OKI GROUNDWATER COMMITTEE
September 11, 2013 - 10:00 AM
OKI Board Room
720 East Pete Rose Way (at the corner of Eggleston Avenue)*

AGENDA

1. Welcome/ Introductions

2. Announcements

3. Update on Local Groundwater Management Efforts
   Scott Belcher, Mike Ekberg, Tim McLelland, Terry Morris

4. OKI Staff Update

5. The Long Term Lead and Copper Rule
   Jeff Swertfeger, Greater Cincinnati Water Works

6. Implementing the Revised Total Coliform Rule
   Bill Fromme, Greater Cincinnati Water Works and Mark Sheahan, Ohio EPA

7. Other Business

ADJOURNMENT
Lead and Copper Rule Updates

Jeff Swertfeger
Assistant Superintendent
Greater Cincinnati Water Works
Thanks to

Julie Frazier
Sr. Environmental Specialist
Butler County Water and Sewer Department
Lead and Copper Rule

- Adopted in 1991
- Control Lead (brain damage) and Copper (GI issues)
- No MCL
- Action levels
Current LCR

- Systems required to specify corrosion control
- Goal to **MINIMIZE** lead
- Monitor Water Quality Parameters (WQPs)
- Monitor for Pb and Cu
- Compare 90\(^{th}\) percentile with action levels
  - 15 ug/L for lead
  - 1,300 ug/L for copper
If over Lead action level.....

- Not a violation
- Take specific actions
Change drivers

- Public outcry over Washington DC lead levels
- Still sources of lead in water systems
- Doesn’t regulate exposure
- Construction can increase lead
- Congress passes legislation
Consideration for Long-Term LCR

1. What is OCCT
2. Where to get samples
3. How to sample
4. Dealing with LSL
5. What to do about Copper?
Consideration for Long-Term LCR

1. What is OCCT
2. Where to get samples
3. How to sample
4. Dealing with LSL
5. What to do about Copper?
What is OCCT?

- Optimal Corrosion Control Treatment
- Must minimize
- What is minimized?
What is Minimized?

Schock, et al.
JAWWA 1989
What is OCCT?

- Must minimize
- What is minimized?
- Consider other impacts?
- Should we all just go to high phosphate doses?
- Who should minimize? All or only if exceed AL?
- Repeat desktop, bench, pipe loop studies?
Consideration for Long-Term LCR

1. What is OCCT
2. Where to get samples
3. How to sample
4. Dealing with LSL
5. What to do about Copper?
Where to get samples

- Current Tier 1
  - Lead Service Line
  - 50/50 Lead Solder

- Are installation dates still valid?
- Go to all Lead Service Line Sites?
Consideration for Long-Term LCR

1. What is OCCT
2. Where to get samples
3. **How to sample**
4. Dealing with LSL
5. What to do about Copper?
How to get samples

- Current – customer collects 1 liter sample after at least 6 hour stagnation
- May not reflect highest lead values
- Can sampling target lead service line water?
But How to Collect?
Consideration for Long-Term LCR

1. What is OCCT
2. Where to get samples
3. How to sample
4. Dealing with LSL
5. What to do about Copper?
What to do if over AL?

- Currently
  - Revisit corrosion control treatment
  - Source water monitoring
  - Public Education
  - 7% Lead Service Line Replacement

......However
Lead Line Ownership
Partial Replacement

Lead conc. (µg/L)

No Work
Partial Replacement

Lead conc. (µg/L)

No Work

Complete Changeover

initial 1 month 12 months
initial 1 week 1 month 12 months
initial 1 week 1 month 12 months

First Draw
3 min flush
10 min flush

Lead conc. (µg/L)

initial 1 month 12 months
initial 1 week 1 month 12 months
initial 1 week 1 month 12 months

No Work

Complete Changeover
Dilemma

- Current LCR requires replacement
- Utilities can’t go onto private property so only partial replacement possible
- Drop requirement and ban partials?
- But replacement needed for any infrastructure work
- Require only full replacements?
- Provide filters? Construction practices? Public notice?
Consideration for Long-Term LCR

1. What is OCCT
2. Where to get samples
3. How to sample
4. Dealing with LSL
5. Etc.
6. What to do about Copper?
Etc.

- Further specify stagnation time
- Refine sample collection procedures
- Flow rates?
- Method – more aggressive digestion
- More aggressive public education
- Handling consecutive systems
Lead Forecast

- 3.1 to 4.1% of systems currently exceed action level
- Expect to see more systems exceed lead Action Level
Copper

- How to deal with copper?
- Sampling locations? – Different than lead sites
- New construction – what is in utility control?
- Waivers for systems meeting water quality criteria?
PL 111-380
Reduction of Lead in Drinking Water Act
PL 111- 380

- Congress, not EPA developed
- <0.25% lead in materials that “could be anticipated” to come in contact with drinking water
- Exemptions – toilets, urinals, fill valves, tub fillers, shower valves, service saddles, mainline gate valves >2 inches
- Illegal to sell or install after Jan 4, 2014
Questions for EPA on PL111-380

- Repair of old equipment?
- Replacement parts? (not pipes, pipe fittings, plumbing fittings, fixtures)
- Meter servicing?
- Fire hydrants?
- Markings? How to identify components?
- In-plant materials as well?
- See EPA FAQ
EPA Timelines

