

Ground Water Rule

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WARWS

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Basic Information



- Ground Water Rule (GWR) was created to provide additional protection against fecal contamination in ground water systems.
- Compliance Started December 1, 2009.
- There are four main parts to the Ground Water Rule:
 1. Sanitary Surveys
 2. Monitoring
 - Triggered Source Water Monitoring (Uses TCR as Trigger)
 3. Corrective Actions
 4. Source Water Assessments (EPA Region 8 is not currently implementing)

The GWR Applies to Systems that:

- Operate a ground water system
- Operate a mixed system (ground water & surface water)-
Ground water is added directly to the distribution system **after** surface water treatment (disinfection & filtration)
- Wholesaler/Consecutive systems that meets the aforementioned criteria



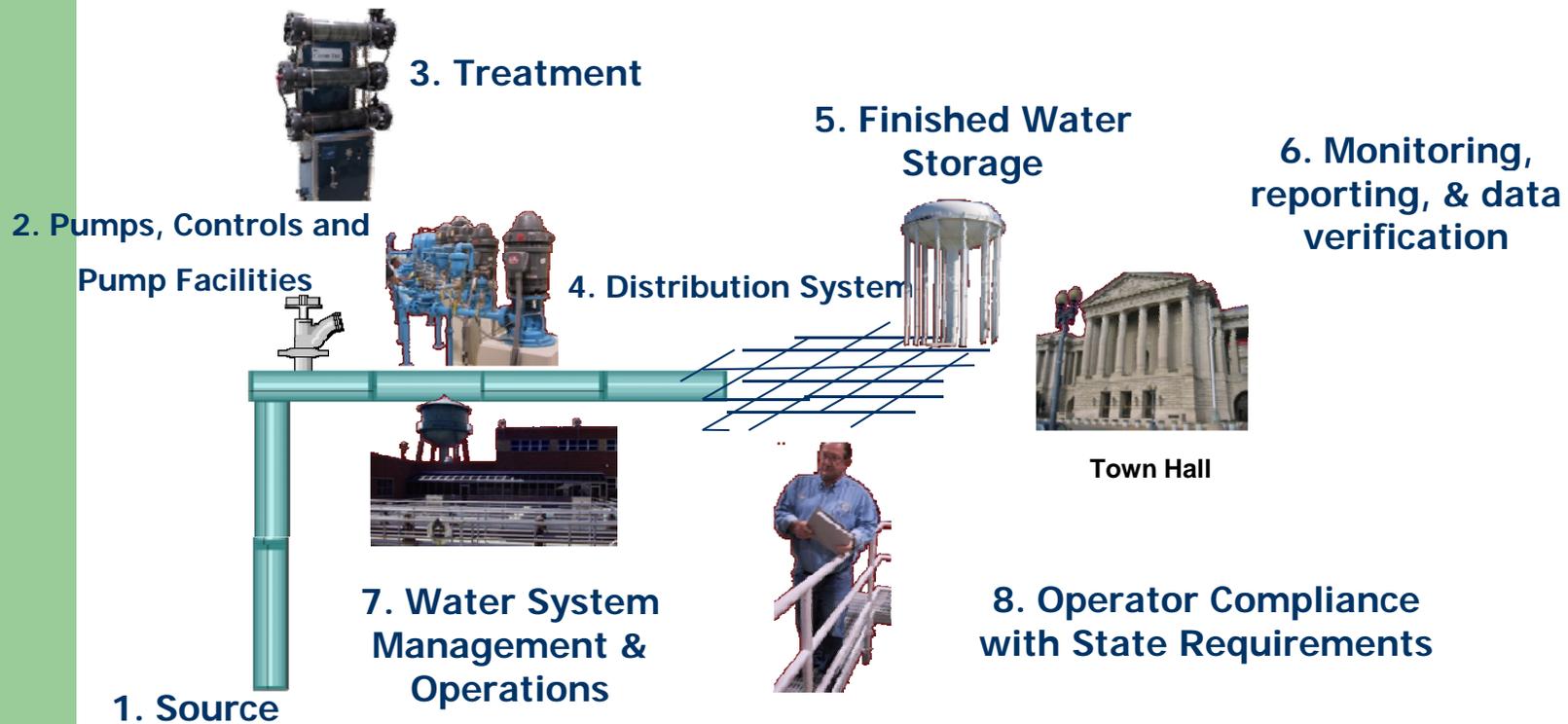
There are 4 main parts to the Ground Water Rule:



1. Sanitary Surveys

Sanitary Surveys

- Sanitary Surveys will assess 8 elements:



Sanitary Surveys

- Sanitary surveys are a way to identify significant deficiencies
- **Significant Deficiencies-**
Include, but are not limited to, defects in the design, operation, or maintenance, or a failure or malfunction of the sources, treatment, storage, or distribution system that EPA determines to be **causing or have the potential for causing the introduction of contamination into the water delivered to consumers**

Sanitary Surveys

- **To avoid receiving a violation, you MUST respond within 30 days:**
 - Of receiving the sanitary survey and survey cover letter;
 - &
 - Of making system improvements to address the significant deficiencies.

Sanitary Surveys



Examples of Significant Deficiencies



**No Wellhead
Sanitary Seal;
Conduit & Wires
Not Properly
Sealed**

**Conduit not
sealed**



**Potential sources of
contamination
surrounding wellhead**

Sanitary Surveys

Examples of Significant Deficiencies



Cross connection with the venting/vacuum tied directly to the drain

Obvious Contamination



Sanitary Surveys

Examples of Potential Significant Deficiencies



Conduit is not properly sealed.

Lack of an emergency response plan (ERP)



Sanitary Surveys

Examples of Potential Significant Deficiencies

All storage tank vents, overflow and drain lines must be screened with a #24-mesh screen, or a properly sealed flapper valve to prevent birds, insects, rodents and other forms of contamination from entering the water system.

All water storage structures shall be provided with an overflow, which is brought down to an elevation between 12 and 24 inches (0.3-0.61 m) above the ground surface and discharges over a drainage inlet structure or a splash pad. All overflow pipes shall be located so that any discharge is visible.



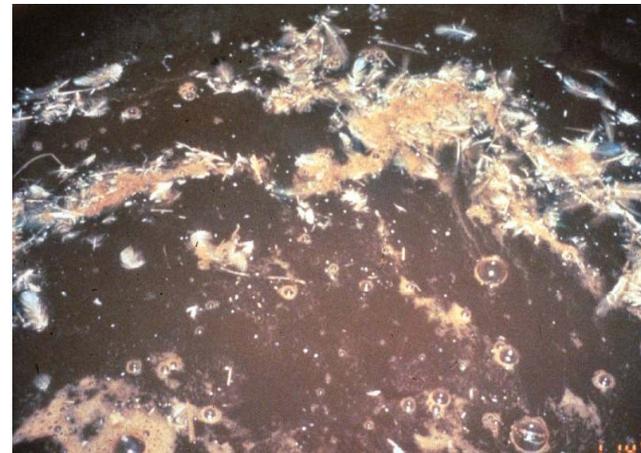
Sanitary Surveys



Examples of Potential Significant Deficiencies

Lack of Storage Tank Cleaning- Example: Gideon, MO

- Untreated groundwater source
- Taste and odor complaints caused municipal to conduct a comprehensive flushing program
- Salmonella had contaminated the largest municipal tank (1993)
- Nearly 600 of the 1104 residents become ill and seven people died in a nursing home



Photos and information courtesy of James A. Goodrich, Ph.D. with EPA/ORD



There are 4 main parts to the Ground Water Rule:



2. Monitoring



Monitoring

**Triggered
Monitoring**

Triggered Monitoring



- The Total Coliform Rule (TCR) & the GWR:
 - Run **parallel**
 - But are separate rules with separate requirements

Triggered Monitoring



- GWR Triggered Monitoring answers the question:

Do coliforms in the distribution system mean fecal contamination in the ground water source???

Triggered Monitoring



- Under Triggered Monitoring:

You **DO NOT have to do anything UNTIL**

you have a Total Coliform Rule unsafe/positive routine sample
(unsafe/positive = TC+, EC+ or FC+)

Triggered Monitoring Continued

- **ANYTIME** you have an unsafe/positive Total Coliform Rule routine sample and are not sure what to do:
 - Call Tiffany Mifflin at **303-312-6521**
 - If Tiffany is out of the office, call Bre at **303-312-6034**

