

Nitrate & Nitrite Rule for Transient Non-Community Water Systems

Kyle St. Clair

Nitrate Rule Manager

Water Security Coordinator

StClair.Kyle@epa.gov

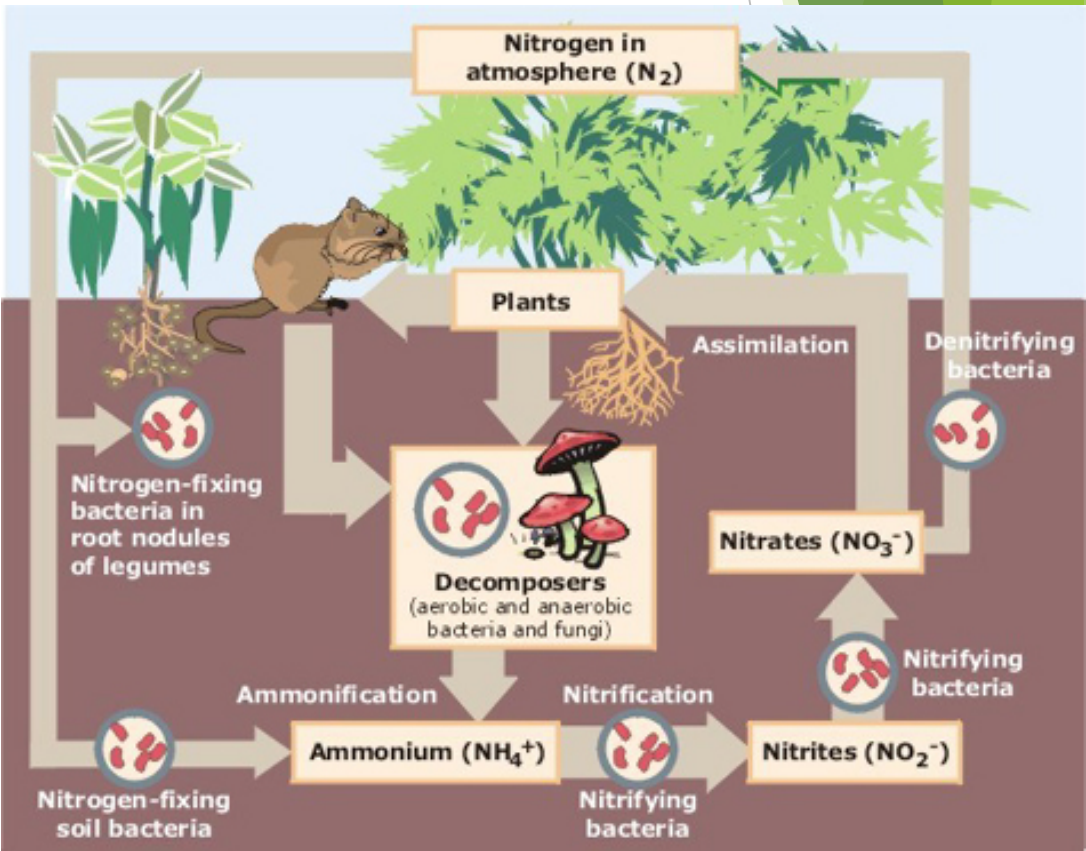
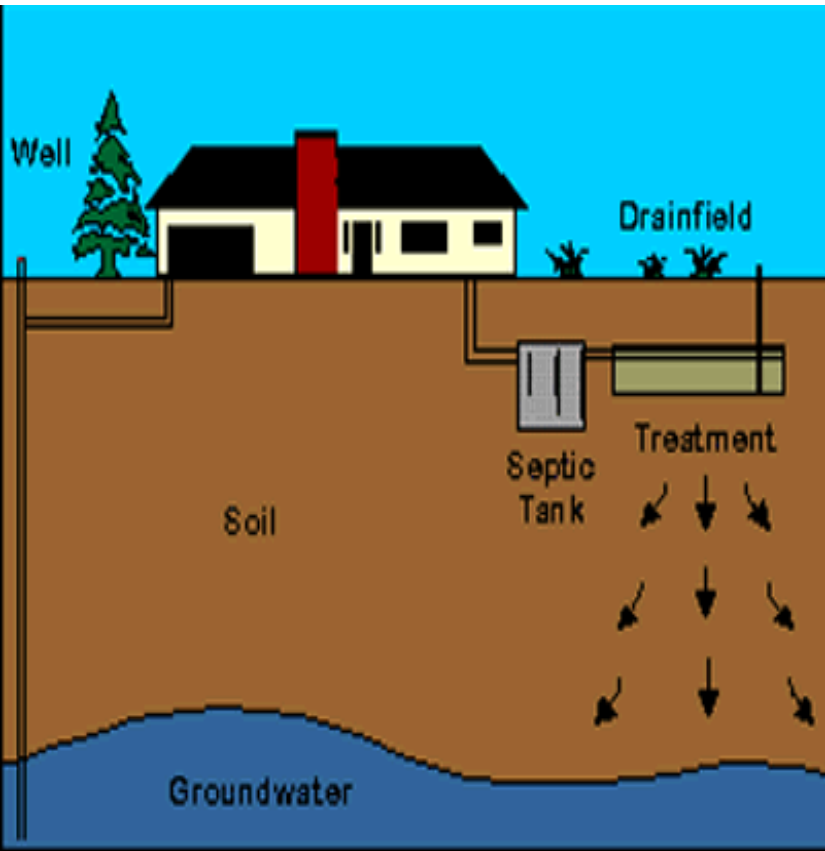
303-312-6791



