIERCE	BIG TIMBER	3C	FC
ZEIER, DANIEL	ANACONDA	3C	FC

FC = Fully Certified
OT = Operator-in-Training

A = Water Distribution Operator
B = Water Treatment Operator
C = Wastewater System Operator
D = Industrial Wastewater Operator
AB = Well Water Supply Operator

CLASS 4's

REYNOLDS, ROBERT	NEIHART	4A	FC
ANDERSON, DENNIS	WHITEWATER	4AB	OT
BEAN, ED	LAVINA	4AB	FC
BLESSINGER, DANIEL	BOZEMAN	4AB	OT
BURGESS, STEVEN	TROY	4AB	OT
COLLYER, ROGER	CLYDE PARK	4AB	FC
CUMMINGS, DARIN	WHITEWATER	4AB	FC
HOFFPAUER, CLARK	BOZEMAN	4AB	OT
HORAT, JOHN	CORVALLIS	4AB	FC
HOWARD, MARK	HOBSON	4AB	FC
MANNING, CHAD	GREENOUGH	4AB	FC
NOLLMEYER, LAURA	WILSALL	4AB	FC
VANDERPAS, CHARLES	BOZEMAN	4AB	FC
WATERMAN, JAMES	BOZEMAN	4AB	FC
BALUKA, DANIEL	BILLINGS	4C	FC
BEILER, LEONARD	DARBY	4C	FC
DUNBAR, ARCHIE	WHITEWATER	4C	FC
ELLETSON, JASON	SIDNEY	4C	FC
KILSDONK, ODEAN	CULBERTSON	4C	FC
KOESSL, KIRK	NASHUA	4C	FC
LAGERQUIST, LYNDEN	WESTBY	4C	FC
NOWAK, STEPHEN	WILLOW CREEK	4C	OT
RATLIFF, DAVID	BILLINGS	4C	FC
RAY, DAVID	PHILIPSBURG	4C	FC
RICHARDSON, CHAD	CIRCLE	4C	FC

CLASS 5's

FOX, DARRELL	LAUREL	5AB	FC
GRAHAM, DAVID	SULA	5AB	FC
JOHNSON, MICHAEL	DILLON	5AB	FC
LORAN, JAMES	GREENOUGH	5AB	FC
MASON, HEATH	HELENA	5AB	FC
MOODY, NICOLE	BOZEMAN	5AB	FC
TRYTHALL, BRUCE	RAMSAY	5AB	FC

CONGRATULATIONS to each of the above operators for passing their examinations! The exams require considerable time in study and preparation and passing the exam represents hard work and initiative on the part of the individual. Show your appreciation to your water and wastewater operator for working so hard to ensure that they are properly trained to care for your system.

How to Calculate a Geometric Mean

By Dave Feldman, DEQ

Most MPDES permits in Montana require permitees to calculate a geometric mean when more than one bacterial (fecal coliform or E. coli) sample is collected during a reporting period (7-day or 30-day). I wrote this article to help people understand the geometric mean.

Why does Montana Require the Geometric Mean for Bacteria?

We use the geometric mean to summarize bacteria data because those data are so variable. Bacteria can grow at an exponential rate very quickly under the right conditions. The geometric mean value will not be overly influenced by large fluctuations from between one data point and the next.

How the Geometric Mean is Calculated?

The math behind the standard is simpler than it appears at first glance. The calculation is similar to an average. However, instead of adding the numbers together and dividing by the number of values, you multiply the numbers together and take the root of the number of them together. This is known as a geometric mean. The geometric mean allows for an unbiased "average" that does not put as much weight on one or two numbers that are different from the rest used to calculate the final number. Here is what the geometric mean formula looks like:

$$\sqrt[n]{\prod_{i=1}^{n} X_i}$$

In this equation *n* is the number of samples you collect, and X is the value of each sample.

Here is another way to view the equation:

$$\sqrt[n]{X_1 X_2 X_3 X_4 \ldots X_n}$$

Here is an example: You collected five water grab samples over a one-week time period, and tested them for *E. coli*. You found these *E. coli* concentrations:

Sample Number	E. coli (cfu/100 ml)
1	10
2	100
3	300
4	15
5	4

Here is the geometric mean for these data:

$$\sqrt[5]{10 \times 100 \times 300 \times 15 \times 4} = 28.25$$

Notice that while the difference between the minimum and maximum values is large, the geometric mean of 28.25 is relatively low in this example.

Yes, There is an Easier Way to Calculate the Geometric Mean

There is an easier way to determine the geometric mean of a bacteria dataset using MS Excel.

The command "geomean" will automatically calculate the geometric mean for a dataset. Simply input your data into

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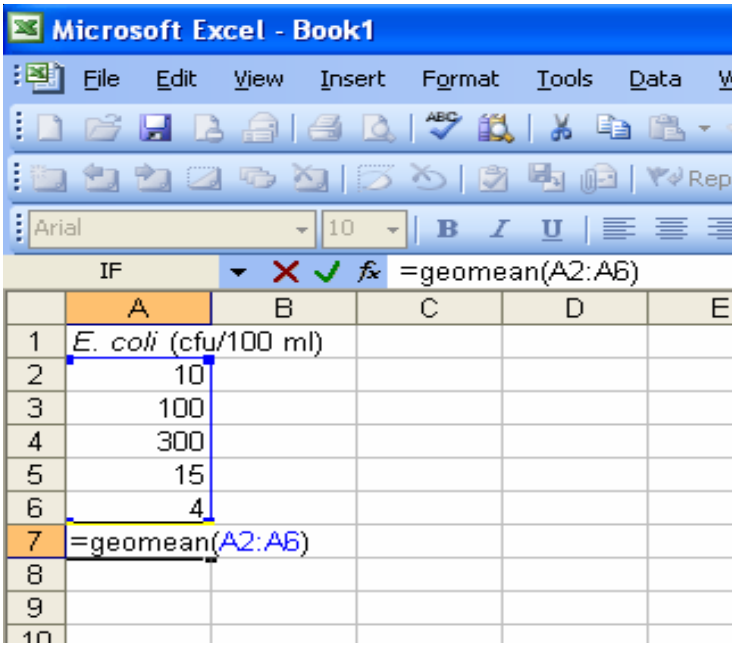
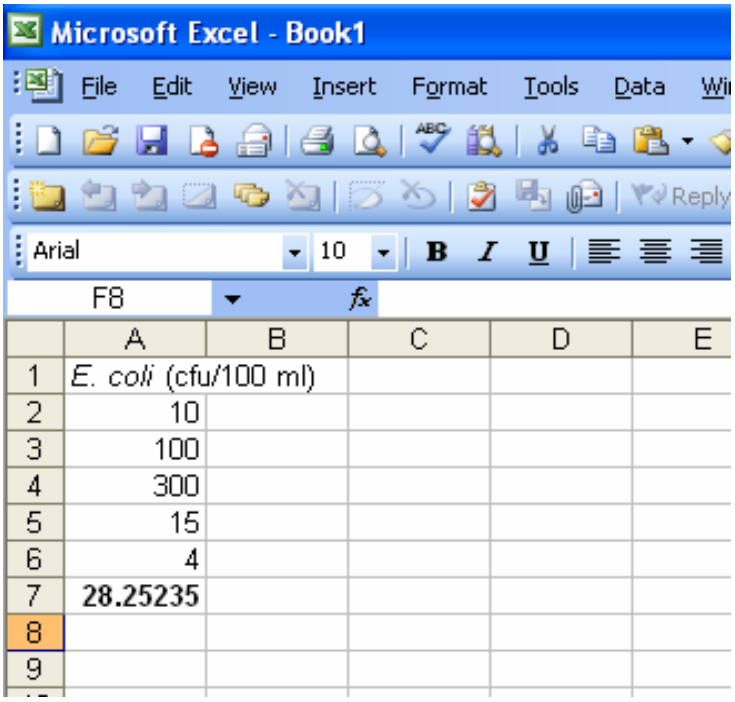
How to Calculate a Geometric Mean - *continued from page 8*

