

# OTCO Compliance Workshop

Laboratory Certification Update

October 19, 2016

# Overview

- Evaluate a Sample Run For HAB Analysis
- Use of Secondary Standards for Chlorine Kit Verification
- Applications
- Fees
- PT Requirements
- New Lab Cert Email

# Manuals and Benchsheets

- Use manuals and bench sheets found in “Ohio EPA Laboratory Manual for Microbiological Analyses of Public Drinking Water, 2014”

– Website:

<http://epa.ohio.gov/ddagw/labcert.aspx#161815008-resources-and-reporting>

## Resources and Reporting

### Manuals

- [Laboratory Manual for Chemical Analyses of Public Drinking Water](#)
- [Laboratory Manual for Microbiological Analyses of Public Drinking Water](#)
- [Ohio EPA Total \(Extracellular and Intracellular\) Microcystins - ADDA by ELISA Analytical Methodology \(Effective Nov 2015\)](#)

### Benchsheets

- [Chemical Analysis Benchsheets](#)
- [Sample Method Detection Limit Report - Chemical Analysis Only](#)
- [Microbiological Analysis Benchsheets](#)
- [Cyanotoxin Analysis Benchsheets](#)

### Presentations

- [Laboratory Certification HAB Rule Update Total Microcystins 2016 - Presentation](#)
- [Laboratory Certification Update 2016](#)

### Guidance Documents

- [Alternative Chlorine Meter Verification](#)
- [Analytical Requirements for Secondary Treatment with Chlorine Dioxide](#)

# What is Microcystin?

- Toxins produced by Cyanobacteria
  - Microscopic organisms naturally found in surface water
  - Multiply to form harmful algal blooms (HAB)
  - Public Health Risk
  - Challenges to water treatment

# Required Testing Method

- ELISA Analytical Methodology
- Total (Extracellular and Intracellular) Microcystins – ADDA
- Method: Ohio EPA DES 701.0 Version 2.2  
November 2015

# Required Elements of a Microcystin Analytical Run

- Calibration Standards
  - typically 5 plus blank
- Laboratory Reagent Blank (LRB)
  - Diluent Blank
  - Verifies laboratory and reagents are contaminant free
- Low Calibration Range Check (LCRC)
  - Concentration between  $0.30\mu\text{g/L}$  and  $0.50\mu\text{g/L}$
  - Verifies low end of calibration range
- Quality Control Standard (QCS)
  - Secondary source (i.e. different lot number from calibration standard)
  - Verifies accuracy of the calibration curve

# Quality Control and Data Reporting

- Correlation Coefficient ( $R > 0.990$ ) or Coefficient of Determination ( $R^2 > 0.980$ )
- %CV (Coefficient of Variation)
  - Based on absorbance **not** concentration
  - Calculated from at least two well replicates
  - Calibration Standards  $\leq 10\%$ 
    - One may be  $\geq 10\%$  but  $\leq 15\%$
  - QC Standards
    - LRB must be  $\leq 10\%$
    - LCRC  $\leq 10\%$
    - QCS  $\leq 10\%$
  - Samples
    - $\leq 15\%$

# Quality Control and Data Reporting

- LRB
  - Acceptable Limits: Less than reporting limit (<0.30ug/L)
- LCRC
  - Acceptable Limits:  $\pm 40\%$
- QCS
  - Acceptance Limits:  $\pm 25\%$

# Quality Control and Data Reporting

- Qualifiers:
  - (CL) Analytical result estimated due to ineffective quenching (Raw and treatment train only)
  - (J) Analyte positively identified but the associated numerical value is estimated
  - All qualifiers reported in the comment section of the Chemical SSR

# Utilizing Qualifiers

- LRB
  - If **>0.30ug/L** and/or **%CV >10%**
    - Run Failure
    - Reanalyze
- LCRC
  - If **>40%** of true value and/or **%CV>10% but ≤15%**
    - Use (J) qualifier for all samples less than acceptable QCS
    - Report all results  $\geq$ QCS as is

# Utilizing Qualifiers

- QCS
  - If **>25%** of true value and/or if **%CV>10% but ≤15%**
    - Use (J) qualifier for all samples greater than acceptable LCRC
    - Report all results  $\leq$  LCRC as is
- If LCRC and QCS outside acceptable limits and/or **%CV>10% but ≤15%**
  - Use (J) qualifier for entire run
- If LCRC and/or QCS has **%CV >15%**
  - Run Failure
  - Reanalyze
- Samples  $\rightarrow$  If **%CV>15%**
  - Use (J) qualifier for affected sample(s) only

# Evaluating a Real Life Sample Run

## Assay Information

Assay Name: Microcystins ADDA OH  
 Normal: 0.300 - 5.000  
 # of decimals: 3  
 Assay Substances:

