Nevada Integrated SourceWater Protection Program

https://ndep.nv.gov/water/source-water-protection

NDEP

Bureau of Safe Drinking Water
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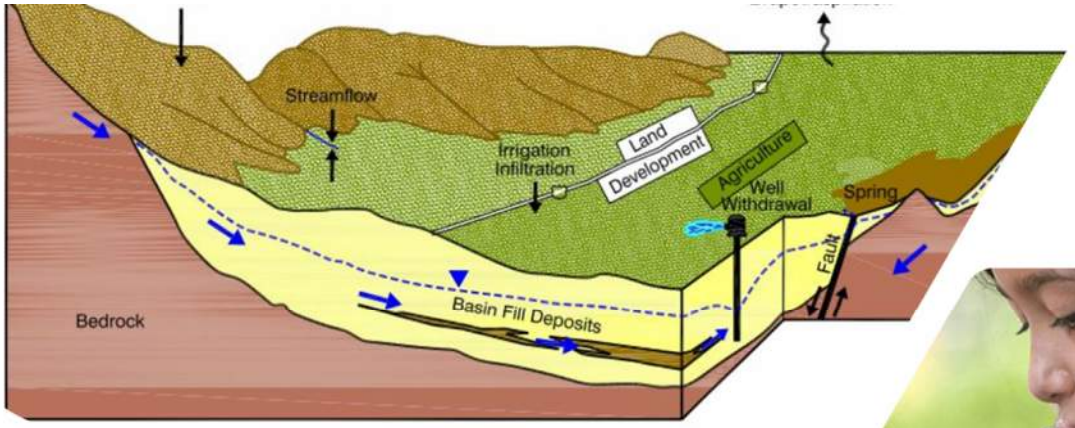
Contractor for the Nevada Integrated Source Water Protection Program



What is the Integrated Source Water Protection Program?

ISWPP is ***voluntary*** approach…

to empower communities to develop and implement a local plan to protect their sources of drinking water

Communities working together to protect drinking water from source to tap

Nevada defines source water as the ground or surface water that provides drinking water for a public water system.

Program Overview

Groundwater Quality

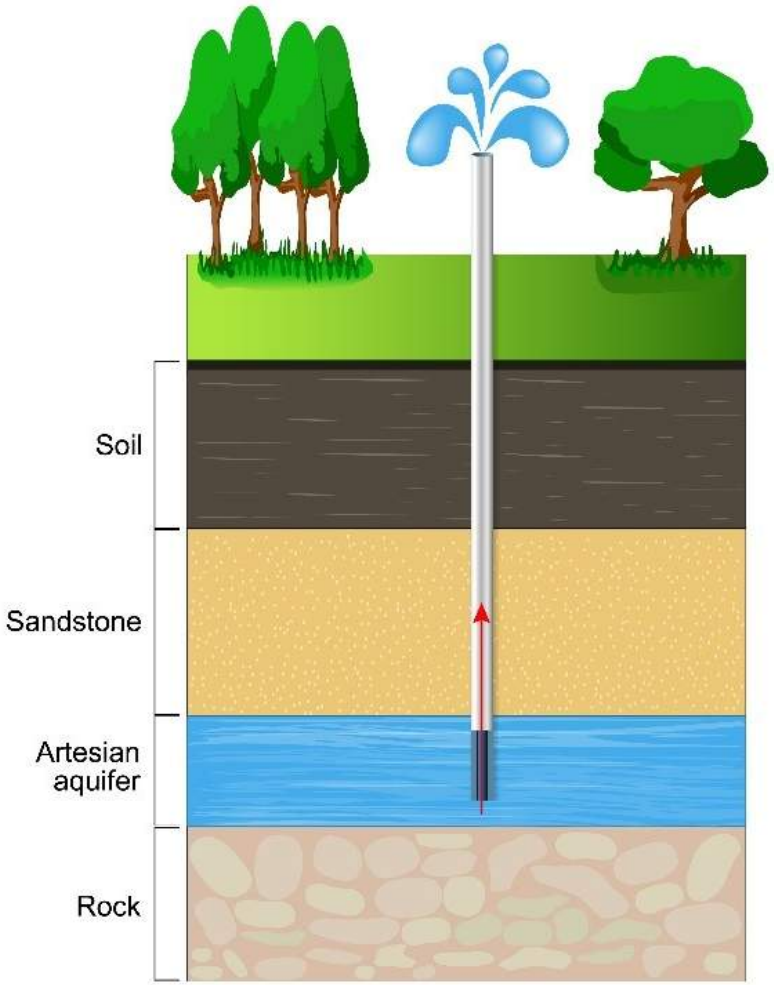
Surface Water Quality

NOT Water Quantity

NON-Regulatory

Developing a Community Plan….

Develop a local Planning Team



Developing a Community Plan….

Develop a local Planning Team

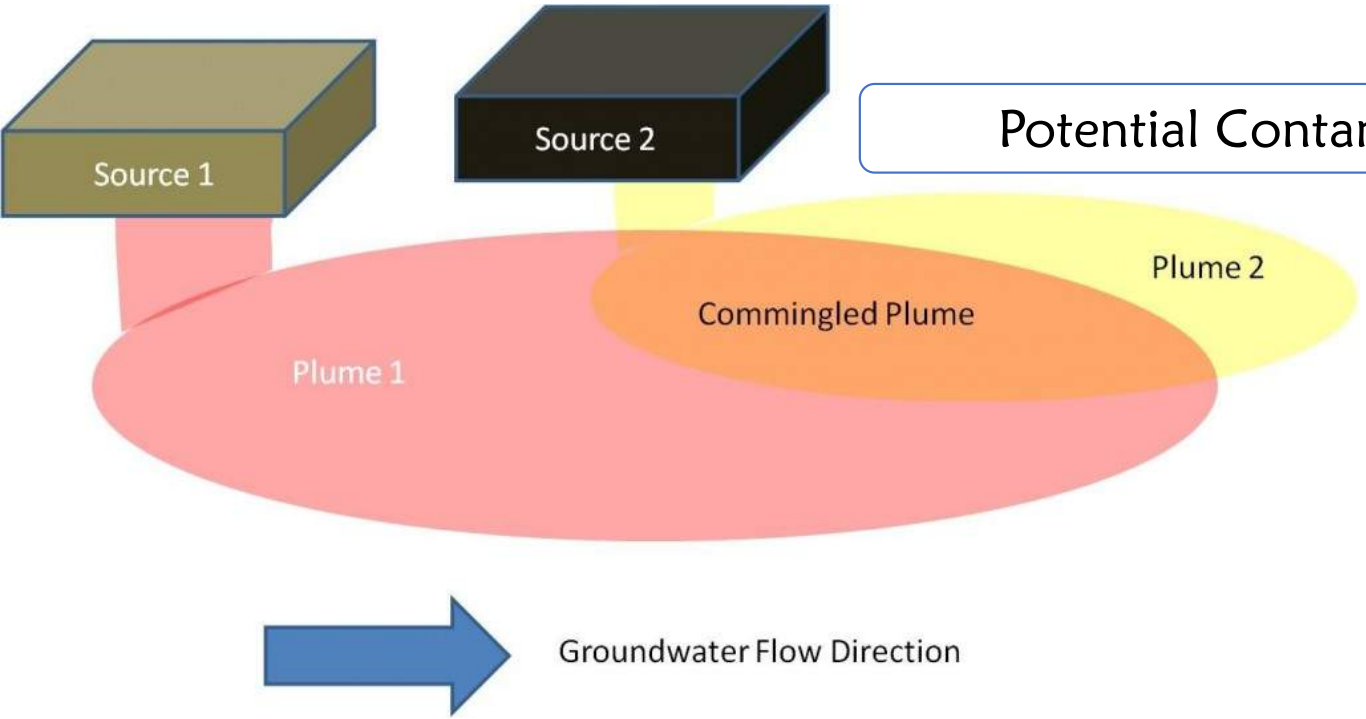
Drinking Water Source Inventory

Developing a Community Plan….

