ADEQ Arizona Department of Environmental Quality

Revised Total Coliform Rule (RTCR) Microbiological Sample Siting Plan (MSSP)

For use by Public Water Systems serving 1000 or fewer people

Part 1: General Public Water System (PWS) Information

Regulatory Agency: ☐ ADEQ ☐ PDEQ | **MSSP Creation Date:**

PWS Name: | **PWS ID#:**

PWS Mailing Address:

Contact Person: | **Phone#:**

Email Address:

PWS Type (Select one): ☐ CWS ☐ NTNCWS ☐ TNCWS | **Population Served:**

PWS Source Types: (Check all that apply)
☐ Surface Water ☐ Purchase Surface Water From:
☐ Ground Water ☐ Purchase Ground Water From:
☐ GUDI ☐ Finished water sold to:

Disinfection Treatment Used: (Check all that apply)
☐ None ☐ Chloramines ☐ Ozone ☐ Ultraviolet
☐ Chlorine ☐ Chlorine Dioxide ☐ Other:

Part 2: Sampling Siting Plan Information

Revised Total Coliform Rule (RTCR) Sampling

Sample Type	Location ID	Sample Site/Tap Location	Default (D) or Alternate (A)
1st Routine	**RTCR001**		
Repeat (Upstream)	RTCR001UP		☐ D ☐ A*
Repeat (Downstream)	RTCR001DN		☐ D ☐ A*

☐ This PWS has no additional sampling locations. ☐ Additional sampling locations are attached to this MSSP.

A description of how the sample location(s) identified are representative of water quality in distribution is (Select one): ☐ attached to this MSSP. ☐ provided in the space below:

☐ This PWS will collect routine samples **monthly**. ☐ This PWS will collect routine samples **less frequently than monthly.***

A description of how the PWS will conduct routine and repeat sampling in accordance with 40 CFR § 141.854 -856 is (Select one): ☐ attached to this MSSP. ☐ provided in the space below:

Selection requires written regulatory agency approval prior to plan implementation.

Microbiological Sample Siting Plan (MSSP) Template
(For use by Public Water Systems Serving Populations 1,000 or Fewer)

Ground Water Rule (GWR) Sampling

☐ This PWS uses only surface water sources and **is not subject to the Ground Water Rule** (GWR). (Skip to Part 3)

☐ This PWS **is subject to the GWR.** *All ground water sources available are listed below and/or attached to this MSSP:*

Well Name	Location ID	Sample Site/Tap Location
	55-	

☐ This PWS has no additional ground water sources. ☐ Other ground water source locations are attached this MSSP.

☐ The PWS will collect a **repeat sample from its single ground source to meet requirements of the RTCR and GWR.***

☐ This PWS has 4-log inactivation for all ground water sources and **is not subject to triggered source monitoring**.

☐ This PWS does not have 4-log inactivation for one or more ground water sources listed and **is subject to triggered source monitoring**. A description of how the PWS will conduct triggered source monitoring sampling in accordance with 40 CFR § 141.402 is (Select one): ☐ attached to this MSSP. ☐ provided in the space below:

Part 3: Distribution System/Plumbing Map with MSSP sampling locations identified

A Distribution System/Plumbing Map with all Revised Total Coliform Rule and Ground Water Rule sampling locations is (Select one): ☐ attached to this MSSP. ☐ provided below:

This MSSP is subject to modification upon regulatory agency review and must be retained and updtated by the PWS in accordance with 40 CFR § 141.853. The PWS must provide this MSSP to the regulatory agency upon request.

Selection requires written regulatory agency approval prior to plan implementation.

ADEQ Arizona Department of Environmental Quality

Revised Total Coliform Rule (RTCR) Microbiological Sample Siting Plan (MSSP)

For use by Public Water Systems serving 1001 or more people

Part 1: General Public Water System (PWS) Information

Regulatory Agency: ☐ ADEQ ☐ PDEQ | **MSSP Creation Date:**

PWS Name: | **PWS ID#:**

PWS Mailing Address:

Contact Person: | **Phone#:**

Email Address:

PWS Type (Select one): ☐ CWS ☐ NTNCWS ☐ TNCWS | **Population Served:**

PWS Source Types: (Check all that apply)
☐ Surface Water ☐ Purchase Surface Water From:
☐ Ground Water ☐ Purchase Ground Water From:
☐ GUDI ☐ Finished water sold to:

Disinfection Treatment Used: (Check all that apply)
☐ None ☐ Chloramines ☐ Ozone ☐ Other (List below):
☐ Chlorine ☐ Chlorine Dioxide ☐ Ultraviolet

Part 2: Sampling Plan Information

Revised Total Coliform Rule (RTCR) Sampling

Sample Type	Location ID	Sample Site/Tap Location	Default (D) or Alternate (A)
1st Routine	**RTCR001**		
Repeat (Upstream)	RTCR001UP		☐D ☐A*
Repeat (Downstream)	RTCR001DN		☐D ☐A*
2nd Routine	**RTCR002**		
Repeat (Upstream)	RTCR002UP		☐D ☐A*
Repeat (Downstream)	RTCR002DN		☐D ☐A*

☐ This PWS has no additional sampling locations. ☐ Additional sampling locations are attached to this MSSP.

A description of how the sample location(s) identified are representative of water quality in distribution is (Select one): ☐ attached to this MSSP. ☐ provided in the space below:

A description of how the PWS will conduct routine and repeat sampling in accordance with 40 CFR § 141.857 is (Select one): ☐ attached to this MSSP. ☐ provided in the space below:

Selection requires written regulatory agency approval prior to plan implementation.

Microbiological Sample Siting Plan (MSSP) Template
(For use by Public Water Systems Serving Populations 1,001 or More)

Ground Water Rule (GWR) Sampling

☐ This PWS uses only surface water sources and **is not subject to the Ground Water Rule** (GWR). (Skip to Part 3)

☐ This PWS **is subject to the GWR.** *All ground water sources available are listed below and/or attached to this MSSP:*

Well Name	Location ID	Sample Site/Tap Location
	55-	

☐ This PWS has no additional ground water sources. ☐ Other ground water source locations are attached this MSSP.

☐ This PWS has 4-log inactivation for all ground water sources and **is not subject to triggered source monitoring**.

☐ This PWS does not have 4-log inactivation for one or more ground water sources listed and **is subject to triggered source monitoring**. A description of how the PWS will conduct triggered source monitoring sampling in accordance with 40 CFR § 141.402 is (Select one): ☐ attached to this MSSP. ☐ provided in the space below:

Part 3: Distribution System/Plumbing Map with MSSP sampling locations identified

A Distribution System/Plumbing Map with all Revised Total Coliform Rule and Ground Water Rule sampling locations is (Select one): ☐ attached to this MSSP. ☐ provided below:

This MSSP is subject to modification upon regulatory agency review and must be retained and updtated by the PWS in accordance with 40 CFR § 141.853. The PWS must provide this MSSP to the regulatory agency upon request.

