

Water Quality Emergencies

For small water systems

Eric Zúñiga, P.E.
May 24, 2016

WHAT IS COVERED

- * Typical Emergencies
- * Resolving the Emergency
- * When do you contact your Local Primacy Agency (LPA)?
- * Resources

WATER OUTAGES

- * Any failure of the water system to reliably deliver water to its customers
- * Potential Causes:
 - * Power failure outside of system's control
 - * Equipment/facility malfunction
 - * Well goes dry
 - * Fires
 - * Drought
 - * Earthquakes
 - * Terrorism

RESOLVING THE OUTAGE

- * Call the LPA
- * Is a Boil Water Notice (BWN) necessary?
- * Restore pressure to the system
- * Increase chlorine residual (~1.0 mg/L) or activate Emergency Disinfection Plan
- * Flush the system to spread the residual
- * Verification samples to ensure water quality

AFTERMATH

- * System may need to provide bottled or hauled water for Do Not Drink Tier 1 Notices, i.e. Nitrate
- * Coordinate with the LPA on lifting the BWN
- * NSF Standard 60 disinfection supplies
 - * List of local vendors
 - * Larger utilities in the area with supplies

BACTERIOLOGICAL EMERGENCY

- * A routine sample has come back positive for total coliform
- * Contact your LPA proactively or when MCL is exceeded
- * Raise the chlorine residual and flush the system or EDP
- * Follow your BSSP (Bacteriological Sample Siting Plan) including Ground Water Rule (GWR) source sampling requirements
 - * Repeat samples, correct number and location
- * Identify and fix the source of the problem (well, tank, distribution?)
- * Continually take repeats until problem is resolved
- * E. coli samples are more serious

EXAMPLE

- * Water system loses power to the system including SCADA
- * Loss of power eventually causes a water outage
- * BWN issued by DDW
- * BWN cleared after all six samples came back absent

AFTERMATH

- * Determine if the MCL has been exceeded and notify the LPA within 24 hours
- * Issue a Tier 1 (BWN) or Tier 2 notice if MCL is exceeded
 - * BWN also for significant rise in bacterial count
- * RTCR (Revised Total Coliform Rule) – Level 1 or Level 2 Assessment requirement
- * Don't forget to take 5 samples the following month!

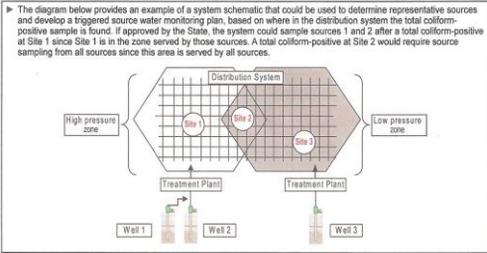
EXAMPLE

- * CWS Water System has a well sample E.coli positive
- * Resampling reveals more E.coli positives
- * Had to implement continuous chlorination
- * Inspection of the water system

GROUND WATER RULE (GWR) TRIGGERED MONITORING

Must monitor sources if positive coliform in the distribution system.

- * Source sample must be analyzed for the presence of E.coli
- * If the triggered source water sample is E.coli-positive, the system must take corrective action as directed by the LPA



AVOID MAN-MADE EMERGENCIES

- * Water quality sampling required:
 - * After construction or repair of wells (AWWA C654)
 - * After main installation or repair (AWWA C651)
 - * After construction, repair, or maintenance of storage facilities (AWWA C652)
 - * After any system pressure loss to less than five psi. Samples collected shall represent the water quality in the affected portions of the system.

AVOID MAN-MADE EMERGENCIES

- * Develop an Emergency Response Plan
 - * Identify backup power resources
- * Develop an Emergency Disinfection Plan
- * Have adequate supplies on hand for disinfection, backup pumps, hydrants, etc.
- * Build redundancy into your system (multiple wells, multiple tanks, looped systems, continuous chlorination)
- * Dedicated sample taps

GRANT EMERGENCY FUNDING AVAILABLE

- * What is available to small water agencies
 - * Must be CWS
 - * Up to \$10,000.00 available quickly (Limited funds available)
 - * Must get prior approval from District Office
 - * Must have an idea of the project cost
 - * Can be used to pay for:
 - * Hauled or bottled water
 - * Emergency generator
 - * Pipeline repair
- * Drought-related emergency funding available (\$500,000 per project)

QUESTIONS