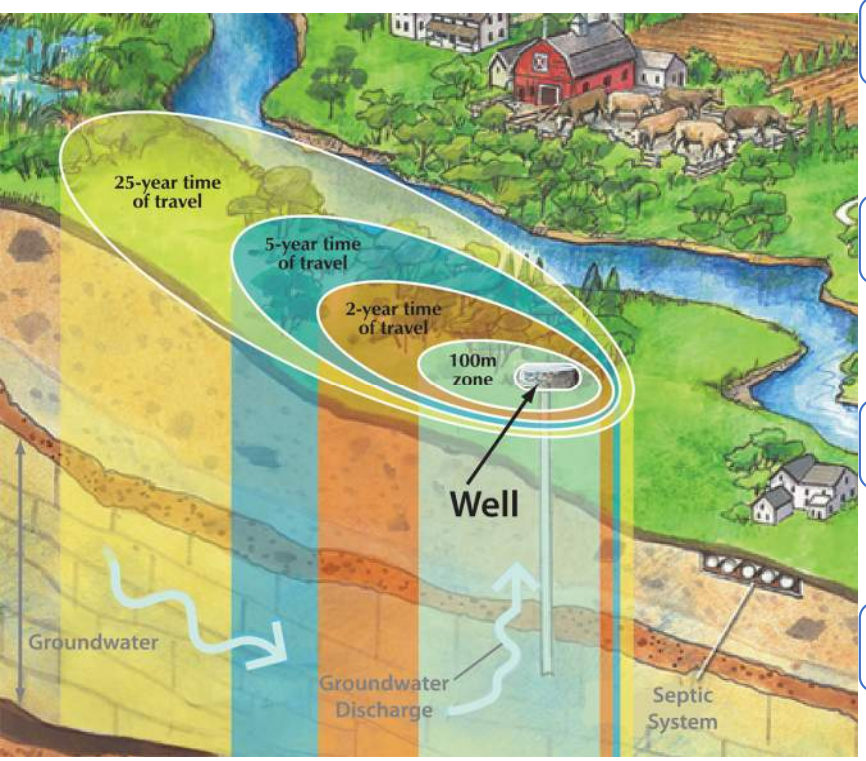
Develop a local Planning Team

Drinking Water Source Inventory

Potential Contaminant Source Inventory



Developing a Community Plan….



Develop a local Planning Team

↓

Drinking Water Source Inventory

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Potential Contaminant Source Inventory

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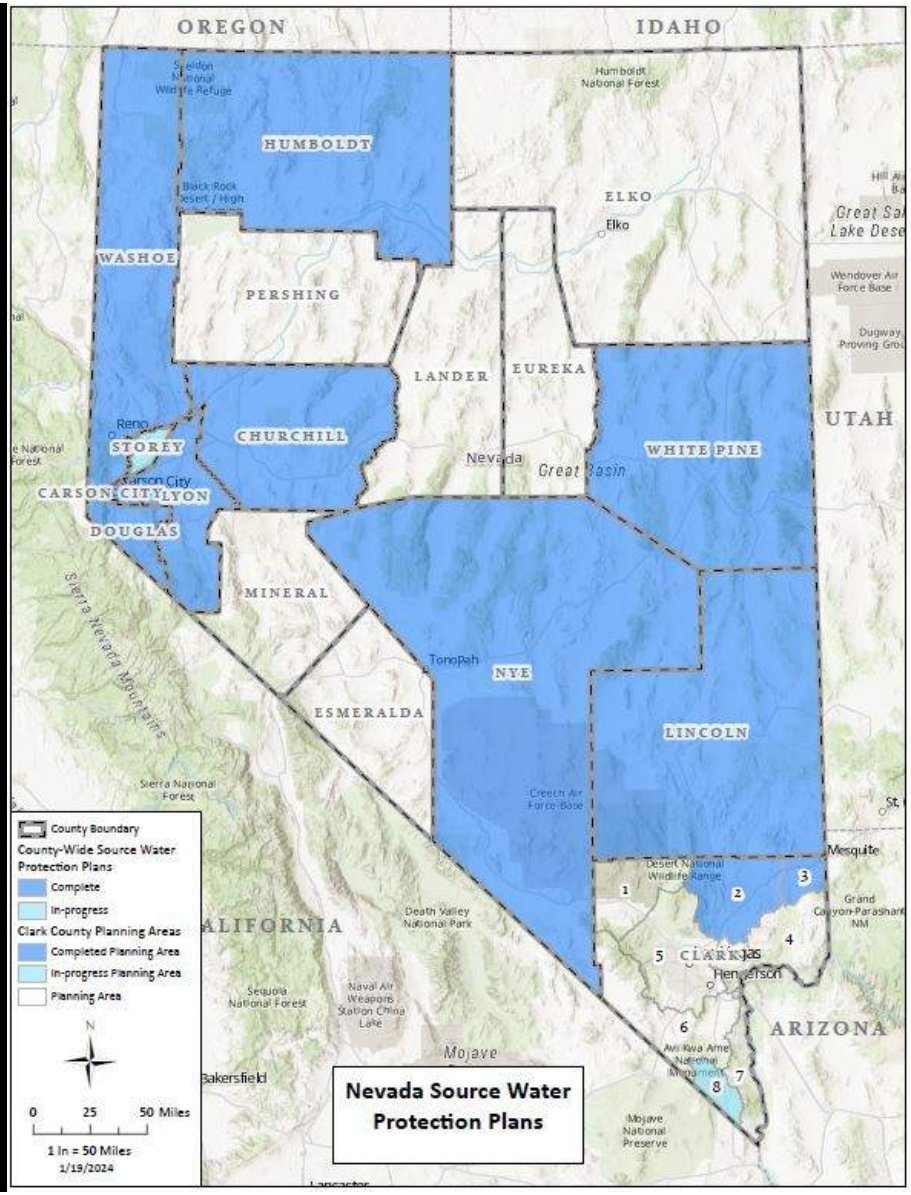
Source Water Protection Areas

Developing a Community Plan….

- Develop a local Planning Team
- Drinking Water Source Inventory
- Potential Contaminant Source Inventory
- Source Water Protection Areas
- Community-Driven Strategies, Action Plan, and Education to Protect Drinking Water Sources

County and City Participation to Date

- Clark County: Planning Area 8 (Expected Completion 2024)
- Storey County (Expected Completion June 2024)
- Lincoln County 2024
- Clark County: Planning Area 3, Mesquite/Bunkerville 2023
- Carson City County 2015 (Updated 2023)
- Humboldt County 2016 (Updated 2023)
- Washoe County 2021
- Clark County: Planning Area 2, Moapa/Overton 2021
- Churchill County 2016
- Lyon County 2014
- Nye County 2013
- White Pine County 2012
- Douglas County 2012



CSWP Plan Implementation and State-wide community support

Education & Outreach

- Why is Source Water Protection Important?
- Why is Source Water Protection Important to an Engineer?
- What are the Potential Contaminant Sources to our Drinking Water Supplies?
- How the ISWPP can assist with your treatment technologies and plans.

Why is Integrated Source Water Protection Important?

- Less **effort** and **money** is spent to protect drinking water supplies than to clean them once contamination has occurred.

- Avoiding water supply contamination up front reduces:

    - Associated health issues
    - High costs of water treatment
    - New source development

Why is Integrated Source Water Protection Important?

Agro-Chemical Company buys water for residents after contaminating the aquifer

Why is Integrated Source Water Protection Important to an Engineer?

Alternative 2: Enhanced Bioremediation for In Situ
Estimated First-Year Cost: $600,000
Estimated Annual Cost: $450,000
Estimated Present Worth: $3,100,000to $5,300,000
Estimated Time to Completion: 10+ years

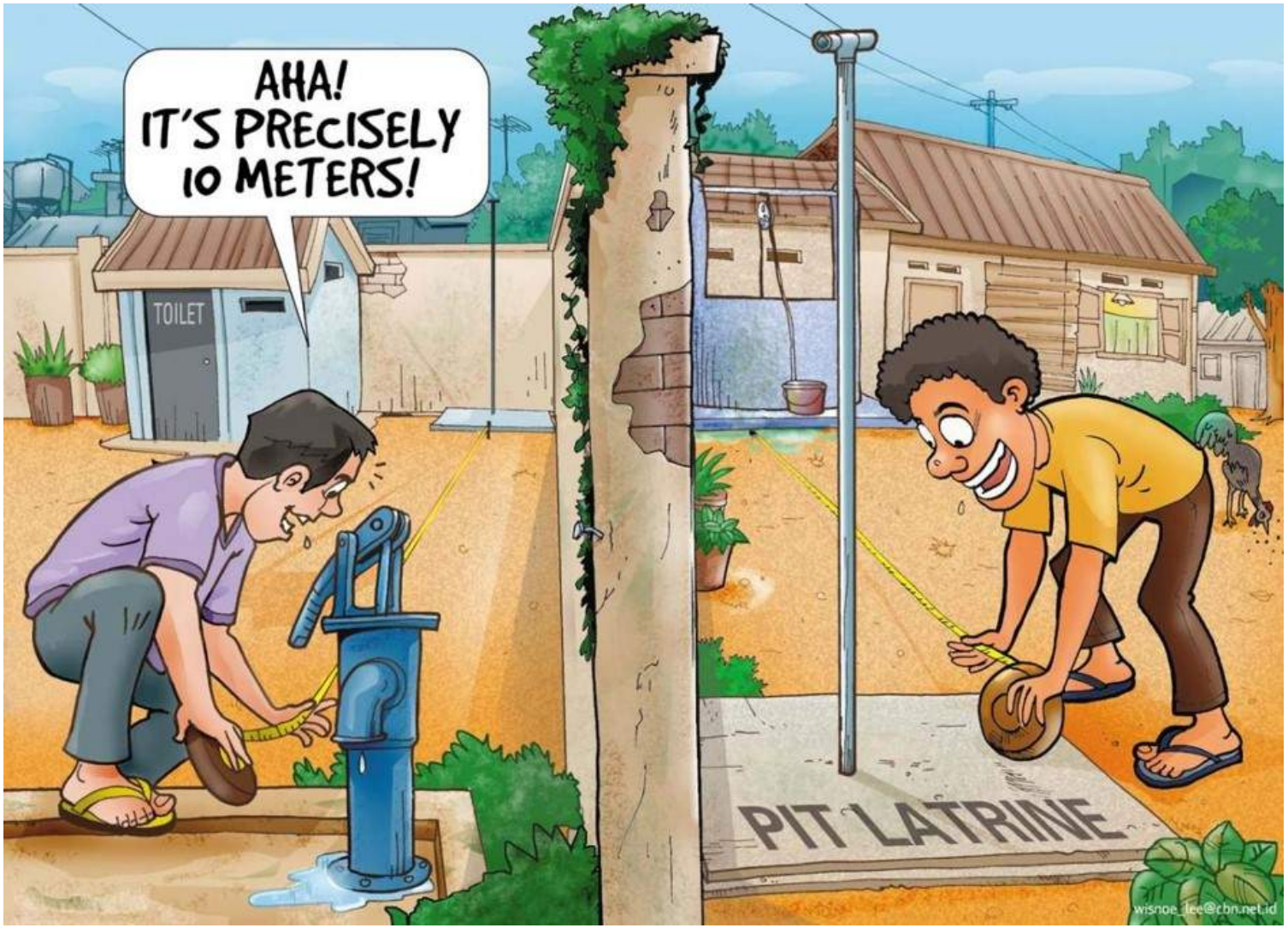
Alternative 3: Permeable Reactive Barrier (PRB)
Estimated First-Year Cost: $1,500,000
Estimated Annual Cost: $600,000
Estimated Present Worth: $4,600,000 to $7,600,000
Estimated Time to Completion: 10+ years

