

REVISED TOTAL COLIFORM RULE

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Presentation Overview

1. Federal rTCR Highlights
2. Interim Period Before Adoption
3. What California Does Not Intend to Adopt
4. Current TCR vs Proposed California rTCR
5. rTCR Only Requirements
6. Implementation
7. Level 1 Assessment Form

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Federal rTCR Highlights

- E.coli MCL established
- Coliform Treatment Technique established
 - (TC MCL & Failure to Take Repeat Samples)
- “Find and fix” with Level 1, 2 assessments
- Applies to all public water systems beginning April 1, 2016
- Goal for CA adoption of rTCR is January 1, 2017

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INTERIM PERIOD

- Systems must continue to comply with the existing California TCR until the rTCR is adopted.
- Systems must comply with Federal rTCR beginning April 1, 2016.
- California will be implementing the Federal rTCR but not enforcing it.
- U.S. EPA Region 9 will be notified of violations and violations will be entered into the SDWIS database when that capability is on line.

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INTERIM PERIOD

- The TC MCL remains in effect and will be enforced until rTCR is adopted.
- Revision of TC MCL Public Notification Language to Reflect federal rTCR.
- Water systems will conduct Level 1 Assessments
- Division of Drinking Water will conduct Level 2 Assessments.

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Federal rTCR to CA rTCR

- CA will be adopting most of Federal rTCR requirements
- CA rTCR proposing to include:
 - Repeat and additional routine samples with coliform density analysis
 - Revisions to Significant Rise in Bacterial Count
 - Minimum of quarterly coliform monitoring for GW sources that are continuously disinfected

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Federal rTCR CA Proposes Not to Adopt

- Allow a System to Not Test a TC+ Sample for E. coli if the System Assumes the Sample is EC+
- Quarterly Monitoring for Community Water Systems Serving $\leq 1,000$ persons & GW Source(s) Only
- Annual Monitoring for Non-Community Systems Serving $\leq 1,000$ persons & GW Source(s) Only
- 300 mL Samples Instead of Three, 100 mL Repeat Samples for Single Service Connection Systems

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Bacteriological Sample Siting Plan

Current TCR

- Routine collection of TC samples
- Sample sites representative of water throughout system
- Sampling may be rotated among sites
- If personnel other than certified operators taking samples – certification of training
- Plan must be updated a minimum of every 10 years and any time it is no longer representative

rTCR

- **Same as current plus**
 - Site identification including repeat sites
 - Sites to comply with the Ground Water Regulation
 - Specific Seasonal System Requirements
 - Collect samples in accordance with approved plan
 - Revise plan when directed to do so by the State Board / LPA

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Routine Sampling

Current TCR

- Community frequency based on population or service connections
- Community $\leq 1,000$ & GW may request a frequency of 1/Qtr
- Samples collected at regular intervals throughout month
- Unfiltered surface water – 1 sample/day when NTU > 1

rTCR

- **Must take at least minimum number of routine samples per month even if E. coli MCL violation occurs**
- Same as Current TCR
- Same as Current TCR

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Routine Sampling

Current TCR

- NTNC based on population served
- TNC \leq 1,000 & GW frequency of 1/Qtr
- TNC > 1,000 & GW frequency is based on population.
- TNC surface water – frequency based on population

rTCR

- NTNC & TNC based on population served. Minimum is 1/month (CA proposed regulation)

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Routine Sampling

Current TCR

- NTNC \leq 1,000 & GW may request a frequency of 1/Qtr if no violations in 12 months
- TNC > 1,000 & GW may request reduction in frequency for months serving \leq 1,000

rTCR

- NC (excluding Seasonal Systems) may apply for reduced monitoring subject to criteria
 - Within 12 months State Board / LPA has determine free of defects
 - Clean Compliance history for 12 months
- NC \leq 1,000 & GW – if already on 1 sample/Qtr may continue

