

Missouri Department of Natural Resources
OPERATOR CERTIFICATION SECTION

Water & Wastewater Digest

WINTER 2013

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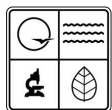
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MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

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www.dnr.mo.gov

Prescription Drug Take-back Event Coming to a Community near You!!

On April 27, 2013 the U.S. Drug Enforcement Administration, or DEA, will be hosting the Sixth National Prescription Drug Take-Back event. Each participating community will host the event at an individually advertised location. The public can participate in this event by bringing partially consumed, old or unwanted prescription medications to an established take-back location and give the containers to the appropriate event personnel.

The proper disposal of pharmaceutical waste has become a growing concern across the nation. Many people improperly discard these and other substances down a sink or by flushing them down their toilet. Flushing pharmaceuticals can harm the beneficial bacteria that break down waste in septic systems (contributing to septic back-up into the home or building) and wastewater treatment plants. Also, municipal wastewater treatment facilities are not designed to remove all the ingredients from the medicines in the treatment process. Untreated or partially treated pharmaceuticals are then released into nearby lakes, rivers, streams or groundwater. Adverse health effects may occur if individuals are exposed to drugs in their water supply, so it is important to properly manage pharmaceutical waste. This, and every take-back event, is so important because it can help protect our drinking water supply by preventing a substantial number of pharmaceuticals from reaching drinking water sources.

To find out if your community is participating in the April 27 National Prescription Drug Take-Back Event, contact your local law enforcement agency. The DEA estimates they will have more information on the event on its website by April 1.

To find the information, visit

www.deadiversion.usdoj.gov/drug_disposal/takeback/.

Individuals may not register for the event, however, water systems and water system operations specialists are strongly encouraged to contact their local law enforcement agencies and ask them to register for the event by visiting the above DEA website.

The Missouri Rural Water Association, or MRWA will provide a variety of free promotional items to any law enforcement agency and community willing to host a Prescription Take-Back Event. Water systems and law enforcement agencies can contact Brad Rayburn with MRWA at 573-657-5533 or by email to brayburn@moruralwater.org to obtain free promotional items.

Voucher Program Continues in 2013

The Department of Natural Resources has issued drinking water operator training vouchers for 2013. Vouchers will automatically be mailed to the administrative contact on record for eligible drinking water systems.

Voucher packets were mailed the first full week in January to the drinking water system's administrative contact on record. System contact information is available on the department's website at www.dnr.mo.gov/operator. Review and update the contact information as needed.

For questions, please contact Jennifer Lamons, with the department's Operator Certification Section at 800-361-4827.

In a Drought: Know Your Water Reserves

Summer 2012 ranks as the third driest summer for Missouri since 1900, according to the National Oceanic and Atmospheric Administration. In July and August, Missouri averaged just 4.02 inches of precipitation. Livestock ponds dried up and the state declared an agricultural emergency. Public water systems saw demand from customers increase while water levels in reservoirs, rivers and wells continued to drop. Many public water systems issued conservation orders, which ranged from a voluntary request, to a mandatory prohibition of lawn irrigation and other restrictions. Staff at each of the department's regional offices began weekly check-up calls to communities to see how they were doing.

Systems that carefully monitored water levels were able to take actions to protect their dwindling supply; their actions avoided a probable water outage for their customers. The following is a two-part discussion of water system drought survival. Part 1 will discuss drawdown testing of wells. Part 2, (in the next edition of the *Water & Wastewater Digest*) will cover lakes and reservoirs, and will discuss some of the actions water systems can take before and during a drought.

Part 1: Wells

Many groundwater systems saw the water levels slowly drop to near critical levels in their wells. This includes alluvial wells in river bottom sands and gravels, and some deeper bedrock systems. Operators carefully monitored water levels in the wells and avoided damage to the pumps that could have happened if the pumps had broken suction and pulled in air, which could have resulted in an extended water outage for their customers.