What are nitrates and nitrites?

Nitrate (NO_3) and Nitrite (NO_2)

Originate from human/animal wastes (septic systems), fertilizers & crop residues



Why Do We Care About Nitrates & Nitrites?

High Levels Can Lead to the Death of Infants

- 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 the safety of 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., Jan 1- December 31, 2019)

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

Total Coliform (TCR)	Take 1 sample each quarter during the year. Take samples throughout the distribution system following your site sampling plan. If you have a positive sample be sure to consult: http://www2.epa.gov/region8-waterops/epa-region-8-drinking-water-unit-tech-tips-follow-unsafe-total-coliform-positive for instructions on further sampling requirements. If you chlorinate or purchase chlorinated water, you must measure chlorine residual at the same place each time you do bacteriological sampling. Write the chlorine residual results on the sampling sheet and ask your laboratory to forward that information to EPA.								
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.								
	<table border="1"><thead><tr><th>FACILITY CODE</th><th>FACILITY DESCRIPTION</th><th>SAMPLE POINT CODE</th><th>SAMPLE POINT DESCRIPTION</th></tr></thead><tbody><tr><td>WL01</td><td>WELL 1</td><td>GWR WL01</td><td>TRIGGERED GWR SOURCE</td></tr></tbody></table>	FACILITY CODE	FACILITY DESCRIPTION	SAMPLE POINT CODE	SAMPLE POINT DESCRIPTION	WL01	WELL 1	GWR WL01	TRIGGERED GWR SOURCE
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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.								
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Monitoring and Reporting Requirements for the Calendar Year 2019

March 19, 2019

PWS Name

PWS ID#: WY560xxxx (NC)

Water System Inventory

Water Source:

Water System Type: NC

Contact:

Address:

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.

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	Kyle St. Clair	303-312-6791
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Monitoring for these contaminants must be within the Distribution System:

Revised Total Coliform Rule	RTCR	Jamie Harris	303-312-6072
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The following rules may apply:

Surface Water Treatment Rules	SWTR	Jake Crosby	303-312-6389
Ground Water Rule	GWR	Matt Langenfeld	303-312-6284

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 at:

<https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-laboratories>

Please send sample results to our office using one of the methods listed below.
Include your PWS name and PWS ID# on all correspondence.

Mail: US-EPA Region 8

Email: R8DWU@epa.gov

1595 Wynkoop St.

Fax: 1-(877) 876-9101

Denver, CO 80202-1129

Mail Code 8WP-SD

[Additional information on the first page of this document:](#)

[Public Water System \(PWS\) information](#)

[Rule Managers Contact Information](#)

[How to submit lab results to Region 8 EPA Drinking Water Program](#)

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.