- PL111-380 January 4, 2014

- LT-LCR
  - EPA will begin stakeholder engagement in fall?
  - Spring for proposed rule?
  - Finalize 2016?
IMPLEMENTING THE REVISED TOTAL COLIFORM RULE

September 11, 2013
OKI Regional Council of Governments
Dual Presentation

- Bill Fromme – Greater Cincinnati Water Works
  - Overview of RTCR

- Mark Sheahan – Ohio EPA Division of Drinking and Ground Water
  - Ohio EPA’s Proposed Approach for Implementation
Outline

- General Information and Background
- Analytical Methods
- Monitoring
- Repeat monitoring
- Triggers and Assessments
- Violations
- Reporting and Recordkeeping
General Information & Background

- Total Coliform Rule Distribution System Advisory Committee (TCRDSAC)
- Agreement in Principle – recommendations
- Stakeholder meetings
- RTCR Proposed
General Information & Background

- Code of Federal Regulations
  - Title 40: Protection of Environment
    - Part 141 – National Primary Drinking Water Regulations
      - Subpart Y – Revised Total Coliform Rule
        - 141.851 – 141.861

- Federal Register

- Guidance Manuals
Compliance Date: April 1, 2016
Applies to all public water systems
- Community Water Systems – homes, apartments
- Non-community water systems – schools, offices, restaurants
Revisions are part of 6 year review process
RTCR seeks to build on TCR and provide greater protection of public health
TCR Objectives
- To evaluate the effectiveness of treatment
- To determine the integrity of the distribution system
- To signal the possible presence of fecal contamination

RTCR (in addition)
- Reduce potential pathways of contamination
- Use an optimal indicator
- Stricter standards for reduced monitoring
- Address systems more vulnerable to contamination
General Information & Background

- RTCR establishes an MCLG and MCL for *E. coli* and coliform treatment technique for protection against fecal contamination
  - No longer have a monthly MCl violation for multiple coliform detections
  - Now have a coliform treatment technique using both total coliforms and *E. coli* to start an evaluation process
Assessments and corrective action

- All PWSs are required to assess their systems when monitoring results show vulnerability to contamination
- Level 1 or Level 2 assessment depending on the level of concern
- The system is responsible for correcting any sanitary defect(s)
Violations and Public notification
- *E. coli* MCL violation
- Treatment technique violation
- Monitoring violation
- Reporting violation
- Public notification required for all 4 types of violations
- Type of notification dependent on potential public health concern
Seasonal systems

- “EPA is finalizing the definition of a seasonal system as “a noncommunity water system that is not operated on a year-round basis.”
- RTCR establishes monitoring requirements specific to seasonal systems
- Special case – shut down and start-up present additional opportunities for contamination
- Must demonstrate completion of a State-approved start-up procedure
Sanitary Defect – “defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of failure or imminent failure in a barrier that is already in place.”

- Not intended to be linked to “significant deficiencies” of Interim Enhanced Surface Water Treatment Rule and the Ground Water Rule

- Some problems could be both sanitary defects and significant deficiencies
Analytical Methods

- 100 ml sample volume
- Presence / Absence
- 30 hours max time between sample collection and initiation of test medium incubation
- Encouraged to hold samples below 10 deg. C
- Residual chlorine must be neutralized ($\text{Na}_2\text{S}_2\text{O}_3$ added to sample bottles prior to sterilization)
- Testing for Total coliforms and *E. coli*
Sample Siting Plans

Collect at regular time intervals during month
  - Ground water serving 4900 or less may collect all samples in one day if from different sites

Must take minimum

May take more if consistent with sample plan and representative of water in the system

Identify sampling locations in the sample plan
Monitoring

- Special purpose samples (not included)
  - Pipe replacement or repair
- State may invalidate total coliform samples
  - Improper sample analysis
  - Domestic or non-distribution problem
  - Circumstance or condition that does not reflect water quality in the distribution system
- Laboratory must invalidate (unless total coliforms detected)
  - Turbid, confluent growth, too numerous to count
Monitoring

- Repeat Samples
  - 5 upstream / downstream
  - Propose alternative fixed sites
  - SOP
Monitoring

- Non-community, 1,000 or fewer, ground water
- Community, 1,000 or fewer, ground water
- Subpart H, 1,000 or fewer
- Public water systems, more than 1,000
- Seasonal Systems
Repeat Monitoring

- If total coliform positive sample
  - Collect a set of repeat samples within 24 hours of being notified
    - State may extend if logistics problems
    - State cannot waive requirement
  - Collect no fewer than 3 repeat samples (state has primacy)
  - Continue collecting until
    - Clean set or
    - Coliform treatment technique trigger is exceeded
Triggers and Assessments

- **Level 1 Assessment**
  - Self-assessment
  - Look at conditions that could have occurred prior to and caused the total coliform-positive sample
- **Level 2 Assessment**
  - Must be conducted by a party approved by the State
  - More comprehensive examination of the system and its monitoring and operational practices than a Level 1 assessment
  - PWS must also comply with any expedited actions or additional actions required by the State in the case of an *E. coli* violation
Triggers and Assessments