an Excel spreadsheet, type the command "=geomean" and select the cells with the numbers you want calculated in parentheses (see example):



Press enter and Excel will calculate the geometric mean for the dataset:



I sincerely hope this article helps you understand how to calculate a geometric mean. If you have any questions, please contact me at (406) 444-6764, or dfeldman@mt.gov. ■

Implementing TMDL's and Water Quality Restoration Plans

Over the past two decades, most of us in the water resource profession have heard the term Total Maximum Daily Loads or TMDL's. Many of us have a mixed understanding of what TMDL's are and how they benefit the resource. However, fewer of us have a strong sense of what occurs after TMDL's and plans are put in place. The Water Quality Planning Bureau of MT DEQ would like to update Big Sky Clearwater readers on DEQ plans to implement finalized TMDL's and Water Quality Restoration Plans across Montana.

Brief Background

Every two years MT DEQ compiles a list of water bodies that fail to meet water quality standards. This document is known as the 303 (d) List. The 303 (d) List is named after the section of the Federal Clean Water Act that requires states to report impaired water bodies. The 303 (d) List identifies the probable causes and sources of the impairments. Causes of impairment include nutrients, metals, sediment and thermal modifications and sources include point and nonpoint source discharges such as wastewater treatment discharges, mining activities, urban stormwater runoff, grazing, forestry roads, etc.

A TMDL is the total amount of a pollutant that a water body may receive from all sources without exceeding water quality standards. A TMDL can also be defined as a reduction in pollutant loading which results in meeting water quality standards. Reductions in point sources are called wasteload allocations, and reductions in nonpoint sources are called load allocations. Wasteload and load allocations along with a margin of safety equal a TMDL. A TMDL is typically documented within a more comprehensive document, called by DEQ a "Water Quality Restoration Plan" that describes the severity of the problem, what activities, if pursued, will fix the problem, and goals or how we know when we've fixed the problem.

Developing a water quality restoration plan is a problem solving exercise. There are many legal, technical, social, economic and natural variables to consider. It is not always easy to link a particular cause of impairment to specific sources. Rivers, lakes and streams change from one season to the next, one year to another. While point sources may have their permits adjusted to meet the wasteload allocation, Montana relies primarily on a non-regulatory approach to address the load allocations from nonpoint source pollution.

Currently, Montana TMDL documents include a chapter called "Water Quality Restoration Strategy." This chapter describes management activities needed to meet the goals and incorporates adaptive management as monitoring data is obtained and evaluated. Typically, this restoration strategy is pretty general, which allows a variety of implementation options to improve water quality and meeting TMDL goals.

Implementation

When EPA approves a TMDL, the streams are removed from the portion of the Montana 303(d) List of impaired waters needing a TMDL, but they still remain listed as impaired waters until water quality standards are met. The wasteload reductions are incorporated into discharge permits for point sources of pollutants. So for point sources, the TMDL becomes regulatory through discharge permit limits. Load reductions for nonpoint sources (which account for over 90% of pollutant loading to MT water systems), is generally done by local voluntarily efforts to reduce pollutants.

DEQ encourages local watershed groups and conservation districts to develop detailed TMDL implementation plans. These "Watershed Restoration Plans" incorporate and build on the information from the "Water Quality Restoration Plans," further defining roles and responsibilities, priorities, timelines, funding resources, and how to put specific management actions into practice to achieve TMDL goals, and water quality standards.

It is important for local landowners, conservation districts, and watershed groups to take the lead role in developing Watershed Restoration Plans. These individuals and local entities have valuable knowledge of local conditions and management practices and have the most interest in maintaining and preserving their natural resources. Their participation allows for improved project designs and efficiency in implementation. In addition, valuable

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Implementing TMDL's and Water Quality Restoration Plans - *continued from page 10*

partnerships are often formed which promote opportunities for creative problem solving and leveraging funds.

Montana's nonpoint source watershed approach relies on local groups leading these voluntary approaches to restoring and/or protecting water quality. Managing water resource programs on a watershed basis makes sense – for the community, the state and the environment. The watershed approach is especially suited to rural Montana where there is a historic tradition of developing community responses to local problems. Because local people are involved in addressing the problem, they have a vested interest in its success. Local watershed efforts rely on the knowledge, wisdom, and experience of ranchers, farmers, foresters, recreational users, and public employees who understand the watershed. Local stakeholders have a lead role in implementation of water quality restoration/protection efforts for most nonpoint sources, by providing input on local commitments and local goals and take the lead role on writing Watershed Restoration Plans.

State and federal government agencies are interested in encouraging water quality restoration at the local level. They offer grants, loans and cost-share programs. One such grant is the Section 319 grant offered by MT DEQ. These grants provide money to address water quality restoration, groundwater restoration, and information and education projects that support local watershed efforts. Conservation districts are one example of a local entity that is well suited to provide administration and oversight of projects funded by these grants. When agencies prioritize projects for funding, they often elevate watershed projects that have completed TMDL's, especially if accompanied by a locally developed Watershed Restoration Plan that links the watershed project to a TMDL or other pollution reducing activities. Agencies are confident that restoration plans assure that grant money will be spent wisely and effectively. By working with DEQ Watershed Protection Section staff to develop Watershed Restoration Plans or grant applications, locals can use a collaborative approach which leverages state and federal resources to address local water issues. Watershed Protection personnel, geographic responsibilities and specialties include:

Ann Storrar
Water Quality Specialist
Columbia Basin Watershed
Specializes in Agriculture
(406) 444-5351 astorrar@mt.gov

Mark Kelley
Water Quality Specialist
Upper Missouri Watershed
Specializes in Forestry
(406) 444-3508 mkelley@mt.gov