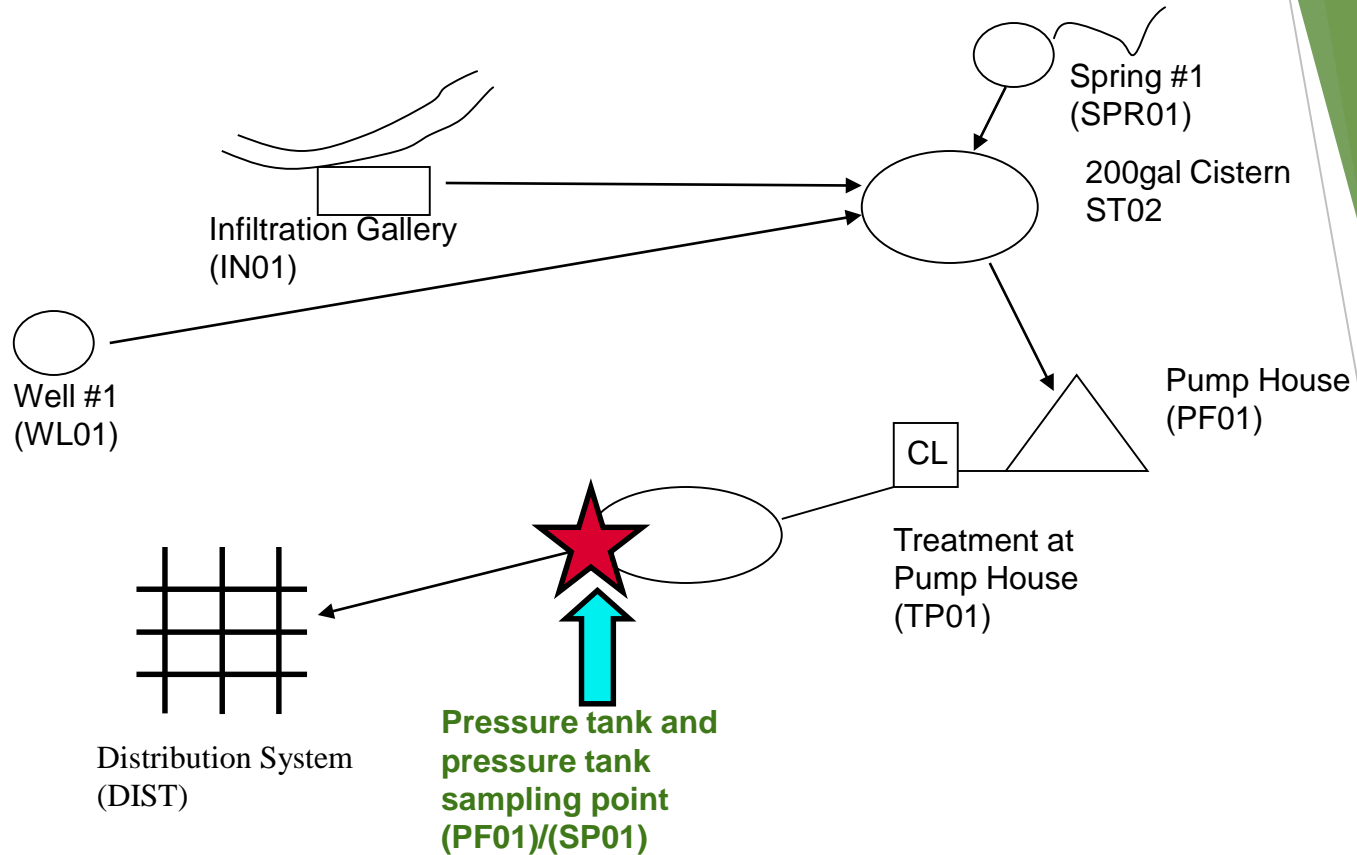
What You Need To Do #3:

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).

Public Water System

PWS ID # WY560XXXX



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: _____

Schematic not to scale

Total Coliform (TCR)

Take 1 sample each quarter during the year.
Take samples throughout the distribution system following your site sampling plan.

If you have a positive sample be sure to consult: <http://www2.epa.gov/region8-waterops/epa-region-8-drinking-water-unit-tech-tips-follow-unsafetotal-coliform-positive> for instructions on further sampling requirements.

If you chlorinate or purchase chlorinated water, you must measure chlorine residual at the same place each time you do bacteriological sampling. Write the chlorine residual results on the sampling sheet and ask your laboratory to forward that information to EPA.

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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.

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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 & Analytical Request Record

Account Information (Billing Information)

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	
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

Report Information (if different than Account Information)

Company Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	<input type="checkbox"/> Hard Copy <input type="checkbox"/> Email

Comments

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

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 - Solids/Solids
- V - Vegetation
- B - Bios assay
- O - Other
- DW - Drinking Water

Analysis Requested

Nitrate	Analysis Requested										See Attached
✓											

All turnaround times are standard unless marked as RUSH.

Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling - See Instructions Page

Sample Identification (Name, Location, Interval, etc.)	Collection		Number of Containers	Matrix (See Codes Above)	Nitrate	Analysis Requested										See Attached	RUSH TAT	LAB ID Laboratory Use Only
	Date	Time																
1 SP01 - Pressure Tank Sampling Point	4/2/19	11:30 am	1	DW	✓													
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature			
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time	Signature			
LABORATORY USE ONLY									
Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check	Amount \$	Receipt Number (cash/check only)

What You Need To Do #5:

Send water samples to the certified laboratory



NOT EPA! (EPA wants the results)

Holding time & Preservation Requirements

Nitrate + Nitrite (i.e. Total Nitrate)

28 days from sample collection

lab must provide H_2SO_4 preservative with sample container

Nitrate alone & unpreserved

48 hrs from sample collection

If the sample is chlorinated and at 4C, 14 days

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 us!!!

