

Ohio EPA Laboratory Certification Updates and Tips

OTCO Water Laboratory Webinar
May 18, 2022

Overview

- Fee Change
- Applications
- Survey Tips
- Cyanotoxin & Cyanobacteria Certification
- Method Detection Limits
- Lab Certification Since March 2020
- The Future of Laboratory Certification
- Tips for Remote Surveys

Fee Change

- July 1, 2021: The fee for interim authorization or adding an analyst/method was reduced from \$1,800 to \$500!!
- Decreases need for early renewals.



Applications - Chemistry



Ohio EPA Office Use Only			
Application ID:		Type:	<input type="checkbox"/> Standard Chemistry <input type="checkbox"/> Limited Chemistry
Received:	/ /	Approved:	/ /
Revenue ID:		Fee Applied:	

Chemical Application for Certification

Application for (check applicable boxes):

Initial Renewal Add Analyst(s) Add Method(s)

Name of Laboratory:							
Laboratory Certification Number:							
Mailing Address:							
City:				State:		Zip:	-
Laboratory Address:							
City:				State:		Zip:	-
Phone Number:	() -	Extension:		Fax Number:	() -		
Email Address:					County:		
Ohio EPA District:							
Name of Primary Contact for the Laboratory:							
		<i>First</i>		<i>Middle Initial</i>		<i>Last</i>	
Email Address to Send Invoices:							
Date Laboratory Certification Expires:				/ /			

NOTICE

In order to be processed, the most current version of the application must be used, and it must be complete and legible. The most current version is located on our website at <https://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/public-water-systems/laboratory-certification>. After acceptance of this application, an invoice will be generated. Additionally, the lab must have copies of all referenced methods and an acceptable SOP, or the most current version of the Ohio EPA lab certification manual.

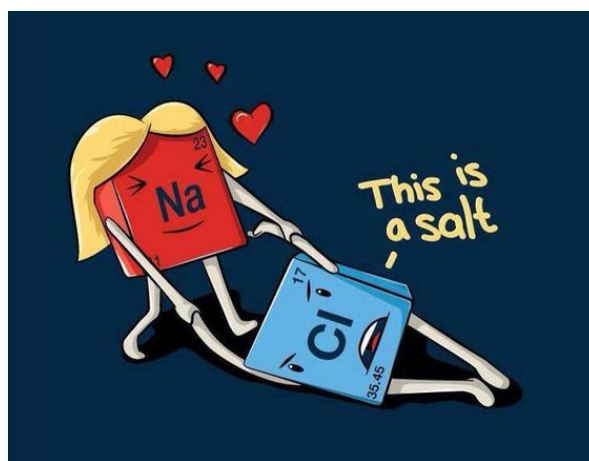


Applications - Chemistry

Analyst Information:

- List analyst name and analyst number.
- Identify if an analyst is seeking Certification or Operational Certification.
- Mark NEW if an analyst is new to this laboratory or is changing status.
- Identify the analyte(s) for which each analyst is seeking certification. The abbreviated test methods are listed on page 3.

Analyst Name and Analyst Number	Certified	Operationally Certified	NEW	Alkalinity	Chlorine	Fluoride	Hardness	pH	Stability	Turbidity	Chloride	Chlorite	Chlorine Dioxide	Nitrate	Nitrite	Bromide	Orthophosphate	Phosphorous	Sulfate	TDS	TOC/DOC	Cyanide	UV 254	Other
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Applications - Chemistry

