

Summer 2015  
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## The MMO-MUG Test

### *Critical Documents that Make or Break Results*

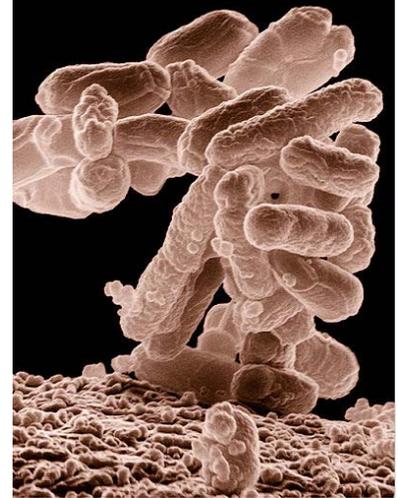
Ohio EPA's microbiological certification program requires extensive documentation to ensure reliable laboratory data. Analysts certified to test drinking water samples by MMO-MUG must have a thorough understanding of the microbiological records associated with the drinking water program and how the information fits together to support accurate results. Two documents discussed in this article, the Microbiological Test Data Sheet (bench sheet) and the Incubator Temperature Records, are directly linked to the analytical process of this method.

The information recorded on the bench sheets and in the incubator temperature records are tied to the analytical process and document key quality control components of the test. The data recorded in both logs directly impacts a sample's validity. Together, these two documents show a snapshot of the entire analysis and demonstrate that the entire analytical process was in control, resulting in reliable data.

**Bench Sheet:** The bench sheet is used to record the most pertinent information about a batch of samples and helps document that the analysis was performed correctly. In order to prevent accidental misidentification of samples, each sample is assigned a unique ID number, along with information regarding sample location and the date and time the sample was collected.

Microbiological testing is time-sensitive and must be initiated within 30 hours from the time of collection. Therefore, it is important to accurately record the date and time of collection and incubation so the bench sheet reflects that the samples were set up within the allowed hold time. Analysis of samples after the allowed hold time has expired can result in false negatives, which occur when stressed and/or dying bacteria in the sample are not able to grow.

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| <b>2015 FALL PAPER AND PENCIL EXAM DEADLINES AND DATES</b>               |   | <p><b>For more information</b></p> <p>Call the operator certification hotline at<br/>1-866-411-OPCT (6728) or visit<br/><b><i>epa.ohio.gov/ddagw/opcert.aspx</i></b></p> |
| <p><b>Wastewater:</b><br/>Aug. 6 - Application due<br/>Nov. 4 - Exam</p> | <p><b>Water:</b><br/>Aug. 7 - Application due<br/>Nov. 5 - Exam</p> |  |

## MMO-MUG TEST

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Incubation start and end dates and times are also recorded on the bench sheet, in order to demonstrate that the samples were interpreted within the allowable time frame for the media being used. Colilert®, Colilert-18® and Colisure® are three common forms of MMO-MUG media used in the laboratory. Each media has been designed so that samples are interpreted within a specific time frame, which represents the optimum time period for coliform and E. coli growth. If a sample is incubated past the allowable time period for a particular media, false positives may occur. False positives can occur when background bacteria overcome inhibitors designed to suppress growth of non-coliform bacteria.

For every batch of samples analyzed and recorded on the bench sheet, positive and negative controls (or quality control samples) are also analyzed and recorded. A batch of samples is defined as no more than 60 samples analyzed within a four-hour period. The purpose for these controls is to demonstrate that a known negative and a known positive can produce the expected results (i.e., the negative control does not change colors while the positive control changes colors and fluoresces under a UV light). If the controls fail to produce the expected results, the entire batch is considered invalid.

**Incubator Temperature Records:** Growth of bacteria is highly dependent on the temperature at which they are incubated. The incubator temperature record demonstrates that the incubator is being kept at an optimum temperature for coliform growth. When using MMO-MUG media, coliform bacteria grow best when incubated at 34.5 °C to 35.5 °C. Therefore, in addition to quality control samples, routine monitoring of the incubator temperature is a critical aspect of analyzing for coliforms and helps ensure that the incubator has maintained the optimum temperature. Monitoring is done by placing a calibrated thermometer on each sample shelf and then recording temperatures twice per day (for example, once in the morning and then once again in the afternoon at least four hours later).

For questions about this article or the subject matter, please contact Ohio EPA's Division of Environmental Services (DES), Laboratory Certification Section at (614) 644-4245.

## ONLINE PAYMENT OPTIONS

Most invoices issued by Ohio EPA may now be paid through our online eBusiness Center with a credit card or by debiting your bank account through the Automated Clearing House (ACH). The payment options for the DDAGW program currently include fees for operator certifications and licenses to operate public water systems.

To view this page, please visit <https://ebiz.epa.ohio.gov>. An online account is required.

