Minnesota Well Management News

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New Drinking Water Risk Communication Toolkit

Have you ever had a customer ask, "Is my water safe to drink?" How about, "Why does my water have an odor/color?" When you answer these questions, you are engaging in risk communication. The Minnesota Department of Health's (MDH's) Environmental Health Division has a new Drinking Water Risk Communication webpage that can help you improve your risk communication skills. (It was designed primarily for public water suppliers, but it is useful for all water professionals.) In a more connected and digital world, well contractors and water professionals need to communicate accurately, and in a more timely fashion, about risks associated with drinking water contaminants. Giving people accurate risk information at the right time will help them make educated decisions about their drinking water.

The toolkit contains strategies, examples, and templates to help you communicate about drinking water and the risks associated with contaminants in drinking water. You can use the toolkit to learn how to:

- Create simple-to-use, accurate, and clear messages about drinking water.
- Develop consistent messages to maintain and build confidence in tap water.
- Identify effective methods for communicating about contaminants in drinking water.
- Request example messages on challenging or hot topics from MDH.

Drinking Water Risk Communication Toolkit (www.health.state.mn.us/divs/eh/water/toolkit).

INSIDE:

Construction of Major League Soccer Stadium Proceeds Around Large Well Sealing Project

Construction of the new Allianz Field, Major League Soccer (MLS) stadium at the intersection of Highway 94 and Snelling Avenue in St. Paul, Minnesota, began in 2017. It will become the home of the Minnesota Loons soccer team when it is completed in 2019. Part of the property, where the stadium is being constructed, was home to the former G. C. Murphy Department Store which was built in the 1950s. A large water-supply well, 521 feet deep, with 20-inch and 16-inch diameter casings, was constructed on the property in 1959 and was used for air conditioning for the store. The store closed in 1970 and the well was taken out of service and was buried. The store later reopened as a Rainbow Foods Grocery store, and remained open until it was demolished in late 2017, to make way for the soccer stadium.

Unsealed, 20-inch by 16-inch, steel cased well located by the Minnesota Department of Health and uncovered by Mortenson Construction, at the MLS stadium site, St. Paul, Minnesota, 2018.

The Minnesota Department of Health (MDH) did not have a well sealing record on file indicating that the well had been permanently sealed by a licensed well contractor. Petroleum byproduct contamination is present in soil, soil vapor, and groundwater on the site as deep as 30 feet below the surface. Prior to the G. C. Murphy Department Store, the site was home to a streetcar maintenance facility that was built in the early 1900s. It later became the Metropolitan Transportation Commission (MTC) Bus Garage. The bus garage was demolished in 2002. Locating the well and having it properly sealed, was a high priority to prevent migration of shallow groundwater contamination to deeper aquifers.

In July 2016, MDH notified the property owners of the existence of a large, deep, unsealed water-supply well on the property. MDH notified the owners that the well would have to be located, cleaned out to the bottom, and then permanently sealed by a Minnesota licensed well contractor before the stadium could be built over it.

In September 2017, the consultant for the property owner contacted MDH for assistance locating the lost well. An inspection of the Rainbow Foods building, before demolition, was scheduled to search for the well, or clues that could lead to the well. After an inspection of the basement of the building and review of blue prints from 1959, Mr. Patrick Sarafolean, district hydrologist with the Well Management Section, determined that the well was likely buried on the south side of the building underneath the loading dock area.

The building was demolished in December 2017 and a buried, 16-inch diameter steel casing, plugged with concrete was found. The consultant believed that it was an “elevator boring” that had already been sealed and it was reburied so that stadium construction could proceed. Mr. Sarafolean suspected that it was not an elevator boring and informed the consultant that the casing would have to be re-located and uncovered for inspection.

On December 27, 2017, Mr. Sarafolean conducted a magnetometer survey to locate the buried casing. The contractor uncovered it in early January 2018. Mr. Sarafolean inspected it and found that it was plugged with a concrete mix that contained mostly gravel and very little cement. Further excavation revealed a larger, 20-inch diameter outer casing, confirming that this was in fact the lost well and not an elevator boring.

Corroded portion of 16-inch diameter liner casing being removed from within 20-inch diameter, outer well casing.

