Bacteriological Water Sample Collection Requirements

Safe Drinking Water Program
www.dhh.la.gov/SafeDrinkingWater
Effective Aug 1, 2012

• All Public Water Systems will be solely responsible for collecting, transporting and managing their own Bacteriological Water Samples

• Systems must collect and transport the Bacteriological Samples to the designated Sample Depot per LDHH guidelines

• Sample bottles and forms will be provided by LDHH
Total Coliform Rule

Promulgated June 29, 1989
Effective December 31, 1990

• Defines Community, Non-community PWS
• Provides Routine Monitoring Schedule based on Population of PWS
• Maximum Contaminant Level (MCL) for presence or absence of coliform bacteria
Ground Water Rule

Promulgated January 8, 2007
Effective December 1, 2009

• Provide 4-log continuous disinfection
  or
• ConductTriggered Source Monitoring at all active GW sources as follow-up to all Routine TC+
Louisiana Administrative Code

- Title 51 – Public Health Sanitary Code
  - Part XII - Water Supplies
  - Chapter 9. Louisiana Total Coliform Rule
    - Federal Regulations Adopted by Reference

- Pertains to all Public Water Systems
  - All PWS are required to have copy onsite
Public Notification Rule

Promulgated May 4, 2000
LA Adopted Primacy -

- Requires all PWS to notify all consumers any time a violation of National Primary Drinking Water Regulations occurs
  - MCL Exceedance
  - Failure to Monitor
- Timeframe of PN and Specific Activities required depends on Tier Level of Violation
Total Coliform Rule

- **Coliform Routine Compliance Monitoring**
  - Each public water supply (PWS) must be monitored in accordance with a written sampling plan prepared by the PWS personnel.
  - The water supply must provide suitable taps which draws water directly from the mains or the service lines.
  - Monitoring Schedule is determined by the total population served (Table 1).
Community Systems – Routine Monitoring

Table 1 from LAC Part XII

C. Community systems must be routinely monitored in accordance with Table 1.

<table>
<thead>
<tr>
<th>Population Served</th>
<th>Minimum Number of Routine Samples per Month</th>
<th>Population Served</th>
<th>Minimum Number of Routine Samples per Month</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 to 1,000</td>
<td>1</td>
<td>59,001 to 70,000</td>
<td>70</td>
</tr>
<tr>
<td>1,001 to 2,500</td>
<td>2</td>
<td>70,001 to 83,000</td>
<td>80</td>
</tr>
<tr>
<td>2,501 to 3,300</td>
<td>3</td>
<td>83,001 to 96,000</td>
<td>90</td>
</tr>
<tr>
<td>3,301 to 4,100</td>
<td>4</td>
<td>96,001 to 130,000</td>
<td>100</td>
</tr>
<tr>
<td>4,101 to 4,900</td>
<td>5</td>
<td>130,001 to 220,000</td>
<td>120</td>
</tr>
<tr>
<td>4,901 to 5,800</td>
<td>6</td>
<td>220,001 to 320,000</td>
<td>150</td>
</tr>
<tr>
<td>5,801 to 6,700</td>
<td>7</td>
<td>320,001 to 450,000</td>
<td>180</td>
</tr>
<tr>
<td>6,701 to 7,600</td>
<td>8</td>
<td>450,001 to 600,000</td>
<td>210</td>
</tr>
<tr>
<td>7,601 to 8,500</td>
<td>9</td>
<td>600,001 to 780,000</td>
<td>240</td>
</tr>
<tr>
<td>8,501 to 12,900</td>
<td>10</td>
<td>780,001 to 970,000</td>
<td>270</td>
</tr>
<tr>
<td>12,901 to 17,200</td>
<td>15</td>
<td>970,001 to 1,230,000</td>
<td>300</td>
</tr>
<tr>
<td>17,201 to 21,500</td>
<td>20</td>
<td>1,230,001 to 1,520,000</td>
<td>330</td>
</tr>
<tr>
<td>21,501 to 25,000</td>
<td>25</td>
<td>1,520,001 to 1,850,000</td>
<td>360</td>
</tr>
<tr>
<td>25,001 to 33,000</td>
<td>30</td>
<td>1,850,001 to 2,270,000</td>
<td>390</td>
</tr>
<tr>
<td>33,001 to 41,000</td>
<td>40</td>
<td>2,270,001 to 3,020,000</td>
<td>420</td>
</tr>
<tr>
<td>41,001 to 50,000</td>
<td>50</td>
<td>3,020,001 to 3,960,000</td>
<td>450</td>
</tr>
<tr>
<td>50,001 to 59,000</td>
<td>60</td>
<td>3,960,001 or more</td>
<td>480</td>
</tr>
</tbody>
</table>
Split Routine Samples
Monthly Monitoring Frequency

If the system supplies water to 4901 or more people (not service connections), EPA TCR mandates that you divide the required number of Routine samples over more than one day per month.