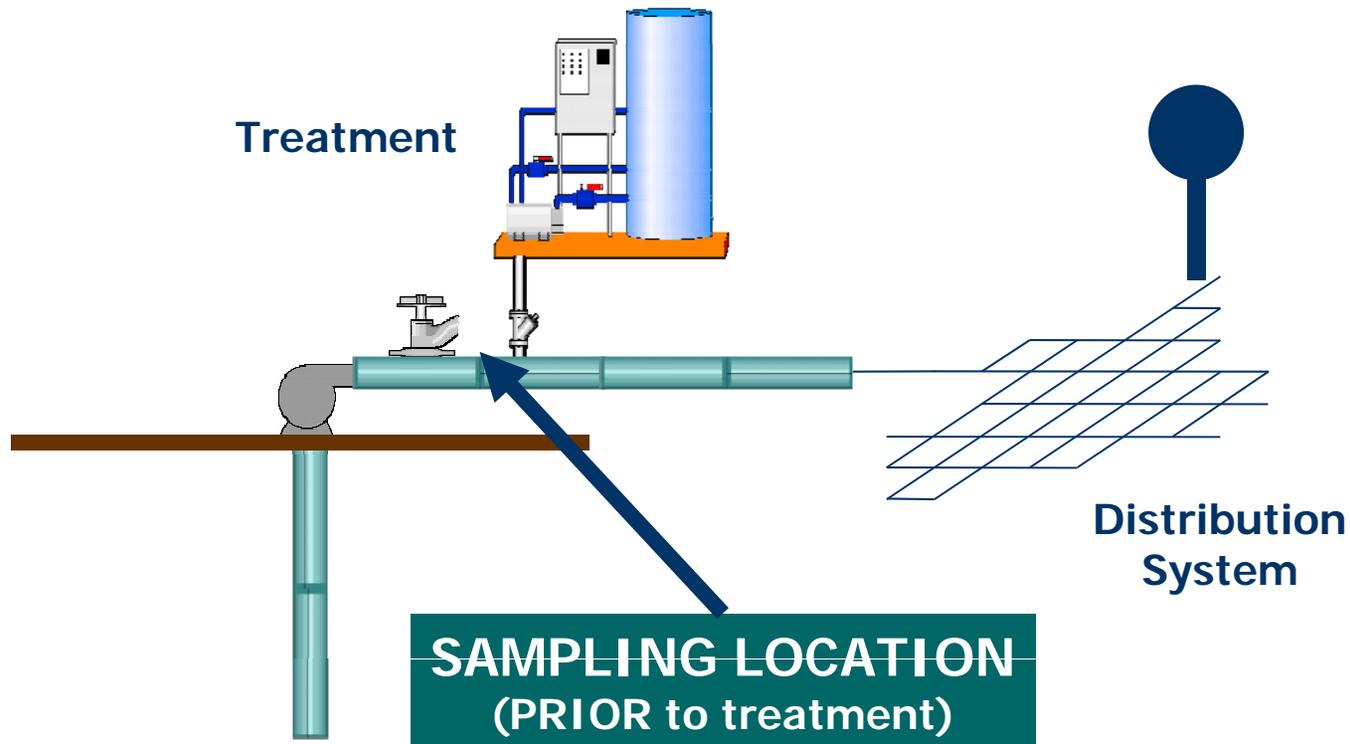
Triggered Monitoring Continued

WHERE are we sampling for with Triggered Monitoring?

- Sample for the GWR at the source (or EPA approved location)
- Sample **BEFORE** treatment
- Mark the sample location as **SOURCE!!!**
- Might be necessary for GWS to install new sample tap
- You may take combined source samples, but ensure you notify Tiffany, GWR Manager, you took combined source samples

Triggered Monitoring Continued

Regular Sampling Location

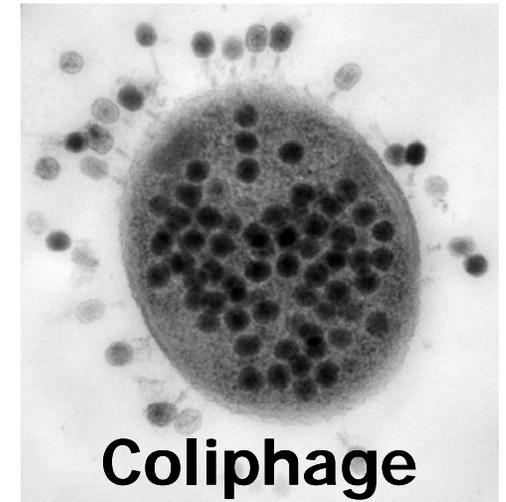
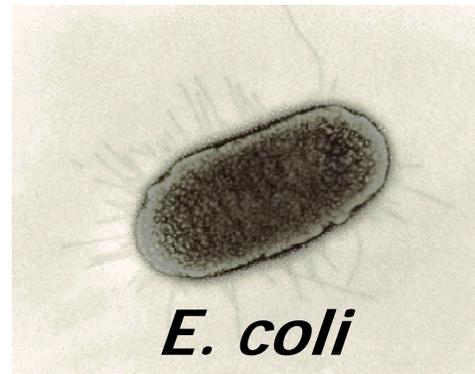


Triggered Monitoring Continued

WHAT are we sampling for with Triggered Monitoring?

