

## Inside This Issue

New METC Website .....	6
Operator Certification News .....	7
Alternative CEC Opportunities .....	7
CEC Naggings .....	8
Water/Wastewater Operator Certification	
Reminder .....	9
Examination Notice .....	10
Exams Passed .....	11
Emergency Response Practice .....	12
Emergency Phone Numbers .....	12
Emergency Response Security Resources .....	13
DEQ Spill Reporting Policy .....	14
Reflections in the Ripples .....	15
Excavation Safety Checklist .....	16
Hysham feels the sting of mosquito-	
borne virus .....	17
What is a Water Quality Standard and	
When is Water Safe to Use .....	19
Proposed water project needed for	
Choteau's future .....	20
State Revolving Fund News .....	21
The E coli Standard for Primary Contact	
Recreation .....	23
Winterizing Vacant/Seasonal Plumbing	
Systems .....	25
EPA announces changes to drinking water	
regulations .....	26
Drought Contingency Planning .....	27
Accessing Drought Info for MT Water Users ...	29
How Do You Measure Up?	
A Water Awareness Test .....	30
How Did You Score? .....	31
Something to Think About for Ground Water	
Systems .....	32
Water Efficiency Measures for Communities ...	33
Water Efficiency Measures for Landscaping ....	34
Real Estate Transfers and Ground Water	
Well Tests .....	35
Storage Tank Alert .....	36
Installing an Air Line in a Well .....	37
Long Term 1 Enhanced Surface Water Treatment	
Rule and Its Effect on My Water System .....	39
Critical Issues: Filter Media Specifications .....	41
Mobile Glass Pulverizer .....	43
Economic and Ecological Impacts of	
Recycling in Montana .....	44
New Employee in Pollution Prevention	
Program .....	44
Asbestos Regulations for Public/Commercial	
Building Owners and Contractors .....	45

## New Faces and Position Changes with the Department of Environmental Quality, Public Water Supply Section

**D**usti Lowndes joined DEQ on June 7 as a Water Quality Specialist for the Public Water Supply Section. She will be located in our Kalispell Regional Office and will be responsible for providing technical assistance, compliance inspections, and training for public water supply owners and operators.

Before coming to the DEQ, Dusti was a registered sanitarian for almost four and a half years with Flathead City-County Environmental Health Services. She attended the College of Charleston in Charleston, S.C. and Salish Kootenai College in Pablo, MT in which she earned a bachelor's degree in Environmental Science with emphases on environmental quality. She was granted, for two years, to conduct an amphibian study on the Flathead Indian Reservation. With an increasing concern for the decline and mutation of amphibian populations, her study compared abiotic and biotic parameters of non-breeding and breeding ponds. Later, Dusti was hired by Flathead Tribal Fisheries to assist in conducting studies and to identify



Dusti Lowndes

aquatic insects. After graduation, Flathead City-County Health Department gave her a position as a public facility inspector. Although she enjoyed her work at the health department, she really wanted to be back in water quality. Having a knack for working with people, teaching, and regulating facilities, she naturally jumped at the chance to be employed by DEQ as a public water supply technical assistant, trainer, and compliance inspector.

Michael, her husband, is a contractor and builder in the Flathead Valley under his business name of Aztec Builders. Emmalie is the name of her ten-year-old daughter who is taking horse and rabbit

# Big Sky Clearwater

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Fall 2004

## 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.

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to view "The Big Sky Clearwater" issues electronically

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## New Faces and Position Changes with the Department of Environmental Quality, Public Water Supply Section! - *continued from page 1*

projects in 4-H. She has been on the Smith Valley drill/cheerleading team for five years and plays basketball. Cameron, age twelve, loves playing football, basketball, and track events. Being a hunter, this year, is his focus. Maverick, now at the age of two, loves riding horses and is a magnet to mud puddles. He has his sitter wrapped

around his finger. The family loves to camp, fish, hike, ride horses and travel. Dusti, a fourth generation native of Montana, grew up in Belgrade and is very happy to be a part of DEQ staff. Contact Dusti at (406) 755-8985 or by e-mail at: [dlowndes@state.mt.us](mailto:dlowndes@state.mt.us).



*Kerry Schmelzer*

**K**erry Schmelzer joined the DEQ on June 7 as a Water Quality Specialist for the Public Water Supply Section. She will be located in our Billings Regional office and will be

responsible for providing technical assistance, compliance inspections, and training for public water supply owners and operators.

Kerry began working the environmental health field in Boise, Idaho where she became a licensed Environmental Health Specialist in 1986. She has practiced in Idaho and Colorado, which included responsibility for, among the others\*, the public drinking water program. (\**Food, sewage, dairies, solid waste, vector control, pools, schools, daycares, and food and waterborne illness investigations.*)

Since moving to Montana in 1998, Kerry completed a Masters Degree in Health Administration, Montana Bureau of Mines and Geology, writing Source Water Delineation and Assessment Reports for Montana's public water systems. She has also provided consulting services in residential land development and public health preparedness/emergency response planning.

Kerry lives in Columbus with her husband Lee, an MSU Extension Agent, and 11-year old daughter, Emma. They raise registered Morgan horses, ride and spend any other time attending their daughter's 4-H activities and performances with the Rimrock opera company and the old time fiddlers.

Kerry is a Registered Sanitarian in Montana and holds a REHS/RS credential through the National Environmental Health Association. She is enjoying working with the staff at the Billings Office.

Kerry can be reached by calling (406) 247-4412 or by e-mail at: [kschmelzer@state.mt.us](mailto:kschmelzer@state.mt.us).

*Kerry's first day in the field with boss Jerry Burns as they exited the BMPI, Inc., coal mine, in the Bull Mountains.*

*They had just completed an inspection of a water storage tank located about 1000 ft. horizontally between two of the mains in the underground mine.*



## New Faces and Position Changes with the Department of Environmental Quality, Public Water Supply Section! - *continued from page 3*



*Rachel Clark*

**R**achel Clark joined DEQ on April 19, 2004 as the new Senior Engineer for the Public Water Supply Section. She will be located in our Helena office and will be responsible for water and

sewer plan review. She recently moved to Helena from Soldotna, Alaska, where she was raised.

Rachel is a Registered Professional Civil Engineer in Montana and Alaska. She has a Bachelor's degree in Civil Engineering from the University of Alaska – Anchorage and has almost finished her master's degree in Hydrology. She has worked with public water supplies in Alaska for the past ten years as an intern with the Alaska Department of Environmental Conservation, an Engineering Technician with the City of Kenai, and Environmental Compliance Coordinator for the Kenai Peninsula Borough.

Rachel lives in Helena with her dog and enjoys hiking and fishing. She can be reached by calling (406) 444-6722 or by e-mail at [rclark@state.mt.us](mailto:rclark@state.mt.us)



*Hiedi Handford*

**H**iedi Handford began her employ with the DEQ, Public Water Supply Section on January 6, 2003 as a temp working on a scanning project for the PWS files. On October 27, 2003 Hiedi was hired

on permanently as Administrative Support and works with Sandra L. Ewing, Total Coliform Rule Manager.

5 children between the two of them. Heather (18) and Hannah (14) are Hiedi's daughters, Chelsey (17) and Shanna (12) are Bruce's daughters, and Grace Marie (4) is the last of the tribe, belonging to all. Hiedi has been commuting from Lincoln to Helena since March of 1999, and finds Fleisher Pass to be one of the most beautiful drives in the state, all year round. Hiedi has been a Chairperson for the American Red Cross for 8 years for the Lincoln Community, and has just recently started a blood drive in the Helmville/Ovando community, and will be holding 10 blood drives per year between the two communities. As Halloween is her favorite holiday, it figures she would be a vampire with her blood drives!

Hiedi has resided in Montana since being "transplanted" from Colorado in January of 1977. She resided in Helena and completed her general education at Helena schools, also completing 2 years of study at Carroll College in the early 90's. Hiedi moved to Lincoln Montana in February of 1996 and married her husband Bruce. Bruce is a laborer for a Metal Building Company, and the couple has

In Hiedi's many years of employment in the Helena area, she has worked in many different positions, varying from construction, health care, food service management, and even a newspaper journalist. Hiedi has 10+ years' administrative experience, and 4 years of office management. The DEQ provides the challenge Hiedi has been seeking, and she intends to be around for a LONG time!



## New Faces and Position Changes with the Department of Environmental Quality, Public Water Supply Section! - *continued from page 4*



*John W. Camden*

**J**ohn W. Camden accepted the position of Section Supervisor of the Public Water Supply Section with the MTDEQ, April 16, 2004. John has been in the position of Acting Section Supervisor since July of 2003.

John is a native of Choteau, Montana, which is along the Rocky Mountain front where he grew up as a child. He graduated from high school in 1969 and was a member of the "69" State Class B championship basketball team. John attended Montana State University and graduated in 1975 with a B.S. in Business with a Marketing option. During John's last year of college and after graduation he worked for Stahly Engineering out of Helena surveying logging roads in Idaho. He then went to work for the Attorney General's Office for one year.

Besides working, John earned his private pilot license in July of 1977. In August of 1977, John went to work for the City of Helena as a building inspector trainee. One year later he transferred to the Water Department and spent 14 years as a water treatment plant operator. John holds a 1AB license (#1852) and operated the Missouri River and Ten Mile water treatment facilities.

John began his current career with MTDEQ in June of 1992 as a Water Quality Specialist and he managed the Surface Water Treatment Rule and provided technical assistance. He was also a core team member in performing Comprehensive Performance Evaluations on surface water treatment plants. John was selected to manage the Field Service Program in April of 1998 until his appointment to Acting Section Supervisor in July 2003 and his current position.

According to Jon Dilliard, Public Water and Subdivisions Bureau Chief, "John has a formidable background and knowledge base in public water supplies and a strong vision of the future." He is completely confident that John will be a superb leader for the section for years to come. His appointment will allow the department to move forward with further development and staffing for the section and bureau.

John stated, "My first goals are to hire staff, continue with providing customer service, and getting the waiver program going again." John hopes to see everybody at the Fall Water School in Bozeman. John can be reached by calling (406) 444-4071 or by e-mail at: [jcamden@state.mt.us](mailto:jcamden@state.mt.us)

# New METC Website

Jan Boyle, Gary Hall and Mills Thorsell



## MONTANA ENVIRONMENTAL TRAINING CENTER



The Montana Environmental Training Center (METC) has a new look and is at: <http://www.msun.edu/grants/metc>

The all new METC website went on line last month, with numerous improved user friendly features such as on-line registration for up coming CEC workshops and schools.

On the left side of the home page, you will find links to 8 different topics:

“ABOUT METC” gives detailed information concerning METC’s mission and training and education goals and includes the METC organizational structure.

“NEWS” provides the latest news about METC, new training opportunities and the current monthly training opportunities.

“QUARTERLY TRAINING” has the training for each month on a calendar basis, similar to the METC Annual Calendar with hyperlinks to more detailed information about each workshop, date, time, place, description of course, and a link to on-line registration. We hope to have a link soon to each Quarterly Training Announcement that we currently publish and send out.

“ALTERNATIVE TRAINING” lists Internet Courses, CD-ROM training, Correspondence Courses, plus Basic Rules for Continuing Education Credits.

About METC
NEWS
Quarterly Training
Alternative Training
Class Registration
Training Providers
Photo Gallery
Web Resources
Contact us
Home

“CLASS REGISTRATION” allows user-friendly ON-LINE registration for the courses you wish to attend. You will receive a confirmation e-mail notice back for each of your registrations that you submit.

“TRAINING PROVIDERS” links to other colleges and training organizations.

“PHOTO GALLERY” links the user to actual photos taken during various workshops and schools. The “thumbnail” photos can be enlarged for easy viewing.



“WEB RESOURCES” lists links to various organizations and sites that we recommend as water and wastewater resource sites.

“CONTACT US” allows you to send in e-mail messages with any concern you may have about any of the upcoming training sessions. The METC mailing address and phone numbers are listed on that page, too. There is also a link to a page with other water and wastewater organizations that have continuing education courses.

Be sure to try out METC’s “new” website with many links to water and wastewater information and training opportunities. We welcome your feedback on how you like the new website, or call (406) 771-4432 or (406) 771-4433. ■

## Operator Certification News

By Ruby Miller

**GOOD NEWS! Montana's Operator Expense Reimbursement Grant Program has paid out almost \$90,000.00 on 770 claims since it went into effect on July 1, 2002.**

There have been several changes since the beginning of the operator reimbursement program to make it run smoother. Our forms have been abbreviated. We are still trying to promote the reimbursement program. There are still operators and system owners who are not aware that the program reimburses training costs, application and examination fees, and renewal expenses for operators of community and non-transient non-community Public Water Systems serving 3,300 or fewer people.

New this year was the allocation of funding to training providers to help supplement special training. These training sessions are offered at a minimal cost to the operator. The reimbursement program paid for speakers and seminars such as: Dr. Patricia Meinhardt who spoke at the METC Fall Water School in Bozeman; Fred Spengler and Brit Weber who spoke at the MRWS 25<sup>th</sup> Annual Conference; a METC seminar featuring HACH (Special Instrument) Training; and a MRWS seminar on Control Valves, and Backflow Prevention, which was supplemented by the Reimbursement Program. DEQ's John McDunn attended Disinfectant/Byproducts Train-

ing and has provided training to about 200 operators. These are wonderful training opportunities for the operators.

To expedite the reimbursement process, the forms should be filled out completely, including two signatures, and the receipts must be included for the cost of training sessions or conferences and lodging. Now that the program is up and running, reimbursement requests should be filled out and sent in within 60 days. Lodging and meals are still only reimbursed to unpaid operators.

During the next two-year training period, operators will not be reimbursed for additional training sessions if they could have acquired the number of continuing education credits required at another conference they attended. Two training sessions will be paid for when the operator cannot acquire enough CEC's with the first training session.

If you would like more information or have any questions, contact Ruby Miller at (406) 444-0490. ■

## Alternative Continuing Education Credit Opportunities for Operators

By Jenny Chambers, Water and Wastewater Operator Certification Program Manager

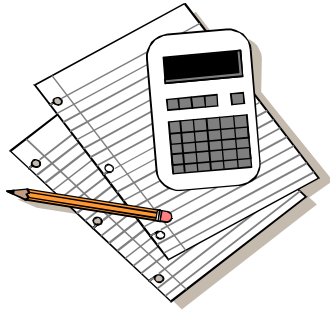
In addition to traditional correspondence courses and other training courses, there are new types of training made available with the onset of new technologies. These training courses are approved for Continuing Education Credits (CECs). These training opportunities include, but are not limited to, the following:

- a. On-line Internet Training;
- b. Compact Disk - Read Only Memory (CD-ROM);
- c. Video Based Training;
- d. On-site Facility Based Training; and
- e. Satellite Teleconferences.