Water level and drawdown readings should be done at least weekly during the summer and in periods of high use or low rainfall. During the rest of the year readings should be taken no less than monthly. Because of the critical conditions some systems faced in 2012, many operators were performing tests daily. By conducting frequent tests,

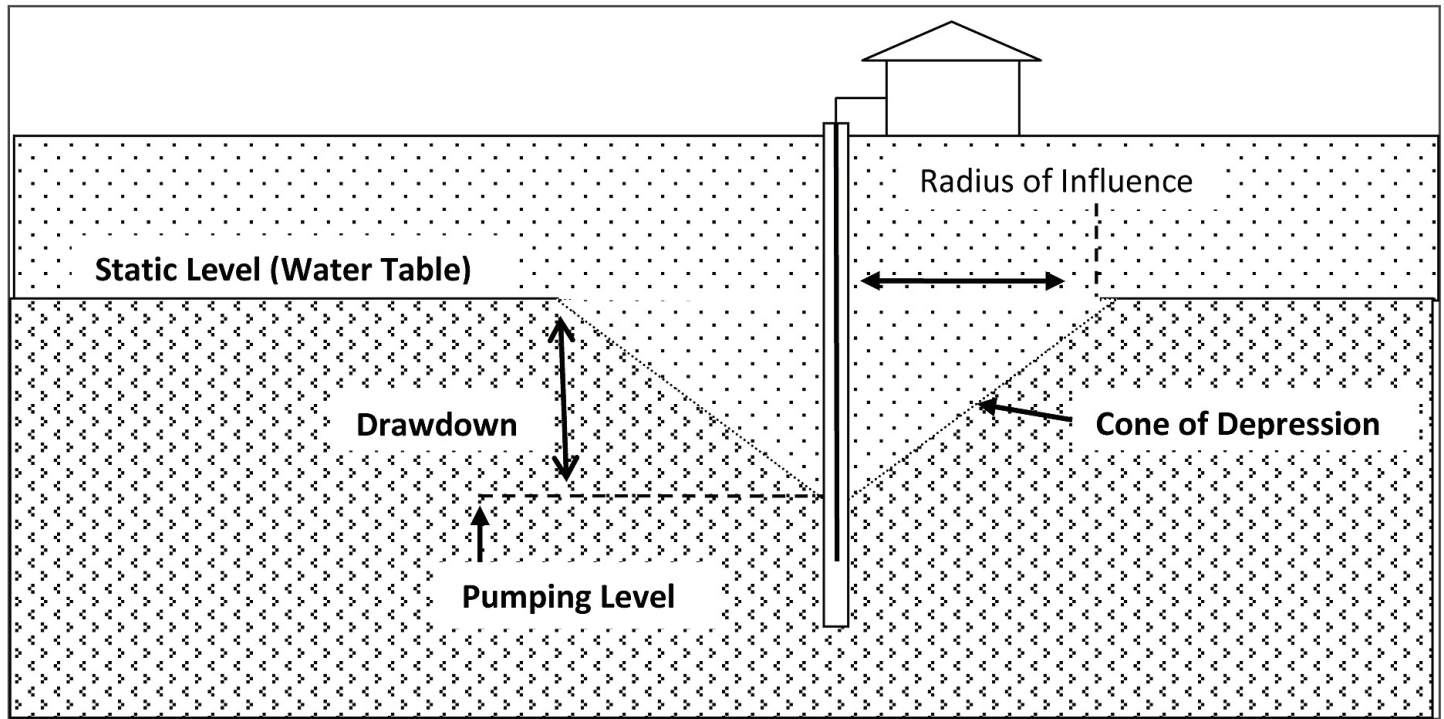
it should be easy to see when a trend develops; such as slowly declining static water level, or an increase in the drawdown. It will take several years of records to develop long term and seasonal trends. One Missouri public water supply district recorded the steady decrease of the water table in its area for 20 years. Its operators had the time to evaluate options and to plan. They constructed a large transmission main and now get the majority of their water from a large surface water system.