Test	Select Method(s) in use. If not listed, please list method reference.									
Alkalinity	<input type="checkbox"/>	SM 2320 B	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Bromide	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Chloride	<input type="checkbox"/>	SM 4500 Cl-B	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Chlorine	<input type="checkbox"/>	SM 4500 Cl-D	<input type="checkbox"/>	SM 4500 Cl-F	<input type="checkbox"/>	SM 4500 Cl-G	<input type="checkbox"/>	<input type="checkbox"/>		
Chlorite	<input type="checkbox"/>	SM 4500-ClO ₂ -E	<input type="checkbox"/>	ChloroX Plus - Palintest	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
ClO ₂ : Chlorine dioxide	<input type="checkbox"/>	SM 4500 ClO ₂ -D	<input type="checkbox"/>	SM 4500 ClO ₂ -E	<input type="checkbox"/>	ChloroX Plus - Palintest	<input type="checkbox"/>	<input type="checkbox"/>		
Cyanide	<input type="checkbox"/>	SM 4500 CN-C	<input type="checkbox"/>	SM 4500 CN-E	<input type="checkbox"/>	QuikChem 10-204-00-1-X	<input type="checkbox"/>	EPA 335.4		
Fluoride	<input type="checkbox"/>	SM 4500 F-C	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Hardness	<input type="checkbox"/>	SM 2340 C	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>		
Nitrate	<input type="checkbox"/>	SM 4500 NO ₃ -E	<input type="checkbox"/>	SM 4500 NO ₃ -F	<input type="checkbox"/>	Hach 10206, Rev 2.0 Nitrate TNT System	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>	EPA 353.2
Nitrite	<input type="checkbox"/>	SM 4500 NO ₂ -B	<input type="checkbox"/>	SM 4500 NO ₂ -E	<input type="checkbox"/>	SM 4500 NO ₂ -F	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>	EPA 353.2
Ortho - P	<input type="checkbox"/>	SM 4500 P-E	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
pH	<input type="checkbox"/>	SM 4500 H*	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Phosphorous	<input type="checkbox"/>	SM 4500 P-B and E	<input type="checkbox"/>	SM 4500 P-B and F	<input type="checkbox"/>		<input type="checkbox"/>	EPA 365.1	<input type="checkbox"/>	
Stability	<input type="checkbox"/>	SM 2330 CaCO ₃ Saturation			<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sulfate	<input type="checkbox"/>	SM 4500 SO ₄ -C	<input type="checkbox"/>	SM 4500 SO ₄ -D	<input type="checkbox"/>	SM 4500 SO ₄ -E	<input type="checkbox"/>	EPA 300.0	<input type="checkbox"/>	
TDS	<input type="checkbox"/>	SM 2540 C	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
TOC/DOC	<input type="checkbox"/>	SM 5310 B	<input type="checkbox"/>	SM 5310 C	<input type="checkbox"/>	SM 5310 D	<input type="checkbox"/>	EPA 415.3	<input type="checkbox"/>	
Turbidity	<input type="checkbox"/>	SM 2130 B	<input type="checkbox"/>	Hach Method 10258 Turbidity by 360° Nephelometry			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
UV 254	<input type="checkbox"/>	SM 5910 B	<input type="checkbox"/>	EPA 415.3	<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

OATH

I certify that all of the information included on this application is true, complete and correct to the best of my knowledge and belief and are made in good faith. I affirm the right of the Ohio Environmental Protection Agency to inspect the laboratory, its operations and pertinent records. I agree the personnel to be approved will analyze applicable unknown performance samples provided at the time of the survey and will report the values within a time period designated by the Laboratory Certification Officer.

Signature of Primary Contact for Laboratory:		Date:	/ /
Title of Primary Contact for Laboratory:			

Send completed applications to:

DWLabCert@epa.ohio.gov



Applications – Chemistry-IA

Analyst Information:

- List analyst name and analyst number (if they have one).
- Identify if an analyst will be seeking Certification or Operational Certification at the time of the on-site survey.
If this application is approved, the analyst is only permitted to perform operational testing until successful completion of an on-site survey.
- Identify the analyte(s) for which each analyst is seeking certification. *The abbreviated test methods are listed below.*

New Analyst Name	Analyst Number (if applicable)	Certified	Operationally Certified	Alkalinity	Chlorine	Fluoride	Hardness	pH	Stability	Turbidity	Chloride	Chlorine Dioxide
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Trainer Information: Identify the analyst/trainer, analyst number, expiration date on analyst certificate and the tests for which they are certified.

Analyst/Trainer Name	Analyst Number	Expiration Date on Current Analyst Certificate	Alkalinity	Chlorine	Fluoride	Hardness	pH	Stability	Turbidity	Chloride	Chlorine Dioxide
		/ /	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		/ /	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Applications – Chemistry IA

Interim Authorization Training Documentation

Laboratory Name: _____
Date Training Started: ____ / ____ / ____

Name of Operator-In-Training: _____
Date Training Concluded: ____ / ____ / ____

Instructions: Samples must be collected at the same time and from the same source. A minimum of twenty days of results are required for all analyses, except stability which requires four sets of results performed on different days. Record the operator-in-training (OIT) results in “OIT” boxes and trainer results in “T” boxes. To be considered acceptable, the OIT results must be $\pm 10\%$ of the trainer’s results, with the exception of pH and turbidity. For pH, the OIT results must be within ± 0.1 pH units of the trainer’s results. For turbidity results ≥ 0.3 NTU, the OIT results must be $\pm 10\%$ of the trainer’s results. For turbidity results < 0.3 NTU, the OIT results must be within ± 0.03 NTU. Circle all results which are not acceptable and describe any corrective actions on page 5.

