



Top Drinking Water Sanitary Survey Violations 2020-2021

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December 7, 2021





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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



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

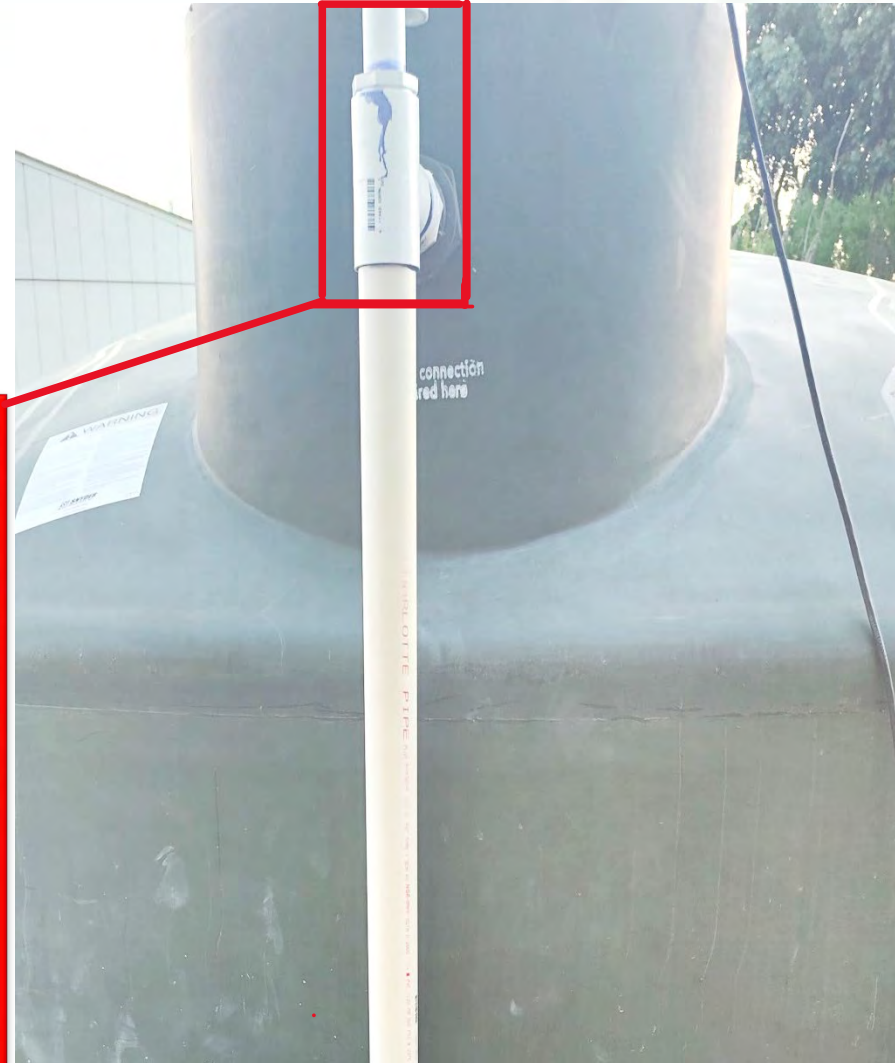
Storage tank overflows



Finished Water Storage Violations



Finished Water Storage Violations



Finished Water Storage Violations

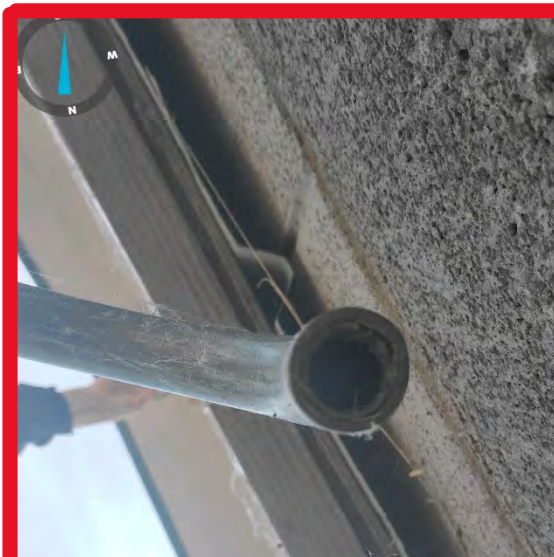
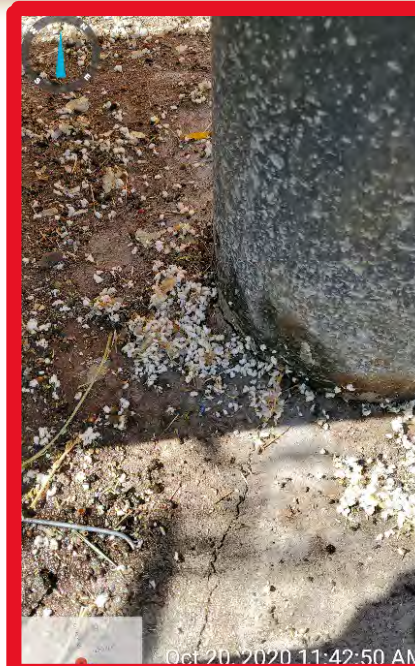