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Routine Sampling

Current TCR

- NTNC based on population served
- TNC \leq 1,000 & GW frequency of 1/Qtr
- TNC > 1,000 & GW frequency is based on population.
- TNC surface water – frequency based on population

rTCR

- Conditions for returning to routine monitoring
 - Level 2 assessment or 2 Level 1 assessments in 12 months
 - Coliform treatment technique violation
- 2 bacti monitoring violations or one bacti monitoring violation and one Level 1 assessment in a 12-month period

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Routine Sampling

Current TCR

- Additional Routine Monitoring
 1. Systems collect <5 samples per month must take 5 samples in the month following ≥ one TC+ sample
 2. May submit a request to waive if:
 3. State Board / LPA conducts site visit to determine if monitoring or corrective actions are necessary, or
 4. State Board / LPA determine why TC+ occurred & system will correct before next month

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rTCR

- Additional Routine Monitoring,
 1. Shall collect at least **three** routine samples in the month following one or more TC+ May submit a written request for State Board / LPA to waive if:
 2. State Board / LPA conducts site visit to determine if monitoring or corrective actions are necessary, or
 3. The State Board / LPA determines contamination problem was corrected before repeat samples were taken

Sample Analysis & Reporting

Current TCR

- Each sample shall be labeled as routine, repeat, replacement or “other”
- PWS must require lab to analyze each TC+ sample for fecal or E. coli
- Sample results reported in terms of presence/absence for all samples
- PWS must require lab to notify it within 24 hours of TC+, fecal+, or EC+ samples, and lab to notify State Board / LPA within 24 hours if unable to contact PWS

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Proposed rTCR

- **Same as Current except:**
 - **Must require lab to analyze all TC+ samples for E. coli**
 - Repeat and Additional routine samples must be reported in terms of coliform density (CA proposed regulation)

Sample Analysis & Reporting

Current TCR

- Analytical results must be reported by 10th day of following month
 - Monthly summary must be submitted
 - < 10K service connections or 33K persons – lab to submit all sample results
 - > 10K service connections or 33K persons - lab to submit all TC+ routine results and all repeat results

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rTCR (CA Proposed)

- Same as current except PWS serving > 400 service connections shall submit monthly summary

Disinfection Residual Monitoring & Reporting

- A public water system shall measure the disinfectant residual at the same points and the same time as additional routine samples and repeat samples are taken. **(CA Proposed)**
- Surface water system can use the disinfectant measurements made to comply with the requirement that a measurable residual be in 95% of the samples taken from the distribution system **(CA Proposed)**
- Analytical results of all required samples collected in a calendar month shall be reported to the State Board / LPA not later than the 10th of the following month

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Repeat Sampling

Current TCR

rTCR

- | | |
|---|--|
| <ul style="list-style-type: none"> • TC+ routine sample requires repeat samples be taken within 24 hours <ul style="list-style-type: none"> • PWS > 1 routine/month – 3 repeat samples • PWS ≤ 1 routine/month – 4 repeat samples • If unable to collect within 24 hours, notify State Board / LPA • Single connection system may take repeats over 4 days | <ul style="list-style-type: none"> • Same as current except: • All systems required to take 3 repeat samples for each TC+ sample • Single connection system may take repeats over 3 days |
|---|--|

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Repeat Sampling

Current TCR

rTCR

- | | |
|---|---|
| <ul style="list-style-type: none"> • Repeat Sample Locations <ul style="list-style-type: none"> • Site of TC+ sample • Within 5 connections upstream and downstream | <ul style="list-style-type: none"> • Same as current except: • Alternate Sampling Locations <ul style="list-style-type: none"> • If TC+ is at end of distribution system, system may take repeats at alternative location with written approval by State Board / LPA (BSSP approval necessary) • System may propose alternative sampling sites that represent likely contamination pathway to distribution system <ul style="list-style-type: none"> • Alternative fixed locations, or • Criteria for selecting sites on a situational basis |
|---|---|

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Repeat Sampling

Current TCR

rTCR

- Dual Purpose Sampling
 - PWS with single GW source, serving $\leq 1,000$ persons – GW Rule triggered source sample may count as one of required rTCR repeat sample
 - BSSP Approval necessary

