Top Drinking Water Sanitary Survey Violations 2020-2021
Presented by LaPriel Tohtsonie

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Drinking Water Inspections and Compliance Unit

Top Violations Found During an Inspection
A sanitary survey must include the following eight essential elements that must be reviewed during an on-site inspection *(40 CFR 142.16)*:

1. Water source (protection, physical components, and condition)
2. Water treatment
3. Distribution system
4. Finished water storage
5. Pumps, pumping facilities, and controls
6. Monitoring, reporting, and data verification
7. Water system management and operation
8. Operator compliance with state requirements
From October 2016 to October 2021, ADEQ inspectors have issued 2,053 violations during on-site inspections of Public Water Systems.
Top Ten Violations Issued

- #1 Violation: No sample plans to review on site (88)
- #2 Violation: No #16 mesh screen on overflow pipe of storage tank (86)
- #3 Violation: Vegetation around storage tank base (83)
- #4 Violation: Cracked well slab (80)
- #5 Violation: Improper drainage around storage tank (71)
- #6 Violation: (tie) Well does not have a well vent (69) & No gasket on storage tank lid (69)
- #7 Violation: No sample tap at well (68)
- #8 Violation: No overflow pipe on storage tank (60)
- #9 Violation: No a hatch seal on storage tank (57)
- #10 Violation: Well vent is not screened (56)
Finished Water Storage (FW)

There were 698 Violations
Finished Water Storage Violations

REMOVE VEGETATION AROUND STORAGE TANK BASE
Finished Water Storage Violations

Non-NSF Gasket vs NSF approved Gasket
Finished Water Storage Violations

Storage tank overflows

Overflows should extend down to an elevation between 12 and 24 inches above the ground surface and discharges freely.
Finished Water Storage Violations

Storage tank overflows
Finished Water Storage Violations
Finished Water Storage Violations
Finished Water Storage Violations
#2 Source Water (SO)

581 Violations:
The well vent should be turned down and covered with a number 16 non-corrodible mesh screen.
Source Water Violations
Source Water Violations

- Well slab clear of sediments/debris
- Well is equipped with a vent which shall terminate at least 2 feet above the protective slab
- Cracks in well slab are sealed
#3 Monitoring and Reporting (MR)

174 Violations:

Violations include:

- No Sample Plans to review on site
- PWS has not turned in monitoring reports
- System failed to post public notice
- Failure to file Consumer Confidence Report (CCR) by July 1st Deadline
- CCR Certificate of Distribution or Mailing Waiver not received by ADEQ
- Failure to Monitor for residual disinfection levels (MRDLs)
- CCR Certificate of Distribution or Mailing Waiver not received
#3 Monitoring and Reporting (MR)

Microbiological Sample Site Plan

Revised Total Coliform Rule (RTCR)
Microbiological Sample Sitting Plan (MSSP)
For use by Public Water Systems serving 1000 or fewer people

Part 1: General Public Water System (PWS) Information

- Regulatory Agency: ADEQ
- PWS Name:
- PWS Mailing Address:
- Contact Person:
- Phone:
- Email Address:
- PWS Type (select one): CWS
- NTCWS
- TNCWS
- Population Served:
- PWS Source Types: Surface Water
- Ground Water
- Disinfection Treatment: Chlorine
- Chloramines
- Other:

Part 2: Sampling Sitting Plan Information

- Sample Type
- Location ID
- Sample Site/Tap Location
- Default (D) or Alternate (A)

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

This MSSP is subject to modification upon regulatory agency review and must be retained and updated 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.
#3 Monitoring and Reporting (MR)

**Form LCR-C Lead & Copper Compliance Sampling**

**Supplemental Reporting Form to DWAR 8**

40 CFR § 141.90 (a) (ii)

This form, or a substitute sampling plan created by the system with the same criteria identified in form LCR-C, is REQUIRED to be submitted to the Arizona Department of Environmental Quality (ADEQ) every monitoring period lead and copper sampling is conducted per 40 CFR §141.90 (a) (ii)/A.A.C. R-4-111.

The lead and copper rule requires water systems to sample at their highest risk sites. These sites are considered to have lead and copper plumbing materials or components. ADEQ recommends using a materials inventory and historical tap monitoring results to identify highest risk sites to monitor during the period designated by ADEQ. If a water system is on reduced monitoring, annual or triennial, the sites must be the same sites sampled each monitoring period. If there are changes to the sample sites justification must be provided, in writing, to ADEQ.

### Public Water System Information

<table>
<thead>
<tr>
<th>System's Name:</th>
<th>System Type:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CWS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>System ID #:</th>
<th>Number of People Served:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&gt; 100,000</td>
</tr>
<tr>
<td></td>
<td>501 to 3,300</td>
</tr>
<tr>
<td></td>
<td>10,001 to 100,000</td>
</tr>
<tr>
<td></td>
<td>101 to 500</td>
</tr>
<tr>
<td></td>
<td>3,301 to 10,000</td>
</tr>
<tr>
<td></td>
<td>≤ 100</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Address:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Contact Person:</th>
</tr>
</thead>
</table>

### Results of Monitoring

The results of lead and copper tap water samples must be attached to this document.

