



Wyoming Association of Rural Water Systems  
Spring Training Conference

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# Sanitary Surveys at PWSs in Wyoming

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- How we plan and perform sanitary surveys in Wyoming
- Who does those surveys and how often are they done?
- What does the surveyor look at during a sanitary survey?
- What should I do about any “Recommendations”?
- What if a “Significant Deficiency” is found at my water system?
- What can I do to get prepared?

# Quiz #1

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Approximately how many public water systems are there in Wyoming?

- a) 1217
- b) 431
- c) 775
- d) none

# 775 PWSs in Wyoming!

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- 308 - Community (39.7%)
- 379 - Transient non-community (48.9%)
- 88 - Non-transient non-community (11.4%)
- 82.5 % of PWS sources are GW or GWP
- 17.5 % of PWS sources are SW, SWP, or GWUDI
  
- Total Population Served = 544,340 Persons
  - 63.7% of the population served by PWSs that use SW, SWP, or GWUDI (National ~65%)
  - 36.3% of the population served by PWSs that use GW or GWP as their source

# What is a Sanitary Survey?

## 40 CFR 141.2

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- A sanitary survey is NOT an inspection!
- *Sanitary survey* means an onsite review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of such source, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

# 8 Components that Must be Evaluated During a Sanitary Survey

## 40 CFR 141.401(c)

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- Source
- Treatment
- Distribution system
- Finished water storage
- Pumps, pump facilities, and controls
- Monitoring, reporting, and data verification
- System management and operation, and
- Operator compliance with State requirements

# Source

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- Section 5 – Consecutive Systems
- Section 6 - Source Data - Potential Pollution Sources\*
- Section 7 - Source Data – Current and Abandoned Wells\*
- Section 8 - Source Data – Springs\*
- Section 9 - Source Data – Infiltration Galleries
- Section 10 - Source Data – Streams\*
- Section 11 - Source Data – Reservoirs, Lakes and Ponds\*
- Section 12 - Source Data – Backup Water Sources

# Significant Deficiency

## 40 CFR 141.723(b)

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- A significant deficiency includes a defect in design, operation, or maintenance or a failure or malfunction of the sources, treatment, storage, or distribution system that EPA determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

# Treatment

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- Section 16 – Water Treatment Data
  - Depth of each filter medium\*
  - IFE Turbidimeters
  - POE Chlorine Residual\*
  - Disinfection Profiling
  - 3-log *Giardia* Inactivation\* (SWTR)
  - 4-log Virus Inactivation\* (SWTR)
  - 2-log / 3-log *Cryptosporidium* Inactivation\* (SWTR)

# Distribution System

## ■ Section 4 – Service Data

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- Interruptions in service (past 5 years)?\*
- Emergency Response Plan?\*

## ■ Section 17 – Distribution Data

- Pipe Size & Material (A-C pipe?)
- Loss of Pressure (< 20 psi)?\*

## ■ Section 18 – Cross Connection Control

- BP Device on High Hazard Connections?\*
- Stock watering tanks (WY DEQ guidance)\*

# Finished Water Storage

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- Section 15 – Storage Facilities and Pressure Tanks
  - Type of Tank (elevated, ground, underground, hydropneumatic)
  - Adequate roof/cover\*
  - Access Hatch (shoe box lid\*, gasket\*, lock)
  - Are there any breaches or openings?
  - Inlet, Outlet
  - When was the tank last inspected, cleaned?
  - Vent (24 mesh screen\*)
  - Overflow, Drain (24 mesh screen\*, 12"–24" above splash plate)

# Pumps, Pump Facilities and Controls

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- Section 14 - Pump Stations
  - Subject to flooding?\*
  - Capacity?
  - Redundancy?
  - Emergency Power?

# Monitoring, Reporting and Data Verification

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- Section 21 – Monitoring and Records
  - Sample Collection Procedures
  - Bottles Available for Sampling?
  - Use Certified Laboratories?\*
  - Test Kits, Instruments Available for Monitoring?
  - Monitoring Plans Up-to-date (DBP, others?)
  - Copies of Monitoring Records Available?