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Repeat Sampling

Current TCR

rTCR

- If ≥ 1 repeat sample TC+, must collect a repeat sample set for each TC+ sample until no TC+ samples or TC MCL violated & State Board / LPA notified
- If ≥ 1 repeat TC+ sample, must collect a repeat sample set for each repeat TC+ sample until no TC+ samples or treatment technique trigger has been exceeded & State Board / LPA notified
- If a treatment technique trigger is exceeded as a result of a routine TC+ sample, only one set of repeat samples is required for each TC+ routine sample

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Sample Invalidation

Current TCR

rTCR

- Water system must request a sample be invalidated if
 - Repeats collected at routine site are TC+ and repeats collected w/in 5 connections are TC-
 - Lab did not follow analytical method and provides required documentation of error
- Whenever a TC- sample is invalidated by lab for interference, replacement sample must be collected w/in 24 hours.
- Same as current except:
 - Invalidation request must be written
 - An invalidated TC+ sample does not count toward meeting the minimum required number of routine and repeat samples

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Significant Rise in Bacterial Count

Current TCR

- The following shall indicate a possible rise in bacterial count
 - System ≥ 40 routine samples has a TC+ routine and two TC+ samples in same repeat set
 - Sample fecal or E. coli positive
 - System fails the TC MCL
- If possible significant rise indicated, contact State Board / LPA / LPA by end of day or w/in 24 hours

rTCR (CA Proposed)

- Same as current except:
 - All samples collected in a calendar month, including samples collected for investigations must be included in determining a possible significant rise
 - A possible significant rise is indicated when a TC+ sample has a value > 23 MPN/100 mL or > 23 CFU/100 mL

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Significant Rise in Bacterial Count

Current TCR

- Submit status of physical works and operating procedures
- Upon notification of a significant rise by the State Board / LPA, implement the system emergency notification plan

rTCR

- If possible significant rise indicated, conduct an investigation of physical works and system operations by date directed by State Board / LPA
- Submit investigation findings, corrective actions taken, timetable for completing unfinished corrective actions, and specified other information if applicable

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Maximum Contaminant Levels

Current TCR

- TC monthly MCL based on the number of TC+ samples in a month
- Fecal coliform/E. coli acute MCL based on FC/EC+ samples

rTCR

- Current CA TC MCL
 - Coliform Treatment Technique trigger
 - Level 1 assessment and corrective action
- E. coli MCL based on TC/E. coli monitoring results.
 - EC+ Routine followed by TC+ Repeat
 - TC+ Routine followed by EC+ Repeat
 - EC+ Routine & failure to take Repeats
 - TC+ Repeat & failure to test for EC
- Repeat sample taken at the GW rule triggered source monitoring location is EC+

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Coliform Treatment Technique Triggers

- **Level 1 Triggers**
 - System ≥ 40 samples/month exceeds 5.0% TC+ samples in one month
 - System < 40 samples/month has two or more TC+ samples in one month
 - System fails to take required repeat samples after a routine TC+
- **Level 2 Triggers**
 - E. coli MCL violation
 - A second Level 1 trigger in a 12 month rolling period
- Valid results of routine, repeat, and replacement samples collected in a calendar month shall be used in determining if a coliform TTT has been exceeded.
- Triggers assessment to identify sanitary defects and defects in coliform monitoring practices

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State Board / LPA Notification

- Significant Rise condition – by end of day water system is notified of test results
- Coliform Treatment Technique or E. coli MCL violation – end of the day on which determined
- Notify of completed corrective actions w/in 5 days of completion

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State Board / LPA Notification

- Must notify the State Board / LPA within 10 days after a water system learns of an occurrence:
 - Routine TC monitoring violation
 - Failure to test a routine TC+ sample for EC
 - Failure to take required repeat samples
 - Failure to take required replacement samples

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Public Notification

- E. coli MCL Violation – Tier 1
- Treatment technique violation – Tier 2
 - Failure to conduct assessment
- Failure to submit completed assessment within 30 days or failure to take corrective action – Tier 3