Water levels can be measured by several methods; a wetted steel tape and the air-line method may be the most common. Now there are also electronic level probes, pressure transducers and sonic well sounders.

The first thing you need to know is the depth the pump is set at, preferably the pump intake point. In the end you want to know how much water remains above the pump. The depth of the pump is available on the *Pump Information Record*, Form-MO 780-1900, which should be in each well file. Other important information recorded on that form is the total depth of the well and the depth of the static water level at the time the pump was installed. If you cannot find this record it may be necessary to contact the pump installer. If the pump was installed after 1987 the installer should have filed a copy with the department's Wellhead Protection Section. Contact the Section at 573-368-2165.

Air lines and pressure transducers are attached to the drop pipe above the pump; air-lines normally end about five feet or more above the pump intake, to avoid any turbulence at the intake, which could confuse the readings. Both of these measure the pressure (or depth) of the water above the end of the air-line, or above the transducer. Since you need to know the feet of water in the well, it is best to have a gauge calibrated in feet of water. If the gauge reads psi then you convert psi to feet: 1-psi = 2.31-ft. For example, the air-line is 100-ft long. If the gauge reading is 10 psi this equals 23-ft. ($10 \times 2.31 = 23$). So 100-ft. – 23-ft. = 77 feet. The static water level is at 77 feet (below the gauge location) and there 23-feet of water above the pump.

When using the steel tape, electric water level probes or sonic well sounders, the distance from the surface to the top of the water is measured. To use these methods, you will need to know the distance from the access point to the pump intake to find the depth of the water over the pump. Then subtract the depth (distance) to the water from the depth of the pump intake to find how much water is over the pump. For example; your reading says it is 105 feet to the water, and the pump (intake) is at 150 feet. So $150 - 105 = 45$, you have 45 feet of water over the pump. Ultimately it is the depth of water over the pump we are concerned about.



Drawdown and the Cone of Depression

The steel tape and electronic level probes are portable and can be taken from well to well. These should be thoroughly disinfected with a 50-ppm chlorine bleach solution before each use to avoid contaminating the well.

The static water level should be measured after the pump has been off for at least 30 minutes, longer if possible. The pumping level should be taken after the pump has run long enough for the water level to stabilize. Normally this is several minutes, but could take an hour or more for some wells. You will have to work out procedures for your specific well. Unless you are operating the wells manually, it may not be possible to get both static and pumping readings at one visit to the well. One reading may have to be done later in the day, or if necessary on the following day. After you have the static and the pumping level you can calculate your drawdown. A spiral notebook can be used to record drawdown readings.

In the next issue of the *Water & Wastewater Digest*, we will discuss Part 2: Monitoring for Lakes and Reservoirs, and actions others have taken before as well as during a drought.

Basic Terminology

Static level – Static level is the level of water in a well when the pump is off. It is usually expressed as the distance in feet from the ground surface to the water level, or the distance from the wellhead to the water level.

Pumping level (or Dynamic Level) – This is the water level with the pump on. This is also usually expressed as the distance in feet from the ground surface (or well head) to the water level.

Drawdown – The difference between the static level and the pumping level.

Well yield – Well yield is the volume of water per unit of time produced from the well pumping. Usually, well yield is typically measured in terms of gallons per minute.

Specific capacity – Specific capacity is expressed as the well yield per unit of drawdown.

Visit us on the Web!

The list of approved training changes frequently as new courses are reviewed and approved by department staff or trainers adjust schedules. By the time this newsletter reaches you, there may be new courses available in your area.

Need Your Password to Login?

Certified operators are encouraged to access training reports by visiting the department's website at www.dnr.mo.gov/operator. To login, the password is the last four digits of your social security number.