Corrective Actions for Unacceptable Results

Date of Unacceptable Result	Test	Trainer Name	Corrective Action Taken
/ /			
/ /			

OATH: I certify that all of the information above is complete and accurate to the best of my knowledge and belief. The operator-in-training has demonstrated adequate proficiency for the specified test(s) and will comply with all rules and conditions regarding laboratory certification.

Signature of Trainer:		Date:	/ /
Signature of OIT:		Date:	/ /

Applications - Microbiological

Analyst Information:

- List analyst name and analyst number.
 - Identify if an analyst is seeking Certification or Operational Certification.
 - Mark NEW if an analyst is new to this laboratory or is adding a method.
 - Identify the method(s) for which each analyst is seeking certification.
- If the method is not listed, choose **OTHER** and then list the method in the box below.*



Analyst Name and Number	Certified	Operationally Certified	NEW	MMO-MUG (SM 9223-B)			QUANTI-TRAY (SM 9223-B)			Membrane Filtration EC MUG SM 9222 B and G	OTHER
				COLILERT 24	COLILERT 18	COLISURE	COLILERT 24	COLILERT 18	COLISURE		

OTHER:

Applications – Micro IA

Analyst Information:

- List analyst name and analyst number (if they have one).
- Identify if an analyst will be seeking Certification or Operational Certification at the time of the on-site survey. ***If this application is approved, the analyst is only permitted to perform operational testing until successful completion of an on-site survey.***
 - Identify the method(s) for which each analyst is seeking certification.

New Analyst Name and Analyst Number (if applicable)	Certified	Operationally Certified	MMO-MUG (SM 9223-B)			QUANTI-TRAY (SM 9223-B)		
			COLILERT 24	COLILERT 18	COLISURE	COLILERT 24	COLILERT 18	COLISURE

Trainer Information: Identify the analyst/trainer, analyst number, expiration date on analyst certificate and the tests for which they are certified.

Analyst/Trainer Name	Analyst Number	Expiration Date on Current Analyst Certificate	MMO-MUG(SM 9223-B)			QUANTI-TRAY (SM 9223-B)		
			COLILERT 24	COLILERT 18	COLISURE	COLILERT 24	COLILERT 18	COLISURE

Applications – Micro IA

Interim Authorization Training Documentation

Laboratory Name: _____
 Date Training Started: _____

Name of Operator-In-Training: _____
 Date of Training Concluded: _____

Instructions: Analysts are required to analyze a minimum of seven samples per day, including the quality control (QC) samples. **It is recommended that at least one potentially positive sample be included.** Results must be generated in parallel with a trainer currently certified for SM 9223-B. Record the operator-in-training results in "OIT" boxes and trainer results in "T" boxes. To be considered acceptable, the OIT results must contain no false negatives and no more than one false positive in comparison to trainer results. Circle all results with a false negative or a false positive and describe any corrective action(s) on page 4.

Test Method		Date (Month/Day):							Date (Month/Day):							Date (Month/Day):							
		QC		Samples					QC		Samples					QC		Samples					
		+	-	1	2	3	4	5	+	-	1	2	3	4	5	+	-	1	2	3	4	5	
	OIT	+/+	-/-	-/-	-/+	-/-	-/-	-/-															
	T																						
	OIT																						
	T																						
	OIT																						

Applications - Issues

- Not using current version
- Incorrect information
- Unacceptable parallel testing
 - Take samples at same time
 - Use acceptable trainers
- Send renewal applications on time.
- Mailing or Faxing
 - Only email to dwlabcert@epa.ohio.gov



Survey Tips - Chemistry

- QC requirements on first page of each method in the manual
- Never pipette directly out of a standard bottle
- Pat, don't wipe electrodes after rinsing
- Dry chlorine and turbidity vials with lint-free wipes
- Dry secondary chlorine standards with lint-free wipes
- Verification of alkalinity endpoint by pH 4.5
- Hach TU 5200 has a different Method Number

Alkalinity Analysis by Sulfuric Acid Titration Method		
Quick Reference	Standard/Reagent	Requirements
Standard/Reagent Storage	0.020 N Sulfuric Acid (H ₂ SO ₄)	Manufacturer's Recommendations
	Indicator (Bromocresol Green/ Methyl Red)	Manufacturer's Recommendations
	Sodium Thiosulfate	Manufacturer's Recommendations
	0.020 N Sodium Carbonate (Na ₂ CO ₃) Standard	Manufacturer's Recommendations
Standard/Reagent Expiration	Standard/Reagent	Expiration
	0.020 N Sulfuric Acid (H ₂ SO ₄)	1 Year After Opening/ Manufacturer's Expiration Date
	Indicator (Bromocresol Green/ Methyl Red)	1 Year After Opening/ Manufacturer's Expiration Date
	Sodium Thiosulfate	1 Year After Opening/ Manufacturer's Expiration Date
Required Quality Control	0.020 N Sodium Carbonate (Na ₂ CO ₃) Standard	1 Year After Opening/ Manufacturer's Expiration Date
	QC Procedure	Frequency
	Standardize Titrant	Once Per Month
Sample Collection	pH 4.5 Endpoint Verification	Once Per Month
	Preservation	Maximum Hold Time
	4°C	14 Days

