


Returning to Compliance

Based on actual case histories

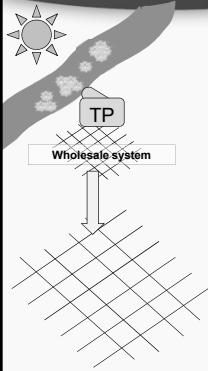


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Example 1

Example of a Large Public Community Water System with a reoccurring problem


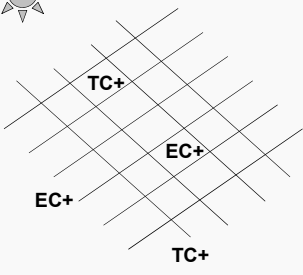
Example 1



Maple City

- Community Water System
- Surface Water Purchaser
- No sources or treatment of it's own
- Serves approximately 49,000
- Required to collect 50 samples per month (based on population of 41,001 to 50,000)
- Actually collects ~30 biweekly for a total of 60 samples per month

Example 1

What Happened? July 2014

- Acute MCL Violation
- Boil Water Advisory Issued
- EC+ confirmed at more than one sampling location
- TC+ confirmed at other sampling locations
- System conducted an assessment
- No sanitary defects identified


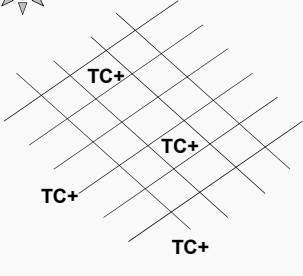
Example 1

NOTE: RTCR is a TWO step rule

- #1 Restore Water Service (Lift the BWA)
- #2 Conduct Assessment & Correct Sanitary Defects

*This situation occurred under the existing rule
There was no emphasis on step #2*

Example 1

August - October 2014

- TC+ confirmed at DS sampling locations
- Non-Acute MCL Violation in August 2014
- Under RTCR there are no non-acute violations
- Two triggers in a rolling 12 month period require a second Level 2 assessment

Example 1

TWO steps:

- #1 Restore Water Service
- #2 Conduct Assessment & Correct Sanitary Defects

*The original assessment had failed to identify a problem.
The second assessment placed more focus on identifying the cause of the reoccurring issue*

Example 1

Sanitary Defects Identified:

- June 2014 & August 2014 water main breaks
- Potential cross connections/backflow
- Locations with undesirable faucets for sampling

Why did the water system fail to identify these issues in the July 2014 assessment?

Example 1


- The assessment form asks about atypical events, water main repairs and backflow device maintenance

5. Distribution

Distribution System		
f. Have there been any operating issues with control valves (i.e. Pressure Reducing Valves, Altitude)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
g. Fire hydrant/blow off: Are any located in an area with a high water table or pits?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
h. Is the distribution system secured to prevent unauthorized access?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
i. Are the backflow prevention devices at high risk sites present, operational and maintained?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
j. Have there been any water main repairs or additions?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
If yes, Date: _____ Repairs/additions: _____		
k. Was there any scheduled flushing of the distribution system?	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Example 1

- Most water systems keep records of "events" such as water main breaks



Example 1

Examine Sampling Plan

Review of the sampling plan was necessary due to the undesirable faucets used for sampling.

- Are locations representative of the distribution system?
- Were the samples collected in different zones and not concentrated in the same area?
- Is sampling conducted at a routine frequency?
- Are samples collected from appropriate taps (i.e. no hose bibs)?
- Were the disinfectant residuals at or near typical levels?
- Are the additional monthly samples (60 collected vs. 50 required) included in the sampling plan?

Example 1

Concerns about Consecutive Systems:

Is sampling conducted at the available interconnections for total coliform and chlorine residuals on a regular basis?

Atypical events or problems with the wholesale system can impact consecutive systems.

Consecutive systems are still responsible for distribution system maintenance. Is flushing being conducted? Are valves being exercised?

Communication and cooperation between consecutive and wholesale systems is key.

Example 1

Avoid violations!

