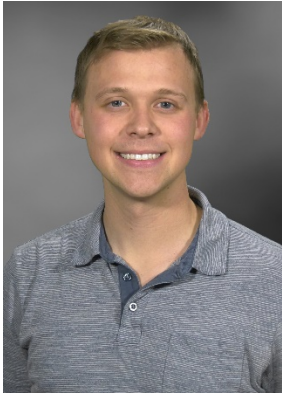




Drinking Water Inspections : What to Expect After a Forest Fire

Cole Pihl



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Public Water Systems

- 15 service connections or
- Regularly serve an average of at least 25 individuals at least 60 days out of the year.



- ❑ Site visits are NOT for compliance
 - ❑ Strictly for ADEQ to assist the system
- ❑ Walk through of facility
 - ❑ Identify possible damages for the system to repair before coming back online
 - ❑ Address questions (sampling plans, start up processes, paperwork, monitoring)

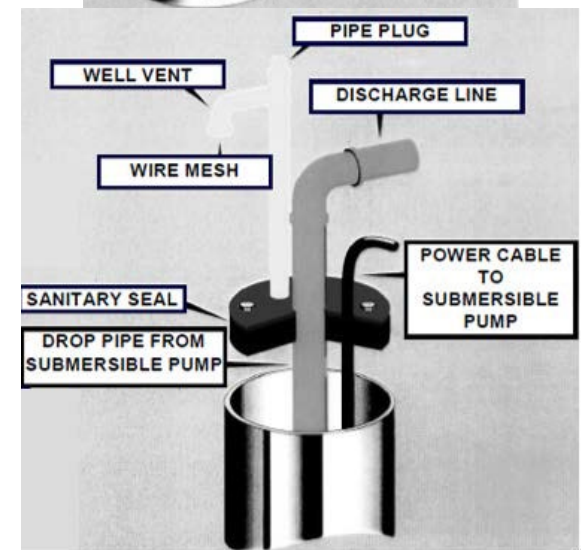
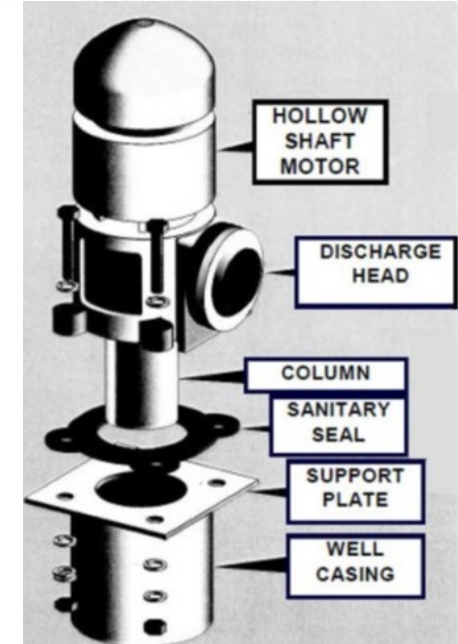


- Have a knowledgeable person available
- Come prepared with questions, concerns, and observations that you have about your system
- Review monitoring history; accessible at:
[Safe Drinking Water Information System](#)

- Source
- Treatment
- Distribution System
- Finished Water Storage
- Pumps/Pump Facilities and Controls
- Monitoring/Reporting
- Water System Management/Operations
- Operator
- Distribution



- Observations of damaged and/or melted well heads?
- Did your well(s) fail at all during the forest fire? Why?
- Considerations for a back up well and/or emergency consecutive connection
- Alternative Sources
 - Bottled Water
 - Hauled Water
 - Different water system



- 8
- Did your disinfection work properly when excess demand was required?
 - Did you have enough of a supply on hand?
 - Was it available and easy to access?



Note: Remember to always follow Engineering Bulletin 8 for disinfection procedures.

