

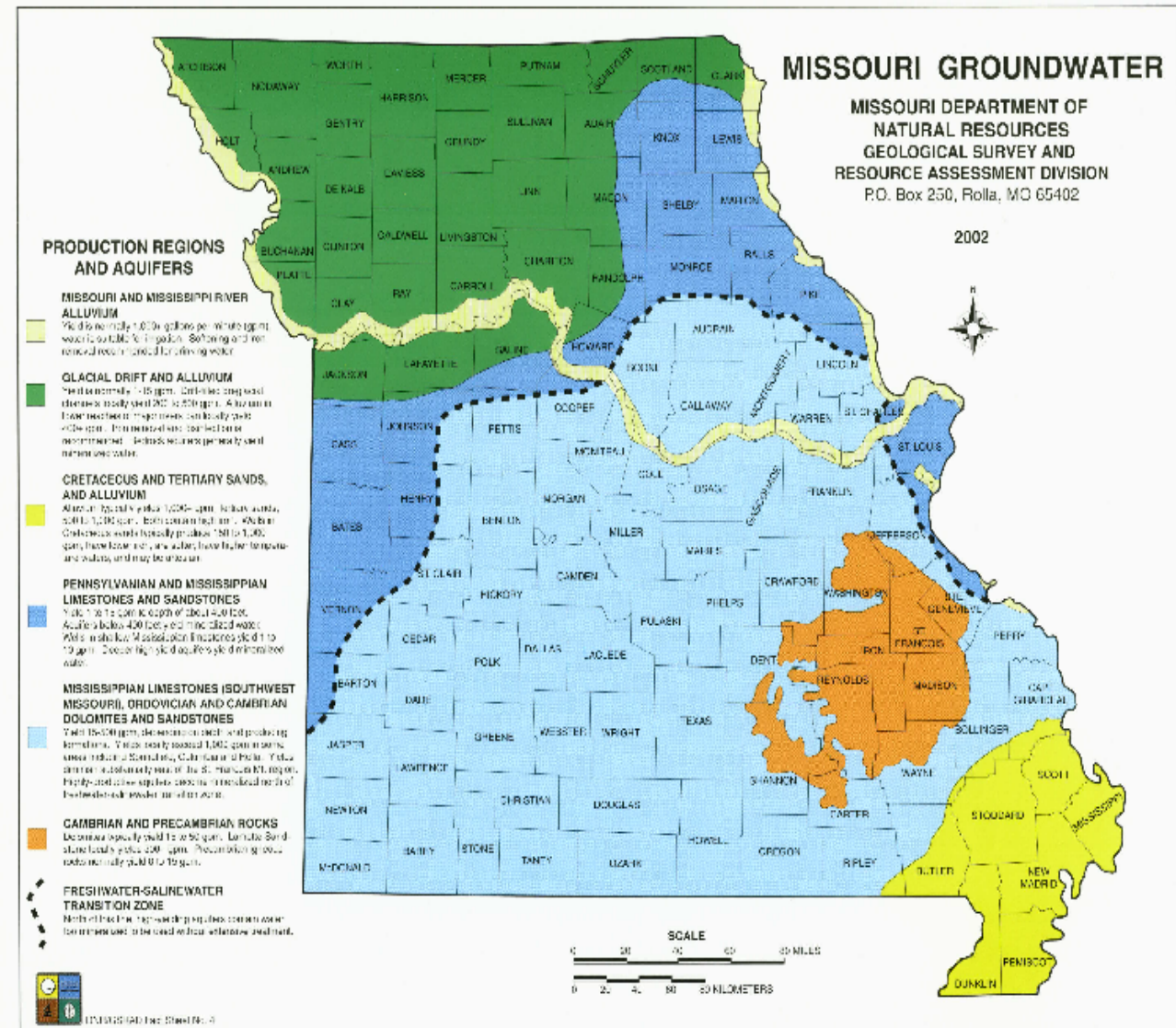
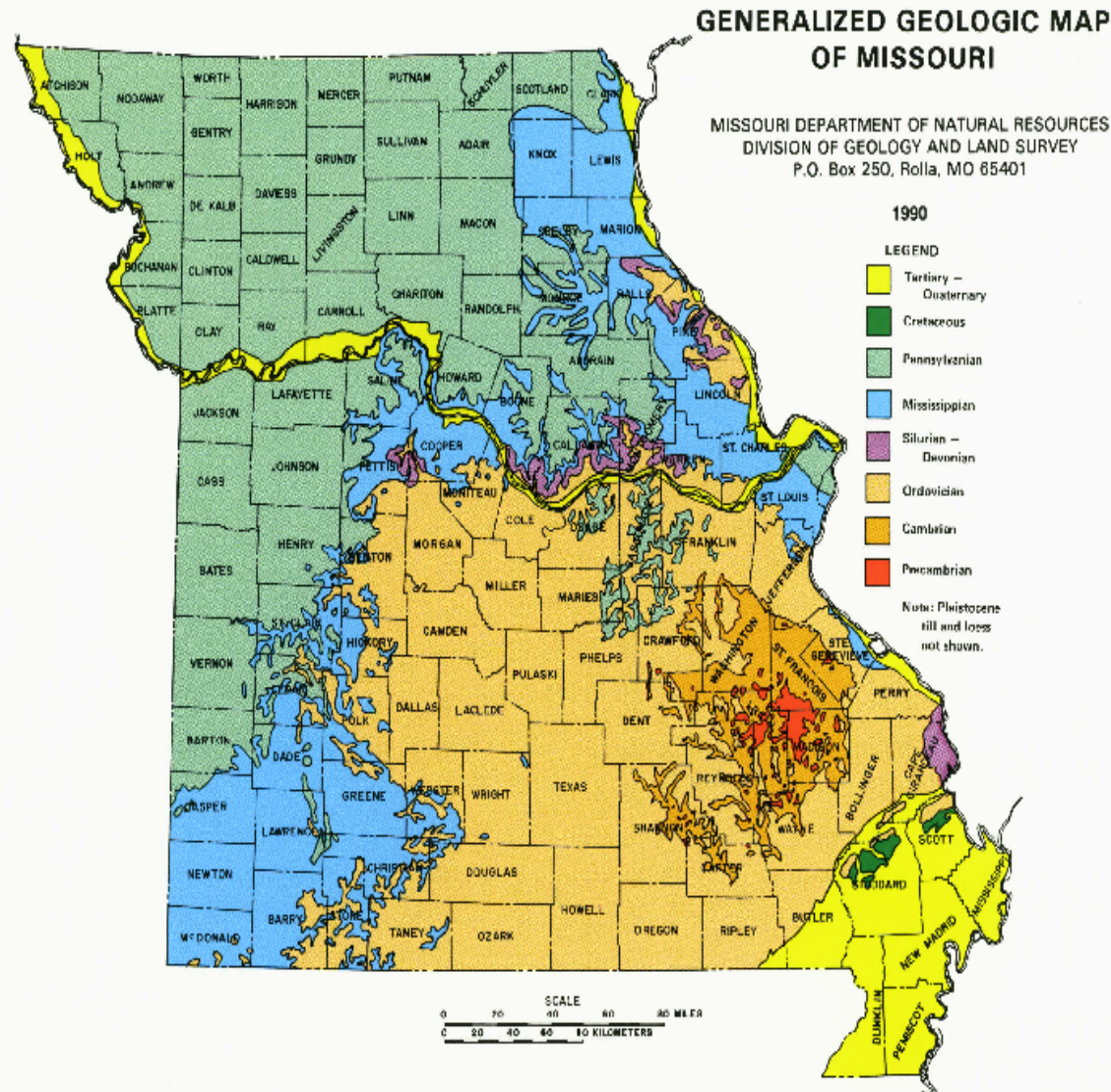
Missouri Public Drinking Water Systems and Contaminant Trends