For more information, please contact:  
Jenny Chambers at 444-2691 (jchambers@state.mt.us) or  
Ashley Eichhorn at 444-4584 (aeichhorn@state.mt.us)

### Featured Alternative Training Course Selected for Review

**Source Water Protection Technical Guidance - CD-Rom:** This CD-Rom was developed by the Montana University System Water Center; Montana Department of Environmental Quality, and the Montana Bureau of Mines and Geology. This program will simplify the process of developing your source water protection plan. Trainers may use this tool to provide a standardized approach to program development. Operators can earn 0.5 CECs for successful completion of this training! Contact Joe Meek at 444-4806 or jmeek@state.mt.us for more information.



## ***CEC NAGGINGS*** (THAT YOU MAYBE SHOULDN'T IGNORE)

***CONGRATULATIONS*** to all operators who got re-certified by getting their CEC's (continuing education credits) in by May 31, 2004 and renewal fees in by June 30, 2004.

Now its time to start over again and why not earn your credits early so you don't have to rush at the end. There are lots of fun and exciting ways to get your credits. These include attending any approved courses (the METC 2004 calendar lists courses from the current training providers, so check out the ones from July through December). You can complete an approved correspondence course (these are also listed in the METC calendar), or find your own class and apply to have it approved for credit. There are also some new ways to earn credits: Internet and CD-Rom courses. Remember that operators-in-training are not required to earn CEC's.

If there are any problems on your CEC status or you need information on any of the training options, simply contact Ashley Eichhorn, Water/Wastewater Operator Certification Office Technician at (406) 444-4584. Hope to see your credit forms across my desk soon!





# Water/Wastewater Operator Certification Reminder

*By Reta Therriault, Certification Technician*

There are two areas of concern that I would like the owners and the certified operators of community and non-transient non-community water and wastewater systems to be aware of.

- 1) According to the Administrative Rules of Montana (ARM) 17.38.225(5) "Measurements for pH, temperature, turbidity, and residual disinfectant concentrations for community and non-transient non-community water supply systems must be conducted by a person certified under the provisions of Title 37, Chapter 42, Montana Codes Annotated (MCA), or by a person who has been properly trained to conduct these measurements by the operator in responsible charge or by the department. Bacteriological samples for community and non-transient non-community water supply systems must be collected by a person approved by the department or certified under the provisions of Title 37, Chapter 42, MCA ..."

What this means is that **bacteriological or coliform sampling must be taken by a certified operator or someone who has been approved by the state.**

- 2) The other area of concern for our office is not being notified when a water or wastewater operator leaves employment. MCA 37-42-307 states "Any person, firm, or corporation, both municipal and private, shall notify the department within 3 business days after termination if a certified water or wastewater operator terminated employment."

When our department is not notified of operator termination, then our database is not updated with the correct information. Operators do not receive corresponding mail (i.e., renewal notices, training schedules, rule changes) because their address has not been updated. Our department is unable to reach the operator because the telephone number has not been changed and the past employer does not have the current information. In some instances, this has led to operators having their certifi-

cates unjustly revoked. Please remember that it is the employer's responsibility as well as the operator's responsibility to notify our office of termination of employment.

The reason that the above laws are in-place is because you, as the owner and/or the operator of a public water system, have the responsibility to ensure that public health and the environment are protected.

If you have questions or concerns, please do not hesitate to contact our office at one of the telephone numbers below:

- |  |                |
|--|----------------|
| Jenny Chambers<br>Program Manager<br>All program questions   | (406) 444-2691 |
| Ashley Eichhnorn<br>License Permit Tech<br>Renewals, CEC's, approved training<br>Requests for Training                         | (406) 444-4584 |
| Ruby Miller<br>Reimbursement Account Tech<br>Requests for Information  | (406) 444-0490 |
| Reta Therriault<br>License Permit Tech<br>Applications, examinations, certification,<br>compliance<br>Requests for Information | (406) 444-3434 |

# Examination Notice

October 1, 2004

## Fall Water and Wastewater Exams Following the 71<sup>st</sup> Annual Fall Water School in September MSU-Strand Union Building • Bozeman, MT

**REGISTRATION DEADLINE: September 16, 2004**

To register to take an examination you must send the following to the address below by September 16, 2004:

1. A completed application for water and/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, and 5AB are combination exams and count as one) and/or \$70 for wastewater;
4. A completed copy of this form;
5. Bring photo ID with you to the exam – you will be asked for one.



**REGISTRATION DEADLINE: September 16, 2004**

### Water & Wastewater Operator Certification

Please sign me up for the following exam:

		1	2	3	4	5
A-	Water Distribution	___	___	___	___	___
B-	Water Treatment	___	___	___	___	___
C-	Wastewater Treatment	___	___	___	___	___
D-	Industrial Wastewater	___	___	___	___	___

Name: \_\_\_\_\_ Operator #: \_\_\_\_\_

System Name: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

City/Zip: \_\_\_\_\_ Daytime Phone #: \_\_\_\_\_

**Mail application and fees to:** DEQ /W W O C  
P O . B o x 200901  
H e l e n a , M T 59620

The deadline to sign up for all examinations is 15 days before the examination date. To receive an application or to sign up for an examination, contact Reta Therriault at 4-6/444-3434 or [rtherriault@state.mt.us](mailto:rtherriault@state.mt.us). An application is also available on the WWO web site at [www.deq.state.mt.us](http://www.deq.state.mt.us). Class 4 and 5 — Water, and Class 3 and 4 — Wastewater exams may be taken in a DEQ office in Helena, Kalispell or Billings by appointment.

## EXAMS PASSED JANUARY 2004 - JUNE 2004

**CLASS 1's**

FOX, JARRAD	BILLINGS	1A	CO
KARGE, CRAIG	STUDENT - HAVRE	1A	OT
KERMAN, PAUL	STUDENT - HAVRE	1A	OT
MILLER, DERICK	BILLINGS	1A	CO
SKILLESTAD, RYAN	BILLINGS	1A	CO
WILEY, THOMAS	STUDENT - HAVRE	1A	OT
KARGE, CRAIG	STUDENT - HAVRE	1B	OT
KERMAN, PAUL	STUDENT - HAVRE	1B	OT
KING, JOSEPH	STUDENT - HAVRE	1B	OT
MARR, FRANK	FORSYTH	1B	CO
WALKER, LANNY	BRADY	1B	OT
WERSAL, KEVIN	GLASGOW	1B	CO
WILEY, THOMAS	STUDENT - HAVRE	1B	OT
WILSEY, CHRIS	NEIHART	1B	OT
YELLOWMULE, ANDREAS	YELLOWTAIL DAM	1B	OT
BURROUGHS, GRANT	BIG SKY W&S	1C	CO
NEFF, GARY	SOMERS	1C	OT
KUHLER, RONALD	BILLINGS	1D	CO

**CLASS 2's**

BOSTON, TIM	BELGRADE	2A3B	OT
CUMMINGS, MICHAEL	SIDNEY	2A3B	CO
ISRAEL, ROD	FLORENCE	2A3B	OT
LAMPMAN, MARK	COLUMBIA FALLS	2A3B	OT
LANG, MARK	KALISPELL	2A3B	CO
LUCKE, JOHN	E GLACIER	2B	CO
PALICZ, NICHOLAS	KALISPELL	2A3B	CO
SCHRADER, JOE	COLUMBIA FALLS	2A3B	OT
SHYNE, JOHN	BELGRADE	2A3B	CO

**CLASS 3's**

ALLEN, GEORGE	LAKESIDE	3A4B	OT
BOSTON, TIMOTHY	BELGRADE	3C	OT
BULIK, BRUCE	FAIRFIELD	3A4B	OT
CONNOLLY, JOSEPH	ST REGIS	3C	CO
DARNE, WARREN	ALBERTON	3C	CO
HUIZINGA, EUGENE	BOULDER	3A4B	CO
ISRAEL, ROD	FLORENCE	3C	OT
JENSEN, LARRY	PABLO W&S	3A4B	CO
JENSEN, LARRY	PABLO	3C	CO
JONES, VANCE	DILLON	3C	CO
MILLER, DANIEL	RONAN	3C	CO
MUSCUTT, JULIE	EAST HELENA	3A4B	CO
RAGSDALE, RAYMOND	BROADUS	3A4B	OT
SHULAR, BOBBIE	BLACK EAGLE	3A4B	CO
SHYNE, JOHN	BELGRADE	3C	CO
STEIR, JAN	GREAT FALLS	3A4B	CO
STEIR, JAN	GREAT FALLS	3C	OT

A = Water Distribution  
 B = Water Treatment  
 C = Wastewater  
 D = Industrial Wastewater  
 CO = Fully Certified Operator  
 OT = Operator-in-Training



The exams for certification require considerable time in study and preparation. Passing represents a lot of hard work and initiative on the part of the individual. Be sure to show appreciation to your water and wastewater operator for working hard to ensure that they are properly trained to care for your system.

**CLASS 4's**

AUCK, SHAWN	HOBSON	4C	CO
BLACKMAN, DEWAYNE	BROWNING	4C	CO
BURRELL, KENNETH	GLACIER PARK	4AB	CO
BUZBEE, EDWIN	HERON	4C	CO
CLAUSE, JOCK	BILLINGS	4A	CO
CLAUSE, ROY	BILLINGS	4A	CO
COPE, BENJAMIN	BOZEMAN	4AB	CO
CUMMINGS, MICHAEL	SIDNEY	4C	CO
CUMMINGS, TERRY	SILVER BOW	4AB	CO
CURRY, SCOTT	TROY	4AB	CO
DARNE, WARREN	ALBERTON	4AB	CO
FRASER, MICHAEL	KALISPELL	4AB	CO
GILMAN, LEONARD	BILLINGS	4AB	CO
GLADEAU, JAMES	NASHUA	4C	CO
HAMISEVICZ, MARY	WHITEFISH	4AB	CO
HELTON, JOHN	MARTIN CITY	4AB	CO
HENDRICKSON, JOEL	DECKER	4AB	OT
HOFER, DAVID	CUT BANK	4A	CO
HOLBROOK, KELLY	GREAT FALLS	4AB	OT
HOUGARDY, JOHN	BROADVIEW	4C	CO
HUCKE, WADE	DILLON	4AB	OT
KARTEVOLD, FORREST	HELENA	4AB	CO
KLEINSASSER, WILL	LEDGER	4C	CO
MEIS, PHILIP	CLANCY	4AB	CO
MONACO, KEITH	MISSOULA	4AB	CO
MORTON, BILLY	BIGFORK	4AB	OT
PARKS, BRUCE	MISSOULA	4AB	OT
PARKS, LESTER	COLUMBIA FALLS	4AB	CO
PAYNE, MICHAEL	ZORTMAN	4AB	OT
RAGSDALE, RAYMOND	BROADUS	4C	CO
SALVESON, EUGENE	WHITEWATER	4C	CO
SCHOENDALLER, LORI	KEVIN	4AB	CO
SONJU, JOSH	KALISPELL	4AB	CO
STEWART, MICHAEL	GREAT FALLS	4A	CO
STONE, SPENCER	BILLINGS	4AB	CO
STRID, JOEL	ROUNDUP	4AB	CO
STRID, JOEL	ROUNDUP	4C	CO
SUCK, SHAWN	HOBSON	4C	CO
TIBBITTS, LARRY	BABB	4AB	CO
TRACY, LARRY	KALISPELL	4AB	CO
TRUSTY, LANCE	BIG HORN	4AB	CO
TRUSTY, LANCE	BIG HORN	4C	CO
WALKER, LANNY	BRADY	4A	CO
WALKER, LANNY	BRADY	4C	CO
WILSEY, CHRIS	NEIHART	4A	CO

**CLASS 5's**

BERENS, JOSEPH	SHEPHERD	5AB	CO
BRUNER, HEIDY	THREE FORKS	5AB	CO
CARRIER, RICHARD	FLAXVILLE	5AB	OT
GRAY, JERRY	GREAT FALLS	5AB	CO
JAMES, WILLARD	COLUMBIA FALLS	5AB	CO
JENSEN, DAN	FLAXVILLE	5AB	OT
LORAN, JAMES	GREENOUGH	5AB	CO
MASON, HEATH	HELENA	5AB	CO
MILLS, DAVID	LIBBY	5AB	OT
MUNSKI, KENNETH	GREAT FALLS	5AB	CO
OLFERT, MARIETTA	FRAZER	5AB	CO
PALKOVICH, BRIAN	HELENA	5AB	CO
RUSS, CHARLES	STEVENSVILLE	5AB	CO
SHUMAKER, CHARLES	KALISPELL	5AB	CO
STAHL, RANDY	GRASS RANGE	5AB	CO
TALMAGE, JOHN	GREAT FALLS	5AB	CO
WIPF, WALTER	BROADVIEW	5AB	CO
WRAITH, LANCE	AUGUSTA	5AB	OT

# Emergency Response Practice



Recently I was watching the old Alien movie. Sigourney Weaver is alone on the spaceship – the Alien has killed the rest of the crew. The self-destruct sequence is set, counting down, and, in five minutes, the ship and Sigourney will become cosmic dust! Sigourney is ready to escape when she realizes that she can't find her cat, and she won't leave without her cat.

to become familiar with the emergency procedures! The Alien is chasing her, the ship is about to explode, and her cat has disappeared! Talk about adding to a stressful situation!

Now, with two minutes left before the ship is destroyed, she runs to the control room, throws open the hatch holding the self-destruct mechanism and, looking through the bottom of her bifocals, traces with her finger the writing on the underside of the hatch — she **begins** to read the instructions. Good Grief! This is no time to try

Are you familiar with YOUR emergency procedures? Don't wait for an emergency! Read the emergency procedures now and practice, practice, practice. When an emergency occurs, you will be prepared.

Amy MacKenzie, Water Security Specialist  
DEQ – (406) 444-5360



## Emergency Phone Numbers

One of the most important components of your **Emergency Response Plan** is the list of phone numbers.

- ① Who will you call if there is an emergency?
- ② Who will make the decision to contact law enforcement or notify the public?
- ③ Most systems will be able to dial “911” for law enforcement and fire department, but what about some of the other agencies that will need to be contacted?

The list below has been put together by DEQ for you to use in an emergency.

### For your **EMERGENCY RESPONSE PLAN** emergency phone numbers:

- Emergency Management Agency** — Disaster and Emergency Services (DES) ..... 406-841-3911  
*The DES Duty Officer will then contact other state agencies as needed.*
- DES local** and regional contact list is available by calling ..... 406-841-3964
- Drinking Water Primacy Agency** — DEQ ..... 406-444-4400
- FBI Field Office** — Utah (*contact them for a more local contact*) ..... 801-579-1400
- National Spill Response Center** ..... 1-800-424-8802
- State Spill Hotline** (*if there is no answer call 406-431-0014*) ..... 406-841-3911
- Montana State Laboratory** ..... 406-444-2642
- Local Emergency Planning Committee** – look up at [www.epa.gov/ceppo/lepclist.html](http://www.epa.gov/ceppo/lepclist.html)



# Emergency Response Security Resources

## VSAT 3.1 Update for Wastewater, Water and Water/Wastewater Released (for registered VSAT™ users only)

The Association of Metropolitan Sewerage Agencies (AMSA) has released a new software upgrade to help water and wastewater utilities create, update, and/or revise their vulnerability assessments (VAs). The Vulnerability Self-Assessment Tool – VSAT™ Version 3.1 offers significant upgrades in the Countermeasure Library (*including linkages and information from the EPA Security Products Guide*), an improved vulnerability evaluation method and a new Expert Mode (XM) that makes the review and update of analysis easier. Users of VSAT™ are strongly encouraged to update their software to the new upgrade.