<http://www.epa.gov/region8/waterops/index.html>

“Drinking Water Online Quick Finder” Labs – Certified (PDF)

The screenshot shows the EPA Region 8 Drinking Water Online website. The browser window title is "Region 8 Drinking Water Online | Region 8 Drinking Water Online | US EPA - Windows Internet Explorer". The address bar shows the URL "http://www.epa.gov/region8/waterops/index.html". The website header includes "Region 8 Drinking Water Online" and "Serving Public Water Systems in Wyoming and on Tribal Lands". A navigation menu on the left lists various topics such as "Drinking Water Online Home", "Drinking Water Watch", "Emergencies and Security", "Registration and Account Maintenance", "Reporting, Forms and Instructions", "Rules and Guidance", "Sampling and Treatment Techniques", "System and Operational Improvements", "Training and Certification", "Presentations", and "What's New". The main content area features a "Drinking Water Online Quick Finder" section with several links: "Boil Water Advisory (PDF)", "TCR/E-Coli Positives", "Consumer Confidence Reports", "Emergency Notifications Labs - Certified (PDF)", "Loss of Pressure Natural Disasters", and "Public Notice Templates Reporting Forms Sampling Guide (PDF)". The "Emergency Notifications Labs - Certified (PDF)" link is circled in red. Below this section, there is a paragraph of introductory text and three sub-sections: "Drinking Water Watch", "Emergencies and Security", and "Registration and Account Maintenance". On the right side, there are two additional sections: "EPA Headquarters Information" and "Related Topics on this Website". The bottom of the browser window shows a taskbar with several open applications and a system tray displaying the time as 7:06 AM.



# System Management and Operations

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- Section 20 – Management Data

- Rules for New Hookups?
- Water Main Extension Policy?
- Are DEQ Specifications Followed?
- Preventive Maintenance Schedule?
- Emergency Response Plan?\*

<http://www.epa.gov/region8/waterops/reporting/forms.html>

+Small Community WS +WY Transient GW Systems +Tribal

# <http://www.epa.gov/region8/waterops/index.html> “Drinking Water online Quick Finder” Reporting Forms

The screenshot shows the EPA Region 8 Drinking Water Online website. The browser window title is "Region 8 Drinking Water Online | Region 8 Drinking Water Online | US EPA - Windows Internet Explorer". The address bar shows "http://www.epa.gov/region8/waterops/index.html". The website header includes "Region 8 Drinking Water Online" and "Serving Public Water Systems in Wyoming and on Tribal Lands". A navigation menu on the left lists various topics like "Drinking Water Watch", "Emergencies and Security", and "Reporting, Forms and Instructions". The main content area features a "Drinking Water Online Quick Finder" section with links to "Boil Water Advisory (PDF)", "Contact List (PDF)", "Loss of Pressure Natural Disasters", and "Public Notice Templates Reporting Forms" (circled in red). Below this is a "Drinking Water Watch" section, an "Emergencies and Security" section, and a "Registration and Account Maintenance" section. The right sidebar contains "EPA Headquarters Information", "Related Topics on this Website", and "Related Topics Elsewhere". The Windows taskbar at the bottom shows the start button, several open applications, and the time 7:06 AM.