Taylor Greenup
Water Quality Specialist
Lower Missouri and
Yellowstone Watersheds
Specializes in Groundwater,
Urban/Suburban Development &
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Robert Ray
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Supervisor
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Andrew Jakes
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(406) 444-7425 ajakes@mt.gov

Robin Rung
Contracts/Grants Officer
Administers 319 Grant Program
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Implementing TMDL's and Water Quality Restoration Plans - *continued from page 11*

Five-Year Review:
Five years after a TMDL is approved, DEQ evaluates the Watershed Restoration Plan and all other available sources of information for BMP implementation, water quality attainment, beneficial use support and the degree to which TMDL objectives have been met. Local stakeholders may play a significant role in a five year review and adaptive management activities in their watershed. Once evaluated, successful TMDL's should remain in place so that their water quality analyses and load reductions (allocations) may continue to guide permit writers' and stakeholders' efforts to maintain those water quality standards into the future. If water quality is still impaired in the watershed after evaluation, DEQ and local stakeholders will determine potential causes for not making progress toward reducing pollutant loads (i.e. more time is needed, new best management practices should be tried, etc.). Then the Watershed Restoration Plan may be revised to reflect this new information. ■

73rd Annual Fall Water School

The 73rd Annual Fall Water School was held in Bozeman, October 2 through 5, 2006. The Montana Department of Environmental Quality, Montana Environmental Training Center, Montana State University (MSU) College of Engineering, and the MSU Montana Water Center co-sponsor the Fall Water School. This school is designed for entry level and experienced operators and managers. There were approximately 175 participants and 13 vendors at the School. An examination was held October 6, 2006 and 87 exams were administered. It was a great turnout and good comments were received from those that attended. Thanks to all of you that continue to make the Fall Water Schools a Success! The Mike Certalic Award is presented at the Fall Water School to a water or wastewater operator in attendance. The 2006 Mike Certalic Award recipient was Mr. Stuart Cooper, Town of Manhattan. ■

Congratulations Stuart!

John Alston, City of Bozeman,
presents the Mike Certalic award to Stuart Cooper

Winners of the Fall 2006 Security Challenge

CONGRATULATIONS TO TERRY AND JOHN for being the first to tell me "Where Did Security Fall Short" from last Fall's Clearwater Journal.

The contest was a great success (*25 participants enjoyed the challenge*) and it gave me a chance to visit with individuals about water and wastewater security. The photo depicted a water storage tank with proper fencing yet there was a dumpster that someone could easily get onto and then get over the fence. Also the pump house was not included in the fencing and there was a portable barricade in the fencing that could be easily used to access the storage tank ladder. Several other good ideas and observations were discussed by the participants.

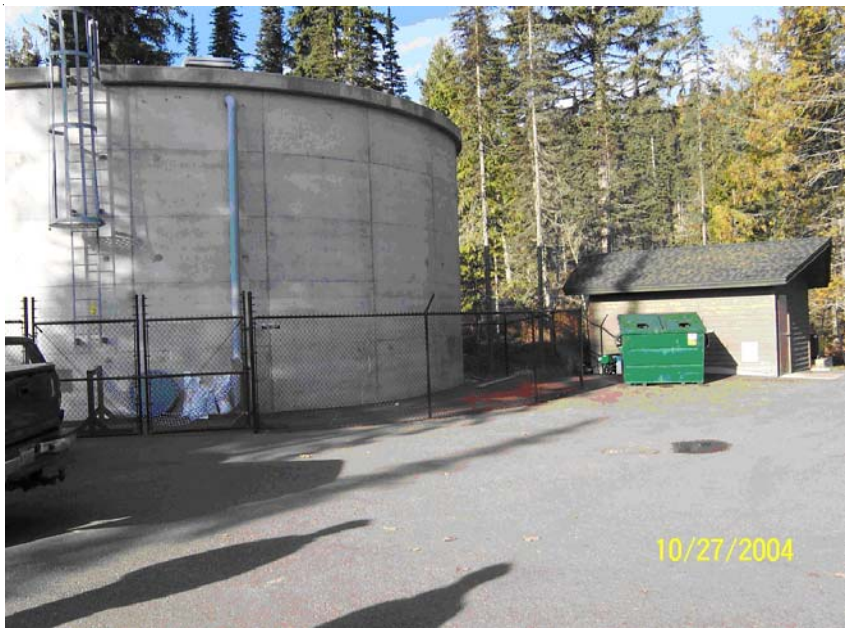
I hope Terry and John are enjoying their preparedness bags donated by Montana Disaster & Emergency Services. A BIG THANK YOU to everyone for taking the time to think about the course of action we take around our water and wastewater facilities.

Participants of the Fall 2006 Security Challenge:

Winner Terry Dixon (*left message*)
Winner John David K. Wipf
(*1st to call in Monday morning*)

Jonnie Hullett
Kevin Romanchuk
Doug Wight
Karla Houtz
John Waldner
Davis Otis
John Hofer
Earl Larry
Mel Kershaw
Kevin Severe
Eldon Rice
John Parker
Mike Alan
James Kuntz
Gary M. Workman
John Munsall
Cheyenne Allen
Jason Weber
Ron Downer
Jeff Wilke
Nick Clark
Mary Greil
Randy Middlebrook

Good luck everyone with this issues challenge!



Fall 2006 Security Challenge Photo...

Where in this photo did security fall short?

Spring 2007
Security & Preparedness Challenge

What does “NIPP” stand for and what is a “CI/KR”?

Please email, mail, or leave me a detailed voice message with your answer and contact information (name, address, and phone number). The winner will be pulled from a hat one month after the journal is mailed out and I will mail the results to all participants and a prize to the winner!

Dusti Lowndes
Security & Emergency Preparedness Specialist
Public Water & Subdivision Bureau
Montana Department of Environmental Quality
109 Cooperative Way, Suite 105 • Kalispell, MT 59901
406-755-8985 ext.106 • **dlowndes@mt.gov**

(HINT: does not stand for “Never In Purple Pie” and “Common Itch with Kangaroo Responses”)

Current Issues, Events, and Resources for Water/Wastewater Security and Preparedness

WATER – Town's No. 1 Worry

Supplies dwindle as power comes back on for a majority of Jay's residents.
By Rhett Morgan- World Staff Writer
1/18/2007

Jay, Oklahoma — Electricity returned to a majority of homeowners left in the cold by a weekend ice storm as city officials scurried Wednesday to meet residents' demand for drinking water.

"This is our issue right here," said Jay's Fire Chief Rick Goins, eyeing the quickly vanishing reserves of bottled water. "When that drinking water runs out, they are going to get cranky."