Alternative 4: In Situ Chemical Oxidation (ISCO)
Estimated First-Year Cost: $1,100,000
Estimated Annual Cost: $700,000
Estimated Present Worth: $5,800,000 to $8,700,000
Estimated Time to Completion: 10+ years

- **The Cost of a PCE Plume in Clark County – ONE Facility**
  - Discovery in 2000
  - 2001-2004 Site Investigation
  - 2005-2008 Monitoring
  - 2009-2012 Litigation
  - 2013-2014 Remediation Design Begins

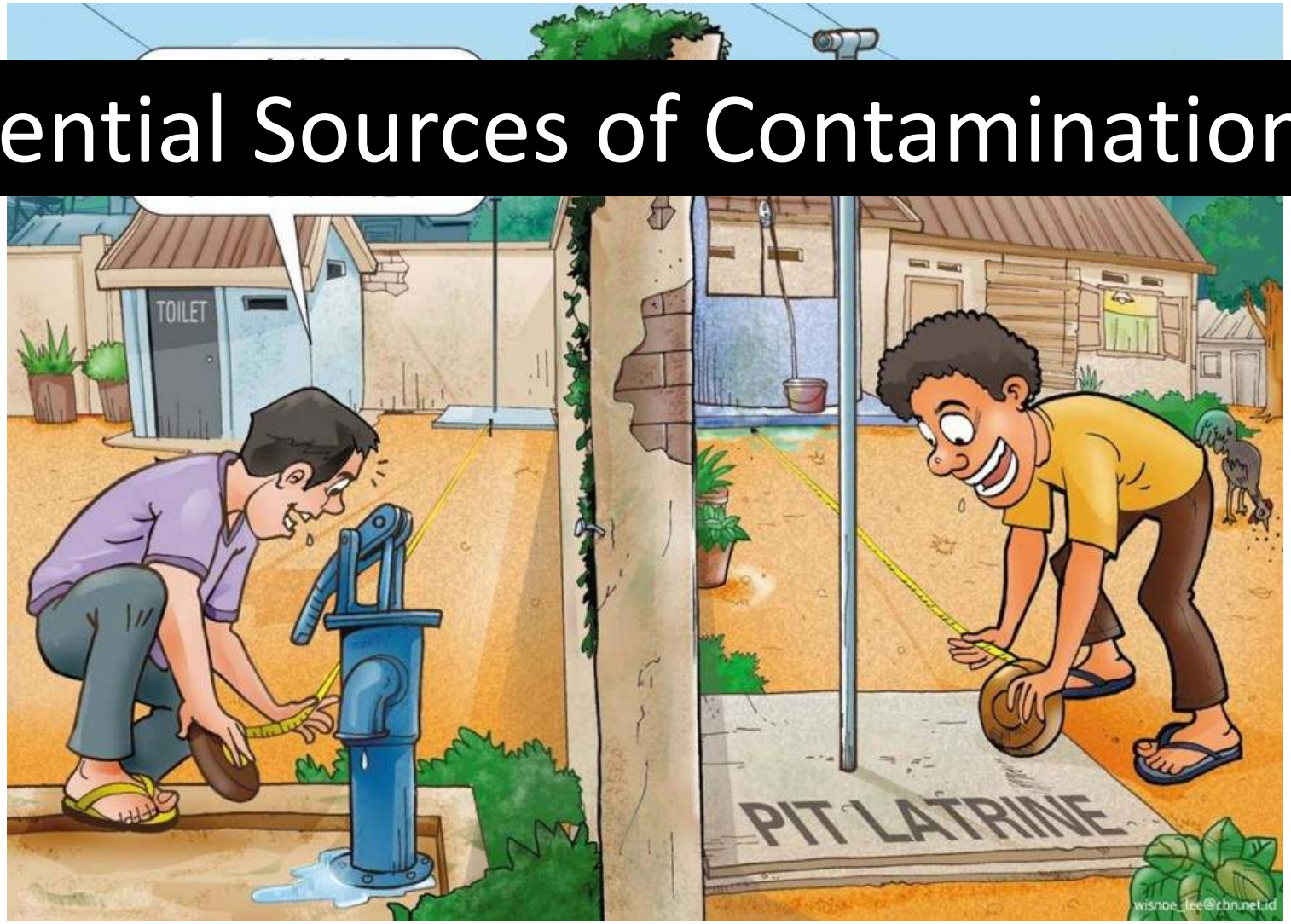
*An ounce of prevention is worth a pound of cure.

Why is Integrated Source Water Protection Important to an Engineer?



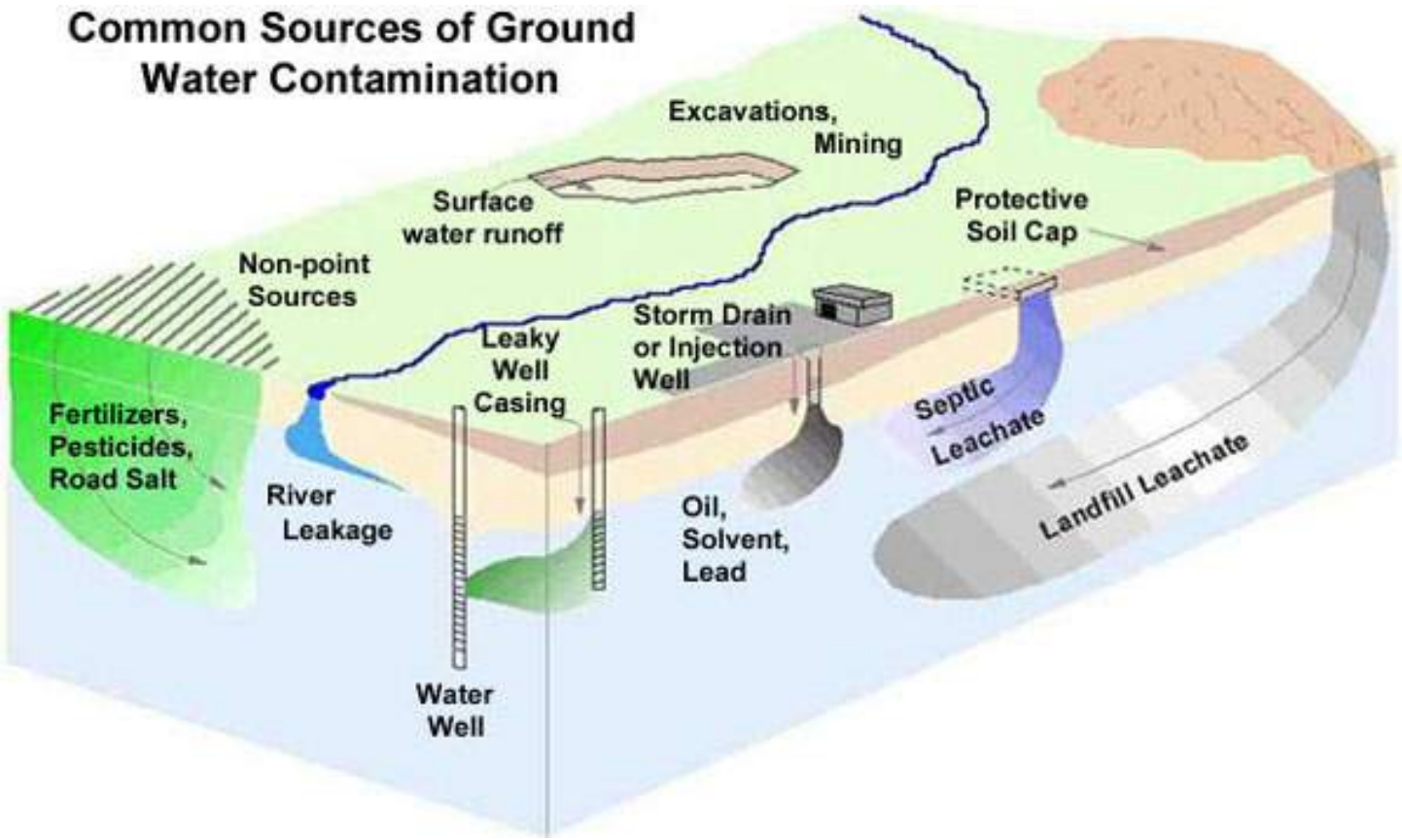
Why is Integrated Source Water Protection Important to an Engineer?