Level 1 Assessment Triggers

- > or = 40 samples/month, the system exceeds 5.0% total coliform-positive samples for the month
- < 40 samples per month, the system has two or more total coliform positive samples in the same month
- The system fails to take every required sample after any single total-coliform positive sample
Level 2 Assessment Triggers

- An *E. coli* MCL violation has occurred
- A second Level 1 trigger occurs within a 12-month period
  - Unless (all must apply):
    - Initial Level 1 trigger was based on exceeding the number of positive total coliform samples
    - State has determined a likely cause
    - State has established that the system has corrected the problem
- For systems with approved annual monitoring, a Level 1 trigger occurs in two consecutive years
Level 1 and level 2 assessments must at minimum review and identify:

- Sampling Sites, Protocol and Processing
- Atypical events indicative that distributed water quality was impaired
- Changes in distribution system maintenance and operation (including water storage)
- Source and Treatment considerations
- Existing water quality data
Level 1 Assessment Typical Questions

• Any interruption in the treatment process
• Any reported loss of pressure event (5 psi)
• Operation and maintenance activities that could have introduced TC
• Reported vandalism
• Visible indicators of unsanitary conditions reported
• Has there been any firefighting event, flushing operation, sheared hydrant, etc.
Triggers and Assessments

- Level 2 Typical Questions (in addition)
  - Any analytical results or additional samples collected that were positive (not compliance)
  - Any community illness suspected of being waterborne?
  - Did the water system receive any TCR monitoring violations in the past 12 months
  - What was most recent date on which satisfactory TC samples were taken
  - Other comments on records and maintenance
Triggers and Assessments

- **Timeframe**
  - Both Level 1 and Level 2 assessments must be submitted within 30 days after PWS learns it has exceeded the trigger
  - State will consult with PWS if assessment is deemed insufficient
  - If state requires revisions, the PWS must submit a revised assessment on an agreed-upon schedule not to exceed 30 days from date of initial consultation
Triggers and Assessments

- Content
  - Include assessments conducted
  - Sanitary defects found (or none were found)
  - Corrective actions completed
  - Proposed timetable for any corrective actions not already completed
Violations

- *E. coli* violation
- Treatment technique violation
- Monitoring violation
- Reporting violation
Violations

E. Coli Violation

(1) The system has an *E. coli* -positive repeat sample following a total coliform-positive routine sample.
(2) The system has a total coliform-positive repeat sample following an *E. coli* -positive routine sample.
(3) The system fails to take all required repeat samples following an *E. coli* -positive routine sample.
(4) The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.
Violations

- **Treatment Technique Violation**
  - A system fails to conduct a required assessment or corrective action within the required timeframe (30 days from notification)
  - A system fails to correct any sanitary defect found through either Level 1 or Level 2 assessment within 30 days of in accordance with a State-derived schedule
  - A seasonal system fails to complete a State-approved start-up procedure prior to serving water to the public
Violations

- Monitoring Violation
  - Failure to take every required routine or additional routine sample in a compliance period
  - Failure to analyze for *E. coli* following a total coliform-positive routine sample
Violations

- Reporting Violation
  - Failure to submit a monitoring report or completed assessment form in a timely manner
  - Failure to notify the State following an *E. coli* positive sample in a timely manner
  - Seasonal system - Failure to submit a certification of completion of State-approved start-up procedure
Violations

- Public Notification
  - Tier 1 (no later than 24 hours)
    - \(E. \text{ coli}\) MCL violation
  - Tier 2 (no later than 30 days)
    - Coliform treatment technique violation
  - Tier 3 (no later than one year)
    - Monitoring violation
    - Reporting violation
Reporting and Recordkeeping

- Notify State
  - By end of day
    - *E. coli* MC1 violation
    - *E. coli* positive routine sample
  - By end of next business day
    - Treatment technique violation
  - Within 10 days
    - Fail to comply with coliform monitoring requirements
  - Within 30 days
    - Assessment reports
  - Seasonal system – certification of start-up procedure
    - Prior to serving water to the public
Revised Total Coliform Rule

Ohio EPA’s Proposed Approach for Implementation

Mark Sheahan, Div. of Drinking and Ground Waters
General Comments

• Reduces emphasis on TC+ as a public health indicator
• Flexibility for implementation
• Integrating with the GW Rule
• Find and Fix
• Other Notable Changes for Seasonal PWS
Public Water Systems in Ohio

4750 Systems Total

- (2840) Transient Noncommunity 60%
- (710) Nontransient Noncommunity 15%
- (1200) Community 25%

Ohio EPA
MCLs and Treatment Technique

- MCL for TC goes away
- E. coli MCL
- Treatment Technique is triggered by what was a TC MCL
- TT requires a “find and fix” and report
- TT can be either a Level 1 or Level 2 Assessment depending on triggers
Routine Monitoring - General

- Sample siting plan - All PWS
  - Must identify locations for repeat samples
  - Repeat locations must best verify potential contamination of distribution system
  - PWS may propose fixed locations or identify situational based criteria
  - The Director has authority to modify if necessary
Routine Monitoring

• Large Community PWS
  ▪ Routine monitoring is unchanged

• Small Community PWS (pop <1001)
  ▪ One sample per month
  ▪ Ohio EPA does not plan to adopt Fed provision for quarterly sampling
Routine Monitoring