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Public Notification

- Failure to notify State Board / LPA of violation of coliform treatment technique – Tier 3
- Failure to have TC+ routine sample analyzed for EC – Tier 3
- Failure to notify State Board / LPA w/in 5 days of completing corrective actions – Tier 3
- Failure to take required repeat samples – Tier 3

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Public Notification

- Failure to notify the State Board / LPA w/in 10 days of failing to take repeat samples – Tier 3
- Failure to take required replacement samples - Tier 3
- Failure to notify the State Board / LPA w/in 10 days of failure to take replacement samples – Tier 3

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Public Notification

- Failure to notify State Board / LPA of Significant Rise conditions by end of day or 24 hours – Tier 3
- Failure to certify completion of a State Board / LPA approved start-up procedure (seasonal systems only) – Tier 3
- Failure to submit disinfection residual monitoring results State Board / LPA by the 10th of the following month – Tier 3

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Public Notification

- Current regulations allow the State Board / LPA to require Tier 2 notification rather than Tier 3 notification
- 64463.4 Tier 2 Public Notice
(a)(2) All violations of the monitoring and testing requirements in this chapter, and chapters 15.5, 17, and 17.5 for which the State Board / LPA determines that a Tier 2 rather than a Tier 3 public notice is required, based on potential health impacts and persistence of the violations; ...”

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Public Notification

- **Health Effects Language**
- New Health Effects Language has been added for:
 - E. coli MCL violation
 - Total Coliform Assessment and/or Corrective Action Violations
 - E. coli Assessment and/or Corrective Action Violations
 - Seasonal System Treatment Technique Violations

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Records

- Following records must be retained by water systems for 5 years
 - Copies of Level 1 and Level 2 assessments
 - Documentation of corrective actions completed as a result of assessments
 - Summary documentation of sanitary defects and corrective actions taken to correct them.

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Consumer Confidence Report

- Definitions for Level 1 and Level 2 assessments added
- Language to be included if a Level 1 or Level 2 assessment was required that was not due to an E. coli MCL violation
- Language to be included if a Level 1 or Level 2 assessment was required that was due to an E. coli MCL violation

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Seasonal Start-up Procedures

- Seasonal System is defined as a NTNC or TNC public water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.
- Start-up procedure will be due to the State Board / LPA within three months of adoption of the California regulation
- Federal rule will go into effect on April 1, 2016, all seasonal systems must demonstrate completion of a State Board / LPA approved start-up procedure before serving water to the public
- State Board / LPA developed a form for seasonal systems to use; posted on rTCR webpage

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Seasonal Start-up Procedures

- Seasonal system start-up procedure must include, but not be limited to the following elements:
 1. Inspection of water system components, including source(s), treatment facilities, distribution mains and distribution reservoirs
 2. Disinfection and flushing of water system components
 3. Bacteriological monitoring
 4. Disinfection residual monitoring, at the same points and times as total coliform samples are taken
 5. Use of certified operators to supervise or perform 1 through 4
 6. State Board / LPA notification of water system closure or shutdown and prior to resuming operation

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Seasonal Start-up Procedures

- Prior to serving water to the public, a seasonal system shall
 1. Complete a State Board / LPA approved start-up procedure
 2. Certify to the State Board / LPA that it has completed all the steps in the State Board / LPA approved start-up procedure
 3. Submit to the State Board / LPA all TC and residual monitoring results
 4. Obtain written approval from the State Board / LPA to serve water to the public
- A seasonal system may submit a written request to the State Board / LPA to be exempt from some or all of the start-up procedure requirements if the entire distributions system remains pressurized during the entire period the water system is not operating.

