

Safe Drinking Water Program Update



Water Resources Commission Meeting 12/3/13

Background

- In 2011, two people died from Primary Amebic Meningoencephalitis (PAM) caused by the *Naegleria fowleri* amoeba in DeSoto Parish and St. Bernard Parish.
- In 2013, a 4-year old died of PAM caused by *Naegleria fowleri* amoeba in St. Bernard Parish.
- Testing conducted by DHH/CDC in both St. Bernard and DeSoto found this amoeba in the water supply.
- PAM/*Naegleria fowleri* infection is rare and there is only one other case associated to drinking water (Arizona in untreated ground water) in the country.
- The water systems in Australia and Arizona that had this amoeba detected in the drinking water raised their levels of disinfectant residual concentrations in the water supply to control this amoeba (0.5 mg/L to 1.2 mg/L free chlorine).

Emergency Rule

- There are no commercial labs that are approved by the CDC to test for *Naegleria fowleri* and the CDC's recommendation to prevent infections caused by the amoeba is to maintain an adequate disinfectant level in the water throughout the distribution system.
- In light of the *Naegleria fowleri* amoeba detections in two different water systems in LA and lack of available testing, the State Health Officer finds it necessary to issue an Emergency Rule (ER) to avoid an imminent peril to the public health and safety.
- The intent of the Emergency Rule is to ensure that finished water storage tanks and all points in the distribution system have a disinfectant residual concentration to control the *Naegleria fowleri* amoeba and to ensure that public water systems are monitoring sites which are representative of the water throughout the distribution system for total coliform and disinfectant residual concentration.
- Our goal is to control the amoeba so that Louisiana residents and visitors can feel confident in the safety of the water.

What does the Emergency Rule require?

- Effective November 6, 2013 - all systems currently disinfecting shall increase residual monitoring by 25% of what is required by Total Coliform Rule, Surface Water Treatment Rule & Disinfectants/Disinfection Byproduct Rule. These additional samples must be taken at sites in extremities or low flow areas in the distribution system.
- Effective February 1, 2014 - all systems shall provide sample sites that are equivalent to 1.5 times the minimum number of samples required for total coliforms (see next slide for examples).
- Monitoring Requirements:

Sample Location/Site	Sample for (analytes)	Monitoring Frequency	Increased Monitoring
Point of Entry (POE)	Chlorine	Continuously*/Daily	n/a
Total Coliform Rule	Coliform and Chlorine	Monthly	Daily if site < 0.5 mg/L
Additional Residual	Chlorine	Monthly	Daily if site < 0.5 mg/L
Maximum Residence time (MRT)	Chlorine	Daily	n/a

* Surface water systems serving 3,300 or greater shall monitor continuously for chlorine.

What does the Emergency Rule require?

- All systems shall submit a monitoring plan and map with all coliform and residual sample sites (POE, MRT, TCR Routines and 25% additional sites for chlorine residual monitoring) by January 1, 2014.
 - The monitoring plan shall be on a form approved by the state health officer. This means that DHH will provide a monitoring plan template.
 - The monitoring plan shall provide a 911 street address (or latitude/longitude coordinates) for each sample site.
 - The monitoring plan map shall depict all sample sites, source facilities and the service area.

What does the Emergency Rule require?

Examples of required sites based on the ER and Total Coliform Rule:

System Population Served	Monthly Routine TCR samples ¹	Number of sites required for TCR & chlorine (1.5xTCR samples) ²	Additional sites for Chlorine monitoring (0.25xTCR samples) ²	Total number of sites
25 - 1,000 ³	1	2	1	3
1,001 - 2,500	2	3	1	4
2,501 - 3,300	3	5	1	6
4,101 - 4,900	5	8	2	10
8,501 - 12,900	10	15	3	18
25,001 – 33,000	30	45	8	53
50,001 – 59,000	60	90	15	105
96,001 - 130,000	100	150	25	175
220,001 – 320,000	150	225	38	263

¹ Minimum number of samples required per month per Total Coliform Rule (LAC 51:XII.903.C).

² Round any mixed (fractional) number product up to the next whole number.

³ Non-community ground water system serving 1,000 or less individuals may monitor quarterly.

What does the Emergency Rule require?