Potential Sources of Contamination



What are Potential Sources of Contamination??

Current and prospective activities that have the potential to release contaminants to the environment



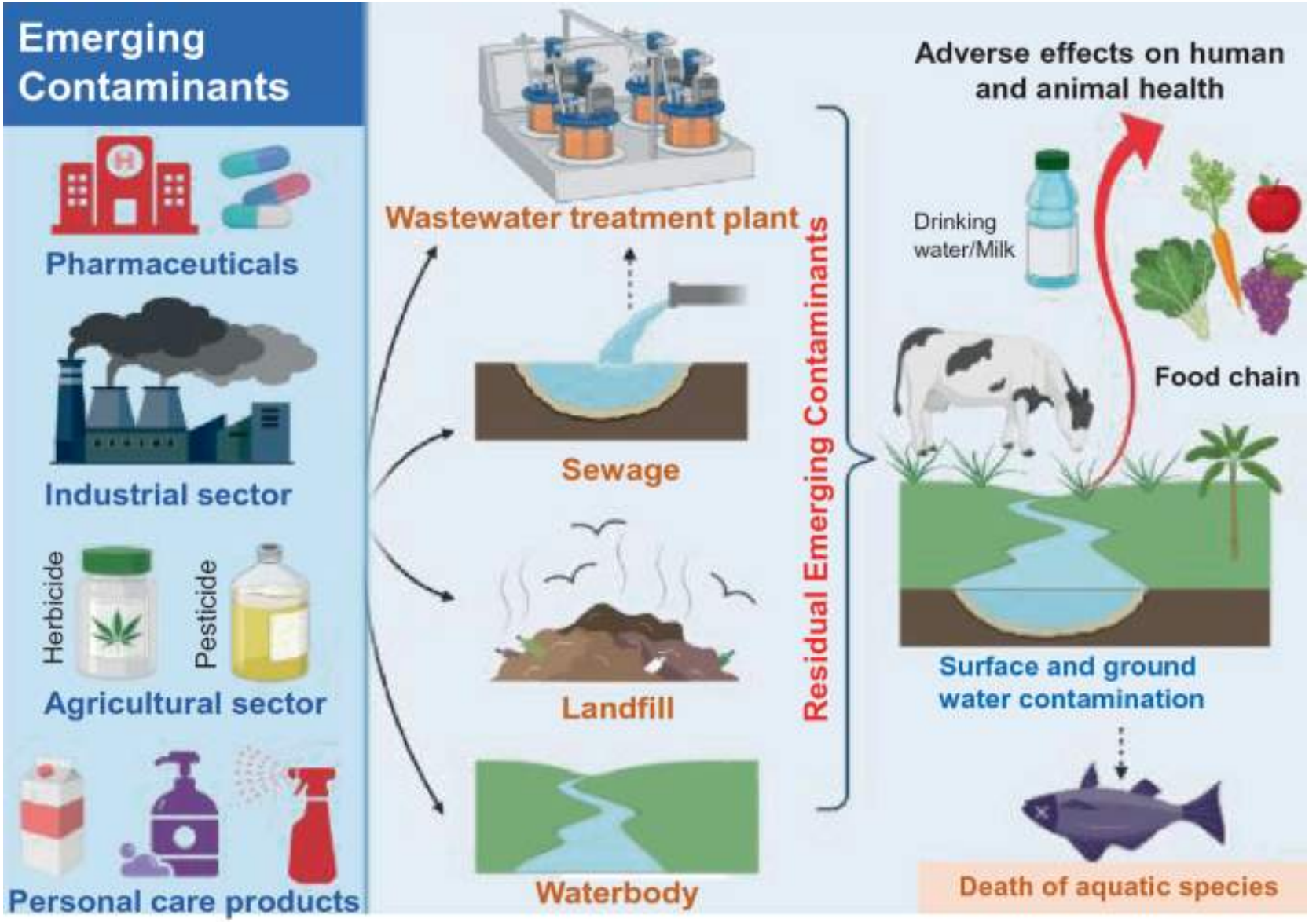
- Hazardous Material
- Storage Handling
- Disposal
- Vandalism

- Controls:
  - ❖Potential for release?
  - ❖Risk to drinking water?
  - ❖Communication?

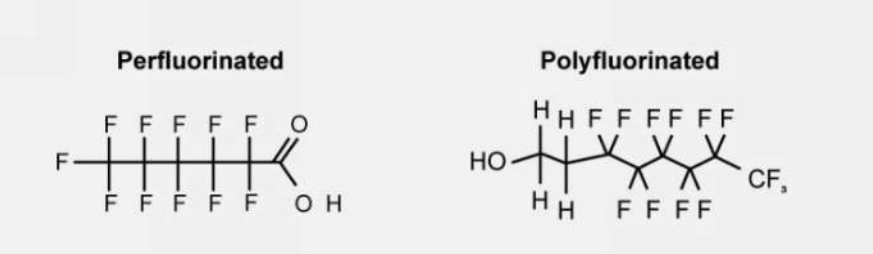
EPA Definition:

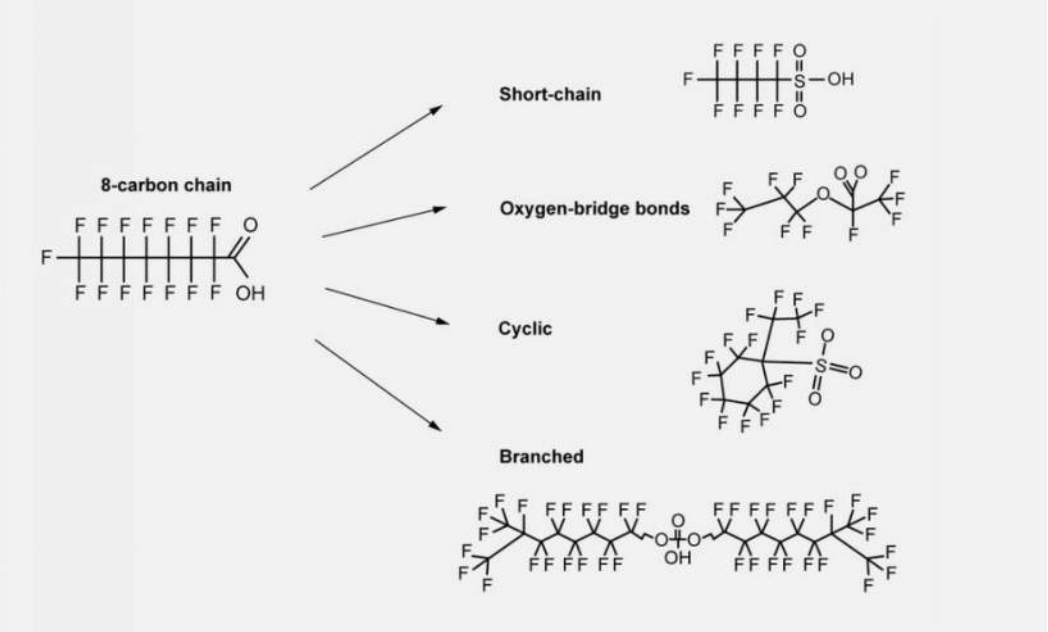
“A chemical or material characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards.”

“May be emerging because of the discovery of a new source or a new pathway to humans.”



What are Potential Sources of Contamination??





PFAS: Per- & Polyfluoroalkyl Substances (~4700)

A group of persistent organic substances that all consist of a carbon chain in which hydrogen atoms are entirely or partly replaced by fluorine atoms.