Assay Mode: 4-Parameter Logistic  
 Units: µg/L  
 Assay Description:

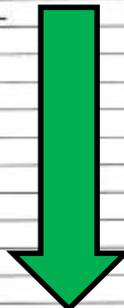
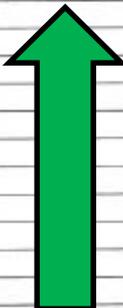
Controls:  
 LRB(0.000-0.30)  
 QCS(0.563-0.938)  
 LCRC(0.240-0.580)  
 Standards:  
 Std1, Concentration = 0.000, Minimum number to use: 2  
 Std2, Concentration = 0.150, Minimum number to use: 2  
 Std3, Concentration = 0.400, Minimum number to use: 2  
 Std4, Concentration = 1.000, Minimum number to use: 2  
 Std5, Concentration = 2.000, Minimum number to use: 2  
 Std6, Concentration = 5.000, Minimum number to use: 2  
 Curve valid interval: 7 days 0 hours  
 Axis Mode: Y = Abs, X = Log(Conc)

**Step1: Does the run pass?**

## Assay Calibration

Current Calibration Status: "

Name	Absorbance	Concentration	Interpretation	Position
9/7/2016 12:40:05 PM				
Std1	1.581 Abs	< 0.000 µg/L		A01
Std1	1.454 Abs	0.021 µg/L		B01
Std2	1.120 Abs	0.221 µg/L		C01
Std2	1.248 Abs	0.126 µg/L		D01
Std3	0.963 Abs	0.388 µg/L		E01
Std3	1.021 Abs	0.318 µg/L		F01
Std4	0.659 Abs	1.105 µg/L		G01
Std4	0.707 Abs	0.926 µg/L		H01
Std5	0.540 Abs	1.820 µg/L		A02
Std5	0.437 Abs	3.205 µg/L		B02
Std6	0.418 Abs	3.655 µg/L		C02
Std6	0.378 Abs	> 5.000 µg/L		D02



