

Water & Wastewater Digest

Fall 2015

Inside This Issue

OpenELIS - What is it and how will it affect Drinking Water Systems?

**Wastewater Facilities:
Use of Sufficiently
Sensitive Test Methods for
Permit Applications and
Reporting**

**Preparing for the Revised
Total Coliform Rule, Part 3**

The Life of a Sand Filter

**Backflow Prevention
Programs Large and Small**

**Annual Drinking Water
Consumer Confidence
Reports**

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OpenELIS – What is it and how will it affect Drinking Water Systems?

The majority of public water supplies in Missouri use the State Public Health Laboratory for analysis of water samples. The state laboratory is preparing to implement a new laboratory information management system, a database that will allow for better tracking of samples and quicker reporting of results.

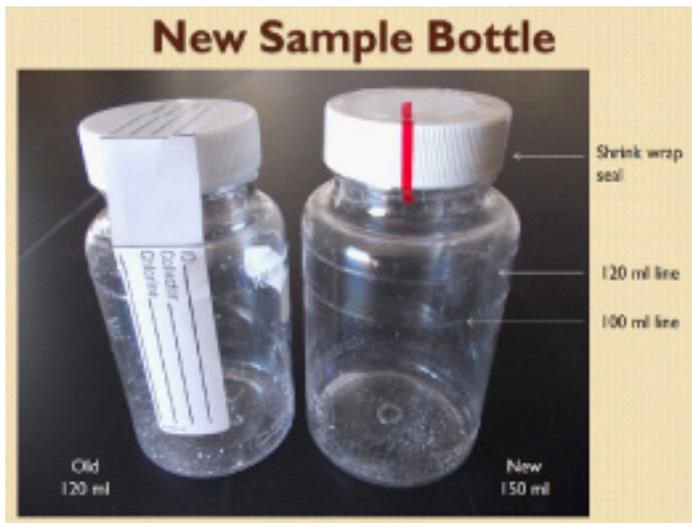
OpenELIS is the acronym for: Open Enterprise Laboratory Information System. Anyone submitting samples for bacteriological analysis to the state laboratory will be affected by this switch. It will be converting to this new system by the end of this year.

The most noticeable change for operators will be in the drinking water sample kits:

Current Process	New Process
Triplicate test request form: Public water system information area is blank	Single 8.5" X 11" form; can be partially populated with public water system information
Kits are distributed with bottle, test request form and return label in the sample box	Test request forms will not be inside each sample box on a multi bottle order
120 ml bottle with 100 ml indicator line; paper lid seal	New bottle – 150 ml with indicator lines at 100 ml and 120 ml; shrink wrap lid seal

OpenELIS will offer email notification of sample analysis results. If a public water system provides the laboratory with an email address, OpenELIS has the capability to send a delivery confirmation receipt once the lab has received its sample bottles for analysis. After the samples have been analyzed, the lab can send immediate notification that results are available to view via a secure web portal, however the Department of Natural Resources will still issue the official regulatory reports.

The new OpenELIS tracking system will be much more efficient in providing operators and systems with their sample results. Look for more details closer to the end of the year!



Wastewater Facilities: Use of Sufficiently Sensitive Test Methods for Permit Applications and Reporting

The U.S. Environmental Protection Agency is finalizing minor amendments to the federal Clean Water Act to codify that under the National Pollutant Discharge Elimination System (NPDES) program, permit applicants must use “sufficiently sensitive” analytical test methods when completing an NPDES permit application and the director must prescribe that only “sufficiently sensitive” methods be used for analyses of pollutants or pollutant parameters under an NPDES permit.

The final rule is based on requirements in the Clean Water Act and clarifies existing EPA regulations. It also codifies existing EPA guidance on the use of “sufficiently sensitive” analytical methods with respect to measurement of mercury and extends the approach outlined in that guidance to the NPDES program more generally. Specifically, EPA is modifying existing NPDES application, compliance monitoring, and analytical methods regulations. The amendments in this rulemaking affect only chemical-specific methods; they do not apply to the Whole Effluent Toxicity (WET) methods or their use.