SOME PRODUCTS THAT CONTAIN PFAS

PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES

ELECTRONICS

NON-STICK COOKWARE

MICROWAVE POPCORN BAGS

FAST FOOD WRAPPERS

PAINTS, SEALANTS AND VARNISHES

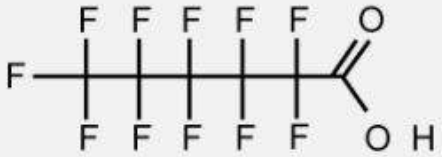
WATER RESISTANT CLOTHING

NAIL POLISH

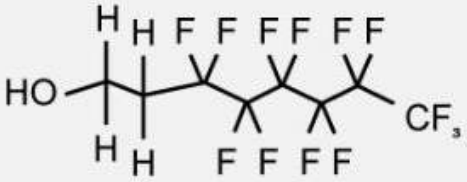
SHAMPOO AND PERSONAL CARE ITEMS

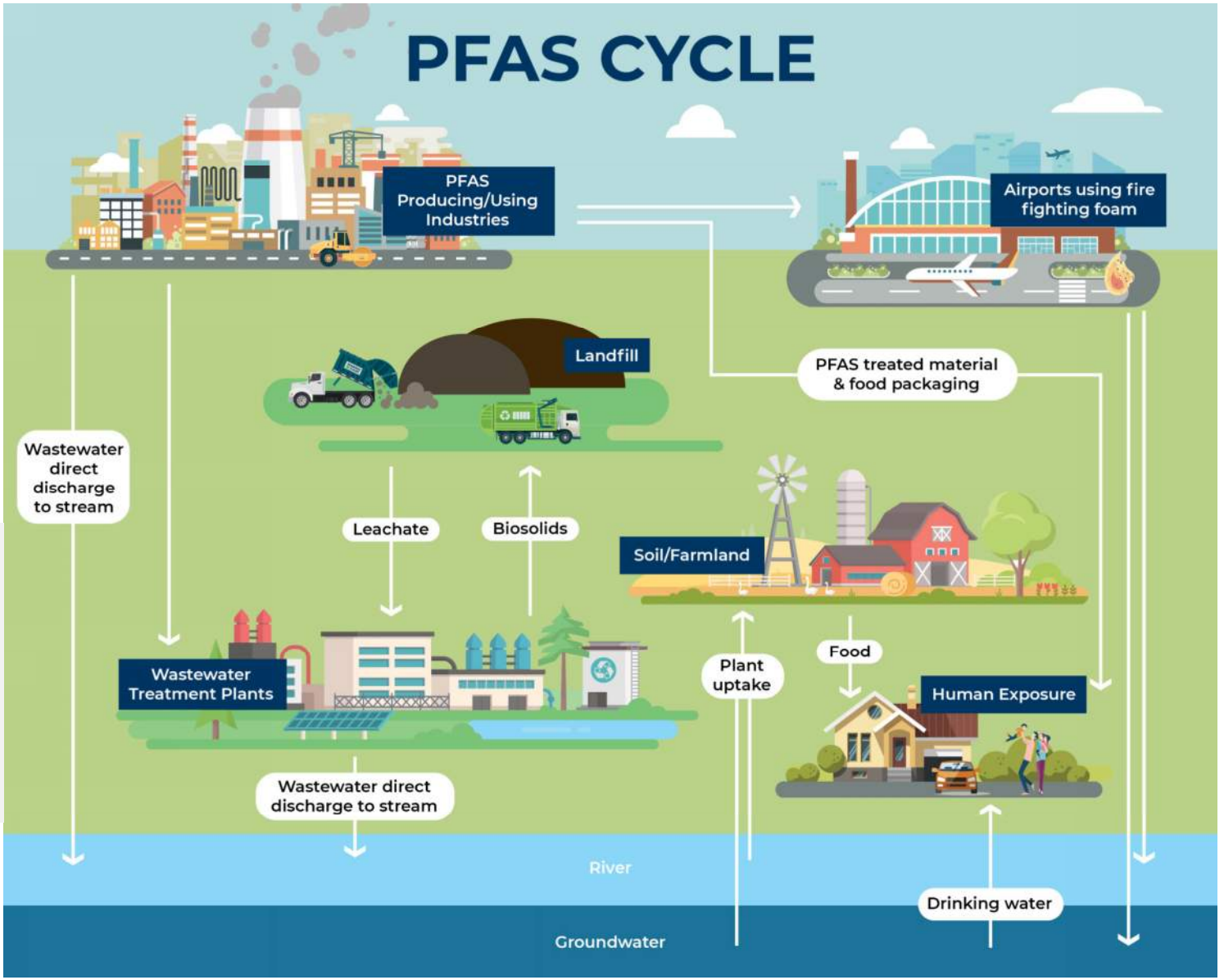
What are Potential Sources of Contamination??

Perfluorinated



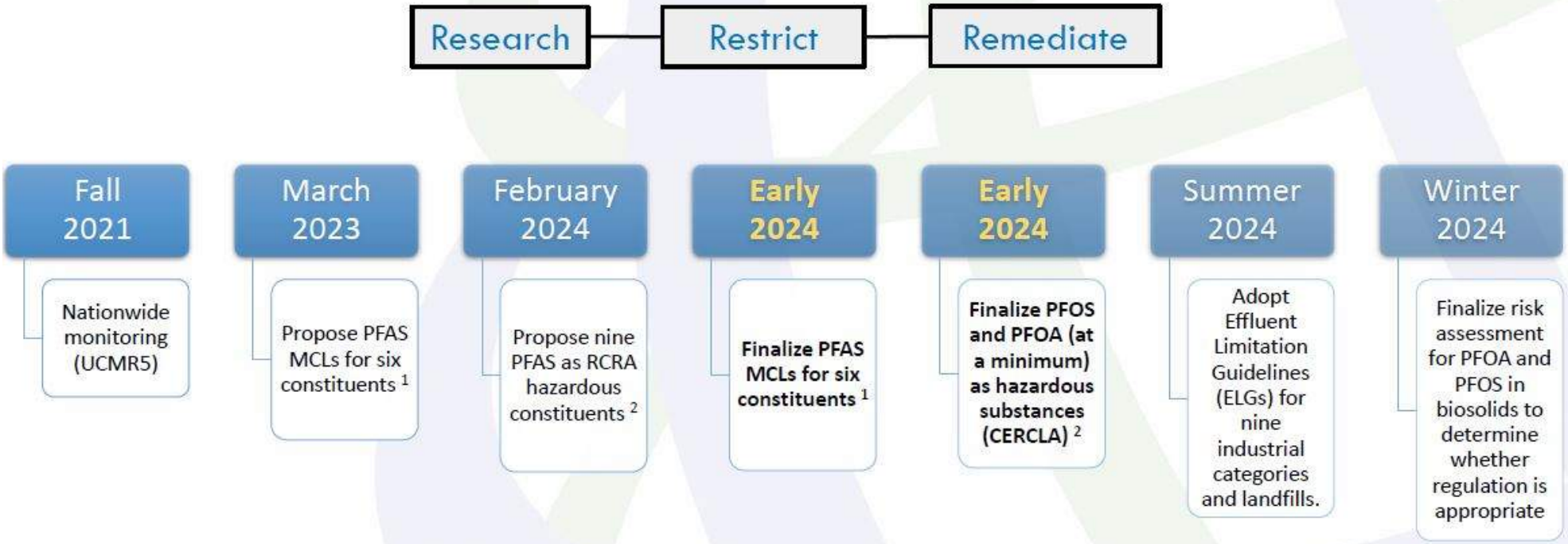
Polyfluorinated





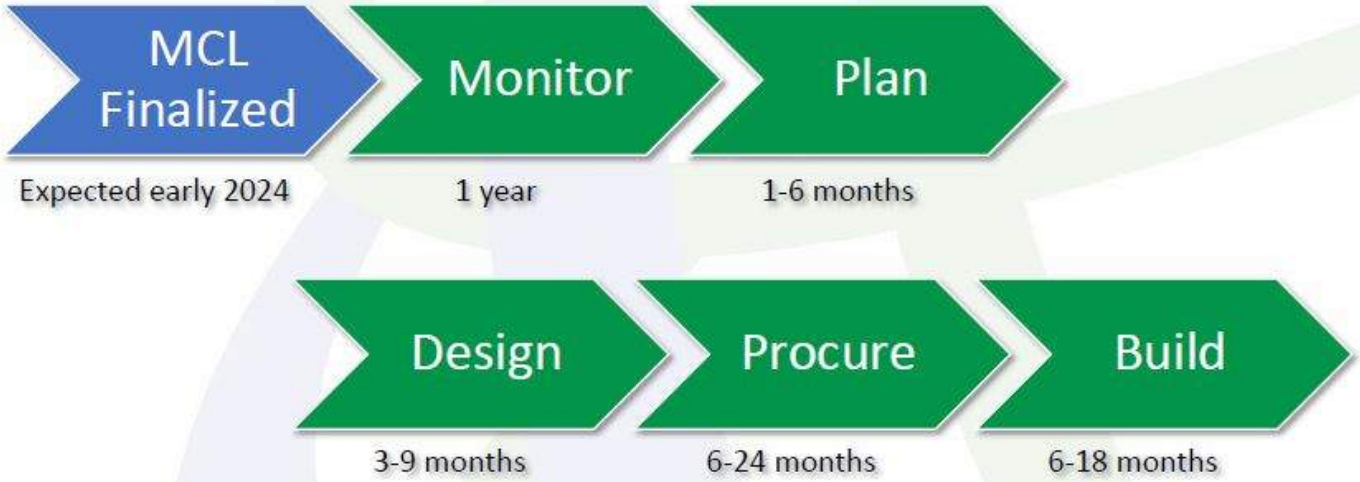
EPA PFAS Strategic Roadmap
Key Actions

EEC ENVIRONMENTAL



[1] PFOA, PFOS, PFNA, PFHxS, PFBS, HFPO-DA (GenX)
[2] PFOA, PFOS, PFBS, PFHxS, PFNA, GenX, PFBA, PFHxA, PFDA & precursors

Compliance Timeline



- 3 years to comply with MCL, additional extension(s) possible
- Equipment lead time up to 24 months (vessels, electrical)
- Continue to make notification if > MCL

UCMR 5

ARE YOU PREPARED?