The new VSAT™ release – Version 3.1 – provides all upgrades to date, including the following:

- VSAT™ Version 3.1 with Vulnerability Assessment; ERP Module; Standard Approach; Expert Mode.
- VSAT™ Water is Included.
- VSAT™ Wastewater is Included.
- VSAT™ Water/Wastewater.

The Emergency Response Plan (ERP) module included in VSAT™ Version 3.1 offers an enhancement to both the Water and Water/Wastewater versions of VSAT™. The ERP module can be used by water utilities regardless of whether they have used VSAT™ or other methods to conduct a vulnerability assessment (VA); however, users must have the VSAT™ software to allow the download of the new ERP module. Work is underway for a similar ERP module for wastewater utilities. AMSA is collaborating with the Water Environment Research Foundation to make this new module available to the VSAT™ users.

The development of VSAT™ Version 3.1 was funded by the U.S. Environmental Protection Agency.

Please visit [www.VSATusers.net](http://www.VSATusers.net) <<http://www.vsatusers.net/>> to download this important new tool or to order the VSAT™ software free of charge.



The National Environmental Services Center (ESC) has several other resources available to help with Vulnerability Assessments and Emergency Response Plans. Call NESC at (800) 624-8301, or visit [www.netc.wvu.edu](http://www.netc.wvu.edu), the National Environmental Training Center for Small Communities (NETCSC) to access the security resource links.

**Emergency Response Planning Resources for Small Water and Wastewater Utilities.** This is an NETCSC document prepared to help small communities with security preparedness.

**Due Diligence: Small Water System Security** (Training Module). This is an NETCSC short course to aid local leaders in planning for disasters and security threats.

**Emergency Response Planning Pack.** The National Drinking Water Clearinghouse has several resources compiled in this package.

**Supplemental Resources for Preparing for the Unexpected: Security for Small Water Systems.** NETCSC has compiled a list of resources valuable for a security-training curriculum.

There are a variety of other pamphlets, manuals, and training programs available on the NESC site. Please use these resources, as necessary to develop an effective emergency response plan for your community. ■

# Montana Department of Environmental Quality

## Spill Reporting Policy

### I. CONTAINMENT AND CLEANUP OF SPILLS

All spills or releases of hazardous materials or other wastes, regardless of size, that pollute or threaten to pollute state waters must be contained, removed, and managed to protect water quality. This policy is written under the authority of the Montana Water Quality Act (WQA) 75-5-101, MCA, and ARM 17.30.1045. The purpose of this guidance is to provide a brief summary on reportable quantities and how to report spills.

### II. MONTANA DEQ NOTIFICATION REQUIREMENTS

All spills, except as noted below, shall be reported immediately to the state's Disaster and Emergency Services (DES) 24-hour phone number (406) 841-3911. If no one can be reached at that number, the spill may be reported to the Montana Department of Environmental Quality (DEQ) duty officer at (406) 431-0014.

The following types of spills are not required to be reported **provided the spill does not enter or threaten to enter state water**, and it is immediately contained, removed, and properly treated or disposed of in accordance with state regulations:

1. Ten barrels (420 gallons) or less of crude oil, produced water, injection water, or combination thereof;
2. Twenty-five (25) gallons or less of refined crude oil products, including but not limited to, gasoline, diesel fuel, aviation fuel, asphalt, road oil, kerosene, fuel oil, and derivatives of mineral, animal, or vegetable oils.

### III. ADDITIONAL INFORMATION

For additional information, please contact:

Ed Coleman, Section Chief  
Montana Department of Environmental Quality  
Enforcement Division  
Complaint Management Section  
PHONE: (406) 444-0379 • FAX (406) 444-1923

# Reflections in the Ripples

By Bill Bahr, SRF Program

**S**emiannually I undertake to acknowledge recent events and provide a context for them as they relate to water utilities in Montana. In years past I have written about friends who have retired and friends who have passed, and I have described new treatment facilities and innovations tried at older plants. The breadth of my understanding about water and wastewater treatment expands as operators and others in the field try to educate me about their facilities or their processes. Somehow most plants not only meet permit limits, but also exceed treatment requirements. Operators and managers work to achieve the best effluent and drinking water, not water quality that just makes the grade. We should all appreciate them for their dedication. Many times in the past, I have advocated for an Operators' Day, or a "Thank Your Utility Staff" day. It is so nice to drink water that tastes good and is safe. It is a reward to be able to fish and swim in streams, rivers and lakes that are safe. Thanks! You know who you are ...

One way in which people can get a pat on the back is to win an award from our two professional water associations, the Montana Water Environment Association (MWEA) and the Montana Section of the American Water Works Association (MSAWWA). This year at the conference in Bozeman, MWEA gave its Small System award to the **Reed Point Sewer District** for their outstanding efforts in operating and managing the wastewater treatment plant (WWTP). MWEA and MSAWWA also acknowledged the outstanding efforts of individual members: MWEA gave the WEF Bedell award to **Mike Jacobson**, while MSAWWA gave the Fuller award to **Karen Sanchez**. Both individuals have served the associations and Montana citizens for many years, providing leadership and guidance that protects and enhances Montana's waters and our public health. Along with several other awards presented, I want to thank these folks again for their dedication to this field of endeavor. The joint conference of MWEA and MSAWWA drew in many exhibitors and nearly 200 attendees. The technical program had a variety of excellent sessions; comments about the sessions were very complimentary. See you all next spring!

One final note on the conference ... **Dick Montgomery** was nominated for, and received, a Lifetime Achievement award from both MWEA and MSAWWA. He was some-

what overwhelmed by the 'surprise' presentation and it took a couple of minutes for him to gather his thoughts in order to express his appreciation. However, when he did find the words to say how much this honor meant to him, he managed to convey the humor and the sincerity we have all come to know are a part of his personality. Thanks for all the hard work, Mr. Montgomery.

Water and wastewater operators and managers around the state have come to know the technical assistance providers from Montana Rural Water Systems and the Midwest Assistance Program over the years, as well as those from the Department of Environmental Quality (DEQ) and those sent by contract from DEQ. One very successful program providing one-on-one, on-site technical assistance is the 104(g) program funded by the EPA. **Doris Roberts** is familiar to many wastewater operators in Montana: Doris has been instrumental in providing training at many seminars and conferences; she has instructed people preparing to take operator certification exams; she has worked elbow-to-elbow with many operators in providing technical assistance; and, has worked with state and federal officials to bring help to many small communities. The national 104(g)1 On-site Technical Assistance Network has been operating nationwide for over 25 years and is formally authorized in the federal Clean Water Act. The 104(g) program has done an outstanding job in Montana and elsewhere in the US, and the results are shown in the Most Improved Plant award given each year. Thanks for all the hard work, Doris; I am glad to acknowledge all the help you've given me through the years, too.

Please note the short series of articles dealing with **Vulnerability Assessments (VAs)** and **Emergency Response Plans (ERPs)** later in this issue. Public Water Systems have had deadlines to meet for filing both their VAs and their ERPs. DEQ has hired Amy MacKenzie, whom most of you have probably met by now, to provide assistance to communities in meeting their water system security needs. These articles list sources for help, good advice in being prepared, a list of emergency contact numbers, spill reporting information and other good information. For the protection of citizens in your communities, please develop and practice emergency response procedures. Public works professionals will be called on in emergencies and will need to rely on the experience

*continued on page 16*

## Reflections in the Ripples - *continued from page 15*

and knowledge gained through years of working in these systems. Record the emergency numbers for easy access in times of stress and complete plans for dealing with emergencies. Update plans as needed and practice implementing the response procedures.

As part of an overall safety program, **safe excavations** for water and wastewater pipelines are crucial. Many lives have been lost needlessly in unsafe trenches. I offer the following checklist from the Montana Department of Labor & Industry that provides a checklist of hazardous situations that need to be addressed before work can safely be performed in excavations.

### Checklist: Prevent cave-ins and other excavation disasters

This checklist, courtesy of the Montana Department of Labor and Industry, addresses hazardous atmospheres, emergency rescue equipment, water hazard protection and more. Contact MDLI Safety Bureau at 406-444-6401 for more information concerning safe work requirements for excavations, such as, protective systems.

Note: Prior to worker entry, a “competent person” — defined as one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them — must be on-site.

#### Hazardous atmospheres

- Where hazardous conditions could reasonably be expected, has the atmosphere been tested prior to entry?
- Where the atmosphere contains less than 19.5 percent oxygen, has appropriate respiratory protection and/or ventilation been provided?
- Where flammable atmospheres exist, is ventilation provided that is sufficient to reduce the flammable concentration to less than 20 percent of the lower flammable limit of the gas?
- Is the atmosphere tested frequently to ensure it remains safe?

#### Emergency rescue equipment

- Is emergency rescue equipment, such as breathing apparatus, safety harness and lanyard, or a basket

stretcher, readily available where hazardous atmospheric conditions exist or may be expected to develop?

- Are employees entering deep and confined excavations equipped with harness and an attached lifeline, and attended at all times while in the excavation?

#### Water hazard protection

- Are adequate precautions taken to protect employees in excavations where water has accumulated or is accumulating (i.e., support or shield systems, water removal systems or safety harness and lifelines)?
- Are water removal equipment and operations monitored by a competent person?
- Are natural runoff and surface water adequately diverted to prevent entry to the excavation?
- Are excavations that are subjected to runoff from heavy rains inspected by a competent person prior to entry?

#### Adjacent structures

- Are adjoining buildings, walls or other structures adequately stabilized with approved shoring, bracing and underpinning to assure protection of employees?
- Where the excavation is below the level of the base or footing of a foundation or retaining wall, have the excavation and support systems in use been determined appropriate by a registered professional engineer?
- Are sidewalks, pavement and other such structures adequately supported to prevent collapse?

#### Loose rock and soils

- Are adequate measures taken to protect employees from loose and falling rock, soil or other debris (i.e., scaling, protective barricades, etc.)?
- Are excavated spoils and other materials maintained at least 24 inches away from the edge of the excavation, and are retaining devices used where the 24-inch clear area is not possible? ■



## Hysham Feels the Sting of Mosquito-borne Virus

*Story By James Hagengruber, Billings Gazette*

**H**ysham Public Works Director Lyle Maasch says the town's barrel of mosquito spray is depleted. Maasch, like many others in Hysham, says he has all the symptoms of West Nile virus.

**HYSHAM** - As public works director, it's Lyle Maasch's job to spray this small Eastern Montana town with a weapon of mass mosquito destruction.

Residents have been warned to take their own precautions, but the regular city-wide spraying of insecticide is to serve as a first line of defense against the invading West Nile virus.

The town's barrel of mosquito spray has now been drained – another is on its way. Millions, perhaps billions of mosquitoes have been killed. Maasch, though, is not about to perform a victory dance. His recent headaches, nausea, aching joints and exhaustion make even walking a chore.

Maasch, like a good number of others in this river valley town of 330, believes he was bitten by a mosquito carrying the West Nile virus.

"The mosquitoes are just getting even with me," he said.

Two local residents are in the hospital because of the virus. Others, including a worker at the courthouse, a contractor, the high school volleyball coach and some farmers, are trying to ride out the illness from their own beds. If Hysham is any indication, the West Nile virus is packing a mean punch in this part of the state.

"There's a lot of people around here who don't feel good," Maasch said earlier this week from his small office at the town garage.

Like many Eastern Montana communities, Hysham is built on agriculture, the blood of which is water. Rivers, ditches and irrigated fields grow crops and mosquitoes. So it came as no surprise in late August when talk at the local coffee shop turned to stories of people coming down with tremors, fever, confusion and body aches.



Lyle Maasch (photo by James Woodcock of the Gazette Staff)

As expected, West Nile had arrived. Eyebrows were raised, though, at the suggestions by the federal Centers for Disease Control and Prevention that bites could be avoided.

"When you live in the middle of a giant cornfield and everybody's irrigating, there's bugs everywhere," Maasch said. "I really think the CDC is crazy when they say it's preventable. If you live with mosquitoes, you're going to get bit."

Most people here seem to share his sentiment, including Frank Devany, who raises cattle, grain and alfalfa on land seven miles east of town. Devany doesn't have any symptoms of the illness, but he knows people who do.

"If you're going to get bit, you're going to get bit," he said in a break from his morning chores. "I don't worry too much about it. What can you do?"

According to state health officials, 147 Montanans have tested positive for the virus. Unknown hundreds, probably thousands, are infected but have not had the blood or spinal fluid test to prove it.

The CDC says one out of every 150 people with the virus will have symptoms serious enough to be hospitalized. With this in mind, the 60-plus Montanans hospitalized since early August would indicate nearly 10,000 others have the illness.

## Hysham feels the sting of mosquito-borne virus - *continued from page 17*

Although there are only two official cases in Treasure County (total population: 861), Hysham High School Library Aide Janet Jensen knows of at least eight people in her neighborhood - and that's not counting herself - sickened by the disease.

"It's so odd," she said, "for a small town to have so many people sick."

Jensen blames her illness on her garden. This is where she spent hours weeding and watering, often accompanied by the whine of mosquitoes.

"All it took was one bite," she said.

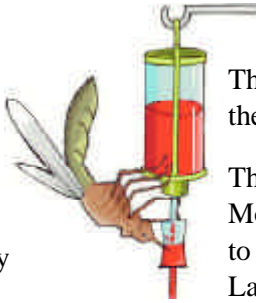
First came the rash, then a swollen neck and a "terrible, ungodly headache," she said. A couple days later, the dizziness and double-vision arrived. There was a fever that hit 102 degrees. Her right side grew noticeably weaker - the virus attacks motor nerves. The brain swelling associated with the disease had her waking nearly every hour of the night and going through the day in a dreamlike state. Her doctor in Hardin took a blood test. The results confirmed what she already knew.

"It's really ugly," she said. "It's a 10 on the Richter scale. It messes with your body, your mind and your brain."

Jensen called in sick to work. The fluorescent lights at the school were unbearable. Even a computer screen made her nauseous. Her friends and neighbors phoned to check on her, but it took every ounce of energy she had to even pick up the receiver, she said.

Three weeks after Jensen became ill, the effects linger. Her hands still shake and her body remains weak. The only upside, she said, is immunity. People infected with the West Nile virus are believed to gain lifelong protection from a recurrence of the illness, according to the CDC.