➤ One of these 3 fecal indicators (FI):

1. E.coli- (Suggested FI to use due to familiarity, cheapest & know which labs are certified)
2. Coliphage
3. Enterococci



If you select Coliphage or Enterococci make sure the lab is certified by EPA to analyze that contaminant!

For the rest of this presentation I will be using E. coli as the fecal indicator for examples.

Triggered Monitoring Continued

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

WY and Tribal- Ground Water Rule

SOURCE WATER SAMPLING

Triggered Source Monitoring Sample Collection And Reporting Form

Sampler(s) Section (For field sampler use only):

Public Water System (PWS) Name:		Sampler's Name:	
PWS Identification Number (PWID):		Phone Number:	
PWS Street Address:		City:	State:
		Zip Code:	

Sample Collection		Sampling Location (i.e. SOURCE-Well #42)	Sample Type (Check One)
Date	Time		
			<input type="checkbox"/> Routine <input type="checkbox"/> Additional Following CC- <input type="checkbox"/> Regrasment
			<input type="checkbox"/> Routine <input type="checkbox"/> Additional Following CC- <input type="checkbox"/> Regrasment
			<input type="checkbox"/> Routine <input type="checkbox"/> Additional Following CC- <input type="checkbox"/> Regrasment
			<input type="checkbox"/> Routine <input type="checkbox"/> Additional Following CC- <input type="checkbox"/> Regrasment
			<input type="checkbox"/> Routine <input type="checkbox"/> Additional Following CC- <input type="checkbox"/> Regrasment

Sampler(s) Name (PWID):	Sampler(s) Signature:	Date Signed:
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Laboratory Section (For laboratory use only):

Laboratory Name:		Laboratory Phone Number:		Date/Time Sample Received:			
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Lab Specimen ID	Sample Location	Analytical Method Used	Total Coliform P/A/NA	E. coli P/A/NA	Analysis Start		Analysis Complete		Comments
					Date	Time	Date	Time	

Analyst(s) Signature:	Date Signed:
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Region 8 Drinking Water Online

Serving Public Water Systems in Wyoming and on Tribal Lands

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Region 8 Drinking Water Online

Drinking Water Online Quick Finder

- Boil Water Advisory (PDF)
- TCR/E-Coli Positives
- Consumer Confidence Reports
- Contact List (PDF)
- Emergency Notification**
- Labs - Certified (PDF)
- Loss of Pressure
- Natural Disasters
- Public Notices Templates
- Reporting Forms**
- Sampling Guide (PDF)

- 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
- What's New

This website is designed for the use of owners, operators, and administrative staff who work at public water supply systems in Wyoming and on Tribal lands within the jurisdiction of US EPA Region 8. You will be able to look at data we have for your system and sampling results, obtain reporting instructions and forms, and read about requirements and news that affect your water system. In the future, we will provide information to Tribal operators about their training and certification and will offer some noncredit learning opportunities online. Browse the links to the left for more specific information on drinking water operation and regulatory topics, including:

Drinking Water Watch - See what data EPA Region 8 has on your public water system, including inventory, sampling requirements, sample results, violations, and system contacts. Information is updated weekly from our Safe Drinking Water Information System (SDWIS). You may access the [Drinking Water Watch Login](#) page from here.

Emergencies and Security - Plan for emergencies and find out what to do regarding

- #### EPA Headquarters Information
- EPA Office of Ground Water and Drinking Water
 - EPA Tribal Drinking Water Program

- #### Related Topics on this Website
- About Us
 - Contact List (PDF)
 - Navigation Tips
 - Drink Water Watch Login
 - Registration and Account Maintenance



Region 8 Drinking Water Online

- Drinking Water Online Home
- Drinking Water Watch
- Emergencies and Security
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- Presentations
- What's New

You are here: EPA Home » Region 8 » Drinking Water Online » reporting » Reporting Forms

Reporting, Forms and Instructions

Reporting Forms

Use the documents in this section to report on water system operational activities. For more information, please contact us.