Population = 20,000 – Collect 10 samples twice a month for total 20 samples/Month
Non-Community Systems <1,001
Reduced Routine Monitoring

• Daily Population Served <1,001 people
  - One sample per Quarter (every 3 months)
    • Ground Water Systems Only
    • When Routine TC+ occurs – revert to Monthly sampling until samples clear
    • Collect Repeats/Triggered Source and Temporary Routines on same schedule as C

• Daily Population Served >1,000
  - Same as Community Systems - Table 1
    • Monthly
Mandatory Disinfection §355

A. Routine, continuous disinfection is required of all public water systems.

B. Water being delivered to the distribution system shall:
   1. For Chloramines, contain at least a 0.5 mg/L residual measured as total chlorine;
   2. For Free Chlorine, contain a minimum residual measured as free chlorine in accordance with following table:

<table>
<thead>
<tr>
<th>pH Value</th>
<th>Free Chlorine Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>up to 7.0</td>
<td>0.5 mg/l</td>
</tr>
<tr>
<td>7.0 to 8.0</td>
<td>0.6 mg/l</td>
</tr>
<tr>
<td>8.0 to 9.0</td>
<td>0.8 mg/l</td>
</tr>
<tr>
<td>over 9.0</td>
<td>1.0 mg/l</td>
</tr>
</tbody>
</table>
A. Disinfection equipment shall be operated to maintain disinfection residuals in all storage tanks and all points in the distribution system at all times per the following:

1. For Free Chlorine, contain at least a 0.5 mg/L residual measured as free chlorine.

2. For Chloramines, contain at least a 0.5 mg/L residual measured as total chlorine.
Chlorine Residual Readings

• Record Minimum disinfectant residual

• On Lab 8 form at time of bacti collection
  - Determine total or free chlorine residual at time of TC Sample Collection
  - Record reading on Lab 8 Form
  - Must maintain at least 0.5 mg/L in DS system
  - Cannot exceed 4.0 mg/L (DBP Rule)
  - Failure to record value on Lab 8 = Violation
    • No chlorine level recorded – D/DBPR and SWTR Federal Monitoring Violation and requires public notice
  - Chlorine level < 0.5 mg/L = Chlorine Residual (CR) State Minimum Disinfection Violation
Coliforms

• Coliforms are an indicator organism for the presence of bacteria.
• Coliforms are the primary measure of microbial quality in drinking water
• Presence or absence of coliforms
• MCLG is zero
Coliform Analysis

- Louisiana uses the “Colilert” Method of analysis.
- All TC+ samples are also tested for *E. coli* (fecal indicator)
- Same sample analysis used for both TCR and GWR
Compliance Samples

**ROUTINE** – Samples collected every sampling period

**REPEATS** – Samples collected if any Routines are positive

**TRIGGERED SOURCE** – Collected at all active Ground Water Sources at same time as Repeat Samples are collected
Special Samples

**SPECIAL** sample type collected for **INVESTIGATIVE** purposes

Not used for compliance determination with TCR

- Do not count as Routine Samples
- Do not count against the PWS

- New Sample Taps
- Broken Water Mains
- Loss of Pressure
- Water Quality Concerns
- Hurricane Response
- Power Outages
Positive Routine (TC+)

Positive for Total Coliform ‘1’
Negative for E. coli ‘0’

Collect REPEATS within 24 hours*

* Repeats and Triggered Source samples shall be collected on the next business day.

Labs will not except samples after 2pm on Thursday.
Any Routine Positive for *E. coli*

- Requires REPEAT Samples to be collected within 24 hours regardless of weekday/holiday!
- Repeat samples must be coordinated with District Office and Laboratory staff prior to collection
How Many Repeats?

For 1 Routine Positive Sample per Period
Requires 4 Repeat Samples

For 2 or more Routine Positive Samples per Period
Requires 3 Repeat Samples
Where Are Repeat Samples Collected?