This fact helps explain why the virus has moved westward across the country like a prairie fire. The initial wave finds plenty of unprotected hosts, causing high numbers of infections. The next year, many people have immunity, effectively depriving the virus of fuel. Illinois is a good example. In 2002, the state had 884 cases and 64 deaths.



This year, eight people have been infected, according to the CDC.

The virus is now strongest in a swath of the country from Montana and North Dakota down to Texas. It's beginning to make forays across the Continental Divide - horses in Lake and Beaverhead counties recently tested positive. Experts believe that Western Montana will see high numbers of infection next summer.

Residents of Hysham hope the worst has passed. Cool weather like the system that moved in Friday seems to dampen the blood-thirst of mosquitoes. Within weeks, a hard frost should kill most of the bugs.

For now, though, the town is still abuzz over the virus. Many people here work outdoors. Mosquito bites have always been an annoyance, but never before have the itchy welts caused such anxiety.

Cora Marks said her husband, Dennis, began feeling ill in late August. He operates a construction business out of Hysham and had been working outdoors in the 100-plus degree heat when the symptoms arrived.

"We thought it was a light case of the flu or maybe heat exhaustion," his wife said. "But he kept saying that something felt strange. It just didn't feel right."

Marks didn't even know for certain that he had the virus until after he began to feel better. Shortly after he donated blood, the blood bank called and told him he tested positive for the virus, his wife said. "That was scary, but he was already on his way to recovery."

Health officials say the disease is most dangerous in people over 50. But if this virus is anything, it's unpredictable. Bill Willems is 47 and felt strong as any farmer before he was bitten. ■



# What is a Water Quality Standard and When is Water Safe to Use?

By Carole Mackin, DEQ

**W**ater quality depends on two things: where it is found and how it is used. “Where” means the geological setting—mountains or plains, bedrock or gravels, granites or shales. “How” means who uses it for what purpose—farmers irrigating crops, ranchers watering livestock, towns supplying drinking water, fish feeding on aquatic life, furbearers living on streamside vegetation, boaters and swimmers enjoying the water.

The water in high mountain streams can supply all the beneficial uses listed above except for the needs of a warm-water fish like the pallid sturgeon. This sturgeon must have warm, quiet, turbid water found mostly in the prairie rivers. The fish in the mountain streams can be harmed by changes in temperature and the sediment picked up by rushing water; while prairie fish are at home with seasonal changes in water temperature, sediment and mineral content. All this must be considered in judging water quality.

Water quality standards first rank the water according to where it’s found:

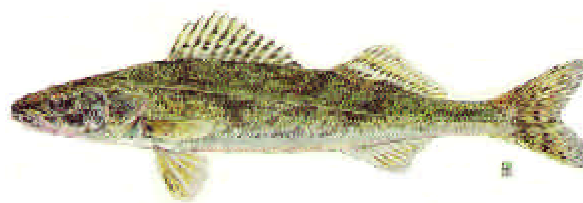
A-1 water is found in a high mountain stream. The water supports a trout fishery and can be used as a community water supply with little treatment required. The activities that may harm water quality are forestry, roads, and mines.



*Cutthroat*

C-3 water is on the other end of the ranking scale. This water supports only about half of the beneficial uses assigned to A-1. C-3 water is found near the mouth of the prairie streams in eastern Montana. The mineral content is too high for people to drink, however, livestock tolerate it.

Irrigation is out because the water turns the soil clays into a hardpan. However, wildlife and warm water aquatic life thrive. The activities that may harm water quality are dryland farming (crop/fallow) that can create saline seeps and overgrazing the lush vegetation near the water.



*Sauger*

## **Water quality standards protect each beneficial use:**

The requirements for human health are different than for livestock health. Irrigation requirements are different from the health needs of a swimmer. And, the critters that spend most of their life in the water are, of course, the most sensitive to water quality. If the water supports healthy aquatic life and fisheries, it will support most other uses.

The numeric standards tell us how much of a substance can be dissolved in the water and have little to no affect on beneficial uses. The standards include harmful and toxic substances like bacteria and metals, carcinogens like arsenic, and radioactive substances like radium. ■

## Proposed Water Project Needed for Choteau's Future

The proposed Choteau city water system improvement project is probably about 45 years overdue - but better late than never. The \$2.4 million project will replace about 16,000 lineal feet of 90-year-old cast



iron water pipes that are leaking about 60 percent of the chlorinated water that flows through them back into the ground. The project will also create a second, separate backup water distribution system at the Richem Well site, greatly increasing the reliability of the system and helping to reduce its vulnerability to contamination that could sicken or poison city water users.

Working with state and federal granting agencies and engineers and grant-writing consultants, the city is applying for a package of grants that would fund \$1.6 million of the expense. The city would take out an \$800,000 low-interest loan to make up the balance. City water users - 543 residential homes and 115 commercial or industrial businesses - would see rates go up 25 percent to raise enough additional money to pay off the annual loan debt.

No one likes to pay higher rates - and according to the engineers, Choteau's water and wastewater rates are already 4 percent higher than the state average. But this water system is not going to fix itself and the existing

water rate structure does not provide for system replacement. The existing rate structure only provides for regular maintenance - no major repairs, no replacements, no expansions. City workers, even if the city had tons of money, couldn't just go out and rip out sections of water line and install new - this magnitude of project has to be engineered and approved by the Montana Department of Environmental Quality. It is a substantial undertaking far beyond the scope of services that the city crew can provide.

The Choteau City Council, mayor and city staff have exhaustively researched options and the grant-loan funding package seems to be the best route to take at this time. This is a major project for a little town and a steep burden for local ratepayers, but having clean, clear, bountiful water is a major asset for this community. The town of Fairfield, just 17 miles away, has been under draconian water conservation measures all spring as well after well has gone dry. Fairfield could supply its population with adequate water just by accessing the water Choteau is letting run through leaky mains. It is up to the ratepayers in Choteau to take care of the water system now - to fix the leaking mains and to create a second distribution system. This is an investment in the future economic growth of this community and an investment in the quality of life here. Choteau citizens should take pride in their city and shoulder the responsibility to be good stewards of such an invaluable resource as water. ■

5/19/04 - Choteau Acantha



## State Revolving Fund News

*Marc Golz and Bill Bahr*

### The Drinking Water State Revolving Fund

**(DWSRF)** provides direct financial assistance, through low-interest loans, currently 3.75%, to public water supplies for drinking water infrastructure projects. These projects are intended to further the public health protection goals of the Safe Drinking Water Act (SDWA). DWSRF engineers review preliminary engineering reports, conduct environmental assessments, review plans and specifications, and conduct construction inspections of drinking water projects. We loan small and large sums depending on the type and size of project. DWSRF may serve as the sole source of funding or as a partner with other funding sources. We also refinance existing projects where refinancing can improve the financial status of the public entity. Over 50 loans have been extended to date ranging from \$60,000 to \$8.4 million.

DWSRF has funded a host of projects. The following partial list illustrates the kinds of projects we provide assistance for: water intake and pumping stations (Yellowstone River at Glendive, Whitefish Lake at Whitefish); on-going water main replacements (City of Great Falls); major water treatment plant expansions and rehabilitation (City of Havre); 4 million gallon water storage reservoir (City of Helena); water meter installations (City of Choteau, Big Sky); refinance existing, water-system-related, debt (City of Kalispell).

### Regional Water Systems

We are also fully involved in regional water system projects that are taking shape in Montana. The Fort Peck/Dry Prairie Regional Water System will cover a large area of Northeastern Montana from Glasgow east to the North Dakota border and north to the Canadian border including the Fort Peck Indian Reservation. After formal groundbreaking ceremonies in August, 2003, construction began in October on the first leg of the Dry Prairie Regional Water System from Culbertson to Medicine Lake. Construction of that leg should be completed by autumn 2004. The Fort Peck Tribes have also held formal groundbreaking ceremonies for the on-reservation portions of the system. Construction of the regional water system intake facility has begun just downstream of the bridge over the



Bridge over Missouri River – Near Culbertson, Montana...

MDT photo

Missouri River several miles southeast of the community of Wolf Point.

The Rocky Boys/North Central Montana Regional Water System will cover, roughly, an area that is bounded on the north by the Canadian border, the west by Interstate 15, the south by the Missouri River and on the east by a line through Havre including the Rocky Boy's Indian Reservation. Congress passed legislation for authorization of the Rocky Boy's/North Central Montana Regional Water System in November 2002. A Value Engineering (VE) Study was completed during 2003, through the cooperation of the project sponsors and the Bureau of Reclamation, and with participation from federal and state agencies. A draft version of the final engineering report has been reviewed, with the goal of seeing the final version submitted to Congress in 2004, and an environmental assessment for the project was completed this year. Also, congress has appropriated additional funds for completion of studies and project design work during Federal Fiscal year 2004.

Both of the above projects are extensive in scope, with total estimated funds for completion of the projects in the neighborhood of \$220 million each. Most of the funding for these projects will be from direct federal grants and state grants with local shares funded initially by the DWSRF.

*continued on page 22*

## State Revolving Fund News ■ *continued from page 21*

### Other Programs

The DWSRF also provides funding for other drinking water related functions within DEQ, including operator certification, the public water supply and source water protection programs, as well as technical assistance through contracts with non-governmental agencies. Our contractors provide direct hands-on technical assistance to public water system operators and also provide direct financial and managerial assistance to public water system owners, managers or operators. Currently, the DWSRF contracts with Midwest Assistance Program, part of the nationwide Rural Community Assistance Program, to provide these services which are free to public water supplies in Montana. Services for technical assistance may be requested by contacting Rob Ashton at 444-5316 and for financial and managerial assistance contact Gary Wiens at 444-7838.

### The Water Pollution Control State Revolving Fund (WPCSRF)

program also provides direct financial assistance, through low-interest loans, currently 3.75%, to Montana communities. The WPCSRF program focuses on public wastewater systems and wastewater infrastructure projects. WPCSRF goals include public health protection and environmental improvement as part of the federal Clean Water Act (CWA). Other projects include solid waste projects and

nonpoint source improvement projects. This program has financed over 100 projects totaling well over \$140 million. We have worked with more than 150 landowners on nonpoint source projects.

WPCSRF engineers review preliminary engineering reports, conduct environmental assessments, review plans and specifications, and conduct construction inspections of drinking water projects. We loan small and large sums depending on the type and size of project. WPCSRF funds, like the DWSRF monies, may serve as the sole source of funding or as a partner with other funding sources. We also refinance existing projects where refinancing can improve the financial status of the public entity.

Please contact our new WPCSRF program manger, Paul LaVigne at 406-444-5321 for information about our Intended Use Plan used for the priority-funding list, the Clean Water Needs Survey, our current projects or any other SRF information.

The TFAB programs at DEQ are proud to serve Montana and to help the Department of Environmental Quality achieve its Mission to protect, sustain, and improve a clean and healthful environment to benefit present and future generations. ■

# The *E. coli* Standard for Primary Contact Recreation

By Dave Feldman

## DEQ to propose new microbial contact standards

In 1984, the United States Environmental Protection Agency (EPA) published its recommendation to states for freshwater microbial standards. This document updated human health standards in recreational freshwater from the original set that were published in 1968. Previous studies conducted by EPA dating as far back as 1972 related the presence of *E. coli* to other bacteria that are more directly related to gastroenteritis from swimming in untreated waters than just the fecal coliform bacteria group. This year, the Montana Department of Environmental Quality (DEQ) plans to present EPA recommendations with recent data to the Montana State Board of Environmental Review and propose an update to Montana's fecal coliform primary contact recreation standard to *Escherichia coli* (or *E. coli*). Current protection for contact recreation in Montana's surface waters is found in ARM 17.30.620.2 which defines how microbial samples are collected, and then the specific fecal coliform standards are outlined within descriptions of Montana's stream classifications. For A-1 streams, ARM 17.30.622.3.a reads: "The geometric mean number of organisms in the coliform group must not exceed 50 per 100 milliliters if resulting from domestic sewage."

### How is this standard 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 added together, you multiply the numbers together and take the root of the number of them together. This is known as a geometric mean. This allows for an unbiased "average" that doesn't 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:

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

Another way to view the equation:

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

OR

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

Notice that even when there are many numbers at different orders of magnitude, the geometric mean is still 28.25.

EPA found that there was not as strong a relationship found for fecal coliforms relating to swimming-related gastroenteritis than there was for *E. coli*. A good correlation was observed between swimming-associated gastrointestinal symptoms and either *E. coli* or enterococci densities in the water. Fecal coliform densities have shown little or no correlation to gastrointestinal illness rates in swimmers compared to *E. coli* alone in these studies.

The results of a 1984 EPA epidemiological freshwater bathing beach studies over a three-year period lead to the following conclusions:

1. Swimming-associated gastrointestinal illness is related to the quality of the bathing water. A direct linear relationship was observed between highly credible gastrointestinal illness and bacterial densities of two indicators of fecal contamination, enterococci and *E. coli*.
2. The relationship between the rate of swimming-associated illness and bacterial indicator density was almost identical for two of the indicators examined, *E. coli* and enterococci. Thus, either indicator can be used to measure the potential for swimming-associated illness in bathing waters. Fecal coliforms showed

continued on page 24

## The *E. coli* Standard for Primary Contact Recreation - *continued from page 23*

no relationship to the rate of swimming-associated gastrointestinal illness.

The EPA study recommended that in order to protect the largest number of swimmers, *E. coli* colony forming units (CFU) must remain under 126 CFU/100 ml. The advantage is that the study proved that 8 out of every 1000 swimmers might show symptoms of gastroenteritis, while there was no real relationship between fecal coliform CFU's and swimming-related gastroenteritis.

### What was studied in Montana

Sites were sampled for *E. coli* from 42 sites throughout summer 2003 and again summer 2004. These sites encompassed most of Montana's major rivers and

streams as part of a monitoring network maintained by DEQ. The Coli-ert<sup>®</sup> system by IDEXX was used to evaluate microbial concentrations in the field. Overall, state waters varied quite a bit. After conducting the first statewide survey during summer 2003, the highest *E. coli* concentration was measured at the Musselshell River at Mosby, MT, (2420 CFU/100ml) and the lowest concentration was found at the Blackfoot River (1.0 CFU/100ml).

The statewide geometric mean for *E. coli* concentrations was 42 CFU/100ml in this study. The Department is planning to replace the current fecal coliform standard with the *E. coli* limits in 2004. Future surveys may be used to better understand the range of *E. coli* concentrations found in Montana. ■



# Winterizing Vacant/Seasonal Plumbing Systems

Compiled by Dusti Lowndes and Greg Butts, Kalispell DEQ, D&J Plumbing, and multiple Internet Sites

It is well known that Montana winters can leave us repairing pipes in the spring but an ounce of prevention is worth a ton in protection. Draining and preparing your plumbing for extreme cold while the facility is vacant or shut down for the season, can save you a lot of money and time. Here are some helpful hints and procedures to assist you in draining and protecting your water and waste water systems while you are away.