- **Small Noncommunity PWS (pop <1001)**
  - Affected most by new rule
  - Baseline will remain 1 sample per quarter
  - Ohio EPA does not plan to adopt reduced annual monit.
  - Temporary increase in month following TC+ will be 3 instead of 5
  - Triggered monthly monitoring
    - 2 or more TC monitoring violations w/in past 12 months
    - Combination of one Level 1 Assess. and one TC mon. viol.
    - Level 2 Assessment
    - Treatment technique violation
Routine Monitoring

• Small Noncommunity PWS
  ▪ Returning to Quarterly monitoring
    ✓ 24 or 36 months of clean compliance history being considered (Fed rule requires 12)
    ✓ Inspection w/in past 12 months
    ✓ no sanitary defects
    ✓ protected water source
  ▪ “Make-up” samples – Appears to be an administrative boondoggle
Seasonal Systems

• By definition a seasonal PWS is one that serves water a portion of the year and shuts-down a portion.
• Start-up procedure and report
• TC sample 1x/month during season will be proposed as baseline
Repeat Monitoring

• 3 instead of 4
  ▪ *GW Systems with minimal treatment will take 3 repeats from distribution - one counts towards GW Rule Triggered Source Water Monitoring.*
  ▪ *Substantial treatment systems using GW will take 3 repeats from distribution and 1 source water sample.*

• Additional sets of repeats
• E. coli is sole fecal indicator
• Consecutive GW Systems must notify supplier
Level 1 Assessments

• Triggers
  ▪ > 5.0% TC+ for PWS taking 40 or more samples/mo
  ▪ 2 or more TC+ for PWS taking <40 samples/mo
  ▪ Failure to take all repeat samples

• Goal – ID problems w/ sampling and cause of TC+

• Requirements
  ▪ By PWS – Ohio intends to assist by phone
  ▪ Required elements – emphasis on sampling protocol and distribution system upsets
  ▪ 30 day turnaround
  ▪ Failure to complete is TT violation
Level 2 Assessments

- **Triggers**
  - An E. coli MCL, or
  - A second L1 Assess within 12 months

- **Goal** – ID sanitary defects and cause of EC+

- **Requirements**
  - By a state approved person – *Ohio EPA expects to do them*
  - Required elements – same as L1 but more detailed
  - 30 day turnaround
  - Failure to complete is TT violation
Corrective Action

• L1 and L2 Assessment reports, if possible, are to identify cause of TC+ or EC+ samples
• Eliminate causes of TC+ or EC+ samples
• Must be completed within 30 days or an agreed-upon schedule
• Not completing report or corrective action is a TT violation
Ohio Rule Adoption

• Schedule
  – Plan on having rules in place by late 2015 – effective date will be April 1, 2016
  – Interested party review should begin in Sep 2014

• Issues for Comment
  – Reduced monitoring
  – Approval of persons to do Level 2 Assessments
  – Returning to quarterly monitoring
# Ohio EPA, DDAGW

## DRAFT -- Level 1 Assessment Form -- DRAFT

<table>
<thead>
<tr>
<th>System Name:</th>
<th>Source Water:</th>
<th>PWS ID#</th>
</tr>
</thead>
<tbody>
<tr>
<td>System Type:</td>
<td>PWS Address:</td>
<td></td>
</tr>
<tr>
<td>Operator in Resp Charge (ORC):</td>
<td>Phone:</td>
<td></td>
</tr>
<tr>
<td>City, State:</td>
<td>Person who collected TC samples if different than ORC:</td>
<td>Phone:</td>
</tr>
<tr>
<td>Address, City, State, Zip:</td>
<td>State Personnel Consulted For Assessment:</td>
<td>Phone:</td>
</tr>
<tr>
<td>Date Assessment Completed:</td>
<td>Statement of Purpose: A Level 1 Assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.</td>
<td></td>
</tr>
</tbody>
</table>

## Assessment Elements

<table>
<thead>
<tr>
<th>Assessment Elements</th>
<th>Reviewed &amp; checked?</th>
<th>Issues found?</th>
<th>Issue Description</th>
<th>Corrective Action Taken and Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have any of the following occurred at relevant facilities prior to collection of TC samples?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>- Any interruptions of treatment</td>
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<td>- any loss of pressure events (pressure &lt; 5psi)</td>
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<td>- open and closed activities that could have caused contamination</td>
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<td>- any vandalism or unauthorized access to facilities</td>
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<td>- reports of visible indicators of unsanitary conditions</td>
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<td>- fed/degas, e.g. flushing, hydrant opening, etc.</td>
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<tr>
<td>- any sites with low disinfectant residual</td>
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<td>- sites where it is difficult to maintain adequate residual</td>
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<tr>
<td>- any other water quality parameters with results out of norm</td>
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<tr>
<td>2. Have there been any recent operational changes to the system?</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>- sources introduced</td>
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<tr>
<td>- treatment or operational changes</td>
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<tr>
<td>- potential sources of contamination</td>
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<tr>
<td>3. Evaluate sample site:</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>- condition or location of tap</td>
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<tr>
<td>- regular use of connection</td>
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<tr>
<td>4. Sample protocol followed and reviewed.</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>- flush tap</td>
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<tr>
<td>- remove aerator</td>
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<tr>
<td>- no valve</td>
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<tr>
<td>- fresh sample bottles</td>
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<tr>
<td>- sample storage acceptable</td>
<td></td>
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<tr>
<td>5. Distribution System</td>
<td>Y</td>
<td>N</td>
<td>N/A</td>
<td>Y</td>
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<tr>
<td>- system pressure</td>
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<tr>
<td>- cross connection</td>
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<tr>
<td>- pump station</td>
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<tr>
<td>- air relief valves</td>
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<tr>
<td>- fire hydrants or blow off</td>
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<tr>
<td>- breaks</td>
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<tr>
<td>- repairs</td>
<td></td>
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</tr>
</tbody>
</table>
### Storage Tank
- Screens
- Security
- Access opening
- Condition of tank
- Vent
- Drain overflow
- Pressure