ADEQ Arizona Department of Environmental Quality

Revised Total Coliform Rule (RTCR) Quarterly Microbiological Sample Siting Plan (MSSP)

For use by Ground Water Systems serving 1000 or fewer people

Part 1: General Public Water System (PWS) Information

Regulatory Agency: ☐ ADEQ ☐ PDEQ ☐ MCESD	**MSSP Creation Date:**
PWS Name:	**PWS ID#:**
PWS Mailing Address:	
Contact Person:	**Phone#:**
Email Address:	
PWS Type (Select one): ☐CWS ☐NTNCWS ☐TNCWS	**Population Served:**
PWS Source Types: (Check all that apply) ☐Surface Water ☐Ground Water ☐GUDI ☐Purchase Surface Water From: _____ ☐Purchase Ground Water From: _____ ☐Finished water sold to: _____	
Disinfection Treatment Used: (Check all that apply) ☐None ☐Chlorine ☐Chloramines ☐Chlorine Dioxide ☐Ozone ☐Other: _____ ☐ Ultraviolet	

Part 2: Sampling Siting Plan Information

Revised Total Coliform Rule (RTCR) Sampling

Sample Type	Location ID	Sample Site/Tap Location	Default (D) or Alternate (A)
1st Routine	**RTCR001**		
Repeat (Upstream)	RTCR001UP		☐D ☐A*
Repeat (Downstream)	RTCR001DN		☐D ☐A*

☐This PWS has no additional routine sampling locations. ☐Additional routine sampling locations are attached to this MSSP.

A description of how the sample location(s) identified are representative of water quality in distribution is (Select one): ☐attached to this MSSP. ☐provided in the space below:

**This MSSP will not be approved if this section is left blank.*

☐This PWS will collect routine samples **monthly**. ☒This PWS will collect routine samples **less frequently than monthly.***

A description of how the PWS will conduct routine and repeat sampling in accordance with 40 CFR § 141.854 -856 is (Select one): ☐attached to this MSSP. ☒provided in the space below:

Quarterly routine sample(s) will be taken in the **FIRST/SECOND** (*circle one*) month of each quarter.

Repeat samples will be taken within 24 hours of notification from laboratory of positive result at the original, upstream, and downstream site. Additionally, any E. Coli positive results require notifying our regulating agency within 24 hours of notification.

Selection requires written regulatory agency approval prior to plan implementation.

Routine Quarterly Microbiological Sample Siting Plan (MSSP) Template
(For use by Ground Water Systems Serving Populations 1,000 or Fewer)

Additional Triggered Routine Sampling

For systems on quarterly monitoring only:

Sample Type	Location ID	Sample Site/Tap Location	Default (D) or Alternate (A)
1st Triggered Routine	RTCR001T		
Repeat (Upstream)	RTCR001TUP		☐D ☐A*
Repeat (Downstream)	RTCR001TDN		☐D ☐A*
2nd Triggered Routine	RTCR002T		
Repeat (Upstream)	RTCR002TUP		☐D ☐A*
Repeat (Downstream)	RTCR002TDN		☐D ☐A*
3rd Triggered Routine	RTCR003T		
Repeat (Upstream)	RTCR003TUP		☐D ☐A*
Repeat (Downstream)	RTCR003TDN		☐D ☐A*

A description of how the PWS will conduct routine and repeat sampling in accordance with 40 CFR § 141.854 -856 is (Select one): ☐attached to this MSSP. ☒provided in the space below

In the month following a TC+ quarterly routine sample, three additional triggered routine samples will be taken at the above locations (if the above locations are the same, the samples must be evenly spread throughout the month). The samples listed in this section will be subject to repeats, assessments, and groundwater rule samples if triggered.

We will use the RTCR Quarterly sampling flowchart (appendix A for *non-community systems*; appendix B for *community systems)* to determine if we can remain on quarterly monitoring or will be moved to Increased (non-community systems) or Routine (community systems) monthly monitoring. We will notify our regulating agency within 24 hours of triggering a loss of quarterly monitoring.
To return to quarterly monitoring, we must receive ADEQ approval. To request this monitoring schedule change we will contact our Compliance Assistance Coordinator.

Ground Water Rule

☐This PWS uses only surface water sources and **is not subject to the Ground Water Rule** (GWR). (System cannot be approved for quarterly monitoring.)

☒This PWS **is subject to the GWR.** *All ground water sources available are listed below and/or attached to this MSSP:*

Well Name	Location ID	Sample Site/Tap Location
	55-	

☐This PWS has no additional ground water sources. ☐Other ground water source locations are attached this MSSP.

☐The PWS will collect a **repeat sample from its single ground source to meet requirements of the RTCR and GWR.***

☐This PWS has 4-log inactivation for all ground water sources and **is not subject to triggered source monitoring**.

☐ This PWS does not have 4-log inactivation for one or more ground water sources listed and **is subject to triggered source monitoring**. A description of how the PWS will conduct triggered source monitoring sampling in accordance with 40 CFR § 141.402 is (Select one): ☐ attached to this MSSP. ☒ provided in the space below:

Ground Water samples will be taken from each Well/Spring that was in use at the time of the original positive, or that contributed to the finished water in use at the time of the original positive.

Ground Water samples will be RAW water samples taken within 24 hours of notification from the laboratory that the routine sample was positive and will be taken prior to any disinfection, whether routine or in response to the Positive sample.

Part 3: Distribution System/Plumbing Map with MSSP sampling locations identified

A Distribution System/Plumbing Map with all Revised Total Coliform Rule and Ground Water Rule sampling locations labeled is (Select one): ☐ attached to this MSSP. ☐ provided below:

This MSSP is subject to modification upon regulatory agency review and must be retained on site and updtated by the PWS in accordance with 40 CFR § 141.853. The PWS must provide this MSSP to the regulatory agency upon request.