# Evaluating a Real Life Sample Run

## Microcystins ADDA OH - Assay Calibration Report

### Assay Curve

$$y = (A-D)/(1+(x/C)^B) + D$$

A = 0.24972

B = -0.95192

C = 0.51171

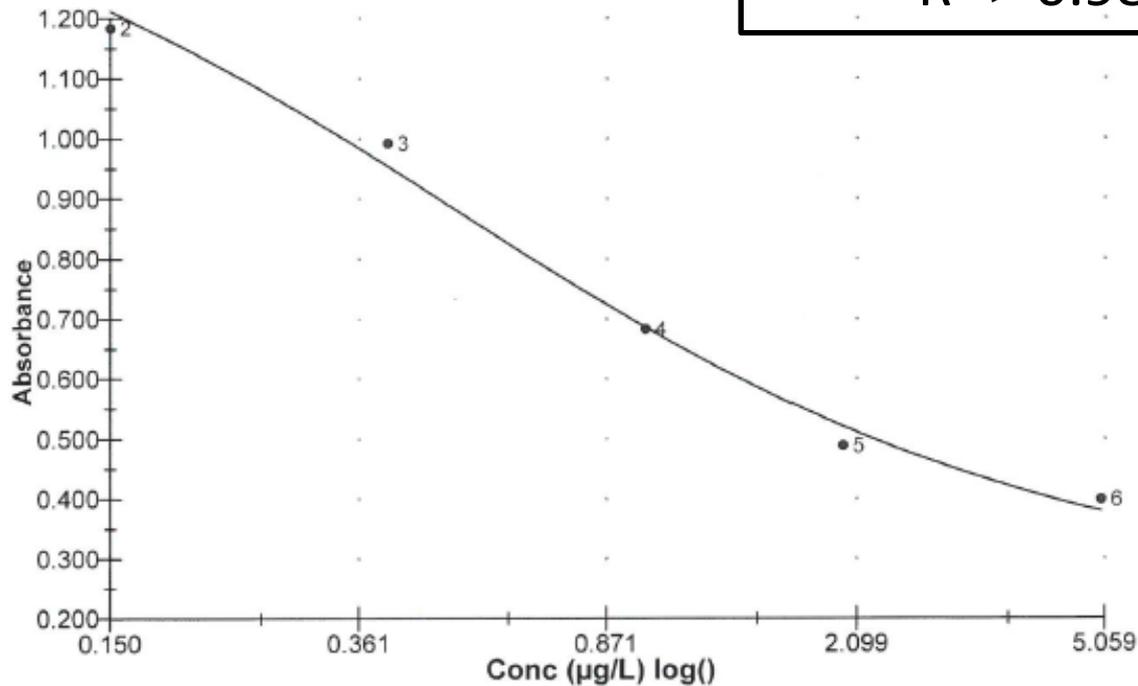
D = 1.5110

R2 coef = 0.99607

$R^2 = 0.99607$

**Step1: Does the run pass?**

■  $R^2 > 0.980?$  **YES**



# Evaluating a Real Life Sample Run

## Microcystins ADDA OH - Assay Calibration Report

9/7/2016 12:40:05 PM				
LRB(0.000-0.30)	1.574 Abs	< 0.000 µg/L	Out(LR)	F02
LRB(0.000-0.30)	1.579 Abs	< 0.000 µg/L	Out(LR)	E02
QCS(0.563-0.938)	0.738 Abs	0.829 µg/L		H02
QCS(0.563-0.938)	0.668 Abs	1.069 µg/L		G02
LCRC(0.240-0.560)	1.241 Abs	0.131 µg/L		B03
LCRC(0.240-0.560)	1.188 Abs	0.167 µg/L		A03
Statistic				
Std1 [MEAN]	1.517			
Std1 [SD]	0.090			
Std1 [%CV]	5.92			
Std2 [MEAN]	1.184	0.174		
Std2 [SD]	0.091	0.067		
Std2 [%CV]	7.64	38.72		
Std2 [%DIFF]		16.00		
Std3 [MEAN]	0.992	0.353		
Std3 [SD]	0.041	0.049		
Std3 [%CV]	4.13	14.02		
Std3 [%DIFF]		-11.75		
Std4 [MEAN]	0.683	1.016		
Std4 [SD]	0.034	0.127		
Std4 [%CV]	4.97	12.46		

■ %CV for Cal Standards <10%?

# Microcystins ADDA OH - Assay Calibration Report

Name	Absorbance	Concentration	Interpretation	Position
Std4 [%DIFF]		1.60		
Std5 [MEAN]	0.488	2.513		
Std5 [SD]	0.073	0.979		
Std5 [%CV]	14.91	38.98		
Std5 [%DIFF]		25.65		
Std6 [MEAN]	0.398			
Std6 [SD]	0.028			
Std6 [%CV]	7.11			
Std6 [%DIFF]		-100.00		
LRB(0.000-0.30) [MEAN]	1.576			
LRB(0.000-0.30) [SD]	0.004			
LRB(0.000-0.30) [%CV]	0.22			
QCS(0.563-0.938) [MEAN]	0.703	0.949		
QCS(0.563-0.938) [SD]	0.049	0.170		
QCS(0.563-0.938) [%CV]	7.04	17.88		
LCRC(0.240-0.560) [MEAN]	1.214	0.149		
LCRC(0.240-0.560) [SD]	0.037	0.025		
LCRC(0.240-0.560) [%CV]	3.09	17.08		

Standard #5 >10% but <15%

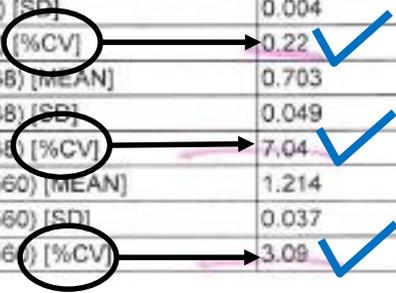
**Conclusion: Run Passes → So Far**

# Microcystins ADDA OH - Assay Calibration Report

Name	Absorbance	Concentration
Std4 [%DIFF]		1.60
Std5 [MEAN]	0.488	2.513
Std5 [SD]	0.073	0.979
Std5 [%CV]	14.91	38.98
Std5 [%DIFF]		25.65
Std6 [MEAN]	0.398	
Std6 [SD]	0.028	
Std6 [%CV]	7.11	
Std6 [%DIFF]		-100.00
LRB(0.000-0.30) [MEAN]	1.576	
LRB(0.000-0.30) [SD]	0.004	
LRB(0.000-0.30) [%CV]	0.22	
QCS(0.563-0.936) [MEAN]	0.703	0.949
QCS(0.563-0.936) [SD]	0.049	0.170
QCS(0.563-0.936) [%CV]	7.04	17.88
LCRC(0.240-0.560) [MEAN]	1.214	0.149
LCRC(0.240-0.560) [SD]	0.037	0.025
LCRC(0.240-0.560) [%CV]	3.09	17.08

**Step2: Does QC Pass?**

- %CV < 10%:
  1. LRB?
  2. QCS?
  3. LCRC?



# Evaluating a Real Life Sample Run

## Microcystins ADDA OH - Assay Calibration Report

### Step2: Does QC Pass?

- QC Samples within acceptance criteria
  1. LRB ( $\leq 0.300$ )?
  2. QCS (0.563-0.938)?
  3. LCRC(0.240-0.560)?