BABCOCK Laboratories, Inc.

What ?

30 Contaminants

29 Per- and Polyfluoroalkyl Substances (PFAS) included in EPA approved drinking water Methods 533 (25 PFAS) and 537.1 (4 PFAS).

One Metal/Pharmaceutical, Lithium (Li), included in EPA approved drinking water Methods 200.7 or SM 3120 B.

Who?

Large Public Water Systems

PWSs serving 10,000 or more people will be required to sample.

Medium Public Water Systems

New! PWSs serving 3,300 to 10,000 people will be required to sample.

Small Public Water Systems

Representative number of PWSs serving fewer than 3,300 will also need to sample.

Who else?

When?

Sample Data Collection 2023-2025

The EPA plans to finalize UCMR 5 regulations required under the Safe Drinking Water Act by the end of 2021. Monitoring will begin in 2023 and take place at the PWS drinking water entry points.

Why?

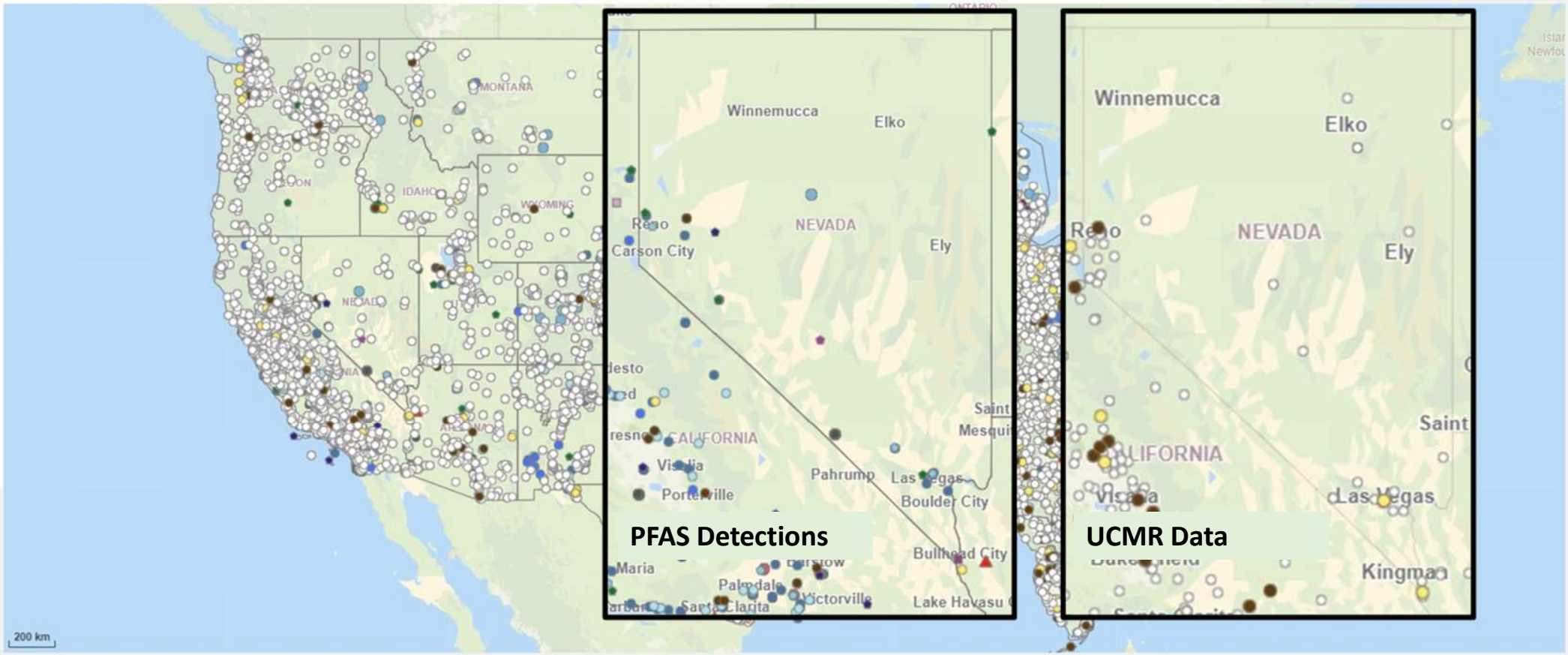
AWIA & NDAA Amendments

The America's Water Infrastructure Act (2018) and the National Defense Authorization Act (2020) altered the scope of UCMR 5 to include more PWSs and focus on PFAS.

Drinking Water with PFAS > Proposed MCLs

EEC ENVIRONMENTAL

Legend and Layers



Source: PFAS Analytic Tools

Drinking Water with PFAS > Proposed MCLs

As of January 2024

	0-10,000 customers Small PWS	10,000+ customers Large PWS
Number of PWS Sampled	1,950	1,851
PFOA > Proposed MCLs	152 (7.9%)	277 (15.4%)
PFOS > Proposed MCLs	185 (9.6%)	292 (16.3%)
GenX > Proposed MCLs	0	1
Exceedance Percentage	**11.9%**	**19.9%**

1 in 5 Large PWS & **1 in 10** Small PWS nationally currently exceed proposed PFAS MCLs

or

15.8% of all PWS nationally currently exceed proposed PFAS MCLs

https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule-data-finder

UCMR 5 Nevada Results as of January/February 2024

https://ndep.nv.gov/water/pfas-in-nevada

Abbreviated Data Summary - Represents a portion of the total data EPA expects to receive over the next three years. Data is released quarterly through 2026.

UCMR 5 Compounds	Tested	Detections ≥ Reporting Limit	Percentage (%) ≥ Reporting Limit
Public Water Systems	32	8	25%
Waste Water Treatment Plants	15	14	93%
Surface Water	43	18	42%

**To analyze for all 30 contaminants, UCMR 5 requires three EPA validated test methods. Both EPA Test Methods 537.1 and 533 are required to analyze for the 29 PFAS compounds. EPA Test Method 200.7 is required to analyze for lithium.

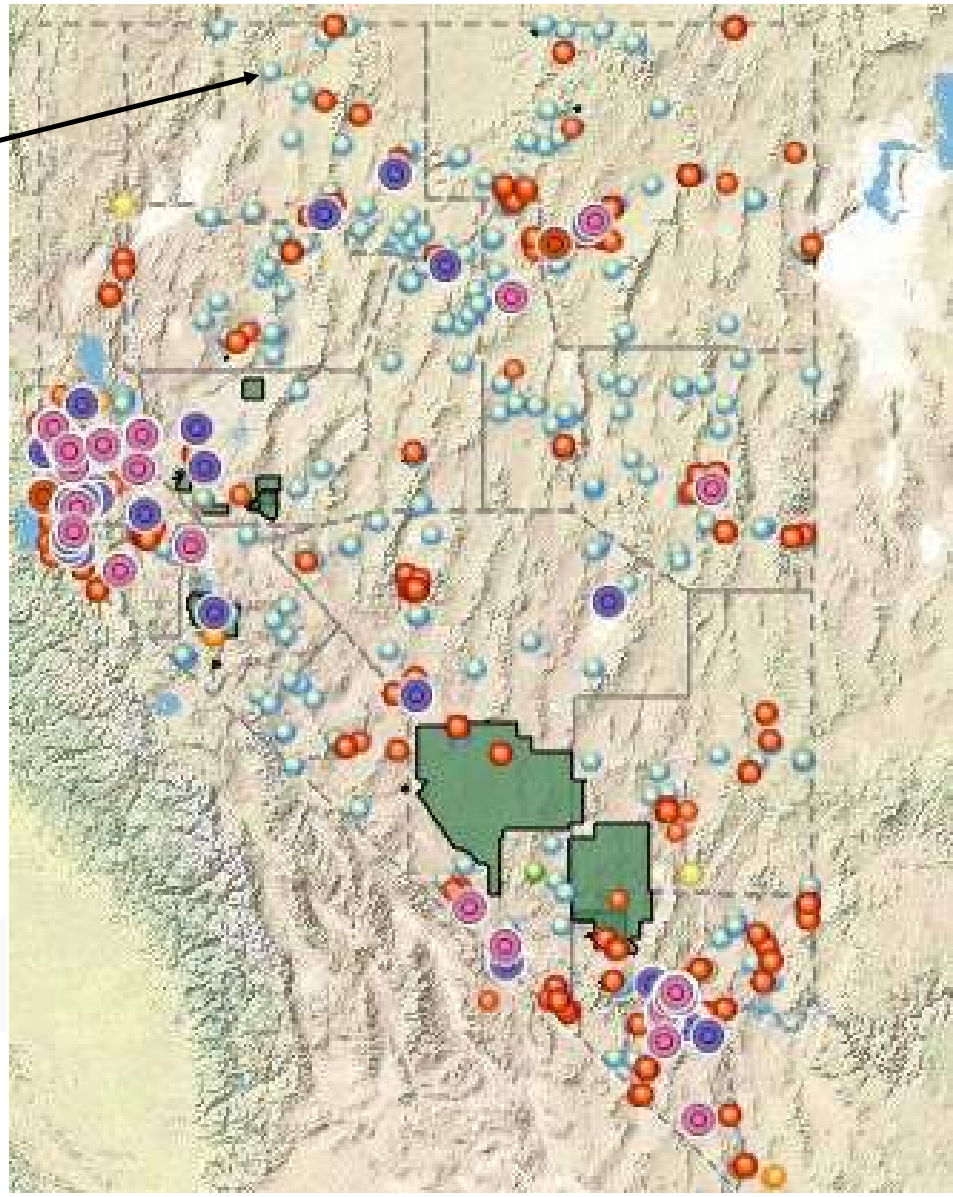
https://www.epa.gov/pfas/epa-pfas-drinking-water-laboratory-methods