<table>
<thead>
<tr>
<th># Of Samples Required:</th>
<th># Of Samples Submitted:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>90th Percentile Pb:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>90th Percentile Cu:</th>
</tr>
</thead>
</table>

### If Required: Attach results of water quality parameter samples.

<table>
<thead>
<tr>
<th># Of WOP Tap Samples Required:</th>
<th># Of WOP Tap Samples Submitted:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th># Of Entry Point Tap Samples Required:</th>
<th># Of Entry Point Tap Samples Submitted:</th>
</tr>
</thead>
</table>

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- **Basic system information** (name, ID #, address, population, type of system)
- **# of samples required**, **# samples submitted and most recent results**
- **Not required unless** system is required to take water quality parameter samples
#3 Monitoring and Reporting (MR)

**Form LCR-C Lead & Copper Compliance Sampling**

Supplemental Reporting Form to DWAR 8
40 CFR § 141.90 (a)(1)

Instructions: Complete and submit one page per sample site.

**Sampling Sites**

<table>
<thead>
<tr>
<th>Location of Sample Site:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of Structure:</td>
</tr>
<tr>
<td>Criteria or Plumbing Material:</td>
</tr>
<tr>
<td>New Location of Sample Site:</td>
</tr>
<tr>
<td>Type of Structure:</td>
</tr>
<tr>
<td>Criteria or Plumbing Material:</td>
</tr>
</tbody>
</table>

*Distance Between Sites:*

Reason for Change (attach additional pages if necessary)

*Note: The new site must meet the same criteria as the original site when a replacement site is necessary to meet the LCR sampling requirements.*

**Must complete one for each site**

Only need to complete top 3 lines:
- Location (address)
- Type of structure
- Criteria or Plumbing Material
#3 Monitoring and Reporting (MR)

## ADEQ

### Form LCR-C Lead & Copper Compliance Sampling

**Supplemental Reporting Form to DWAR 8**

40 CFR § 141.90 (a) (I)

**Instructions:** Complete and submit one page per sample site.

### Sampling Sites

<table>
<thead>
<tr>
<th>Field</th>
<th>Information Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of Sample Site:</td>
<td></td>
</tr>
<tr>
<td>Type of Structure:</td>
<td></td>
</tr>
<tr>
<td>Criteria or Plumbing Material:</td>
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<tr>
<td>New Location of Sample Site:</td>
<td></td>
</tr>
<tr>
<td>Type of Structure:</td>
<td></td>
</tr>
<tr>
<td>Criteria or Plumbing Material:</td>
<td></td>
</tr>
<tr>
<td><em>Distance Between Sites:</em></td>
<td></td>
</tr>
</tbody>
</table>

**Reason for Change (attach additional pages if necessary):**

**Note:** The new site must meet the same criteria as the original site when a replacement site is necessary to meet the LCR sampling requirements.

### If system is changing sites:

- Put original/old site information here
- Put new site information here
- How far is the new site from the old site?
- Explain reason for changing site

### Signature

Printed Name

<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
</tr>
</thead>
</table>

23
156 Violations:

Violations Include:

• No Emergency Operation Plan (EOP)
• Sampling at incorrect location
• PWS has MCL violation at time of the inspection
• No ADWR well number posted
• Microbiological Site Plan needed to be updated
• Leaks
The Emergency Operations Plan (EOP) must, at a minimum, detail the steps that the community water system will take to assure continuation of service in the following emergency situations:

- Loss of a source
- Loss of water supply due to major component failure
- Damage to power supply equipment or loss of power
- Contamination of water in the distribution system from backflow
- Collapse of a reservoir, reservoir roof, or pump house structure
- A break in a transmission or distribution line
- Chemical or microbiological contamination of the water supply

The EOP shall also address the following:

- Provisions of alternate sources of water during emergency
- Notice procedures for regulatory agencies, news media, and users
- Disinfection and testing of the distribution system once service is restored
- Identification of critical components that shall remain in service or be returned to service quickly
- Critical spare parts inventory
- Staff training in emergency response procedure

Link to template on ADEQ site: https://static.azdeq.gov/forms/dw_eop_template.docx
95 Violations:

Violations include:

- Secure systems components with 6 foot fence and lock
- Install locks on all gates and doors
- Secure well head
- Missing security enclosures
System Security Violations

[Images of security violations and security measures, including a fence with barbed wire, wooden crates, and a ladder against a wall.]
System Security Violations
#6 Distribution System (DS)

132 Violations:

Violations include:

- No backflow prevention testing records available
- No backflow prevention device at system
- Install an Entry Point to Distribution System sample tap
- System did not maintain a pressure of 20 PSI at all times
- System does not have an air relief valve vent
- No Pressure gauge
Entry Point to Distribution System (EPDS) is a compliance sampling point

- On a finished water line
- After the well, disinfection, treatment, blending and storage facilities—whichever is last in the process flow
- Prior to the first service connection
92 Violations:

Violations include:

• Complete the ATC/AOC process for system updates

• EOP needs to be updated

• Sanitary defect for the RTCR Rule

• No second booster pump

• Pumps not on solid foundation
44 Violations:

Violations include:

- Non-NSF approved additives used
- No label on disinfection compound container
- Gas chlorination cylinder is not chained to the wall
- No performance indicator device on POU device
Disinfectant Violation

Disinfectant - Do Not Use Non-NSF Approved Bleach!
Disinfectant Violation

Disinfectant – needs to be NSF Approved
36 Violations:

Violations include:

• System to obtain a certified operator
• Operator not certified at the correct grade
• No written instructions left by the systems’ operator
• No written instructions left by operator
Resources for system owners and operators:

- https://teadit.com/us
- https://www.amazon.com/gp/product/B07KP5VX6B/ref=ox_sc_act_title_1?smid=ATVPDKIKX0DER&psc=1
- https://www.grainger.com/
- Engineer Bulletin 10 Guidelines for the Construction of Water Systems
- Engineering Bulletin 8 - Disinfection
Pre-Inspection Checklist

ADQ: Arizona Department of Environmental Quality
WATER QUALITY DIVISION

PREPARING FOR YOUR DRINKING WATER SANITARY SURVEY

Your public water system is due for a sanitary survey. This is a routine inspection conducted every 3 or 5 years depending on how your system is classified. Complete the steps listed below to prepare for the inspection.

PWS Name: [ ] PWS ID Number: [ ] Date: [ ]

Name and title of person completing form: [ ]

PWS Type:
- [ ] Community Water System (CWS)
- [ ] Non-Transient Non-Community Water System (NTNCWS)
- [ ] Transient Non-Community Water System (TNCCWS)

General Department Review:

Do you have the following documents on-site and available at the time of inspection?

[ ] Yes [ ] No
1. Revised Total Coliform Rule Microbiological Sample String Plan A.A.C. R18-4-126
2. Lead & copper monitoring plan (for CWS and NTNCWS only) A.A.C. R24-8-111
3. Stage 2 Disinfection By-Products monitoring plan (for CWS and NTNCWS which add a primary or residual disinfectant other than UV light) A.A.C. R18-4-124
4. Emergency Operations Plan (for CWS only) A.A.C. R16-4-204(A)
5. Maintenance Records A.A.C. R18-4-203
6. ExcelFlow Prevention testing records A.A.C. R18-4-215
7. Records of ADEQ approval (if necessary) for system components added in last 5 years
8. Records of water quality analyses
9. Records of turbidity and of continuous residual disinfectant concentration measurements (Surface water or GUDI systems only)

*GUDI - Ground water under the direct influence of surface water

Physical Facilities A.A.C. R18-4-203

Perform a walk-through of your system and verify that the following components are installed and in good condition.

- Ground water systems:
  [ ] Yes [ ] No
  1. Wells, sumps, or intakes in good condition. Small cracks have been sealed.
  2. A raw water sample tap is installed at each well.
  3. All wells have a vent turn down and terminates 3 ft. above the slab with a #16 mesh screen.
  4. All openings into the well casings are sealed, including electrical conduits and holes.

- Surface water or GUDI systems:
  [ ] Yes [ ] No
  1. Intake structures are physically intact, protected against tampering, acoustic nuisances and other potential damages, and accessible for inspections and cleaning.

- Ground water, GUDI, or surface water systems:
  [ ] Yes [ ] No
  1. Sample taps are installed at all Entry Points to the Distribution System (FPDS).
  2. All chemicals and disinfectants used in the system have an NSF logo on the packaging.
  3. All storage tank overflows pipes extend downward 12 inches above the ground and are protected with a securely fitting flapper gate or #16 mesh screen.
  4. Hatches on storage tanks are secured and gaskets are in good condition and fit tightly.
  5. Vegetation is maintained and controlled around system facilities.
  6. Area around storage tank(s) is graded to provide drainage away from tank.
  7. All pressure tanks have a pressure gauge and a pressure relief valve.

Don't get caught with a common violation:

1. Failure to comply with lead and copper specific recordkeeping requirements
2. RTCA sampling plan violations
3. Stage 2 Disinfection By-Products compliance monitoring plan
4. Failure to develop an emergency operations plan
5. Operations & Maintenance

Well's sanitary seal in bad condition
Buried Foundation
Tree branches touching storage tank
Busted screen
Excessive vegetation around storage tank
Missing raw water sample tap and air vent
Hatch lacks a seal and a lock
Broken air vent
Top Drinking Water Violations Wrap-Up

Any Questions for us?