Name	Absorbance	
Std4 [%DIFF]		
Std5 [MEAN]	0.488	
Std5 [SD]	0.073	
Std5 [%CV]	14.91	
Std5 [%DIFF]		
Std6 [MEAN]	0.398	
Std6 [SD]	0.028	
Std6 [%CV]	7.11	
Std6 [%DIFF]		
LRB(0.000-0.30) [MEAN]	1.576	
LRB(0.000-0.30) [SD]	0.004	
LRB(0.000-0.30) [%CV]	0.22	
QCS(0.563-0.938) [MEAN]	0.703	0.949
QCS(0.563-0.938) [SD]	0.049	0.170
QCS(0.563-0.938) [%CV]	7.04	17.88
LCRC(0.240-0.560) [MEAN]	1.214	0.149
LCRC(0.240-0.560) [SD]	0.037	0.025
LCRC(0.240-0.560) [%CV]	3.08	17.08

### Excerpt from previous page of Assay Calibration Report

9/7/2016 12:40:05 PM		
LRB(0.000-0.30)	1.574 Abs	< 0.000 µg/L
LRB(0.000-0.30)	1.579 Abs	< 0.000 µg/L

# Evaluating a Real Life Sample Run

## Microcystins ADDA OH - Assay Calibration Report

Name	Absorbance	Concentration	Interpretation	Position
Std4 [%DIFF]		1.60		
Std5 [MEAN]	0.488	2.513		
Std5 [SD]	0.073	0.979		
Std5 [%CV]	14.91	38.98		
Std5 [%DIFF]		25.65		
Std6 [MEAN]	0.398			
Std6 [SD]	0.028			
Std6 [%CV]	7.11			
Std6 [%DIFF]		-100.00		
LRB(0.000-0.30) [MEAN]	1.576			
LRB(0.000-0.30) [SD]	0.004			
LRB(0.000-0.30) [%CV]	0.22			
QCS(0.563-0.938) [MEAN]	0.703	0.949	⊗	
QCS(0.563-0.938) [SD]	0.049	0.170		
QCS(0.563-0.938) [%CV]	7.04	17.88		
LCRC(0.240-0.560) [MEAN]	1.214	0.149	⊗	
LCRC(0.240-0.560) [SD]	0.037	0.025		
LCRC(0.240-0.560) [%CV]	3.08	17.08		

### Results

- LRB → Passes (Note: of LRB Fails Must Rerun)
- QCS → Fails
- LCRC → Fails
- Options:
  1. Reanalysis
  2. Qualify (J) entire run

Excerpt from previous page of Assay Calibration Report

9/7/2016 12:40:05 PM		
LRB(0.000-0.30)	1.574 Abs	< 0.000 µg/L ✓
LRB(0.000-0.30)	1.579 Abs	< 0.000 µg/L ✓

# Evaluating a Real Life Sample Run

## Test Information

Request: 9/7/2016 12:40:05 PM  
Date: 9/7/2016

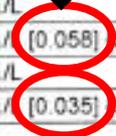
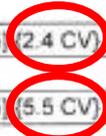
### Step 3: Do the samples pass?

- %CV ≤15%? **YES**

Name/ID	Assay				
Std1	Microcystins ADDA OH	1.581 Abs	< 0.000 µg/L		0.000
Std1	Microcystins ADDA OH	1.454 Abs			
Std2	Microcystins ADDA OH	1.120 Abs			
Std2	Microcystins ADDA OH	1.248 Abs			
Std3	Microcystins ADDA OH	0.963 Abs			
Std3	Microcystins ADDA OH	1.021 Abs			
Std4	Microcystins ADDA OH	0.659 Abs			
Std4	Microcystins ADDA OH	0.707 Abs			
Std5	Microcystins ADDA OH	0.540 Abs			
Std5	Microcystins ADDA OH	0.437 Abs			
Std6	Microcystins ADDA OH	0.418 Abs			
Std6	Microcystins ADDA OH	0.378 Abs			
LRB(0.000-0.30)	Microcystins ADDA OH	1.579 Abs			
LRB(0.000-0.30)	Microcystins ADDA OH	1.574 Abs	< 0.000 µg/L	Out(LR)	
QCS(0.563-0.938)	Microcystins ADDA OH	0.668 Abs	1.069 µg/L		
QCS(0.563-0.938)	Microcystins ADDA OH	0.738 Abs	0.829 µg/L		
LCRC(0.240-0.560)	Microcystins ADDA OH	1.188 Abs	0.167 µg/L		
LCRC(0.240-0.560)	Microcystins ADDA OH	1.241 Abs	0.131 µg/L		
Raw	Microcystins ADDA OH	1.394 Abs	0.047 µg/L	Low	0.300 - 5.000
Raw	Microcystins ADDA OH	1.347 Abs [1.3705]	0.069 µg/L [0.058]	Low [Low]	0.300 - 5.000
Tap	Microcystins ADDA OH	1.365 Abs	0.060 µg/L	Low	0.300 - 5.000
Tap	Microcystins ADDA OH	1.476 Abs [1.4205]	0.012 µg/L [0.035]	Low [Low]	0.300 - 5.000