You will need Adobe Reader to view some of the files on this page. See EPA's PDF page to learn more.

To download any of the files below, right-click on the link (or Ctrl-click on a MAC) and select "Save Target As..." to download the file to a folder on your own computer.

On this page

- Changes to Public Water Systems (CHG)
- Consumer Confidence Reports (CCR)
- Emergency Response Plan Templates (ERP)
- Ground Water Rule (GWR)
- Lead & Copper Rule (LCR)
- Public Notification (PN)
- Sanitary Surveys (SS)
- Step 1 Disinfectants/Disinfection By-Products Rule (Step 1 DBPR)

Related Topics on this Website

- Consumer Confidence Reports
- Public Notification

EPA Headquarters Information

- Public Notice Templates
- Quick Reference Guides



Triggered Monitoring Continued

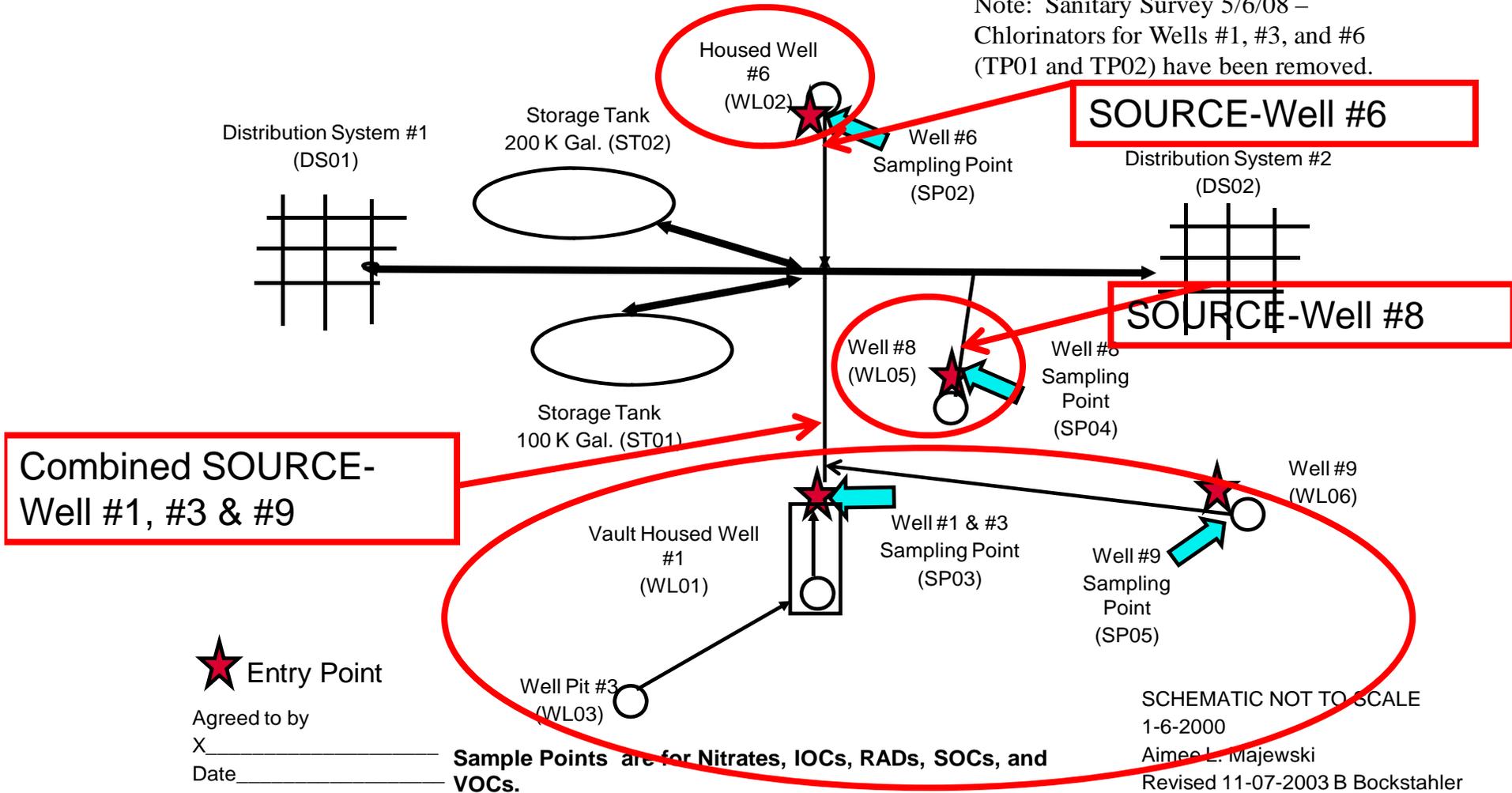
As soon as you learn of the TCR+ routine sample follow these steps:

1. Call Tiffany at 303-312-6521 if you have any questions or need help!!!
2. Sample the source(s):
At least 1 (100 mL) ground water source sample
for **EVERY** positive TCR routine sample
at **EACH** ground water source
3. Mark the samples as “**SOURCE**” on the **Source Water Sampling Form**
4. If your system has multiple sources inform me of that fact and we’ll work together to determine which sources need to be sampled. Be sure to include the location info on the bottle label- i.e. “SOURCE Well #3”
5. **ONLY** if the result is E. coli positive is further action required for the GWR!!!
TC+ and FC+ are not used for the GWR

Example System

PWS# WY560123456

Note: Sanitary Survey 5/6/08 – Chlorinators for Wells #1, #3, and #6 (TP01 and TP02) have been removed.



SCHEMATIC NOT TO SCALE
1-6-2000

Aimee L. Majewski
 Revised 11-07-2003 B Bockstahler
 Revised 1-12-04 C Lamb
 Revised 7-26-06 C Lamb
 Revised 8-12-08 C Lamb
 Revised 2-9-11 C Lamb

WY and Tribal- Ground Water Rule

SOURCE WATER SAMPLING

Triggered Source Monitoring Sample Collection And Reporting Form

Sampler(s) Section (For field sampler use only):

Utility Information		Public Water System (PWS) Name: EXAMPLE SYSTEM		Sampler's Name: TIFF MIFF	
PWS Identification Number (PWSID): WY560123456			Phone Number: 876-5309		
PWS Street Address: 8765309 TIFF MIFF WAY		City: DENVER	State: CO	Zip Code: 80202	

Sample Collection		Sampling Location (i.e. "SOURCE-Well #4"):	Sample Type (Check One)		
Date	Time				
3/9/11	9 am	SOURCE WELL #6	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Additional Following EC+	<input type="checkbox"/> Replacement
3/9/11	9 am	SOURCE WELL #8	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Additional Following EC+	<input type="checkbox"/> Replacement
3/9/11	9 am	SOURCE WELLS 3, 9, 1	<input checked="" type="checkbox"/> Routine	<input type="checkbox"/> Additional Following EC+	<input type="checkbox"/> Replacement
			<input type="checkbox"/> Routine	<input type="checkbox"/> Additional Following EC+	<input type="checkbox"/> Replacement
			<input type="checkbox"/> Routine	<input type="checkbox"/> Additional Following EC+	<input type="checkbox"/> Replacement

Sampler(s) name (Print): TIFF MIFF	Sampler(s) signature: 	Date signed: 3/9/11
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Laboratory Section (For laboratory use only):

Laboratory Information		Laboratory Phone Number:		Date/Time Sample Received:			
Laboratory Name:							

Lab Specimen ID	Sample Location	Analytical Method Used	Total Coliform P/A/NA	E. coli P/A/NA	Analysis Start		Analysis Complete		Comments
					Date	Time	Date	Time	

Analyst(s) Signature:	Date signed:
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Send Copies Of Completed Forms To: Ground Water Rule Manager, Tiffany Mifflin
Email: mifflin.tiffanv@ena.gov

GWR Triggered Monitoring 1000 or Less Population

The Fecal Indicator MUST be E. coli!

TOTAL COLIFORM RULE MONITORING

TCR+
Routine Sample

TRIGGERED SOURCE WATER MONITORING

Call Tiffany at 303-312-6521 if you have ANY questions or need assistance

Within 24 Hours of Notification of TCR+

Take 4 ALL repeat samples required under the Total Coliform in the distribution system

ADDITIONALLY, collect one ground water **SOURCE** sample from each source in use during original TCR+

Mark the sample as "SOURCE"

Ask lab to analyze sample(s) for presence of E. coli

ONLY if the sample result is E. coli positive is further action required.

