

# The Pipeline

Drinking Water Laboratory  
Policy & Procedures Update

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## Reporting Requirement Reminder - New Public Notification Requirements

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All chemical SSRs are due in the Division of Drinking and Ground Waters office by the tenth day following the month in which the chemical analyses are completed, and by the tenth day following the month in which a sample is collected for microbiological analysis (Ohio Administrative Code 3745-89-08(A)). It is very important that SSRs are in our office by the deadline in order to prevent violation letters from being sent to systems that actually completed the monitoring during the correct time period.



Also, all chemical MCL exceedances, positive bacteria results, and all repeat bacteria sample results must be reported to Ohio EPA, Division of Drinking and Ground Waters, by no later than the end of the next business day after results are obtained, as specified in OAC 3745-89-08. The new public notification requirements, which went into effect January 1, 2003, require public water systems to contact Ohio EPA within 24 hours of an acute violation. Therefore, laboratories should also immediately notify their client public water systems of all MCL exceedances and positive bacteria results. For questions regarding this information, please contact Todd Kelleher at (614) 644-2752.

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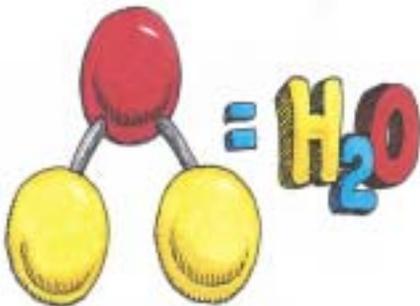
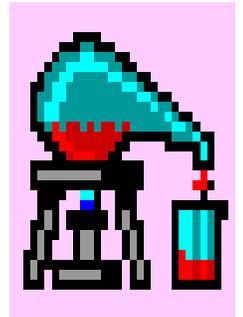
## Radium 228 Monitoring

The 2003 chemical monitoring schedules were mailed to the public water systems in early December 2002. In addition to the standard radiological requirements, all community systems are scheduled to monitor once for radium 228 during a specific month (January thru November, based on their PWS number). The results of this monitoring will be used to determine which systems are eligible for reduced radiological monitoring under the new radiological rule which becomes effective in 2004. If you have questions regarding the radiological monitoring, please contact Wendy Sheeran at (614) 644-2752.

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## Bromocresol Green/Methyl Red Color Variations

The color end point for the total alkalinity titration has become more difficult to determine for some if not all of the laboratories. The color of the end point has been varying slightly between different manufacturers/suppliers as well as some lots of the indicator. In order to try and maintain consistent and correct alkalinity data throughout the State we need to implement a new QA step for the alkalinity titration.



Laboratories should have all approved analysts verify the pH of the total alkalinity end point they are determining by color at least once each month, and whenever a new bottle of indicator is opened. A record of the pH verifications by the analysts should be maintained in the laboratory. The record should contain the date, the analyst, and the pH of every confirmation attempt, at a minimum. If the laboratory is unable to demonstrate that their analysts can titrate to a pH of 4.5 +/- 0.2 on a consistent basis, the Laboratory Certification Office will require the laboratory to use a pH meter to determine the alkalinity endpoints.

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### Glassware Cleaning

The survey officers have been noticing in many laboratories that the cleanliness of the test vials used for the DPD chlorine test and the turbidity tests are not acceptable. High blank values and erroneous test results have resulted from this slovenly practice.



Laboratories must maintain their test vials in a manner that the vials are not altering the results of the tests. The test vials used should be kept scrupulously clean to assure accurate results which means that they must be cleaned using laboratory detergent and a tube brush (daily or weekly depending on how often it is used).

The vials for both of these test should be considered consumable items for the laboratory and be replaced as needed. Highly stained or scratched vials that cannot be appropriately cleaned must be replaced.

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### Sample Analysis Problems

If your laboratory is unable to report valid results for a drinking water sample due to QA/QC problems, please send a written explanation of the problem(s) to Ohio EPA, Division of Drinking and Ground Waters, Chemical Monitoring and Compliance Unit, and include whether or not the sample was analyzed (Note: A sample should not be analyzed if there are known QA/QC problems realized upon sample receipt e.g. wrong preservative; holding time exceeded). Also, it is important that you contact your client public water system of the problem immediately in case a resample is needed. The Division of Drinking and Ground Waters has reminded water systems to sample early in the compliance period in case there

are problems with the samples and resamples need to be taken. A reminder from the laboratories may help to reinforce this point.

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### Diazomethane Generation

Several laboratories running method 515.1 (Rev. 4.0) have been experiencing problems purchasing diazald from any vendor. USEPA personnel are aware of this situation and have recommended several alternatives to generating diazomethane for the esterification. Trimethylsilyldiazomethane (TMSD) may be used for esterification, this procedure is described in method 515.1(Rev 4.1) section 11.6. This esterification procedure may be used even though Rev 4.1 is **not** an approved procedure. Method 515.3 may also be used to analyze for all the required analytes and method 515.2 may be used for all analytes except Dalapon. Keep in mind, an on-site survey is necessary if you intend to use a new method (515.2 or 515.3).

Copies of the above-mentioned procedures may be obtained on-line at <http://www.nemi.gov> (click on "Search NEMI" then "Browse Methods" then "List of all methods in NEMI").

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### 2003 Microbiological Water Testing Courses



Operator Training Committee of Ohio, Inc. in conjunction with the Ohio EPA/DES Laboratory Certification Section has three microbiological laboratory courses scheduled this year.