### What to Report

- Report average of well replicates
- Report "J" qualifier in comment section



## Calibration Verification of Chlorine Meters (an alternate procedure)

The calibration verification procedure required for chlorine meters has been one of the more difficult and technique dependent procedures performed in many of Ohio's certified laboratories. Most of this difficulty is due to the use of a micro-pipette to create a series of chlorine standards. The calibration verification is needed to ensure meters are determining the chlorine concentration properly. The procedure is not, however, intended to test the analysts' ability to use a micro-pipette. The procedure outlined in the "Ohio EPA Laboratory Manual for Chemical Analyses of Public Drinking Water 2014" is a verification of the meter's calibration; not a calibration of the meter itself. Since laboratories are not establishing the meter's calibration, the Ohio EPA's Laboratory Certification Section is now permitting an alternate procedure to verify the meter is reading within acceptable limits. The use of secondary standards for calibration verification is an acceptable alternative to the current method of making up various standards and reading them in the chlorine meters.

### What are Secondary Standards?

At this time only a few chlorine kit manufacturers provide secondary standards (i.e., Hach and LaMotte). Typically, the secondary standard sets contain four vials (a blank and three standards) filled with gel or liquid that simulates the chlorine at various concentrations.

Each set of standards is specific to the manufacturer and the meter's analytical range; low-range (LR), mid-range (MR) and high-range (HR). Verification must be performed per manufacturer's instructions. Secondary standards are good until the manufacturer's expiration date and must be stored per manufacturer's instructions.



# What are Secondary Standards?

- Gel or liquid filled vials simulate test color at various concentrations
- Currently only a few manufacturers
  - Hach
  - Lamotte

Use the manufacturer that matches your meter.

# SpecCheck Secondary Gel Standards Set, DPD Chlorine - LR

DPD Chlorine, Low Range, 0-2.00 mg/L as Cl<sub>2</sub>.

Used to confirm consistent instrument response.

Set contains four vials filled with gels that simulate the test color at various concentrations.

\*This product has not been evaluated to test for chlorine and chloramines in medical applications in the United States.

- Fast and Convenient
- Stable



## LaMotte™ DPD Chlorine Secondary Standards Kit for Series 1200 Colorimeters

Used for periodically rechecking calibration of Series 1200 Colorimeters

Manufacturer: LaMotte™ 414002

**Includes:** Blank and three standards, each with Certificate of Analysis, for low-, mid-, and high-range chlorine calibrations, packaged in a plastic case

# What are Secondary Gel Standards?

- Standards are specific to meter's analytical range
  - High Range (HR)
    - ~2.0 - ~6.5mg/L
  - Mid Range (MR)
    - ~0.2 – ~2.7mg/L )
  - Low Range (LR)
    - ~0.2 – ~2.00mg/L
- Can use secondary standards to verify meter calibration.
  - May use as an alternative to the one listed in the manual.
    - Chlorine Free Ampule
    - Potassium Permanganate
- Use within manufacturer's expiration date
  - Approximately 2 years

# Calibration Verification Requirements Using Secondary Gel Standards

- Verify all meters at least once every three months
  - Laboratory Meters
  - Field Meters
- Acceptance limits  $\rightarrow \pm 10\%$  of assigned value
  - Service or replace meter if outside acceptance limits
- Verify meter using all of the vials in the kit
  - Zero meter on provided blank standard

Hach Company  
100 Dayton Ave.  
Ames, Iowa 50010



### Certificate of Analysis

Product : DPD-Chlorine LR Spec Check Secondary Standards Kit  
Product Number: 2635300 Lot Number: A4239 Expiration Date: Aug 2016

