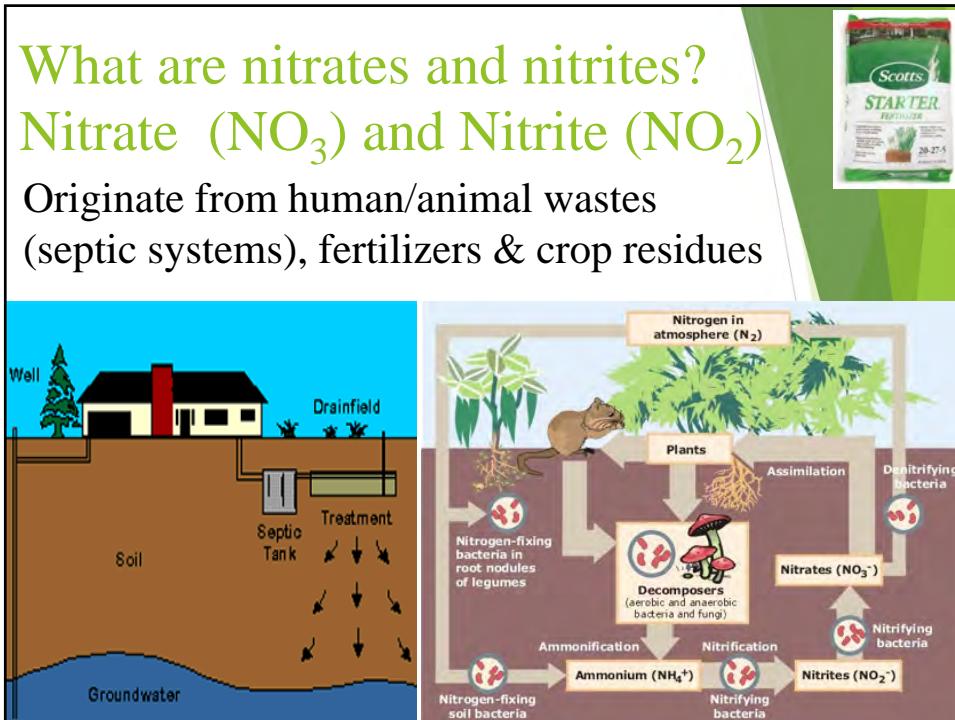




Nitrate & Nitrite Rule for Transient Non-Community Water Systems

► Bailey Smith
► Nitrate Rule Manager
► Smith.Bailey@epa.gov
► 303-312-6940





Why Do We Care About Nitrates & Nitrites?

High Levels Can Lead to Infant Death

- ▶ High nitrate/nitrite levels may cause a potentially fatal blood disorder in infants under six months of age called methemoglobinemia or "blue-baby" syndrome.
- ▶ With this disorder there is a reduction in the oxygen carrying capacity of blood, which can cause shortness of breath and a blueness of the skin of infants or even lead to the infant's death.

Maximum Contaminant Level (MCL)

The Environmental Protection Agency (EPA) has set the Maximum Contaminant Level (MCL)* for nitrate and nitrite to the following for drinking water:

Nitrates MCL = 10 mg/L

Nitrites MCL = 1 mg/L

*An **MCL** is the legal threshold limit on the amount of a substance that is allowed in public water systems under the Safe Drinking Water Act (SDWA)*

What You Need To Do #1:

Review Your Monitoring and Reporting Requirements for Any Required Nitrate and Nitrite Sampling:

This document will tell you:

The contaminant you need to sample for on the left-hand side (e.g., nitrates)

The monitoring period the sample must be collected (e.g., April 1- June 30, 2023)

Where to sample (e.g., sample point code- SP01)

Monitoring and Reporting Requirements for the Calendar Year 2023 February 11, 2023

PWS Name PWS ID#: WY5# (NC/GW)