### Treatment Process
- Intensification
- PO4POU
- Softeners
- QM

### Source - Well
- Sanitary seal
- Vent screened
- Air gap
- Cross connection
- Security
- Pump to waste line

### Source - Spring
- Condition of spring development
- Condition of spring box
- Security

### Source - Surface Water Supply
- Heavy rainfall
- Rapid snowmelt

Note: Form to be completed based on data and documents available to the PWS operator in charge, maintained on file and returned to the Ohio EPA within XX days.

**Additional Comments:**

**Name of person completing the form (PRINTED):**

**Signature:**

**Date:**

### Reserved for Ohio EPA Review

<table>
<thead>
<tr>
<th>1. Has assessment been successfully completed?</th>
<th>Yes</th>
<th>No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Likely reason for TC occurrence has been found.</td>
<td></td>
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<tr>
<td>3. System has corrected the problem.</td>
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<tr>
<td>4. Was a reset requested?</td>
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<tr>
<td>4. Was a reset granted?</td>
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</tr>
<tr>
<td>5. Name of Ohio EPA reviewer</td>
<td></td>
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</tr>
</tbody>
</table>
# TC+ Evaluation Form

<table>
<thead>
<tr>
<th>System Name: Fraternal Order of Eagles</th>
<th>PWS ID #: OH4632812</th>
<th>Owner/Operator: Tom Gallaspie</th>
</tr>
</thead>
<tbody>
<tr>
<td>TG+ sample collected by: MASI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phone #: 937-441-4181</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Total Coliform (TC) Positive Investigation Questions

<table>
<thead>
<tr>
<th>Question</th>
<th>Findings</th>
<th>Description of deficiency</th>
<th>Corrective Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Well</td>
<td>Y N NA UNK</td>
<td>Small depression in asphalt around well</td>
<td>Filled with asphalt 08/01/2013</td>
</tr>
<tr>
<td>Well cap/approval, tight fitting; Cross connection to well (i.e. yard hydrant)</td>
<td>Y N NA UNK</td>
<td>Several heavy rains</td>
<td>Re-directed roof drain discharge away from well</td>
</tr>
<tr>
<td>New contaminant sources in isolation radius; (i.e. septic system, drain line etc.)</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Damaged/vandalized well casing;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other construction defects;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Heavy rainfall event(s); Rapid snow melt; Flooding; Drought conditions;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Changes in availability; Power outages;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 2. Have any of the following occurred at your facility prior to the collection of the TC sample(s)?

<table>
<thead>
<tr>
<th>Question</th>
<th>Findings</th>
<th>Description of deficiency</th>
<th>Corrective Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loss of pressure in the system (Power outage, pump failure);</td>
<td>Y N NA UNK</td>
<td>Power outages/depressurizations</td>
<td>Do not use water during power outages</td>
</tr>
<tr>
<td>Interruptions in the treatment process;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operation and maintenance activities that could have introduced total coliform; new sink; plumbing</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reported vandalism and/or unauthorized access to facilities;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Visible indicators of unsanitary conditions reported;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>History of E. Coli bacteria in the distribution system;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disinfection interrupted (if applied);</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## 3. Have there been any recent changes to the water system?

<table>
<thead>
<tr>
<th>Question</th>
<th>Findings</th>
<th>Description of deficiency</th>
<th>Corrective Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sources introduced (new well);</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any Treatment or operational changes;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory chemical changes;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory bacteriological changes;</td>
<td>Y N NA UNK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>---</td>
<td>---</td>
<td>----</td>
</tr>
<tr>
<td>Any Plumbing changes</td>
<td></td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>4. Pressure/Distribution/Storage Tank Inv.R#(11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure tank(s) operational?</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Pressure gauge present/operational</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Pressure Tank waterlogged</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Screens in place;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Tank secured;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Access opening functional;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Condition of the tank acceptable.</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Vent acceptable and functional;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Drain overflow pipe acceptable;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Distribution system operating properly;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Potential backflow failure, (washing device, baptismal, failed backflow device);</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Multiples cross connections- Ice machine drain, softener drain, hose below flood rim</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Sample Site              Inventory Ref (1)(2)(5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Is the condition of the tap satisfactory;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Is the location of the tap satisfactory;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Is this connection regularly used.</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Do you rotate you samplesites;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Water quality sample exceedance</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>6. Sample protocol      Inventory Ref (None)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Was distribution system systematically flushed;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Was the system disinfected;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Was the tap flushed; Was the aerator removed;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Is this a swivel tap;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Are the sample bottles fresh;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>Was the sample stored appropriately;</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
<tr>
<td>7. Other potential source of contamination.</td>
<td>Y</td>
<td>N</td>
<td>NA</td>
</tr>
</tbody>
</table>

Name of person completing form (please print): Mark J Verbsky
Date: 07/11/2013
Signature:
Questions?