In addition to checking training hours and renewing certificates online, this site provides a convenient place to view and update important contact information for public drinking water systems including the chief operator, sample collector and administrative contact.

For more information, contact the department's Operator Certification Section at 800-361-4827 or 573-751-1600.

January was Sludge Reporting Time!

The deadline to send in your Annual Form S sludge reports for domestic wastewater treatment was Jan. 28, 2013. All domestic wastewater treatment facilities were required to send in this annual report. Major lagoon facilities were required to submit annual reports to EPA even if no land application occurs. This requirement is met by submitting a statement of no application and the required certification statement. Non-major lagoon facilities only need to submit the report if sludge was removed from the lagoon during 2012. Minor facilities with a permitted pretreatment program were also required to submit a Form S sludge report.

Copies of Form S sections 1 through 6 are available for download on the department's website www.dnr.mo.gov/forms/index.html. Scroll down the page to Water Pollution and find "Sludge."

For more information or questions about biosolids, call Tony Dohmen with the department's Water Protection Program at 573-751-1398 or 800-361-4827.

The EPA Region 7 503 Biosolids Program contact is Rob Bryant, available at 913-551-7354.

Electronic Delivery of CCRs now Available

Beginning this year, community water systems will be able to deliver their 2012 Consumer Confidence Report, or CCR, to their customers via the Internet. This can be implemented either by using paper CCR delivery with an electronic delivery option, or electronic delivery with a paper CCR option. Delivery of the CCR to customers must be "direct delivery," meaning if the water system provides a URL to their customers via their utility bill or other means, the URL must go directly to the full CCR for that year. If the water system is aware of a customer's inability to receive a CCR electronically, it must provide the CCR by other means allowed by the rule.

The CCR may also be delivered as an email attachment by embedding the CCR in the message, or emailing the URL. Use of social media such as Twitter or Facebook does not meet the electronic delivery criteria, as that requires the customer to gain membership to the Internet outlet. Also, the water system should include a short statement about water quality in order to promote readership, as well as making the URL short, if that is the method of delivery. Additional information and examples of electronic CCRs are in EPA's interpretive memo available online at water.epa.gov/lawsregs/rulesregs/sdwa/ccr/upload/ccrdeliveryoptionsmemo.pdf.

If you have any questions about this process, contact Eric Medlock at 573-522-5028 or Ellen Harrel at 573-751-1077 or by email at eric.medlock@dnr.mo.gov or ellen.harrell@dnr.mo.gov with the department's Public Drinking Water Branch.

Drinking Water Crossword Challenge

Provided by: TheTeachersCorner.net



Across:

1. Process of disinfection by using calcium- or sodium- hypochlorite
2. Safe for drinking by humans
4. A geological formation bearing strata in the ground
5. A measure of electrical pressure
9. Single-celled microorganism that usually reproduces by cell division
12. All materials used to construct a public or customer water system shall be free of this
14. At 7.0 on pH scale
15. One millionth of a meter
18. Movement of water through openings in rocks or soil

Down:

1. Pressure of a liquid relative to its elevation
2. A disease producing organism
3. The adhesion of one substance to the surface of another

4. The turbulent exposure of water to air and oxygen
6. Number of years an operators certificate is valid
7. measure of amount of hydrogen ion activity in a substance
8. Maximum contamination or concentration level of certain substances allowed by SDWA
10. A measure of electrical flow
11. Materials in a filter that form the barrier to the passage of suspended or dissolved materials
13. Safe Drinking Water Act
16. Level of presence of dissolved calcium and magnesium
17. Follows the path of least resistance
19. 10 CSR 60-12.010 Emergency Operations Plan applies only to _____ water systems

Across: 1. Hypochlorination. 2. Potable. 4. Aquifer. 5. Voltage. 9. Bacteria. 12. Lead. 14. Neutral. 15. Micron. 18. Percolation. Down: 1. Head. 2. Pathogen. 3. Adsorption. 4. Aeration. 6. Three. 7. pH. 8 MCL. 10. Amperage. 11. Media. 13. SDWA. 16. Hardness. 17. Electricity. 19. Community.