Police Chief Mike Shambaugh estimated Wednesday afternoon that more than 50 percent of the town of about 2,800 had power. Tap water, however, remains nonexistent because electricity hasn't been restored to Jay's water pumps, he said. "We'll get some water hopefully within 24 hours so we'll have sewer water to flush with," Goins said. Water won't be suitable for drinking until it is treated, a process that could take a couple of days, Shambaugh said. People lined up all day near Jay's water distribution center on Fifth Street near U.S. 59, taking home donated bottled water and apple juice by the case. By Wednesday afternoon, the bottled water supply had dwindled to less than half a pallet, Shambaugh said. The city was scheduled to get two tractor-trailer loads of drinks from the Federal Emergency Management Administration later on Wednesday, although Shambaugh said the shipments could be delayed by bad weather around Fort Worth. City officials said they still needed large generators.

Sewage Spills Caused by Power Outages

By Anita Kissee and KATU web staff
December 17, 2006

Beaverton, Oregon – A PGE substation fire that knocked out power to more than 50,000 customers Saturday night also temporarily shut down a Washington County wastewater facility, causing sewage to overflow from manholes, officials reported Sunday.

Copper Thieves Steal From Water Pump

By Cherly Winkelman, Staff Writer for Inside Bay Area

Manteca, CA – The soaring cost of copper has continued to wet the appetite for money-hungry bandits, even leading a pair to steal from the city's water pump station. Both men were arrested with a truck load of electrical wiring stolen from the municipal well.

Strychnine Found in Danish Reservoir

United Press International
Oct. 6, 2006

Inspectors discovered strychnine in the water supply of a Danish town during a routine check. Investigators believe that someone dumped rat poison in one of the wells that provides water for Greve Municipality. The well's plexiglass cover was smashed open. (Did they say plexiglass?)

EPA Security Resource

Physical Security Standards for Trial Use are Available for Drinking Water and Wastewater Utilities.

In order to help drinking water and wastewater utilities defend against threats to their systems, the American Society of Civil Engineers (ASCE) in conjunction with the American Water Works Association (AWWA), and the Water Environment Federation (WEF) have published two sets of physical security standard guidelines, one for drinking water facilities and one for wastewater facilities. These standard guidelines have been through the first step of the ANSI accreditation process and are now available for trial use. The standards differ from similar guidance documents released by the three organizations in 2004, because they have been through rigorous committee review and two rounds of balloting. Readers of this email are encouraged to use and share these standard guidelines. This work was funded through an EPA grant. The documents are available for free at: http://www.asce.org/static/1/wise.cfm. For additional information please contact Greg Spraul at 202-564-0255.

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Current Issues, Events, and Resources for Water /Wastewater Security and Preparedness - *continued from page 15*

AWWA, with the US Environmental Protection Agency, is offering an online course on Security Hardware, at no cost to the first 1,000 registrants. This important training opportunity will further your water security education to help with reducing risk at your drinking water system associated with malevolent acts of insiders, vandals, and terrorists. You will learn about USEPA's *Security Product Guide;* about identifying, comparing, and recommending methods of physical protection; of materials and devices to detect and delay intrusion and mitigate damage, and of cost-effective security systems that meet operational demands. If you need to gain an understanding of security measures to better protect your utility against malicious acts, this is the course for you.

Advance your knowledge of water system security, and register today for this important course at www.awwa.org/learnonline. Questions? Call us at 1.800.926.7337, option 3.

Published by AWWA, 2005, online course, ***FREE*** *for members and non-members.* ■

Ready or Not Here it Comes

Andrea Vickory, Water Quality Specialist, PWS

That's right, yet another end to a three-year compliance period. Coming this December 2007, the 2005-2007 compliance period ends. This is just a reminder that the three year compliance schedules for lead and copper and the chemicals are closing December 31, 2007, and that a new compliance period of 2008 and 2010 will then begin. Any sampling that is on the three-year schedule should be collected between 2005 and 2007. If you have any outstanding monitoring due you may want to consider getting it completed before the certified laboratories become inundated with samples in December. As a final note; sample reports are required to be reported to PWS no later than ten days past the end of the compliance period (*early January the following year*). Sometimes the laboratories cannot turn around samples collected on December 31st and meet this reporting requirement. This is another reason to sample earlier than later. Thank you for your cooperation in sampling early!

The Public Water Supply System data and monitoring reports are viewable on the web. You are able to view "live" data just like it is stored in our Public Water Supply Section database. This information presents system data including contact information, monitoring schedules, enforcement and violation information, and up-to-date bacteriological, nitrate, and chemical sample results.

To access the web site visit:

www.deq.mt.gov/wqinfo/pws/reports.asp ■

Kate Miller Accepts Compliance Section Supervisor Position

Kate Miller has accepted the position of Compliance Section Supervisor (formerly held by John Camden) for the Public Water Supply Program in the Montana DEQ.

Kate holds an A.S. in Water and Wastewater Technology from Northern Montana College, B.S. in Environmental Microbiology, and M.S. in Environmental Engineering from Montana State University. She is a former (retired) Research Professor at the Montana Bureau of Mines and Geology, a research department of Montana Tech of the University of Montana in Butte. Over the last 25 years she has worked for the EPA in Denver, served as a wastewater treatment plant operator in Lewistown and Miles City and as an Environmental Engineer for the former Montana Department of Health and Environmental Sciences. Kate has spent most of the last 16 years performing applied research on various aspects of Montana's groundwater resources, including contaminant transport and agricultural hydrology. For the past year Kate has served as the Rules Coordinator for the Public Water Supply (PWS) program of the Montana DEQ in Helena.

For questions on PWS compliance issues you can contact Kate at (406) 444-4071 or kmiller2@mt.gov . ■

Stage 2 Disinfectant Byproducts Rule Excitement in December 2006

FOR YOUR INFORMATION: During the week of December 11, 2006, the Public Water and Subdivision Bureau started to receive numerous calls from systems who did not disinfect but who had received a notice from EPA regarding compliance with the Stage 2 Disinfectant Byproduct Rule.

After various conversations with EPA personnel, we found out that EPA had shipped these notices to all of the Public Water Supply Systems in the state, even the hundreds of systems who do not disinfect and who should not have received this notice. So, if you do not disinfect but received this notice anyway, EPA has asked that we tell you to disregard the notice.

If you have any other questions please call Bob Clement, EPA Region 8 in Denver, CO at (303) 312-6653. ■

Stage 2 Disinfectants and Disinfectant Byproducts (DBP) Rule Overview

By Kate Miller, Compliance Section Supervisor, Public Water Supply and Subdivision Bureau, Montana DEQ

The Stage 2 Disinfectants Byproducts Rule (DBPR) was promulgated by the EPA on January 4, 2006. The EPA has taken over all of the early implementation activities for Stage 2 so the Montana DEQ is not yet involved in implementing this rule. The DEQ will likely adopt these rules and take over implementation in 2008. But I thought it might be helpful to get out a little information now. Until then, if you have any questions please call Bob Clement, Region 8 EPA, Denver, CO at (303) 312-6653.

