



The Connection

A Well Drilling Industry Newsletter

VOLUME 18 NUMBER 1

SPRING 2011

Well Installation Board News

The Missouri Well Installation Board held its quarterly meeting February 21, in conjunction with the Missouri Water Well Association's Annual Conference at the Country Club Hotel, Lake Ozark. The Board reviewed and made decisions regarding five separate permit appeals and updates about enforcement cases and rulemaking actions. Staff members addressed the status of the fund and section activities.

The Board's next quarterly meeting will be held at 10 a.m. Friday, May 13, at the Missouri Department of Natural Resources' Regional Office, 1709 Prospect Drive, Macon. A subsequent meeting is scheduled for 10 a.m. Friday, August 5, at the Missouri Department of Natural Resources' facility, located at 111 Fairgrounds Road, Rolla.

A listing of department events and meetings along with the dates, times and locations is available on the DNR online calendar: dnr.mo.gov/calendar/search.do



Reconstruction of Wells

According to the Water Well Drillers Law, section 256.603 (12), a certification report is to be sent to the division upon completion of plugging an abandoned well, or lining, deepening, raising casing, altering or making major repairs to a well. The form (Reconstruction Record, 780-1414) is available online: dnr.mo.gov/forms/780-1414-f.pdf. This report must be submitted to the division by the permittee within 60 days after completion of the work.

What follows is a summary from the Missouri Well Construction Rules (MWCR) about repairing wells. Repairs must be reported on a Reconstruction Registration Record:

A. All materials used in maintenance, replacement or repair of any well shall meet the requirements of the MWCR which is the same as new construction.

William A. McElhiney Distinguished Lecture Series in Water Well Technology

The Missouri Department of Natural Resources will sponsor the National Ground Water Research and Educational Foundation William A. McElhiney Distinguished Lecture Series in Water Well Technology June 29, 2011. The series fosters professional excellence for the purpose of protecting the World's groundwater resources. This year's featured lecturer is Tom Christopherson who was chosen by the National Ground Water Association's panel of scientists and engineers to present his work to his peers. Christopherson is the program manager for the Water Well Standards and Contractors' Licensing Program for the Nebraska Department of Health and Human Services. His lecture is titled, "The Nebraska Grout Task Force Research: Unexpected Results – New Solutions." Jim Vandike, Missouri Department of Natural Resources' Water Resources Center, will speak about properly conducting a pump test. John Schumacher, United States Geological Survey, will speak about borehole geophysics/packer testing.

The event will begin at 10 a.m. at the department's Annex Building conference room, 111 Fairgrounds Road, Rolla, Mo. There is no charge for the event. Registration will begin May 15. Attendance will be limited due to the size of the conference room. For more information or to register, call 573-368-2165. You may register online at: dnr.mo.gov/waterwell/

B. Broken, punctured or otherwise defective or unserviceable casing, screens, fixtures, seals or any part of the wellhead shall be repaired or replaced. The well shall be plugged in accordance with the requirements of the MWCR if repair or replacement is not performed.

C. Repairs to wells originally completed with the wellhead terminating below ground should include extending the well casing one foot above finished surface grade. The casing extension material must be of similar material as the original casing. Steel casing joints must be welded, coupled or threaded. Plastic casing joints must be glued or fused. The use of devices specifically designed to join dissimilar casing materials together will be considered on a case-by-case basis by the division. Approval must be granted in advance.

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Reconstruction continued

Section 10 CSR 23-3.080 of the MWCR provides the requirements for the installation of liners in wells.

Liners are generally used for three purposes. They are used to:

A. Hold the well bore open when caving or spalling rock is encountered. These liners are usually slotted to allow water to enter the well from the aquifer. A packer on the liner is not required.

B. If the liner is used to solve a rust problem in the casing, a packer must be placed within five feet of the bottom of the rusted casing interval. The liner must extend from the bottom of the steel casing to a point less than 10 feet from the surface. The packer must be inside the casing. No grout is required.

C. All other liner installations are used to seal problem areas below the existing casing or to correct inadequate grouting seals of the casing annulus or other problems arising concerning contamination of subsurface water. This type of reconstruction must be grouted. If a liner must be grouted, there must be a minimum annular space of one-half inch. Plastic liners may be used effectively for this problem. Tables 5 and 6 in the MWCR in this section provide the required amount of grout needed to fill 60 feet of the annulus.

Whenever a liner is needed, it is recommended that the bottom of the liner be at the bottom of the well. This will help prevent potential problems with pump replacement.

