



# RESEARCH & ANALYTICAL LABORATORIES, INC.

Analytical/Process Consultations

## BACTERIOLOGICAL ANALYSIS

Note: All applicable information must be supplied for compliance credit.

Water System Number: NC   -   -   County:

Name of Water System:  System Type:  Water Source:

**Distribution System — Revised Total Coliform Rule (RTCR)** Facility ID: D01

Sample Type:  Routine (RT)  Repeat (RP)  Special / Non-compliance (SP)

Location Code:     Tap Location:  Street Address:  City:

Check (✓) if sample site is owned or controlled by water system.

Check (✓) if sample site is a daycare or a K-12 school.

Sample Point:  Routine Original (RTOR)  Repeat-Original Tap (RPOR)  Repeat-Upstream (RPUP)  Repeat-Downstream (RPDN)

**Source Water — Ground Water Rule (GWR)**

Sample Type:  Triggered (TG)  Additional/Confirmation (CO)  Assessment (RT)  Triggered/Distribution Repeat (TD) \*

Facility ID:     Sample Point:

\* for systems with a population ≤ 1,000

Collected — BY:     DATE:   /   /   TIME:  :  :  m

Mail Results to (water system representative):

Phone #:

Fax #:

Responsible Person's email:

Complete for Repeat, Triggered, or Additional / Confirmation Samples:

Previous Positive Laboratory ID Number:

" Positive Laboratory Log Number:

" Positive Location Code:

" Positive Collection Date:   /   /

Disinfectant Used:

Total Chlorine Residual (chloramines):  mg/L

Free Chlorine Residual (chlorine):  mg/L

Laboratory ID Number:  3  7  7  0  1  Repeat Samples Required from Client  Resample Required from Client

CONTAM CODE	CONTAMINANT	METHOD CODE	RULE	RESULTS		Invalid Code
				Present <sup>1,2</sup>	Absent	
3100	Total Coliform	Colilert-9223B	RTCR/GWR	<input type="text"/>	<input type="text"/>	<input type="text"/>
3014	<i>E. coli</i>	Colilert-9223B	RTCR/GWR	<input type="text"/>	<input type="text"/>	<input type="text"/>
3002	Enterococci		GWR	<input type="text"/>	<input type="text"/>	<input type="text"/>
3028	Coliphage		GWR	<input type="text"/>	<input type="text"/>	<input type="text"/>
3001	Heterotrophic P.C. <sup>3</sup>			<input type="text"/>	<input type="text"/>	<input type="text"/>

INVALID CODES:

1	Confluent Growth / No Coliform Growth Found
2	TNTC/No Coliform Growth Found
3	Turbid Culture / No Coliform Growth Found
4	Over 30 Hours Old
5	Improper Sample or Analysis <sup>4</sup>

<sup>1</sup>If *E. coli*, enterococci or coliphage is present, lab must report results to State on day test completed. <sup>2</sup>If total coliform bacteria is present, lab must report results to State within 48 hours. <sup>3</sup>If HPC is absent, enter a "0" left of the "cfu/mL or MPN" units; if present, enter a whole number. <sup>4</sup>Explain invalid code below in comments.

Analyses Begun — DATE:   /   /   TIME:  :  :  m (Date as: mm/dd/yy)

Analyses Completed — DATE:   /   /   TIME:  :  :  m (Time as: h:mm am/pm)

Laboratory Log Number:  Certified By:

(Print and sign name)

COMMENTS:

# Instructions - BACTERIOLOGICAL ANALYSIS

## SAMPLE COLLECTION

**For Residual Disinfectant Concentrations:** Before taking your bacteriological sample, if your system uses a disinfectant, fill a separate clean container with water to measure the residual disinfectant concentration. If chloramines are used as the disinfectant, measure "total chlorine." If only chlorine is used, measure "free chlorine."

**For Bacteriological (Coliform) Sample:** Use only the bottle supplied by the laboratory. The bottle contains sodium thiosulfate, a dechlorinating agent; do not rinse the bottle. If a white crystalline material or small amount of liquid is visible inside the bottle, it is the sodium thiosulfate and is a normal condition. If the bottle is damaged or the lid is loose, do not use the bottle; contact this laboratory for a replacement. The sample bottle mouth should never come in contact with the faucet. Never collect a sample from a hose or any other attachment fastened to a faucet. Do not lay the sample container lid down, splatter water on the lid or container. Never touch the inside of the container or lid. If anything other than water comes in contact with the inside of the lid or bottle, contact the lab for a replacement bottle.