For more general information, contact your local Department of Natural Resources regional office or for more detailed information contact Kathryn Kelley with EPA’s Water Permits Division at 202-564-7004, or keley.kathryn@epa.gov, if you have any questions about this regulatory revision.

Preparing for the Revised Total Coliform Rule, Part 3: Sampling, Site Sampling Plans and Reporting Requirements.

Under the current Total Coliform Rule, drinking water systems collecting only one sample per month must submit a fourth repeat sample for each coliform positive routine sample. This will change under the Revised Total Coliform Rule (RTCR). All public water systems will have to submit three repeat samples for each coliform positive routine sample collected after April 1, 2016. Additionally, water systems that submit fewer than five routine samples per month will no longer have to submit a total of five routine samples the month following a coliform positive sample, even if the water system triggers an assessment or incurs an E. coli maximum contaminant level violation the previous month.

The Revised Total Coliform Rule does not remove the Ground Water Rule-triggered source water monitoring requirement. Groundwater systems that do not provide 4-log treatment and conduct compliance monitoring are still required to submit a triggered source water sample from each well for each coliform positive routine sample along with the repeat samples. The Revised Total Coliform Rule allows very small groundwater systems with one well and serving 1,000 or fewer people to use the triggered source water sample as the upstream repeat sample (dual purpose sample) with department approval.

Under the RTCR, repeat sample sites are no longer limited to five service connections upstream and downstream of the original routine sample site. The public water system may propose alternative repeat monitoring locations that are expected to better characterize or identify pathways of contamination into the distribution system and provide more flexibility and a more protective response. This may be either alternative fixed locations, or the system can develop criteria for selecting repeat sampling locations on a situational basis in a standard operating procedure as a part of the sample siting plan.

Every public water system should already have a site sampling plan. Plans will be reviewed at the time of each sanitary survey. In addition, Department of Natural Resource regional office staff may also review plans while investigating unsafe samples in the distribution system or as a part of a Level 1 or Level 2 assessment. Water systems wishing to make changes to existing sample siting plans will first need to submit the proposed changes to their regional

office for review and approval prior to using any new sites or procedures.

The revised rule has added or modified some reporting requirements for water systems.

1) The water system must report to the department no later than the end of the day if:

- a) The water system learns it has an E. coli maximum contaminant level violation, or
- b) The water system learns it has an E. coli positive sample.

2) The water system must notify the department no later than the end of the next business day after it learns it has violated a treatment technique for coliform. This includes triggering a Level 1 or Level 2 assessment, or failing to complete a required corrective action on time that is associated with an assessment.

Since most water systems use the State Public Health Laboratory, the regional offices will notify the water system of the sample result or of a violation. The reporting requirement for E. coli samples applies primarily to those systems using a private laboratory certified in Missouri. Systems using a private laboratory can contact the department's 24-hour reporting line, also referred to as the "Spill Line," at 573-634-2436 to notify the department if they are issuing a boil water advisory or boil notice. So all water systems can meet the requirement to notify the department the same day (or within 24-hours) of when they learn of the E. coli positive sample, an E. coli MCL, or violated a treatment technique.

3) Seasonal public water systems must submit certification to the department that they have completed the state-approved start-up procedures prior to serving water to the public.

For a copy of the federal RTCR and U.S. Environmental Protection Agency guidance documents, go to the EPA RTCR website: water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm

The department's website for the status of the Revised Total Coliform Rule development is: www.dnr.mo.gov/env/wpp/rules/wpp-rule-dev.htm

Please check the Public Drinking Water Branch webpage for upcoming training for the Revised Total Coliform Rule at www.dnr.mo.gov/env/wpp/opcert/oprtrain.htm

In part 4 we will review RTCR violations, changes to the Consumer Confidence Report, and seasonal water systems.

The Life of a Sand Filter

As wastewater percolates slowly through the filter medium of a recirculating sand filter, physical, biological and chemical processes remove contaminants. On the surface of the grains of sand or other medium grows a naturally occurring, microscopically thin zoogeous film composed of large populations of bacteria and other microorganisms.