Deepening of wells shall be reported to the division using a "reconstruction registration record." Wells deepened throughout Special Area 2 shall also be sampled and analyzed for lead and cadmium.

Recently, a well was altered by lessening the total depth. It was reported to the division using the remarks section in the "reconstruction registration report." Please use the remarks section for any specifics not asked for on the form. This will help clarify the work that was performed.

If any question should arise about repairs or when to use the Reconstruction Registration Record, please contact us at 573-368-2165.

Missouri Well Construction Rules may be found online: dnr.mo.gov/pubs/pub2175.pdf

Staff News

Chris Thiltgen joins the Division

Chris Thiltgen began in January as the Investigation and Remediation Unit Chief, Wellhead Protection Section. Chris supervises the section's field staff. He worked for the department's Land Reclamation Program, Division of Environmental Quality more than five years before joining us in the Division of Geology and Land Survey where he will be an asset to the section. Feel free to contact Chris at 573-368-2167.

Connie Edward joins the Section

Connie Edwards began working in the Wellhead Protection Section in mid-December as the Processing Unit Chief. Connie has worked for the Division of Geology and Land Survey for 13 years serving the division's Administration and Land Survey Programs. Connie supervises the section's clerical and permitting staff and brings a fresh new face to the section and pertinent experience. Feel free to contact Connie at 573-368-2174.

Kyle Rollins accepts new position in the Division

January 1, Kyle Rollins, began working in the division's Economic Geology Unit assisting the Oil and Gas industry. Kyle is responsible for permitting and inspecting all private and commercial oil and gas wells in the state. He provides technical assistance to oil and gas companies and maintains the files and database for the unit. Kyle served for five and one half years in the Investigation and Remediation Unit, Wellhead Protection Section. His work ethic and expertise will be greatly missed.

Wellhead Protection Section Staff

Wellhead Protection Section: 573-368-2165

Website: dnr.mo.gov/geosrv/wellhd

- **Beth Marsala** – Section Chief
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Fee Structure Information

Certification Fees

Heat Pump Certification

Closed Loop 1-50 tons.....	\$100	Over 50 tons.....	\$200
Open Loop (submit on water well form)	\$80 per system		
Monitoring Well Certification	\$100		
Water Well Certification	\$80		
Reconstruction	\$50		
Abandonment*	\$50		

*Domestic/Multi-family/Irrigation wells are exempt from abandonment fees.

Penalty Fees

For Late Records on Wells Constructed Prior to Sept. 1, 1998

\$10 per three-month period with a maximum of \$60 per record.

Penalty Fees

For Late Records on Wells Constructed September 1, 1998 and after

\$10 per month with a maximum of \$240 per record.

Missouri Well Construction Rule Book

\$5 plus shipping

Downhole Camera Fee

\$375 fee to scope a well that does not meet investigation requirements.



Permit Fees

All permit fees are \$100 each - heat pump, monitoring well, pump, water well (must be renewed yearly)
rig permit fees - \$20 per permitted vehicle.

Permit Penalty Fees

For Late Permit Renewals

40% late fee charged to all permits if not paid by renewal date. Permits will be cancelled if not renewed within 30 days of renewal date.

Testing Fees

All tests are \$40 for each type of test taken - General Test, Heat Pump Specific Test, Monitoring Well/Test Hole Specific Test, Pump Specific Test and Water Well Specific Test.
All retakes are \$40.

Open Credits

The department is currently reviewing credit files. We will soon be sending letters to anyone who has a credit balance with the Wellhead Protection Section.

Fee Structure Sheet

Current fees went into effect July 1, 2009. We are still receiving records with incorrect fee amounts. This slows down processing records since certification cannot take place until proper fees are paid. Thank you for your cooperation in this matter. If you need any assistance, please call our office at 573-368-2165.

Bi-Monthly Report

Every other month, staff members send reports to permitted contractors listing every record received during the previous two months. This is a courtesy to help contractors confirm receipt of their records by the department. Checking the report closely will help prevent late fee assessments and ensure our records are correct. If a mistake is found, please contact our office at 573-368-2165 to report the discrepancy.