The following information has been excerpted from the February 2006 EPA training module for the Stage 2 DBP Rule.

Purposes

Based on public comments, new data on occurrence and health effects of disinfection byproducts (DBPs), and costs and potential impacts on public water systems, the Stage 2 DBPR was developed to build upon the Stage 1 DBPR to reduce potential risks of cancer and reproductive and developmental health effects from DBPs.

In conjunction with the Surface Water Treatment Rule (SWTR), the Interim Enhanced Surface Water Treatment Rule (IESWTR), the Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR), the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR), and the Stage 1 DBPR, the Stage 2 DBPR will improve control of microbial contaminants and reduce public exposure to DBPs, while maintaining a strong level of protection against other contaminants. The regulatory changes required by the Stage 2 DBPR will provide more equal levels of protection against DBP exposure across entire distribution systems.

Introduction

The Stage 1 DBPR requires systems to monitor for total trihalomethane (TTHM) and haloacetic acids (HAA5) at locations of high DBP formation potential. (Systems collecting more than one sample may have collected up to 75 percent at other locations as long as those locations are representative of at least the **a**verage **r**esidence **t**ime [ART].) However, new research shows that other factors besides residence time contribute to DBP formation, particularly for HAA5. This can cause higher DBP concentrations in areas not represented by Stage 1 DBPR sites.

To protect consumers from the health effects associated with DBPs, the Stage 2 DBPR requires all Community Water Systems (CWSs) and all Non Transient Noncommunity Water Systems (NTNCWSs) serving at least 10,000 people that treat their water with a primary or residual disinfectant other than ultraviolet light (UV) or deliver water that has been treated with a primary or residual disinfectant other than UV, to conduct an Initial Distribution System Evaluation (IDSE). Conducting an IDSE and preparing an IDSE report are the initial requirements of the Stage 2 DBPR. The IDSE will help systems select sample points that are more likely to have higher DBP levels. Systems will use these sites to fulfill the monitoring and compliance requirements under the Stage 2 DBPR. The Stage 2 DBPR also requires systems to use **l**ocational **r**unning **a**nnual **a**verages (LRAAs) to calculate compliance to ensure that customers throughout the distribution system are equally protected from high levels of DBPs.

The Stage 2 DBPR has two major sections (IDSE and compliance monitoring) as well as other components. The theory behind the IDSE requirements is for systems to acquire adequate information about their distribution system and DBP levels for selection of sites for the compliance monitoring section of the rule.

IDSE

- Two options for simplified IDSE compliance are Very Small System (VSS) Waivers and submitting a 40/30 Certification. These options are available to systems that do not have to complete an evaluation because of their small size or historically low DBP levels. Systems that utilize these options will use Stage 1 DBPR data to choose Stage 2 DBPR sites.

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Stage 2 Disinfectants and Disinfectant Byproducts (DBP) Rule Overview - *continued from page 18*

- Standard monitoring and system specific studies are two ways that systems can evaluate their distribution system and DBP data to select sites for Stage 2 DBPR compliance monitoring. Standard monitoring provides a standardized process for the evaluation. A system specific study is a more system-driven process for systems that have extensive information and/or resources.

Stage 2 DBPR Compliance Monitoring

- The Stage 1 DBPR transitions into the Stage 2 DBPR. Monitoring sites for the Stage 2 DBPR are assigned based on the system's IDSE or Stage 1 DBPR data. The rule provides a specific "protocol" for site selection.

- Like the Stage 1 DBPR, compliance for this rule is based not on each individual sample, but on a running annual average (RAA). Unlike the Stage 1 DBPR, however, this compliance is a locational running annual average (LRAA) rather than a system-wide RAA.

- Another aspect of this rule is operational evaluations for systems that are approaching a possible MCL exceedance.

There are other additional issues.

- Consecutive Systems – The Stage 1 DBPR did not specifically address consecutive systems, but the Stage 2 DBPR specifically requires consecutive system compliance.

- Where Stage 1 DBPR had a plant-based approach, the Stage 2 DBPR is population-based.

- The Stage 2 DBPR modifies certain aspects of the Stage 1 DBPR, including the source water **t**otal **o**rganic **c**arbon (TOC) monitoring schedule for compliance with the reduced monitoring for TTHM and HAA5, and the bromate reduced monitoring requirements.

Compliance schedules for the Stage 1 DBPR were based on the source water type, population served by the system, and the number of treatment plants/wells in each system. Systems were required to collect samples for each plant in operation at the system. Stage 2 DBPR compliance schedules and monitoring requirements are based only on source water type and population served by the largest system in the CDS to better reflect the hydraulic complexity of larger systems.

- A **c**ombined **d**istribution **s**ystem (CDS) is the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

A small system that buys water from a larger system must comply on the schedule of the larger system. An important clarification is that the CDS only affects the compliance schedule, not the number of samples a system is required to take. This is an important change to remember as you begin to evaluate your compliance schedules and requirements for the Stage 2 DBPR.

Schedules

EPA has established four schedule categories. The schedule categories were established to simplify the discussion of the requirement.

If you are this kind of system:	***You are on schedule number:***
Systems serving 100,000 or more people OR belonging to a CDS in which the largest systems serves 100,000 or more	1
Systems serving 50,000 to 99,999 people OR belonging to a CDS in which the largest systems serves 50,000 to 99,999	2
Systems serving 10,000 to 49,999 people OR belonging to a CDS in which the largest system serves 10,000 to 49,999	3
Systems serving fewer than 10,000 and not connected to a larger system	4

Stage 2 Disinfectants and Disinfectant Byproducts (DBP) Rule Overview - *continued from page 19*

Implementation Timeline

This is the schedule by which systems need to comply with IDSE requirements. Note that the schedule for combined distribution systems is based on the largest system in the group. For a graphical illustration of the timeline, turn to the back cover of the binder. Only systems conducting standard monitoring or a system specific study are required to submit an IDSE report.

Schedule	Systems Serving	Submit 40/30 Certification, SM, SSS Plan, or receive VSS Waiver by:	Complete SM or SSS by:	Submit IDSE Report (only systems conducting SM or SSS) by:
1	≥ 100,000	Oct. 1, 2006	Sept. 30, 2008	Jan. 1, 2009
2	50,000–99,999	Apr. 1, 2007	Mar. 31, 2009	July 1, 2009
3	10,000–49,999	Oct. 1, 2007	Sept. 30, 2009	Jan. 1, 2010
4	< 10,000	Apr. 1, 2008	Mar. 31, 2010	July 1, 2010

Combined Distribution Systems

The "combined distribution system" (CDS) is the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water from those wholesale system(s). States have some flexibility in determining which systems are part of a CDS. EPA has included that flexibility to account for situations in which systems have only a marginal association (e.g., an infrequently used emergency connection, a seasonal connection). A "wholesale system" is a public water system that treats source water as necessary and then delivers the finished water to another public water system. Delivery may be through a direct connection or through the distribution system of another consecutive system.