Mark Sheahan
Ohio EPA, Div. of Drinking and Ground Waters
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Columbus, Ohio 43215
614-644-3124
mark.sheahan@epa.state.oh.us
OKI GROUNDWATER COMMITTEE MEETING SUMMARY
Wednesday, September 11, 2013
OKI Board Room - 10:00 a.m.

Attendees:
Bruce Whitteberry, Chair, Greater Cincinnati Water Works
Jack Thornsberry, Vice Chair, Butler County
Scott Belcher, City of Middletown
Tom Benge, Southwest Regional Water District
Brian Bohl, Hamilton County Soil and Water District
Chris Brausch, Warren County Water and Sewer Dept.
John Bui, City of Hamilton
Dave Combs, City of Trenton
Barry Conway, City of Franklin
Julie Frazier, Butler County Water and Sewer
Frank Divo, Southwestern Ohio Water Company
Elizabeth Downs, Hamilton to New Baltimore Groundwater Consortium
Elmer Dudas, City of Springboro
Mike Ekberg, Mike Miami Conservancy District
Rick Fueston, Clermont County Water and Sewer
Bill Fromme, Greater Cincinnati Water Works
Mike Lippert, City of Wyoming
Tim McLelland, Hamilton to New Baltimore Groundwater Consortium
Terry Morris, City of Springboro
Dave Morrison, Southwest Regional Water District
Norma Pennock, Southwest Regional Water District
Greg Petredis, City of Hamilton
Richard Renneker, Committee Member
Adam Sackenheim, Butler County Water & Sewer
Mark Sheahan, Ohio EPA
Cliff Shrive, Stantec
Jeff Swertfeger, Greater Cincinnati Water Works
Richard Stuck, Greater Cincinnati Water Works
Dave Weihrauch, City of Oxford
Robert Wildey, Clermont County General Health District

OKI Staff:
Jane Wittke, Bruce Koehler, Gayle Foster

Welcome/Introductions/Announcements:
Bruce Whitteberry announced that the next meeting will be December 4, 2013. He thanked the City of Hamilton for providing their bottled tap water for the meeting. He explained that contact hour certificates for the June 5, 2013 meeting were not yet available because of networking problems at OKI, but will be available at the next meeting.
Local Groundwater Management Updates

Scott Belcher, City of Middletown reported on the history of the Aeronca property that has been a source of contamination upgradient from Middletown’s wellfield, because of two sites in front of and behind their building. A No Further Action (NFA) letter was submitted in 2011 as a part of a voluntary action program with the EPA. In September 2012, however, it became apparent that more remediation would be needed on the property and the NFA letter was withdrawn. In November 2012 the City contracted with CH2M Hill for site investigation. They have just completed the first two phases, and sampling results indicate that an access road going into the property had been moved over an area where a building had been taken down and degreasers had been spilled.

Mike Ekberg of the Miami Conservancy District described the Groundwater Green Site Designation and MCD’s work not only to achieve it for themselves, but also to help more than a dozen other organizations to achieve it. The designation is targeted to businesses and organizations that manage large green spaces and agree to use best management practices as established by the National Groundwater Foundation. The Foundation then designates the space and organization as a Groundwater Guardian Green Site. The Conservancy’s efforts have resulted in the District having the densest area of groundwater green sites designated in the country. Teresa McGeady is the MCD contact working with organizations; contact her at (937) 223-1278 x3239 or tmcgeady@miamiconservancy.org or go to http://www.miamiconservancy.org/water/groundwater_guard.asp.

The Conservancy has two studies underway. The first study is in conjunction with the U.S.G.S. to look at residential treatment systems for arsenic removal. The 12 sites that have been sampled have ranges of total arsenic levels in raw water from as high as 400/parts per billion (PPB) to as low as 20/PPB. Pre-treated raw water has been sampled along with intermediate treatment levels and water from taps. The purpose of the study is to provide data to health departments and others about what systems are available that work well in treating well water for arsenic.

The second study is focused on groundwater in the Lorraine Miami Shores area along the Great Miami River. The area is subject to low land flooding and there has been debate about whether the water is coming from seepage under the levies or some other phenomena. This study has been going on for a year. After some groundwater flow modeling performed by the Terran Corporation, the preliminary finding is that some of the flooding occurs because of a high water table, with groundwater levels actually coming up to an elevation above the land surface. That means that basements and back yards in the area are flooding because of a groundwater issue and not due to any surface water flooding.

Tim McLelland of the Hamilton to New Baltimore Groundwater Consortium explained that he has been working with several communities to update their source water protection ordinances. He also said that U.S.G.S. worked with the Consortium under the National Water Quality Assessment Program on a ten year study of urban shallow groundwater. The resulting report has been released and is titled Factors Affecting Public-Supply-Well Vulnerability to Contamination: Understanding Observed Water Quality and
**Anticipating Future Water Quality.** Tim also announced several key dates: October 11 for the Butler County Children’s Water Festival; October 26 for the *Water for People* Run; and November 2, 2013 for the River Days Cleanup.