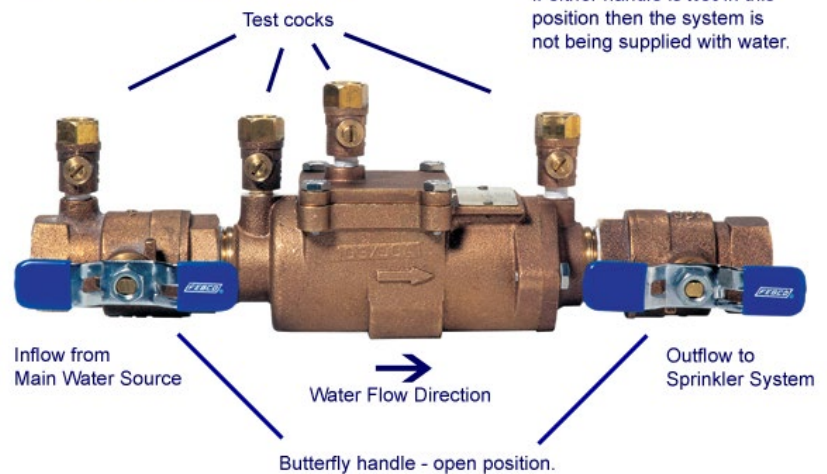
- Any changes or additions made to your treatment process in lieu of the fire?
- Enough storage capacity for your customers? Did the tank run out of water?
- Was your stored water used to combat a fire?
- Additional storage needed?



- 10
- Ensure proper backflow testing annually.
 - Were any of your devices compromised?
 - Consider potential new sources of cross connection.



Backflow Assembly Anatomy



- 11
- Was your operator notified and properly trained on contingencies regarding the fire?
 - Were they available to take samples or fix any problems?
 - What does their contract state in relation to emergencies?

Certified Operator Monthly Inspection Form



Certified Operator Monthly Inspection Form
 For use by Grade 1 or Grade 2 water treatment plants or distribution systems that produce and distribute groundwater

1. General Public Water System (PWS) Information:

PWS Name: _____ PWS ID Number: AZ04 - _____
 PWS Type: CWS NTNCWS TNCWS Population Served: _____
 PWS Source Types: Groundwater Surface Water GUDI
 Purchased Ground Water Purchased Surface Water
 Certified Operator: _____ Operator ID: OP _____
 Grade: _____ Expiration Date: _____
 E-Mail Address: _____ Phone Number: _____

2. Inspection

Inspection Date: _____ Arrival Time: _____ Departure Time: _____
 Person Conducting Inspection: _____
 Owner/Responsible Party: _____ Present at Inspection Y N

Well Head	Yes	No	N/A	Comments
Well site has a security fence and gates are properly locked and secured?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pump(s)/ Mechanical equipment(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Storage Tank(s): air vent, overflow pipe, hatch with gasket/seal and locking device, gauge or alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pressure Tank (s): pressure gauge, relief valve, water level gauge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Chemical Addition	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Equipment Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sample Collection: schedules, locations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Certified Operator Monthly Inspection Form
 For use by Grade 1 or Grade 2 water treatment plants or distribution systems that produce and distribute groundwater

Paperwork/ Reporting requirements	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Security: all components enclosed by building or fencing	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No
Other:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No

I certify 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.

Operator Signature: _____ Date: _____

Date form provided to owner or responsible party: _____

3. Summary of observations, recommendations and corrective actions required:

- Observe overall quality of your finished water for noticeable differences
 - Discoloration, smell, taste
- Do a thorough check of the piping and components within your distribution system
 - Leaks
 - PVC pipe damage
 - Damage to Electrical components (generators, pumps, switches, wiring)
 - Did you have any difficulties restoring power?

- Be aware of the potential for flooding after forest fires
 - Ensure your components are not overtaken by flood waters
 - Proper air vents and seals on wells
 - Overflows and drains clear on storage tanks
 - Proper grading of storage tank foundations

Other Considerations- Floods/Mudslides



Other Considerations- Floods/Mudslides



- Be aware of all trees in and around your water system area
 - Ensure they do not run the risk of falling and damaging your components
 - Routine DW inspections require trees to be cut that are touching/adjacent to components.

- Required for constructing new components within the system (Well, Storage Tank, Treatment)
- Permitting process through our engineer review unit
- Note: ATC/AOC not required if replacing with identical structures.
 - i.e. Same tank material, size, schematics.



**APPROVAL TO CONSTRUCT
DRINKING WATER FACILITIES
INSTRUCTIONS**

INSTRUCTIONS

Please complete and sign an Approval to Construct (ATC) Application for Drinking Water Facilities to obtain authorization to construct a new public drinking water system, modify an existing facility, or make an alteration that will affect the treatment, capacity, water quality, flow, distribution, or operational performance in accordance with **Arizona Administrative Code (AAC) R18-5-505**.

