



NEWS AND INFORMATION

FOR PUBLIC WATER SUPPLIERS IN MINNESOTA

Air Strippers Do the Trick in Waite Park



The city of Waite Park has used air stripping to remove volatile organic chemicals from the water since 1988. In the foreground is the original plant, with one tower. A new plant, to the left, went on-line in the early 2000s, with two air stripping towers. See page 4 for more information.

Upcoming Water Operator Certification Exam Dates

December 3, Bemidji

March 4, St. Cloud

March 12, Rochester

April 8, Brooklyn Center

April 15, Redwood Falls

May 21, Two Harbors

June 11, Deerwood

See calendar on back page for more information

Competition at AWWA Conference



The annual conference of the Minnesota Section of American Water Works Association (AWWA), held at the Duluth Entertainment Convention Center, included a Meter Madness competition (above), which was won by Harvey Maas of Duluth with a time of 1 minute, 3 seconds. Below, conference attendees sampled water brought for a taste test by utilities from around the state. Moorhead Public Service was awarded the prize for Minnesota's best-tasting water. See page 3 for more pictures from the conference.



Drinking Water Institute Held in Oakdale



WaterWorks! A Drinking Water Institute for Educators was held in Oakdale in August. More than 20 teachers attended the three-day Institute, where they learned about drinking water and ways to incorporate it into their science curriculum. The photo at the right shows water superintendents Dan Hansen of Woodbury, Royce Johnson of Pine City, and Mike Klimers of Savage, who addressed the group on the final day of the Institute, which has been held since 2001. The Institutes are co-sponsored by Minnesota AWWA and the Minnesota Department of Health and conducted with the participation of the Hamline University Center for Global Environmental Education. The 2010 Institute will be held August 9-11 in Eden Prairie. More information on the Institutes is available at <http://health.state.mn.us/water/institute/index.htm>.

Radon in Groundwater

Proposed Rule Not Likely to be Finalized

The U. S. Environmental Protection Agency (EPA) has proposed a Radon Rule as part of the Safe Drinking Water Act for several years, although it is unlikely that the proposed rule will become final at this point. The proposed rule is complex, as it addresses radon occurrence in both air and water. The EPA proposed an Alternative Maximum Contaminant Level (AMCL) in drinking water of 4,000 picocuries per liter (pCi/L) for states that adopt an Indoor Air Program. Minnesota had intended to adopt an Indoor Air Program that met Radon Rule requirements, and, as a result, community public water systems would have been required to meet the AMCL of 4,000 pCi/L.

For states that do not adopt an Indoor Air Program, an MCL of 300 pCi/L would have been required. Anticipating a final rule, the Minnesota Department of Health (MDH) sampled all community public water systems and found that 37 percent (approximately 400 systems) exceed 300 pCi/L.

What Is Radon?

Radon (Radon-222 or Rn) is a gas that has no color, odor, or taste and comes from the natural radioactive breakdown of Uranium-238 and Radium-226 (usually within the soil). MDH found that some community public water systems can create radon during treatment, i.e., radium is retained on filter media and breaks down to create radon.

Exposure

People can be exposed to radon in one of two ways: groundwater and air (indoor and outdoor). Most radon in indoor air comes from soil beneath the home. Radon in soil seeps into the house and accumulates as indoor air. In addition, outdoor air contains background levels of radon from soil gas.

Radon is also found in groundwater. Exposure to radon occurs when breathing airborne radon while using water: showering, washing dishes, cooking, and drinking water that contains radon. Exposure from radon in groundwater causes approximately 168 cancer deaths per year in the United States.

The highest concentrations of radon in drinking water were found in parts of east central and southern Minnesota. There is some temporal variability in radon concentrations for individual wells, with seasonal variation and pumping rates being a possible contributor to that variability. Compliance monitoring would have required at least four samples to determine an exceedance (reducing the effect of variability for compliance).

Water treatment plants using aeration for iron and manganese oxidation can remove radon during the treatment process. Non-pressurized aeration designed for oxidation of iron and manganese can be useful in the reduction of radon, with removal rates anywhere from 3 to 98 percent. Aeration specifically designed for radon removal can be 90 to 99 percent effective at removing radon.

Water treatment plants can also increase radon concentrations during pressure filtration. Systems using pressure aeration and pressure filtration often had an increase in radon concentrations as high as 138 percent, and it is suspected that radium scale present on filter media may be increasing the radon concentrations in finished water.