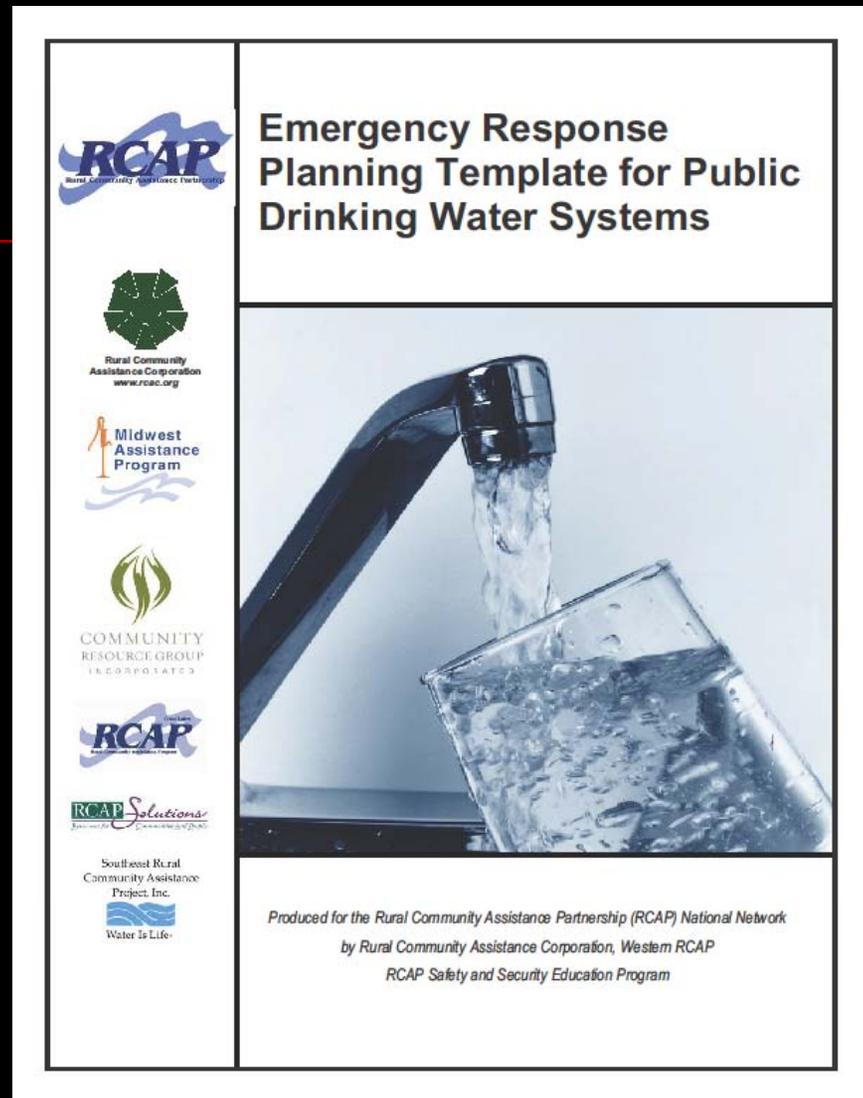
# Page down

## Emergency Response Plan Templates (ERP)

	<p><a href="#">RCAP Emergency Response Plan Template for Small Community Water Systems (PDF)</a> (22 pages, 466 KB) Rural Community Assistance Partnership (RCAP) emergency response planning template for use by small community water systems, including instructions. This form is also available in <a href="#">MS Word format</a> (22 pages, 1.8 MB).</p>
	<p><a href="#">Tribal Emergency Response Plan Template for Transient Ground Water Systems (PDF)</a> (1 page, 13 KB) Tribal emergency response planning template for use by transient ground water systems. This form is also available in <a href="#">MS Word format</a> (1 page, 31 KB).</p>
	<p><a href="#">Wyoming Emergency Response Plan Template for Transient Ground Water Systems (PDF)</a> (1 page, 13 KB) Wyoming emergency response planning template for use by transient ground water systems. This form is also available in <a href="#">MS Word format</a> (1 page, 33 KB).</p>

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# ■ Emergency Response Plan Template (Small Community Water Systems)



# Emergency Response Plan Template (Transient GW Systems)

## WY Emergency Response Plan for Transient GW Systems

System Name: \_\_\_\_\_  
System Public Water System (PWS) Number: WY56 \_\_\_\_\_  
Lead Operator Name/#: \_\_\_\_\_  
Back-up Operator Name/#: \_\_\_\_\_  
Owner Name/#: \_\_\_\_\_  
Population Served: \_\_\_\_\_ Number of Service Connections: \_\_\_\_\_  
Chemicals used to treat the water: \_\_\_\_\_  
Name/# of Chemical Supplier: \_\_\_\_\_  
Draw a Picture of Your System: \_\_\_\_\_

Life threatening emergency always dial: 911  
County Sheriff #: \_\_\_\_\_  
Critical Customer Contact #: \_\_\_\_\_