Eric Medlock

Public Drinking Water Branch

Missouri Department of Natural Resources

Missouri's Geology and Groundwater



State of Missouri Public Water Supplies 2023



Public Water Supplies and Districts

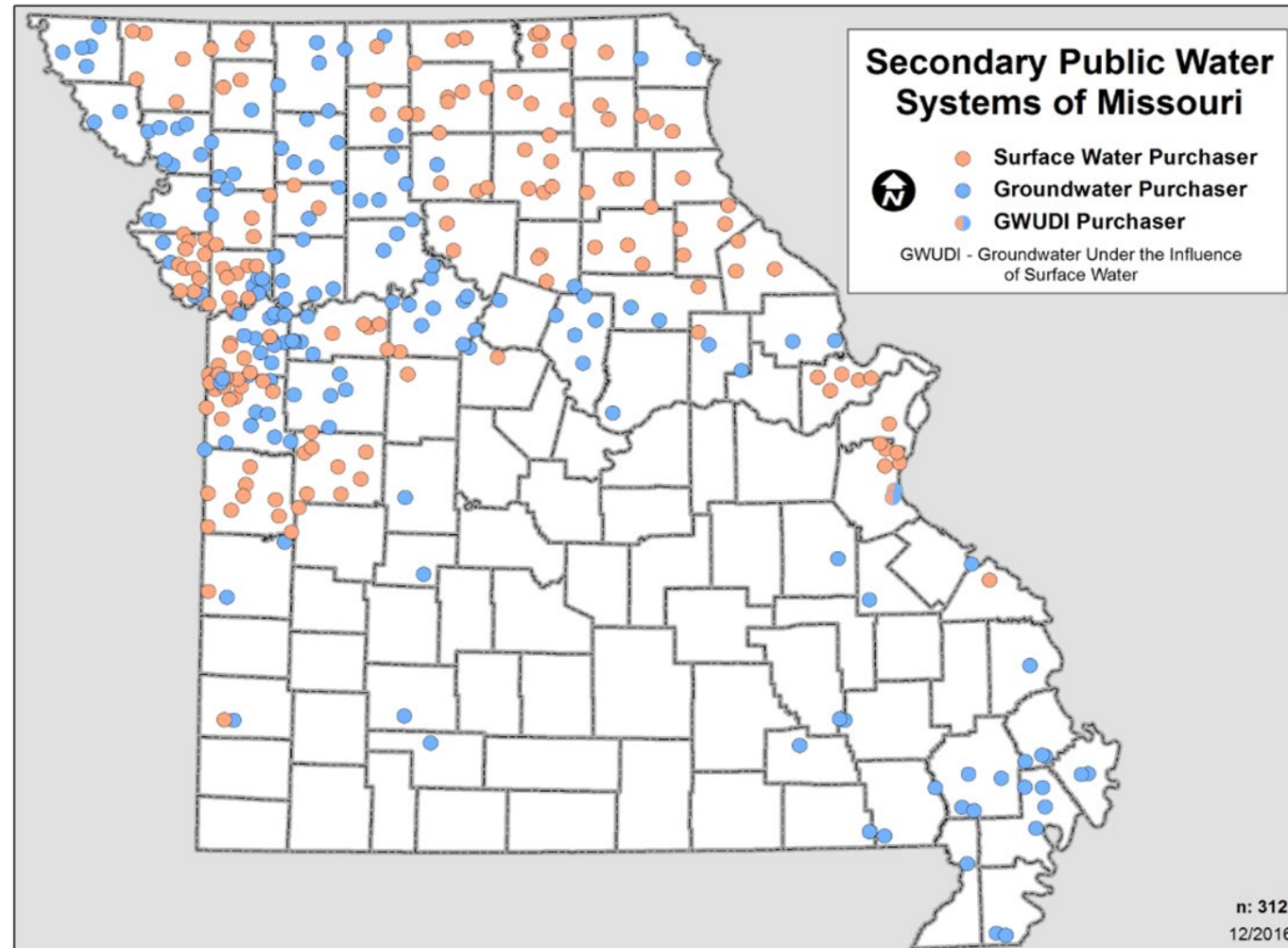


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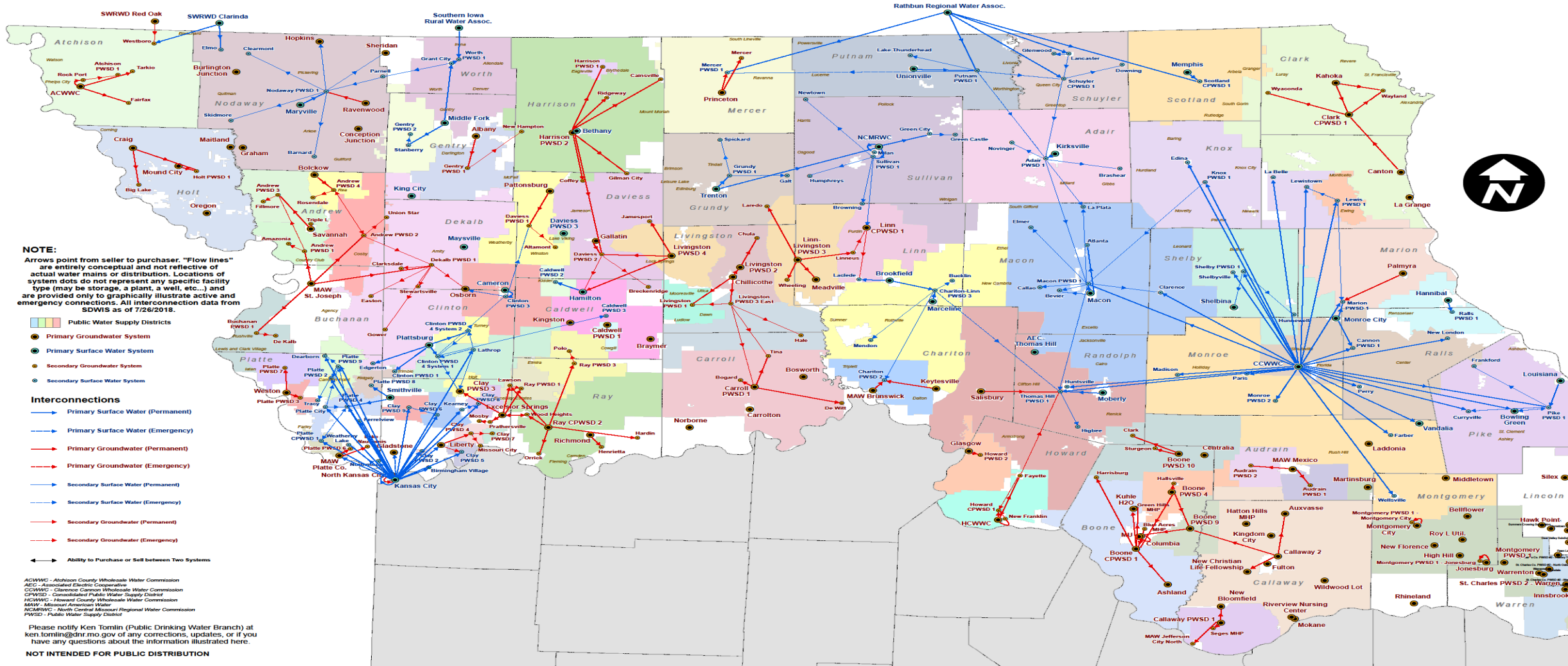
Consecutive PWSs of Missouri