What Can Be Done?

Exposure to radon in drinking water is a relatively small health risk in comparison to radon in air. For more information, homeowners may visit <http://www.health.state.mn.us/divs/eh/indoorair/radon/index.html>.

93rd Annual Minnesota AWWA Conference



The 93rd annual Minnesota American Water Works Association Conference was held in Duluth. In the above-left photo, Association vice president Dean Fritzke (on the right) presents the George Warren Fuller award to Dave Schultz of MDH. Above-right, outgoing chair Bill Spain (on the left) receives a plaque of appreciation from incoming chair Pete Moulton.



In the photos above (left to right), Spain presents the Meritorious Service Award to Myron Volker, and Dave Brown (on left) presents the Volunteer of the Year award to Bo Johnston. In the photo below, Scott Anderson accepts the Leonard N. Thompson award.

Spring 2010 Schools

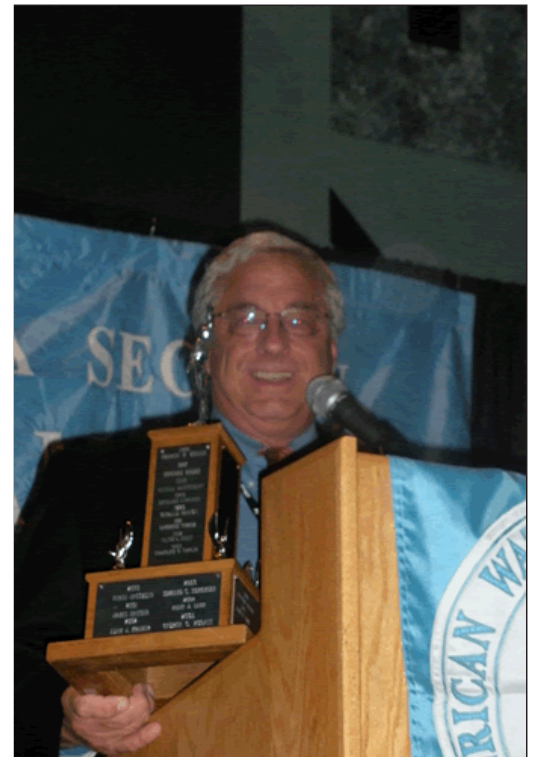
The 2010 Metro Waterworks Operators School will be held from Tuesday, April 6 through Thursday, April 8 at the Earle Brown Heritage Center in Brooklyn Center. Participants in the school will receive 16 credit hours for their attendance. The registration for the school will be \$175 (\$210 at the door or after March 25). An agenda for the school will appear in the Spring 2010 *Waterline*.

Other spring schools:

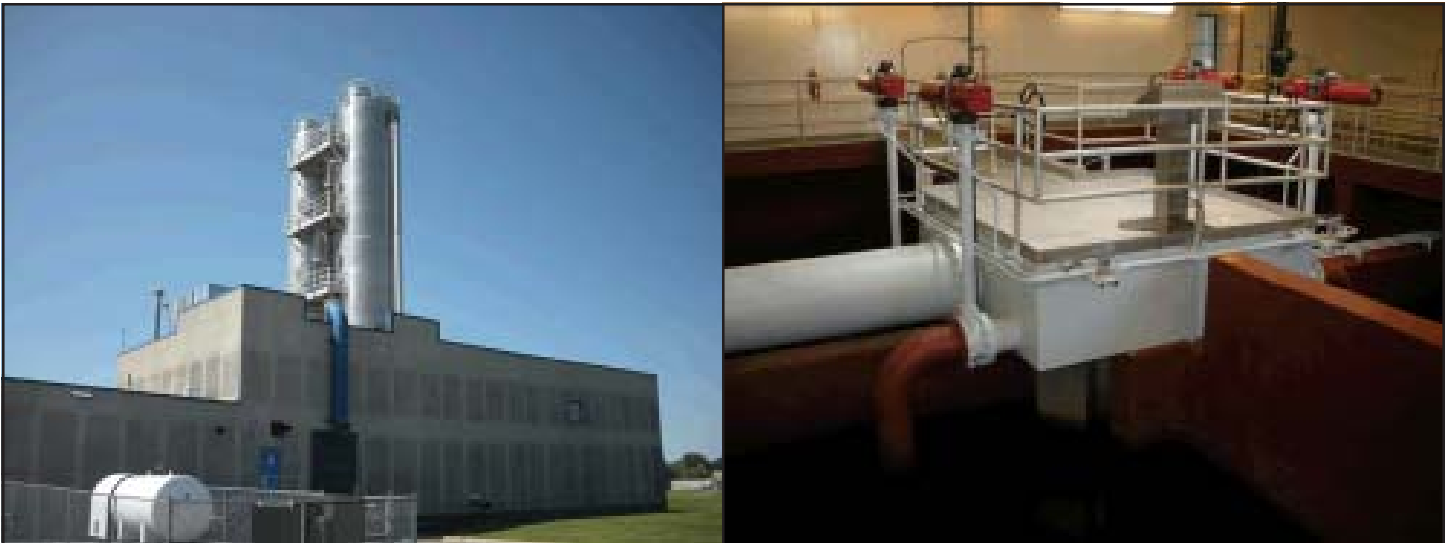
- Southeast School, March 10-12 (operator breakfast and vendor show on the 10th), Ramada Hotel and Conference Center, Rochester
- Southwest School, April 15, Redwood Area Community Center, Redwood Falls
- Northeast School, May 19-21, Superior Shores Resort, Two Harbors
- Central School, June 9-11, Ruttger's Bay Lake Lodge near Deerwood