Instrument (PRGM)	Blank A4237	STD 1 (mg/L) A4237	STD 2 (mg/L) A4237	STD 3 (mg/L) A4237
DR 6000 (80)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 6000 (85)	0.00	0.23 +/- 0.09	0.92 +/- 0.10	1.68 +/- 0.14
DR 5000 (80)	0.00	0.22 +/- 0.09	0.86 +/- 0.10	1.58 +/- 0.14
DR 5000 (85)	0.00	0.24 +/- 0.09	0.94 +/- 0.10	1.73 +/- 0.14
DR 4000 (1450)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 4000 (1460)	0.00	0.23 +/- 0.09	0.90 +/- 0.10	1.64 +/- 0.14
DR 3900 (80)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 3900 (85)	0.00	0.23 +/- 0.09	0.92 +/- 0.10	1.68 +/- 0.14
DR 3800 (80)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 3800 (85)	0.00	0.23 +/- 0.09	0.92 +/- 0.10	1.68 +/- 0.14
DR 2800 (80)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 2800 (85)	0.00	0.23 +/- 0.09	0.92 +/- 0.10	1.68 +/- 0.14
DR 2700 (80)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 2700 (85)	0.00	0.23 +/- 0.09	0.92 +/- 0.10	1.68 +/- 0.14
DR 2500 (80)	0.00	0.23 +/- 0.09	0.90 +/- 0.10	1.65 +/- 0.14
DR 2500 (85)	0.00	0.23 +/- 0.09	0.90 +/- 0.10	1.65 +/- 0.14
DR 2400 (80)	0.00	0.23 +/- 0.09	0.90 +/- 0.10	1.65 +/- 0.14
DR 2400 (85)	0.00	0.23 +/- 0.09	0.90 +/- 0.10	1.65 +/- 0.14
DR 1900 (80)	0.00	0.21 +/- 0.09	0.84 +/- 0.10	1.53 +/- 0.14
DR 1900 (85)	0.00	0.23 +/- 0.09	0.92 +/- 0.10	1.68 +/- 0.14
DR 900 (80)	0.00	0.22 +/- 0.09	0.86 +/- 0.10	1.58 +/- 0.14
DR 900 (85)	0.00	0.22 +/- 0.09	0.86 +/- 0.10	1.58 +/- 0.14
DR 800 (9)	0.00	0.22 +/- 0.09	0.86 +/- 0.10	1.58 +/- 0.14
DR 800 (11)	0.00	0.22 +/- 0.09	0.86 +/- 0.10	1.58 +/- 0.14
Pocket Color II (LR)	0.00	0.23 +/- 0.09	0.90 +/- 0.10	1.65 +/- 0.14

NOTE: Choose the instrument and chlorine program being used. Transfer the control values to the enclosed certificate label and keep the label with your instrument for reference. For example, the test values for using a DR2800 Spectrophotometer and stored program #80 would be 0.21, 0.84, and 1.53 mg/L chlorine for Standard 1, Standard 2, and Standard 3 respectively. File this Certificate of Analysis for safe keeping. Values Traceable to NIST SRM 936

Certified by: *[Signature]* for and on the behalf of Hach Company.

Doc. Cat. No. 26353-87



# Comparison of Verification Methods

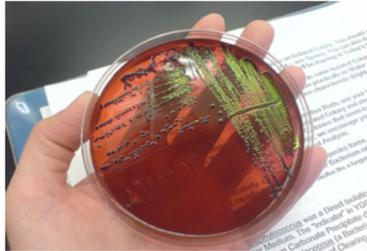
## Breakdown of Calibration Verification Requirements

	Verification Using Current Lab Cert Manual	Verification Using Secondary Standards
Verification Frequency	Once Every Three Months	Once Every Three Months
Range of Acceptance	Prepared standards must be within 10% of calculated value	Meter readings must be within 10% of the standard's certified value
Records	Recorded on calibration verification record and stored with lab QC records	Recorded on calibration verification record and stored with lab QC records
Standard Storage Requirement	Chlorine free ampules and prepared potassium permanganate stored in refrigerator or per manufacturer's recommendations	Secondary standards stored per manufacturer requirements, in original box
Standard Maximum Storage Time	Chlorine free ampules: manufacturer's expiration date Or Potassium permanganate: 1 year after opening or manufacturer's expiration date, whichever occurs first	Manufacturer's expiration date
DI Blank Check	Prior to calibration verification with a total chlorine reagent	None, but the meter must be zeroed with the blank standard provided with the secondary standard kit

# Applications

- Use new applications on the website – dispose of old.
- New applications now in fillable format!!

## Certified Laboratories



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  
By phone: 1 (614) 644-4245 or Email: [DWLabCert@epa.ohio.gov](mailto:DWLabCert@epa.ohio.gov)

Certified Laboratories **Lab Certification** Resources and Reporting Contacts

### Currently Certified Laboratories

Laboratories are listed in the attached PDF documents by the type of analysis they are certified for (chemical and/or microbiological).



