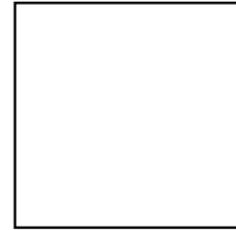


**MISSOURI DEPARTMENT OF NATURAL RESOURCES**

Operator Certification Section  
P.O. Box 176  
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**Missouri Department of Natural Resources  
OPERATOR CERTIFICATION SECTION**

# Water & Wastewater Digest

**SUMMER 2012**

**Missouri Department of Natural Resources  
OPERATOR CERTIFICATION SECTION**

# Water & Wastewater Digest

**SUMMER**

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## **Americans Can't Live without Water and Wastewater Operators**

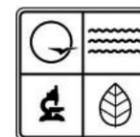
Operators rejoice; you made a top 10 list. Others are finally beginning to learn what *Water & Wastewater Digest* has known for a long time; that water and wastewater operators are the guardians of our national health and safety, having been ranked as the second most critical career in America.

A recent article by Charles B. Stockdale from "24/7 Wall St." listed the top "10 Jobs Americans Can't Live Without." Water/wastewater treatment plant and system operators were ranked just behind #1 registered nurses. That is real job security at a time when Missouri unemployment is currently hovering around 7 1/2 percent. The article further stated that:

*"Water and liquid waste treatment plants require near-constant supervision in order to ensure that customers receive safe water. As a result, system operators must either work or be on-call at all hours. Plants are highly regulated and can face a number of problems. Storms can cause flooding in sewers, and water can be tainted by chemicals. Plant operators are responsible for all of this."*

You may be surprised by some of the other careers which ranked somewhat less favorably. The others were: firefighters, railroad conductors and yardmasters, telecommunications equipment installers and repairers, air traffic controllers, nuclear power reactor operators, police and sheriff's patrol officers, electrical power line repairers, and lastly correctional officers and jailers.

For your information, 24/7 Wall St. LLC is a corporation set up to run financial news and opinion operation with content delivered over the Internet at [247wallst.com/](http://247wallst.com/) and picked up by other websites. *Water & Wastewater Digest* found this content at the "Readers Digest" website ([www.rd.com/slideshows/10-jobs-americans-cant-live-without/](http://www.rd.com/slideshows/10-jobs-americans-cant-live-without/)) through a link provided by the [SmallWaterSupply.org](http://SmallWaterSupply.org) newsletter dated Oct. 18, 2011 which can be found at [smallwatersupply.org](http://smallwatersupply.org).



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DEPARTMENT OF  
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## Managing Asbestos Cement Piping

Have you ever seen an advertisement for Johns-Manville Transite sewer pipe? In October 1945, the company advertised in The American City magazine promoting the benefits of asbestos pipe. This may have been before most of us were reading magazines, but for many years, asbestos cement pipe was a popular choice for water and sewer lines. Asbestos pipe was promoted as requiring smaller pipe diameters because of lower levels of infiltration. It had a lower friction coefficient than other pipes, and was said to reduce maintenance costs because it was corrosion resistant and had tight joints to guard against root infiltration.

Pipes containing asbestos were manufactured from 1931 until the 1970s in the United States, when they were phased out as the hazards of asbestos were discovered. Most asbestos cement pipe contains 10 to 20 percent asbestos with the remaining material mostly Portland cement. The cement acts as a binder that holds the asbestos fibers in place.

Today asbestos cement pipe is reaching the end of its useful life. When it is replaced or repaired, safe work practices should be followed. Additionally, the handling of asbestos cement pipe may be subject to federal and state asbestos regulations. Water and wastewater systems that have asbestos cement pipes need to know these safe work practices and the regulations associated with handling it.

Water and wastewater systems are not required to remove and replace asbestos cement pipe. The asbestos in these pipes is considered nonfriable and is not believed to be a significant hazard to public health in normal use. Only when the asbestos in the pipe becomes airborne does it pose an inhalation health risk to workers and the general public in the area. It can become airborne when the pipe is significantly broken. Therefore, it is the repair and replacement of asbestos cement pipes that poses a health concern. The practice of cutting and breaking asbestos cement pipe can release asbestos fibers into the air.

Systems need to know that the removal of nonfriable asbestos containing materials, like asbestos cement pipe in good condition, is exempt from the National Emission Standards for Hazardous Air Pollutants, or NESHAPs, Asbestos requirements. You need not use licensed asbestos workers or asbestos contractors to do a nonfriable removal. If you remove asbestos cement pipe in a nonfriable state, it will remain in a nonfriable condition when handled properly.