#2 Source Water (SO)

581 Violations:



Source Water 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

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 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: Surface Water Purchase Surface Water From: _____
(Check all that apply) 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

Sample Type	Location ID	Sample Site/Tap Location	Default (D) or Alternate (A)
1 st Routine	RTCR001	_____	<input type="checkbox"/> D <input type="checkbox"/> A*
Repeat (Upstream)	RTCR001UP	_____	<input type="checkbox"/> D <input type="checkbox"/> A*
Repeat (Downstream)	RTCR001DN	_____	<input type="checkbox"/> D <input type="checkbox"/> 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:

Revised Total Coliform Rule (RTCR) Sampling

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

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:

Ground Water Rule (GWR) Sampling

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. (November 2015) |Page 2

#3 Monitoring and Reporting (MR)



Form LCR-C Lead & Copper Compliance Sampling

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

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) (i)/ 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	
System's Name: <input type="text"/>	System Type: <input type="checkbox"/> CWS <input type="checkbox"/> NTCWS
System ID #: <input type="text"/>	Number of People Served:
Address: <input type="text"/>	<input type="checkbox"/> > 100,000 <input type="checkbox"/> 501 to 3,300
	<input type="checkbox"/> 10,001 to 100,000 <input type="checkbox"/> 101 to 500
	<input type="checkbox"/> 3,301 to 10,000 <input type="checkbox"/> ≤100
Contact Person: <input type="text"/>	

Results of Monitoring	
The results of lead and copper tap water samples must be attached to this document.	
# Of Samples Required: <input type="text"/>	# Of Samples Submitted: <input type="text"/>
90th Percentile Pb: <input type="text"/>	90th Percentile Cu: <input type="text"/>

If Required: Attach results of water quality parameter samples.	
# Of WQP Tap Samples Required: <input type="text"/>	# Of WQP Tap Samples Submitted: <input type="text"/>
# Of Entry Point Tap Samples Required: <input type="text"/>	# Of Entry Point Tap Samples Submitted: <input type="text"/>

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)

****Must complete one for each site****

Instructions: Complete and submit one page per sample site.

Sampling Sites

Location of Sample Site:

Type of Structure:

Criteria or Plumbing Material:

New Location of Sample Site:

Type of Structure:

Criteria or Plumbing Material:

*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.

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

Signature

Printed Name

Title

Date

#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

Location of Sample Site:

Type of Structure:

Criteria or Plumbing Material:

New Location of Sample Site:

Type of Structure:

Criteria or Plumbing Material:

*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.

Signature

Printed Name

Title

Date

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

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

Emergency Operations Plan (EOP)

The **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

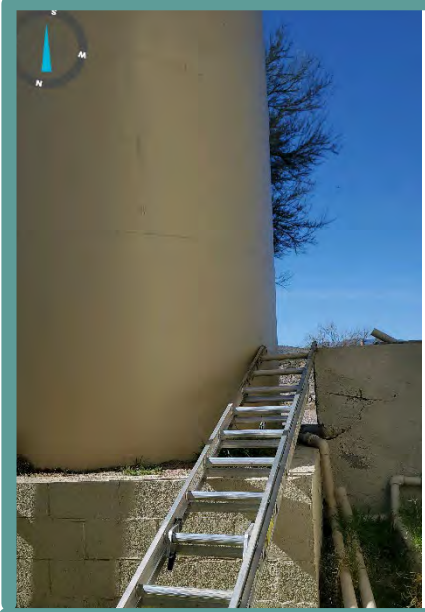
Link to template on ADEQ site: https://static.azdeq.gov/forms/dw_eop_template.docx