Method Reference

Standard Methods 22nd Edition (2320)

On-Site Survey Requirements

- Each certified analyst must be able to perform the alkalinity titrant standardization described in Section 7.0 of this method.
- Operationally certified analysts will be required to analyze a plant tap sample and may be required to analyze a performance sample.
- Procedural technique will be observed.
- All reagents, standards and solutions used for this method will be audited for correct labeling and dating.
- All records will be audited.

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Survey Tips - Micro

- **Reagent water** quality (indicator light) - verify prior to use
- **Incubator temperatures** must be recorded on weekends if samples are being incubated
- **Autoclave timer** must be checked only at times used (e.g., 15, 30, 45)
- **Balance verification** must be done prior to use
- **Sampling instructions** for micro samples requires analyzing for chlorine residual after disinfection of sample tap

MMO-MUG Analysis for Total Coliform and <i>E. coli</i> by Colilert and Colisure		
Quick Reference	Standard/Reagent/Equipment	Requirements
Standard/Reagent/Equipment Storage	MMO-MUG Reagent	Colilert – Dark Environment and Manufacturer's Recommendations Colisure – Refrigerated and Manufacturer's Recommendations
	Chemical Reagents	Manufacturer's Recommendations
	Dehydrated Media	Manufacturer's Recommendations
	Media Performance Check Cultures	Manufacturer's Storage Requirements
	Prepared Media	Refrigerated/Room Temperature
	pH Electrodes	pH 7 Buffer/Manufacturer's Storage Solution
	pH Buffers	Room Temperature
Standard/Reagent Expiration	Standard/Reagent	Maximum Storage Time
	MMO-MUG Reagent	Manufacturer's Expiration Date
	Chemical Reagents	Manufacturer's Expiration Date
	Dehydrated Media	6 Months After Opening or 1 Year After Opening if Stored in Desiccator
	10% Sodium Thiosulfate	1 Year After Preparation/ Manufacturer's Expiration Date
	Media Performance Check Cultures	Manufacturer's Expiration Date
	Prepared Media	3 Months Refrigerated (screw-capped tubes/flasks/vessels) or 1 Week Room Temperature (sealed/covered)
Required Quality Control	pH Buffers	6 Months After Opening/ Manufacturer's Expiration Date
	QC Procedure	Frequency
	Total Coliform/ <i>E. coli</i> positive	Once Per Month Per Analyst
	Sample/Test Bottle Sterility Check	One Per Batch Prepared or 1% Per Lot Received (maximum of 4 per lot)
	Sample/Test Bottle Fluorescence Check	Every Sample/Test Bottle Prepared or 1% Per Lot Received (maximum of 4 per lot)
	Media Performance Check	Once Per Batch
	MMO-MUG Reagent Check	Once Per Lot and Annually
Sample Collection	Glass/Electronic Thermometer/ Data Logger Calibration	Annually
	Dial Thermometer Calibration	Once Every Three Months
	Equipment Timers	Once Every Three Months
	pH Meter Calibration	Prior to Use
	pH Linearity/Slope/pH 4 Buffer	Prior to Use
	Balance Calibration Check	Prior to Use
	Refrigerator Record	Daily
	Incubator Record	Twice Daily
	Preservation	Maximum Holding Time
	10% Sodium Thiosulfate	30 Hours

Survey Tips - Micro

Media Preparation(e.g., TSB, BHI)

- Balance Calibration Record
- pH Meter Slope/Linearity Verification
- Media Quality Control Record
- Autoclave Sterilization Record
 - TSB or BHI at temperature 12-15 min
 - Autoclave door must be opened no later than 45 min after closing

Pre-Made Purchased TSB

- Use manufacturer's expiration date prior to opening.
- Keep all paperwork.

Microbiological Test Data Sheets

- All data from our bench sheets must be recorded to avoid invalidation of sample results.