The application is interactive and allows you to hover over the **blue boxes** for detailed information about that section. Click on the **blue** URL link for external source of information.

GENERAL APPLICATION PROCESS

1. Submit an ATC application and the appropriate supplemental information and forms identified in the checklist below. Please see the Delegated Agencies for Public Water System document to determine where to submit your application (county, City, or ADEQ Regional Office).
http://static.azdeq.gov/er/dw_delegation_agencies.pdf

APPLICATION CHECKLIST

	Document Description
<input type="checkbox"/>	Approval to Construct (ATC) Application
<input type="checkbox"/>	Fee
<input type="checkbox"/>	Site Plan
<input type="checkbox"/>	Construction Quality Drawings and Plans

- Following a natural disaster, ADEQ's Seasonal Start-Up Form can be utilized but is not required. Contains items such as:
 - Flushing all pipes.
 - Cleaning all water storage tanks (if applicable).
 - Disinfecting entire water system.
 - Inspecting the entire water system using the ADEQ required checklist
 - Repairing water system (if applicable).
 - Collecting special purpose samples to test for bacteria and disinfectant residual and submitted with this form to your regulatory agency.
- When in doubt, contact your Compliance Assistance Coordinator (CAC)

Seasonal Start-Up Procedures Form

<https://www.azdeq.gov/forms>



**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 <u>or</u> Has Completed the Start-up Procedure:		
PWS ID Number	AZ04-	PWS Name
The PWS will open for the season on the following date:		
Yes <input type="checkbox"/>	No <input type="checkbox"/>	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 <input type="checkbox"/>	No <input type="checkbox"/>	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"*

Pre-inspection Checklist



PRE-INSPECTION CHECKLIST FOR COMMUNITY WATER SYSTEMS

Your public water system is due for a sanitary survey. This is a routine inspection conducted every 3 years. Please complete the checklist and return it to the ADEQ inspector prior to the inspection.

PWS Name: _____ PWS ID Number: AZ04 - _____ Date: _____
Name and title of person completing form: _____

General Paperwork 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 Siting Plan (MSSP) A.A.C. R18-4-126
- Yes No 2. Lead & Copper Monitoring Plan A.A.C. R18-4-111
- Yes No 3. Stage 2 Disinfection Byproducts (DBP) monitoring plan (for facility which adds a primary or residual disinfectant other than UV light) A.A.C. R18-4-124
- Yes No 4. Emergency Operations Plan A.A.C. R18-4-204(A)
- Yes No 5. Maintenance Records
- Yes No 6. Annual Backflow Prevention Assembly testing records A.A.C. R18-4-215
- Yes No 7. Records of ADEQ approval (if necessary) for system components added in last 5 years
- Yes No 8. Records of water quality analyses
- Yes No 9. Records of turbidity and of continuous residual disinfectant concentration measurements (Surface water and 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.

- Yes No 1. Well slabs are intact and in good condition. Small cracks have been sealed.
- Yes No 2. Raw water sample taps are installed at all wells.
- Yes No 3. All wells have a turned down vent that terminates 2 ft. above the slab with a #16 non-corrodible mesh screen.
- Yes No 4. All openings into well casing(s) are sealed, including electrical conduits and holes.
- Yes No 5. Sample taps are installed at all Entry Points to the Distribution System (EPDS).
- Yes No 6. All chemicals used in the system conform to ANSI/NSF Standard 60.
- Yes No 7. All storage tank overflow pipes extend down to 12-24 inches above the ground surface and are protected with a securely fitting flapper gate or a #16 non-corrodible mesh screen.
- Yes No 8. Hatches on storage tanks are secured and gaskets are in good condition and fit tightly.
- Yes No 9. Vegetation is maintained and controlled around system facilities.
- Yes No 10. Area around storage tank(s) is graded to provide drainage away from tank/no sediment has accumulated around tank or foundation (see picture on next page).
- Yes No 11. All pressure tanks have a pressure gauge and a pressure relief valve.