NDEP's Potential PFAS Layer

- Construction
- Fire and Fire Admin
- Manufacturing
- Waste Management & Remediation
- WWTP Outfalls
- POTW Outfalls, Air Permits
- Biosolids Sites
- Hazardous Waste Treatment, Storage, Disposal
- LQG
- SQG, VSQG, Firefighting Training

Landfills, Mines

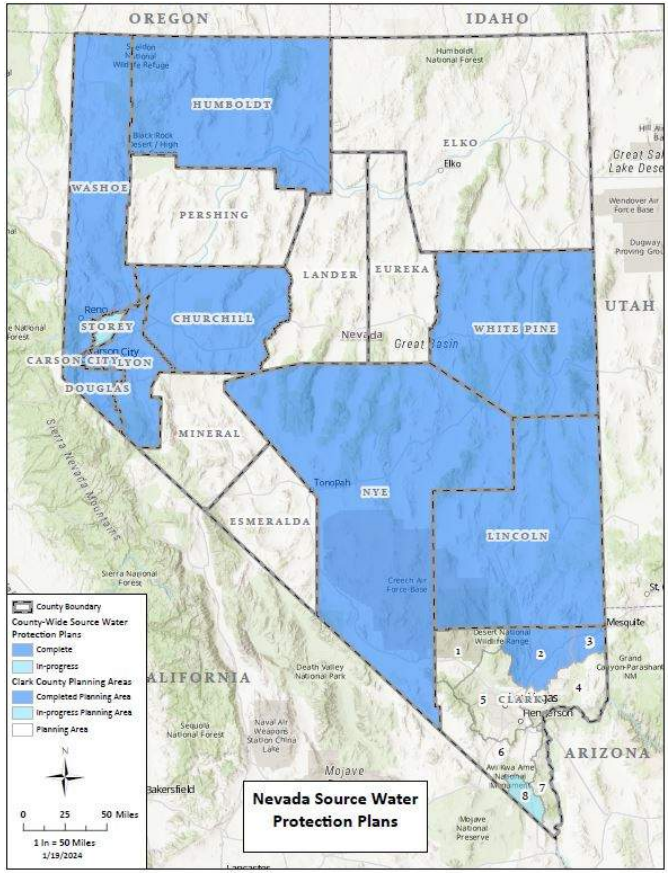
- Civilian Airports
- DoD Land
- Nevada Ski Resorts

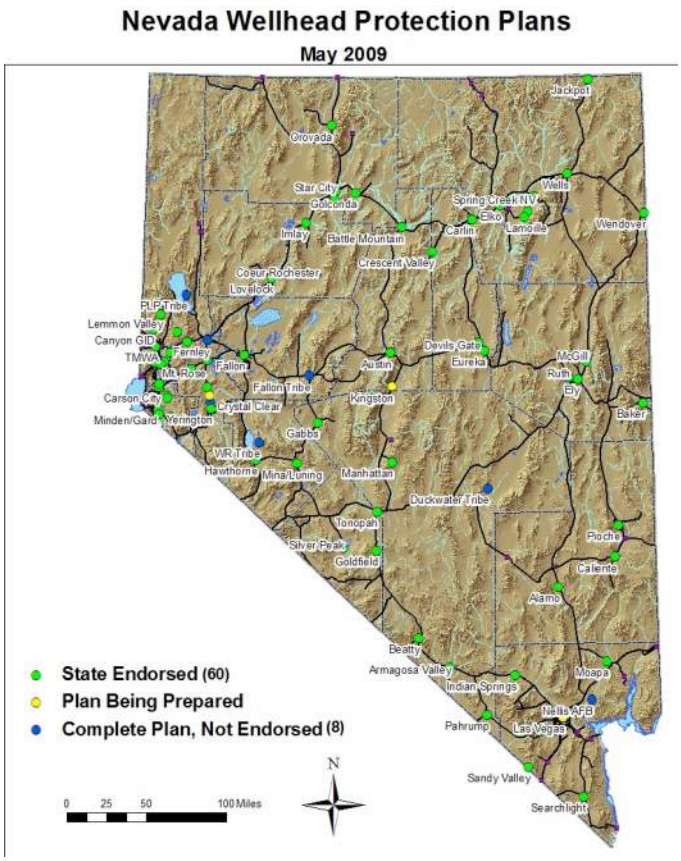


Where does the Integrated Source Water Protection Program Fit?

Endorsed Community Source Water Protection or Wellhead Protection Plan

Resources to Protect Drinking Water

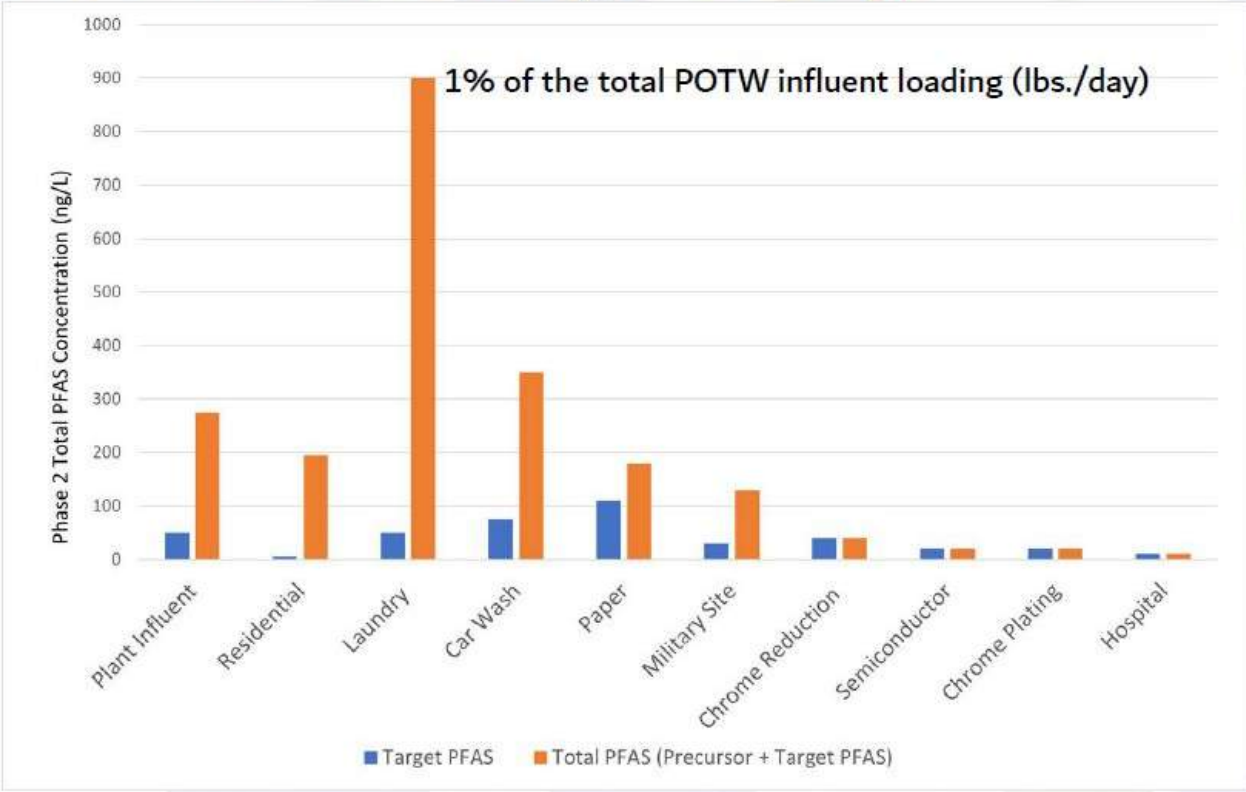




How can ISWPP assist with your treatment technologies and plans?
Education to Protect Drinking Water