Survey Tips - Micro

Autoclave Sterility Check

- Required once every three months, per autoclave
- May use biological indicator ampules, following manufacturer's instructions
- May use TSB or BHI, inoculated with a known coliform culture
- Ensure recorded on Autoclave Sterilization Record

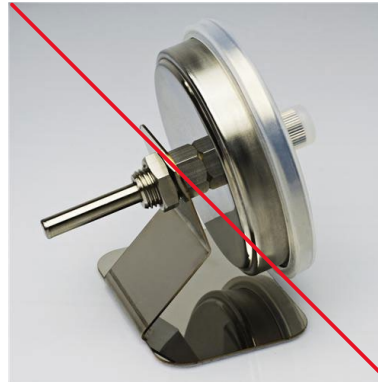
Thermometer Calibration Record

- Must first include the NIST thermometer's temperature at ice point
- Recommend including each thermometers serial number
- MRTs are not calibrated with NIST
- Autoclave Dial (Display) Thermometers are not required to be calibrated unless fast exhaust is used.

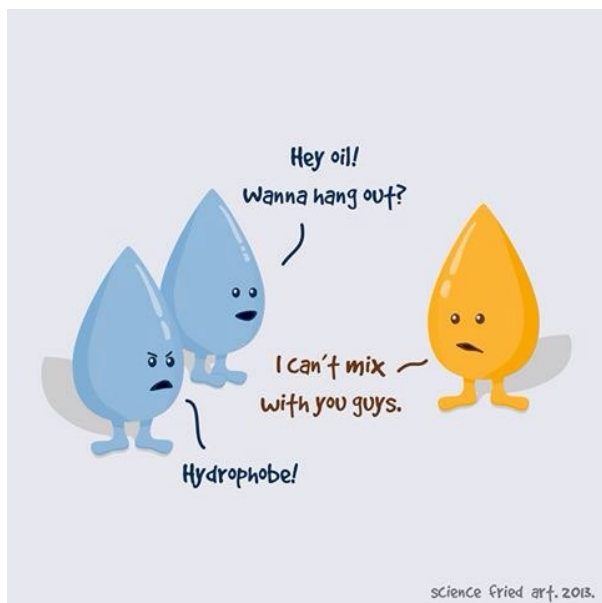
Survey Tips - Micro

Maximum Registering Thermometers (MRTs)

- Typically calibrated by Lab Certification staff
- Ohio Revised Code 3734.63, *Sale of mercury-containing thermometer* for promotional purposes.
 - If required to comply with federal law, these can be sold and distributed.
- Dial autoclave thermometers are not permitted.



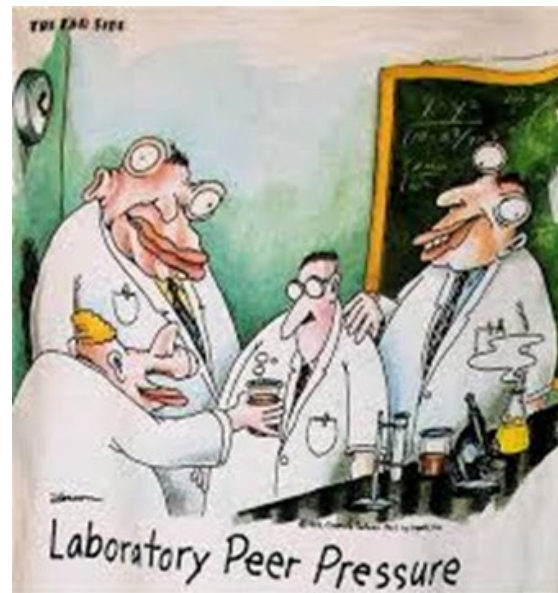
Survey Tips - General



- Update bench sheets to version in 2020 manuals.
- Ensure all laboratory records are recorded **using ink** and are printed legibly.
- Errors? Cross out with 1 line, initial, add correct information. **No White Out!!**
- **Include results to the 10th** (e.g., 121 is 121.0)
- Avoid eating or drinking in the lab.
- **Annual review of manual(s)**

Survey Tips - General

- If it's not written down, it didn't happen.
- Sorry, "But we've always done it that way..." doesn't supersede current requirements.



Cyanotoxin & Cyanobacteria Certification

- Annual MDLs and curves as well as associated test data are to be sent to the dwlabcert@epa.ohio.gov email.
 - **DO NOT** send these to past certification staff.
 - No qualifiers permitted for MDL studies.
- To add a new analyst for Cyanotoxin and/or Cyanobacteria certification between renewal periods:
 - For microcystin: submit their MDL study, including associated test data and calibration curves
 - For qPCR: submit calibration curves and sample results. A survey will be scheduled.
- SOPs for microcystin and qPCR are available on our Lab Certification website.
- Reporting Limit changes are coming from DDAGW.
 - 2023 MDLs will have to meet any new reporting limit.