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



System Security Violations



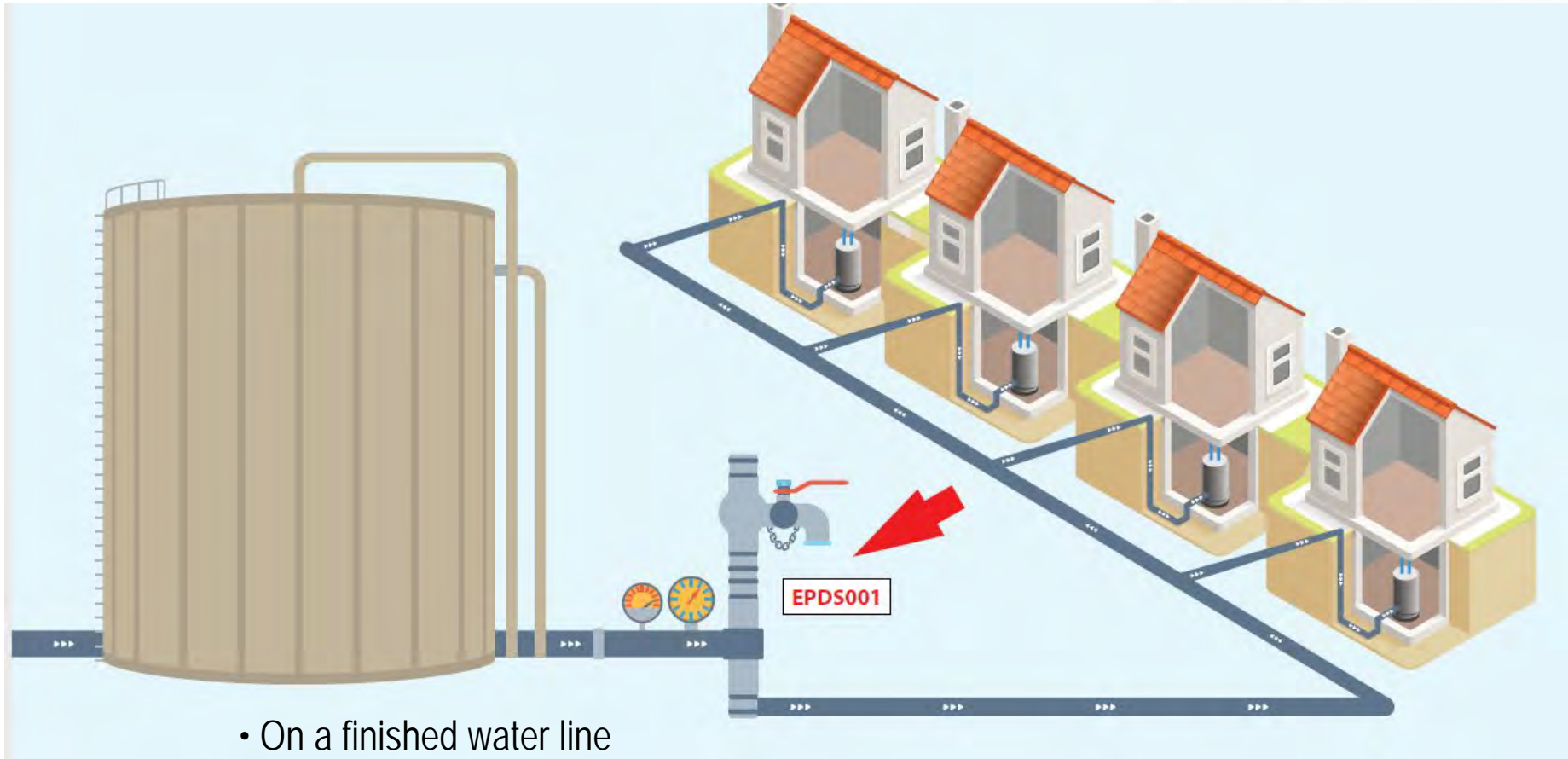
132 Violations:

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

Distribution System Violations

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:

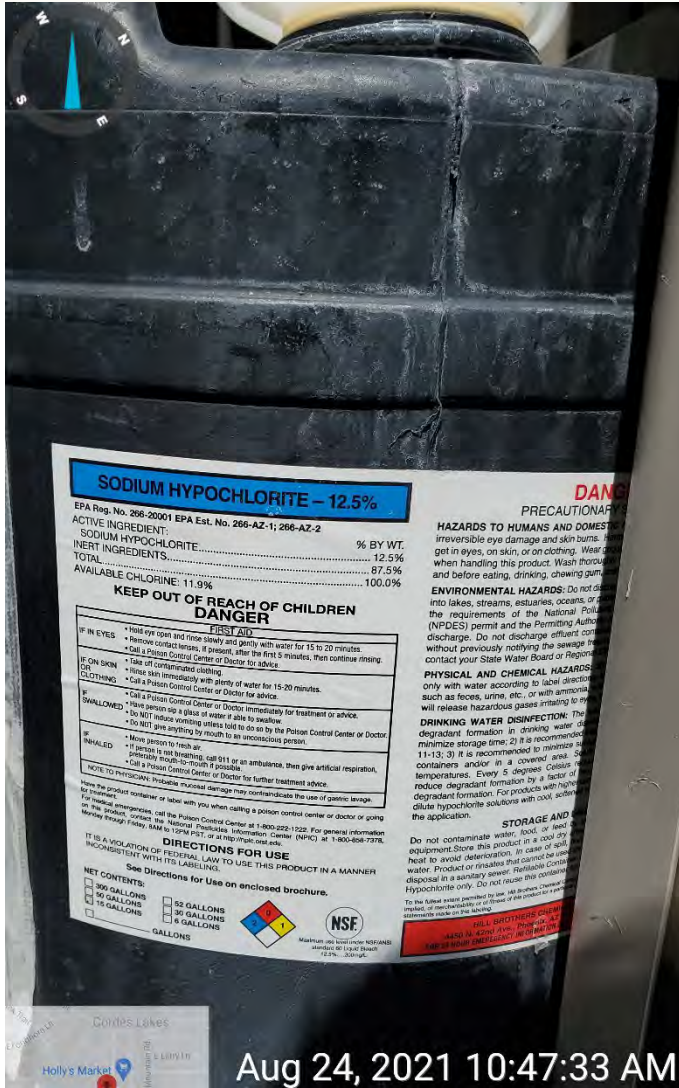
- Non-NSF approved additives used
- No label on disinfection compound container
- Gas chlorination cylinder is not chained to the wall
- No performance indicator device on POU device

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

- <https://teadit.com/us>
- <https://www.partswarehouse.com/Default.asp>
- 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

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: AZ04- _____ 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 (TNCWS)

General Paperwork Review

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

- | | |
|--|--|
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 1. Revised Total Coliform Rule Microbiological Sample Siting Plan A.A.C. R18-4-126 |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 2. Lead & copper monitoring plan (for CWS and NTNCWS only) A.A.C. R18-4-111 |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 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 |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 4. Emergency Operations Plan (for CWS only) A.A.C. R18-4-204(A) |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 5. Maintenance Records A.A.C. R18-4-203 |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 6. Backflow Prevention testing records A.A.C. R18-4-215 |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 7. Records of ADEQ approval (if necessary) for system components added in last 5 years |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 8. Records of water quality analyses |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 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 systems and verify that the following components are installed and in good condition.

Ground water systems:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 1. Well slabs are intact in good condition. Small cracks have been sealed. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 2. A raw water sample tap is installed at each well. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 3. All wells have a vent turn down and terminates 2 ft. above the slab with #16 mesh screen. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 4. All openings into the well casings are sealed, including electrical conduits and holes. |

Surface water or GUDI systems:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 1. Intake structure is physically intact; protected against tampering, aquatic nuisances and other potential damages; and accessible for inspections and cleaning. |
|--|--|

Ground water, GUDI or surface water systems:

- | | |
|--|--|
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 1. Sample taps are installed at all Entry Points to the Distribution System (EPDS). |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 2. All chemicals and disinfectants used in the system have an NSF logo on the packaging. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 3. All storage tank overflows pipes extend down to 12 inches above the ground and are protected with a securely fitting flapper gate or a #16 mesh screen. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 4. Hatches on storage tanks are secured and gaskets are in good condition and fit tightly. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 5. Vegetation is maintained and controlled around system facilities. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 6. Area around storage tank(s) is graded to provide drainage away from tank. |
| <input type="checkbox"/> Yes <input type="checkbox"/> No | 7. All pressure tanks have a pressure gauge and a pressure relief valve. |

If you have answered "No" to any of the above questions, please list the corrective action(s) taken to address the situation(s). Use additional paper if needed.

If all deficiencies identified have not been addressed, please provide a brief explanation why.


NOTE: ADEQ inspectors are not allowed to climb standpipes or elevated storage tanks. If possible, please have recent photos of the hatches (opened to show gasket and closed to show cover) and a photo of the vent showing the height above tank roof and showing vent screen size. If you've had a tank inspection done, check the report for photos. Only climb a tank using proper safety gear.

Missing any forms, plans, or templates? Click on the links below



- Lead and copper monitoring plan
- Microbiological Sampling Siting Plan for PWSs serving 1000 or fewer people
- Microbiological Sampling Siting Plan for PWSs serving 1001 or more people
- Emergency Operations Plan template
- ADEQ Operation & Maintenance Manual Official Version

Don't get caught with a common violation

- Failure to comply with lead and copper specific recordkeeping requirements
- RTCR sampling plan violations
- Stage 2 Disinfection By Products compliance monitoring plan
- Failure to develop an emergency operations plan
- 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?