- Unless systems are granted additional time for significant infrastructure improvements by submitting a written request prior to February 1, 2014:
 - All systems* shall achieve and maintain the following minimum chlorine levels no later than February 1, 2014 at the POE, in finished water storage tanks and at all points in the distribution system:
 - 0.5 mg/l of free chlorine; or
 - 0.5 mg/l of chloramine residual (measured as total chlorine) for systems that feed ammonia.
 - *Exception for industrial systems holding a disinfection waiver may submit an alternate plan or may “opt out” of adding disinfection if the systems users are notified of such on a quarterly basis.

What else does the Emergency Rule require?

- Systems that chloraminate (chlorine with ammonia addition) shall develop and submit a Nitrification Control Plan by March 1, 2014.
- Chlorine residuals shall be measured using EPA-approved analytical methods. New analytical methods added to Table 1 of LAC 51:XII.1105.C. But this means that color wheels are no longer acceptable for measuring the disinfectant residual concentration (free or total chlorine).
- Clarifies that records of chemical tests/measurements shall be kept and maintained as prescribed by federal regulations (*i.e.*, 10 years for chlorine residuals).
- Clarifies that routine TCR samples shall not be taken at the same site more than once per month.

Implementation Assistance

- www.dhh.la.gov/safedrinkingwater
 - Click on “Emergency Rule” under News and Events

Emergency Rule in Response to *Naegleria fowleri* Amoeba Detections

In light of the the *Naegleria fowleri* amoeba detections in two different water systems in Louisiana, the State Health Officer finds it necessary to issue an Emergency Rule (ER) to avoid an imminent peril to the public health and safety. The intent of the ER is to ensure that finished water storage tanks and all points in the distribution system have a disinfectant residual concentration to control the *Naegleria fowleri* amoeba and to ensure that public water systems are monitoring sites which are representative of the water throughout the distribution system for total coliform and disinfectant residual concentration.

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[Declaration of the Emergency Rule](#) (November 6, 2013)

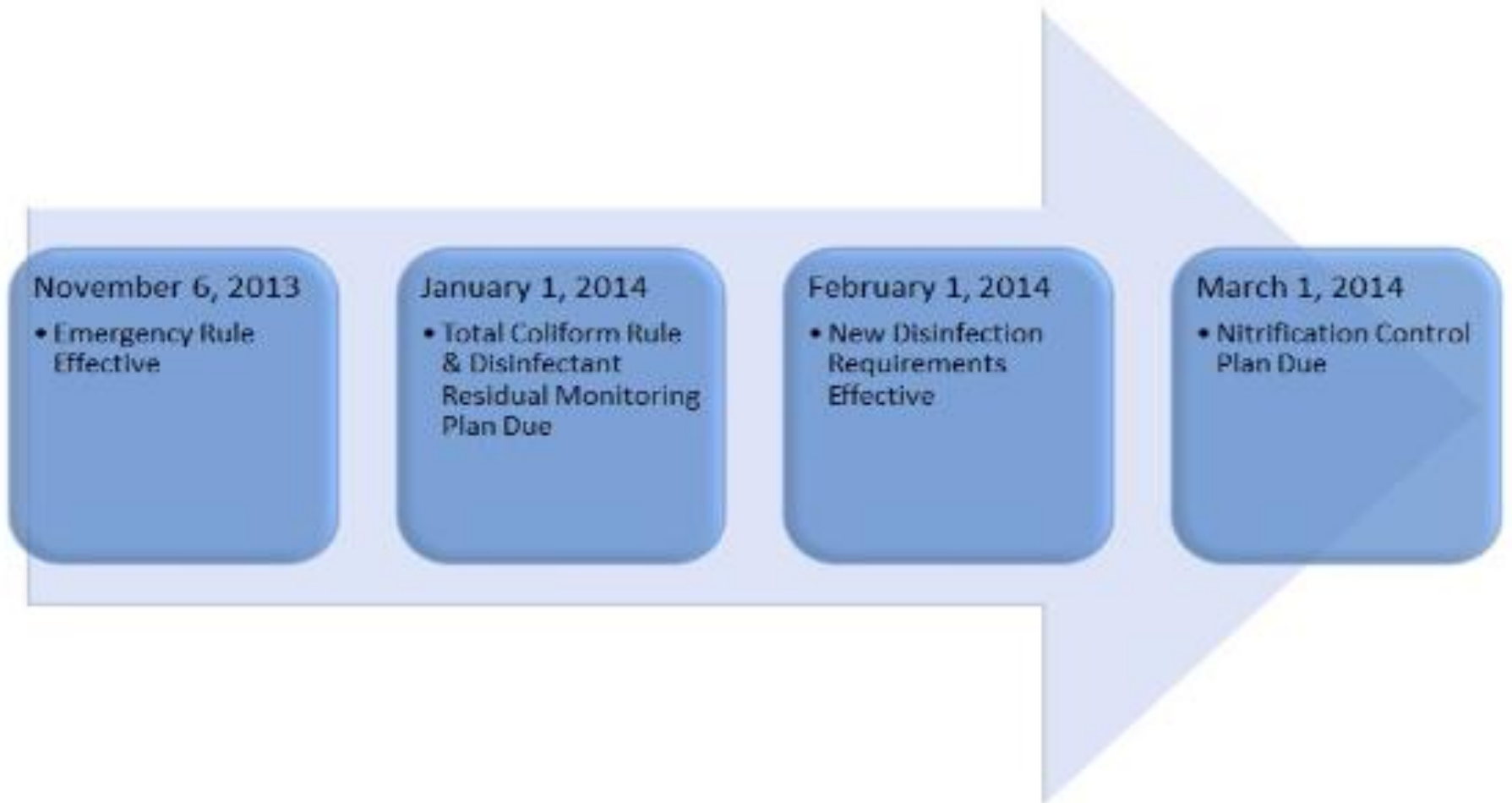
[PWS Monitoring Plan Portal](#) ***Coming Soon***