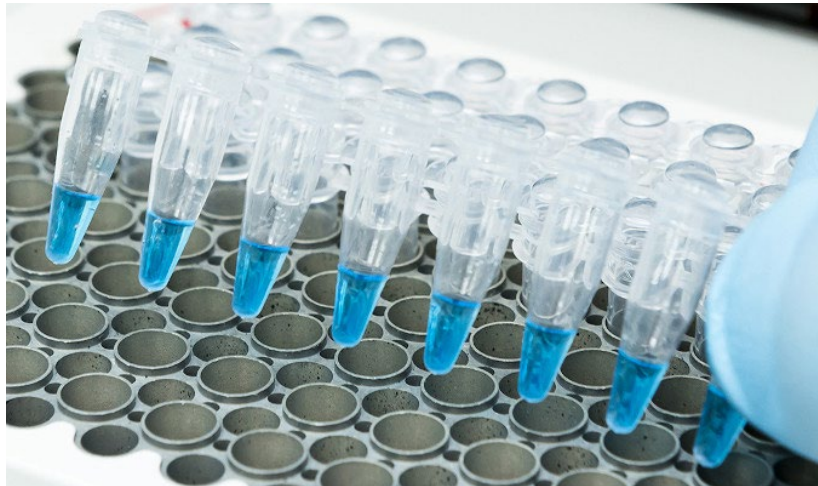
Survey/MDL Tips - Microcystins

- Disinfect the countertop before setting up for analysis.
- Ensure sample vials are on their sides when freezing.
- Ensure samples are shaken prior to pouring off **AND** before filtering.
- Please review MDLs prior to submitting and don't send if they have clearly failed.
- Review the manual and know the acceptable ranges of %CV values.



Survey Tips - qPCR

- Disinfect the countertop before setting up for analysis.
- Ensure micropipette tips have an aerosol barrier.
- Don't shake the flame off when sterilizing forceps.
- Be able to explain what the BL, NTC and IAC are, as well as what their purposes are.
- Be able to explain what a Ct value is and what it means.



Method Detection Limits (MDLs)

EPA 821-R-16-006 – Definition and Procedure for the Determination of the Method Detection Limit, Revision 2, December 2016

- Applies to all drinking water MDLs **except HABs**.
- Must also be followed for initial MDLs
- Ensure all lab standard operating procedures are updated to reflect this revision.

Annual MDLs should be submitted to dwlabcert@epa.ohio.gov for review.

Method Detection Limits (MDLs)

HELPFUL LINKS

MDL Procedure: https://www.epa.gov/sites/default/files/2016-12/documents/mdl-procedure_rev2_12-13-2016.pdf

Expanded Student t Value Table:

<https://www.itl.nist.gov/div898/handbook/eda/section3/eda3672.htm>

MDL Frequently Asked Questions: <https://www.epa.gov/cwa-methods/method-detection-limit-frequent-questions>

Method Detection Limits (MDLs)

Spike Concentration	0.02	The concentration at which the lab is spiking the MDL sample
Average	0.020	Average of all yearly MDL points
STD Deviation	0.0016	The standard deviation of all yearly MDL points
Student t Value Used	2.896	From chart provided in link*
MDL Result	0.004723	Student-t value \times the standard deviation
MDL Acceptable	YES	Acceptable IF the (spike concentration/MDL result) is LESS THAN 10
Reporting Limits (RLs)	0.02	RLs for primary contaminants are found in the Appendix of Ohio Administrative Code Rule 3745-89-03

*REMEMBER, Student-t values are always n-1.

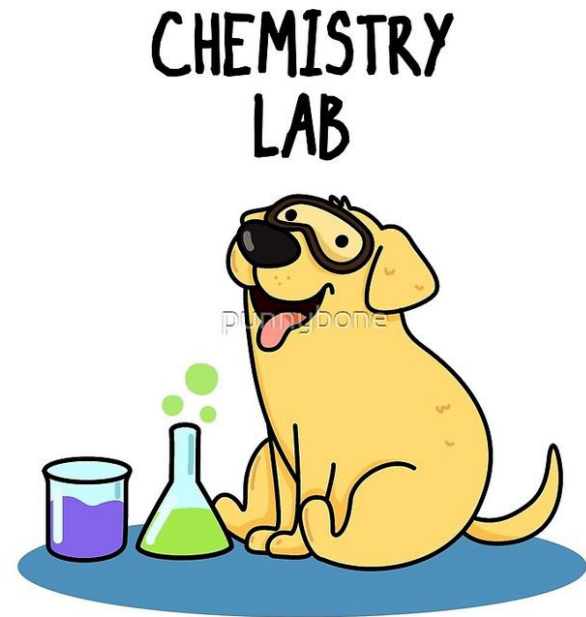
Method Detection Limits (MDLs)