Ground Water Rule			
FACILITY CODE	FACILITY DESCRIPTION	SAMPLE POINT CODE	SAMPLE POINT DESCRIPTION
WL01	SIGNAL BUTTE #1	GWR WL01	TRIGGERED GWR
Nitrate (NO₃) You are required to monitor during one quarter for nitrates. Collect a sample between April 1, and June 30, 2023 at the entry point(s) to the distribution system shown on the system schematic noted by a star and as listed below. If any sample result exceeds 10.4 mg/L, you MUST collect a confirmation sample within 24 hours of receiving the results and consult with the EPA as soon as possible. Failure to complete follow-up actions may result in monitoring violations and endangerment of public health.			
Nitrite (NO₂) You are required to monitor for nitrites during one quarter. Collect a sample between April 1, and June 30, 2023 at the entry point(s) to the distribution system shown on the system schematic noted by a star and as listed below. If any sample result exceeds 1.4 mg/L, you MUST collect a confirmation sample within 24 hours of receiving the results and consult with the EPA as soon as possible. Failure to complete follow-up actions may result in monitoring violations and endangerment of public health.			
FACILITY CODE	FACILITY DESCRIPTION	SAMPLE POINT CODE	SAMPLE POINT DESCRIPTION
TP01	FILTRATION	SP01	TREATMENT BUILDING TAP SAMPLE POINT

Monitoring and Reporting Requirements for the Calendar Year 2023 February 11, 2023

PWS NAME PWS ID# WY5600000 NC/GW

Water System Inventory		
Water Source: GW	Water System Type: NC	You must write the facility codes and sample point codes on the chain of custody or lab slip submitted to a lab with each water sample. The codes are listed with the sampling directions.
Contact:		
Address:		
Phone:		

Where to monitor and Whom to call
 The "rule managers" responsible for administering the various drinking water rules are listed here. Any questions or discussion should be directed to the appropriate rule manager at the number given below, or you can call toll-free at 1-800-227-8917 and ask for the appropriate contact.

Monitoring for these contaminants must be at the Entry Point to the Distribution System: Nitrate/Nitrite Nitrate Bailey Smith 303-312-6940
Monitoring for these contaminants must be within the Distribution System: Revised Total Coliform Rule RTCR Jamie Harris 303-312-6072
The following rules may apply: Surface Water Treatment Rules SWTR Jake Crosby 303-312-6389 Ground Water Rule GWR Jamie Harris 303-312-6072

IMPORTANT
 You must use a laboratory certified to test for each specific contaminant in drinking water.
 See a list of certified labs at Drinking Water Online:
www.epa.gov/dwregulations/contaminants/drinking-water-labs

Please send sample results to our office using one of the methods listed below.
 Include your PWS name and PWS ID# on all correspondence.
 Email: R8DWU@epa.gov Mail: US-EPA Region 8
 Fax: 1-(877) 876-9101 1595 Wynkoop St.
For after-hours emergency situations
 Denver, CO 80202-1129
 Mail Code 8WD-SD

What You Need To Do #2:

Contact an EPA Certified Laboratory for Nitrates/Nitrites and ask them to send you sample bottles with instructions for the number of samples you need to collect:

Version: Updated July, 2015	LABORATORY	CONTACT	Certification End Date	Inorganics	Disinfection Byproducts	Micro	Radionuclides
	AccuTest Mountain States 4036 Youngfield Street Wheat Ridge, CO 80033	Ms. Kaprie S. Superintendent Ph 303-425-6021 x3114 kapries@accutest.com	5/31/2015	Asbestos Copper, Lead Cyanide, Fluoride METALS Nitrate & Nitrite	DBP HA5 DBP TTHM DBP Chlorite DBP Bromate	E. Coli Fecal Coliform Total Coliform Heterotrophic PC Cryptosporidium	Natural Gross Alpha Natural Gross Beta Natural Radium 226 Natural Radon 228 Mercury Man made Cesium Man made Iodine
	ACZ Laboratories Inc 2773 Downhill Dr Steamboat Springs CO 80487	Matt Sowards Ph 800-334-5493 x531 Fax 970-879-2216 matt@acz.com	8/31/2015	X X X X	X X X X		X
	ALS Environmental - Kelso Formerly Columbia Analytical Services 1317 S 13th Ave PO Box 479 Kelso WA 98626	Mr. Lee Wolf Ph 360-577-7222 Direct: 360-501-3371 FAX 360-425-9096 lee.wolf@alsglobal.com	7/8/2015	X X X X	X X X X	X X X X X	

