Wyoming Association of Rural Water Systems
Spring Training Conference
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Casper, Wyoming
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Sanitary Surveys at PWSs in Wyoming

- 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

Approximately how many public water systems are there in Wyoming?

a) 1217
b) 431
c) 775
d) none
775 PWSs in Wyoming!

- 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

- 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)

- 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

- 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
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

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**
  - 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

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

Section 14 - Pump Stations

- Subject to flooding?*
- Capacity?
- Redundancy?
- Emergency Power?
Monitoring, Reporting and Data Verification

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?
“Drinking Water Online Quick Finder” Labs – Certified (PDF)
http://www.epa.gov/region8/waterops/index.html under “Drinking Water online Quick Finder” Labs – Certified (PDF)
System Management and Operations

- 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
“Drinking Water online Quick Finder” Reporting Forms
<table>
<thead>
<tr>
<th><strong>Emergency Response Plan Templates (ERP)</strong></th>
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| **RCAP Emergency Response Plan Template for Small Community Water Systems (PDF)** (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 [MS Word format](#) (22 pages, 1.8 MB). |
| **Tribal Emergency Response Plan Template for Transient Ground Water Systems (PDF)** (1 page, 13 KB)  
Tribal emergency response planning template for use by transient ground water systems. This form is also available in [MS Word format](#) (1 page, 31 KB). |
| **Wyoming Emergency Response Plan Template for Transient Ground Water Systems (PDF)** (1 page, 13 KB)  
Wyoming emergency response planning template for use by transient ground water systems. This form is also available in [MS Word format](#) (1 page, 33 KB). |
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: WYS6
Lead Operator Name:
Back-up Operator Name:
Owner N/A:
Population Served:
Number of Service Connections:
Chemicals used to treat the water:
Name(s) of Chemical Supplier:

Life threatening emergency always dial: 911
County Sheriff #: ________________
Critical Customer Contact #: ____________________

EPA Emergency Contact Number: 1-800-426-8802
WY DEQ District Engineer Name and Number:

Alternate Sources of Water Supply Available:
Power Company Number: ____________________ Electrician Number: ____________________
Plumber Number: ____________________ Parts Supplier Number: ____________________
WYOWARN (if applicable): 307-637-6671 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/waterrules/npdr_small_med выпуск ERP guidance04904.pdf

Quick emergency reference material can be found at: http://www.epa.gov/region8/watertown/
Under the “Drinking Water Utility Quick Reference” header

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

Bevanda, 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)
Operator Compliance with State Requirements

Section 3 – Contact Names and Phone Numbers / Email Addresses

- Operators’ Names
- Certification Types*
- Expiration Dates*
Other Sections

- 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))

- 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)

- 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 indentified 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?

- 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?

- 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

- 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
Tank Hatches
Tank Vents (cont.)
Tank Overflows
Tank Overflows (Cont.)
Tank Overflows (Cont.)
Tank Drains
Problems With Wellhead
Problems With Wellhead
Problems With Wellhead (cont.)

Hole burnt through the PVC
Security
Security (continued)
Security (continued)
Onsite monitoring plan for Stage 1 D/DBPs (TCR example)
Onsite monitoring plan for Stage 1 D/DBPs (TCR example)


Recommendations vs. Significant Deficiencies

- 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)
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.
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

### 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 (data of a well 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/property sealed flapper valve (10 States Standards also recommend to utilize a 24-mesh screen w/ the flapper valve)
  - Spring improperly constructed

### 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)

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

### Finished Water Storage
- Hatch/entry not overlapping, watertight or adequately secured
- Lack of proper #24 mesh screen or properly sealed flapper valve (10 States Standards also recommend to utilize a 24-mesh screen w/ the flapper valve) on overflow pipe(s) and/or vents (in high risk locations)
- Overflow pipe(s) and/or drains connected 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

### Monitoring, Reporting and Data Verification
- System does not use certified labs for required monitoring

### System Management and Operation
- Lack of an emergency response plan

### Operator Compliance with Requirements
- The system has no certified operator (or certification has expired) or the required levels This is not applicable for GW/IC in both WY and Tribal lands. For WY systems, coordination with WY DEQ will be needed on the schedule for addressing this deficiency.

### Other Potential Significant Deficiencies

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**Facility Name:**

**Facility Representative (Print Name and Title):**

**Date:**

**Surveryor Name:**

**Surveryor Phone Number:**

**PWS#:**

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**EPA REGION 8 DRINKING WATER UNITS A & B**
Significant Deficiencies for Sanitary Surveys Conducted in Wyoming

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.)

- 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.)

- **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.)

- 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.)

- 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 .......

...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

Is the PWS subject to IESWTR or GWR?

IESWTR

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

GWR

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

- 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?

- 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

- 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!