## 1. Drain Potable Water Supply

- Turn off electric or gas water heater.
- If water supply is connected to a year round system, shut off the supply valve (curb stop).
- If water supply consists of an individual well and pump system, shut off electrical supply to pump (*turn off breaker so pump cannot be activated and flood house when faucets are open*).

**Note: If a centrifugal pump is in an unheated facility, drain pump casing by removing drain plug and tape plug to the pump or wrap pump up with electrical heat tape and insulate to protect from freezing.**

**Submersible pumps are typically set below frost level and should not freeze in well casing.**

- May need to disconnect some piping to allow water trapped behind check valves to drain.
- Blow out lines with compressed air to remove water (*can be skipped if all lines can adequately be drained by gravity*).

1. Shut all faucets and connect small air compressor to hot water outlet such as a clothes washer faucet.
2. Allow compressor to build pressure on hot water side to about 20-40 psi.
3. Connect hose to drain of water heater and open drain valve.
4. When the water heater tank is drained completely, shut drain valve off.

5. Allow pressure to build again and go to each hot water faucet (starting at the highest point in the system) and bleed off water from the hot water pipes until air comes out and then shut the valve again. Do this to each hot water outlet.
6. After you have gone through the hot water side of the faucets go back through (*again starting with the highest point and working down*) and work the cold side of the faucets in the same manner with the compressor still running on the same hot water outlet at the clothes washer.

- Open and leave open all faucets and valves (close outside faucets after system is drained to prevent insects from entering system).
- Open drain cocks if present.
- Empty toilet flush tank by flushing toilets and dipping all water out of flush tank.
- Drain flexible spray hoses such as in showers and sinks.
- Empty water heater (if not already done) – open valve near bottom of water heater and then open water faucet (fast and complete way).
- Remove all pipe caps or plugs at lowest points in pressure system.
- Drain and review operating procedures for holding tanks, water treatment apparatus, water softeners, and pressure tanks.

## 2. Protecting Sewage System

Piping for a sewage system is self-draining except for the drain traps that block sewer gases from escaping the system.

- Remove most of water from all traps by plunging with a plunger.
- Pour 2 cups of propylene glycol (*non-poisonous antifreeze obtained at RV supplier*) into each trap. (*“P” traps are located on drains to sinks, showers, tubs, floor drains, and wash machine drain....*)

*continued on page 26*



## Winterizing Vacant/Seasonal Plumbing Systems - *continued from page 25*

- Pour 1-2 quarts for propylene glycol in toilet bowl (*not tank*).
- If you do not plunge the drain lines, pour propylene glycol into trap until solutions are 50% antifreeze and 50% water, which prevents freezing up to -25°F, if exactly 50/50.
- Follow manufacturing recommendations for protecting and draining appliances.
- Disconnect and drain hoses from appliances- icemakers, dish machines, water furnace, central air conditioners, washing machines, fire suppression system, and sump pumps...

### Other Recommendations:

- Do repairs or additions to plumbing at this time – installing pipe plugs on water lines at low areas will assist in draining the system.
  - Drain irrigation systems, hot tubs, sauna, fountains, humidifier in furnace, water use heating units...
- Note:** Do not drain in-ground pool or storage tanks because frozen ground will cave in sides.
- Remove hoses and vacuum breaker fittings from hose bibs.
  - Close vent openings in foundation of structures.
  - After complete drain of system, close outside faucets to prevent insects from contaminating water system.

- Plumbers may offer winterization packages and/or advise.
- Pulling main breaker for facilities is a good idea, if nothing needs to stay powered.

### Starting Up Systems After Being Dormant:

- Recommend disinfection of water system before use – follow AWWA standard for disinfecting water supply systems. *\*Contact local DEQ Public Water Supply office for information or copy of the standard.*
- Close all faucets, valves, sill cocks, and plugs...
- Reconnect all appliances and pipes.
- Re-establish all breakers.
- Open water supply valve and/or turn on pump.
- Turn all the faucets on slowly (*beginning with sill cock*). Faucets will spit out air in lines and then assume normal flow.
- Allow water heater to fill – manually lift safety valve (T&P valve) at top of water heater to bleed off air before you turn on heater.
- Remove and clean aerator screens on faucets.
- Typically every two or three years septic tanks should be pumped – depending on use and demand. ■

## EPA Announces Changes to Drinking Water Regulations

The Environmental Protection Agency (EPA) recently published a final rule designed to help public drinking water systems comply with regulations by clarifying and correcting existing drinking water rules. According to the agency, the minor corrections and clarifications, published in the June 29 Federal Register, do not affect existing public health protection.

The final rule shifts the compliance date for some requirements of the Long Term 1 Enhanced Surface Water Treatment Rule from Jan. 14, 2005, to Jan. 1, 2005, to ease implementation and improve readability of the Consumer Confidence Reports provided to customers. It gives states the flexibility to use optional monitoring data for disinfection profiling carried out under that rule. In addition, the rule establishes a detection limit for

uranium of one part per billion in the Radionuclides Rule, which established a maximum contaminant level for uranium in drinking water of 30 parts per billion.

Finally, the agency is clarifying and correcting typographical errors, inadvertent omissions, editorial errors and outdated language in the Surface Water Treatment Rules and other drinking water rules. This includes reinstatement of text that was previously omitted from the Lead and Copper Rule, but maintained in current rule guidance, that lists the types of facilities that must be sent public education brochures by a public water system that has exceeded the action level for lead or copper.

The final rule is available at [www.epa.gov/safewater/new.html](http://www.epa.gov/safewater/new.html). ■

# Drought Contingency Planning

By Rick Cottingham, DEQ

In these times of low water availability in Montana, referred to so often as drought, utilities will be faced with many difficult decisions. Any of the following could be implemented during specific drought conditions and with continued weather forecasts for more of the same.



## Stage 1 – Water Shortage Possibility – Open Raw Water Reservoir(s)

- Water Restrictions – mandatory outdoor water use restrictions prohibiting all non-essential outdoor water usage on Tuesdays, Thursdays, and Sundays.
- Increase water leak reduction program.
- Implement mandatory conservation for City government operations (Pools & Parks).
- Increase public communication encouraging water conservation. (Voluntary vs. mandatory).

## Stage 2 – Water Shortage Watch – Raw Water Reservoirs – 90% (or about 180 days) remaining

- Water Restrictions – mandatory outdoor water use restrictions prohibiting all non-essential outdoor water usage on Tuesdays, Wednesdays, Thursdays, Saturdays, and Sundays.
- Shut off water in ornamental fountains that do not recycle water.

## Stage 3 – Water Shortage Warning – Raw Water Reservoirs – 70% (or 150 days) remaining

- Water Restrictions – mandatory outdoor water use restrictions prohibiting all non-essential outdoor water usage on Mondays, Tuesdays, Wednesdays, Thursdays, Saturdays, and Sundays.
- No new water mains to be added to distribution system.
- No Hydrant/Hydrant meter usage or flushing.
- No water use for dust control or street cleaning.

## Stage 4 – Water Shortage Emergency Phase 1 – Raw Water Reservoirs – 55% (or 90 days) remaining

- Water Restrictions – mandatory outdoor water use restrictions prohibiting all non-essential outdoor water usage every day.
- Request Emergency Declaration from Governor.
- Close all irrigation meters.
- Begin use from any alternate water supplies.
- Advise major water users to plan strategies for demand reduction and emergency supply sources.
- Advise medical facilities, schools, etc to plan strategies for emergency supply sources.
- Serve water in restaurants only upon request.
- No flushing by the city except for water quality purposes.

## Description of Uses Prohibited Described in Stages 1 - 4

Non-essential uses include such activities as watering of lawns, flowers, shrubbery, etc. and outdoor use of spigots, hoses, sprinklers, spray/pressure apparatus for other non-essential purposes.

*continued on page 28*

## Drought Contingency Planning - *continued from page 27*

These restrictions apply to all residences, businesses, commercial establishments, manufacturers, retailers, public and private institutions, offices and office complexes, apartment complexes, etc.

The only exceptions are as follows:

1. The business location only of commercial nurseries/landscapers;
2. Commercial car washes;
3. Outside use which is determined necessary to protect the safety, health, and general welfare of individuals, employees and the general public.

Public Utility officials request that even those exempted limit watering to the maximum extent possible.

1. First time violators are subject to misdemeanor penalties as provided for by the Law.
2. Second time violators are subject to misdemeanor penalties and termination of water services by removal of the water meter.

**WARNINGS may be issued to violators for the first days of the restrictions,  
but afterwards citations will be issued and water service discontinued.**

### Stage 5 – Water Shortage Emergency Phase 2 – Raw Water Reservoir(s) – 30% (or 50 days) remaining

- Water Restrictions – mandatory outdoor water use restrictions prohibiting all non-essential outdoor water usage every day.
- Use of potable (treated) water at all commercial establishments served by the system. System is limited to the hours 7:00 a.m. to 7:00 p.m. with the following exceptions only:
  1. Potable (treated) water may be used at any time for purposes of:
    - ◆ Personal hygiene
    - ◆ Safe preparation of food products
    - ◆ Public health
    - ◆ Public safety
    - ◆ General welfare of the community as determined by the City
  2. Potable (treated) water may not be used at the business locations of large volume commercial users, including nurseries/landscapers, laundromats or commercial car washes, at any time on Sundays.
    - ◆ Advise major water users and institutions of the water situation.
    - ◆ Advise Manufacturing to identify ways to reduce water consumption and provide the City with a response including the volume of expected reduction.
    - ◆ Begin withdrawal from other emergency water supplies

### Stage 6 – Water Shortage Emergency Phase 3 – Raw Water Reservoir(s) – 20% (or 30 days) remaining

- Water Restrictions – mandatory outdoor water use restrictions prohibiting all non-essential outdoor water usage every day.
- The business location of all car washes/landscapers/nurseries are prohibited from using water at all times except for personal hygiene, public health, public safety, or the general welfare of the community as determined by the City.
- All other commercial establishments are restricted to the requirements of Stage 5.
- Require the use of paper products at all restaurants, institutions, medical facilities, etc...
- Require Industry to reduce water usage by an amount sufficient to insure adequate water supply for residential /Medical Facilities usage and Fire Protection.
- **Request an additional Emergency Declaration.** ■

*Note: Parts of this article were taken from several utility contingency plans.*

# Accessing Drought Information for Montana Water Users

*By Rick Cottingham, Environmental Quality Specialist*

**D**rought conditions vary in intensity, duration, and frequency of occurrence from place to place. In addition, the amount of water available (both surface water and ground water) and the amount that people want to use varies from place to place. All of these factors affect the need for water restrictions. Fundamentally, this need, or lack thereof, depends on the ratio of water needed to water available, which is affected by precipitation, groundwater recharge and discharge, evapotranspiration, water use, and temporal variation in all these factors. Local and state laws and regulations also affect the ability of governments to impose water restrictions. Taking all of this into account, it is clear that the kinds of restrictions imposed are going to vary a lot from one place to another. That said, I can give you some information about how the present drought has affected Montana. Farmers relying on precipitation or irrigation water from surface-water sources had problems and crop yields suffered quite a bit. Some others who need to use surface water, namely industry, had difficulty getting enough water. Some industrial facilities along rivers had to operate at less than full capacity.

Owners of domestic wells and springs found in many cases that their water supplies dried up.

However, only a few municipalities felt the need to impose water restrictions. This is because most public water supplies in Montana are quite resilient. About a third of Montanans rely for their drinking water on ground water from public water systems. Communities also called for self-restrictions or conservation. Most public water systems in Montana that rely on ground water maintain sufficient supplies of deep groundwater so that they are not affected immediately by drought, even during an intense drought.

Some smaller Montana communities have found their shallower well fields experiencing stress. While yet other Montana public water systems that rely on surface water supplies (chiefly reservoirs and lakes) were also not so fortunate.

General information about water availability and water use in Montana is available from the MONTANA DROUGHT MONITORING internet site. This can be found at <http://nris.state.mt.us/Drought/>. This contains such current up-to-date information and articles as:

- National Weather Service Temperature and Snow Depths for Montana Cities;
- Governor's Drought Advisory Report;
- Governor's Press Release on the Drought Report;
- Hay Hotline;
- New National Agricultural Decision Support System;
- 2004 Wildfire Outlook;
- Highlights from the Western Governors' Drought Workshop;
- 2004 Emergency Disaster Designation and Declaration Fact Sheet;
- Climate Prediction Center: Moisture Status;
- U.S. Drought Monitor;
- National Weather Service Soil Moisture;
- Amount of Precipitation Needed To End The Drought. ■



## How Do You Measure Up? A Water Awareness Test

Everyday you choose to do or not to do a variety of things. These choices affect the quality of your water. Take a few minutes to consider how you contribute to good or poor water quality. Select the number that best describes how often you take a specific action. Then add up the numbers and look on the back to learn how you affect the streams, lakes and aquifers near you.

### DO YOU . . . . .

	Never	Sometimes	Often
1. Leave the water running as you brush your teeth?	1	2	3
2. Turn on the lawn sprinkler during mid-day?	1	2	3
3. Throw cans into the trash when they still have paint, solvents or harsh cleansers in them?	1	2	3
4. Pour leftover paint, solvents or harsh cleansers down the drain?	1	2	3
5. Wash small loads in the clothes or dish washer?	1	2	3
6. Keep the lawn well watered during the summer?	1	2	3
7. Fertilize the lawn?	1	2	3
8. Use pesticides on the lawn?	1	2	3
9. Hose down the sidewalk and driveway to clean it?	1	2	3
10. Run the shower to heat the bathroom?	1	2	3
11. Use toilet cleaners that dissolve continuously?	1	2	3
12. Wash the car on a paved surface?	1	2	3
13. Use the storm drain to dispose of used oil and other chemicals?	1	2	3
14. Push lawn and garden trimmings into curbs and storm drains?	1	2	3
15. Use the garbage disposal to get rid of food scraps?	1	2	3
Yes <span style="margin-left: 100px;"></span> No			
16. Let your elected officials know how you feel about water issues?	1		3
17. Volunteer for community projects that improve water quality?	1		3
18. Repair automotive leaks promptly?	1		3
19. Know where your tap water comes from?	1		3
20. Know where your wastewater goes?	1		3
21. Belong to an organization that is concerned about water issues?	1		3
22. Pick up pet droppings?	1		3
23. Compost household or livestock waste?	1		3
24. Repair leaky faucets?	1		3
25. Buy biodegradable products?	1		3
ADD	_____	+	_____ + _____
TOTAL SCORE =	_____		



## How Did You Score?

If the total score from the previous page was:

### 30 or less

Congratulations, you are a leader in protecting water quality in Montana.

### 31 to 55

Thanks for the many things you do to protect water quality. Adding a few more will make an even bigger difference in improving water quality in Montana.