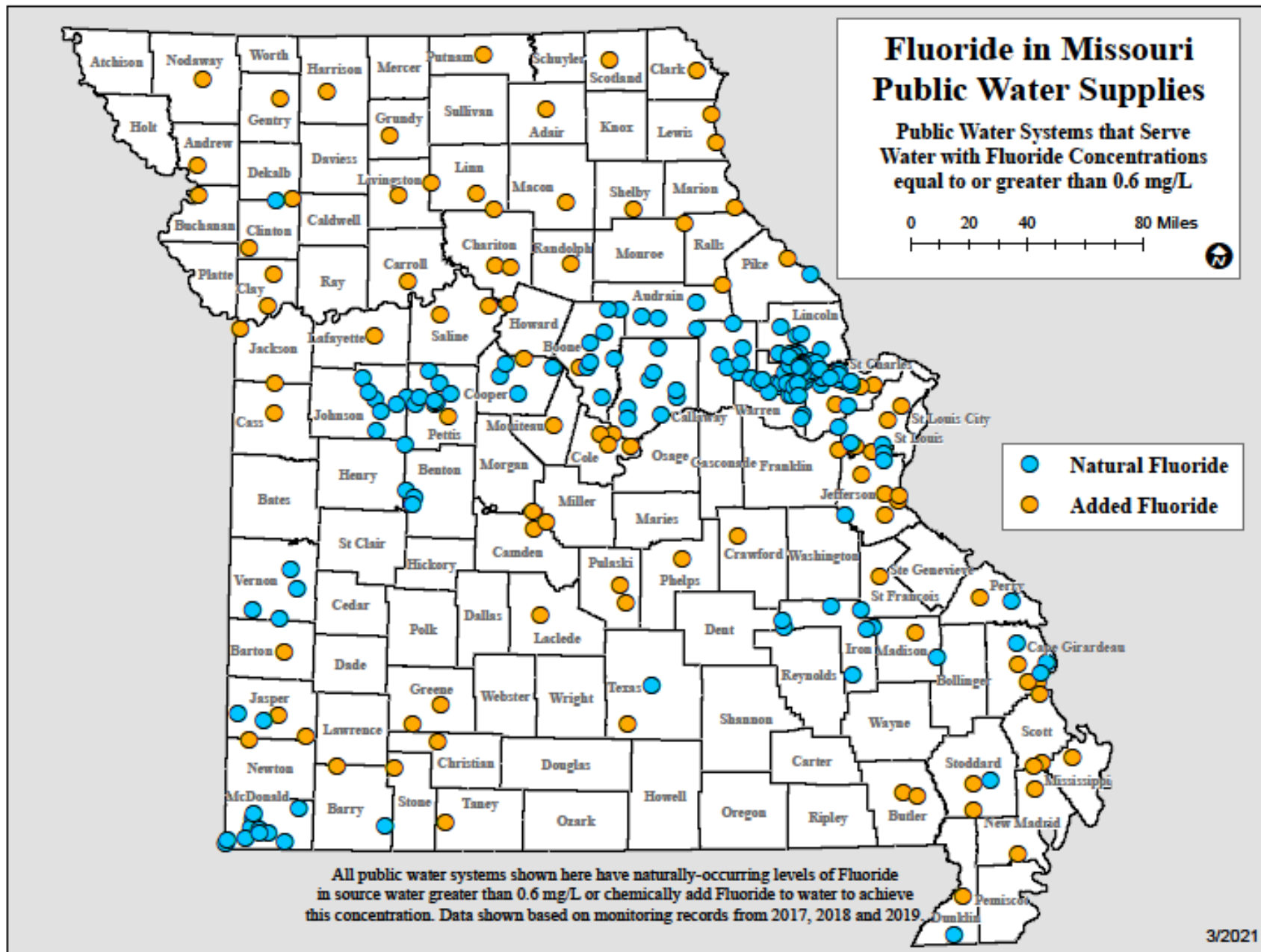


Primary and Consecutive PWS Conceptual Flow Chart

Primary and Secondary Community Public Water Systems of Northern Missouri: Conceptual Wholesale and Retail Water Distribution Flow Chart

