Microbiology Laboratory Analyst Training

Kentucky Division of Water

Laboratory Certification Program



To Protect and Enhance Kentucky's Environment

Document Management

Record keeping, quality assurance, action response to positive lab results, BARF form information



Legal Defensibility

DWCM Chapter V; 8.1¹

- Compliance data is made legally defensible by keeping thorough and accurate records.
- QAP and SOPs should describe policies and procedures currently utilized by laboratory (including record retention and storage).
- Laboratory should follow chain-of-custody procedures.



Record Maintenance

DWCM Chapter V; Section 8¹

- The laboratory should maintain easy accessible records for five years or until the next certification data audit is completed, whichever is longer.
 - Raw data, calculations, quality control data
- Client water systems should be notified before disposing of records in order to request copies.
- Laboratory should maintain preventive maintenance and repair activity records for all instruments and equipment.
- Files may be electronic or hardcopy.

Analytical Records

DWCM Chapter V; 8.4¹

- All data should be recorded in ink.
 - If changes are made, original entry should still be legible with strike through and initials and date.
- Laboratory should not use arrows or dittos in QC logs or sample logs to reference repetitive information.
- In order to fully recreate data, analysts initials, date, time, lot numbers of reagents, lot numbers of bottles/ trays, lot numbers of sterile/ reagent grade water, observations, etc. should be maintained for samples and quality control tests
- Regarding sample information, the following should be readily available:
 - Sample identification
 - Date and time analysis begins
 - Name of laboratory and analyst's initials performing analysis
 - Analytical technique or method used
 - All QC items
 - The result of analyses

1 – EPA Manual for the Certification of Laboratories Analyzing Drinking Water: Criteria and Procedures Quality Assurance, 5th Edition, EPA 815-R-05-004 (January 2005)



Bacteriological Analysis Report Form

- Form should be completed for every compliance bacteriological sample.
- Form should be submitted to KYDOW electronically or in person by 10th day of month following sampling event.
- Guidance on filling out form can be found at:
 - <u>https://eec.ky.gov/Environmental-Protection/Forms%20Library/Instructions-BACT%20Form.doc</u>



SAMPLE CATEGORY = TC DISTRIBUTION SAMPLING

KENTUCKY DIVISION OF WATER / DRINKING WATER RESULTS BACTERIOLOGICAL ANALYSIS REPORT FORM

General Information This Section To Be Completed By Collector Rev. 01/22/2019													
PWS ID KY							Complian	Compliance Period (MMYYYY)					
PWS Nam	ie		PWS Contact					Collection Date (MMDDYYYY) (All Samples Reported on this Form were Collected on this Date.)					
PWS Add	ress	PWS Phone				S Phone		Collector Name Signature/Date					
Genera	al Info	rmation 7	This Sec	ction To Be Co	mpleted By	Lab							
Lab ID						Date (MMDDYYYY)		Total Coliform Analysis Method Code			e		
						Date (MMDDYYYY) d Date (MMDDYYYY)		E Coli Analysis Method Code					
Lab Analy	st		Sigr	nature/Date				Lab Supe	ervisor			Signature/Date	
Sample Information This Section To Be Completed By Collector Analysis Information This Section To Be Completed										d B	v La		
mple Type , TG, CO, or SP) See Key)	ole Reason E) (See Key) t Sample?	(Y or Blank) Location Code (See Instructions)	Repeat Location Code (DN, UP, or OR) (See Key)	Sample Time (24 hr)	Free Chlorine (Required for all disinfectants except Chloramine)	Total Chlorine (Required when disinfectant is Chloramine)	Lab Sample Number	Analysis Start Time (24 hr)	Result (Total Coliform Count - or - TNTC - or - CNFG - or - TCNG) (See Key)	Total Coliform (P/A)	E Coli (P/A)	Lab Sample Number of Original Sample (Required for RP, TG, CO, and/or Replacement Samples) (See Instructions)	
the water sa completed i including bu	imple ana n accorda it not limite	yzed and the resultin nce with the provisio d to 401 KAR 8:200	ng data hereb ons of 401 KAI), Section 1 ar	hat collection and analysis by submitted, were RC Chapter 8, specifically ind 401 KAR 8:040; and the report of the results of	Sample Type:		BACTERIOLOGICAL RT = Routine (For Compliance) TG = Triggered (For Compliance) A = Suspected Contamination	RP = Repeat (For C CO = Confirmation	Compliance)			SP = Special (Not for Compliance)	
collection ar Violations o	nd analysi: f 401 KAR , up to \$25	s performed pursuan Chapter 8 are subje ,000 fine per day pe	nt to the above act to severe p	e-referenced regulations penalties prescribed in K nd in some cases a violati	RS Repeat Locati	100 100 100 100 100 100 100 100 100 100	D = Study/Investigation DN = Downstream	E = Line Break, Emergency Repair UP = Upstream OR = Orig			OR = Original Site		
					Result:		TNTC = Too Numerous to Count	CNFG = Confluent Growth		0	TCNG = Turbid Culture-No Gas		



Reporting Positive Compliance Samples

- Notify PWS
 - PWS must collect three repeat samples for every positive routine compliance sample
 - Upstream
 - Original
 - Downstream
 - If any repeat is positive this process begins again.
- Email Rodney Ripberger the Positive Sample Notification Form after a Total Coliform Positive and after completing Repeat analysis (<u>rodney.ripberger@ky.gov</u>)
- If sample is E.coli Positive, contact Dr. Pass (606-356-6494) within 24 hours, as well as complete the above steps.
- Be aware of situations that trigger assessments under the Revised Total Coliform Rule. A quick reference from KYDOW can be found at: <u>https://eec.ky.gov/Environmental-Protection/Water/Drinking/Documents/RTCR%20Assessment%20Triggers%20Quick%20Reference.pdf</u>



Reporting Positive Non-Compliance Samples

- For a Positive "Special"
 - Notify PWS
- For Line Break Samples
 - If Positive, notify PWS
 - Repeat sample needed from original line break site.
 - If Negative
 - Notify PWS
 - On a weekday, fax BARF form to appropriate DOW Regional Office
 - On a weekend, notify DOW using afterhours hotline in order to lift boil water advisory (1-800-928-2380) and fax BARF form to the appropriate DOW Regional Office on the next working day.