All systems in a CDS must comply with Stage 2 DBPR requirements on the same schedule. The schedule requires wholesale systems and consecutive systems to conduct their IDSE simultaneously so that the wholesale system will be aware of compliance challenges facing the consecutive system and will be able to implement treatment plant and capital and operational improvements as necessary to ensure compliance at both the wholesale and consecutive system(s). More information on IDSEs is included later in this presentation.

All systems in a CDS must follow the schedule that applies to the largest system in the CDS. This date will not necessarily be the compliance date for the wholesaler. For example, in a consecutive system with a wholesale system that serves 4,000 people and three consecutive systems that serve 21,000, 5,000, and 5,000 people, the CDS would follow the IDSE schedule that applies to the consecutive system serving 21,000 people (i.e., IDSE monitoring plans due October 1, 2007).

The following figure is an illustration of a combined distribution system. In this example, System A sells water to System B, which in turn sells water to System C. System A is the largest system in the combined distribution system. Therefore, System A complies with the Stage 2 DBPR based on the requirements for a system serving 100,000 people. System B has its own source and sells water to System C. Because System B purchases water from System A, System B must comply with the Stage 2 DBPR schedule based on the population of the largest system in the combined distribution system, which is System A. Even though System C does not sell water and does not have its own source, it is **still** required to comply with the schedule of the largest system in the combined distribution system, which is System A.

The state can use its discretion in deciding whether:

- Emergency and seasonal connections between a wholesale system and a consecutive system makes them part of the same combined distribution system.
- A consecutive system that produces its own finished water is part of the same combined distribution system as the wholesale system.

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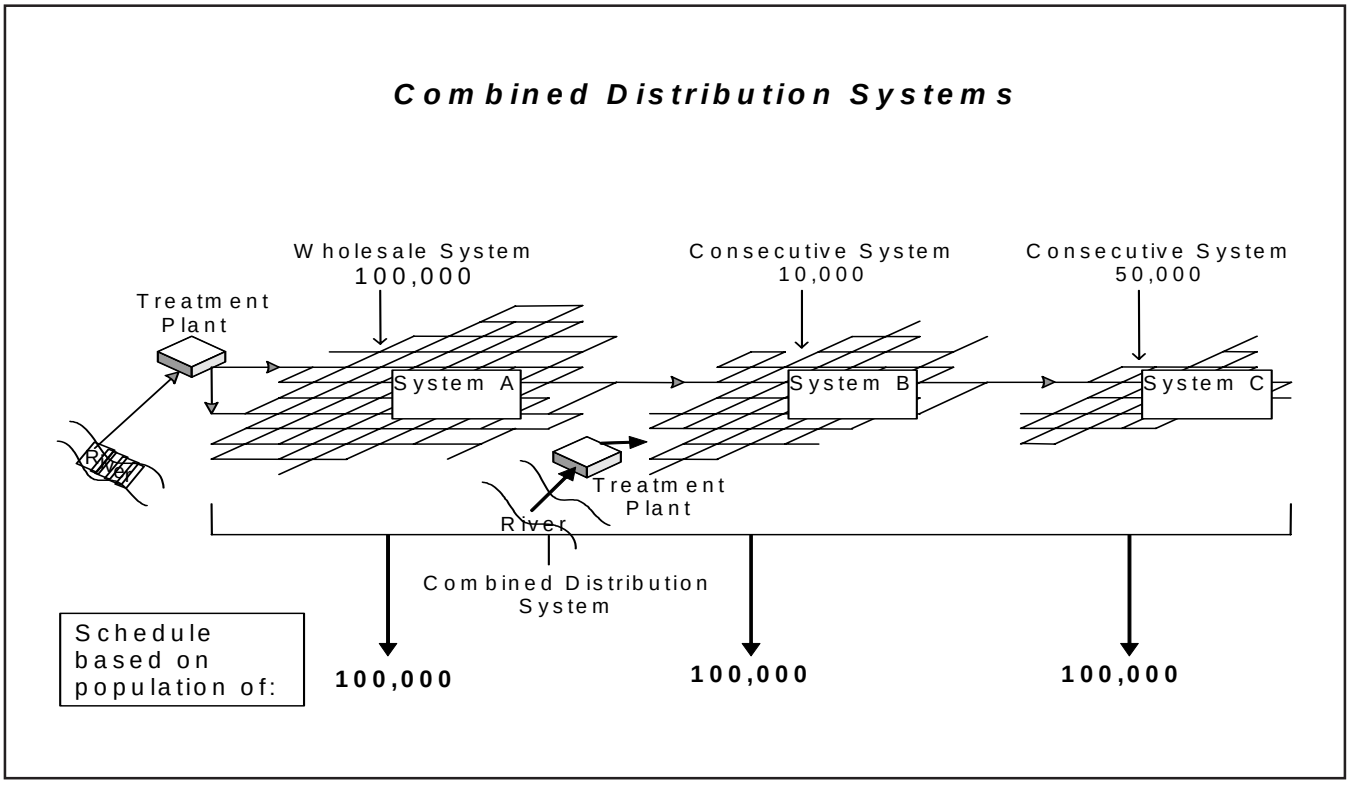
Stage 2 Disinfectants and Disinfectant Byproducts (DBP) Rule Overview - *continued from page 20*



- The interconnections between individual public water systems (PWSs) make them part of the same or different combined distribution systems.

In general, the state should take the following factors into account when deciding if distribution systems are combined or not:

- Frequency, duration, and regularity of the connection;
- The volume and percent of finished water the consecutive system receives from the wholesale system; and
- The quality (measured in disinfection byproduct levels) of the finished water provided by the wholesale system.

In the case that a state lacks sufficient information to make a determination based on connection type, the default decision is to determine the water system as part of a combined distribution system. This encourages the consecutive system to furnish additional information to allow the state to correctly determine a consecutive water system's relationship with a wholesale system.

Revisions to the Stage 1 Disinfection Byproducts Rule

Under the Stage 1 DBPR, Subpart H systems (Subpart H systems are those that use surface water or groundwater under the influence of surface water) that have...

- TTHM $\leq$ 0.040 mg/L, and
- HAA5 $\leq$ 0.030 mg/L, and
- TOC source water samples of $\leq$ 4.0 mg/L on a running annual average basis

…can qualify for reduced monitoring for TTHM and HAA5. The Stage 1 DBPR did not specify a timeframe or sampling frequency for taking these samples – it was

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Stage 2 Disinfectants and Disinfectant Byproducts (DBP) Rule Overview - *continued from page 21*

assumed that the sample would be taken at the same time as the samples for DBP precursors.