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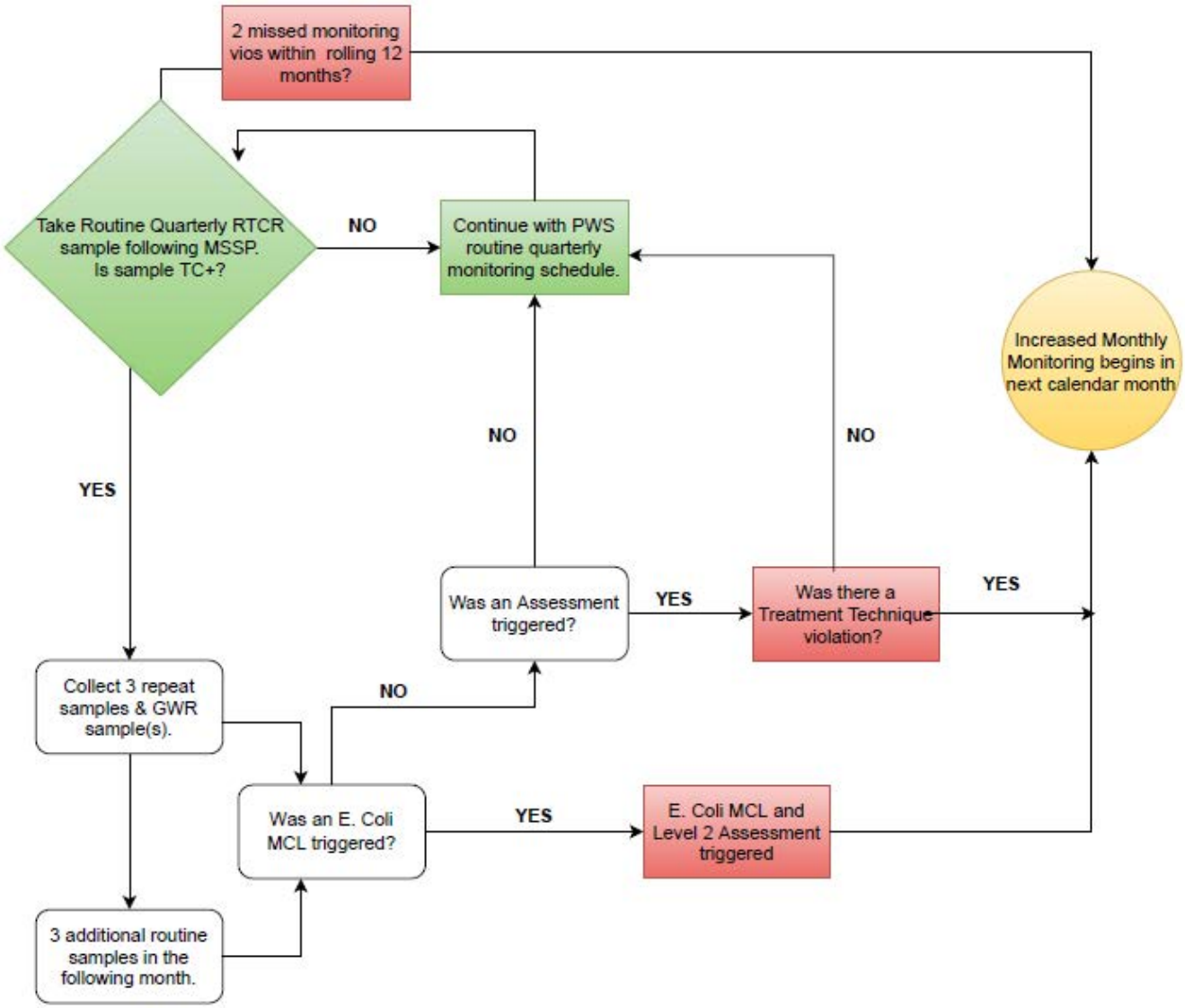
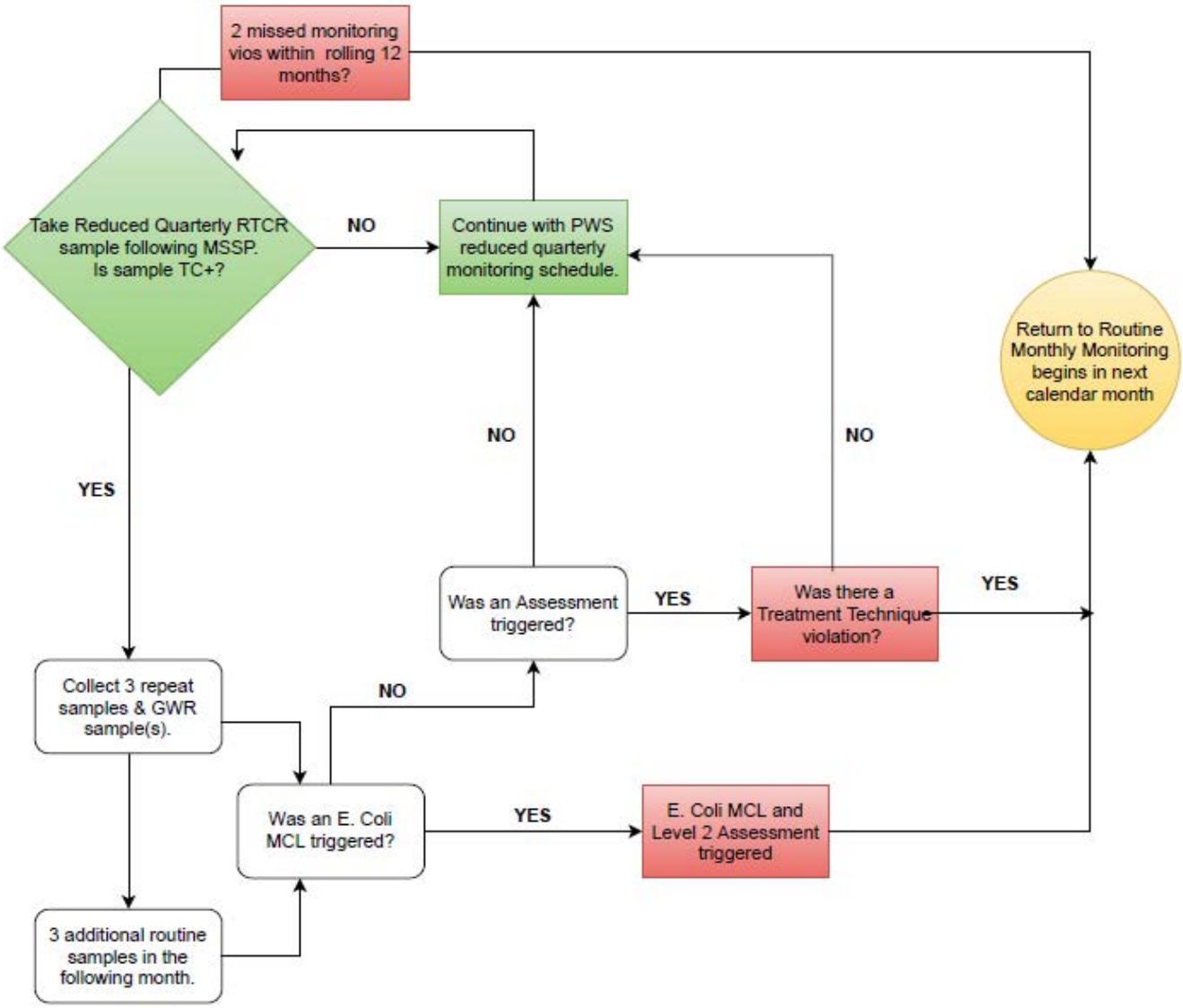
Routine Quarterly Microbiological Sample Siting Plan (MSSP) Template
(For use by Ground Water Systems Serving Populations 1,000 or Fewer)

Appendix A:



Routine Quarterly Microbiological Sample Siting Plan (MSSP) Template
(For use by Ground Water Systems Serving Populations 1,000 or Fewer)

Appendix B:



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Revised Total Coliform Rule (RTCR)
Level 1 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

PWS ID#:		**PWS Name**:		**Date of Assessment**:	
Compliance Period:	**Month/Quarter**		**Year**		**Regulating Agency:** ☐ADEQ ☐MCESD ☐PDEQ

Indicate the Grade of Certified Operator(s) Required by the PWS:	**Treatment:**	☐ 1	☐ 2	☐ 3	☐ 4
	Distribution:	☐ 1	☐ 2	☐ 3	☐ 4

Level 1 Assessment

- An assessment is an evaluation to identify the possible presence of **sanitary defects**, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment.
- The minimum elements of any assessment include the review and identification of:
  - *Events that happened that could create impaired water quality*
  - *Changes in distribution system Operation & Maintenance that may affect distributed water quality, including water storage*
  - *Source and treatment considerations that bear on distributed water quality*
  - *Existing water quality monitoring data (e.g., coliforms, disinfectant residuals, water quality parameters, etc.)*
  - *Inadequacies in sample sites, sampling protocol, and sample processing*

INSTRUCTIONS: Complete each Section on the form. Then check the associated box, below, when completed.