#### QUICK LINKS

- ▶ **Currently Certified Laboratories**  
Microbiological and Chemical
- ▶ **Operator Certification**  
Exam Information, Contact Hours, Operator Lists
- ▶ **Electronic Reporting**  
Data and Forms
- ▶ **Public Water Systems**  
Monitoring Schedules, Violations, Engineering
- ▶ **Apparent Violations**  
Public Water Systems

#### DDAGW Site Links

Select an item and click "Go" to navigate   
[Go](#)

# Certified Laboratories



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  
By phone: 1 (614) 644-4245 or Email: [DWLabCert@epa.ohio.gov](mailto:DWLabCert@epa.ohio.gov)

[Certified Laboratories](#)

[Lab Certification](#)

[Resources and Reporting](#)

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## Obtaining Laboratory Certification

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## Obtaining Laboratory Certification

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▼ **Applications**

**Submit applications via [DWLabCert@epa.ohio.gov](mailto:DWLabCert@epa.ohio.gov) or mail to the following address (a hard copy is not required):**

**Ohio EPA Division of Environmental Services (DES)  
Laboratory Certification Section  
8955 East Main Street  
Reynoldsburg, OH 43068**

**DO NOT SEND PAYMENT WITH APPLICATION, WAIT FOR INVOICE.**

**To Access Applications, Click on the Links Below:**

- [Chemical \(Limited and Standard\)](#)
- [Limited Trace Metals](#)
- [Microbiological](#)
- [Pesticide-SOC](#)
- [Radionuclides](#)
- [THM-HAA-VOC](#)
- [Trace Metals](#)

**Interim Authorization, Click on the Links Below:**

- [MMO-MUG \(SM 9223\) Tests](#)
- [Plant Control Tests](#)
- [Cyanotoxin Analysis](#)

Select to Clear Form



OEPA Office Use Only

Application ID: \_\_\_\_\_  
Received: \_\_\_\_\_ Approved: \_\_\_\_\_  
Revenue ID: \_\_\_\_\_ Fee Applied: \_\_\_\_\_

Interim Authorization Application for MMO-MUG (SM 9223) Tests

The applicant affirms the right of the Ohio Environmental Protection Agency (Ohio EPA) to inspect the laboratory, its operations and pertinent records. The applicant agrees the personnel seeking Interim authorization will fully comply with the policies of the Ohio EPA contained herein. An on-site survey will be scheduled within six months of an Interim authorization. Interim authorization only grants approval for a period not to exceed six months unless an extension is granted.

Name of Laboratory: \_\_\_\_\_

Laboratory Certification Number: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Laboratory Address: \_\_\_\_\_

Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

County: \_\_\_\_\_ Ohio EPA District: \_\_\_\_\_

Name of primary contact for the Laboratory: \_\_\_\_\_

First Middle Initial Last

Fill in the date the certification expires: \_\_\_\_\_

required within 30 days after the date on the invoice letter.

Laborator  
Date Training  
Name of Operator-In-

Instructions: Analysts  
a trainer currently certifi  
acceptable, the operat  
a false negative or a fa

Test Method

must be generated in parallel with  
boxes. To be considered  
inter results. Circle all results with

h/Day):

Samples

1 2 3 4 5



# Fee Structure Changes

- NEW: Limited Trace Metals
  - Only two parameters (Lead and copper; iron and manganese, etc.)
  - **\$1,550**
- Limited chemistry
  - Change from two parameters to three (Chlorine, Fluoride, pH)
  - **\$1,550**
- Addition of total microcystins and cyanotoxin screening (beginning in 2017)
  - **\$1,550**
- **DO NOT SEND CHECKS WITH APPLICATIONS!!!**

# PT Requirements

- Annual PT required for all primary contaminants (MCL)
  - Exception: Fluoride monthly - water treatment plant labs
- Recommendation: send early to avoid potential missed PT
- Must use a NELAP Approved PT Provider:
  - <http://www.nelac-institute.org/content/NEPTP/ptproviders.php>
- Time frame to submit: **January 1<sup>st</sup> to December 31<sup>st</sup>**
- Failure to submit may result suspension of certification

# PT Requirements

- Submit data to the PT Provider by Study Close Date
  - Late data not accepted by Lab Cert
  - Review data prior to submission – can't revise after data is reported to PT provider
  - Indicate to your PT provider that PT results must be sent to Ohio EPA Laboratory Certification Section at [DWLabCert@epa.ohio.gov](mailto:DWLabCert@epa.ohio.gov).