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INTERIM PERIOD BEGAN APRIL 1

- All current TCR requirements in Title 22 remain in effect and will be enforced until rTCR is adopted
- Bacteriological Sample Siting Plans need to identify repeat sample locations and triggered source samples for Groundwater Rule compliance
- All Total coliform positive samples must be analyzed for E.coli
- Water systems which collect 5 or fewer routine samples per month must continue collecting 5 routine samples per month following a total coliform positive sample
- Seasonal water systems must prepare and submit a start-up procedure for approval. The procedure must be completed before water is served to the public

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INTERIM PERIOD BEGINS APRIL 1

- The TC MCL will be enforced until rTCR is adopted
 - > 5.0 % TC+ samples, if 40 or more collected/month
 - Two or more TC+ samples, if less than 40 collected/month
- Tier 2 PN for TC MCL exceedances will be required along with Level 1 assessments
- Revision of TC MCL Public Notification Language to Reflect federal rTCR
- Water systems will conduct Level 1 Assessments
- Division of Drinking Water will conduct Level 2 Assessments

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Coliform Treatment Technique Triggers

- **Level 1 Triggers**
 - System ≥ 40 samples/month exceeds 5.0% TC+ samples in one month
 - System < 40 samples/month has two or more TC+ samples in one month
 - System fails to take required repeat samples after a routine TC+
- **Level 2 Triggers**
 - E. coli MCL violation
 - A second Level 1 trigger in a 12 month rolling period
- Valid results of routine, repeat, and replacement samples collected in a calendar month shall be used in determining if a coliform TTT has been exceeded.

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Coliform Treatment Technique Violation

- A public water system is in violation of the coliform treatment technique if either of the following occurs:
 1. The water system exceeds a treatment technique trigger and fails to conduct the required assessment or corrective actions within the 30 day timeframe.
 2. A seasonal system fail to complete a State Board / LPA approved start-up procedure prior to serving water to the public.
- A public water system shall notify the State Board / LPA of a coliform TT violation by the end of the day on which it was determined.

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Level 1 Assessment Requirements and Corrective Actions

- Conduct and complete as soon as practical after exceeding trigger but not later than 30 days
- Objective to identify sanitary defects and defects in coliform monitoring practices
- Must include 5 minimum elements
 1. Inadequacies in sample sites, sampling protocol, & sample processing
 2. Source and treatment issues that could impact distributed water quality
 3. Changes in distribution system maintenance and operation that could affect water quality
 4. Atypical events that could impact distributed water quality or indicate that it was impaired
 5. Existing water quality monitoring data

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Level 1 Assessment Requirements and Corrective Actions

- Conduct assessment and include any State Board / LPA directives that tailors it to the characteristics of a specific water system
- A Level 1 assessment form will be supplied by the State Board / LPA to complete this requirement
- Submit completed assessment within 30 days of learning of trigger exceedance
- If directed to do so by the State Board / LPA, submit a revised assessment within 30 days.

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Level 1 & 2 Assessment Corrective Actions

- A public water system shall correct sanitary defects found through either a Level 1 or Level 2 assessment
- Corrections that are not completed within the 30 day period to submit the completed assessment must be completed by due dates approved by the State Board / LPA
- A public water system must notify the State Board / LPA within 5 business days when each scheduled corrective actions to completed.

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Level 2 Assessment Requirements and Corrective Actions

- Contact the State Board / LPA/LPA on the day they learn of the violation exceeding an E. coli MCL trigger
- Comply with any expedited actions or additional actions required by the State Board / LPA/LPA in the case of an E. coli MCL violation
- State Board / LPA/LPA Staff will conduct Level 2 assessments
- Submit to the State Board / LPA/LPA Staff, within 30 days of learning of the level 2 trigger exceedance, a completed assessment which includes sanitary defects detected, corrective actions completed, and a proposed timetable for completing any corrective actions that were not completed in the 30 day period.