☐ **Section A: Assessment** (evaluate and identify any issues that could be an issue or sanitary defect)
☐ **Section B: Description of Occurrence** (provide an explanation if any issues were identified)
☐ **Section C: Corrective Action** (provide proposed corrective action(s) if any issues were identified in Section B)
☐ **Section D: Compliance History** (provide the information requested)
☐ **Microbiological Sample Siting Plan (MSSP):** Attach a copy of the current MSSP to the Level 1 Assessment form.

Section A - Assessment

1) Review and evaluate all elements contained under each sub-section (1-7).
2) Check ☒ any that are found to apply.
3) For each sub-section indicate the overall findings by checking **only one box** ☒ for either:

- ***Issue(s) identified***, if any potential causes of contamination were identified (any boxes were checked)
- ***No issues***, if no potential causes of contamination were identified
- ***NA****, if the section is not applicable to the PWS

1. General/Overall System ☐ No issues ☐ Issue(s) identified ☐ NA**

Have any of the following occurred in general, or at sample sites prior to collecting bacteria samples?

☐Low/inadequate disinfectant residual
☐Firefighting event/flushing/sheared hydrant
☐Pressure loss/inadequate pressure (<20 psi)
☐Signs of vandalism/forced entry
☐ Visible indicators of unsanitary conditions
☐ Water quality parameters/indicators out of range
☐ Other:

Revised Total Coliform Rule (RTCR)
Level 1 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

2. Sampling Sites ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Unclean or unsuitable sample tap
☐ Hot water intrusion
☐ MSSP has **not** been reviewed by Regulatory Agency
☐ Change in conditions at sample site
☐ **Other:**

3. Sampling Protocol ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Improper sample container
☐ Aerator was not removed (if present)
☐ Sampler error
☐ Inadequate tap flushing
☐ Improper hold time/storage temperature
☐ Auto sensing faucet/swivel-type faucet
☐ Sample was taken at a site **not** specified in MSSP
☐ **Other:**

4. Treatment Process ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Interruption in treatment and/or power loss
☐ Treatment added and/or changed
☐ Change in flow rates
☐ Inadequate disinfection
☐ Turbidity measurements out of range (*surface water system)*
☐ Recent installation/repair
☐ Operations & maintenance (O&M) procedures not followed
☐ **Other:**

5. Distribution System ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Power loss
☐ Standing water/debris in valve vault/box
☐ Low disinfection residuals
☐ Pump or valve failure
☐ Pressure loss/inadequate pressure (<20 psi)
☐ Improper control of surges
☐ Main breaks and/or leaks
☐ Unprotected cross connection
☐ Flushing of fire hydrants or blow-offs
☐ Improper maintenance of air-relief/air-vacuum valves
☐ Installation of new mains or construction activity
☐ Improper operation of pumps
☐ Illegal use of hydrants
☐ Improper operation of isolation valves resulting in breakage
☐ **Other:**

6. Storage Tanks ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Improper maintenance practices
☐ Signs of vandalism/forced entry
☐ Presence of dead animals/insects
☐ Incorrect operation of level control valves, altitude valves, and related appurtenances
☐ Hatch not sealed
☐ Low disinfectant residuals
☐ Deterioration, rust, holes, or other breaches in vent, overflow pipe, access hatch, screens, ladders, etc.
☐ **Other:**

7. SOURCES

Well ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Defective/damaged well cap/well seal
☐ Crack in well slab
☐ Missing/damaged grout seal
☐ Damaged pitless adaptor
☐ Floodwater/run-off inundation
☐ New source added
☐ Damaged well casing
☐ Damaged/unscreened vent
☐ Unprotected opening in pump/pump assembly
☐ **Other:**

Interconnect (Consecutive Connection to the seller) ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Checked interconnection
☐ **Other:**

Surface Water Intake/Supply ☐ No issues ☐ Issue(s) identified ☐ NA**

Revised Total Coliform Rule (RTCR)
Level 1 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

Spring ☐ No issues ☐ Issue(s) identified ☐ NA**

☐ Potential source of contamination
☐ Infiltration of surface run-off
☐ Improper development/poorly maintained spring box
☐ Rapid snowmelt
☐ Heavy rainfall
☐ **Other:**

Section B - Issue Description Use this space to describe the event and provide additional information on potential causes of contamination identified during the assessment. Include corresponding dates with your findings (**attach additional pages if needed**). Include dates of sample collection, disinfection, flushing, photographs showing system components, etc. with your findings.

☐ Check if PWS did not find any causes for the contamination.

Section C - Corrective Action Taken or to be Taken Use this space to describe corrective actions completed, a proposed timetable for any corrective actions not already completed, and any interim measures the PWS plans to implement prior to the completion of any corrective actions, including specific milestone dates for doing so (**attach additional pages if needed**). Include photographs showing system components.

Failure to meet any milestone date(s) is/are subject to enforcement and public notice provisions.

The PWS must notify the regulatory agency as each milestone is met.

Revised Total Coliform Rule (RTCR)
Level 1 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

Section D - Compliance History

1. Was the PWS required to complete a Level 1 or 2 Assessment in the last 12 months? ☐ Yes ☐ No

If "Yes": Was the source of contamination identified? ☐ Yes ☐ No

Were any Sanitary Defects identified? ☐ Yes ☐ No

2. Was the PWS required by the regulatory agency during the last survey, inspection or other communication to address any issue(s)? ☐ Yes ☐ No

If "Yes": Date issue was identified**:**

Were all corrective actions completed? ☐ Yes ☐ No

If "No": Describe the issue and indicate your plan and a proposed timetable for any corrective actions (**attach additional pages if needed**).