AC pipe must be removed, handled and disposed of in a manner that keeps the material mostly intact to be considered nonfriable. Sanding, grinding, sawing, chipping, such as with a power-driven saw or grinder is not allowed. Do not allow the pipes to be crushed, crumbled or pulverized. Some minimal amount of breakage and damage will occur. Wetting minimizes the spread of asbestos fibers, so the pipe must be kept wet during removal. Systems that have significant amounts of asbestos cement pipes in their distribution systems should establish formal procedures to address these hazards.

If the asbestos cement pipe becomes excessively damaged, it is considered friable and may release asbestos fibers. If the pipe becomes friable, the handling and removal may be subject to federal NESHAPs asbestos requirements, which Missouri does follow and enforce. If at least 260 linear feet of the pipe has become or will become crushed, crumbled or pulverized, it is subject to the NESHAPs regulation as a "renovation project." Notification and removal by a licensed asbestos abatement company is required under this situation. Questions about the NESHAPs asbestos requirements for handling of asbestos cement pipe may be answered by your regional Department of Natural Resources office. Contact information for your regional office is located at [www.dnr.mo.gov/regions/regions.htm](http://www.dnr.mo.gov/regions/regions.htm).

Occupational Safety and Health Administration, or OSHA, standards apply to all repairs of asbestos cement pipe and other forms of asbestos containing materials. State and local employers, while not directly regulated by OSHA, are still subject to OSHA standards under the Worker Protection Act (40 CFR Subpart G 763.120-123). OSHA rules may require training, using wet methods, and wearing a proper respirator and disposable suits prior to conducting work on nonfriable asbestos cement pipes. Contact the OSHA office within your area for rules regarding repairs to nonfriable asbestos cement pipe.

The OSHA office in the Eastern Missouri area may be reached at 314-425-4249. The OSHA office in the Western Missouri area may be reached at 816-483-9531.

The American Water Works Association has given recommended work practices for cutting and splicing asbestos cement pipe. Their recommendations include the use of carbide tipped blades and snap cutters to cut pipe. Use manual field lathes to trim ends of asbestos cement pipe. Use a coarse manual wood rasp to bevel pipe ends. For wet tapping, employ manual equipment with a chain yoke. Use a hammer and chisel and split the coupling lengthwise to remove couplings from asbestos cement pipe.

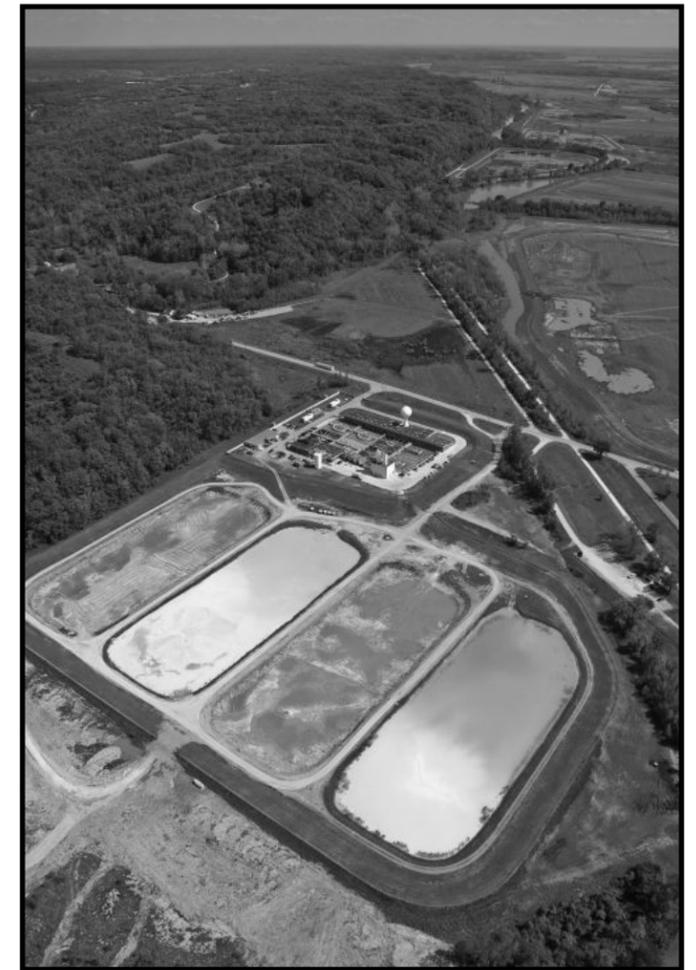
Do not use power saws, grinders, and other power tools for working with asbestos cement pipe.