EPA Emergency Contact Number: 1-800-424-8802  
WY DEQ District Engineer Name and Number: \_\_\_\_\_  
Alternate Sources of Water Supply Number: \_\_\_\_\_  
Power Company Number: \_\_\_\_\_ Electrician Number: \_\_\_\_\_  
Plumber Number: \_\_\_\_\_ Parts Supplier Number: \_\_\_\_\_  
WYOWARN (if applicable): 307-637-6471 Website: www.wyowarn.org

Shut-off valve location and instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location of spare or repair parts: \_\_\_\_\_

Location of fire extinguishers: \_\_\_\_\_

Please see the following website for more detailed information on emergency response plans:  
[http://www.epa.gov/safewater/watersecurity/pubs/small\\_medlum\\_ERP\\_guidance040704.pdf](http://www.epa.gov/safewater/watersecurity/pubs/small_medlum_ERP_guidance040704.pdf)

Quick emergency reference material can be found at: <http://www.epa.gov/region8/waterops/>  
Under the "Drinking Water Online Quick Finder" header

**ALWAYS CALL EPA IF YOU HAVE A TOTAL COLIFORM RULE  
(TCR) POSITIVE SAMPLE!!!**

Breann, TCR Manager, can be reached at 1-800-227-8917, or 303-312-6034, or Tiffany Mifflin,  
Ground Water Rule Manager, can be reached at 303-312-6521

# ■ Emergency Response Plan Template (Tribal)

## Tribal Emergency Response Plan for Transient GW Systems

System Name: \_\_\_\_\_  
System Public Water System (PWS) Number: \_\_\_\_\_  
Lead Operator Name/ #: \_\_\_\_\_  
Back-up Operator Name/ #: \_\_\_\_\_  
Owner Name/ #: \_\_\_\_\_  
Population Served: \_\_\_\_\_ Number of Service Connections: \_\_\_\_\_  
Chemicals used to treat the water: \_\_\_\_\_  
Name/ # of Chemical Supplier: \_\_\_\_\_  
Draw a Picture of Your System:

Life threatening emergency always dial: 911

County Sheriff #: \_\_\_\_\_  
Critical Customer Contact #: \_\_\_\_\_

EPA Emergency Contact Number: 1-800-424-8802

Alternate Sources of Water Supply Number: \_\_\_\_\_

Power Company Number: \_\_\_\_\_ Electrician Number: \_\_\_\_\_

Plumber Number: \_\_\_\_\_ Parts Supplier Number: \_\_\_\_\_

Shut-off valve location and instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Location of spare or repair parts: \_\_\_\_\_

Location of fire extinguishers: \_\_\_\_\_  
\_\_\_\_\_

Please see the following website for more detailed information on emergency response plans:  
[http://www.epa.gov/safewater/watersecurity/pubs/small\\_medium\\_ERP\\_guidance040704.pdf](http://www.epa.gov/safewater/watersecurity/pubs/small_medium_ERP_guidance040704.pdf)

Quick emergency reference material can be found at: <http://www.epa.gov/region8/waterops/>  
Under the "Drinking Water Online Quick Finder" header

**ALWAYS CALL EPA IF YOU HAVE A TOTAL COLIFORM RULE (TCR) POSITIVE SAMPLE!!!**

Sarah Bahrman, Tribal Drinking Water Liaison, can be reached at 303-312-6243 or Tiffany Mifflin, Ground Water Rule Manager, can be reached at 303-312-6521.