Certified Operator (print name):	Signature:
Certification Number:	Certification Expiration Date:
Sample Collector(s) (☐ Check if same as Certified Operator):	
Sample Collector(s):	Sample Collector(s):

Certification: I certify under penalty of law that I am the person authorized to fill out this form, and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

Print Name: _____ Title: _____

Signature: _____ Date: _____

Phone #: _____ Email: _____

Submit the completed form to the system's regulatory agency and copy ADEQ

Arizona Department of Environmental Quality Drinking Water Monitoring and Protection Unit

1110 W. Washington St., Mail Code 5415 B-2 Phoenix, AZ 85007
RTCR@azdeq.gov

Maricopa County Environmental Services Department Safe Drinking Water Program

501 N. 44th Street, Suite 200
Phoenix, AZ 8500
Phone: 602.506.6935
Fax: 602.372.0866
sdwquestions@mail.maricopa.gov

Pima County Department of Environmental Quality Drinking Water Program

33 N. Stone Ave., Suite 700
Tucson, AZ 85701
Phone: 520-724-7400
Fax: 520-838-7432

Revised Total Coliform Rule (RTCR)
Level 2 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

PWS ID#:		**PWS Name**:		**Date of Assessment**:	
Compliance Period:	**Month/Quarter**		**Year**		**Regulating Agency:** ☐ ADEQ ☐ MCESD ☐ PDEQ

Indicate the Grade of Certified Operator(s) Required by the PWS:	**Treatment:**	☐ 1	☐ 2	☐ 3	☐ 4
	Distribution:	☐ 1	☐ 2	☐ 3	☐ 4

Level 2 Assessment

- An assessment is an evaluation to identify the possible presence of **sanitary defects**, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment.
- The minimum elements of any assessment include the review and identification of:
  - *Events that happened that could create impaired water quality*
  - *Changes in distribution system Operation & Maintenance that may affect distributed water quality, including water storage*
  - *Source and treatment considerations that bear on distributed water quality*
  - *Existing water quality monitoring data (e.g., coliforms, disinfectant residuals, water quality parameters, etc.)*
  - *Inadequacies in sample sites, sampling protocol, and sample processing*
- A Level 2 assessment
  - Provides a more detailed examination of the system (including the system's monitoring and operational practices) than a Level 1 assessment does, through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices.
  - Will likely include field investigations, additional sampling and additional inspections of facilities beyond those performed in a Level 1 assessment.

The level of effort and resources required to implement the Level 2 assessments will be commensurate with a more comprehensive investigation, a higher level review of available information, and may involve the engagement of additional parties and expertise.

INSTRUCTIONS: Complete each Section on the form. Then check the associated box, below, when completed.

☐ **Section A: Assessment** (evaluate and identify any issues that could be an issue or sanitary defect)

☐ **Section B: Description of Occurrence** (provide an explanation if any issues were identified)

☐ **Section C: Corrective Action** (provide proposed corrective action(s) if any issues were identified in Section B)

☐ **Section D: Compliance History** (provide the information requested)

☐ **Microbiological Sample Siting Plan (MSSP):** Attach a copy of the current MSSP to the Level 2 Assessment form.

Revised Total Coliform Rule (RTCR)
Level 2 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

Section A - Assessment

a) Review and evaluate all elements contained under each sub-section (1-7).

b) Check ☒ any that are found to apply.

c) For each sub-section indicate the overall findings by checking **only one box** ☒ for either:

- ***Issue(s) identified***, if any potential causes of contamination were identified (any boxes were checked)
- ***No issues***, if no potential causes of contamination were identified
- ***NA****, if the section is not applicable to the PWS

1. General/Overall System ☐ No issues ☐ Issue(s) identified ☐ NA**

Have any of the following occurred in general, or at sample sites prior to collecting bacteria samples?

- ☐ Low/inadequate disinfectant residual
- ☐ Firefighting event/flushing/sheared hydrant
- ☐ Pressure loss/inadequate pressure (<20 psi)
- ☐ Signs of vandalism/forced entry
- ☐ Visible indicators of unsanitary conditions
- ☐ Water quality parameters/indicators out of range
- ☐ Sample station not secured to deter unauthorized access
- ☐ Issue(s) identified during the seasonal system's most recent start-up procedures (if applicable)
- ☐ Atypical events that could affect distributed water quality or indicate that distributed water quality was impaired
- ☐ Other:

2. Sampling Sites ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Unclean or unsuitable sample tap
- ☐ Hot water intrusion
- ☐ MSSP has **not** been reviewed by Regulatory Agency
- ☐ Premise Treatment Devices not operational (*if applicable*)
- ☐ Change in conditions at sample site
- ☐ There were recent plumbing changes/construction nearby
- ☐ Other:

3. Sampling Protocol ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Improper sample container
- ☐ Aerator was not removed (if present)
- ☐ Sampler error
- ☐ Inadequate tap flushing
- ☐ Aseptic techniques were NOT used
- ☐ Improper hold time/storage temperature
- ☐ Auto sensing faucet/swivel-type faucet
- ☐ Sample was taken at a site **not** specified in MSSP
- ☐ Other:

4. Treatment Process ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Interruption in treatment and/or power loss
- ☐ Treatment added and/or changed
- ☐ Change in flow rates
- ☐ The system was required to perform disinfection after correcting deficiencies in the past 12 month.
  When/Which disinfection procedure:
- ☐ Turbidity measurements out of range (*surface water system*)
- ☐ Recent installation/repair
- ☐ Inadequate disinfection
- ☐ Operations & maintenance (O&M) procedures not followed
- ☐ Filters/Treatment operated beyond capacity
- ☐ Other:

Revised Total Coliform Rule (RTCR)
Level 2 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

5. Distribution System ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Power loss
- ☐ Standing water/debris in valve vault/box
- ☐ Low disinfection residuals
- ☐ Pump or valve failure
- ☐ Pressure loss/inadequate pressure (<20 psi)
- ☐ Improper control of surges
- ☐ Main breaks and/or leaks
- ☐ Unprotected cross connection
- ☐ Improper connection of new/repaired/renovated lines or connections
- ☐ Flushing of fire hydrants or blow-offs
- ☐ Improper maintenance of air-relief/air-vacuum valves
- ☐ Installation of new mains or construction activity
- ☐ Improper operation of pumps
- ☐ Improper/Unauthorized use of hydrants
- ☐ Improper operation of isolation valves resulting in breakage
- ☐ Known recent backflow incident(s)
- ☐ Failure to install backflow prevention device(s)
- ☐ Failure to test backflow prevention device(s)
- ☐ Other:

6. Storage Tanks ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Improper maintenance practices
- ☐ Signs of vandalism/forced entry
- ☐ Presence of dead animals/insects
- ☐ Signs of animal activity
- ☐ Recent facility maintenance; When:
- ☐ Incorrect operation of level control valves, altitude valves, and related appurtenances
- ☐ Hatch not sealed
- ☐ Low disinfectant residuals
- ☐ Deterioration, rust, holes, or other breaches in vent, overflow pipe, access hatch, screens, ladders, etc.
- ☐ Improper disinfection conducted after maintenance/inspection
- ☐ Other:

7. SOURCES (Address each type of source)

Well ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Defective/damaged well cap/well seal
- ☐ Crack in well slab
- ☐ Missing/damaged grout seal
- ☐ Damaged pitless adaptor
- ☐ Floodwater/run-off inundation
- ☐ Changes in available source water
- ☐ Source water spills near well head
- ☐ Standing water around well head
- ☐ Improper disinfection after maintenance (if applicable)
- ☐ New source added
- ☐ Damaged well casing
- ☐ Damaged/unscreened vent
- ☐ Unprotected opening in pump/pump assembly
- ☐ Use of previously inactive well/source
- ☐ Well is not structurally sound
- ☐ Stream flow rates/reservoir level higher of lower than normal
- ☐ Signs of animal activity
- ☐ Other:

Surface Water Intake (List any issues in Section B) ☐ No issues ☐ Issue(s) identified ☐ NA**

Supply Spring ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Potential source of contamination
- ☐ Infiltration of surface run-off
- ☐ Improper development/poorly maintained spring box
- ☐ Signs of animal activity/tampering
- ☐ Rapid snowmelt
- ☐ Heavy rainfall
- ☐ Source water turnover occurred
- ☐ Other:

Interconnect (Consecutive Connection) ☐ No issues ☐ Issue(s) identified ☐ NA**

- ☐ Checked interconnection
- ☐ Signs of animal activity/tampering
- ☐ Other:

Revised Total Coliform Rule (RTCR)
Level 2 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

Section B - Issue Description Use this space to describe the event and provide additional information on potential causes of contamination identified during the assessment. Include corresponding dates with your findings (attach additional pages if needed). Include dates of sample collection, disinfection, flushing, photographs showing system components, etc., with your findings.

☐ **Check if PWS did not find any causes for the contamination**.

Section C - Corrective Action Taken or to be Taken Use this space to describe corrective actions completed, a proposed timetable for any corrective actions not already completed, and any interim measures the PWS plans to implement prior to the completion of any corrective actions, including specific milestone dates for doing so (attach additional pages if needed). Include photographs showing system components. Failure to meet milestone dates is subject to enforcement and public notice provisions.

Failure to meet any milestone date(s) is/are subject to enforcement and public notice provisions.
The PWS must notify the regulatory agency as each milestone is met.

Section D - Compliance History

1. Was the PWS required to complete a Level 1 or 2 Assessment in the last 12 months? ☐ Yes ☐ No

If "Yes": Was the source of contamination identified? ☐ Yes ☐ No

Were any Sanitary Defects identified? ☐ Yes ☐ No

2. Was the PWS required by the regulatory agency during the last survey, inspection or other communication to address any issue(s)? ☐ Yes ☐ No

If "Yes": Date issue was identified**:**

Were all corrective actions completed? ☐ Yes ☐ No

If "No": Describe the issue and indicate your plan and a proposed timetable for any corrective actions (**attach additional pages if needed**).

Revised Total Coliform Rule (RTCR)
Level 2 Assessment Form

Complete the assessment, correct all sanitary defects and return all pages of this form (including any additional/supporting documentation), **WITHIN 30 DAYS** of triggering an assessment.

Certified Operator (print name):	Signature:
Certification Number:	Certification Expiration Date:
Sample Collector(s) (Check if same as Certified Operator):	
Sample Collector(s):	Sample Collector(s):

Certification: I certify under penalty of law that I am the person authorized to fill out this form, and the information contained herein is true, accurate and complete to the best of my knowledge and belief.

Print

Name: _____ Title: _____

Signature: _____ Date: _____

Phone #: _____ Email: _____

Submit the completed form to the system's regulatory agency and copy ADEQ

Arizona Department of Environmental Quality Drinking Water Monitoring and Protection Unit

1110 W. Washington St., Mail Code 5415 B-2 Phoenix, AZ 85007
RTCR@azdeq.gov

Maricopa County Environmental Services Department Safe Drinking Water Program

501 N. 44th Street, Suite 200
Phoenix, AZ 8500
Phone: 602.506.6935
Fax: 602.372.0866
sdwquestions@mail.maricopa.gov

Pima County Department of Environmental Quality Drinking Water Program

33 N. Stone Ave., Suite 700
Tucson, AZ 85701
Phone: 520-724-7400
Fax: 520-838-7432

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Revised Total Coliform Rule (RTCR)
Seasonal Start-Up Procedures Certification Form
System Remained Pressurized (Waiver); OR
Seasonal Start-up Procedures (Certification)

Beginning April 1, 2016, seasonal non-community public water systems are required to meet the reporting requirements specified in 40 CFR § 141.861 (a)(5): ***A seasonal system must certify, prior to serving water to the public, that it has complied with the State-approved start-up procedure.*** Seasonal start-up procedures must be completed each year or season that the system is re-opening.

A system:

- May certify that it remained pressurized;
  Or
- Must perform a start-up procedure if it did not remain pressurized

Certification that System Remained Pressurized or Has Completed the Start-up Procedure:			
PWS ID Number	**AZ04-**	**PWS Name**	
The PWS will open for the season on the following date:			
Yes ☐	**No** ☐	**System Remained Pressurized (Waiver):** The system maintained and operated at a pressure of at least 20 psi through the off-season. Indicating "Yes", certifies that the PWS qualifies for a **waiver from the start-up procedures** based on keeping system pressure.	
Yes ☐	**No** ☐	**Seasonal Start-up Procedures (Certification):** The system was depressurized, or, did not maintain a pressure of at least 20 psi through the off-season. Indicating "Yes", certifies that the PWS **used and completed the checklist on page 2** (placed on file with the system records and available upon request), and **completed all of the start-up procedures on page 3.**	

CERTIFICATION BY AUTHORIZED SIGNATORY: *"I certify under penalty of law I am the person authorized to fill out this form, the water system has been inspected and reviewed as indicated above either under my direction or supervision. The water system is ready to operate for the current operation season, I believe the information submitted is true, accurate, and complete."*

Printed Name		Date	
Signature		Phone Number	
Title/Relation to PWS		Certified Operator Number (if applicable)	

After completion of the start-up procedures, submit this page only, prior to the system's seasonal start-up date to the system's regulatory agency and copy ADEQ.

Arizona Department of Environmental Quality, Drinking Water Monitoring and Protection Unit
1110 W. Washington St.,
Mail Code 5415 B-2
Phoenix, AZ 85007
RTCR@azdeq.gov

Maricopa County Environmental Services Department Safe Drinking Water Program
501 N. 44th Street, Suite 200
Phoenix, AZ 85008
Phone: 602-506-6935
Fax: 602-372-0866
sdwquestions@mail.maricopa.gov

Pima County Department of Environmental Quality
Drinking Water Program
33 N. Stone Ave., Suite 700
Tucson, AZ 85701
Phone: 520-724-7400
Fax: 520-838-7432

A copy of all three pages of the completed form must be maintained on file by the PWS.

Revised Total Coliform Rule (RTCR) Seasonal Start-up Procedures Checklist

Use this checklist if the water system was depressurized, lost pressure, and/or was fully shutdown during the off-season.

PWS ID Number		PWS Name	
Date Performed		Name and Title	

Keep the checklist and Start-Up Procedures in the PWS's records.
Do not submit this page with the Seasonal Start-Up Certification Form.