A registration form for the Metro and Southeast schools on page 7.

Information on all district schools is at
http://health.state.mn.us/divs/eh/water/wateroperator/trng/wat_op_sched.html.



Waite Park Uses Air Strippers to Restore “Lots and Lots” of Good Water



The water treatment plant in Waite Park has two air stripping towers and a gravity filter with four cells.

The central Minnesota city of Waite Park, on the western edge of St. Cloud, sits atop a quaternary water table and buried artesian aquifer that provides “lots and lots” of good water, according to waterworks employee Dale Warzecha. “If it wasn’t for what man did to it,” he says, “the good Lord put some good stuff in there.”

However, beginning in the 1890s, railroad shops and factories were constructed in the northern part of the city. Using accepted disposal practices of the time, the industries went about their business with no one realizing the impact on the city’s water supply.

Nearly 100 years later, volatile organic chemicals (VOCs)—specifically trichloroethylene and tetrachloroethylene—turned up in the water at elevated levels. For a short-term fix, the city took Wells 1 and 3, which are located near the railroad property, out of service and relied on Well 2, which was located in another part of the city. Waite Park also purchased water from St. Cloud while looking for a solution.

That solution turned out to be aeration, which is effective in removing chemicals that evaporate easily, such as

solvents and fuels. Waite Park built its first treatment plant, which was completed in 1988, between Wells 1 and 3. The plant had one air stripping tower, with the packing consisting of aeration balls, about the size and somewhat similar in resemblance to wiffle balls. In addition to aeration oxidizing the volatile organic chemicals, the process also oxidized iron and manganese, thereby improving the aesthetic qualities of the water.

Warzecha noted some special challenges they experienced with the plant. Oxidation from the stripping process raised the pH of the water, causing minerals to precipitate and foul the media. As a result, water channeled through the foul balls without the proper aeration, and the balls had to be replaced.

Well 4, a few hundred feet to the east, went into service in the early 1990s to deal with the city’s growth. The plant was designed for only 800,000 gallons per day, but, because of demand, was being pushed to 1.2 million gallons per day (MGD) at times.

Continued on page 5



The air stripping towers are packed with hollow balls to remove contaminants. The photo at right shows fouled balls coming out of the air stripping tower in the original plant, which is no longer in service.



Wells 1 and 3 are in back of the old plant (left). Photo at right shows the base of the air strippers in the existing treatment plant.

Continued from page 4

Planning began in the late 1990s for a new plant to increase capacity to match the new development and growth taking place in Waite Park. “We learned a lot from the [old] plant in designing the new one,” said Warzecha. One of the lessons was to add a second aeration tower to provide for redundancy in the plant. Another was to add CO₂ in the towers to lower the pH to prevent fouling of the media.

The new plant was designed for 3.6 MGD, and, to match plant capacity with well capacity, a new well went into service at the same time the plant went on-line.