Certification Form Procedures

When submitting monitoring well, abandonment, water well and heat pump reconstruction certification forms, the following administrative information **MUST** be completed. If any of this information is missing, someone from the department will need to contact you, thereby delaying certification for the well owner. Construction information must also be completed. The following fields are also required:

Location of Well

Using GPS coordinates in degrees, minutes and seconds
(add Section, Township, Range if available)

Owner's Name

Owner's Address

Site Address (if appropriate)

Work Completion Date

Owner's Signature

(required for domestic and multi-family water wells)

All Permittees' Signatures and Permit Numbers

Apprentice Signature and Permit Number

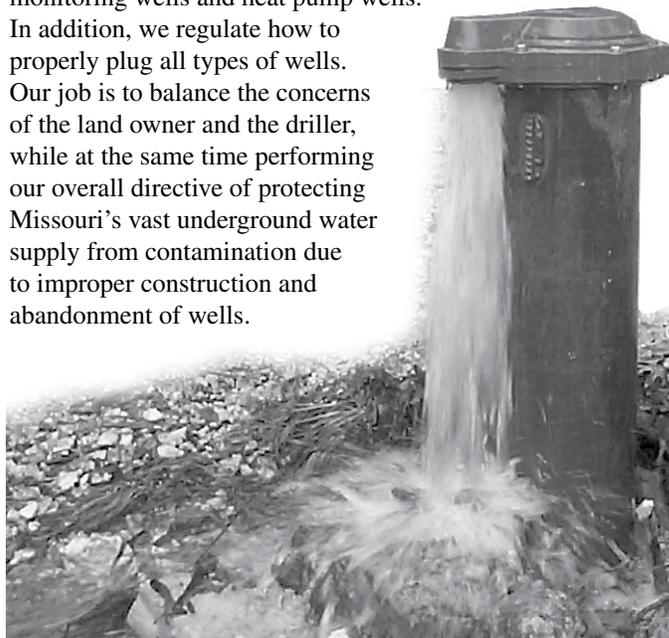
(if appropriate)

If you have any questions, please do not hesitate to contact our office at 573-368-2165.

Wellhead Protection Section

We are here to ensure any new private well drilled in Missouri is constructed to minimum standards as set by state regulations. This helps protect our groundwater resources from contamination due to poor well construction. We regulate the construction of private water wells (this includes domestic and multiple family class wells), irrigation wells, monitoring wells and heat pump wells.

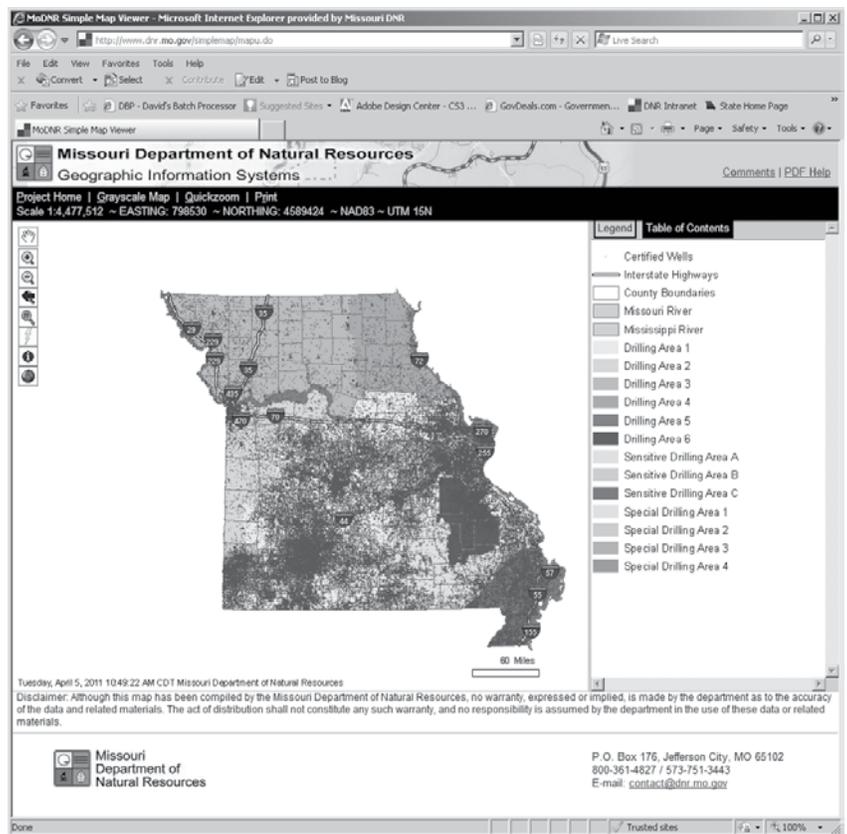
In addition, we regulate how to properly plug all types of wells. Our job is to balance the concerns of the land owner and the driller, while at the same time performing our overall directive of protecting Missouri's vast underground water supply from contamination due to improper construction and abandonment of wells.