- **Distribution System Samples** - must be collected from taps (preferably bathroom or kitchen taps) located within your distribution system. Samples should not be taken from drinking fountains or hydrants. Do not sample from taps that are leaking around the handle shaft. Do not collect distribution system samples from a well house or storage tank.
- **Source Water Samples** - must be collected from the sampling tap in the well house, prior to any treatment. If you do not have a sampling tap at the well and provide disinfection to the water you serve, you must install a tap to be able to collect a raw water source sample. If you do not have a sampling tap and do not disinfect, you are encouraged to install one or you may collect a source sample, when required, at the tap nearest to the well, mark it as "Source Water" on the form and indicate the State three-digit Facility ID of the well.

Before taking the sample, remove any strainers, aerators, washers and filtration devices from the tap and then disinfect the tap. You may disinfect the tap with rubbing alcohol, diluted bleach or by flaming the tap with a propane torch (after making sure the flaming will not damage the faucet). If flaming, flame until any water on the tap is driven off. The tap does not need to be heated until the metal changes color. After you disinfect the tap, let the water run from the tap for five (5) minutes. If the tap supplies hot and cold water, flush the hot side for two (2) minutes and then the cold side for three (3) or more minutes. Fill the sample collection bottle to the 100 mL mark, but do not fill the bottle completely; leave a required ½ to ¾ inch air space at the top of the bottle. This space allows the sample to be shaken properly at the lab. Place the samples and completed collection form in the shipping container. Forward all samples to the laboratory immediately after collection. Samples must be analyzed within 30 hours of collection, so it is important that they be sent by overnight mail or hand delivered so that this time limit is not exceeded.

After the samples are analyzed, regulations require that the laboratory electronically submit the results of all compliance samples to the Public Water Supply Section. The laboratory will send a copy of the results to the water system, and the water system shall retain the copy for at least five (5) years.

## DIRECTIONS FOR COMPLETING THE TOP PORTION OF THE FORM

The water system is responsible for completing all information above the double line. Please print/type all information and ensure the information is legible. Complete all water system information such as the water system number, system name and county, etc. For System Type, indicate whether the system is a community (CWS), non-transient, non-community (NTNC), transient (TNC) or adjacent (ADJ) water system. For Water Source, indicate whether the system's source is from ground water (GW) or surface water (SW). Complete sample collection date and time and provide contact information. Note the disinfectant used (chloramines, chlorine or none) and record residual disinfectant information in the appropriate locations. Then complete only one of the following sections:

- **Distribution System – Revised Total Coliform Rule (RTCR):** Sample Type selections for distribution system samples are "Routine", "Repeat", or "Special / Non-compliance". Choose only one type. Note that the Facility ID for all distribution system samples is "D01" and is already indicated on the form. Be sure to indicate the Location Code, Tap Location, Street Address, City, and the Sample Point. Also, be sure to check the appropriate boxes regarding whether or not the sample site is owned or controlled by the water system, and whether or not the sample site is a daycare or a K-12 school.
- **Source Water - Ground Water Rule (GWR):** The Sample Type for source water compliance samples must be one of the following:
  - (1) Triggered - must be collected at each well if the lab informs you that your most recent routine distribution RTCR sample is positive for total or fecal coliform and your system does not provide State-approved 4-log treatment for viruses, (2) Additional/Confirmation - five samples must be collected from well if the State directs you to do so when the triggered sample is fecal positive, (3) Assessment - must be collected only if the State deems your water vulnerable to fecal contamination and directs you to conduct assessment source water monitoring or (4) Triggered/Distribution Repeat (**Note: Only for water systems serving ≤ 1, 000 population and using a single well**) - allows one sample collected at the source to count as compliance credit for both a GWR triggered and a RTCR repeat sample. Also complete the Facility ID and Sample Point information for the source water sample.

When a Repeat, Triggered or Additional/Confirmation sample is required, complete the block of data for the Previous Positive sample (includes the Previous Positive Sample's Laboratory ID Number, Laboratory Log Number, Location Code and Collection Date). Note that under the Revised Total Coliform Rule, a repeat sample set must have at least the following: one sample collected from the same location (Repeat-Original Tap) as the previous positive, one sample collected within five (5) service connections upstream (Repeat-Upstream) of the previous positive location, and one sample collected within five (5) service connections downstream (Repeat-Downstream) of the previous positive location OR repeat sample sets can be collected in accordance with an approved SOP denoted on the system's Sample Siting Plan. Repeats are to be collected within 24 hours of being notified of a positive routine sample.