[Emergency Rule Overview](#) - Quick overview of the Emergency Rule

[Total Coliform Rule \(TCR\) and Disinfectant Residual Sample Chart](#) - Indicates the number of monthly bacteriological and monthly disinfectant residual samples required under the emergency rule. Shows the minimum number of additional sites needed for monthly bacteriological samples and monthly disinfectant residual samples. This chart does not include information on daily disinfectant residual samples required from points of entry or maximum residence time sites.

[Hach Chlorine Test Kit](#) - Presentation on collecting a low/high range chlorine residual with the Pocket Colorimeter II. Always refer to the manual provided with the Pocket Colorimeter II. This presentation is for additional clarification.

Emergency Rule Timeline



Click on the location below to schedule an appointment. [Baton Rouge Map.](#)

DECEMBER 2013				
Monday	Tuesday	Wednesday	Thursday	Friday
2	3	4	5	6
9 Baton Rouge Slidell (map)	10 Baton Rouge Pineville (map)	11 Baton Rouge West Monroe (map) Zachary (map)	12 Baton Rouge Duson (map)	13 Baton Rouge Shreveport (map)
16 Baton Rouge Many (map)	17 Baton Rouge Slidell (map)	18 Baton Rouge Franklin (map) Lake Charles (map)	19 Baton Rouge Kinder (map) Hammond (map)	20 Baton Rouge
23 Baton Rouge	24	25 Christmas	26 Baton Rouge	27 Baton Rouge
30 Baton Rouge	31			

Implementation Assistance

Emergency Rule FAQ

Technical Assistance Providers - The following technical assistance providers are available to help answer questions regarding the emergency rule and provide assistance with submitting your updated TCR and chlorine residual monitoring plans. To send a request for assistance, click on the providers' name below.

- [Louisiana Rural Water Association](#)
- [Thornton, Musso, & Bellemin, Inc.](#)

DHH Approved Chlorine Residual Forms

- [Daily Chlorine Residual at Entry Point Form](#)
- [Daily Chlorine Residual at Maximum Residence Time \(MRT\)](#)
- [Monthly Chlorine Residual at Additional Monitoring Sites](#)

Regional Contact Map

Happening Outside Louisiana

- Colorado Salmonella Outbreak (2008)
- Pennsylvania Legionella Outbreak (2012)
- Oregon Crypto Outbreak (2013)

Alamosa Waterborne *Salmonella* Outbreak

March-April 2008

Ron Falco, P.E.

Alicia Cronquist

Alamosa County PH



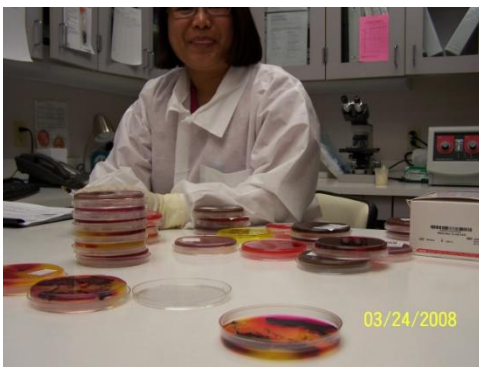
BOTTLED
WATER
ADVISORY

ALAMOSA
CALL 877
462 2911

Initial Cases – March 2008

- **8th**: Alamosa student, part time restaurant worker with bloody diarrhea
- **9th**: ER visit, stool culture
- **12th**: Lab confirms "*Salmonella*"
- **12-13th**: 2 Alamosa infants also have *Salmonella*
- **14th**: Alamosa physicians report 4 other cases of children with bloody diarrhea this week
- No links identified during initial case investigations