Level 1 Assessment Form

- **Form that includes Assessment of:**
 - Sample Site and Procedure Evaluation
 - Source
 - Treatment
 - Distribution System
 - Storage
 - Booster Pumps
 - General Operations
- Summary of Deficiencies Found that Could be the Cause of the Positive Coliform Result
- Actions Taken to Correct the Deficiencies found and Dates to Complete that Haven't Been Finished

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Level 1 Assessment Form

SAMPLE SITE EVALUATION (Complete for all TC+ or EC+ findings)	Rawline Site TC+ or EC+	Upstream Site	Downstream Site	Sample 4 (specify)
1. What is the height of the sample tap above grade? (inches)				
2. Is the sample tap located in an exterior location or is it protected by an enclosure?				
3. Is the sample tap threaded, have a swing arm (kitchen sink) or an aerator (sinks)?				
4. Is the sample tap in good condition, free of leaks around the stem or packing?				
5. Can the sample tap be adjusted to the point where a good laminar flow can be achieved without excessive splash?				
6. Is the sample tap and areas around the sample tap clean and dry (free of animal droppings other contaminants or spray irrigation systems)?				
7. Is the area around the sample tap free of excessive vegetation or other impediments to sample collection?				
8. Describe how the tap was treated in preparation for sample collection (ran water, swabbed with disinfectant, flamed, etc.).				
9. Is this sample tap designated on the sampling plan submitted with this information request?				
10. What were the weather conditions at the time of the positive sample (rainy, windy, and sunny)?				

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Level 1 Assessment Form

- * Templates available for
 - * Transient, non-community systems
 - * Simple GW system (tanks, no treatment)
 - * GW system with chlorination
 - * GW system with chemical removal (wellhead) treatment
 - * SW system
- * Will be posted on website soon

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Compliance Scenario – Example 1

- System calls to report routine sample is TC+/EC-
- Repeats are all TC+/EC-
- Source samples are TC-/EC-

- TCR Requirements: TCR MCL Violation/citation with Tier 2 PN
- Federal rTCR: Level 1 Assessment required within 30 days.
 - Track submission of Level 1 Assessment and completion of corrective items.

Compliance Scenario – Example 2

- System calls on Friday to report routine sample is TC+ /EC+
- Repeat reported Saturday as follows:
 - Original TC+/EC+, Repeats TC+/EC-
 - Wells 1A, 1B: TC+/EC+, Well 2: TC-/EC-

TCR Requirements:	Federal rTCR requirements:
TCR MCL (Acute) Violation/Citation	Level 2 Assessment (E. coli MCL) conducted by DDW/LPA
Tier 1 PN	Tier 1 PN

Compliance Scenario – Example 2 Continued

- Water system contacts the regulator by the end of day on which the violation was determined.
- Level 2 Assessment has to be completed within 30 days, which includes:
 - State Board / LPA performing the Level 2 assessment;
 - Provide the assessment to the water system with identified corrective actions to be completed;
 - Water system completes the corrective actions
- If the water system has any corrective actions that are not completed within the 30 day period to submit the completed assessment must propose due dates for completion and be approved by the State Board / LPA
- Track completion of outstanding corrective actions.
- Use NOV to report violation to the USEPA – Region 9.

CA Reg Status

- Regulation text – Management Review Completed by May 31. Once Reviewed & Approved will be Posted
- PN language for TC MCL violation under revision
- FAQ under construction. Will be posted on web page

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Resources

- Federal rTCR
<https://www.gpo.gov/fdsys/pkg/FR-2013-02-13/pdf/2012-31205.pdf>
- EPA Quick Reference Guide for rTCR
- State Board rTCR webpage:
http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/rtrcr.shtml
 - Level 1 Assessment forms being developed and will be posted.
 - Seasonal System Protocol posted and guidance manual being developed.
- rTCR workgroup – Wendy Killou & Bruce Burton
- FAQ being developed – submit Q's to Wendy Killou
- rTCR workshops and trainings

rTCR Workshops & Trainings

- * RCAC
 - * Sept 28-29, CAL-TAP Fair Santa Cruz, Regulatory Update w/ rTCR
 - * Sept 29, South Lake Tahoe, Conducting Level 1 Assessments
 - * Nov 30, Online Training, rTCR Basic Regulations
 - * TBD-Seasonal water system startup, compliance and monitoring
- * DDW provided training upon request

Questions

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