As septic tank effluent flows over the surface of the zoogeous film, organic material contained in the wastewater is absorbed onto the film where it becomes food for the bacteria. For maximum treatment, it is essential that wastewater be in frequent contact with the film attached to the medium. Because the aerobic organisms in the zoogeous film need oxygen to live, it is also essential to maintain unsaturated flow conditions through the filter medium.



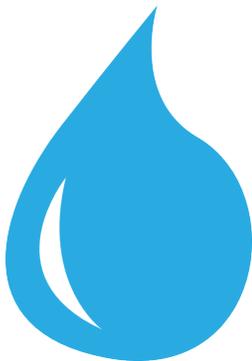
The organism population within a recirculating sand filter multiplies to balance the organic loading rate. When food is not coming in, the process of endogenous respiration takes over in which organisms consume each other, a sort of "survival of the fittest" phenomenon. This process keeps the filter from building a large organic content of biological cells. If the system is too heavily loaded, biological cells and biodegradation byproducts accumulate, and the pores of the sand system may become filled with organic matter. This then begins to slow the flow-through process and eventually can lead to a filter with ponding on the surface. Therefore, it is necessary to balance the application rate with the rate at which the bugs can decompose the applied material and keep the development of a large bacterial cell mass from accumulating.

Unsaturated flow and sustained contact are achieved by distributing the wastewater evenly over the surface of the filter medium and by keeping doses small and frequent over the course of the day. Even distribution also ensures that the entire filter medium is used, thus preventing clogging that can result when parts of a filter go unused and others are hydraulically and organically overloaded.

The question everyone wants to know is: How long will recirculating sand filters (packed media beds) last? The answer is – it depends! There are too many variables such as: organic loading, hydraulic loading, hydraulic retention time (septic tanks), STEP system, solids removal (septic tank pumping), weed removal, flow configuration, dosing rate, grease and oil and type or size of media.

Media in the packed media beds have been known to be replaced in as few as seven years. On the other hand, there are many that have exceeded 20 years of use and are still in operation with the original media.

For questions or more information on recirculating sand filters, contact your local regional office: www.dnr.mo.gov/regions



Backflow Prevention Programs Large and Small

A recent compliance and operations inspection at Lee's Summit provided a detailed look at the backflow prevention program of a large municipality. City ordinance requires all water customers with known or potential cross connections to install a backflow prevention assembly and have it tested annually by a certified backflow assembly tester.

The Lee's Summit Water Utilities Department monitors approximately 6,000 lawn irrigation systems and 1,000 commercial backflow prevention devices through its backflow prevention program. Through a tracking database integrated with its billing system, customer accounts with lawn irrigation systems are sent letters

in the spring to remind property owners to ensure the backflow prevention assembly devices are tested and operating properly before use. Letters for all other accounts are sent throughout the year based on established test dates. The test results are received and the data is entered into the tracking database. Lee's Summit is attempting to reduce the amount of space occupied by the paper records by entering all test data into the electronic tracking system. "In 2012 we combined our Backflow Prevention Program with our billing management software, which allows for more efficient tracking, reporting and mapping of our cross-connection program," said Ben Haskamp, Backflow Prevention Coordinator for Lee's Summit Water Utilities. "In addition to the software database tracking we also make sure to promote public education on backflow and the regulations and requirements related to it through a variety of different print and online mediums available to the community."

Does your Backflow Prevention Program pass the test? Let's review the basics. Missouri regulations on backflow prevention, 10 CSR 60-11.010(2), state that 'No customer shall cause or allow the construction or maintenance of an unprotected cross-connection.' A cross connection is a physical link between a source of pollution or contamination with a potable water supply. When cross connections exist within a water system, backflow events can pose a serious risk of contamination to the water supply. Backflow is the undesirable reversal of water flow caused by changes in hydraulic pressure in a water distribution system or piping system.