- ORIGINAL TAP
- UPSTREAM TAP *
- DOWNSTREAM TAP *
- ANOTHER POINT *

* Within 5 Service Connections of TC+
Original Tap *(5 houses/businesses)*
Temporary Routines are collected the month following a TC+ (for both C and NC PWS)

Collect at least 5 Routine Samples

Routine Monthly/Qtr  1 – 4 – Collect 5

Routine 5 or more Monthly - Collect normal Monthly Scheduled number

You are responsible for remembering to do this!
Non Community Systems
Quarterly Monitoring

Must collect repeats and TR on same schedule as Monthly systems

Continue collecting Monthly until all 5 Routines (TR) are negative for TC

Return to Qtr monitoring after cleared by Regional Engineering Staff
Ground Water Rule

• Conduct Triggered Source Monitoring as follow-up to all Routine TC+

• Sanitary Surveys – Significant Deficiencies
  - Triggered Source Monitoring Plan (required)
  - Raw Water Sample Taps (Use 4 digit code)
  - Use Drinking Water Watch as reference
Triggered Source Monitoring

• In response to all TC+ at same time as collect Repeats for TCR
• Collect at Raw Water Sample Tap
  - Prior to any treatment
• Same type sample as TCR Monthly/Qtr
  - Lab analyzes for TC and E. Coli
  - E.coli results are reported for GWR
    • TC+ for TG not an issue, only E. Coli
How many Triggered Source samples to collect

- Collect 1 Triggered (TG) sample at each active source for each TC+ that occurred
  - e.g., 2 TC+ with 2 active sources requires 4 total TG samples (2 at each source)

- GWR Triggered Source samples must be collected on the same day as the Repeat Samples are collected
Triggered Source Sample Collection Location
Small System Well

- Chlorine Injection
- Check Valve
- Triggered Source Sample Tap
Submersible Well

Chemical Injection

Triggered Source Sample Tap

WELL
Consecutive Systems – GWR

Consecutive (Purchase) systems must notify Wholesaler of all TC+

Wholesalers must notify Consecutive systems of all TC Violations

All Active sources upstream of TC+ must be monitored
Drinking Water Watch

- Available on WWW to all users
- Review Contact info for PWS
- View TCR Schedule
- Verify number sources for TG monitoring
- Report updates and changes to your Regional Engineering Services Office

https://sdw.oph.dhh.la.gov/DWW/
Public DWW on WWW

Public Water Supply Systems Search Parameters

Water System No.  
Water System Name  
Principal Parish Served  
Water System Type  
Primary Source Water Type  
Point of Contact Type

Sample Search Parameters

Sample Class
Sample Collection Date Range  
(Click to select a value...)

Search For Water Systems  
Search For Samples  
Review Consumer Confidence Data  
Clear  
Glossary

Click Here for the Parish Map of Louisiana
Find your system - PWSID

<table>
<thead>
<tr>
<th>Water System No.</th>
<th>Water System Name</th>
<th>Type</th>
<th>Status</th>
<th>Principal County Served</th>
<th>Primary Source Water Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>LA1001001</td>
<td>CHURCH POINT TOWN OF WATER SYSTEM</td>
<td>C</td>
<td>A</td>
<td>ACADIA</td>
<td>GW</td>
</tr>
</tbody>
</table>

Total Number of Records Fetched = 1
Contact Information

Water System Details

Water System No.: LA1001001
Water System Name: CHURCH POINT TOWN OF WATER SYSTEM
Principal Parish Served: ACADIA
Status: A

Federal Type: C
State Type: C
Primary Source: GW
Activity Date: 01-01-1950

Points of Contact

<table>
<thead>
<tr>
<th>Name</th>
<th>Job Title</th>
<th>Type</th>
<th>Phone</th>
<th>Address</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>LARSON, JOHN</td>
<td>OPERATOR</td>
<td>DO</td>
<td>337-684-5686</td>
<td>TOWN OF CHURCH POINT WATER SYSTEM, 102 CHURCH ST, CHURCH POINT, LA-70525</td>
<td><a href="mailto:CPWATERWORKS@CHARTERINTERNET.COM">CPWATERWORKS@CHARTERINTERNET.COM</a></td>
</tr>
<tr>
<td>LARSON, JOHN</td>
<td>OPERATOR</td>
<td>AC</td>
<td>337-684-5686</td>
<td>TOWN OF CHURCH POINT WATER SYSTEM, 102 CHURCH ST, CHURCH POINT, LA-70525</td>
<td><a href="mailto:CPWATERWORKS@CHARTERINTERNET.COM">CPWATERWORKS@CHARTERINTERNET.COM</a></td>
</tr>
<tr>
<td>BOUDREAX, ROGER</td>
<td>MAYOR</td>
<td>LC</td>
<td>337-684-5686</td>
<td>TOWN OF CHURCH POINT, 102 CHURCH ST, CHURCH POINT, LA-70525</td>
<td>Not Available</td>
</tr>
<tr>
<td>MURPHY, JONATHAN</td>
<td>OPERATOR</td>
<td>OP</td>
<td>337-684-5686</td>
<td>102 Church Blvd, CHURCH POINT, LA-70525</td>
<td>Not Available</td>
</tr>
<tr>
<td>HEBERT, JOSEPH</td>
<td>OPERATOR</td>
<td>OP</td>
<td>337-684-5686</td>
<td>TOWN OF CHURCH POINT WATER SYSTEM, 102 CHURCH ST, CHURCH POINT, LA-70525</td>
<td>Not Available</td>
</tr>
</tbody>
</table>
Facility List
Use to determine where to collect TG Samples