Analyte	Reporting Limit	Calculated		
		MDLb	MDLs	MDL greater
Ammonia	0.0500	0.043	0.023	MDLb
Chloride	5.0000	0.105	0.767	MDLs
COD	20.0000	11.399	15.221	MDLs
Cyanide_Total	10.0000	8.26	1.347	MDLb
Cyanide_WAD	5.0000	2.447	2.821	MDLs
Nitrate_DW	0.1000	0.061	0.04	MDLb
Nitrate	0.1000	0.047	0.035	MDLb
Nitrite	0.0200	0.0048	0.0047	MDLb
Orthophos	0.0100	0.007	0.003	MDLb
Phenol	10.0000	9.413	6.24	MDLb
Sulfate	5.0000	1.463	1.658	MDLs
TKN	0.3000	0.232	0.182	MDLb
TP	0.0200	0.0137	0.014	MDLs

Lab Certification Since March 2020

TIMELINE:

- Friday, March 13, 2020:
 - Our last day in the office.
- Mid-March to June 2020:
 - Worked on plans to remotely survey laboratories
 - USEPA approval in late July 2020
- June to July 2020:
 - Completed most of the HAB renewal surveys
- End of July 2020 to present:
 - Continue to complete surveys remotely.
- Week of April 25, 2022:
 - Staff returned to office twice per week.



Lab Certification Since March 2020

Remote Surveys

- Survey letters and analyst certificates are emailed
- As of today, 601 remote surveys completed

Records

- 100% electronic

Invoicing

- Invoicing now performed by Lab Cert staff

Website

- Lab Cert website recently updated
- <https://epa.ohio.gov/divisions-and-offices/drinking-and-ground-waters/public-water-systems/laboratory-certification>



Laboratory Certification

Certified laboratories analyze drinking water samples for the presence of specific contaminants to help public water systems demonstrate that their water meets health based standards. Ohio EPA's laboratory certification program ensures laboratories are able to perform accurate testing using specific methods which have been approved by U.S. EPA.

Questions? Contact a member of the Laboratory Certification Section

Email: DWLabCert@epa.ohio.gov

Applications

Laboratory Certification

Proficiency Testing

Resources and Reporting

Contacts

Submit applications via DWLabCert@epa.ohio.gov.


DO NOT SEND PAYMENT WITH APPLICATION, WAIT FOR INVOICE.

To Access Applications, Click on the Links Below:

- Chemical (Limited and Standard) ([Word](#)) ([PDF](#))
- Cyanotoxin and Cyanobacteria Screening ([Word](#)) ([PDF](#))
- Trace Metals (Limited and Standard) ([Word](#)) ([PDF](#))
- Microbiological ([Word](#)) ([PDF](#))
- Pesticide-SOC ([Word](#)) ([PDF](#))
- Radiochemistry ([Word](#)) ([PDF](#))
- THM-HAA-VOC ([Word](#)) ([PDF](#))
- Out-of-State Acceptance ([Word](#)) ([PDF](#))
- In-State Acceptance ([Word](#)) ([PDF](#))

Interim Authorization, Click on the Links Below:

- MMO-MUG (SM 9223) Tests ([Word](#)) ([PDF](#))
- Plant Control Tests ([Word](#)) ([PDF](#))

LAUNCH 

[View currently certified/accepted laboratories](#)

Share this



Applications Laboratory Certification Proficiency Testing Resources and Reporting

Contacts

- [Obtaining Laboratory Certification](#)
- [Laboratory Construction and Remodeling Requirements](#)
- [Requirements for Analyst Certification](#)
- [On-site Survey Requirements](#)
- [Issuance of Laboratory Certification](#)

Fee Schedule

Information on the fees assessed for the evaluation and certification of laboratories is available in the [Fee Schedule](#).

Applications Laboratory Certification Proficiency Testing Resources and Reporting

Contacts

- [Drinking Water Proficiency Testing Requirements](#)
- [Required Proficiency Testing Parameters](#)
- [Approved Proficiency Test Providers](#)

Applications Laboratory Certification Proficiency Testing Resources and Reporting

Contacts

Manuals

- Laboratory Manual for [Chemical Analyses](#) of Public Drinking Water
- Laboratory Manual for [Microbiological Analyses](#) of Public Drinking Water
- Ohio EPA Lab Certification: [Total Microcystins Analytical Methodology](#)
- Ohio EPA Lab Certification: [qPCR Analytical Methodology](#)

Reporting

- [Reporting and Data Management](#)
- [Reporting Tips for Laboratories](#)
- [Cyanotoxin Analysis Benchsheets](#)

Additional Information

- [Laboratory Certification Rules](#)
 - NOTE: If you put "3745-89" into the search bar, it will show rules specific to Laboratory Certification.
- [Division of Environmental Services](#)

The Future of Laboratory Certification

- Continuing to adapt.
- 100% electronic: records, applications, survey letters, certificates.
- Interim authorization, HAB/qPCR and some other surveys will stay remote once we are back on the road.