There is no requirement that asbestos cement pipe has to be removed from the ground during replacement. It may be abandoned and left in place as long as it will not be crushed, crumbled or pulverized in the replacement process. If the pipe is left in the ground, it should be within an existing utility easement, or else its location placed on a property deed. Also, it is recommended that the abandonment be noted in the water or wastewater system's files for future reference to help address concerns with installing, repairing or replacing pipes at that location in the future, so it will not be disturbed and release asbestos fibers into the air.

If removed from the ground, asbestos cement pipe must be disposed of using guidelines for disposal of nonfriable asbestos. It must go to a permitted landfill. It should be wrapped in two layers of 6 mil plastic that has been sealed, or it must be delivered to the landfill in a plastic lined dumpster or container. The landfill needs to be contacted ahead of time to ask for their guidelines for disposal of asbestos waste.

For further information about management of nonfriable asbestos containing materials, visit the department's asbestos web page at [www.dnr.mo.gov/env/apcp/Asbestos.htm](http://www.dnr.mo.gov/env/apcp/Asbestos.htm).

For more information on disposal requirements, visit the department's publications web page at [www.dnr.mo.gov/pubs/index.html](http://www.dnr.mo.gov/pubs/index.html).



Columbia Water Treatment Plant

## Stage 2 DBP Compliance Monitoring Plans for Drinking Water Systems

The Stage 2 Disinfectants and Disinfection Byproduct Rule, also known as Stage 2 DBPR, was promulgated by the U. S. Environmental Protection Agency on Jan. 5, 2006. It applies to all community and nontransient, noncommunity water systems that add a disinfectant or purchase water that has a disinfectant added to it. The Stage 2 DBPR regulates disinfection byproducts, specifically Total Trihalomethanes (TTHMs) and Haloacetic acids (HAAs). These byproducts are formed in the water treatment process when chlorine reacts with naturally occurring organic matter in the water and have been linked to adverse health effects based on long-term exposure. The Stage 2 DBPR is a phased rule whereby the compliance start date is based on a water system's size. Systems with at least 100,000 in residential population or those buying water from a system with at least 100,000 residential populations, also known as schedule 1 systems, were required to comply with the Stage 2 DBPR on April 1, 2012.

The following table summarizes the Stage 2 DBPR schedule and compliance dates based on system population.

If you are a water system serving:	Schedule <sup>1</sup>	Your Stage 2 Compliance Date is:
At least 100,000 people or part of a CDS serving at least 100,000 people	1	April 1, 2012
50,000 to 99,999 people or part of a CDS serving 50,000 to 99,999 people	2	Oct. 1, 2012
10,000 to 49,999 people or part of a CDS serving 10,000 to 49,999 people	3	Oct. 1, 2013
Less than 10,000 people or part of a CDS serving less than 10,000 people	4	Oct. 1, 2013

<sup>1</sup> The above schedule is defined by the largest system in the combined distribution system.

Unlike the original Stage 1 Rule, the Stage 2 Rule applies to all community and nontransient noncommunity water systems that are part of a combined distribution system. A combined distribution system is the interconnected distribution system consisting of the distribution systems of the wholesale system (either surface water or groundwater) and of the consecutive systems that receive some or all of their finished water from the wholesale system. Since consecutive systems were not required to monitor under Stage 1 DBPR this may be the first time these systems will test for disinfection byproducts.

In most cases, all systems that are part of the same combined distribution system will be sampled during the same month of a quarter as assigned by the Missouri Department of Natural Resources, Public Drinking Water Branch. The monitoring schedules assigned may vary from current Stage 1 schedules or a schedule identified by a system in a previously submitted initial distribution system evaluation, or IDSE, report. For example, if a schedule 1 water system is required to sample quarterly and is assigned the first month of the second quarter, it began sampling in April 2012. The next quarterly sample would be in July, the first month of the third quarter. Any consecutive water system associated with that combined distribution system which is only required to have annual monitoring based on its own system's population size will be assigned a summer month for sampling. In this case, the consecutive water system would sample in July (first month of the third quarter) to correspond with the same combined distribution system monitoring schedule. Sampling kits will be sent with collection instructions and a chain of custody form that will include the pre-printed sampling locations chosen by the system. The sampling kits will be delivered and picked up through United Parcel Service at no charge to the water system.