### 56 to 75

You may be adding more to poor water quality than to good water quality. But you can change that. Read on for suggestions.

## What More Can You Do?

### 30 or less

Keep up the good work. Tell your family and friends how you protect water quality and why you think it is important.

### 31 to 55

Look at the actions that have a proven track record in improving water quality. Then choose one or two to add to your list of actions that improve water quality.

### 56 to 75

Call the Nonpoint Source Program, your county extension agent, or a watershed group near you to learn more about improving water quality. Then choose one or two actions that you will do to improve water quality.

### Contact:

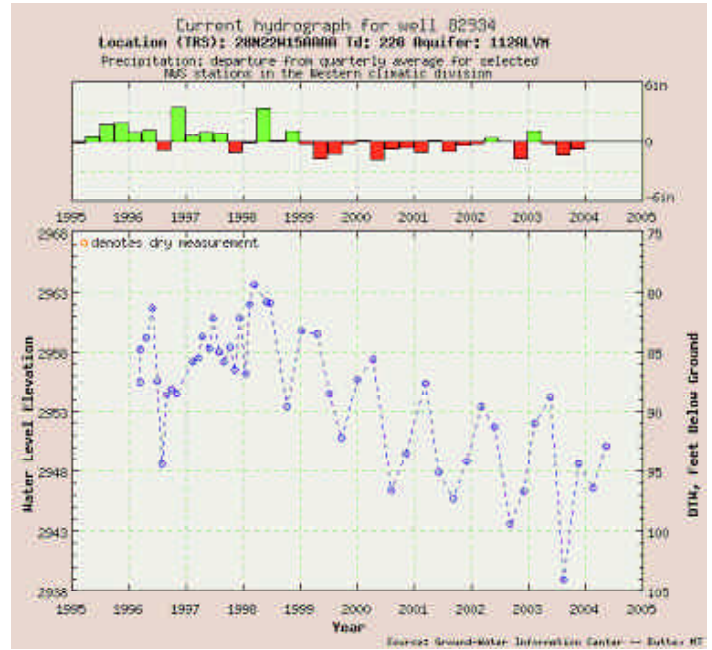
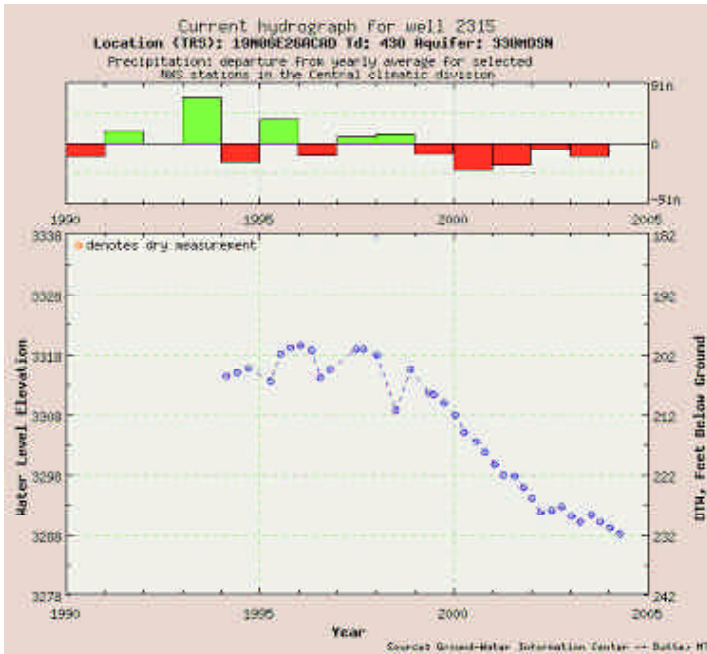
Carole Mackin  
Nonpoint Source Management Program  
406-444-7425  
cmackin@state.mt.us

<http://www.deq.state.mt.us/wqinfo/nonpoint/NonpointSourceProgram.asp>

Watershed Groups  
<http://water.montana.edu/watersheds/groups/default.asp>

Montana Extension Service  
[http://extn.msu.montana.edu/About\\_Us/counties/counties.html](http://extn.msu.montana.edu/About_Us/counties/counties.html)

# Something to Think About for Ground Water Systems!

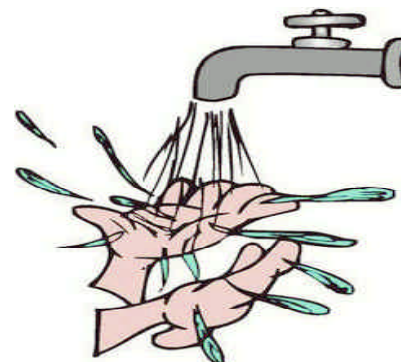


The State of Montana is currently in a long-term drought cycle. The Montana Bureau of Mines and Geology is monitoring 850 wells for static water levels, of these, 340 show a direct relationship to the drought conditions. The hydrographs present above show two wells that display a dropping static water level due to drought conditions. The hydrograph for well 2315 shows a decrease in static water level of 32 feet from 1997 to present. Well 82934 shows a seasonal fluctuation of 7 feet but displays a long-term decrease in static water level of 15-20 feet from 1998 to present.

What does this mean for you as the operator of a ground water system? You should be keeping track of the static water level in your wells so you can avoid any difficulties that might develop due to pump level setting and static water level. By keeping track of static water levels you will be able to anticipate problems and plan for them as opposed to suddenly having to react to low water levels in a time of crisis.

Information about how to measure static water level can be obtained by contacting DEQ Field Services staff at 444-4400.

# Water Efficiency Measures for All Communities



## Getting Started:

- Designate a water efficiency coordinator.
- Develop a water efficiency plan. See the U.S. EPA Water Conservation Guidelines.
- Educate and involve employees and residents in water efficiency efforts.

## System Improvements - Keep a tight system, look at alternative sources:

- Implement a water-loss management program (e.g. repair leaks). The water industry goal for unaccounted-for-water is 10%.
- Water utilities should strive for universal metering.
- Consider a reclaimed wastewater distribution system for non-potable uses.
- Ensure that fire hydrants are tamper proof.

## Equipment Changes - Set a good example by using water efficient equipment:

- Install ultra-low flow toilets and urinals in municipal buildings, or by installing dams on existing toilets. Retrofit water-saving devices in flushometer valves.
- Install faucet aerators and low flow shower heads in municipal buildings.
- As municipal appliances or equipment wear out, replace them with water-saving models.
- Minimize the water used in cooling equipment in accordance with manufacturers recommendations. Shut off cooling units when not needed.
- Eliminate "once-through" cooling of equipment with municipal water by recycling water flow to cooling tower or replacing with air-cooled equipment.
- Consider installing new water-saving pool filters.

## Policies and Programs to Encourage Efficient Water Use:

- Ensure the utility rate structure encourages water efficiency, or at least does not encourage water waste.
- Offer incentive programs (rebates/tax credit) to homeowners and businesses to encourage replacement of plumbing fixtures and appliances with water-efficient models.
- Make retrofit kits for residences and businesses available free or at cost. Kits may contain low flow faucet aerators, high efficiency showerheads, leak detection toilets, and replacement valves.
- Promote water-efficient landscape practices to home owners and businesses, especially those with large, irrigated properties. Practices include use of native plants, landscape innovation to reduce water use , and more efficient irrigation. ■

## Water Efficiency Measures for Landscaping

During drought conditions outdoor watering restrictions may be imposed, and, therefore, some of the following tips will not apply.

### Watering:

- Detect and repair all leaks in irrigation systems.
- Use properly treated wastewater for irrigation where available.
- Water the lawn or garden during the coolest part of the day (early morning is best). Do not water on windy days.
- Water trees and shrubs, which have deep root systems, longer and less frequently than shallow-rooted plants which require smaller amounts of water more often. Check with the local extension service for advice on the amount and frequency of watering needed in your area.
- Set sprinklers to water the lawn or garden only - not the street or sidewalk.
- Use soaker hoses and trickle irrigation systems.
- Install moisture sensors on sprinkler systems.

### Planting:

- Have your soil tested for nutrient content and add organic matter if needed. Good soil absorbs and retains water better.
- Minimize turf areas and use native grasses.
- Use native plants in your landscape – they require less care and water than ornamental varieties.

### Maintaining:

- Use mulch around shrubs and garden plants to reduce evaporation from the soil surface and cut down on weed growth.
- Remove thatch and aerate turf to encourage movement of water to the root zone.
- Raise your lawn mower cutting height – longer grass blades help shade each other, cut down on evaporation, and inhibit weed growth.
- Minimize or eliminate fertilizing that requires additional watering, and promotes new growth that will also need additional watering.

### Ornamental Water Features:

- Do not install or use ornamental water features unless they recycle the water. Use signs to indicate that water is recycled. Do not operate during a drought. ■



## Real Estate Transfers and Ground Water Well Tests

*By Eric Regensburger, Hydrogeologist  
Montana Department of Environmental Quality*

**A**s a result of the current drought in Montana the availability of adequate ground water sources is becoming increasingly important to homeowners, particularly during real estate transfers. With increasing frequency, prospective homeowners and banks are requiring testing of wells as a condition of sale.

There are different methods to test the productivity of a well, commonly referred to as pumping tests. Pumping tests can vary from simple one-hour tests to very complex tests that last more than a week and involve multiple wells and expensive monitoring equipment.

Tests for private wells serving single-family homes are fairly simple. However, the tests need to be run correctly to produce accurate results. When a licensed water well contractor constructs a ground water well, state regulations require the well production rate to be tested. A common practice is to combine the pumping test with development of the well. Well development typically consists of over-pumping or agitating water in the well to loosen and remove fine-grained materials that can reduce the well's productivity. The pumping/development test, which usually lasts an hour for small-capacity residential wells, is often conducted by injecting air near the bottom of the well. The injected air forces water to exit through the top of the well. During the test, the driller estimates the flow rate from the well. The flow rate is then recorded on a well log that the driller is required to complete and submit to the state. The flow rate recorded on the well log is not necessarily the maximum capacity of the well, but is at least an approximation of the well's minimum productivity.

When an existing well is tested for a real estate transaction, or for any other purpose, the results of the new pumping test are often compared to the well log flow rate to determine if the well productivity has deteriorated. Well logs of most existing wells can be found at the Ground Water Information Center web-site that is maintained by the Montana Bureau of Mines and Geology. The web address is <http://mbmgwic.mtech.edu/>. When the pumping test is conducted, care should be taken not to pump the well dry. Under some circumstances, pumping a well dry can cause various problems related to bacteria growth due to introduction of oxygen, or allowing excessive fine-grained materials, such as clay, silt or fine sand,

to enter the well and the pump. But more important, once pumped dry, the water level in the well must be allowed to recover back to its original static level, the non-pumping water elevation, which may significantly delay completion of the test. If the well is pumped again before static conditions are reached, the results will not reflect the well's true capacity; such a test will underestimate the actual well productivity.

The best way to determine the productivity of a well is to conduct a step-drawdown test. In a step-drawdown test, the well is pumped at successively higher rates to determine the maximum sustainable pumping rate of the well. The water level in the well should be measured and recorded at frequent intervals during the test. Water levels can also be measured after the pump is turned off to determine how much time it takes for the water level to return to its static level. This data can be particularly important if a sustainable flow rate was not achieved during any part of the test. The length of pumping time for each successive flow rate should be equal; each rate is typically held for about an hour. The key to conducting a successful step-drawdown test is to start at a flow rate that the well can sustain without drawing the well dry, which ensures that the test will at least provide a minimum productivity rate. It is OK if the second or later step will eventually draw the well dry. As mentioned above, to protect the well, it is a good idea to stop the test if the water level measurements indicate that drawing the well dry is imminent.

Conducting a step-drawdown test will likely cost more money than a quicker improper test, but the results provide a good approximation of the well capacity. And, an accurate test is much less expensive than drilling a new well if an improper test erroneously indicates the existing well is inadequate.

Some wells, particularly those completed in bedrock, may not be able to achieve a sustainable flow rate even at very low pumping rates. That does not necessarily indicate the well is unusable or inadequate. In some cases, through the use of water storage either in the well casing or more reliably in a separate cistern, these types of wells may be suitable for domestic water needs. Typically, low-yielding wells cannot support any significant irrigation demands. ■



## Storage Tank Alert

By Marc Golz, DEQ

**W**ater storage tanks may be the single most common site for contamination in a water distribution system. The state of Missouri studied the causes of boil water orders and found that 35% of the boil orders investigated were caused by the presence of birds, often found dead in the water, in water storage tanks. In a study conducted in the 1990s, birds or bird droppings were responsible for 18 of 51 boil orders. Missouri reports that birds are "the largest identifiable cause of boil water orders in water systems having storage tanks." You can imagine that once you see a big dead bird in your water - or several live ones perched above it, doing their thing, or several dead mice and a bunch of insects - you will sit up and take notice. It would be better not to have to imagine that!

What may be a cause for even more concern is that these investigations only occurred where contamination was found by routine sampling. How much more contaminated water is out there that we don't know about because it isn't detected by routine sampling? The answer to that question is: anybody's guess! That is not a very comforting answer. Nevertheless, it is true: routine sampling can only tell us about the water quality at the instant in time that the sample is collected. And we only sample a tiny fraction of the water that we drink. So taking samples alone is not enough to ensure that the water is always safe to drink. Inspection and maintenance - focusing on sanitary integrity - are very important additions to taking samples. Thus, water operators that inspect and maintain a water system, focusing on sanitary integrity, are performing a very important routine in providing safe drinking water. And focusing some attention on water storage tanks should be one of the top priorities in that routine.

According to a major tank industry company, 85% of the tanks they inspect have some sort of sanitary defect and 25% have evidence of contamination. A Missouri tank inspection company says that 50% of the tanks they inspect have serious sanitary defects and contamination is evident in the majority of them. Another 30-40% have minor sanitary defects. These numbers may be a cause for alarm - especially for tanks in Montana that are not inspected often enough; some perhaps have not been inspected in several years.

Some of the sanitary defects that would allow undesirable creatures to find their way into your storage tanks include: damaged or missing screens, holes cut in the tops of tanks, poor access openings and covers, covers left open, inspection ports missing or left open, cathodic protection ports damaged or left open, overflow, drain or vent pipes that are unscreened, improperly screened or have screens that are not attached in a secure manner. Animals and insects can and do find their way in through these defects and sometimes can't find their way out. Thereby they meet their demise at the expense of the drinking water quality.



Fortunately, the solution to the problem is fairly straightforward: improved inspection and maintenance on a routine schedule. Tanks should be inspected thoroughly, at least once each year, for sanitary defects and evidence of contamination. Inspectors should pay close attention to screens, access hatches, cathodic protection ports and all pipes and vents. Screens should be securely attached and of small enough mesh to prevent even insects from entering. Both vents and overflow pipes should be checked for proper screening. As mentioned, these inspections should be done at least once each year, and necessary repairs should be made immediately.