If EC+
Tier 1 Public Notice in 24 hrs:

Call Tiffany at 303-312-6521

ADDITIONAL SOURCE WATER MONITORING

W/In 24 Hrs of EC+ Notification

Collect **5** additional ground water **SOURCE** samples from same source as EC+
Analyze sample(s) for E. coli; No further action unless any sample result is EC+

If E. coli +
Continue Providing Tier 1 Public Notice

Call Tiffany at 303-312-6521

4 Corrective Action Options (CA)

- 1) Correct All Significant Deficiencies
- 2) Provide Alternative Source
- 3) Eliminate Source Contamination
- 4) Provide 4-Log Inactivation/Removal Viruses

Triggered Monitoring Continued

- Consecutive Systems
 - Notify Tiffany at 303-312-6521
 - Notify all wholesaler system(s) within 24 hours

Triggered Monitoring Continued

- Wholesaler Systems
 - Upon receipt of notification from consecutive system:
 - Contact Tiffany at 303-312-6521
 - Collect samples from all ground water sources serving the consecutive system within 24 hours of notice
 - For any EC+ sample, notify all consecutive systems served by that ground water source and EPA within 24 hours

Triggered Monitoring Continued

- Recap of Triggered Monitoring

- Call Tiffany if you have a TCR+ routine sample at 303-312-6521 & need assistance
- Sample all your GW sources
- Fill out the Source Water Sampling form to submit to your lab w/ the source sample(s).
- Use regular lab form to submit your Total Coliform Rule repeat samples!

**Monitoring-
Triggered Monitoring + Disinfection**

**Disinfecting BUT
Conducting
Triggered Monitoring**

Monitoring- Triggered Monitoring + Disinfection

- If you are properly & continuously disinfecting you should NOT have any TCR+ routine samples:
 - Which means you should not have to do GWR source monitoring
 - Because there shouldn't be any TCR+ routine samples to trigger the GWR!
- **Before anyone goes crazy with disinfection-**
 - ✓ C & NTNC systems adding chemical disinfectants will follow the D/DBPR regulations
 - ✓ TNC systems, as a general guideline, should:
 - Measure & record the chlorine residual when taking TCR samples
 - Keep the residual over 0.2 mg/L and under 2.0 mg/L
- Systems **MUST continuously** chlorinate for this option to work!!!!!!!!!!!!!!!!!!!!

Triggered Monitoring 1000 or Less Population w/ One Source

TCR+ (1) Routine Sample

1 GWR Source Sample
(If EC+)

4 Repeat Samples TCR

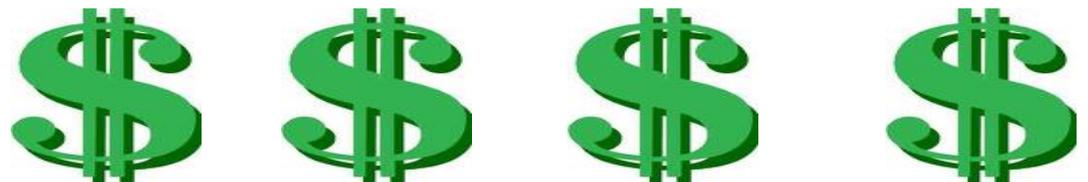
5 Additional GWR Source Samples
(If EC+)

5 Routine TCR Samples
(Next Month)

GWR Corrective Action(s)

Total Cost Estimate???

16 Samples (w/ initial routine) x ~\$25 Test
= \$400 w/o Corrective Action Cost



There are 4 main parts to the new Ground Water Rule:

3. Corrective Actions

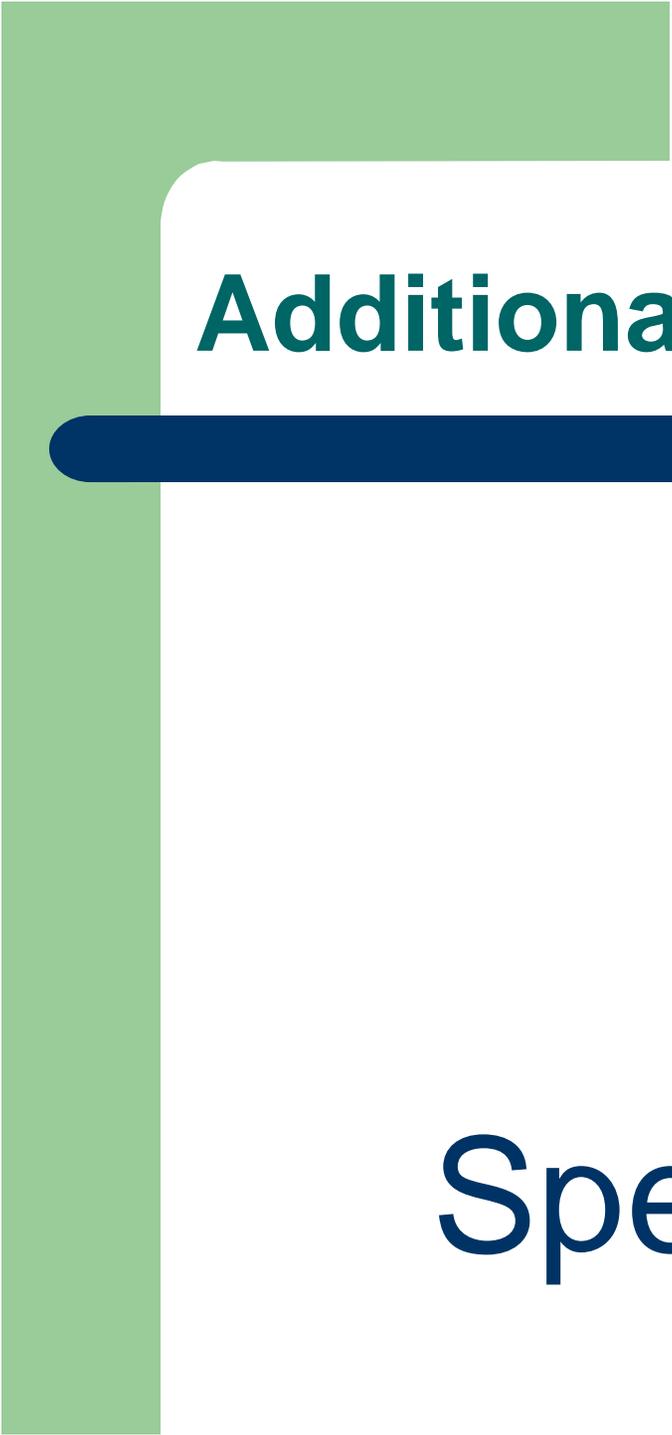
Corrective Actions

- Required with one, or both, of the following:
 1. Significant Deficiency
 2. Systems Conducting Triggered Monitoring
E. coli Positive Ground Water Source Sample(s)

Corrective Actions

- 4 corrective action alternatives; one or more actions will be required:
 1. Correct ALL Significant Deficiencies
 2. Provide an Alternate Safe Source of Water
 3. Eliminate the Source of Contamination
 4. Provide Treatment that Reliably Achieves 4-Log Inactivation and/or Removal of Viruses and Conduct Compliance Monitoring from that Point Forward
(Triggered Monitoring will no longer be an option)

Additional Fun Things!!!



**PNs
and
Special Notices**

Public Notice Requirements

- **Tier 1: Immediate Notice**
Fecal indicator-positive source water sample(s)
- **Tier 2: Treatment Techniques**
Failure to complete required corrective action or be in compliance with an EPA approved schedule
- **Tier 3: Failure to Monitor**
Failure to conduct required triggered source water monitoring

Special Notice

COMMUNITY SYSTEMS

- Must inform the public of the EC+ source sample or any significant deficiency that has not been corrected
- The system must continue to inform the public annually until the significant deficiency is corrected or the EC+ in the ground water source is determined by EPA to be corrected

Special Notice

NON-COMMUNITY SYSTEMS

•Must inform the public of any significant deficiency that has not been corrected within 12 months of being notified by EPA. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

- a) The nature of the significant deficiency and the date the significant deficiency was identified by EPA;
- b) The EPA-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed;
- c) For systems with a large proportion of non-English speaking consumers, as determined by the EPA, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

Recap



- Ground Water Rule (GWR) was created to provide additional protection against fecal contamination in ground water systems
- **IT WENT INTO EFFECT ON DECEMBER 1, 2009**
- There are four main parts to the new Ground Water Rule:
 1. Sanitary Surveys
 2. Monitoring
 - **Triggered Source Water Monitoring**
(If a system has a TCR+ routine sample & you need assistance call Tiffany at 303-312-6521)
(If CONTINUOUSLY disinfecting, in theory you should never have to monitor...)
 3. Corrective Actions
 4. Source Water Assessments (EPA Region 8 is not currently implementing)
- Any time you have questions call Tiffany at 303-312-6521!!!

Systems Subject to the GWR

Remember:

ANYTIME

You have a routine

TC+

and have questions

Call Tiffany!!!



Just Wanted to Say...



Thank You!!!!