Tips for Remote Surveys

- Make a Microsoft Teams account ahead of time
- Have a device in mind that the lab can use
- Ask questions



Tips for Remote Surveys

- Scan and send documents in sections
- Label appropriately
- Use email or LiquidFiles



Tips for Remote Surveys



The Charger!

Step-By-Step Instructions

January 24, 2018

Electronic Submission of Data to Ohio EPA

Electronic submission of information to Ohio EPA cannot be completed with external devices (jump drives, CDs, etc.). Instead, please complete the following:

1. Go to Ohio EPA's file sharing website: <http://fileshare.epa.ohio.gov/>.



Password
 Remember me

2. Click on the button in the bottom right hand corner to create an account.

Register (non-Ohio EPA users only)

Name
 Email
A confirmation email will be sent to this address. If you are a current Ohio EPA employee, email registration is not required. Click your browser's back-arrow button to return to the main page to use your network credentials.
 Password
 Password Confirmation

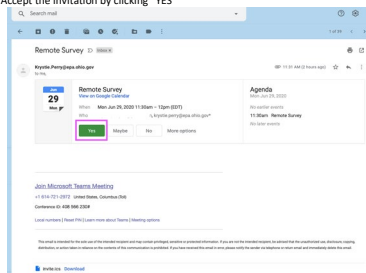
3. Provide your name, email address, and create a password to create an account.

Liquid Files Instructions

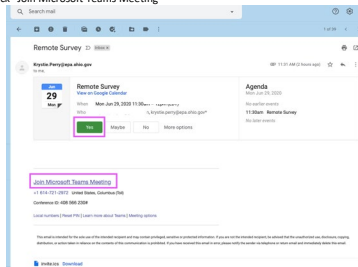
Step-by-Step on Setting up & Joining Microsoft Teams on an Apple Computer

*** Google Chrome browser works best when accessing Microsoft Teams online

1. Accept the invitation by clicking "YES"



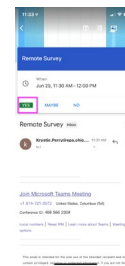
2. Click "Join Microsoft Teams Meeting"



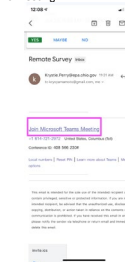
Microsoft Teams Setup
On a Computer/Laptop

Step-by-Step on Setting up & Joining Microsoft Teams on an iPhone

1. Accept the invitation by clicking "YES"



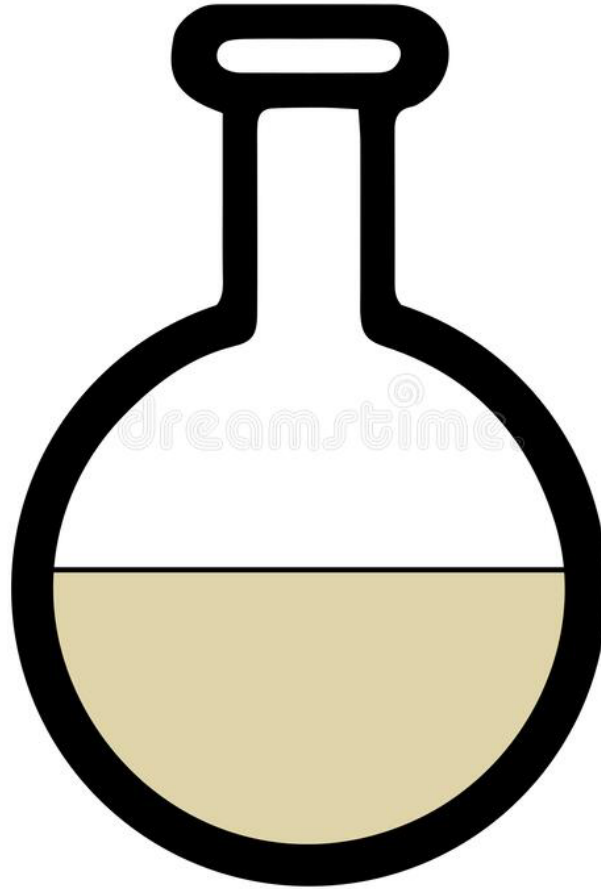
2. Click "Join Microsoft Teams Meeting"



Microsoft Teams Setup
On a Mobile Device



Once I told a
chemistry joke



there was no reaction

Questions?

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