# PT Requirements

- Review data prior to submission
  - Is method number correct?
    - Report method as listed on certificate
    - i.e report colisure as Colisure (SM 9223-B)
  - Are correct units reported?
    - Convert results to units listed on PT provider's report form
  - Do bench sheet results match result on PT report?
    - Correct any transcription errors prior to submitting results
- Be sure to provide results for each method for which you are certified
  - Failure to report PT results by a certified method may result in loss of certification

# Unacceptable Results

- Initial PT – Unacceptable:
  - Order make-up PT for any parameter with “unacceptable” result
- Make-up PT – Unacceptable:
  - Immediately cease analysis
  - Submit corrective action report
  - Obtain second make-up PT
  - Notify Laboratory Certification Section where samples will be sent
- **Certificates ON HOLD** until “Acceptable” PT received from PT provider

Required PT Parameters

Inorganics	
Antimony	Must have no unacceptable results
Arsenic	
Asbestos	
Barium	
Beryllium	
Cadmium	
Chromium	
Cyanide	
Fluoride	
Mercury	
Nickel	
Nitrate	
Nitrite	
Selenium	
Thallium	
Lead and Copper	
Lead	Must have no unacceptable results
Copper	Must have no unacceptable results
Disinfection Byproducts	
Bromate	Must have no unacceptable results
Chlorite	Must have no unacceptable results
Total Trihalomethanes (THMs): Bromodichloromethane, Bromoform, Chloroform and Dibromochloromethane. (THMs Requires all compounds be reported)	Must have no unacceptable results.
HAA(5): Monochloroacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, Monobromoacetic Acid and Dibromoacetic Acid	May have no more than one unacceptable result.
Organics	
Pesticides and other Semivolatile Organic Compounds (SOCs) <sup>1</sup>	Must have no unacceptable results.
Volatile Organic Compounds (VOCs) <sup>2</sup>	May have no more than 20% unacceptable results.
Vinyl Chloride	Must have no unacceptable results.
Microbiological	
Total Coliform and <i>E. coli</i> (Presence and Absence)	May have no more than one unacceptable total coliform result, no more than one unacceptable <i>E. coli</i> result and no false negative results.
Total Coliform and <i>E. coli</i> (Quantitation)	Must have no unacceptable results.

Required PT Parameters

Radiochemistry	
Gross alpha	Must have no unacceptable results.
Radium-226	Must have no unacceptable results.
Radium-228	Must have no unacceptable results.
Gross beta	Must have no unacceptable results.
Strontium-89	Must have no unacceptable results.
Strontium-90	Must have no unacceptable results.
Iodine-131	Must have no unacceptable results.
Tritium	Must have no unacceptable results.
Photon Emitters	Must have no unacceptable results.

<sup>1</sup>Regulated SOC's

- 1,2-Dibromo-3-Chloropropane (DBCP)
- 2,3,7,8-TCDD (Dioxin)
- 2,4,5-TP (Silvex)
- 2,4-D
- Alachlor
- Aldicarb
- Aldicarb Sulfone
- Aldicarb Sulfoxide
- Atrazine
- Benzo[a]Pyrene
- Carbofuran
- Chlordane - Total
- Dalapon
- Di(2-Ethylhexyl)Adipate
- Di(2-Ethylhexyl)Phthalate
- Dinoseb
- Diquat
- Endothall
- Endrin
- Ethylene Dibromide (EDB)
- Glyphosate
- Heptachlor
- Heptachlor Epoxide
- Hexachlorobenzene
- Hexachlorocyclopentadiene
- Lindane (Gamma-BHC)
- Methoxychlor
- Oxamyl (Vydate)
- Pentachlorophenol
- Picloram
- PCBs as Decachlorobiphenyl
- Simazine
- Toxaphene

<sup>2</sup>Regulated VOC's

- 1,1,1-Trichloroethane
- 1,1,2-Trichloroethane
- 1,1-Dichloroethylene
- 1,2,4-Trichlorobenzene
- 1,2-Dichloroethane
- 1,2-Dichloropropane
- Benzene
- Carbon Tetrachloride
- cis-1,2-Dichloroethylene
- Dichloromethane (Methylene Chloride)
- Ethylbenzene
- Monochlorobenzene (Chlorobenzene)
- o-Dichlorobenzene (1,2-Dichlorobenzene)
- p-Dichlorobenzene (1,4-Dichlorobenzene)
- Styrene
- Tetrachloroethylene
- Toluene
- trans-1,2-Dichloroethylene
- Trichloroethylene
- Xylenes (Total)



# PT Requirements

- What if I do not submit a PT for the year?
  - **Certification suspended** until an “Acceptable” evaluation received
  - Immediately cease analysis
  - Notify Laboratory Certification Section where samples will be sent for analysis
  - Send corrective action to Laboratory Certification Section

# New General Email

- New email address [DWLabCert@epa.ohio.gov](mailto:DWLabCert@epa.ohio.gov)
- Send the following to the new email:
  - Lab plans and lab plan requests
  - Applications
  - PT results
  - General correspondence

# Contact

Steve Roberts	Steven.Roberts@epa.ohio.gov	(614) 644-4225
Mark Tomasi	Mark.Tomasi@epa.ohio.gov	(614) 644-4067
Charles Vasulka	Charles.Vasulka@epa.ohio.gov	(614) 644-4266

# Questions?