An engineering firm or qualified tank company should do an even more thorough inspection every five years. However, if the routine inspections are done properly and repairs made as needed, then it is probable that no sanitary defects would be found during these more thorough inspections. These inspections can then focus more on the structural integrity of the tank and its coating.

If you are a water system operator, owner or manager, remember to take your job of public health protection to heart and be rightly proud of the job you do. Inspecting and maintaining the sanitary integrity of your system, including water storage tanks, is part of that job. ■

## Installing an Air Line in a Well (For Water Level Measurement)

By Rick Cottingham, DEQ

The past couple of Big Sky Clearwaters covered the importance of checking groundwater levels in your well(s) especially during the drought years. If you're interested in making this an easier and quicker task, we provide the following information for your convenience.

Figure 1 shows the installation of an air line in a well for the purpose of determining the depth to water. The air line consists of a small diameter pipe or tube of a length sufficient to extend from the top of the well to a point several feet below the lowest anticipated water level to be reached during the life of the well. The exact length of the air line must be measured as it is placed in the well. If flexible tubing is used, steps must be taken to be sure that the tubing hangs vertically in the well and does not spiral inside the well casing. The air line must be completely air tight throughout its entire length and connections to it at the ground surface must be air tight. These points are very important to getting accurate measurements.

Generally, quarter-inch copper or brass tubing is used for the air line. The upper end of the air line is fitted with appropriate connections and a valve so that an ordinary tire pump can be used to pump air into the tube. A tee is provided in the line so a pressure gauge may be connected to measure the air pressure in the tube. A gauge calibrated to indicate pressure in feet of water serves better than one with a scale reading in pounds per square inch (psi).

The device works on the principle that the air pressure required to push all of the water out of the submerged portion of the tube equals the water pressure of a column of water of that height. If this pressure is expressed in feet of water, the depth to water can be calculated.

The first step is to determine accurately the depth from the top of the well casing or from some other reference point to the lower end of the air line. Once installed with the pressure gauge connected, air is then pumped into the line. The pressure shown by the gauge increases until it reaches a maximum value, which means that all the water has been forced out of the air line. At this point the air

pressure in the tube just balances the water pressure and the gauge reading shows the pressure necessary to support a column of water of a height equal to the distance from the water level in the well to the bottom of the tube. If the gauge indicates feet of water head, then it shows directly the submerged length of the air line in feet. Subtracting the submerged length from the total length of the air line gives the depth to water below the measuring point chosen.

A measurement made before starting to pump the well indicates the static water level. Any change in water level is represented directly by a difference in pressure shown by the gauge in subsequent measurements. Drawdown during pumping and during recovery after pumping is stopped, can be readily recorded from the pressure readings.

Referring to Figure 1, the depth to water is always calculated from the following formula:

$$d = L - l$$

where  $d$  = depth to water in feet,  
 $L$  = depth to bottom of air line in feet, and  
 $l$  = pressure head in feet represented by a column of water of height equal to the submerged length of the air line.

Suppose we have an installation where the distance from the top of the well casing to the lower end of the air line is 95 feet. As the air is pumped slowly into the line assume that a maximum reading of 46 feet on the pressure gauge is reached. The depth to water is then the difference between 95 feet and 46 feet or 49 feet. Let's say that this is the static water level.

Assume now that the pump is started. As the water level in the well drops, the submerged length of air line decreases and the pressure indication on the gauge drops accordingly. A gauge reading of 34 feet, for example would mean that the submerged length of the air line has decreased by 12 feet and the depth to water has changed to 95 - 34, or 61 feet. This indicates a drawdown in the well of 12 feet below the static water level. Each reading must be multiplied by 2.31, if the gauge reads in psi, to convert it to feet

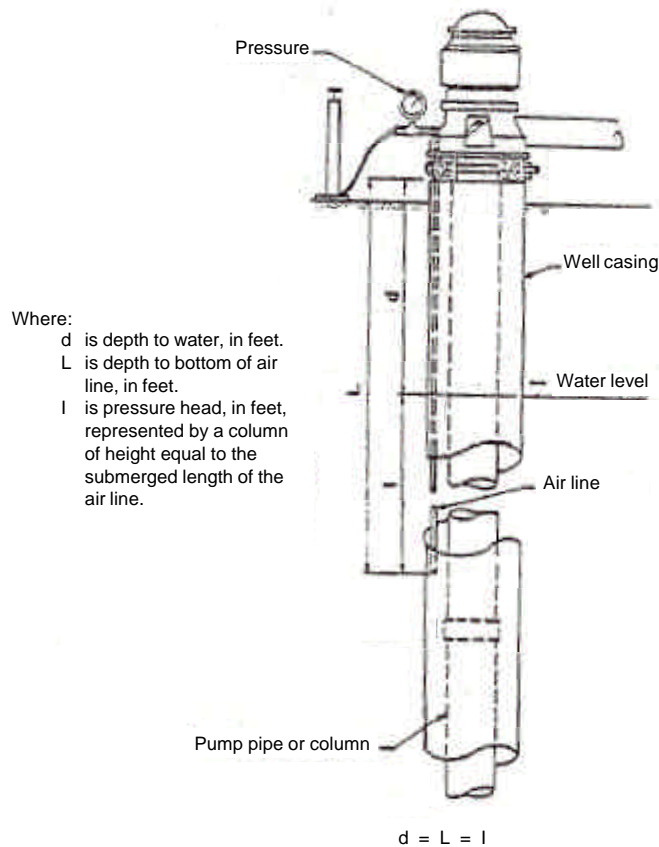
*continued on page 38*

## Installing an Air Line In a Well - *continued from page 37*

of water. A reading of 15 psi for example corresponds to a pressure head of 15 X 2.31, or 34.6 feet of water.

The dependability of the measurements made by the air line device varies with the accuracy of the pressure gauge and the care used each time in operating the tire pump to get the pressure reading. Depth to water can be determined usually within 0.2 feet of the exact value. The air

line is not accurate enough for use in observation wells during an aquifer test, but it is the most practical means for measuring water levels in a pumped well. To avoid disturbances from turbulence near the intake of the pump, the lower end of the air line should be at least five feet above or below the point where water enters the pump. ■



**Figure 1. Installation of an air line.**

# Long Term 1 Enhanced Surface Water Treatment Rule and Its Effect on My Water System

The Long Term 1 Enhanced Surface Water Treatment Rule (LT1ESWTR) reinforces microbial controls and prevents a significant increase in microbial risk where small water systems must take steps to implement the stage 1 Disinfectants and Disinfection Byproducts Rule (DBPR). This rule will weigh out both sides of the issues of creating too many disinfection byproducts and still making sure there is enough disinfection for control of pathogens (Cryptosporidium and Giardia Lamblia) and the microbial contaminants.

The principals of the LT1ESWTR fall into four sections or categories:

**Section 1: Cryptosporidium Removal** - this maximum contaminant level goal (MCLG) is set at zero. Filtration systems must physically remove 99% of Cryptosporidium. The unfiltered systems must update their watershed control programs to minimize the potential of Cryptosporidium presence. Cryptosporidium is now also to be an indicator of ground water under the influence (GWUDI) of surface water.

**Section 2: Enhanced Filtration Requirements** - the specific combined filter effluent turbidity requirements now depend on which type of technology you have for filtration. Conventional and direct filtration system requirements should be 0.3 NTU's in at least 95% of the measurements taken each month and the maximum level of turbidity should be 1.0 NTU. These systems must constantly monitor the turbidity of each individual filter. If there are only two filters then the filters combined effluent must be monitored continually.

Slow sand and diatomaceous earth (DE) filtration system requirements must continue to meet the standard of combined filter effluent of 1.0 NTU in 95% of the samples and the maximum of level of 5.0 NTU.

For all other alternative technologies (other than conventional, direct, slow sand and DE filtration plants) the systems primacy agency establishes required turbidity levels based upon filter demonstration data that the systems collect and submit. At a minimum the primacy

agency limit must not exceed 1 NTU in at least 95% of the measurements taken each month or a maximum level of 5.0 NTU.

**Section 3: Microbial Inactivation Benchmarking:** Systems will be required to develop a profile of microbial inactivation levels (Contact Time or CT calculations) which Montana systems have been calculating and reporting since 1993. If a system performed early monitoring to demonstrate disinfection byproducts levels at 80% of the maximum contaminant level (MCL) established in the Stage 1 DBPR, they do not have to do the profiling.

Systems considering a significant change to their disinfection practices must determine their current lowest level of microbial inactivation and consult with the regulatory (usually the state) agency for approval prior to implementing the change.

**Section 4: Other Requirements** - Finally the rule also requires that all newly constructed, finished water reservoirs be covered, which includes those whose construction began 60 days after January 14, 2002. In addition, unfiltered systems must comply with updated watershed control programs.

Increased benefits of this rule are not limited to, but include assuring that operators will be better equipped to optimize their systems with the procedures used to implement the LT1ESWTR. Continuous monitoring of the filtered water turbidities and disinfection profiling (which Montana systems have also done since 1993) and benchmarking are all tools operators can use to improve the quality of their water produced and sent to their customers. Anything that enables operators to do their job better benefits everyone. In MT DEQ's opinion, the operator holds one of the most important positions in the community.

Most systems have the more costly items to implement this rule already in place. Turbidimeters continually monitor individual (if more than two) filters and/or combined filter effluents. Computer software or a chart recorder will be needed to keep record of turbidity data. If

*continued on page 40*

## Long Term 1 Enhanced Surface Water Treatment Rule - *continued from page 39*

your water system does not already have a computer to handle the software, then you will need to get one to record and store the turbidity data. Other costs will depend on what equipment you already have available.

### **How soon will the changes take effect?**

Many deadlines have come and gone, many systems are well on the road to monitoring and reducing plant effluent turbidities, continually monitoring and storing turbidity data. Deadlines in the future are as follows:

Starting December 31, 2004 systems serving fewer than 500 people must complete their disinfection profiles unless their primacy agency has determined it unnecessary.

Starting January 1, 2005, surface water systems or GWUDI systems serving fewer than 10,000 people must comply with the LT1ESWTR provisions such as turbidity standards, individual filter monitoring, and Cryptosporidium removal requirements, while unfiltered systems must update their watershed control requirements.

If you have specific questions or concerns about your system, please call Rick Cottingham, Environmental Quality Specialist, MT DEQ at (406) 444-4019 or the Public Water and Subdivision Bureau at (406) 444-4400. ■



## Critical Issues: Filter Media Specifications

by Rick Cottingham, Environmental Quality Specialist

The need to explain the importance of following media sizing and specifications has been brought upon by several Montana water treatment plants installing the improper size of coal when replacing media which was lost due to backwash, time, and aging filters.

Installing the improper sized filter media results in particulate removal problems in the filtration barrier in the treatment process. All filter plants need to perform maintenance when they periodically measure the depth of their filters and find they have lost media resulting in thinner layers of coal. This results in shortened filter runs, less than optimized turbidity removal, frequent backwashes and, therefore, less efficient operation of the treatment plant.

In the mid-1940's there was wartime need to produce an improved water quality for processing wartime materials. Development of the coarse to fine filter took place in two steps. The first was development of a filter that used 24" of anthracite and 6 inches of silica sand. It provided a necessary coarse or roughing filter above to trap particulate from reaching the fine finishing filter media below. Each layer had its own specific gravity (example: the coal @ 1.4 and the silica sand @ 2.65) so the coal at its proper size remains on top during your backwashing procedure. These filters worked well with turbidities in raw water being less than 15 NTU's and could operate under these constant conditions at 4 to 5 gpm/sq ft and produce a high quality of finished water. These filters could retain more turbidity removed than a sand filter, but were unstable and subject to filter breakthrough at changing flow rates. This was because of the low total surface area of media particles which was much lower than that of media in the conventional filters of today.

Today's filters have a controlled mixing of media at the media interface that performs better and washes better than the beds of distinct layers of the dual media of the past. The dual media are designed today to have the coal as coarse as is consistent with particulate removal to prevent surface binding and to have the sand layer as fine as possible to still have maximum solids removal

take place. If the sand was too fine it would rise above the coal in the backwash and remain there afterwards when the filter is to be returned to service. The only way to use a very fine silica sand in the bottom layer would be to use a smaller diameter coal which would defeat the purpose and most likely cause surface binding. The problem of keeping a very fine medium at the bottom was overcome by using a third very fine heavy material, usually garnet, beneath the coal and sand. The garnet sand and coal particles are sized so controlled mixing occurs and no distinct interface exists between them. This sets up the necessary uniform decrease in pore space size with the increase in filter media depth.

The term "coarse to fine" actually refers then to the pore spaces rather than the media itself. This uniform decrease in pore size with filter media depth allows the entire filter bed to be used for floc removal and storage until the next backwash. This also allows for steadily increasing efficiency of removal in the direction of flow. Some filters are further designed to add an additional layer of a lighter weight coal in addition to the normal coal-sand-garnet, thus making it possible to increase the top media without changing the size of the rest of the filter.

One of the key factors in constructing such a mixed-media bed filter is careful control of the nominal size distribution of each layer of media. Backwashing is repeated until the fines are removed after installation of each layer is essential to achieve this critical pore size distribution. Sometimes twenty to thirty percent of each layer of material might have to be skimmed and discarded to achieve proper size distribution. The benefits of three layers of filter material over two layers is achieved only if the three media have been properly sized.

The large floc storage capacity of the mixed-media filter increases the length of the filter runs before terminal headloss is reached. So all the surface area in the grains of a mixed-media filter bed is larger than sand or a dual-media filter. The mixed-media filter is more resistant to breakthrough and more forgiving to surges in filter flow rates that provide a factor of safety in filter operation. At the same time, there is an improved finished water quality; this was the original intent of the multi-media filter.

*continued on page 42*

## Critical Issues: Filter Media Specifications - *continued from page 41*

Remember that although they have designed a much better filter, it still is only one factor in the multi-barrier concept.

In today's "Move to Improve" water treatment environment and our never ending striving for the finest finished water quality obtainable from our Montana water treatment plants, coagulation and filtration are inseparable. They are uniquely bound to one another in the solids-liquid separation process.

**Therefore, when performing media replacement or changing out aged filter media, it is very important to correctly order the media specified and confirm by Sift Analysis (reportedly \$60 at most labs) that you**

**receive and install the design specified media of the original filter.**

**Montana plants have been correctly ordering the specified media, but have sometimes received a different size than ordered. When installed, this finer sized media has created filtration problems in the form of higher head losses, shorter filter runs, and lost media during backwashing at design backwash rates.**

Make certain that the proper sized media you ordered is what is delivered and what you install. Make certain that you follow manufacturer procedures in installing the media, and, if in doubt, call either the manufacturer or your design engineer. ■



# Mobile Glass Pulverizer

By Brian Spangler, DEQ

The Business and Community Assistance Program at the Department of Environmental Quality (DEQ) has been seeking funding for a mobile glass pulverizer to meet the challenges of recycling glass in Montana. The program plans to develop partnerships through this mobile glass processing facility for a local end use. The pulverizer would be mounted on a trailer with its own generator, which we hope to power by biodiesel.