	DESCRIPTION	DATE COMPLETED	CORRECTIVE ACTIONS AND NOTES
Inspection	**1. Wellhead cap** Secured, seals intact, no openings, 2-foot vent with vent screened.		
	2. Well Slab Area No cracks, area for 100 feet maintained clear of fuels, animal manure, fertilizers, etc.		
	3. Well house or Pump house (if applicable) Inside clean, well number posted outside, no clutter, good housing keeping, doors locked, any leaks repaired.		
	4. Well enclosure or fencing (if applicable) Fence/enclosure in good repair and locked.		
	5. Treatment facilities (if applicable) Verified: operational, proper chemical storage, maintained as approved, and test equipment operational.		
	6. Storage Tank (if applicable) Tank integrity good, no holes, hatch seal, hatch lock, vent and overflow screens ok, level gauge operational.		
	7. Distribution piping, valves and service lines Valves and blow-offs exercise, any leaks repaired.		
	8. Dump Station Cross Connection Control Testable backflow device(s) tested annually. See page 3.		
	9. Sampling Locations Clean, accessible, 12" above floor an up-to-date, approved written sampling plan.		
Disinfection	**10. System Shock Disinfected** See page 3 for dosing recommendations.		
	11. System Flushed to between 1.0ppm and 0.2ppm. See page 3 for dosing recommendations.[1]		[1]Note: Pool test kits are not allowed.
Monitor	**12. Startup Bacteria sample(s)** Collected from system after flushing, sent to lab, taken prior to beginning monthly bacteria testing.[2] Take as special purpose sample and return to regulatory agency with this form.		[2]Note: A compliance sample is required the first month you are open. See your **Master Sampling Schedule.**
Operator	**13. System has an Operator** System has a certified operator at proper grade and type, certified operator was notified of system startup.		
Report	**14. Start-up Certification Form (see Page 1)** Submit to AZDEQ after completion of start-up procedures.		

The ADEQ Groundwater Inspection Checklist may also be used and kept on file.

Revised Total Coliform Rule (RTCR) Seasonal Start-up Procedures Checklist

Use this checklist if the water system was depressurized, lost pressure, and/or was fully shutdown during the off-season.

When you sign and submit page 1 of the *Seasonal Start-Up Procedures Certification Form*, you are certifying that you have completed all of the start-up procedures, including:

- Flushed all pipes.
- Cleaned all water storage tanks (if applicable).
- Disinfected entire water system.
- Inspected the entire water system using the ADEQ required checklist (see prior page).
- Repaired water system (if applicable).
- Collected special purpose samples to test for bacteria and disinfectant residual and submitted with this form to your regulatory agency.

Cross Connection Control and Dump Stations (A.A.C.R18-4-215)

A testable backflow device should be installed at the waste dump station(s) to ensure no backflow can occur. Wherever these devices are installed they are to be tested annually as part of rule and regular start-up procedures. It may be advisable to protect the device from freezing and by installing a sediment filter ahead of the device.

Please be aware that **reverse flush valves** (e.g. Hydro-Flush, Flush King, RV Dual Flush) contain a valve mechanism incorporated into a PVC connector which allows fresh water under pressure to be connected to the wastewater holding tank for flushing and cleaning. Systems allowing the use of reverse flush valves **must** install a testable backflow device on the potable water supply line *anywhere these devices may be used.*

Disinfection Dose for 50 ppm (mg/L) with Standard Bleach (8.25%) or 70% Chlorine Pellets

Shock disinfection of the water system components is required as part of start-up procedures for systems which were either shut completely down, loss system pressure below 20 psi during the off-season, following any work on the system or positive bacteria detections. Follow the instructions in ADEQ Engineering Bulletin #8 (Section V.C., pg. 21), "Disinfection of Water Systems". The bleach can be mixed into five gallons of water to be poured down the well casing to deliver the solution to the water level. Allow proper mixing followed by 12 to 24 hours holding time for the disinfection to be effective. Disinfection doses should reach, but not exceed, **50 ppm** depending on the conditions. **DO NOT** use pool bleach additives as these contain algaecides and are not certified for drinking water use. **DO NOT** use any laundry bleach with contains any additives like fragrances, whiteners, softeners, or other chemicals. Use liquid bleach as it mixes readily. Wells deeper than 200 ft. may require pellets in addition to bleach to improve dispersion deep into the well. Approximate doses for 50 ppm (8.5% bleach) are:

6-INCH DIAMETER DRILLED WELL

Water Depth	*Water Volume*	*8.5% Bleach Volume*
70 ft.	100 gal	7.5 oz.
100 ft.	150 gal	11.25 oz.
150 ft.	220 gal	16.5 oz.
200 ft.	300 gal	22.5 oz. and/or 30 pellets

After 12 to 24 hours of contact time, chlorine should be flushed to waste via a blow-off or hydrant. Flush to waste until the free chlorine level is less than 1.0 mg/l free chlorine. When flushing, DO NOT dispose of the chlorinated water into a stream or pond as it will kill aquatic life. Be careful to use the proper dosage and dechlorination tablets or aeration should be used to decrease the chlorine in the flush water. Adjust bleach volumes up for 5% bleach and down for 11% bleach.

FOLLOW-UP ACTION

It is recommended that bacterial sample(s) be taken after the chlorine has been flushed from the system to ensure that the disinfection has been successful. Bacteria samples should not be taken until all chlorine has been flushed away. For special (non-regulatory) bacteria samples use sampling code 'S'.

For more information or questions contact:

Drinking Water Monitoring and Protection Unit

602-771-6403

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STANDARD OPERATING PROCEDURE

DATA ACCEPTANCE POLICY

Division:	Water Quality Division Drinking Water Monitoring and Protections Unit
Scope:	How and when data is accepted as compliance data
Creation Date:	11/14/2019 CO3
Last Revision:	08/02/2021 TH5

General: This standard work clarifies the Drinking Water Monitoring and Protection Unit's handling of data submission and what will be considered compliance data.

1. Data Acceptance
    a. Per 40 CFR §141.31(a), "Except where a shorter period is specified in this part, the supplier of water shall report to the State the results of any test measurement or analysis required by this part within (1) The first ten days following the month in which the result is received, or (2) the first ten days following the end of the required monitoring period as stipulated by the State, whichever of these is shortest."
    b. Per 40 CFR§141.629(1) (a) "You must report the following information for each monitoring location to the State within 10 days of the end of any quarter in which monitoring is required" for **Stage 2 Disinfection Byproduct rule.**
    c. Per 40 CFR§141.90 (a)(1) "Except as provided in paragraph (a)(1)(viii) of this section, a water system shall report the information specified below for all tap water samples specified in §141.86 and for all water quality parameter samples specified in §141.87 within the first 10 days following the end of each applicable monitoring period specified in §141.86 and §141.87 (i.e., every six months, annually, every 3 years, or every 9 years). For monitoring periods with a duration less than six months, the end of the monitoring period is the last date samples can be collected during that period as specified in §§141.86 and 141.87." **for Lead and Copper Rule.**
    d. It is the responsibility of the Public Water System (PWS) to make sure data is submitted to ADEQ by the due date and in a format which is acceptable by ADEQ.
    e. If the PWS has an agreement with their laboratory (or another 3rd-party), that the lab submits data to ADEQ, the PWS is still responsible for on time data submission.
    f. If the data is late due to a laboratory sampling handling, analytical, or instrumentation error, the laboratory must provide ADEQ a letter stating that they are responsible for the tardy data. In this case, the Compliance Assistance Coordinator can reject the late data violation, with a comment.
    g. This stipulation does not apply to data that is submitted by the lab, which is late due to un-timely submittal by the laboratory that is not caused by one of the aforementioned causes.
    h. Acceptance of compliance data with laboratory data qualifiers (flags) will be determined by reference to the Arizona Data Qualifier Rev. 4.0 ADEQ Acceptance Matrix (attached).