In order to comply with the Stage 2 DBPR, all applicable community and nontransient, noncommunity water systems must identify their disinfection byproducts sampling sites in a compliance monitoring plan, to be provided to the department. Compliance with the Stage 2 disinfection byproducts rule is based upon a locational running annual average, also known as LRAA. This means disinfection byproducts samples are required to be collected from the same sampling locations as identified in the submitted compliance monitoring plan. The individual sampling locations will develop a locational running annual average which will be used to determine compliance with the rule. Since the department is required by state statute to provide testing services, a water system simply needs to inform the branch of its sampling locations in the two page Stage 2 disinfection byproducts compliance monitoring plan form to meet the monitoring plan requirements.

The number of sample sites required and the sampling frequency is determined by a water system's population and the original source water type (groundwater or surface water). The following table summarizes the number of site locations required and the routine monitoring frequency based on population and source of water.

It is important for systems to choose proper sampling locations. Once a sampling location is chosen and approved, samples must be collected from the same location for each monitoring event. The locational running annual average is calculated for a specific sampling location and a monitoring violation may be issued to the system if the same required location is not used for each monitoring event. If a system wishes to change a sampling location, it must request the change with the department and have the change approved prior to sampling or the system will be subject to monitoring violations.

Source Water Type	Residential Population <sup>2</sup>	ROUTINE Monitoring Frequency	Number of Site Locations
Surface Water	<500	per year	1
	500-3,300	per quarter	2
	3,301-9,999	per quarter	2
	10,000-49,999	per quarter	4
	50,000-249,999	per quarter	8
	250,000-999,999	per quarter	12
Ground	1,000,000-4,999,999	per quarter	16
	<500	per year	1
	500-9,999	per year	2
	10,000-99,999	per quarter	4
	100,000-499,999	per quarter	6
>500,000	per quarter	8	

<sup>2</sup>Population relates to reporting system only, not the entire combined distribution system.

### How to Select TTHM and HAA Sample Sites

In general, higher water temperatures and increased water age lead to higher TTHM concentrations in distribution systems. Storage facilities in a distribution system typically increase water age. Therefore, if your system has storage tanks or reservoirs, TTHM sites downstream of those tanks would be logical sample locations. Samples should not be taken at the very end of a dead end line because it is not representative of the water received by the majority of customers.

Higher temperatures and increased residence time can also lead to higher HAA concentrations. However, microorganisms can consume HAA, causing levels to decrease. This is known as biodegradation, and it is more likely to occur when disinfectant residual levels are low or non-existent, particularly in warmer months. Therefore, HAA sites may be located closer to the entrance to the distribution system rather than locations with very high water age.

If you believe that HAA biodegrades in your system, you should consider locating HAA sites in areas with lower water age in the center regions of your system where you maintain high disinfectant residuals. If your system practices booster disinfection, you should locate HAA sites after booster disinfection is applied. You should select HAA sites in locations that regularly, or in the summer months, have free chlorine residuals greater than 0.2 mg/L or with chloramine residuals greater than 0.5 mg/L.

TTHM sites are often located:

- Hydraulically downstream of storage facilities.
- Away from the ends of the distribution system, before the last large group of customers.

TTHM sample sites should NOT be located:

- At a dead-end where there are no customers.
- Prior to booster disinfection with chlorine.

HAA sites are often located:

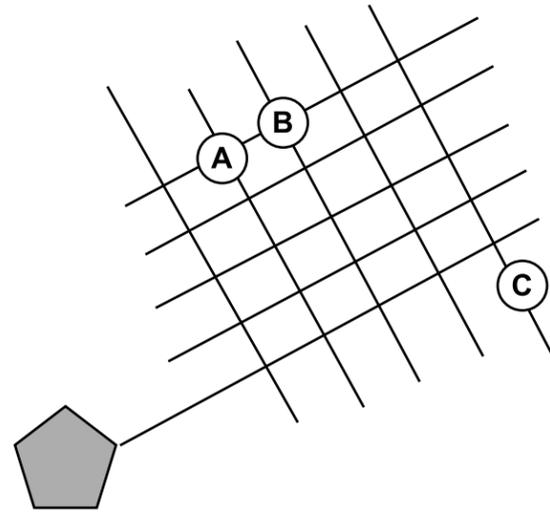
- Hydraulically downstream of booster disinfection.
- Near areas where disinfectant residuals are significantly less than the system average.

HAA sample sites should NOT be located:

- In areas that regularly or in the summer months have free chlorine residuals less than 0.2 mg/L or with chloramine residuals less than 0.5 mg/L.