I am pleased to announce that we have received final confirmation of a financing source for a mobile glass pulverizer. It will be operated by Headwaters Cooperative Recycling and will be placed in operation later this summer. In addition to Headwaters' region, it will enable glass recycling in other communities.

Headwaters Cooperative Recycling includes thirteen counties in Montana in addition to a partnership with Yellowstone National Park. They are a 501C3 non-profit entity, which operates by an interlocking agreement. The Headwaters Cooperative is the largest recycling cooperative in the United States, has vehicles collecting recyclables throughout the thirteen counties and is well suited to coordinate and operate the equipment. We will be meeting in the near future to select the manufacturer and specifications, as there are two manufacturers of the equipment. The lead-time is 8-10 weeks once the order is placed.

Acting in partnership with the Montana Department of Transportation (MDT), and following their specifications, allows using glass cullet as soil-aggregate filler for road construction. Some other markets for glass cullet are as follows:

- ◆ landscaping
- ◆ septic drain fields
- ◆ retaining wall backfill
- ◆ drain pipe bedding and backfill
- ◆ french drains
- ◆ other uses

The following link to one of the manufacturers shows the equipment: <http://www.glassagg.com/product1.html> Please scroll to the bottom of the page to see the mobile glass pulverizer.

DEQ works to build partnerships between state, tribal and local governments, private industry and non-profit organizations to move recycling forward in the state. This project, which will further establish glass recycling as a viable activity in Montana, is a great step towards achieving our recycling goals.

If you have any further questions about the progress of the mobile glass pulverizer and the future of glass recycling in Montana, please do not hesitate to contact.

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 Department of Environmental Quality  
 Air, Energy and Pollution Prevention Bureau  
 Business and Community Assistance  
 1100 North Last Chance Gulch  
 P.O. Box 200901  
 Helena, MT 59620-0901  
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*Mobile Glass Pulverizer*

# Economic and Ecological Impacts of Recycling in Montana

By Brian Spangler, DEQ

A report on recycling in Montana that looked at the economic factors as well as the ecological impacts was recently completed this summer. The report indicates recycling is a viable business and industry in Montana. The report was written by Jeff Blend, an economist with DEQ, and is based on data gathered by Carroll College graduate, Matt Elsaesser, who wrote his thesis on recycling.

This report shows that Montanans are taking a key step in the "right direction" as we move waste reduction and recycling forward in the state. The report will be posted to the DEQ website next week at: <http://www.deq.state.mt.us/Recycle/index.asp>.

A summary of the findings is included in the following paragraph from the report:

"The Recycling Industry in Montana is significant. In 2003, the industry paid over nine million dollars in wages and benefits to approximately 300 full-time and 40 part-time employees. Total gross revenues for the industry in 2003 were almost 90 million dollars and the average wage per full-time job (including benefits) was about \$29,000 a year, which is several thousand dollars greater than the average wage in Montana (about \$25,800 in 2002 according to the U.S. Bureau of Economic Analysis). These totals include recycling activity at all levels including processing, collection, remanufacturing, and sales. The totals include the private sector, public sector and not-for-profit entities." ■



## New Employee in Pollution Prevention Program

Loni Hanka, who recently relocated to Helena from Boise, Idaho with her husband, is the new Recycling and Market Development Specialist for the DEQ Pollution Prevention Program.

Loni has a BA degree in communications from Washington State University in Pullman, Washington, which should serve her well as she reaches out to people and communities across this big state.

Loni has over seven years of extensive experience in sales, marketing and relationship building at the

state, private, public and non-profit level. She has held positions as Recycling Manager for a major solid waste collection company, Promotions and Community Relations Officer for an association, Public Relations Specialist for a major wireless telephone company, and a Community Resources and Promotion Specialist for a state agency.

Her background and expertise will allow her to quickly grasp the responsibilities and duties of this position as she works with the rest of the DEQ staff in moving waste reduction and recycling forward in the state. ■

# Asbestos Regulations for Public/Commercial Building Owners and Contractors

## What Is Asbestos?

Asbestos is a name given to a group of naturally occurring minerals including its regulated fibrous forms: chrysotile, amosite, crocidolite, anthophyllite, actinolite, and tremolite. The word asbestos is derived from the Greek language meaning inextinguishable.

The Asbestos Control Program is housed within the Permitting & Compliance Division of the Department of Environmental Quality. The Asbestos Control Program oversees the permitting of asbestos abatement projects, the accreditation of asbestos-related occupations, the approval and auditing of asbestos training course providers, and provides compliance assistance to the regulated community and interested parties. The Department is also delegated by EPA to administer the asbestos National Emission Standard for Hazardous Air Pollutants (NESHAP, 40 CFR Part 61 Subpart M National Emission Standard for Asbestos). The asbestos NESHAP governs a host of asbestos emission sources including building renovation and demolition activities and asbestos landfills.

Previously, in the Big Sky Clearwater Fall 2003 publication, we provided information about asbestos. You can review that article on the DEQ homepage or get other information from the Asbestos Control Program at (406) 444-5300 or visit our website: [www.deq.state.mt.us/pcd/](http://www.deq.state.mt.us/pcd/)

## Asbestos and Building Owners

This current article discusses some of the asbestos regulations that relate to public and commercial building owners and contractors. It also discusses some options in dealing with asbestos-containing materials (ACM). Please note various asbestos regulations apply to each asbestos situation. Asbestos regulations that apply to public and commercial buildings differ slightly from those that apply to schools, single family dwellings, and other buildings. The intent of asbestos regulations is to prevent asbestos releases and exposures. Contact the Asbestos Control Program, EPA, or OSHA for more information.

In Montana, activities involving asbestos in commercial buildings are governed by one or more regulatory au-

thorities, i.e. State of Montana DEQ, Federal EPA, and OSHA; in many cases jurisdictions and regulations overlap.

The Asbestos Control Program of the Department of Environmental Quality (DEQ) regulates and permits asbestos abatement projects, accredits asbestos-related occupations, approves and audits asbestos training course providers, provides compliance assistance, and administers certain sections of the Environmental Protection Agency's National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation. The Asbestos Control Program regulates asbestos abatement activities involving three (3) or more square or linear feet of regulated ACM. Asbestos abatement activities must be permitted through the Asbestos Control Program and must be conducted by accredited asbestos personnel following proper asbestos abatement, transportation, and disposal procedures.

Most of the asbestos activity in Montana involves building renovation and demolition activities. The NESHAP has a specific standard that addresses building renovations and demolitions; 40 CFR 61.145. In order to determine which requirements apply to a building owner or contractor of a renovation or demolition, an asbestos inspection is required. An asbestos inspection not only locates, quantifies, and assesses the condition of asbestos, it also provides information as to whether an asbestos-containing material is regulated and regulated by which authority. According to EPA and Asbestos Control Program regulations, an asbestos inspector accredited, or licensed, by the Asbestos Control Program must perform the asbestos inspection. Typically, samples of suspect asbestos-containing materials are collected by the inspector for laboratory analysis. Sample analytical costs range from \$15-30/sample. Asbestos Control Program regulations require sample analysis be done by a laboratory approved by the National Institute of Standards and Technology (NIST). In some cases it can be assumed a material contains asbestos, saving an owner some money. The Asbestos Control Program maintains a list of accredited and approved asbestos inspectors and laboratories available for your reference. Contact them for specific cost and inspection information.

*continued on page 46*

## Asbestos Regulations - *continued from page 45*

In a demolition or renovation where regulated ACM is identified by the asbestos inspection, the regulated ACM would need to be removed by an accredited asbestos abatement contractor following proper abatement procedures under an asbestos abatement project permit issued by the Asbestos Control Program. The building owner or abatement contractor would apply for the permit using a form available from the Asbestos Control Program called the Montana Asbestos Abatement Project Permit Application And NESHAP Demolition/Renovation Notification. A permit fee based on the asbestos abatement contract volume would apply. A seven (7) or ten (10) day notification period, depending on the asbestos abatement contract volume, would also apply.

In a demolition where no regulated ACM is identified by the asbestos inspection, the owner or demolition contractor must notify the Asbestos Control Program of the demolition using the same form as above, the Montana Asbestos Abatement Project Permit Application And NESHAP Demolition/Renovation Notification form. No fee applies to demolition notifications where no regulated ACM is identified; however, a ten (10) day demolition notification period applies.

In a renovation where no ACM is identified by the asbestos inspection, no notification to the Asbestos Control Program is required.

Even though the Department is delegated by EPA to administer the NESHAP in Montana, EPA is also active in Montana regulating asbestos in private and public kindergarten through twelfth grade schools, Native American Nations, and other buildings. Montana is part of EPA's Region VIII along with North and South Dakota, Wyoming, Utah, and Colorado. EPA's Asbestos Hotline can be reached at (800) 368-5888.

Another asbestos authority is Federal OSHA (Occupational Safety and Health Administration). OSHA regulates worker safety and health as they relate to asbestos in the general and construction industries. Prior to initiating construction activities, OSHA's asbestos standard (29 CFR 1926.1101) also requires an asbestos inspection as part of its hazard communication requirement. The Asbestos Control Program's regulations have adopted by reference some of OSHA's asbestos regula-

tions; however, for more complete information on OSHA's regulatory requirements, contact OSHA at (800) 321-6742, or in Billings at (406) 247-7494.

City or county governments such as local building permitting offices or local environmental health or sanitarian's office may also have asbestos requirements, contact them before initiating demolition or renovation work. City or county governments issue building permits for general renovation/demolition activities; however, don't be tricked assuming that their permit will satisfy the Asbestos Control Program's asbestos abatement permit and demolition/renovation notification requirements.

One last asbestos authority is the landfill. Prior to initiating asbestos work, contact your local landfill and learn about their asbestos disposal requirements. In many cases landfills do not accept ACM and the last place you want to learn that is at a landfill's gate. According to State of Montana Refuse Disposal Rules and the Asbestos Control Program regulations, asbestos must be disposed of in a State-approved Class II landfill.

### Options: A Solution Exists

At this point you may be scratching your head over asbestos regulations; however, rest assured that regulations exist to prevent asbestos exposure; they also may assist in limiting certain liabilities. As an owner of a public/commercial building that may contain asbestos, you have a few options. Armed with an asbestos inspection telling you where ACM is located, one option is to leave the ACM in place. If you do not have plans to renovate or demolish your building, the option of leaving the ACM in place is economical. Providing the ACM is in good condition, not causing exposures, and not prone to damage, the ACM can be left in place, managed, and monitored periodically for damage.

A second option is to encapsulate the ACM. Encapsulation involves treating the ACM with a substance that surrounds or embeds asbestos fibers. There are commercially available encapsulants and mastics specifically manufactured for such applications.

Another option is enclosure. Enclosure involves installing an airtight, impermeable, and permanent barrier

*continued on page 47*



## Asbestos Regulations - *continued from page 46*

around the ACM to prevent the release of asbestos. Removal is another option involving the physical removal of the material. Removal may be the only option in building demolitions or renovations.

In Montana, asbestos abatement actions include encapsulation, enclosure, removal, repair, renovation, placement in new construction, demolition, transportation, and disposal of friable or potentially friable asbestos containing material. Abatement actions of three (3) or more square or linear feet of ACM must be permitted through the Asbestos Control Program. As mentioned earlier, only

accredited asbestos personnel following proper abatement, transportation, and disposal procedures can perform abatement actions. The Asbestos Control Program has lists of accredited asbestos personnel available for your reference.

Asbestos regulations and abatement options can be confusing; however, we at the Asbestos Control Program are available to discuss your asbestos issues, so before you demolish, renovate, or deal with asbestos, contact us for compliance assistance at (406) 444-5300 or [www.deq.state.us/pcd/](http://www.deq.state.us/pcd/) ■



*Asbestos insulated pipes typical in older homes.*

## MONTANA ENVIRONMENTAL TRAINING CENTER

For Water and Wastewater Operators, Managers, and other Environmental Public Health Professionals

### About Us...

Developing and implementing effective training to:

- **Protect and Improve the quality of Montana's water and**
- **Preserve the public investment in water and wastewater systems**

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#### MISSION

The Montana Environmental Training Center (METC) is a training organization whose goals are to provide a base for state training coordination, to develop and implement effective training, and to provide technical guidance for water and wastewater operators and other environmental and public health professionals. This process contributes to preserving the large public investment in water and wastewater systems and to protecting and improving the quality of Montana's environment.

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#### HISTORY

Montana State University-Northern and the Montana Department of Environmental Quality (MDEQ) began cooperative efforts in 1988 to establish METC. As a result of those efforts an EPA 109(b) grant was awarded to establish a training center and purchase equipment and supplies. The grant is administered by MSU-Northern with support from MDEQ's Technical and Financial Assistance Bureau and Community Services Bureau.

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#### TRAINING & EDUCATION

1. Providing basic and advanced training to water and wastewater operators and other environmental professionals.
2. Providing state-wide entry level training and continuing education in the areas of operation and maintenance, regulation, financing, administration, safety, and basic science.
3. Preparing, publishing, and distributing an annual training calendar.
4. Coordinating with other water quality related training entities.
5. Supporting and upgrading Montana's established Operator Certification Program.
6. Providing a quarterly newsletter and training announcement.
7. Maintaining a water quality related clearinghouse of information.

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#### STEERING COMMITTEE

A five member committee provides policy direction and guidance to METC. Two members from MSU-Northern, two members from the Montana Department of Environmental Quality, and one elected at-

large member make up the committee.

Previous at-large members have included an executive water/wastewater training director, a wastewater system operator, wastewater system superintendents, and a rural utility management specialists.

#### **CURRENT MEMBERS**

Jenny Chambers      [jchambers@state.mt.us](mailto:jchambers@state.mt.us)

Bill Bahr              [bbahr@state.mt.us](mailto:bbahr@state.mt.us)

Gregg Hester         [ghester@msun.edu](mailto:ghester@msun.edu)

Doris Roberts        [dorisp@mtintouch.net](mailto:dorisp@mtintouch.net)

Bob Broadway        [spvws@mcn.net](mailto:spvws@mcn.net)

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#### **ADVISORY COMMITTEE**

A diverse group representing small and large water and wastewater system operators, rural technical assistance programs, educational institutions, engineers, sanitarians, and the state water and wastewater certification program make up the advisory committee.

The advisory committee meets annually to review METC activities, and offers recommendations for training improvements, dates, and locations for the annual training calendar.

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#### **METC STAFF**

A two and a half member staff includes a Training Coordinator, Training Specialist, and an Administrative Assistant. The staff coordinates and implements effective training programs with guidance from METC's Steering Committee.

Current Staff Members:

[Jan Boyle](#) Training Coordinator

[Gary Hall](#) Training & Development Specialist

[Mills Thorsell](#) Administrative Assistant

***Contact us for more info***