**Terry Morris with the City of Springboro** reported a recent increase in usage with a peak of 3.9 million gallons per day (MGD) compared to an average use for the summer of 2.7 MGD. He said that Springboro replaced a raw water intake box inside the water plant in 2012. Currently they are bringing a wellfield into production that is the second since 2006. The new well has a capacity of 3 MGD and all testing has been performed.

**OKI Staff Update**

**Bruce Koehler** briefly described a stream bank stabilization project recently begun by OKI in partnership with the City of Oxford and the Butler County Soil and Water Conservation District. The project focuses on an eroding stream bank along Seven Mile Creek at Oxford’s wellfield in Wayne Township. The erosion is sending sediment into the stream; threatening its water quality; and has advanced to within 18 feet of a water distribution main. The purpose of the project is to develop a plan that will ensure stream bank stabilization through best management practices, provide some conceptual designs and identify potential funding sources to implement them.

**Jane Wittke** described the process of updating the Strategic Regional Policy Plan (SRPP). Jane explained that the update involves seeking input and information from the OKI Board (working as the Land Use Commission), the Land Use Steering Committee, subject matter experts and the public. After a major public outreach effort that garnered almost 2,500 responses to an on-line questionnaire last fall, and a work session on strategic issues with the OKI Board last spring, this summer OKI hosted peer review groups of subject matter experts, to provide recommendations that would help with revising and formulating the policies in the plan.

**The Long Term Lead and Copper Rule**

**Jeff Swertfeger, Greater Cincinnati Water Works** gave an extensive update on the Lead and Cooper Rule, and thanked Julie Frazier of Butler County Water and Sewer Department for consulting on his presentation. Jeff explained that the Lead and Copper Rule was adopted in 1991 to minimize exposure to lead (which can cause brain damage), copper (which can cause gastrointestinal issues), and distribution system corrosion. Public outcry over lead precipitated Congress passing additional legislation in 2011, called PL11-380 or the Reduction of Lead in Drinking Water Act. There is no maximum contaminant level for lead because it is such a serious health threat that no amount of lead is acceptable.

The treatment technique for the 1991 rule requires systems to monitor drinking water at customer taps. If lead concentrations exceed an action level of 15 parts per billion (ppb) or copper concentrations exceed an action level of 1.3 parts per million (ppm) in more than 10% of customer taps sampled, the system must undertake a number of additional actions to control corrosion. If the action level for lead is exceeded, the system must also inform the public about steps they should take to protect their health and may have to replace
lead service lines under their control. The existing Lead and Cooper Rule (LCR) does not measure exposure and so the EPA is trying to deal with ways to do this under the new legislation.

The EPA is now looking into six different areas for the Long Term Lead and Copper Rule. The first is identifying optimal corrosion control treatment (OCCT). The question of who should revisit their OCCT is undecided. One idea is to tighten up water quality parameters. The second area is where to get samples; Jeff stated that the current LCR requires sampling at the locations that are the highest risk for lead, typically places with lead service lines and homes that have 50/50 lead solder installed before it was outlawed around 1987. That seemed to make sense back in 1991 as these were then recent installations and probably leached a fair amount of lead. That was 26 years ago, however, and one thing the agency is considering is that if you have lead service lines, those would be the only Tier 1 samples; if you don't, you could sample anywhere or maybe anywhere with lines installed before 1987.

The third area concerns how to sample. The current protocol is to have customers collect the first liter after the water has stood unused in their home for at least 6 hours, which may not reflect the highest lead values. The fourth area concerns dealing with lead service lines (LSL). Currently, if a system's sampling results are above the action level, the utility must do source water monitoring, public education and a 7% lead service line replacement. Utilities cannot make improvements on private property, however, so only partial replacement could be done to outside lines leading to the property, which is not effective compared to replacing an entire service branch. The question of how to deal with LSL is thus very expensive and involves very intricate dilemmas, such as whether filters should be provided to customers.

The fifth area includes a variety of items, such as further specifying stagnation time, refining sample collection procedures, more aggressive public education, and handling consecutive systems. The sixth area is what to do with copper, which involves questions that are quite different from lead. The location of copper issues is typically much different than lead locations. New construction is typically thought of as the most susceptible place for copper issues, but how much can or should a utility adjust its treatment for those places? There may be a question of targeting more education to new homeowners, and the potential for waivers to be granted for systems meeting water quality criteria.

One result of PL111-380 will be that after January 4, 2014, it will be illegal to install or sell lead pipes or older brass fittings. The law calls for less than 2% lead in most plumbing materials that will come into contact with drinking water. Accordingly, Jeff suggested that utilities need to take stock of what pipe and fittings are in inventory. Lots of questions remain about how EPA will implement this law around the repair of old pipes, replacement parts, meter servicing and fire hydrants. Jeff observed that eventually implementation will come down to plumbing codes and Ohio EPA oversight. Jeff also provided an excerpt from PL111-380 and a handout answering frequently asked questions about the law. The EPA may begin stakeholder engagement about the new lead and copper rule in the fall and is projecting 2016 as an effective date to implement new rules under the law.
Implementing the Revised Total Coliform Rule (RTCR)
Bill Fromme, Greater Cincinnati Water Works and Mark Sheahan, Ohio EPA described revisions to the Total Coliform Rule which will begin on April 1, 2016. Bill gave an overview of the RTCR and Mark commented on Ohio EPA’s proposed approach for implementation.