Drinking Water Branch
Water System Facilities

<table>
<thead>
<tr>
<th>State Asgn ID No.</th>
<th>Facility Name</th>
<th>Type</th>
<th>Activity Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS0950</td>
<td>DISTRIBUTION SYSTEM</td>
<td>DS</td>
<td>A</td>
</tr>
<tr>
<td>PF001</td>
<td>SERVICE PUMPS</td>
<td>PF</td>
<td>A</td>
</tr>
<tr>
<td>EL001</td>
<td>ELEVATED TOWER</td>
<td>ST</td>
<td>A</td>
</tr>
<tr>
<td>UN001</td>
<td>CLEARWELL</td>
<td>ST</td>
<td>A</td>
</tr>
<tr>
<td>TP001</td>
<td>TREATMENT PLANT</td>
<td>TP</td>
<td>A</td>
</tr>
<tr>
<td>1001001-002</td>
<td>WELL #2</td>
<td>WL</td>
<td>A</td>
</tr>
<tr>
<td>1001001-004</td>
<td>WELL #4</td>
<td>WL</td>
<td>A</td>
</tr>
<tr>
<td>1001001-005</td>
<td>WELL #5 - BW GUIDRY &amp; S. ROGERS ST</td>
<td>WL</td>
<td>A</td>
</tr>
<tr>
<td>1001001-001</td>
<td>WELL #1</td>
<td>WL</td>
<td>I</td>
</tr>
<tr>
<td>1001001-003</td>
<td>WELL #3-ABANDONED</td>
<td>WL</td>
<td>I</td>
</tr>
</tbody>
</table>
Monitoring Plan

- Maintain TCR and Disinfection monitoring in the Monitoring Plan Portal (MPP) - [https://www.ldhh-mpp.org/](https://www.ldhh-mpp.org/)
- TCR/ACR Monitoring Sites must be representative of the distribution system and not clustered together.
- Mandatory sites for TCR compliance monitoring include:
  1. Maximum Residence Time (MRT) - is where the water has been in the system the longest. Typically this is the furthest point in the distribution system.
  2. Midpoint – midway between the MRT and POE.
  3. Opposite from the MRT – other long distance site.
  4. Midpoint of site 3 and POE.
- Prohibited sites for TCR compliance monitoring:
  1. At or near the POE
  2. At Storage tanks
- Routine TCR samples shall not be taken at the same site more than once per month.
- Systems must rotate through all approved TCR sample sites.
DHH Laboratory Update

• Metairie lab will be closing in March 2015.
• New sample depot in Metairie (L&A Road) will open for samples. (See SDWP website for sample depot information)
• Baton Rouge lab will open in April 2015
• Transport all TC and GW TG Samples directly to State Lab, or
• Drop off at Authorized Sample Depots based on Sample Truck Schedule listed on the SDWP website
• Allow for minimum 30 hour hold time
Chain of Custody

- Collector name on Lab 8 Form
- Log Samples in at Drop off Depot/Lab
- Store in assigned refrigerator
- Follow Sample Truck Standard Schedule to determine when samples can be dropped off

TC Samples must be analyzed within 30 hours of collection time - you are responsible
Who’s Responsible??

Public Water System

The WATER SUPPLY PERSONNEL are responsible for insuring that all water samples are collected during the correct compliance period and transported to a DHH approved laboratory on a timely basis.
Public Notification

TIER 1 VIOLATION

When routine and repeat samples are:
- Total Coliform positive and Fecal positive or
- FECAL positive and Total Coliform positive

Requires PN within 24 HOURS via:
- Electronic Media and
- Newspaper

Mail All Information to District Office.
Public Notification

TIER 2 VIOLATION

When sample results:

- Two TC positives/Mn or Qtr or 5% of samples (for systems that collect 40 or more samples)

Requires PN:

- Newspaper Within **14 days**, and
- Mail or Hand Delivery Within **30 days**

Mail All Information to District Office
PUBLIC NOTIFICATION

TIER 3 VIOLATIONS

When:
- Failure to collect required samples

Requires PN:
- Newspaper within 45 days, and
- Mail/Hand delivery within 90 days

Mail All Information to District Office.
QUESTIONS