In general, two sites should not be located in the same general area of the distribution system. If historical data is available, consider the following example:

The two highest TTHM and HAA locations in the distribution system are from adjacent historical sample sites (sites A and B). The site with the third highest is on the far side of the distribution system (site C). In this case, consider selecting sites A and C or B and C as Stage 2 sites for a broader geographical coverage of the distribution system.



**Water Treatment Plant**

Technical assistance is available from the department to help systems complete the compliance monitoring plan. However, a monitoring violation will occur if the compliance monitoring plan is not received by the appropriate compliance date. Therefore, the branch is requesting that plans be submitted several months before the compliance date to allow for data entry and technical assistance issues. If you have any questions or need assistance in completing your Stage 2 disinfection byproducts compliance monitoring plan, please contact Eric Medlock at 800-361-4827 or 573-522-5028 or via email at [eric.medlock@dnr.mo.gov](mailto:eric.medlock@dnr.mo.gov).

### **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.

Visit us at [www.dnr.mo.gov/env/wpp/opcert](http://www.dnr.mo.gov/env/wpp/opcert) to view an up-to-date list of approved operator certification courses.

### **Staff Changes in Operator Certification**

Jennifer Lamons has joined the Op Cert staff as an Environmental Specialist and will be overseeing the continuation of the Voucher Program. Jennifer has three years of experience with the department as an Environmental Specialist. The EPA grant that has funded the program will expire June 30, 2012, but the department will continue the program using drinking water set-aside funds.

In other Operator Certification news, Darlene Helmig has replaced Gordon Belcher as the department's Operator Certification Section Chief. Darlene brings with her 13 years of experience with the department, including six years with the Operator Certification Section. Gordon retired last summer with more than 33 years of service in the environmental field including municipal, federal and state government experience. We want to thank Gordon for his dedication and friendship and wish him the best in his retirement.

### **Need Your Password to Login?**

Certified operators are encouraged to access training reports by visiting the department's web site at [www.dnr.mo.gov/operator](http://www.dnr.mo.gov/operator). To login, the password is the last four digits of your social security number.

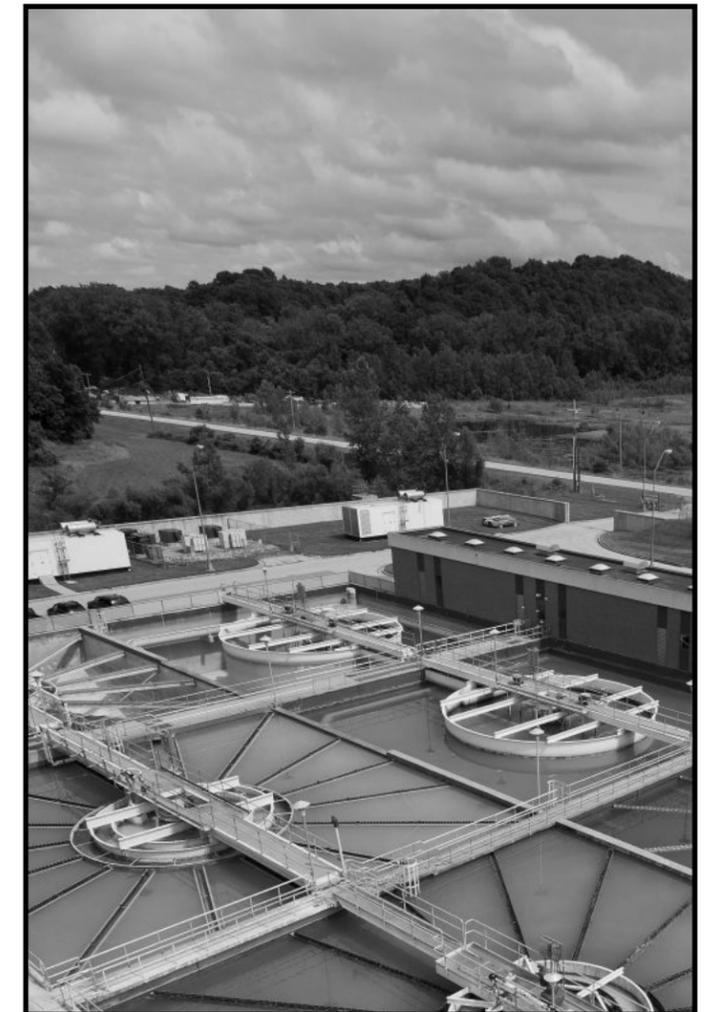
In addition to checking training hours and renewing certificates online, this site provides a convenient place to view and update important contact information for public drinking water systems including the chief operator, sample collector and administrative contact.