0 5 10 20 30 40 Miles





Naturally Occurring Fluoride

Nitrate in Missouri Public Water Supplies

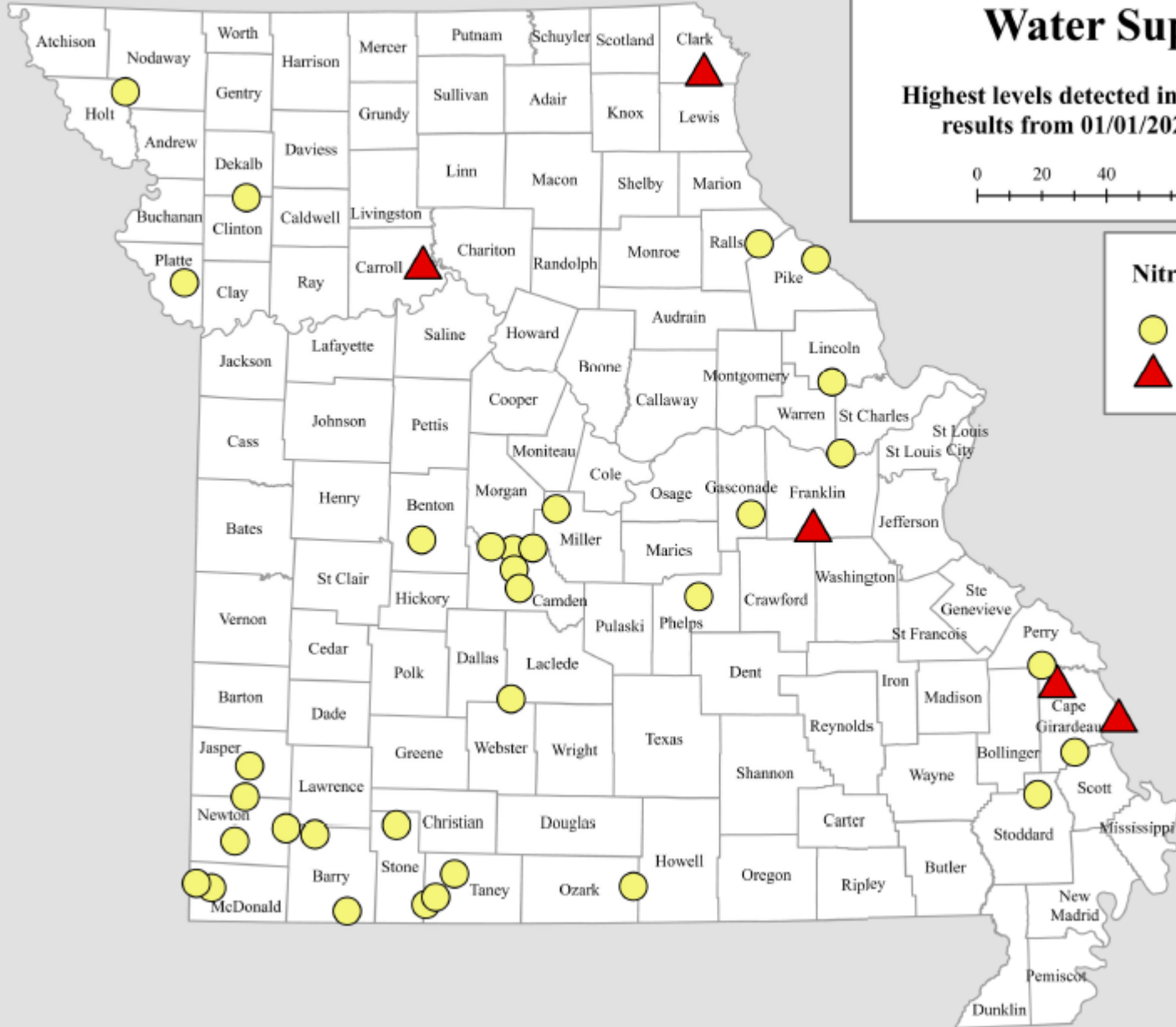
Highest levels detected in reported sample results from 01/01/2020-04/27/2026