Water entering the plant goes first to one of the two strippers (which alternate daily) for aeration and then into a detention tank, where the CO₂ and water combine. Potassium permanganate is also added for iron and manganese removal before the water moves into the filter cells.

Waite Park now has approximately 6,700 residents, and the treatment facility puts the utility in position to handle future demand. To date, at its peak, the plant has reached only half its capacity, leaving plenty of capacity for potential growth in the city.



Atop the stripping towers, a look at the old plant (left). In the photo to the right, Minnesota Department of Health engineer Jon Groethe is in the foreground; Dale Warzecha and Dale Marthaler of Waite Park are in the background.

Reminder to All Water Operators

When submitting water samples for analysis, remember to do the following:

- Write the Date Collected, Time Collected, and Collector's Name on the lab form.
- Write the Sample Point on lab forms for bacteriological and fluoride samples.
- Attach label to each bottle (do not attach labels to lab form).
- Include lab forms with submitted samples.

If you have questions, call the Minnesota Department of Health contact on the back of the sample instruction form.

State Environmental Public Health Program Gets Five-year Federal Grant

Program Supports Tracking of Health Effects and Environmental Hazards in Minnesota, Including Contaminants in Drinking Water

By Deanna Scher, Minnesota Department of Health

The Minnesota Department of Health has received a grant from the Centers for Disease Control and Prevention (CDC) to support the ongoing work of the Minnesota Environmental Public Health Tracking Program. The funding will be used to develop a state-specific, publicly available, dynamic web site (or “portal”) that tracks and reports environmental hazards and the health problems that may be related to them. Information will include such things as numbers of low birth weights, incidences of cancer, and environmental hazards present in air and water. The tracking web portal is unique because, for the first time, health and environmental data will be provided in one easy-to-find location. This will allow scientists, health professionals, policymakers, and members of the public to see where these hazards and health problems are occurring and how they are changing over time. When completed, Minnesota’s web portal will link Minnesota to the web-based National Environmental Public Health Tracking Network maintained by the CDC (see “Key Features” box to the right). Minnesota joins New York City and 21 other states in the network.

State-level summary information on levels of arsenic, nitrates, and disinfection byproducts in water supplied by community water systems will be available on the portal. These contaminants were selected by the CDC Tracking Network because they occur more frequently in drinking water at levels that may affect health. More information about community water will be added in the future. Additional water contaminants may be added, or contaminant information could be presented on a smaller geographic scale, down to the system level. National Ambient Water Quality Assessment data on levels of many contaminants in Minnesota’s private wells will also be available on the network.

For more information, visit:

- MDH’s Environmental Public Health Tracking Program at <http://www.health.state.mn.us/tracking>.
- CDC’s National Tracking Network at <http://www.cdc.gov/ephttracking>.

Key Features of the Public Health Tracking Network

- Standardized environmental and health data across contributing states
- Information by location
- Easy-to-read maps, charts, and tables

Health Conditions on the Tracking Network:

- Asthma
- Birth defects
- Cancer
- Carbon monoxide poisoning
- Childhood lead poisoning
- Heart attacks
- Reproductive and birth outcomes

Environmental Data on the Tracking Network:

- Air quality related to ozone and particulate matter
- Community water
- Well water

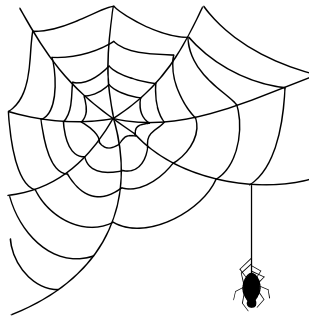
Cool Web Sites

Drinking Water Institute: <http://health.state.mn.us/water/institute/index.htm>

Emerging Contaminants in the Environment: <http://toxics.usgs.gov/regional/emc/index.html>

Risk Communication:
<http://www.psandman.com/articles/riskcomm.htm>

EPA Regulations and Guidance:
<http://www.epa.gov/OGWDW/regs.html>



Acronym Finder:
<http://www.acronymfinder.com>

Minnesota Water Quality Association:
<http://www.mwqa.com>

John Snow—A Giant in Epidemiology:
<http://www.ph.ucla.edu/epi/snow.html>

Seasonal and H1N1 Flu Information:
<http://www.health.state.mn.us/divs/idepc/diseases/flu/index.html>

Bottled vs. Tap Water:
http://pediatrics.about.com/cs/weeklyquestion/a/080702_ask_3.htm

Skydive Twin Cities: <http://www.skydivetwincities.com>

REGISTRATION FORM FOR UPCOMING SCHOOLS

You may combine fees on one check if more than one person is attending a school; however, please make a copy of this form for each person. For questions regarding registration, contact Jeanette Boothe at 651-201-4697.