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

<https://sdwizr8.epa.gov/Region8DWWPUB/default.jsp>

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

Start Month	Start Day	End Month	End Day	Population Type	Population Served
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Service Connections

Type	Count	Meter Type	Meter Size
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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!
 - Kyle St. Clair - 303-312-6791
- The following slides will help walk you through what happens with the respective results for nitrites and nitrates.

Nitrate & Nitrite Sample Results

Exceeding the MCLs

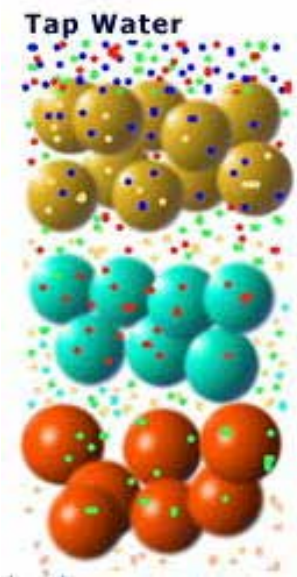
- 1) Call EPA IMMEDIATELY!!!
- 2) Take a confirmation sample w/in 24 hrs of notification. Compliance determination is based on the average of the results of the initial and confirmation samples
- 3) If you are unable to take a confirmation sample w/in 24 hours, you must post Tier 1 Public Notice and take confirmation sample within 2 weeks
- 4) Bottled water will need to be provided as boiling water actually increases the concentration!!!
- 5) Then you will be put on quarterly sampling



Best Available Technology (BAT)

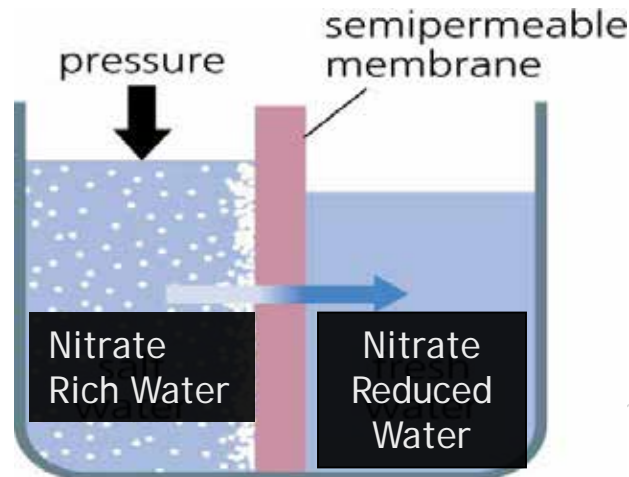
Ion Exchange Reverse Osmosis Electrodialysis

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

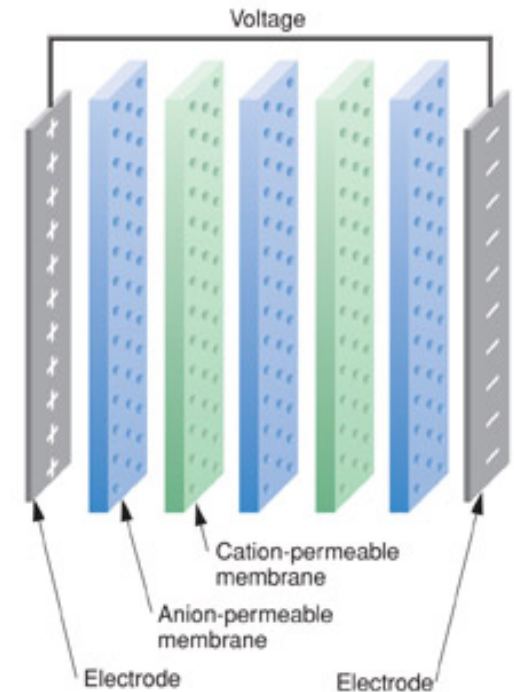


- u Reverse osmosis (RO) is a method of producing pure water by forcing nitrate contaminated water through a semi-permeable membrane across which nitrates cannot pass.

- u Make sure you change out the filters according to the manufacturers recommendations!!!



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



Non-Treatment Option

Blending

- u Blending water with another source to reduce nitrates before point of entry (POE)
- u 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

- u Make sure to mark samples with PWS ID # and **ALL** sample point(s)
- u **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 result to R8DWU@EPA.GOV. Include in subject of email, the water system ID and the contaminant analyzed.

- u Many labs **DO NOT** automatically send EPA your nitrate results. It is **YOUR** responsibility

Let's Recap

- u Maintain contaminant level below MCL

- u If the MCL is exceeded-
 - * Call Kyle St. Clair, Nitrate Rule Manager at 303-312-6791 IMMEDIATELY
 - * You will have to take a confirmation sample
 - * You may be required to provide public notice
 - * EPA's enforcement program may require you to submit a plan and schedule to address the MCL – by installing treatment or obtaining a new water source.