# Operator Compliance with State Requirements

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- Section 3 – Contact Names and Phone Numbers / Email Addresses
  - Operators' Names
  - Certification Types\*
  - Expiration Dates\*

# Other Sections

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- Section 1 – Recommendations
- Section 2 – Summary
- Section 13 – Transmission Line Data
- Section 19 – Safety Data

# Sanitary Survey Frequency (40 CFR 142.16(b)(3)(ii))

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- Every 3 years
  - Most community water systems
- Every 5 years
  - Non-community water systems
  - Community water systems have outstanding performance based on prior sanitary surveys
  - Systems that provide at least 4-log treatment (GWR)

# Outstanding Performers (Mohr/Mifflin Criteria)

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- No Maximum Contaminant Level (MCL), Action Level, Treatment Technique, or Monitoring and Reporting violations in the last 5 years
- Not currently under an AO or EAO
- No water borne disease outbreaks attributable to the water system in the last 5 years
- No significant deficiencies, corrective actions or rule violations identified during the last and current sanitary surveys
- Expert operation of the system – chief and back-up operators are in full compliance with WY DEQ certification requirements
- No major changes in treatment process since last sanitary survey (changes requiring DEQ permit)
- PWS has appropriate capacity (i.e., the system is not in regular need of technical assistance)

# How Many Sanitary Surveys must EPA do each year?

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- Every 5 years
  - TNC ( $379/5 = 76$ ) + NTNC ( $88/5 = 18$ ) = 94
  - New systems
- Every three years
  - Community PWSs ( $308/3 = 103$ )
  - (except for outstanding performance)
- About 200 surveys/year
- Tracking Significant Deficiencies
- Responsibility of EPA Region 8

# Who Performs Sanitary Surveys in Wyoming?

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- Contractors
- EPA, Region 8 staff
- WY DEQ/County Sanitarian
- WARWS, other entities
- Joint sanitary surveys

**EPA will make determinations on what is a significant deficiency!**

# Common Problems Found in Past Sanitary Surveys

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- No Emergency Response Plan\*
- Problems with wellhead
- Problems with vents, drains and overflows of storage tanks\*
- Storage tank not cleaned in the last 5 years (maintain records)
- No Certified Operator\*
- Security
- No record of well with State Engineer's Office
- No onsite monitoring plan for Stage 1 D/DBPs
- Failure to get permits from WY DEQ

# Tank Vents

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# Tank Hatches

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# Tank Vents (cont.)

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# Tank Overflows

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# Tank Overflows (Cont.)

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# Tank Overflows (Cont.)

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# Tank Drains

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# Problems With Wellhead

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# Problems With Wellhead

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# Problems With Wellhead (cont.)

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Hole burnt through the PVC

# Security

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# Security (continued)

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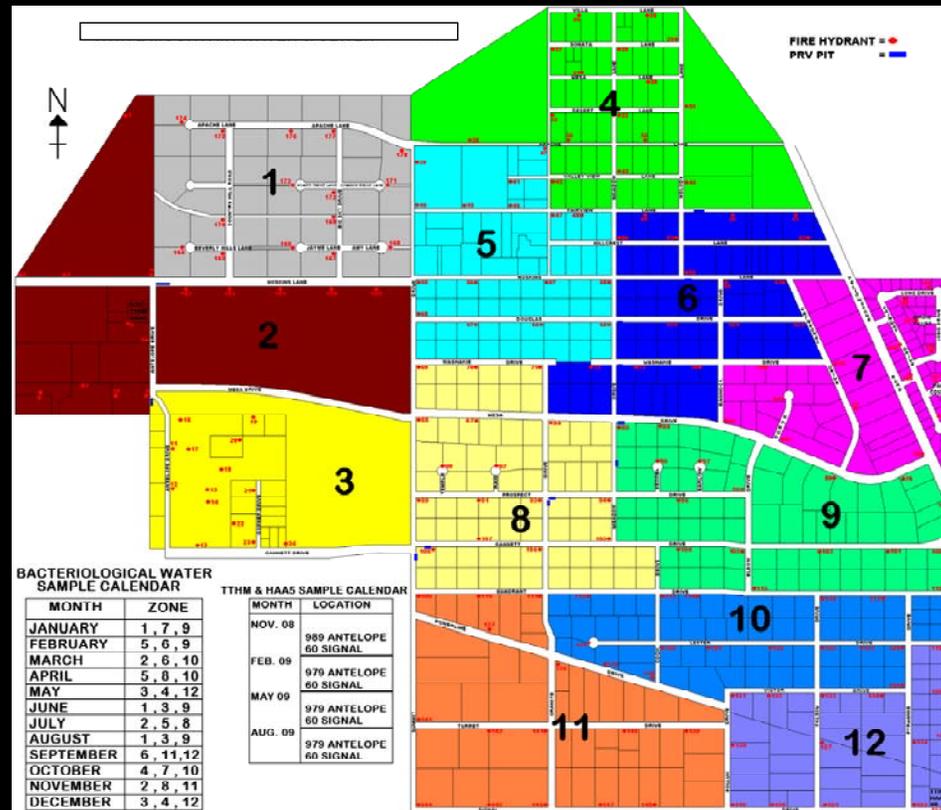