Operator Certification and Training

Exam Date	Location	Filing Deadline
Mar. 5, 2013	Department of Conservation Powder Valley Nature Center, Kirkwood	Feb. 4, 2013
Mar. 3, 2013	Department of Natural Resources 1101 Riverside Dr., Jefferson City	Feb. 4, 2013
Apr. 2, 2013	Department of Natural Resources 1101 Riverside Dr., Jefferson City	Mar. 4, 2013
Apr. 2, 2013	Department of Natural Resources 2155 N. Westwood Blvd., Poplar Bluff	Mar. 4, 2013
Apr. 2, 2013	Department of Natural Resources 2040 W. Woodland, Springfield, MO	Mar. 4, 2013
May 7, 2013	Department of Natural Resources 1709 Prospect Dr., Macon	Apr. 8, 2013
May 7, 2013	Department of Natural Resources 500 NE Colbern Road, Lee's Summit, MO	Apr. 8, 2013
May 7, 2013	Department of Natural Resources 1101 Riverside Dr., Jefferson City	Apr. 8, 2013
June 4, 2013	Department of Conservation Powder Valley Nature Center, Kirkwood	May 6, 2013
June 4, 2013	Department of Natural Resources 1101 Riverside Dr., Jefferson City	May 6, 2013
July 2, 2013	Department of Natural Resources 2155 N. Westwood Blvd., Poplar Bluff	June 3, 2013
July 2, 2013	Department of Natural Resources 2040 W. Woodland, Springfield, MO	June 3, 2013
July 2, 2013	Department of Natural Resources 1101 Riverside Dr., Jefferson City	June 3, 2013

Regular wastewater examinations are scheduled for 9 a.m. and the water supply examinations are scheduled for 1 p.m., unless otherwise noted on the admission letter. For an application, visit www.dnr.mo.gov/forms/780-1089.pdf.

Drinking Water Watch Offers More Information at Your Fingertips

Our Drinking Water Watch, or DWW, website at www.dnr.mo.gov/DWW shows sampling, inventory and enforcement data for Missouri public water systems. We are pleased to announce the release of a revised DWW page that provides significantly more detail than the previous version. As part of the revisions, water system representatives will have the ability, if they choose, to log into DWW with a user ID and password to view more detailed data for the water system than is available to the general public. This includes locational data, inspection history and a full list of 0system contact information.

If you are interested in having an assigned ID and password for your water system, go to www.dnr.mo.gov/env/wpp/labs/dww-access.htm. At this website, you can choose your user ID and password.

If you are a representative of more than one water system, we can provide you a single login, rather than one for each water system you represent.

If you have questions, contact Thomas Adams with the department's Public Drinking Water Branch at 573-751-8330, or email thomas.adams@dnr.mo.gov.

Water & Wastewater Digest Subscriptions

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- ☐ Change of Address: Complete sections 1 and 2 or certified operators can update information online at www.dnr.mo.gov/operator.
- ☐ Cancelling subscription? Complete section 1 below.

Mail or Fax to:

Missouri Department of Natural Resources
Operator Certification Section
P.O. Box 176, Jefferson City, MO 65102-0176.
Fax: 573-751-0678

Section 1 - Previous Address

Name _____

Operator Certificate # _____

Street _____

City/State/ZIP Code _____

Section 2 - New Address

Name _____

Operator Certificate # _____

Street _____

City/State/ZIP Code _____

Daytime phone with area code _____

Training

The mailed version of this publication included a two page list of approved training courses and exam schedule that was available at the time of printing. For a current listing of training, please visit:

www.dnr.mo.gov/env/wpp/opcert/oprtrain.htm



MISSOURI DEPARTMENT OF NATURAL RESOURCES

Operator Certification Section

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