To receive an exam application, contact Noel Hansen at 651-201-4690 or Mark Sloan at 651-201-4652.

Northwest School, December 1-3, 2009. Hampton Inn & Suites, Bemidji. Fee: \$130 (\$140 after November 20 or at the door).

Southeast School, March 10-12, 2010. Ramada Hotel and Conference Center, Rochester. Fee: \$135 (\$145 after March 1 or at the door).

Metro School, April 6-8, 2010. Earle Brown Heritage Center, Brooklyn Center. Fee: \$175 (\$210 after March 25 or at the door).

Southwest School, April 15, 2010. Redwood Area Community Center, Redwood Falls. Fee: \$30 (\$35 at the door).

Name _____ Employer _____

Address _____

City _____ Zip _____ Day Phone _____

E-mail Address _____

Please enclose the appropriate fee. Make check payable to *Minnesota AWWA*. Mail this form and fee to Drinking Water Protection Section, Minnesota Department of Health, P. O. Box 64494, St. Paul, Minnesota 55164-0494.

Public Water Supply Profile: Annette Marier



Annette Marier has joined the Community Water Supply Unit at the Minnesota Department of Health. She will be working with the Minnesota Drinking Water Information System (MNDWIS) related to nitrates, arsenic, radiation chemicals, the Ground Water Rule, and the Total Coliform Rule.

Annette transferred to MDH from the Minnesota Department of Natural Resources (DNR), Division of Waters, where she was the Water Appropriation Permit Program Coordinator for 15 years. She also worked in DNR's Division of Enforcement.

MDH and AWWA Participate in State Fair Eco Experience



The Minnesota Department of Health and Minnesota Section of American Water Works Association were involved in the Eco Experience building at the Minnesota State Fair.

In addition to helping to staff the water area (which included various hands-on activities), the organizations commissioned a mural, created by In the Heart of the Beast Puppet and Mask Theatre of Minneapolis, for the area around the building's drinking fountain. The water area also had a kiosk with the Urban Water Cycle module that was developed by MDH and Minnesota AWWA.



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CALENDAR

Minnesota Section, American Water Works Association

*December 1-3, Northwest Water Operators School, Hampton Inn & Suites, Bemidji. Contact Jeanette Boothe, 651-201-4697, or Stew Thornley, 651-201-4655.

*March 10-12, Southeast Water Operators School, Ramada Hotel and Conference Center, Rochester. Contact Dennis DuChene, 507-384-0559.

*April 6-8, Metro Water Operators School, Earle Brown Heritage Center, Brooklyn Center. Contact Jeanette Boothe, 651-201-4697, or Stew Thornley, 651-201-4655.

*April 15, Southwest Water Operators School, Redwood Area Community Center, Redwood Falls. Contact Mark Sweers, 507-389-5661.

*May 19-21, Northeast Water Operators School, Superior Shores Resort, Two Harbors. Contact Mark Proulx, 952-240-2023.

*June 9-11, Central Water Operators School, Ruttger's Bay Lake Lodge, Deerwood, Contact Lisa Vollbrecht, 320-255-7225.

Minnesota Rural Water Association

Contact Kyle Kedrowski, 800-367-6792.

MRWA Class D and E Training

December 8, Little Falls (Class E)

December 9, Operation & Maintenance, Biwabik

*March 2-4, Technical Conference, St. Cloud
January 13, Operation & Maintenance, Windom

April 7, Operation & Maintenance, Elbow Lake

Note: Class D workshops are eight hours, and Class E workshops are four hours. The morning session of a Class D workshop is the same as a stand-alone four-hour workshop for Class E operators; thus, Class E operators may attend either the stand-alone four-hour workshop or the morning session of the Class D workshop.

***Includes a water certification exam.**

For an up-to-date list of events, see the training calendar on the MDH web site at:

http://health.state.mn.us/water/wateroperator/trng/wat_op_sched.html

MDH Drinking Water Protection: <http://www.health.state.mn.us/water>