# Security (continued)

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# Onsite monitoring plan for Stage 1 D/DBPs (TCR example)



# Onsite monitoring plan for Stage 1 D/DBPs (TCR example)



# Recommendations vs. Significant Deficiencies

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- Recommendation
  - Just that
- Significant Deficiency
  - You have to correct these!
- Since 2006 we have identified significant deficiencies under the IESWTR during sanitary surveys
- Starting in 2010 we have identified SDs under the GWR during sanitary surveys (GWR 12/2009)

# Significant Deficiency

## 40 CFR 141.723(b)

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- A significant deficiency includes a defect in design, operation, or maintenance  
or a failure or malfunction of the sources, treatment, storage, or distribution system  
that EPA determines to be causing, or has the potential for causing the introduction of contamination into the water delivered to consumers.

# Significant Deficiency GWR

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- 40 CFR 142.16(2)(iv)

The state must define and describe in its primacy application at least one specific significant deficiency in each of the eight sanitary survey elements.

# Common Potential Significant Deficiencies Checklist

## COMMON POTENTIAL SIGNIFICANT DEFICIENCIES LIST (Not Limited to the List Below) EPA REGION 8 DRINKING WATER UNITS A & B

Facility Name: \_\_\_\_\_ PWS# \_\_\_\_\_  
 Facility Representative (Print Name and Title): \_\_\_\_\_  
 Date: \_\_\_\_\_ Surveyor Name: \_\_\_\_\_ Surveyor Phone Number \_\_\_\_\_

### 1) Source

#### General Significant Deficiencies

- Raw water monitoring that indicates an immediate sanitary risk (something that cannot be adequately treated downstream in the treatment plant)
- Activities or pollution sources in the immediate source water area (including risk of SW influence) that will likely cause sanitary risks (that cannot be adequately treated downstream in the treatment plant)

#### Well Source Specific

- Sanitary seal and casing not watertight or adequately secured
- No #24 mesh screen on the existing well vent (lack of a vent doesn't constitute a significant deficiency)
- Wellhead not protected from flooding
- Well improperly constructed

#### Spring Source Specific

- Hatch/entry not overlapping, watertight or adequately secured
- No #24 mesh screened overflow/properly sealed flapper valve (10 States Standards also recommends to utilize a 24-mesh screen w/ the flapper valve)
- Spring improperly constructed

### 2) Treatment

- Chemical disinfection not maintained (as required)
- Unprotected cross-connection(s) present
- Inadequate treatment process monitoring or equipment (as required)
- Physical bypass of required treatment
- Inadequate filtration design or operation (as required)
- Inadequate disinfection/inactivation design or operation, includes CT (as required)

### 3) Distribution System

- Loss of pressure (less than 20 psi)
- Unprotected cross-connection(s) present
- High leakage rates pose unacceptable risks of back siphonage

### 4) Finished Water Storage

- Hatch/entry not overlapping, watertight or adequately secured (as safe to inspect)
- Lack of proper #24 mesh screen or /properly sealed flapper valve (10 States Standards also recommends to utilize a 24-mesh screen w/ the flapper valve) on overflow pipes, drains and/or vents (in high risk locations)
- Overflow pipes and/or drains connected to a sanitary or storm sewer
- Storage tank in need of repair

### 5) Pumps, Pump Facilities and Controls

- Pump facility not protected from flooding
- Unprotected cross-connection(s) present