New Online Map Viewer

Thanks to the state's Information Technology Services Division and the Wellhead Protection Section, a "Simple Map Viewer" containing information about Missouri wells is now available. The map provides information about wells that have been certified by the state. The parent dataset is the Wellhead Information Management System (WIMS) database that is maintained by section staff. The WIMS database contains all wells reported since the Water Well Drillers Law passed in 1985. Information provided by permitted well drillers and pump installers includes: well location, well ownership, well completion date, well construction, well yield, static water level and borehole stratigraphy.

This screen shot from the viewer indicates an area on the map at 1:150,000 scale which is the closest view currently available without losing the ability to see detailed well information. A more detailed view is forthcoming. Tools on the left side of the viewer are used to pan the map and to zoom in or out. The button with the "i" inside must be selected before viewing information for a specific well. Once selected and the individual well is chosen, information about that well will be displayed. On the right side of the map are the legend and table of contents that better explain what you are viewing. The map viewer is available online at: dnr.mo.gov/simplemap. If you have problems or questions about the map, please give us a call at 573-368-2165.



Trichloroethylene Issues in the Western Rogersville Area

Trichloroethylene, also known as Trichloroethene or TCE, is a colorless to blue chemical used in household products such as adhesives and paint removers. TCE has been a commonly used product in manufacturing, most often as a degreaser for fabricated metal parts, but also in the textile production process. Depending on the type of exposure, TCE can adversely affect the eyes, respiratory system, heart, liver and central nervous system. TCE does not degrade quickly in the environment, and because it is heavier than water and relatively insoluble, TCE can migrate downward into surrounding groundwater. The Environmental Protection Agency's Maximum Contamination Level (MCL) for TCE is 5.0 micrograms per liter (ug/L) or parts per billion (ppb) in drinking water.

The small community of Rogersville, in southwest Missouri has been identified as having been impacted by TCE. Rogersville is located on state Highway 60, approximately 10 miles east of Springfield. While the 2009 population for Rogersville was listed at 3,071, an estimated 100,000 homes fall within a 15 mile radius of the town. In March 2010, TCE was detected in three public wells in the Rogersville area. The Missouri Department of Natural Resources' Hazardous Waste Program began investigating by sampling 63 wells and one spring for TCE between March 30 and April 27, 2010. Ongoing investigation, risk management activities, and protective actions are being performed by DNR, the Missouri Department of Health

and Senior Services, the city of Rogersville, the Environmental Protection Agency, and the Agency for Toxic Substance and Disease Registry.

As of March 31, more than 121 private drinking water wells west of Rogersville have been sampled for TCE. Ongoing sampling is being conducted for area groundwater and soils. Presently, there is no well drilling advisory for this area. However, drilling contractors should examine the map and associated information posted on the department's Hazardous Waste Program website [dnr.mo.gov/env/hwp/sfund/rogersville.htm] concerning this issue prior to constructing a well in this area. Locations of the wells being sampled are shown on the map, as well as the results of the sampling.

If a new well is constructed in the designated area, you can request the well be sampled. Please contact Pia Capell, the state project manager for TCE sampling. Capell may be reached at 573-751-2115. If you have questions, please use the contact list provided on the website above, or contact the Wellhead Protection Section for further assistance.



Welcome

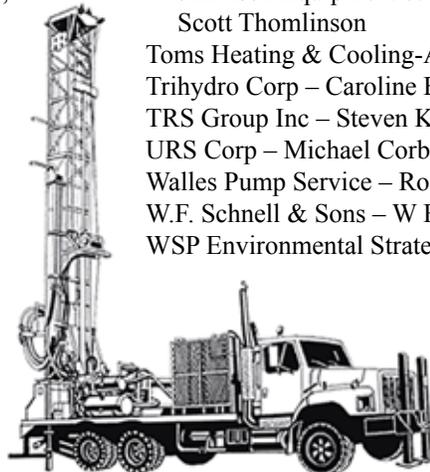
The following individuals are now part of the Department of Natural Resources-permitted contractor community:

A.B. May – Michael Heydon, Scot Posladek
Accu Temp Inc – Ivan Norton
Achieve Heating Cooling & Refrigeration – Brett Roquet
AECOM – Thomas Jones
Botts and Tye Corp – Charles Childers
Bradburne, Brilller & Johnson – James Lucci
Bureau Veritas – Timothy Orf
Bureau Veritas North America – Scott Wisher
Burns & McDonnell – Emily Pohlman
C.M. Mose & Son Inc – Roger Mose
Cannon General Contractors – Nicholas Martin
Climate Control Heating & Cooling – David Dennis
Connelly Plumbing – Brian Sothern
Current Heating & Air Inc – Chad Greer
ERM Inc – Darren deBoer, Kevin Kowalewski
Free Energy Corp – Josh Frankeberger
Golder Associates Inc – Michael Dreyer
Gradel Heating & Cooling – Jason Gradel
Harker Plumbing – Kent Schmid
Hoff Heating & A/C Inc – Matt Hoff
Jefferson County Public Works – James Hill Jr,
Chris Ehlen
K & K Electric Co – Danny Flynn
Kindle Heating & Cooling – Steven Kindlesparger
Larson Heating & Air – Steve Rook
Madison Drilling Co – Clinton Madison
MASH – Danny Leverenz
NPN Environmental Engineers – Martin Schamber
Professional Environmental Engineers – Teresa Nienhaus,
Jennifer Thompson
PSI – Katherine Crets
Scott-Lee Heating – Russell Scott, Jeffery Garner
Southeast Irrigation – Thomas Dluzniewski
Tec Air Inc – Charles Haas
Terracon – Nicholas Laskares, Clay Dodson, Meghan
Reed, Kevin Arnold
Tetra Tech Inc – Danielle Wilson
Tri-State Water Power & Air – Richard Smith
URS Corp – Cory Yates, Rick Horner
Water Works Well Service – Bruce Trimble
WDC Exploration & Wells – Scott Tarnowski,
Justin Miller
Weis Comfort Systems Inc – Daniel Weis

Farewell

The people addressed below are no longer permitted to operate as contractors according to the Water Well Drillers Act and Well Construction Regulations:

Associated Environmental – Bobby Keyes
Bonnot Bros Well Drilling – Charles Lock
Burns & McDonnell – Thomas Zychinski
Camp Dresser & McKee Inc – Mark Peters
CH2M Hill – Jeffrey Habel, Shannon Soucie
Delta Environmental – Adam Jacyna
Eco Energia of Missouri – Carl Long, John Kelly
Felixs Drilling Service – C Felix Eye
Greenco Technologies – James Wright
J.L. & Associates Env - James Luepke
Jacks Pump Service – Terry Jack
Kruger Technologies Inc – Thomas Steinbach
Layne-Western – Jernsen Skouby
Leftys Pump & Drilling – John Hicks
Marquand Lumber & Hardware – Burnies Dees
Mathis Heating & Cooling – Craig Mathis
McMabe Engineering – Timothy Scherer
Micah Group LLC – Mark Stafford
MoDNR – Jennifer Lamons
Moore, Sherry
MRB Waterworks – Lynn Barks
Mudds Drilling Service – Joseph Langenecker
Northern Environmental Technologies – David Constant
Pumps & Water Systems – Benjamin Shoemaker
Schroeder Rotary Drilling – Kerry Eckhoff
Sunbelt Environmental – Karen Holmes Schaefer
Taylors Pump Service – Terry Taylor
Terra Drill Inc – Michael Pulcher
Thomlinson Equipment & Pump – Robert Thomlinson,
Scott Thomlinson
Toms Heating & Cooling-Air Tech – Thomas Hulse
Trihydro Corp – Caroline Brewer
TRS Group Inc – Steven Koester Jr
URS Corp – Michael Corbett
Wallis Pump Service – Rocky Brown
W.F. Schnell & Sons – W F Schnell
WSP Environmental Strategies – David Bouchard



Welcome

The following individuals are now part of the Department of Natural Resources-permitted apprentice contractor community:

Buffington Brothers – Mike Leader
Climate Control LLC – Douglas Prenger, Keith Buscher
Flynn Drilling – Chad Mudd
Geotechnology – Michael Berry, Stephen Tepatti
Jerry Williams Pump Service – Michael Sprong
John Seitz Well Drilling – John S Seitz
Larsen & Associates Inc – Paul Gallagher Jr

Letts & Demery Pump & Drilling – Seth Cummings
Midwest Hydro Drilling – Damon Berti
Natures Rain – Charles Fletcher
Scott & Sons Drilling – Michael Harris
Thomlinson Pump – Tommas McGuire
Trent Drilling – David Trent

The Connection is published biannually by the Missouri Department of Natural Resources' Division of Geology and Land Survey. Suggestions, ideas and comments concerning this newsletter are welcome. Send comments to: Missouri Department of Natural Resources' Division of Geology and Land Survey, Wellhead Protection Section, PO Box 250, Rolla, MO 65402-0250, Phone: 573-368-2165 or Fax: 573-368-2317.

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