What You Need To Do #2:

Contact a Certified Laboratory for Nitrates/Nitrites and ask them to send you sample bottles:

Sample Choices:

Nitrate

Nitrite

Total Nitrate

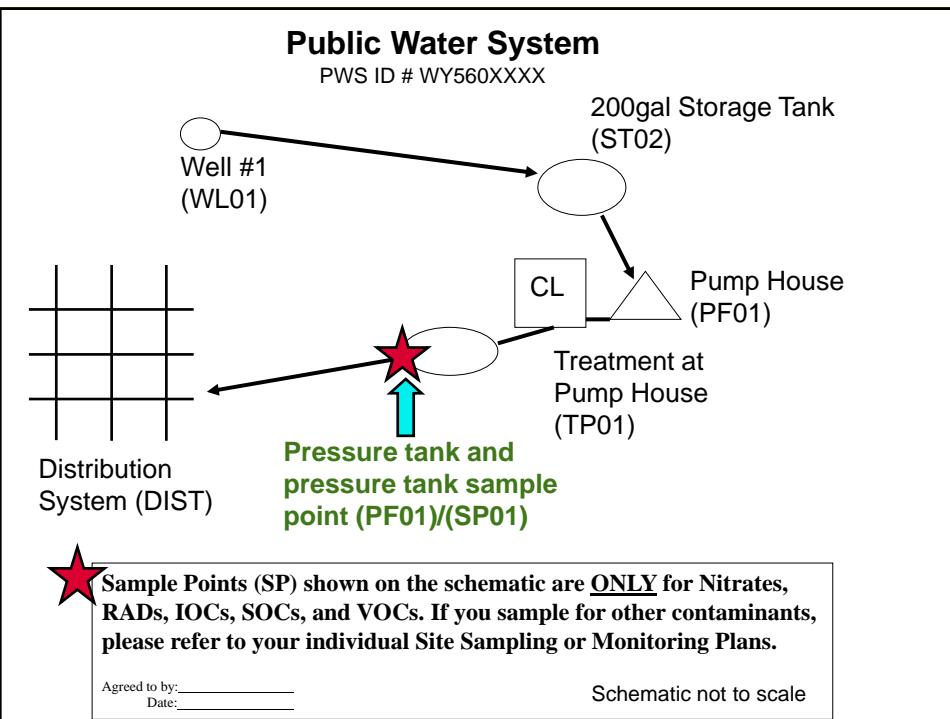


You may take a Total Nitrate, which combines both samples together, BUT the results must be <0.5 mg/L to qualify as BOTH a nitrate and nitrite sample.

What You Need To Do #3:

Sample at each designated sampling point on your schematic, which is indicated by a  OR as noted on your Monitoring and Reporting Requirements (might have multiple locations).

- At the entry point to the distribution system AFTER all treatment
- More than one source & the sources combine?
 - * Sample at the entry point to the distribution system
 - * After all treatment
 - * Sample during periods of normal operating conditions
- Make sure to sample at ALL sampling points & include your Public Water System ID # on the lab form (Chain of Custody).



Ground Water Rule Within 24 hours of being notified of a routine Total Coliform Rule positive (TC+) sample, you must sample for the presence of E. coli at ALL ground water sources in use at the time of the original TC+. Collect one source sample for every routine TCR positive sample. Utilize the Groundwater Source Sampling Form found at the following website: <http://www2.epa.gov/region8-waterops/wy-and-tribal-ground-water-rule-source-water-sampling-triggered-source-monitoring>. On the form you must write the correct Sample Point Code (e.g. GWR Elm Well), which can be found below, and mark the sample as 'Triggered'.

This sampling is in addition to your Total Coliform Rule repeat samples.

FACILITY CODE	FACILITY DESCRIPTION	SAMPLE POINT CODE	SAMPLE POINT DESCRIPTION
WL01	WELL 1	GWR WL01	TRIGGERED GWR SOURCE

Nitrate (NO3) You are required to monitor annually for nitrates. Collect a sample between January 1 and December 31, 2015 at the entry point(s) to the distribution system shown on the system schematic and as listed below.

FACILITY CODE	FACILITY DESCRIPTION	SAMPLE POINT CODE	SAMPLE POINT DESCRIPTION
SS01	POINT OF ENTRY TAP/SAMPLING STATION	SP01	POINT OF ENTRY TAP/SAMPLING ST

Nitrite (NO2) This is a new drinking water source. You are required to monitor for nitrites once during the first three years of operation. Collect a sample between January 1, 2014 and December 31, 2016 at the entry points to the distribution system shown on the system schematic and as listed below.

FACILITY CODE	FACILITY DESCRIPTION	SAMPLE POINT CODE	SAMPLE POINT DESCRIPTION
SS01	POINT OF ENTRY TAP/SAMPLING STATION	SP01	POINT OF ENTRY TAP/SAMPLING ST

CHAIN OF CUSTODY (aka Lab Form)

Best Water System in Wyoming PWSID WY5600000

Well #4 (WL01)

Kitchen Sink Sampling Station/Sample Point (SS01/SP01)

Distribution (DIST)

★ Entry Point - Sample Points (SP) shown on the schematic are ONLY for Nitrates, RADs, IOCs, SOCs, and VOCs. If you sample for other contaminants, please refer to your individual Site Sampling or Monitoring Plans.

Agreed to by:

Date: _____

What You Need To Do #4:

Fill out the lab forms:

Chain of Custody & Analytical Request Record

Account Information <small>(Billing information)</small>		Report Information <small>(if different than Account Information)</small>									
CompanyName	Best Water System in Wyoming										
Contact	John and Jill Doe										
Phone	307 - 123 - 4567										
Mailing Address	1 Main Street										
City, State, Zip	Jackson, WY 83001										
Email	Wyomingwatersystem@gmail.com										
Receive Invoice	<input checked="" type="checkbox"/> Hard Copy	<input type="checkbox"/> Email	Receive Report	<input checked="" type="checkbox"/> Hard Copy	<input type="checkbox"/> Email						
Purchase Order	Quote	Bottle Order									
Project Information											
Project Name, PWSID, Permit, etc. WY5600000											
Sampler Name Jill Doe		Sampler Phone 307 - 123 - 4567									
Sample Origin State		EPA/State Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
<table border="1"> <tr> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>						<input type="checkbox"/>					
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>						
Sample Identification <small>(Name, Location, Interval, etc.)</small>		Collection		Number of Containers	Matrix <small>(see Codes Above)</small>						
1 SP01 - Pressure Tank Sampling Point		Date	Time	1	DW <input type="button" value="▼"/>						
2		4/2/19	11:30 am		<input checked="" type="checkbox"/>						
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Chain of Custody & Analytical Request Record									
Account Information (Billing Information)					Report Information (if different than Account Information)			Comments	
Company Name: Best Water System in Wyoming Contact: John and Jill Doe Phone: 307 - 123 - 4567 Mailing Address: 1 Main Street City, State, Zip: Jackson, WY 83001 Email: Wyomingwatersystem@gmail.com					Company Name: Contact: Phone: Mailing Address: City, State, Zip: Email: Receive Report: <input checked="" type="checkbox"/> Hard Copy <input type="checkbox"/> Email			Please send results to myself and US EPA at R8DWU@EPA.GOV This is a EPA compliance sample for nitrate annual monitoring taken at SP01 - Pressure Tank Sampling Point	
Purchase Order: <input type="checkbox"/> Quoted <input type="checkbox"/> Bid Order									
Project Information									
Project Name, PWSID, Permit, etc: WY5600000 Sampler Name: Jill Doe Sampler Phone: 307 - 123 - 4567 Sample Origin State: EPA/State Compliance: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No									
Matrix Codes: A= Air, W= Water, S= Solid, V= Vegetation, B= Biomass, D= Drinking Water									
Sample Identification (Name, Location, Interval, etc.)			Collection Date / Time		Analysis Requested			See Attached	
1 SP01 - Pressure Tank Sampling Point			4/2/19 11:30 am		1	DW	✓		
2					▼				
3					▼				
4					▼				
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7					▼				
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10					▼				
Custody Record MUST be signed		Released by (print)		Date/Time		Signature		Received by (print)	
Released by (print)		Date/Time		Signature		Received by Laboratory (print)		Date/Time	
LABORATORY USE ONLY									
Shipped By	Cooler (D)	Custody Seals	Intact	Receipt Temp °C	Temp Blank	On Ice Y N	Payment Type CC Cash Check	Amount \$	Receipt Number (check/box only)

What You Need To Do #5:

Send water samples to the certified laboratory
 **Don't FORGET!** NOT EPA! (EPA wants the results)

Holding time & Preservation Requirements

Nitrate + Nitrite (i.e. Total Nitrate)

28 days from sample collection

lab must provide H₂SO₄ preservative with sample container

Nitrate alone & unpreserved

48 hours from sample collection

What You Need To Do #6:

Once you receive your results send them to EPA right away!

Labs DO NOT always send the nitrate/nitrite sample results to EPA. **YOU need to send them to EPA!!!**

R8DWU@epa.gov

Send results to EPA Region 8 within 10 days of the end of the compliance period or 10 days from the receipt of results from lab, whichever is shortest.

Drinking Water Watch

Web search: EPA region 8 Drinking Water Watch

Check to see if EPA has received your lab results.

Drinking Water Branch

Water System Details

Water System No. :		Federal Type :	NC
Water System Name :		State Type :	NC
Principal County Served :	GOSHEN	Primary Source :	GW
Status :	A	Activity Date :	08-16-2004

Points of Contact

Name	Job Title	Type	Phone	Address
	PRESIDENT/CEO	LC		
	OP	DO		
	MANAGER	AC		

Annual Operating Periods & Population Served

Service Connections

Start Month	Start Day	End Month	End Day	Population Type	Population Served	Type	Count	Meter Type	Meter Size

What You Need To Do #7:

Review the results right away!

- The MCL for nitrites = **1.0 mg/L**
- The MCL for nitrates = **10 mg/L**
- If you exceed the MCL, call EPA IMMEDIATELY!
 - Bailey Smith - 303-312-6940
- The following slides will help walk you through what happens with the respective results for nitrites and nitrates.

Nitrate & Nitrite Sample Results

Over Half the MCLs

1) Call EPA and tell Bailey Smith that your results are more than half the MCL.

► Nitrate = Greater than 5.0 mg/L

► Nitrite = Greater than 0.5 mg/L

2) Monitoring is increased to quarterly.

3) Monitoring remains quarterly until EPA approves reduced monitoring. If you think your system qualifies, email Bailey Smith.



Nitrate & Nitrite Sample Results

Exceeding the MCLs

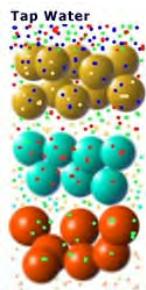
- 1) Call EPA IMMEDIATELY!!!
- 2) Take a confirmation sample w/in 24 hrs of notification. Compliance determination is based on the average of the results of the initial and confirmation samples.
- 3) If you are unable to take a confirmation sample w/in 24 hours, you must post **Tier 1 Public Notice** and take a confirmation sample within 2 weeks.
- 4) **DO NOT BOIL WATER.** Bottled water will need to be provided, boiling water actually increases the concentration of nitrate or nitrite!!!
- 5) Then you will be required to begin quarterly sampling.



Best Available Technology (BAT)

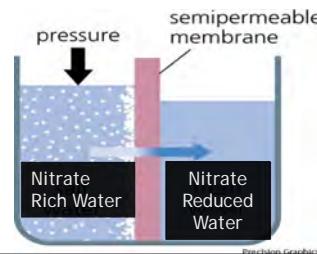
Ion Exchange

- Ion Exchange uses a resin, where other ions on the resin are exchanged for the nitrate ions, which get trapped in the resin.



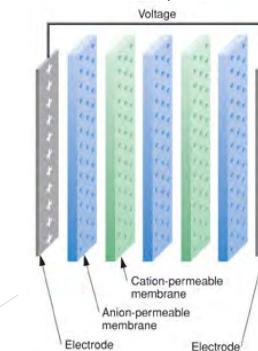
Reverse Osmosis

- Reverse osmosis (RO) is a method of producing pure water by forcing nitrate contaminated water through a semi-permeable membrane across which nitrates cannot pass.
- Make sure you change out the filters according to the manufacturers recommendations!!!



Electrodialysis

- Electrodialysis uses a direct electric current to cause ions to migrate through membranes, trapping the nitrates, etc.



Non-Treatment Option: Blending

- ▶ Blending water with another source to reduce nitrates before point of entry (POE)
- ▶ You must let EPA know right away that you have a new or blended water source. This may require new monitoring requirements



Let's Recap

Make sure to mark samples with the water system ID # and **ALL** sample point(s)

Send results to EPA Region 8 within 10 days of the end of the compliance period **or** 10 days from the receipt of results from lab, whichever is shortest.

Send all results to R8DWU@EPA.GOV. Include in the subject of the email, the water system ID and the contaminant analyzed.

Many labs **DO NOT** automatically send EPA your nitrate results. It is **YOUR** responsibility to make sure EPA gets results.

Let's Recap

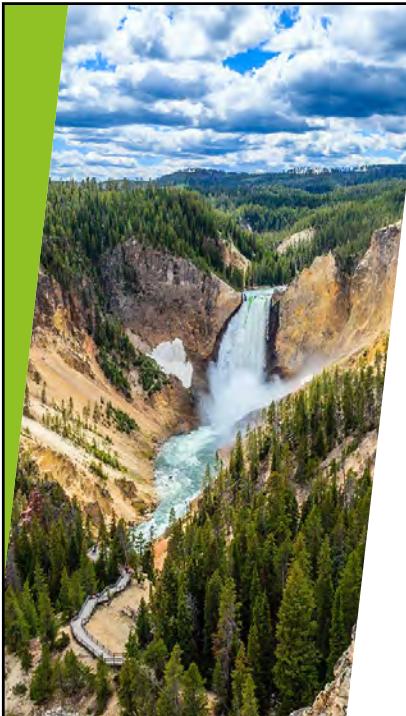
Maintain contaminant levels below MCL

If the MCL is exceeded:

- Call Bailey Smith, Nitrate Rule Manager, IMMEDIATELY, at 303-312-6940
- You will have to take a confirmation sample
- You may be required to provide public notice
- EPA's Enforcement Division may require you to submit a plan and schedule to address the MCL - by installing treatment or obtaining a new water source.

Thank you!

Bailey Smith - she/her
Nitrate & Nitrite Rule Manager
Smith.bailey@epa.gov
303-312-6940



Resources

- ▶ **EPA certified lab list:**
<https://www.epa.gov/region8-waterops/certified-drinking-water-laboratories-systems-wyoming-and-tribal-lands-epa-region-8>
- ▶ **Drinking Water Watch**
<https://sdwisdww.epa.gov/DWWR8WY/>