Early Case Summary

- 15 of the first 20 cases ate food from the high-volume restaurant where index case worked!
- 4 early cases were infants on commercial baby food or formula only mixed with tap water
- By March 17, eighteen culture confirmed cases plus more reports of children with bloody diarrhea and fever

Drinking Water Program Strategies

- Reviewing all disinfection waivers (this had started prior to the Alamosa event)
- Develop more specific inspection criteria for tanks and distribution systems
- Consider regulatory revisions regarding waivers and groundwater disinfection
- Consider revisions to Article 12 involving cross connection control
- Ensure compliance with disinfectant residual requirements
- Launch capacity development initiative regarding storage tank and distribution system operations and maintenance

▶ NTNC Water Supply - 2012

- PHILADELPHIA, Pennsylvania (September 11, 2012) – Jules Zacher is investigating an outbreak of Legionnaires' disease among hotel guests who stayed at the Comfort Suites in Grantville, PA. Recent patrons of the hotel have been notified of the ongoing investigation. According to a letter sent to guests, the Pennsylvania Department of Health and the Pennsylvania Department of Environmental Protection have been involved in the investigation. Water testing was conducted on August 23, 2012 and environmental samples from the hotel's water system were positive for Legionella, the bacteria that can cause Legionnaires' disease.
- Facility: ground water, no disinfection, no history of significant violations
- DOH investigation implicated potable water supply
- Conducted an inspection – no smoking gun
- Collected Legionella samples – raw water, hot/cold water lines, swabs of shower heads

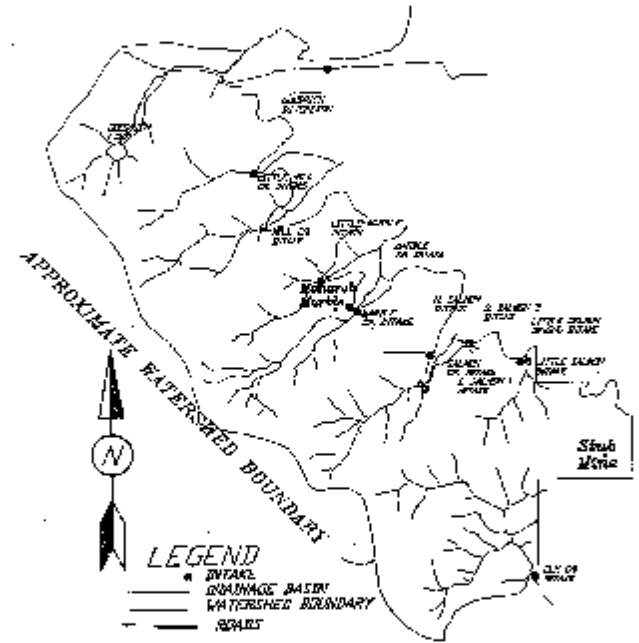


Tools

- SOP for responding to Legionella WBDOs
 - Covers both PWSs and customers of a PWS
 - Includes Distribution System Optimization review
- Design standards and permit conditions
- Potential regulatory revisions to strengthen secondary disinfection requirements:
 - Considering range of 0.20 – 0.50 mg/L (free)
 - 1.0 mg/L (total)



BAKER CITY WATERSHED
DRAINAGE BASINS AND INTAKES



**Baker City watershed –
Elkhorn Mtns**

Goodrich Lake – elev. 6871

Crypto Outbreak Timeline

- 7/29-31/13 – Increasing numbers of residents report to ED and docs with AGI symptoms, 5 confirmed crypto
- 7/31/13 – City issues precautionary boil notice, begins sampling from sources and distribution for crypto
- 8/3/13 – Test results from 7/31 positive for crypto/giardia
- 8/7/13 – Very high crypto result for 8/4 Elk Creek intake sample, intake shut down
- 8/20/13 – Boil notice lifted after two rounds of source and distribution samples with non-detect results
- 8/21/13 to present - Two samples per week from combined source water before treatment
- **October 2013 – PIPELINE newsletter article (see website)**
- **10/22/13 – CD Summary article (see website)**



Elk Creek diversion

913 oocysts per 10L