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

### **Consumer Confidence Reports**

The Missouri Department of Natural Resources, Public Drinking Water Branch mailed the 2011 Annual Water Quality Reports/Consumer Confidence Reports to all community water supplies in May. This is a reminder that the reports must be distributed to all customers by July 1, 2012. A copy of final consumer confidence reports and certification forms are due back to the Public Drinking Water Branch by Oct. 1, 2012.

If you have any questions, please contact Kristin Vermillion with the department at 573-526-3832.



Columbia Water Treatment Plant

## Public Drinking Water Branch to Conduct Voluntary TMF Survey

### Systems are Urged to "Be Heard" by Participating

Delivering safe, dependable water 24/7 to every tap is what the Safe Drinking Water Act's capacity development requirements are all about. Congress, through the Safe Drinking Water Act, requires each state to establish a capacity development strategy to help public water systems acquire and maintain adequate technical, managerial and financial, or TMF, capacity to provide safe drinking water to the public.

But what is TMF? Technical capacity refers to the physical system, including source water, treatment, storage and distribution plus the technical knowledge and ability of personnel to operate the system. Managerial capacity refers to the ability of the system decision makers to conduct necessary activities such as staffing, planning, maintaining accountability and interacting with customers and regulatory agencies; while financial capacity refers to the system's ability to generate sufficient revenue, maintain credit worthiness and manage funds through budgeting, accounting and other methods of fiscal control. All three are needed for a sustainable water system.

Later this year the Public Drinking Water Branch will be sending out the first statewide TMF survey to public water systems. The purpose of the survey is to establish a TMF capacity baseline of Missouri's public water systems so the Public Drinking Water Branch can gain a better understanding of how to use our resources to help systems with TMF needs. Your participation is very important in our efforts to help water systems have and maintain TMF capacity. We urge you to fill out and return the survey when it arrives. If you have any questions contact Erin Lepper, Capacity Development Coordinator, at 800-361-4827 or 573-521-9429.

## New Contact Information for NPDES Permit Requests

The Department of Natural Resources Water Protection Program has completed centralization of the permitting function of the National Pollutant Discharge System (NPDES) permits. Permit application requests should now be submitted to the department's central office in Jefferson City. Permits were issued previously from the respective regional offices. All calls and inquiries should now be directed to:

Missouri Department of Natural Resources  
NPDES Permits Unit  
Water Protection Program  
P. O. Box 176  
Jefferson City MO 65102-0176  
573-751-1300

## EPA Launches New Online Wastewater Forum for Small Communities

The U. S. Environmental Protection Agency recently launched a new internet forum for small communities to discuss issues related to both centralized and decentralized wastewater treatment systems. Once registered with the site, wastewater professionals along with interested citizens are able to communicate with others, search for topics, post informational material, and get technical support in a forum atmosphere. Registration is not required to simply view information, but is recommended to benefit fully from the experience.

Go to: [forum.citizen.apps.gov/EPAwastewaterforum/](http://forum.citizen.apps.gov/EPAwastewaterforum/)

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## Missouri Department of Natural Resources Operator Certification and Training

Exam Date	Location	Filing Deadline
Aug. 7, 2012	Department of Natural Resources 1709 Prospect Dr., Macon	July 8, 2012
Aug. 7, 2012	Department of Natural Resources 500 NE Colburn Rd., Lee's Summit	July 8, 2012
Aug. 7, 2012	Department of Natural Resources 1101 Riverside Dr., Jefferson City	July 8, 2012
Sept. 4, 2012	Department of Conservation Powder Valley Nature Center, Kirkwood	Aug. 5, 2012
Sept. 4, 2012	Department of Natural Resources 1101 Riverside Dr., Jefferson City	Aug. 5, 2012
Oct. 2, 2012	Department of Natural Resources 2040 W. Woodland, Springfield	Sept. 2, 2012
Oct. 2, 2012	Department of Natural Resources 2155 N. Westwood Blvd., Poplar Bluff	Sept. 2, 2012
Oct. 2, 2012	Department of Natural Resources 1101 Riverside Dr., Jefferson City	Sept. 2, 2012

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-f.pdf](http://www.dnr.mo.gov/forms/780-1089-f.pdf)

## **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:

<http://www.dnr.mo.gov/env/wpp/opcert/oprtrain.htm>