- > March 20-21 MMO-MUG Procedure at the Wauseon Water Plant Laboratory
- > June 5-6 MMO-MUG Procedure at the Canton Water Plant Laboratory
- > October 22, 23, 24 MMO-MUG & Membrane Filter at the Del-Co Water Company/Alum Creek Laboratory

Contact OTCO at (614) 268-6826 or go to the OTCO home page at <http://www.ohiowater.org> and click on OTCO Training, Water Short Schools for registration forms, fees, and continuing education **contact hours** for these courses.

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## Micro PT Studies

All certified drinking water microbiology testing laboratories must analyze proficiency test (PT) samples on an annual basis during the September - November time frame. Each laboratory must analyze one set of ten PT samples for **each** method for which they have received certification. A PT sample set may not be split for analysis by two methods.



Acceptable performance for the analysis of **total coliform** bacteria requires the correct analysis of a minimum of 9 out of 10 samples, with no false negative reported values. Acceptable performance for the analysis of **fecal coliform/E. coli** bacteria requires the correct analysis of a minimum of 9 out of the 10 samples, with no false negative reported values. In other words, one false positive may be reported for a total coliform analysis, and one false positive may be reported for a fecal coliform/E. coli analysis, and still receive an acceptable performance.

Please contact James Evans at (614) 644-4222 if you have any questions.

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## Safety in the Microbiology Laboratory

Environmental drinking water laboratories in the certification program deal with opportunistic pathogens. This necessitates strict adherence to good microbiological practices to prevent contamination of the environment and/or laboratory personnel. The following applicable excerpts are from CDC's *Laboratory Biosafety Level Criteria*.

**Biosafety Level 1 (BSL-1)** facilities are suitable for work involving opportunistic pathogens. Work is typically conducted on open bench tops using standard microbiological practices. Special containment equipment or facility construction is not required nor generally used. Laboratory personnel have specific training in the procedures used in the laboratory and have demonstrated proficiency to a scientist with general training in microbiology or a related science.

The following apply to agents assigned to Biosafety Level 1:

### A. Standard Microbiological Practices

1. Access to the laboratory is limited to laboratory personnel during analysis.

2. Analysts wash their hands after handling viable materials, test samples, removing gloves, and before leaving the laboratory.
3. Eating, drinking, smoking, handling contact lenses or cosmetics, and storing food for human consumption are not permitted in the laboratory.
4. Mouth pipetting is prohibited; mechanical pipetting devices are required.
5. Procedures are performed with care to minimize the creation of aerosols or splashing of materials.
6. Work surfaces are decontaminated before and after analysis and after any spill of viable material.
7. All cultures, stocks, and incubated materials are decontaminated in an autoclave before disposal.

### B. Special Practices - None

### C. Safety Equipment (Primary Barriers)

1. It is recommended that laboratory coats or uniforms be worn to prevent soiling or contamination of street clothes. If viable agents are spilled onto clothing, the clothing should be sanitized by washing with chlorine bleach.
2. Protective laboratory gloves should be worn when working with viable materials if the skin on the hands is broken or a rash is present.
3. Protective eye ware should be worn for procedures where splashing of microorganisms or hazardous materials is probable or anticipated.



D. Laboratory Facilities (Secondary Barriers)

1. Laboratories should have doors to control access.
2. Each laboratory, where analysis is conducted, must have a sink for hand washing.
3. Laboratories are constructed of materials that can be easily cleaned and disinfected. Carpets and rugs are not acceptable in microbiological laboratories.
4. Bench tops are impervious to water, resistant to chemicals used in the laboratory, and resistant to solutions used to decontaminate the work surface.



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**Internet Sites:**

The following websites may be useful for drinking water information and regulations.

**Ohio Web Links:**

Fact Sheets:

[www.epa.state.oh.us/ddagw/pubs.html#factsht](http://www.epa.state.oh.us/ddagw/pubs.html#factsht)

PWS Security:

[www.epa.state.oh.us/ddagw/pwswebpg.htm](http://www.epa.state.oh.us/ddagw/pwswebpg.htm)

Arsenic:

[www.epa.state.oh.us/ddagw/arsenicfacts.htm](http://www.epa.state.oh.us/ddagw/arsenicfacts.htm)

Rules:

[www.epa.state.oh.us/ddagw/oac.html](http://www.epa.state.oh.us/ddagw/oac.html)

Operator Cert:

[www.epa.state.oh.us/ddagw/opcert.html](http://www.epa.state.oh.us/ddagw/opcert.html)

Drinking Water Laboratory Certification:

[www.epa.state.oh.us/ddagw/labcert.html](http://www.epa.state.oh.us/ddagw/labcert.html)

Source Water and Assessment Protection (SWAP):

[www.epa.state.oh.us/ddagw/pdu/swap.html](http://www.epa.state.oh.us/ddagw/pdu/swap.html)

Drinking Water Assistance Fund:

[www.epa.state.oh.us/ddagw/dwaf.html](http://www.epa.state.oh.us/ddagw/dwaf.html)

CCR:

[www.epa.state.oh.us/ddagw/ccr.html](http://www.epa.state.oh.us/ddagw/ccr.html)

Publications:

[www.epa.state.oh.us/ddagw/pubs.html](http://www.epa.state.oh.us/ddagw/pubs.html)

**Federal Links:**

Approved Analytical Methods:

<http://www.epa.gov/OGWDW/methods/comprn.html>

Publications:

<http://www.epa.gov/safewater/Pubs/index.html>

Lab Cert. Bulletin:

<http://www.epa.gov/safewater/certlab/labcert.html>

NVLAP:

<http://ts.nist.gov/ts.htdocs/210/214/214.htm>

Code of Federal Regulations:

<http://www.access.gpo.gov/nara/cfr/index.html>

NERL Laboratory:

<http://www.epa.gov/NERL/>

USEPA Methods (PDF):

<http://www.nemi.gov>



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