A service fee of 2.2% of the total amount owed will be charged for payments made by credit card.

There is no service fee for ACH payments, but they do require an Ohio EPA eBusiness Center Personal Identification Number (PIN). If you have a PIN for another eBusiness service, that same PIN may be used to pay by ACH. If you do not have a PIN, you may request one by completing the form available at the eBusiness Center.

For support, please contact Ohio EPA weekdays from 8 a.m. – 5 p.m. at (877) 372-2499.



## COMPLIANCE-BASED REDUCTION OF DBPs IN OHIO

The State of Ohio completed the transition to Stage 2 Disinfection/Disinfectant Byproduct (DBP) Rule (Stage 2 Rule) from the Stage 1 DBP Rule in January 2013. Since that time, public water system (PWS) operators have worked diligently with Ohio EPA to take a multifaceted approach to reducing DBP formation. As a result, water quality in Ohio’s distribution systems has drastically improved.

The operational evaluation level (OEL) is one piece of the Stage 2 Rule contributing to improved water quality in distribution systems. The purpose of the OEL is to serve as a warning to utilities that DBP levels are approaching an exceedance of the maximum contaminant level (MCL). Beginning with the transition from the Stage 1 DBP Rule to the Stage 2 Rule in 2012, Ohio has seen 85 PWSs exceed the OEL at least once for either TTHM or HAA5. Of those 85 systems, 62 have exceeded the MCL for either TTHM or HAA5.

Ohio PWSs are using a variety of methods to reduce DBP levels in order to comply with the Stage 2 Rule. Methods include optimization of operations through adjusting coagulant dosage, reducing pre-chlorination, and implementing flushing programs, including the use of automatic flush hydrants. Other Ohio utilities have intensified the fight to reduce DBPs by installing treatment, including granular activated carbon (GAC) filters for removal of DBP precursors, passive and active mixing, as well as aeration in clear wells and storage tanks to remove formed DBPs. Many other strategies for DBP reduction are available; there is no “one-size fits all” plan, but utility operators and managers should use the best method for their water system.

Responses to elevated DBP levels may vary, but will generally fall into one of the following three categories:

| 1) Investigation  | 2) Operational Optimization  | 3) Treatment Installation  |
|---|--|--|
| Collect special purpose samples at significant locations to identify problem areas. | Implement preventive tank maintenance programs, increase mixing and reduce turnover time in tanks. | <u>Remove DBP precursors</u> at the plant through enhanced coagulation/softening, activated carbon adsorption, anion exchange, and/or membrane filtration. |
| Use on-site analyzers to reduce sample result turnover time.                        | Perform scheduled distribution flushing programs to reduce water age.                              | <u>Remove DBPs after formation</u> through tank mixing/aeration or biological filtration.  |
| Identify the source of high DBPs.   | Manage chlorine residuals at all points in distribution.   |  |

*Continued on page 4*

### COMPLIANCE-BASED REDUCTION OF DBPs

What happens if my system exceeds the OEL and/or the MCL?

*Continued from page 3*

Many PWSs initiate an investigative process in order to mitigate high DBP levels before their system exceeds the OEL. It is especially important for purchased water systems to identify a starting point for DBP levels at the point of purchase from the wholesaler because remediation might not be worthwhile. Special purpose sampling for all systems with high DBPs will help to identify the areas of concern. If operational modifications are made it is a good idea to only make one change at a time in order to identify what type of impact the change has made.

When a PWS exceeds the OEL, they will first be contacted by Ohio EPA with a request to complete an OEL report addressing water treatment, distribution and storage in relation to DBP levels. Ohio EPA staff will be available to help identify the problem and make necessary modifications to reduce DBPs. If the OEL is exceeded in future quarters, the system will be required to re-submit the report with additional information related to any progress made since the last exceedance.

If a PWS exceeds both the OEL and MCL in the same quarter, it is required to complete the OEL report in addition to the public notice for the violation. Continued exceedance of the MCL will result in initiation of an enforcement action by Ohio EPA. It is highly recommended that PWS operators and managers take a proactive approach to operational control of DBP formation beginning at the moment high levels are reported. The OEL and other investigative tools, shown in the table on page 3, should be used to identify the problem and ensure that necessary changes are made in an effort to provide the best product to the customers and to avoid violation of the Stage 2 Rule.

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### OHIO EPA's eDOCUMENT SEARCH

In an effort to make public documents more easily available, Ohio EPA has created the eDocument (eDoc) Search, designed to improve efficiency; reduce costs; and greatly improve the public's ability to access Ohio EPA's public records from anywhere without incurring copying costs.

The system currently includes the following document types, with a few exceptions.