PRE-INSPECTION CHECKLIST FOR COMMUNITY WATER SYSTEMS

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

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

NOTE: ADEQ inspectors are not allowed to climb standpipes or elevated storage tanks. 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 Sample Siting Plan for PWSs serving 1000 or fewer people](#)
- [Microbiological Sample 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

1. RTRC Microbiological Sample Siting Plan violations
2. Area around storage tank not properly graded to allow water to flow away from the base of tank
3. Failure to develop an emergency operations plan
4. Failure to annually test backflow prevention assemblies & retain records
5. Operations & Maintenance



Well's sanitary seal in bad condition



Missing raw water sample tap



Cracked well slab



Broken air vent



Excessive vegetation around storage tank



Buried Foundation



Hatch lacks a seal and a lock



Busted screen

Why Do I Need a Sanitary Survey?

Public water systems (PWSs) undergo sanitary surveys to assess their capability to supply safe drinking water to consumers. ADEQ conducts onsite sanitary surveys at all public water systems located within the state, except where authority has been delegated to Pima County Department of Environmental Quality and Maricopa County Environmental Services Department.

Sanitary surveys provide an opportunity for ADEQ to perform a comprehensive and accurate review of the system's components and to educate the owners/operators about proper operations and maintenance. The survey evaluates eight elements:

1. Source
2. Treatment
3. Distribution System
4. Finished Water Storage
5. Pumps/Pump Facilities and Controls
6. Monitoring/Reporting/Data Verification
7. Water System Management/Operations
8. Operator Compliance with State Requirements

How Often Do I Need a Sanitary Survey?

Sanitary surveys are conducted at least every three to five years, depending on the system classification:

- Community Water System (C) – Every three years
- Non-Community Water System (NC) – Every five years
- Transient Non-Community (NTNC) – Every five years

Want to know what to expect for your sanitary survey? | [Learn More >](#)

<https://azdeq.gov/why-do-i-need-sanitary-survey>



CONTACT

Drinking Water
Inspections and Compliance
602-771-4253
[Email >](#)



SEE MORE

[Compliance Assistance >](#)
[Enforcement Information >](#)
[How to Prepare for a Sanitary Survey >](#)
[Operator Certification >](#)
[Requirements for Public Water Systems >](#)
[Why Do I Need a Sanitary Survey? >](#)



FORMS

[Emergency Operation Plan \(EOP\) Template >](#)
[Pre-Inspection Checklist >](#)



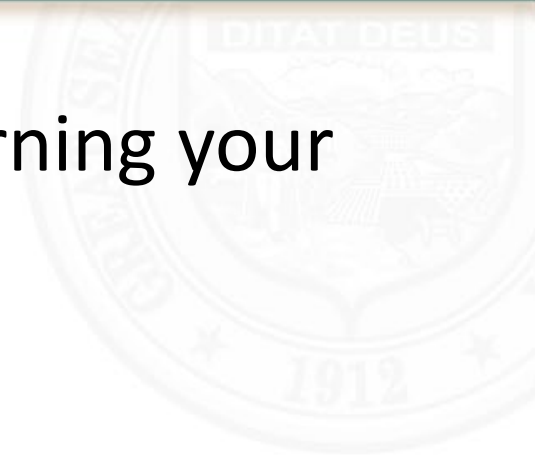
ADDITIONAL RESOURCES

[Drinking Water Database \(AZSDWIS\) >](#)
[Drinking Water Database Guide >](#)
[EPA - Drinking Water Regulations >](#)
[EPA - WS Owner Responsibilities >](#)
[EPA - WS Operator Responsibilities >](#)
[EPA - Talking to Customers about Chronic Contaminants >](#)
[EPA - Talking to Decision Makers >](#)

Delegated Authority

[Maricopa County Drinking Water Program >](#)
[Pima County Health Department >](#)
[Arizona Department of Health Services >](#)

- ADEQ is here to assist you on returning your system to normal operations
 - Engineers
 - Enforcement Officers
 - Compliance Assistance Coordinators
 - Inspectors
 - Rule Specialists
 - Technical Assistance



- Contact Jason Bobko for more information on the Inspections and Compliance Unit
- 602-771-4253
- Bobko.Jason@azdeq.gov

- Cole Pihl
- Inspector/Compliance Officer
- 602-771-4663
- Pihl.Cole@azdeq.gov