2. Selective Reporting
    a. Compliance data must be submitted to the laboratory with a Chain of Custody indicating that it is for compliance. A sample cannot be submitted to the laboratory as "process data", "information only", "non-compliance", etc. and be submitted to ADEQ as

compliance data once the results have been reviewed. Data that falls under this category is to be considered as Selective Reporting and will not be used as compliance data.

i. Regulatory options for addressing "selective sampling":
    1. 40 CFR 141.25(e): "The State has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by their sanctioned representatives and agencies[]".
    2. 40 CFR 141.26(c)(3)(iii): "Systems must include all samples taken and analyzed under the provisions of this section in determining compliance, even if that number is greater than the minimum required."
    3. 40 CFR 141.26(c)(3): "Compliance: Compliance with §141.66(b) through (e) will be determined based on the analytical result(s) obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL."
    4. A.A.C. R18-4-201: "The Department may determine compliance or initiate enforcement action based upon analytical results and other information compiled by the Department or other federal, state, or local agencies."

3. <u>Regulatory/criminal options for addressing chain-of-custody issues:</u>
    a. AZDHS rules (A.A.C):
        i. R9-6-605(A): "The Department may conduct a laboratory inspection, investigation, or proficiency testing, or any combination of the three, at any time before or during a laboratory's license period."
        ii. R9-14-615(A): "A licensee or applicant shall ensure that the analytical data produced at the licensee's or applicant's laboratory are of known and acceptable precision and accuracy, as prescribed by the approved method for each analysis or as prescribed by the limits described under subsection (C)(8), and are scientifically valid and defensible."
        iii. R9-6-615(B)(15): "A licensee or applicant shall establish, implement, and comply with a written quality assurance plan that contains the following and is available at the laboratory for Department review: … Procedures for chain-of-custody documentation, including procedures for the documentation and reporting of any deviation from the sample handling or preservation requirements listed in this Section."
    b. A.R.S.:
        i. 36-495.09. Suspension, revocation or denial of license, hearing
            1. Pursuant to title 41, chapter 6, article 10, the director may deny, revoke or suspend the license of a laboratory if its owners, officers, agents or employees do any of the following: …
            2. Knowingly aid, permit or abet the submission of false or inaccurate information required by this chapter or rules adopted pursuant to this chapter.
        ii. 36-495.07. Inspection; investigations

1. The department may make an initial inspection, and thereafter an annual inspection, of each laboratory to determine compliance with this chapter or rules adopted pursuant to this chapter.
   …
2. In addition to the inspections provided for in subsection A of this section, the department, on its own initiative or on the receipt of a written complaint from a person setting forth facts which, if proven, constitute a violation of this chapter or rules adopted pursuant to this chapter, may make an investigation of the laboratory's operations, techniques and procedures. If the investigation or an inspection conducted pursuant to this section discloses past or current noncompliance with statutes and rules, the director, in accordance with section 36-495.09, may deny, suspend or revoke a license issued by the department pursuant to this chapter.

iii. 13-2310. Fraudulent schemes and artifices; classification; definition
   1. Any person who, pursuant to a scheme or artifice to defraud, knowingly obtains any benefit by means of false or fraudulent pretenses, representations, promises or material omissions is guilty of a class 2 felony.

iv. 13-2311. Fraudulent schemes and practices; wilful concealment; classification
   1. Notwithstanding any provision of the law to the contrary, in any matter related to the business conducted by any department or agency of this state or any political subdivision thereof, any person who, pursuant to a scheme or artifice to defraud or deceive, knowingly falsifies, conceals or covers up a material fact by any trick, scheme or device or makes or uses any false writing or document knowing such writing or document contains any false, fictitious or fraudulent statement or entry is guilty of a class 5 felony.

v. 13-2407. Tampering with a public record; classification
   1. A person commits tampering with a public record if, with the intent to defraud or deceive, such person knowingly: ...
      - Records, registers or files or offers for recordation, registration or filing in a governmental office or agency a written statement which has been falsely made, completed or altered or in which a false entry has been made or which contains a false statement or false information....

4. Late Data – Standard Responses
   a. While the rule is silent regarding the need for public notices for late reporting, ADEQ DWMPU has determined that public notices are not required for late data violations.

Though it is required in the annual (biennial) CCRs that late reporting be listed in the violations section, additional public notices to customers are considered not value-added and not business friendly.

b. When validating late violations in SDWIS, use the Blue Tier (1 ,2, or 3) Standard Response. This will not automatically give the system public notice schedule.

5. Laboratory issues
   a. If a sample is unable to be reported due to analytical issues or laboratory errors and ADEQ receives confirmation from the lab to this affect, the system will have 2 weeks to perform a new sampling event. This resample will be able to be used for the original monitoring period.
      i. The CAC will have to manually associate the original monitoring period to the sample and leave a note in the comments so the sample is not used for 2 monitoring periods.
      ii. The resample will only apply to the sample that had the issue/error; all other acceptable results does not need to be resampled.

Arizona Data Qualifier Rev. 4.0 ADEQ Acceptance Matrix

A	B	C	D	E	H	K	L	M	N	Q	R	S	T	V
A1	B1	C1	D1	E1	H1	K1	L1	M1	N1	Q1	R1	S1	T1	V1
A2	B2		D2	E2	H2	K2	L2	M2	N2	Q2	R2		T2	V2
A3	B3	C3	D3	E3	H3		L3	M3		Q3		S3	T3	V3
A4	B4	C4	D4	E4	H4		L4	M4	N4	Q4	R4	S4	T4	
A5	B5	C5	D5	E5	H5	K5	L5	M5	N5	Q5	R5	S5	T5	V5
A6	B6		D6	E6	H6	K6		M6	N6	Q6	R6	S6	T6	V6
A7	B7		D7	E7		K7		M7	N7	Q7	R7	S7	T7	
A8		C8		E8		K8				Q8	R8	S8		
						K9				Q9	R9			V9
Acceptable/Lab Discretion						K10				Q10		S10		
Acceptable if ND						K11				Q11	R11	S11		
Acceptable if > MCL											R12	S12		
Not Acceptable			Qualifier Deleted								R13			

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