The stadium contractor, Mortenson Construction, hired Mark J. Traut Well Company (Traut) to clean out the well and permanently seal it. Traut began work on January 23, 2018. Closer visual inspection of the excavated well revealed that the annular space between the 20-inch and 16-inch casings was open and not filled with grout. Running water could be heard between the casings. Steel ears welded to the outside of the 16-inch casing, and resting on the top edge of the 20-inch casing, were all that held the 16-inch casing in place and kept it from falling down the well. Traut began by trying to pull the 16-inch casing out. Traut was able to remove 55 feet of the 16-inch liner casing. It had rotted off at 55 feet and separated from the remainder of the 16-inch casing in the well. There were large holes, bigger than basketballs, rotted through the 16-inch casing from 30-55 feet. Then Traut began a drilling odyssey to clean out the well to the bottom, that would last three weeks. Tony Traut, the driller on-site, had to be very careful in his bit selection and the amount of pull down pressure used, so as not to drill through the side of the rotted 16-inch casing. After three weeks of drilling out gravel, sand, and chunks of steel, Traut was able to drill past the bottom of the casing at 331 feet and clean out the open bore hole to the depth of 465 feet in the Jordan sandstone aquifer. A large sand-filled cavern, that was likely blasted and bailed at the time of construction, was encountered in the Jordan sandstone aquifer from 454-465 feet. The top of the 16-inch liner casing was jagged and rotten from 140-160 feet, so a 6-inch diameter, temporary liner casing, had to be set in the well to 160 feet so that the well could be televised and gamma-logged. A mechanical perforating tool would not fit inside the rotten and jagged 16-inch liner casing. Consequently, the liner casing was perforated with 200 shaped charge explosives. The St. Paul Fire Department required that perforation be done on a Sunday when no other workers were present on-site. Detonation of charges between 169-341 feet was relatively uneventful because they were submerged in water. The static water level

Well being permanently sealed with 45 cubic yards of "neat-cement" grout.

at the time of detonation was approximately 100 feet beneath the surface. All that was heard was a faint "pop" when the charges were detonated. Traut completed sealing the well on March 19, 2018, after placing 45 cubic yards of neat cement grout and 20 cubic yards of pea rock gravel in it. It took 56 days to clean out the well and permanently seal it. Tony Traut lost count of the number of times he was asked, "How much longer until you are done?" Fortunately, the well sealing work finished just in time, as contractors were ready to erect the stadium structure over the well area as soon as Traut pulled off the site.

This well penetrated glacial drift (0-38 feet), Decorah shale (38-140 feet), Platteville limestone (140-165 feet), Glenwood shale (165-171), St. Peter sandstone (171-379 feet), Prairie du Chien dolomite (379-455 feet), and the Jordan sandstone (455-521 feet). During the video inspection, water was observed cascading into the well from the Decorah formation. By virtue of the way the well was originally constructed, it had been allowing water, and potentially contaminants, to cascade down the well to the Platteville, St. Peter, Prairie du Chien, and Jordan aquifers since it was constructed in 1959. MDH is appreciative of the efforts taken by all parties involved to assure that the well was located, cleaned out, and properly sealed.

Late Submittal of Well Records

The Minnesota Department of Health (MDH), Well Management Section has been conducting annual evaluations of submittal dates of well records and water sample results for the past three years in an attempt to decrease the number of well records and water sample results submitted to MDH late. Recently correction orders were sent to 31 well contractors who had submitted well records and/or water sample reports to MDH late during the past year. While most contractors miss a deadline once and a while, correction orders were only sent to those who had many late records.

As a reminder, well records are required to be submitted to MDH within 30 days after the completion of work. Water quality samples are required to be collected within 30 days of the completion of work, and water quality sample results are required to be submitted to MDH within 30 days of receiving the results from the lab. "Completion of work" means the date on which the installation of the pump or pumping equipment is finished; the date on which construction of the well or boring is completed if a pump or pumping equipment is not installed by the person constructing the well or boring; the date that construction work regulated by Minnesota Rules, chapter 4725 is completed; the date the well or boring is put into service; or the date that the permit or notification expires, whichever occurs first. Submitting well records and water sample analytical results on time is required by state law, makes the records and results available to interested parties in a timely manner, and makes the work of MDH administrative staff easier. Your cooperation in submitting well records and water sample results in a timely fashion is appreciated!

Federal Renewable Energy Tax Credit Reinstated for Geothermal Heat Exchangers

The Bipartisan Budget Act of 2018, signed in February 2018, reinstated the tax credit for certain renewable energy systems including geothermal heat pumps. This popular tax credit, first created in 2005, helped drive the market for bored geothermal heat exchangers (BGHE). Its expiration in 2016 was a major factor in the decline of BGHE installations and its return may help increase the number of BGHE systems installed by Minnesota well and boring contractors.