The Stage 2 DBPR now specifies a sampling frequency for all Subpart H systems (including those with treatment other than conventional filtration) for taking these TOC source water samples, and requires these systems to meet the RAA of ≤ 4.0 mg/L to obtain and maintain reduced TTHM and HAA5 monitoring status. Beginning April 1, 2008, or earlier if specified by the state, the Stage 2 DBPR requires systems to take TOC samples every 30 days at a location prior to treatment. These samples must be averaged quarterly for the most recent 4 quarters. An RAA is calculated using these quarterly averages.

Once a system has qualified for reduced monitoring it may reduce source water TOC monitoring to one sample every 90 days.

Stage 2 DBPR IDSEs

To comply with Stage 2 DBPR IDSE requirements, all CWSs and all NTNCWSs serving at least 10,000 people that treat their water with a primary or residual disinfectant other than UV or deliver water that has been treated with a primary or residual disinfectant other than UV must meet their IDSE requirement by doing one of the following:

- Qualify for a Very Small System (VSS) Waiver,
- Qualify for and submit a 40/30 Certification,
- Conduct Standard Monitoring and develop an IDSE report, or
- Conduct a System Specific Study and develop an IDSE report.

VSS Waiver requirements, 40/30 Certifications, and Standard Monitoring procedures are covered in subsequent modules. System Specific Studies will be covered in future trainings.

Stage 2 DBPR Compliance Monitoring

After complying with IDSE requirements for the Stage 2 DBPR, systems must begin Stage 2 DBPR compliance monitoring. The number of distribution system samples and the monitoring frequency required is determined by the source water type and population size category of each system. Monitoring sites will be determined based on a protocol in the rule. Systems that completed a Standard Monitoring or System Specific Study IDSE will use this information. Systems that used VSS or 40/30 will use Stage 1 DBPR information. Stage 2 DBPR compliance monitoring may begin for some systems as early as April 1, 2012.

Systems must calculate compliance with the TTHM and HAA5 MCLs based on a locational running annual average (LRAA). Consecutive systems must comply with the Stage 2 DBPR IDSE requirements and monitoring requirements for TTHM, HAA5, chlorine and chloramines. Systems with high levels of TTHM or HAA5 will need to conduct operational evaluations. These evaluations will typically be triggered prior to an MCL exceedance.

Consecutive Systems

The Stage 1 DBPR did not specifically address consecutive systems. The Stage 2 DBPR requires that consecutive systems comply with the requirements in the new rule.

- A consecutive system is a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

The Stage 2 DBPR introduces new requirements for consecutive systems, or systems that receive some or all of their finished water from wholesale systems. “Finished water” means water that has been introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

Because consecutive systems were not specifically addressed under the federal Stage 1 DBPR (although some states required compliance), many consecutive systems do not have data on locations of high TTHM and

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Stage 2 Disinfectants and Disinfectant Byproducts (DBP) Rule Overview - *continued from page 22*

HAA5 concentrations and may not be able to determine appropriate monitoring locations for their IDSE. They also may not be eligible for some of the IDSE waivers.

Consecutive systems are encouraged to contact their wholesale provider as soon as reasonably possible after promulgation of the Stage 2 DBPR to determine what plans, if any, the wholesale system has already made regarding the IDSE. Although each system will have to develop a schedule and plan that is specific to their system, coordinating IDSE monitoring schedules will allow the two (or more) systems to better utilize data from the IDSE monitoring period to formulate a Stage 2 DBPR compliance strategy, if necessary. At a minimum, coordinating the IDSE monitoring schedules helps the wholesale and consecutive system(s) better understand DBP formation across the combined distribution system. Consecutive systems also may want to check with their wholesale system to determine if the wholesaler has conducted monitoring in the consecutive system's distribution system. If this is the case, the consecutive systems may be able to use this information.

Consecutive systems that are having problems meeting the MCLs for TTHM and HAA5 will face challenges that are different from those faced by non-consecutive systems. The Best Available Technologies (BATs) for systems that have their own sources (e.g., GAC, nanofiltration) are based on controlling DBPs through precursor removal. Consecutive systems do not control the treatment trains for the water they purchase. If the water they receive from wholesalers already contains DBPs or precursors and disinfectants that produce DBPs, the Stage 1 DBPR BATs will not address the problem for non-consecutive systems.

As a consequence, the Stage 2 DBPR includes:

- Two BATs for large (> 10,000 people served) consecutive systems: chloramination and management of hydraulic flow and storage to minimize residence time in the distribution system. Chloramination has been used for residual disinfection for many years to minimize the formation of chlorination DBPs, including TTHM and HAA5.

- One BAT for small (< 10,000 people served) consecutive systems: management of distribution system and storage to minimize water residence time in the distribution system. EPA has not included chloramination as a BAT for small systems because it requires operator supervision and adjustment. Many small systems lack treatment expertise and improper treatment can cause operational difficulties such as nitrification in the distribution system.

The BATs for consecutive systems do not focus on precursor removal. EPA still believes that precursor removal remains a highly effective strategy to reduce DBP formation, but recognizes that it is not applicable to consecutive systems. EPA believes that the best compliance strategy for consecutive systems is to collaborate with wholesalers to help achieve the water quality needed.

For more information on the Stage 2 DBPR check out the EPA website at:

http://www.epa.gov/OGWDW/publicoutreach/quickreferenceguides.html ■

The 2007 EPA Clean Water Act O&M Awards Program

The Environmental Protection Agency Clean Water Act Operation & Maintenance Awards program encourages public support for effective operations and maintenance activities at wastewater treatment facilities. Recognition is made for outstanding innovation of processes and practices at wastewater treatment facilities.

The Operations and Maintenance (O&M) awards encourages public support for effective operations and maintenance activities at wastewater treatment facilities. The awards aim to heighten overall public awareness of the contributions wastewater treatment facilities, projects and programs make to clean water. Recognition is made to municipalities and industries for outstanding and innovative technological achievements, methods or devices in their waste treatment and pollution abatement programs. The O&M category also recognizes the Most Improved Plant (MIP) which demonstrates the effectiveness of the CWA Section 104(g) (1) program.

Please note that outstanding biosolids programs are recognized in a separate category in these awards, as well.

Montana has a long history of participating in this awards program and several Montana WWTPs have been awarded first place nationally. For Montana plants, the competition begins in Region VIII of the EPA, which places Montana plants in the mix with facilities from the states in our region. The top two regional facilities are included in the nation-wide competition.

These awards recognize communities that continue to meet water quality permit requirements, while at the same time, improving O&M practices and employing innovative activities to achieve improved treatment at the facilities. A nominated facility will need to complete a questionnaire application form that is available from the Montana Awards manager, Bill Bahr, DEQ, 406-444-5337. A list of suggested topics for inclusion in the WWTP application is contained in the questionnaire.