Not typically acceptable under RTCR to identify no sanitary defects as part of a Level 2 Assessment

The State determines if the assessment is sufficient

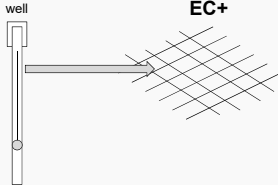
Failure to complete an assessment is a Treatment Technique Violation requiring Tier 2 PN

Example 2

Example of a Non-Transient Non-Community System that did not do an assessment

Example 2

Elm Toy Company Details



- Non-Transient Non-Community Water System
- Not a seasonal systems
- Serves <1,000 people
- Required to monitor quarterly
- Acute TCR Violation
- Posted Boil Water Advisory

Example 2

Under RTCR Elm Toy Company is required to do the following:

- Complete a Level 2 assessment by a State-approved person
- Submit completed Level 2 assessment within 30 days
- Identify Sanitary Defects
- Conduct Tier 1 Public Notification
- Collect 3 routine samples the following month (5 would be required under the current TCR)

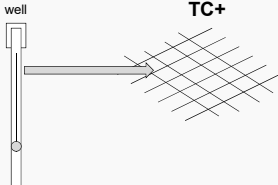
Example 1

What happened next?

- Elm Toy Company had a well driller do the following:
 - 6" well casing extension above well pit floor
 - Installed a 3" riser, new well cap, new pitless adaptor
 - Installed a new raw water tap and check valve before tank
 - Disinfected the water system

Example 2

Elm Toy Company Details



- Elm Toy Company reported the work done to the State
- Elm Toy Company collected 5 samples the following month under existing TCR
- System failed for TC again

Example 2

Would this have been a violation under RTCR?

YES

↓

Something went wrong since the assessment did not fix the problem!

NO

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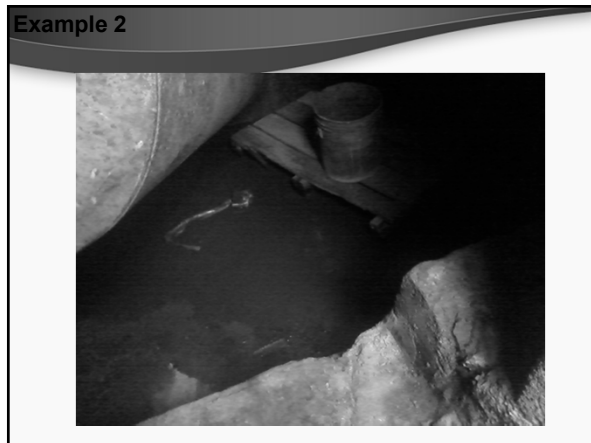
They fixed the sanitary defects identified! Not their fault the water quality samples were still positive!

Example 2

Next Steps:

- The State conducted a site visit
- Additional sanitary defects were identified

What were they and why did the water system fail to identify these issues in the previous assessment?



Example 2

In addition:

- A second well was located directly outside the garage door
- The raw water tap in the pit at well #1 was pointed only 30 degrees above horizontal

Example 3

Example of a Transient Non-Community System that shock chlorinated

Example 3

St. Linda's Church Details

- Transient Non-Community Water System
- Not a seasonal systems
- Serves <1,000 people
- Required to monitor quarterly
- Non-Acute TCR Violation
- Tier 2 PN

Example 3

Under RTCR St. Linda's Church is required to do the following:

- Complete a Level 1 assessment
- Submit completed Level 1 assessment within 30 days
- Identify Sanitary Defects
- Conduct Tier 2 Public Notification
- Collect 3 routine samples the following month (5 would be required under the current TCR)

Example 3

What happened next?

- St. Linda's Church shock chlorinated the well and distribution system without performing an assessment.

This would be a violation under RTCR for failure to conduct a Level 1 assessment!

Example 3

What happened next?

- The system sampled again and continued to test positive for TC+

This would trigger a Level 2 assessment under RTCR (two Level 1 triggers within a rolling 12 month period)

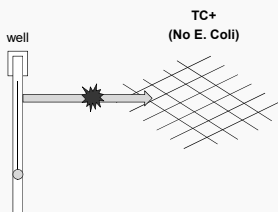
Example 3

In addition. . .

- St. Linda's Church is a transient system without a Licensed Operator
- The system would have been required to hire a State approved party to conduct the Level 2 assessment.

Example 3

St. Linda's Church Conclusions



- Assessment determined the transmission line coming from the well was hit by a lawn mower
- Fixed the line, chlorinated and resumed normal operation.

Conclusions

Lessons Learned

- Familiarize yourself with the entire system
- Review your sampling siting plan on a regular basis
- Know where your repeat samples are being collected
- Keep a log/record of all emergency incidents