0 20 40 80 Miles

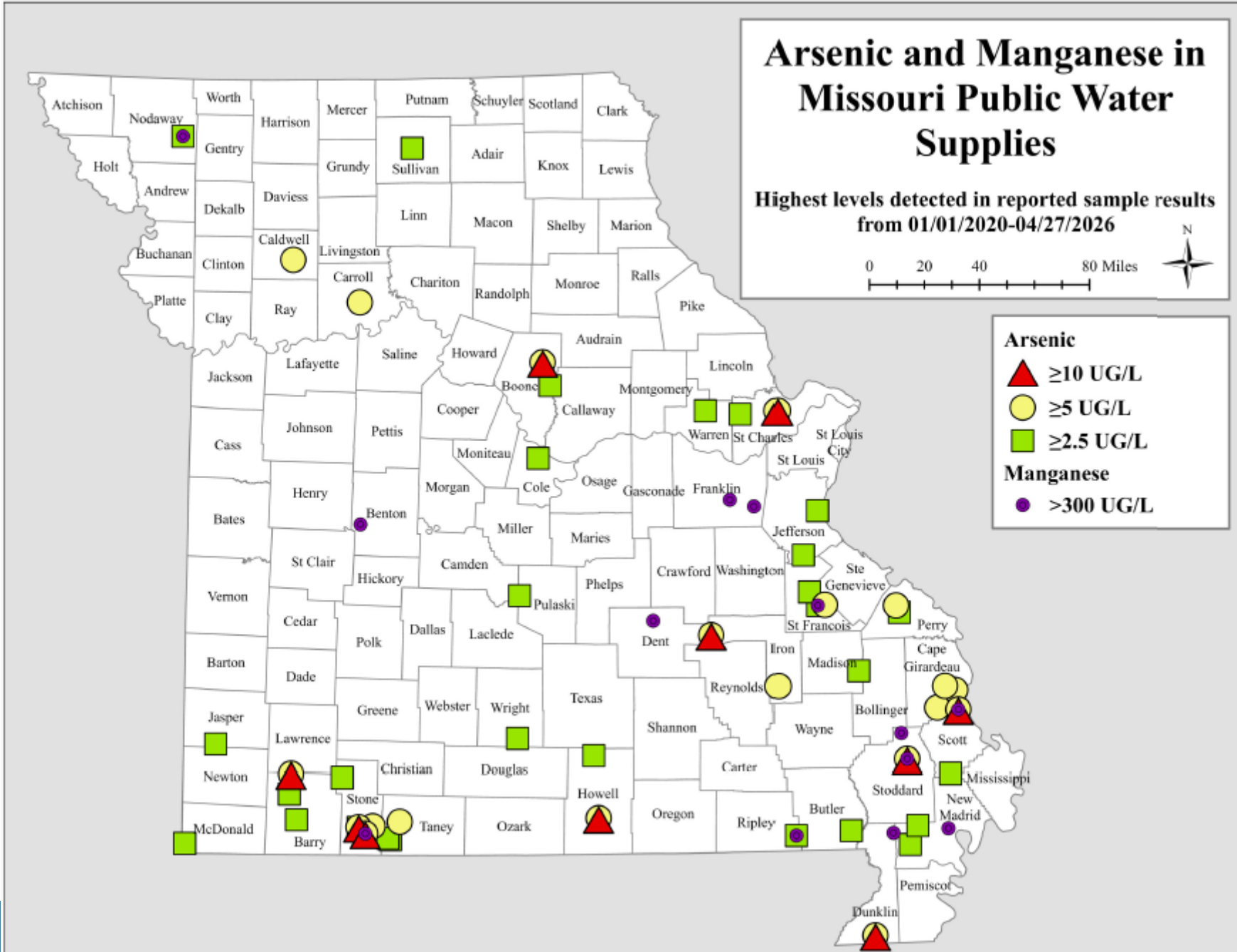


Nitrate Sample Results

- