

# Regulatory Update

Plymouth County Water Works Association  
Monthly Meeting  
January 25, 2012

Damon Guterman  
MassDEP Drinking Water Program



# RTCR

- Total Coliform Rule Identified for Changes under EPA's Six-Year Review Process
- Advisory Committee met in 2007-2008 and Signed an Agreement in Principle to Guide the Rule Changes
- July 14, 2010, EPA Proposed Revised Total Coliform Rule (RTCR)
- Final EPA Regulation Expected Spring 2012
  - Could Change this Summary
- MassDEP Hopes to Adopt RTCR Soon After Publication



# RTCR – MCL and PN

- Monthly Total Coliform Maximum Contaminant Level (MCL) and Tier 2 Public Notice (PN) requirement dropped
- Treatment Technique Added
  - Assessments and Corrective Actions.
  - Sanitary Defect: “a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place”
  - Tier 2 PN Required for Failure to Perform Assessment or Correct Defect
- *E. coli* MCL and Tier 1 PN Remain but Now Will Also Trigger an Assessment



# RTCR – Monitoring

- Additional Criteria for small Community Groundwater Systems to Qualify for and Remain on Quarterly Reduced Monitoring
  - One MA COM PWS on Quarterly
  - MA Does Not Offer the Federal NTNC/TNC small Groundwater System Annual Reduced Monitoring Option
- Repeats after Total Coliform-Positive (TC+)
  - Reduces from 4 to 3 for PWS serving 25-1000
- Repeat Sample Sites need not be Within 5 Service Connections Up- and Downstream
- Additional Routines in Following Month
  - Reduces from 5 to 3 for PWS Taking less than 1/Month
  - Eliminated for PWSs Taking at least 1/Month



# RTCR – Increased Monitoring

- Quarterly to Monthly
  - COM/NTNC/TNC (GW, serving 25-1000)
- Triggers
  - Level 2 Assessment (e.g. *E. coli* MCL Violation)
  - 2 Level 1 Assessments in 12 Months
  - Treatment Technique Violation
  - 2 RTCR Monitoring Violations in 12 Months



# RTCR – Level 1 Assessments

- Triggers
  - More than 5.0% TC+ for PWS Taking 40+ Samples/Month
  - More than One TC+ for PWS Taking Fewer than 40 Samples/Month
  - Failure to Collect all Repeats
- PWS Conducts and Submits Form within 30 days
- MassDEP Determines if the Assessment is Sufficient
- Basic Examination of Source Water, Treatment, Distribution System, Storage and Operations
- MassDEP Assessment Form (2 pages)  
<http://www.mass.gov/dep/water/drinking/rtcr1.htm>



# RTCR – Level 2 Assessments

- Triggers
  - Violation of the *E.coli* (EC) MCL
    - EC+ repeat following TC+ routine
    - TC+ repeat following EC+ routine
    - Failure to collect all repeats following EC+ routine
    - Failure to test for EC in TC+ repeat
  - 2 Level 1 Triggers in 12 months
- MassDEP or Third Party Conducts (Could be PWS)
- Similar to Level 1 but more In-Depth



# RTCR – Corrective Action

- All Sanitary Defects found during Assessments must be Corrected
- Timetable for Corrective Actions Not Complete within 30 days must be Proposed on the Form
- Final Schedule Determined by MassDEP in Consultation with the PWS



# RTCR – Other

- Drops Fecal Coliform (MA already did this)
- Allows Dedicated Sampling Stations
- Seasonal Systems
  - NTNC/TNC Operating 3 or fewer Quarters/Year
  - MassDEP Approved Start-up Procedure
  - Collect Quarterly Samples during High Demand or High Vulnerability



## Stage 2 DBPR

- COM/NTNC using Disinfectant (not UV) or Delivering Water that has been Disinfected (not UV)
- Switch from Stage 1 DBPR
  - April 1, 2012: PWS serving 100,000+
  - October 1, 2012: PWS serving 50,000-99,999
  - October 1, 2013: PWS serving 10,000-49,999 and PWS serving less than 10,000 if no LT<sub>2</sub>ESWTR *Cryptosporidium* monitoring
  - October 1, 2014: PWS serving less than 10,000 that had to conduct LT<sub>2</sub>ESWTR *Cryptosporidium* monitoring
  - Consecutive/Wholesale PWSs Start at Earliest Date of PWSs in the Combined Distribution System



# Stage 2 DBPR - Transition

- Staying on Stage 1 Reduced Monitoring
  - PWS Received 40/30 Certification or Very Small System Waiver of Stage 2 Initial Distribution System Evaluation
  - Meet Stage 2 Reduced Monitoring Criteria
  - Same Locations as Stage 1
- Staying on Stage 1 Increased Monitoring
  - PWS Must Meet Stage 2 Criteria for Return to Reduced Monitoring



# Stage 2 DBPR - Monitoring

- Follow Monitoring Plan Approved by MassDEP
- Quarterly Samples Must be 90 Days Apart
- Can Qualify for Reduced Monitoring
  - Locational Running Annual Averages (LRAAs) for Both THM and HAA<sub>5</sub> are no more than one-half MCLs
  - SW/GWUDI Source Water Annual Average Total Organic Carbon (TOC) does not exceed 4.0 mg/L
- To Remain on Reduced Monitoring
  - Quarterly: All LRAAs do not exceed one-half MCLs
  - Annual or Less: All THMs at or below 0.060 mg/L, All HAA<sub>5</sub>s at or below 0.045 mg/L
  - SW/GWUDI Source Water Annual Average TOC does not exceed 4.0 mg/L



# Stage 2 DBPR - Monitoring

- Increased Monitoring
  - If not on Quarterly – any Single THM or HAA<sub>5</sub> Sample over MCL Switches All Locations to Quarterly
  - Return to Routine Monitoring after at least Four Consecutive Quarters where All Locations have THM LRAAs at or below 0.060 mg/L and HAA<sub>5</sub> LRAAs at or below 0.045 mg/L

# Stage 2 DBPR - OELs

- Operational Evaluation Levels
- Calculated at Each Location Every Quarter
- = (Quarter 1 + Quarter 2 + Quarter 3 + Quarter 3)/4
- Exceeded if Over THM or HAA<sub>5</sub> MCL
- Operational Evaluation
  - Examine Treatment, Distribution, Storage, Flushing, etc.
    - Can Limit Scope with MassDEP Approval
  - Submit Written Report to MassDEP within 90 days
  - Recommend Steps to Avoid Exceeding OELs



## Stage 2 - MCL

- Locational Running Annual Average (LRAA)
  - No Longer Average All Results Across System
- All Locations Must Separately Meet MCLs
- LRAA is Determined with Available Results
  - Failure to Monitor does not Avoid Calculation
  - Example if PWS Missed Quarter 3  
$$\text{LRAA} = (\text{Quarter 1} + \text{Quarter 2} + \text{Quarter 4})/3$$
  - All Samples for each Location Included in Average
- PWSs on Annual Sampling are Switched to Quarterly if any Sample Exceed the MCLs
  - LRAAs Calculated after Four Consecutive Quarters unless the MCL would be exceeded regardless of additional data



## Stage 2 - Disinfectants

- Stage 1 DBPR Provisions Remain Unchanged
- Maximum Residual Disinfectant Levels (MRDLs)
  - Chlorine or Chloramines 4.0 mg/L
  - Chlorine Dioxide 0.8 mg/L
- Monitor Chlorine and Chloramines with TCR Samples
- Monitor Chlorine Dioxide
  - Daily at Entry Point
  - Triggered Next Day 3-Sample Distribution Sets following Entry Point Sample over MRDL
- UV – No DBPR Requirements



## Stage 2 – Changing Disinfectants

- Discuss any Treatment Changes with MassDEP Prior to Making the Change
- May Require a Treatment Modification Permit
- SW/GWUDI Systems May Need to Calculate a Disinfection Benchmark (IESWTR/LT<sub>1</sub>ESWTR)
- Switching to Chlorine Dioxide adds Chlorite Monitoring and MCL Compliance
- Switching to Ozone adds Bromate Monitoring and MCL Compliance
- EPA Guidance Treats MIOX (mixed oxidant) as Chlorine



# LT2ESWTR

- All PWSs Subject to LT<sub>2</sub>ESWTR have Completed the Initial Source Water Monitoring Round
- Filtered PWSs Submitted a *Cryptosporidium* Bin Classification Report
- Unfiltered PWSs Submitted the Mean of their *Cryptosporidium* Sample Concentrations



# LT2ESWTR – Additional Treatment

- PWSs may have been required to Install Additional Treatment
  - April 1, 2012: PWS serving 100,000+
  - October 1, 2012: PWS serving 50,000-99,999
  - October 1, 2013: PWS serving 10,000-49,999
  - October 1, 2014: PWS serving less than 10,000
- Up to 2-Year Extensions Possible



# LT2ESWTR – Second Round

- Source Water Monitoring
  - April 1, 2015: PWS serving 100,000+
  - October 1, 2015: PWS serving 50,000-99,999
  - October 1, 2016: PWS serving 10,000-49,999
  - October 1, 2017: PWS serving less than 10,000 and monitoring for *E. coli*
  - April 1, 2019: PWS serving less than 10,000 and monitoring for *Cryptosporidium*



# Everything Else

- Manganese – MassDEP Seeking Input from Science Advisory Group on Health-Based Guideline
- Cyanobacteria – MassDEP Developing Guidance to Help PWSs Manage Blooms
- Perchlorate – EPA Workgroup Moving through Process to Propose a Regulation by February 2013
- Lead and Copper – EPA Workgroup Moving through Process to Propose Long Term Changes to Rule
- Chromium-6 – EPA Reviewed New Science and will Finalize Human Health Assessment then Decide if a New MCL is Warranted



# Questions?

Damon Guterman

MassDEP Drinking Water Program

One Winter Street, 5<sup>th</sup> Floor

Boston, Massachusetts 02108

(617) 574-6811

[Damon.Guterman@state.ma.us](mailto:Damon.Guterman@state.ma.us)



# Alternative Disinfectants

- Chloramines <sup>1</sup>
- Chlorine Dioxide <sup>1</sup>
- Proprietary Mixed Oxidants (MIOX<sup>®</sup>) <sup>2</sup>
- Ultraviolet Radiation (UV) <sup>1</sup>
- Ozone <sup>1</sup>

1. Source: EPA Alternative Disinfectants and Oxidants Guidance Manual April 1999

2. Source: Manufacturer's Published Literature