Additionally, the O&M category recognizes the Most Improved Plant (MIP) which demonstrates the effectiveness of the CWA Section 104(g)(1) program. “The best candidates are those that have shown substantial improvements in effluent quality and overall operation and maintenance, that have built a strong foundation for long term, sustained permit compliance and have overcome obstacles in reaching compliance goals.”

The Exemplary Biosolids Management (Biosolids) awards category recognizes excellence in all areas of municipal biosolids management, including exemplary operating projects, research, technological advances, public acceptability, and risk and cost reduction activities. The current sub-categories and criteria allow for the recognition of a broad spectrum of programs with sound management, effective communication to stakeholders, and community-friendly biosolids management practices.

Recognition made for this category is consistent with practices of the National Biosolids Partnership Environmental Management System Program which EPA encourages all biosolids managers to implement.

AWARDS CRITERIA:

Small = 1.0 mgd or less;
Medium = 1.1 – 10.0 mgd; and,
Large = 10.1 mgd or more

Secondary Treatment Plant:
Small, Medium, and Large plants.

Advanced Treatment Plant:
Small, Medium, and Large plants.

Non-Discharging Plant:
Small and Large plants.

Most Improved Treatment Plant:
Eligible if less than 5.0 mgd.

Exemplary Biosolids Management

A plant should be included in the secondary treatment plant category if the plant’s effluent is designed and permitted (30 day average) to release up to 30 milligram per liter (mg/l) of both 5 day biochemical oxygen demand (BOD5) and

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The 2007 EPA Clean Water Act O&M Awards Program - *continued from page 24*

total suspended solids (TSS) to the surface waters, and as a minimum, remove 85% of the BOD5 and TSS from the influent.

A plant should be included in the advanced treatment plant category if the plant's effluent is designed and permitted (30 day average) to meet any one of the following conditions: a) release less than 30 milligram per liter (mg/l) of both 5 day biochemical oxygen demand (BOD5) and total suspended solids (TSS) to the surface waters, and as a minimum remove 85% of the BOD5 and TSS from the influent; or (b) remove ammonia, nitrogen, or phosphorus; or (c) provide additional treatment after a secondary process using coagulation and filtration. A plant should be considered advanced even if advanced treatment applies only on a seasonal or periodic basis.

Photo by Montana Water Center – Treatment Plant

To qualify for the non-discharging plant sub-category of the O&M Award, the plant cannot have an NPDES permit, except if there is a no discharge permit, but can have State-specific and technology-specific limits for non-surface water related discharges.

To qualify for the MIP sub-category of the O&M Award, the plant must have an average design capacity of less than 5.0 mgd and be able to demonstrate that improvements resulted from a State or Federally managed on-site technical assistance program, specifically the EPA CWA Section 104(g)(1) On-site Assistance Program for small communities.

To qualify for Exemplary Biosolids Management, plants are rated on several different criteria:

Operating Projects (Production levels):
(1) greater than 5 dry tons per day (DTPD), and
(2) less than (5 DTPD);
Technology/Innovation or Development Activities;
Research Activities; and,
Public Acceptance.

Winners of the EPA's 2006 national awards should not re-apply in the same award category until 2009. However, a 2006 national winner may be eligible to apply for an award this year in any of the other awards program categories.

States and Tribes should recommend facilities, projects and programs to their EPA regional offices for consideration of an award. Nominations for the national awards should be recommended by EPA Regions for submission to Headquarters by the tentative national deadline date of June 9, 2007.

The O&M Awards category eligibility is based on average design capacity and treatment level. The plant should have been in operation at the same treatment level and design capacity for at least two years as covered in the two calendar years of data reported in the compliance section of the form. The biosolids awards category eligibility is based on production level of dry tons per day, activity type, and public acceptance.

Within the last three years, the plant being considered for the O&M Award should not have been upgraded to meet secondary or advanced limits nor have gone through an expansion which exceeded the January 1, 2004 average design capacity by 50 percent.

Please contact Bill Bahr, Montana EPA Clean Water Act Award manager, for information and application guides at (406) 444-5337 or by e-mail at bbahr@mt.gov. ■

Wastewater Collection System Operation and Maintenance

Bill Bahr, SRF Program DEQ

In 1990 the Environmental Protection Agency (EPA) published its Annual Needs Survey Report to Congress, identifying the problems and costs to fix problems in the wastewater treatment and collection systems across the nation. In the 1990 report, the EPA tabulated $42.9 billion worth of work needed just for collection systems improvements by the year 2010. Seventeen years later and just three years from that 2010 date, I have little doubt that significant needs still exist and the costs for the improvements probably exceeds that from the 1990 report.

I think the first question most of us would ask is, "How did these problems occur?" It seems as though we can design and build collection and treatment facilities, but they don't seem to last and they are always in need of repairs. Is it the materials we use? Is it poor planning, engineering, design and construction? Why can't routine maintenance procedures keep these systems working forever?

Obviously, I ask the above questions already knowing some of the answers. Wastewater is a very corrosive material. It causes concrete and other materials to fail. Communities grow in population, so more collection pipes and pumping stations are needed. Even excellent operation and maintenance programs for the pipes and pumps can only keep the equipment in operation for a period of time before eventually breaking down. Wastewater just has stuff in it that plugs up the works. Planning periods usually look about 20 years into the future as a guide for how long equipment and some structures will last. Sometimes systems are poorly planned, engineered or built.

Photo by Montana Water Center – Old Water Treatment Plant

Regardless of the causes, whether due to neglect and poor maintenance practices, poor quality construction, materials or engineering, or, simply, population growth and an expansion of the system, the needs exist. Effective collection systems are necessary to prevent sewage from backing into basements and other areas inhabited by people. Sanitary sewer overflows (SSOs) expose the general population to pathogens that can cause serious illness and death and also send untreated wastewater into the soil and water causing environmental degradation. Infiltration leakage sends extra water to the treatment plant, affecting treatment processes. Needless to say, preventing these health and environmental risks is a high priority for the EPA and the Montana DEQ.

Some significant activities for communities to undertake in improving collection system performance would be to have staff participate in a certification program that assures the workers understand the nature of wastewater; apply standard operation and maintenance strategies in maintaining and improving the collection system pipes and pump stations; understand how maintenance activities and toxic discharges in collection systems impacts the treatment plant processes; and, plan for regular, approved improvement and replacement of collection system components.

Preventing overflows is a national enforcement priority for the EPA. It is a major enforcement concern for the Montana DEQ, as well. Any public wastewater system should be aware of system needs and deficiencies through periodic cleaning and inspection programs. Poor O&M of the collection system that results in repeated backups and/or overflows will place the community in legal jeopardy from lawsuits and fines. Active pretreatment programs will reduce the types and amounts of hazardous materials sent to treatment plants. Good planning will keep communities ahead of the problems caused by deficient collection systems. ■

Photo by Montana Water Center – West Fork Monitoring