The 30 percent tax credit for geothermal heat pumps includes a gradual step down in the tax credit value and is 30 percent for systems placed in service by December 31, 2019; 26 percent for systems placed in service after December 31, 2019 and before January 1, 2021; and 22 percent for systems placed in service after December 31, 2020 and before January 1, 2022. There is no maximum credit for systems placed in service after 2008. Systems must be placed in service on or after January 1, 2008 and on or before December 31, 2021.

Other items to note include:

- The geothermal heat pump must meet federal Energy Star criteria.
- The home served by the system does not have to be the taxpayer's principal residence.

For more information about this tax credit, visit Federal Income Tax Credits and Other Incentives for Energy Efficiency (www.energystar.gov/taxcredits) or contact your local electrical utility. Please check with your tax advisor for more specific details about this tax credit program.

Sources:

- *Minnesota Valley Co-op News*
- *Despite PATH Act, some tax provisions expire at end of 2016 (https://www.journalofaccountancy.com/news/2016/dec/tax-provisions-expiring-in-2016-201615722.html)*
- *Federal Income Tax Credits and Other Incentives for Energy Efficiency (www.energystar.gov/taxcredits)*

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To request this document in another format, call 651-201-4600.

New and Updated Brochures

The Minnesota Department of Health (MDH) has created a new brochure called "**Well Water and Your Baby**." The brochure recommends testing of well water, before or during pregnancy, for five contaminants, including coliform bacteria, nitrate, lead, manganese, and arsenic in order to protect the health of developing fetuses and newborns. The brochure is available on our website at:

Well Water and Your Baby (www.health.state.mn.us/divs/eh/wells/waterquality/safebaby.pdf).

MDH has also updated the following brochures and they are also available on our website at the following links:

Nitrate in Well Water (www.health.state.mn.us/divs/eh/wells/waterquality/nitrate.pdf)

Arsenic in Well Water (www.health.state.mn.us/divs/eh/wells/waterquality/arsenic.pdf)

Water Treatment Units for Arsenic Removal/Reduction
(www.health.state.mn.us/divs/eh/wells/waterquality/arsenictreat.pdf)

Obituaries

Edwin "Ed" H. Ross, **age 84**, from Roberts, Wisconsin, passed away on March 25, 2018.

Ed led the Minnesota Department of Health's (MDH's) Groundwater Quality Control Unit (which has evolved into the Well Management Section) in the 1970s and 1980s. In the early 1970s, Ed was instrumental in establishing well contractor licensing and the creation of Minnesota's first well code. Ed was a pioneer in the groundwater protection movement and worked to assure proper well construction and well sealing. He worked on many well and groundwater contamination investigations over the years. Prior to his employment at MDH Ed served in the US Air Force, did water resource planning at the State Planning Agency, and worked in the state of Michigan's well program. Ed remained involved in the industry after his retirement in 1995. He was often seen at Minnesota Ground Water Association conferences and other geologic meetings and conferences.

Obituary for Edwin H. Ross (www.startribune.com/obituaries/detail/0000250670/).

Thomas "Tom" Lauren Stevens, **age 84**, passed away on March 29, 2018.

Tom was the former owner of T. L. Stevens Well Company, Inc. and was previously with Stevens Well Drilling Co., Inc. Tom served as president of the Minnesota Water Well Association from 1968-1969; as president of the National Ground Water Association in 1976; and also served on the Minnesota Department of Health's Advisory Council on Wells and Borings from 1971-1979.

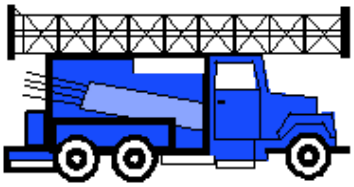
Obituary for Thomas Lauren Stevens
(www.startribune.com/obituaries/detail/0000250692/?fullname=thomas-lauren-stevens).

CONTINUING EDUCATION CALENDAR

The Internet link to the Minnesota Department of Health (MDH), Well Management Section's, Continuing Education Programs (www.health.state.mn.us/divs/eh/wells/lwcinfo/training.html).

This calendar lists the upcoming continuing education courses that have been approved for renewal of certification for representatives of Minnesota licensed well and boring contractors. The calendar also lists the number of credits available for each course. The calendar is updated monthly and, if you subscribe, you will be notified by email when this page changes (new classes added, changes to existing classes).

For additional information about any of these training opportunities, call the contact person listed for the program of interest. For general information about continuing education, more current CEU listings, or to request approval for other continuing education activities not listed, contact Norm Mofjeld, MDH, Well Management Section at 651-201-4593, or *norman.mofjeld@state.mn.us*.



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