### 6) Monitoring, Reporting and Data Verification

- System does not use certified labs for required monitoring

### 7) System Management and Operation

- Lack of an emergency response plan

### 8) Operator Compliance with Requirements

- The system has no certified operator (or certification has expired at the required level). *This is not applicable for GWTNC in both WY and Tribal lands. For WY systems, coordination with WY DEQ will be needed on the schedule for addressing this deficiency.*

### 9) Other Potential Significant Deficiencies

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Significant Deficiencies for Sanitary Surveys Conducted in Wyoming

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## ■ Source

- Raw water monitoring indicates an immediate sanitary risk
- Activities or pollution sources in the immediate source water area
- Well source specific
  - Sanitary seal and casing not overlapping, watertight or adequately sealed.
  - No #24 mesh screen on existing well vent  
(lack of a vent does not constitute a significant deficiency)
  - Wellhead not protected from flooding
  - Well improperly constructed

# Significant Deficiencies (Cont.)

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- Spring source specific
  - Hatch/entry not overlapping, watertight or adequately secured
  - No #24 mesh screened overflow or properly sealed flapper valve
  - Spring improperly constructed
- Treatment
  - Chemical disinfection not maintained (as required)
  - Unprotected cross-connections
  - Inadequate treatment process (as required)

# Significant Deficiencies (Cont.)

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- Treatment (Cont.)
  - Physical bypass of required treatment
  - Inadequate filtration design or operation
  - Inadequate disinfection/inactivation design or operation, includes CT (as required)
- Distribution System
  - Loss of pressure (< 20 psi)
  - Unprotected cross-connections
  - High leakage rates that pose unacceptable risks of back siphonage

# Significant Deficiencies (Cont.)

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- Finished Water Storage
  - Hatch/entry not overlapping, watertight or adequately secured
  - Lack of proper #24 mesh screen or properly sealed flapper valve on overflow pipes, drains, and/or vents (in high risk locations)
  - Overflow pipes and overflows to a sanitary or storm sewer
  - Storage tank in need of repair
- Pumps, Pump Facilities and Controls
  - Pump facility not protected from flooding
  - Unprotected cross-connection(s) present

# Significant Deficiencies (Cont.)

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- Monitoring, Reporting and Data Verification
  - System does not use a certified lab for required monitoring
- System Management and Operation
  - Lack of an emergency response plan
- Operator Compliance with Requirements
  - No certified or qualified operator (or certification at the required level has expired)
- Other significant deficiencies can be determined on a case-by-case basis

# What if.....

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...a significant deficiency is identified during a sanitary survey at my public water system?

It depends on whether your water system is covered under the IESWTR LT2 or the GWR.

Significant Deficiency Identified  
During a Sanitary Survey

IESWTR

GWR

Is the PWS subject to  
IESWTR or GWR?

PWS must respond in writing to SDs  
no later than 45 days after receipt  
of the sanitary survey report

Correct SD  
according to  
a schedule  
approved by  
state (EPA)

OR

If no schedule,  
then according to  
the schedule  
reported in  
previous step

PWS must consult with state (EPA) within 30 days  
of receiving notice of the SD,  
unless state orders  
a specific corrective action plan

Within 120 days of receiving written notification  
from the State (EPA), PWS must have:

Completed  
the corrective action

OR

Be in compliance  
with a state-approved  
corrective action plan

# If a Significant Deficiency is Identified at Your PWS

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- We will notify you and it should be very clear what actions you need to take and what times limitations apply to these actions.
- There should be a contact person and phone number for that person clearly stated on the correspondence
- If you are not sure how to proceed – give us a call!

# What Can an Operator do to Prepare for a Sanitary Survey?

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- Read the previous sanitary survey – make sure recommendations have been addressed
- Have all monitoring records available on site
- Be available during the entire sanitary survey
- Make sure that your O&M manual and ERP are current and available
- Have your monitoring plan for Stage 1 DBPs onsite
- Make sure you have all maintenance records available onsite
- Have operator certification records available
- You might as well ask some questions!

# Region 8 Sanitary Survey Program

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- We take this responsibility very seriously
- Our only visit to the actual location of the water system
- Our only face-to-face contact with some operators
- You never know what you will find!