Bay Area POTW Study Findings

Residential Loads may be the largest source of PFAS to municipal WWTPs in the SF Bay region in sewersheds without other major PFAS industries



Source: Modified from BACWA/SFEI Study of PFAS in Bay Area Wastewater

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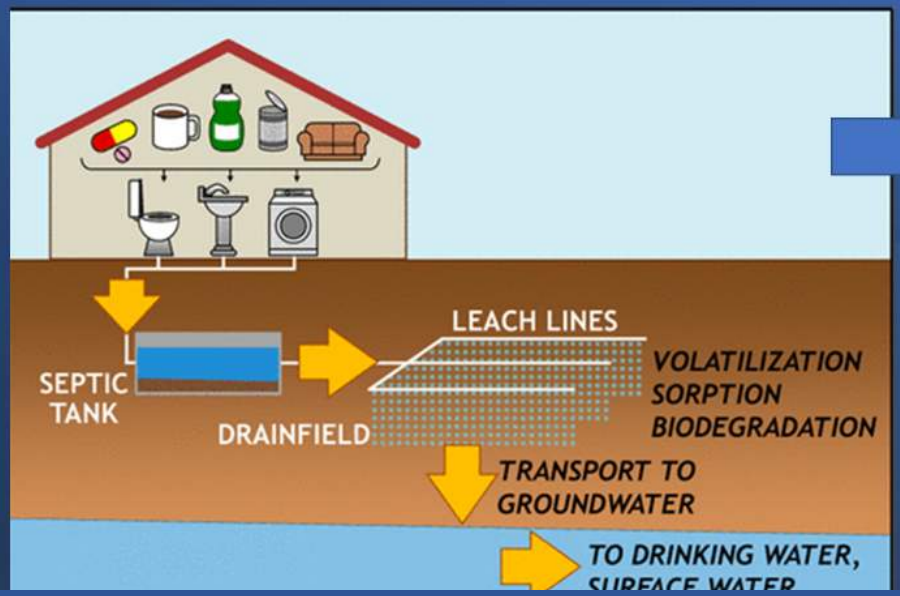

Humboldt County Plan Implementation:

- Septic System Community Education
- Well Maintenance Education
- Nitrate Education
- Public Water System & Wastewater Treatment System Education

CANYON GENERAL IMPROVEMENT DISTRICT

800 Peri Ranch Rd., Suite 103, Sparks, NV 89434 Phone 342-2850 Fax 342-2851

January 25th, 2024

Re: Public notice concerning your drinking water.

Dear Canyon General Improvement District residents:

Please see attached notice concerning your drinking water. Canyon GID volunteered to test water samples for the contaminates (PFAS) listed in the attached notice. These contaminates are not currently regulated by the Nevada Department of Environmental Protection (NDEP) and Canyon GID is not in violation of any contaminate level.

Canyon GID wanted to be proactive in testing of these contaminates in anticipation of 2024 testing regulations for PFAS.

These contaminates have been identified in higher concentrations in surface water 3 miles west of Canyon GID and are therefore not localized to the Canyon GID aquifers.

The Canyon GID Board of Directors and Management wanted to ensure that our customers are notified and are kept informed of all developments concerning PFAS testing results.

What is being done?

Additional testing and monitoring of PFAS will be ongoing. The Canyon GID is developing an action plan to reduce PFAS concentrations. We anticipate resolving the issue within the 2024 calendar year.

Sincerely,

Mitch Andreini

Mitch Andreini, Manager, Canyon General Improvement District. 775-342-2850

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Canyon GID Public Water Systems (PWS ID# NV0005056) Has Levels of Perfluoroctanoic Acid (PFOA) and Perfluorooctance Sulfonic Acid (PFOS) Above A Drinking Water Advisory Limit & Detections of Perfluorobutanesulfonic Acid (PFBS) and Perfluorohexanesulfonic Acid (PFHxS) below Proposed Regulatory Values

Our water system recently exceeded the EPA Health Advisory Limit, and as our customers, you have a right to know what happened, what you should do, and what we *are doing* to correct this situation. Canyon GID volunteered to sample proactively for these contaminants that are not currently regulated by the EPA. These contaminants have been identified in higher concentrations in surface water 3 miles west of Canyon GID and are therefore not localized to the Canyon GID aquifers.

While we routinely monitor for the presence of Federal and State regulated drinking water contaminants, Nevada has not yet adopted a standard, or maximum contaminant level (MCL), for PFOA, PFOS, PFBS, or PFHxS. The EPA Health Advisory Levels and their Proposed Levels for PFAS are compared to Canyon GID's sample results collected in November, 2023 below:

PFAS Contaminant	Health Advisory Level[1]	EPA's Proposed Maximum Contaminant Level (MCL)	Your PWS's Sample Results
PFOA	0.004 ng/L	4 ng/L	9.3-11 ng/L
PFOS	0.02 ng/L	4 ng/L	18-20 ng/L
GenX Chemicals	10 ng/L	Hazard Index (see below)[2]	Non Detect
PFBS	2,000 ng/L	Hazard Index (see below)	6.4-7.4 ng/L
PFNA	None	Hazard Index (see below)	Non Detect
PFHxS	None	Hazard Index (see below)	7.7-8.3 ng/L

[1] Health Advisory Levels are based on a lifetime noncancer risk.
[2] Hazard Index = ([GenX] [10 ng/L]) + ([PFBS water] [2000 ng/L]) + ([PFNA water] [10 ng/L]) + ([PFHxS water] [9.0 ng/L])

According to EPA's proposed rule, if the running annual average Hazard Index is greater than 1.0, it is a violation of the proposed Maximum Contaminant Level. Please note that this rule is anticipated to be finalized by EPA in early 2024.

On *12/8/2023*, we received notice that the samples collected on *11/7/2023* showed that our system exceeds the advisory limit*(s)* and proposed MCL for PFOA and PFOS based on a single sample at each of our two water sources. The combination of PFHxS and PFBS resulted in levels that are greater than 90% of the proposed hazard index, but do not exceed it. It should also be noted that the Truckee River, west of the Canyon GID, has had similar concentrations of these constituents as well.

What are PFOA, PFOS, PFBS, and PFHxS?

Perfluorooctanoic acid (PFOA), perfluorooctance sulfonic acid (PFOS), perfluorobutanesulfonic acid (PFBS), and perfluorohexanesulfonic acid (PFHxS) are members of the group of chemicals

How can ISWPP assist with your treatment technologies and plans?

STEP 1 **– Does you community have a CSWPP or WHPP?**

STEP 2 **– Let's get it into your Action Plan**

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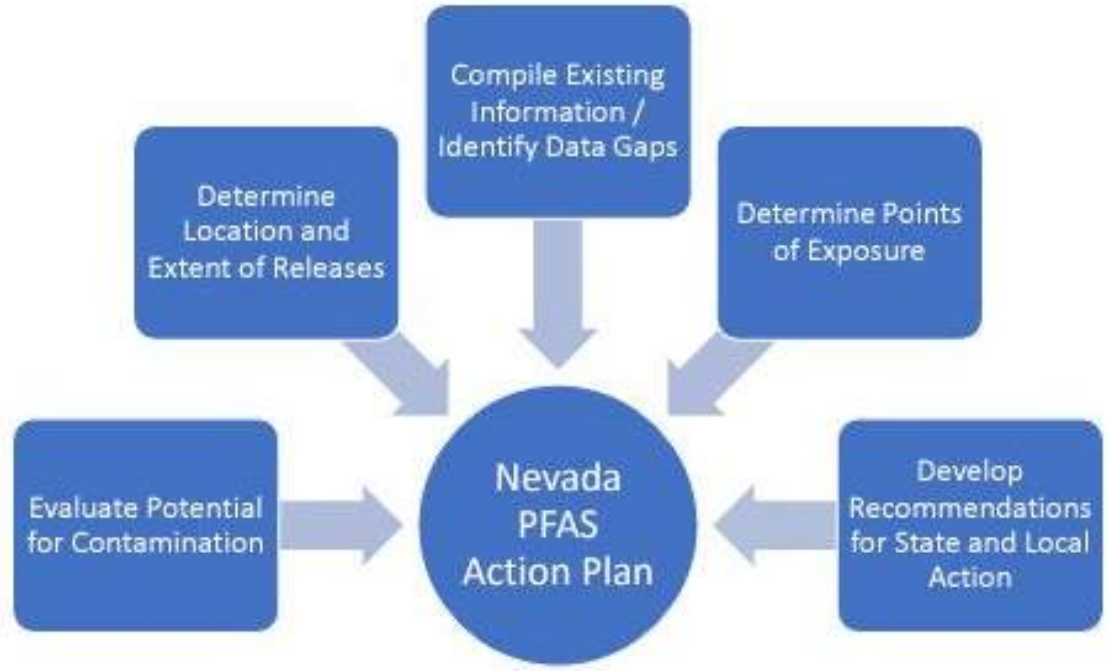

How Can we Help YOU?

For More Information:

Resource Concepts Inc

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