Department-approved backflow prevention devices should be installed anywhere the potential for cross-connection exists. Backflow can occur at residential, commercial, industrial or institutional locations. State regulation requires certain types of facilities to install an air gap or backflow prevention assembly. These include:

- Class I: Backflow hazards which present an actual or potential health hazard should backflow occur. These include bulk sales stations, wastewater treatment plants, facilities with boilers, some manufacturing plants, car washes, hospitals, mortuaries, veterinary facilities, dental clinics and laboratories.
- Class II: backflow hazards which threaten to degrade the water quality of the public water system should backflow occur and may cause undesirable changes to the aesthetics of the water, but do not necessarily pose a risk of contamination. These include irrigation systems which do not include use of pesticides, herbicides, etc., fire sprinkler systems which do not use chemical additives, and tanks used for firefighting.

Local cross connection prevention programs may not be less stringent than state regulations. Typically, local programs include:

- Annual inspections performed by Missouri certified backflow prevention assembly testers. The department issues Backflow Prevention Assembly Tester Certificates based on tests conducted by, and certificates issued by, the American Society of Sanitary Engineers (ASSE) and American Backflow Prevention Association (ABPA).
- Establishing an annual date that backflow assembly inspection/test reports are due from each facility.
- A process for notifying specific customers when the report is due.
- Retaining records of inspection reports, exemptions, and installation of assemblies for a period of five years.

Learn more at www.dnr.mo.gov/env/wpp/backflow

Annual Drinking Water Consumer Confidence Reports

More than 1,400 community water systems across the state were required to distribute their 2014 Consumer Confidence Reports (CCRs) to water customers by July 1 . These systems are also required to submit the CCR certification form with supporting documentation to the Department of Natural Resources by Oct. 1 to meet CCR distribution requirements and avoid violation.

CCRs are hosted on the Missouri Department of Natural Resource's Internet server and provide all community systems with a direct web address, or URL, to access the most current CCR for their system. Many water systems are using the direct delivery distribution method by using a direct URL to meet electronic CCR distribution requirements. When used correctly, this method can save the system printing and postage costs. The CCR for a water system can be found at: www.dnr.mo.gov/ccr/MO#####.pdf with "#####" replaced with the system's unique seven-digit MO PWS ID#.

Systems may provide the direct URL to water customers on water bills, by email, mailing or hand delivery. It is important to note that to meet the conditions of "direct delivery" the URL given to customers must go directly to the CCR report and not require additional links to be "clicked" or visited. We encourage systems to double check the URL on their printing to make sure there are no typos or other

mistakes with the URL. Not all customers have access to the Internet, so to use this method, it is required to include a contact number for customers to request a paper copy in addition to the direct URL.

Oct. 1 will be here soon, so if your water system is required to distribute CCRs and you have not submitted the required documentation, please do so soon.

For more information, please visit the department's website at: www.dnr.mo.gov/ccr/index.html or contact the CCR Coordinator at 573-526-3832 or by email at CCR@dnr.mo.gov.



Need your Password to log in?

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.

Visit us on the web

The list of approved training changes frequently and 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. visit us at www.dnr.mo.gov/env/wpp/opcert/oprtrain.htm for an up-to-date list of approved operator certification courses.

Operator Certification Exam Schedule

Exam Date	Location	Filing Deadline
Dec. 1	Department of Conservation Powder Valley Nature Center, Kirkwood	Nov. 1
	Lewis & Clark State Office Building 1101 Riverside Dr., Jefferson City	
Jan. 5	Southeast Regional Office 2155 N. Westwood Blvd., Poplar Bluff	Dec. 6
	Southwest Regional Office 2040 W. Woodland, Springfield	
	Lewis & Clark State Office Building 1101 Riverside Dr., Jefferson City	
Feb. 2	Kansas City Regional Office 500 NE Colbern Road, Lee's Summit	Jan. 3
	Lewis & Clark State Office Building 1101 Riverside Dr., Jefferson City	
	Northeast Regional Office 1709 Prospect Dr., Macon	
March 1	Department of Conservation Powder Valley Nature Center, Kirkwood	Jan. 31

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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

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Operator Certificate # _____

Street _____

City/State/ZIP Code _____

Section 2 - New Address

Name _____

Operator Certificate _____

Street _____

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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