Bill explained that the rule applies to all public water systems, and the revisions are part of a six year review process. The purpose of the RTCR is to build on the Total Coliform Rule (TCR) and provide greater protection of public health. He described the objectives of the TCR as evaluating the effectiveness of treatment; determining the integrity of the distribution system; and signaling possible fecal contamination. The RTCR goes farther: its objectives are to reduce potential pathways of contamination; use an optimal indicator; create stricter standards for monitoring; and address systems more vulnerable for contamination.

The RTCR establishes a Maximum Contaminant Level Goal (MCLG) and MCL for *E. coli* and a coliform treatment technique for protection against fecal contamination. There will no longer be a monthly MCL violation for multiple coliform detections. There will now be a coliform treatment technique using both total coliforms and *E. coli* to start an evaluation process. All public water suppliers are required to assess their systems when monitoring results show vulnerability to contamination and to correct any sanitary defects that could provide a pathway of entry for microbial contamination into the distribution system or indicate failure in an existing barrier.

Bill also discussed the significance of violations, public notification requirements, and new monitoring requirements for seasonal systems, which EPA has defined as “a non-community water system that is not operated on a year-round basis.” Analytical and monitoring requirements are spelled out in some detail. Analytical methods include a 100 ml sample volume; 30 hours maximum between sample collection and initiating test medium incubation; neutralizing residual chlorine and testing for total coliforms and *E. coli*. Monitoring requirements include a sample sitting plan; collection at regular time intervals during the month; a provision that the state may invalidate total coliform samples for a number of reasons; and at least three repeat samples if a total coliform positive sample occurs. Bill noted, however, that there will probably be no changes in the frequency of monitoring for public water systems serving 1,000 or more people.

He also summarized triggers for two types of required assessments. Level 1 self-assessment is triggered if a system with 40 or more samples per month exceeds 5% total coliform positive samples; if a system with fewer than 40 samples a month has two or more total coliform positive samples in the same month; and/or if the system fails to take every required sample after any single total coliform positive sample. This self-assessment has to look at conditions that could have occurred prior to the positive sample and caused it.

Level 2 assessment is triggered if an *E. coli* MCL violation has occurred; if a second Level 1 trigger occurs within a 12-month period (with three exceptions); and if a Level 1 trigger occurs in two consecutive years for systems with approved annual monitoring. The Level 2
assessment must be conducted by a party approved by the state, involves a more comprehensive examination of the system and its monitoring and operational practices than a Level 1 assessment; and may require the system to comply with expedited actions or additional actions required by the State in the case of an E. coli violation. Bill then described minimum requirements for the Level 1 and Level 2 assessments, including typical questions that would be asked, and noted that both types of assessments must be submitted within 30 days after the system learns it has exceeded the trigger. He concluded with a detailed explanation of four types of violations (E. coli; treatment technique; monitoring; and reporting) the public notification requirements associated with them, and the timeframe for reporting and record-keeping.

Mark Sheahan, Ohio EPA, explained that the Revised Total Coliform Rule allows for more flexibility in implementation because of differences among parts of the country. States have a variety of approaches and organizational structures for administering the Safe Drinking Water Act. Ohio’s program regulates all public water systems under one “roof”. Some states have entirely separate programs for community and non-community systems. Some states delegate some authority to local health districts. Some of the provisions for flexibility involve resource requirements or administrative complexities that are not always feasible for states to universally employ. For example, several western states have circuit riders who perform monitoring for small systems. They have large geographic territories to cover and utilize annual monitoring schedules. Ohio’s program, on the other hand, with 4750 public water systems in the state, has relied on self-monitoring and Ohio EPA does not have enough staff to inspect every system once a year. Consequently, Ohio currently does not allow reduced annual monitoring and does not plan to adopt it with these rule changes.

Mark said that there is now a reduced emphasis on total coliform positive samples as a public health indicator and that the MCL for total coliform has been eliminated. The RTCR does attempt to integrate with the Groundwater Rule. Ohio EPA welcomes the “find and fix” approach requiring systems to conduct assessments and take corrective action instead of continually sampling until total coliform negative results are obtained.

Mark described the components of a sample siting plan which all public systems are required to submit, and described the routine monitoring approach in detail. He noted that for large community public water systems, routine monitoring is unchanged, and Ohio EPA does not plan to adopt federal provisions for quarterly sampling. He also clarified that Ohio EPA intends to assist by phone with Level 1 assessments, and expects to perform the Level 2 assessments. Ohio EPA plans to have rules in place by late 2015 with an effective date of April 1, 2016. Interested party review should begin in September 2014, and interested parties can sign up for notice on the Ohio EPA website at http://epa.ohio.gov/Rules.aspx Mark concluded by providing a sample total coliform positive sample evaluation form and a draft Level 1 assessment form.

**Other Business and Adjournment**

Jack Thornsberry gave a reminder that the next meeting date will be December 4, and adjourned the committee at 12:15 p.m.