Jan. 1, 2007 - Current

|                                      |  |
|--------------------------------------|--|
| Bilateral Compliance Agreement (BCA) | Director's Final Finding and Orders (DFFO) |
| Judicial Order                       |  |
| Rescission                           | Notice of Violation (NOV)                  |
| Warning Letter                       | Return to Compliance (RTC)                 |



As of Sept. 30, 2014, all outgoing documents going forward pertaining to the following:

|   |                              |
|---|------------------------------|
| Adjudication                            | Appeal                       |
| Assessment                              | Compliance Notification      |
| Cost Recovery                           | Covenant                     |
| Director's Authorization                | General Correspondence       |
| Inspection or Compliance Review         | Lab Certification            |
| Long-Term Planning for Regulated Entity | Monitoring or Sampling       |
| Non-permit Related Exemptions           | Non-permit Related Variance  |
| Ohio EPA Monitoring                     | Permit – Intermediate        |
| Permit – Long-Term                      | Permit – Short-Term          |
| Plan                                    | Referral to Attorney General |
| Registration                            | Remediation Report           |
| Remediation Response                    | Report                       |
| Settlement Cost Recovery                | Technical Assistance         |
| UIC Monitoring Report                   | Verified Complaint           |

As of Dec. 15, 2014, most incoming documents pertaining to all of the document types above are being added as they are created, but there is no backlog before that date. The only exception are those documents that come into the agency typically bound (large documents usually spiral bound or contained in binders.) The agency plans to add these going forward in 2015.

To get started with Ohio EPA's eDocument Search, visit [epa.ohio.gov/dir/publicrecords](http://epa.ohio.gov/dir/publicrecords). This site provides frequently asked questions, search tips, a quick start video and a link to start a search.

Currently, there are more than 112,000 documents loaded into eDoc and available for use. Ohio EPA has an estimated 8 million documents to eventually upload into the system. It is the agency's intent to load documents based on the amount the document is requested, the usefulness of the document to the public and agency staff and the document's retention schedule.



Have questions?  
Need help?  
Click here to visit  
the Answer Place.

DEAR ANSWER PLACE:

I heard we can make credit card payments for operator certification online. Is this true?

- J.D.

DEAR J.D.:

Yes! The Operator Certification Unit has been added to the Ohio EPA eBusiness Center or eBiz. Operators may apply for examinations, submit Third Party Exam Certification applications and renew their certifications online. eBiz will accept credit card and electronic check payments. To learn more, click on the eBiz tab at [epa.ohio.gov/ddagw/opcert.aspx](http://epa.ohio.gov/ddagw/opcert.aspx).

- Answer Place

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## OHIO EPA'S SPIGOT NEWS

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## RULE-MAKING ACTIVITIES

Below is a brief summary of recent and upcoming rule changes. For more details, including notice of opportunities to comment on draft rules, sign up for our electronic mailing list, or visit us on the web at [epa.ohio.gov/ddagw](http://epa.ohio.gov/ddagw).

### *Recently adopted*

- Laboratory Certification rules in Chapter 3745-89 of the Administrative Code and Laboratory Manuals (effective May 4, 2015)

### *Interested Party Review (IPR)*

- Revised Total Coliform Rule (RTCR); propose to file, tentatively Fall 2015
- Water Well Standards in Chapter 3745-9 and Plan Approval rules in Chapter 3745-91 of the Administrative Code; second round of IPR, tentatively Summer 2015
- Underground Injection Control amendments in Chapter 3745-34 of the Administrative Code; second round of IPR, tentatively Summer 2015
- Backflow Prevention & Cross-Connection Control amendments in Chapter 3745-95 and additional rule amendments in Chapter 3745-91 and 3745-96 of the Administrative Code; second round of IPR held Jan. 2015; propose with JCARR, tentatively Summer 2015

### *In The Works*

- Early Stakeholder Outreach (ESO) for rules covering harmful algal blooms for PWSs, June 1—June 30, 2015
- ESO for rules covering Operator Certification, May 27—June 24, 2015
- ESO for rules covering Secondary Drinking Water Standards and Emergency Loans, May 11—June 5, 2015
- ESO for rules covering Contingency Plan Requirements for PWSs, May 6—June 3, 2015
- ESO for rules covering Plan Approval and Consumer Confidence Reports, April 1—April 30, 2015
- ESO for rules covering Approval Criteria for Treatment Technologies and General Planning, March 20—April 20, 2015
- Finalized 2015-2017 DDAGW Rule-Making Plan, March 9, 2015

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## RECEIVE THE SPIGOT NEWS

**The Spigot News is sent only to subscribers!** Sign up to receive it in electronic form at [http://ohioepa.custhelp.com/cgi-bin/ohioepa.cfg/php/enduser/doc\\_serve.php?2=subsriptionpage](http://ohioepa.custhelp.com/cgi-bin/ohioepa.cfg/php/enduser/doc_serve.php?2=subsriptionpage).

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*Ohio EPA has a new look!*

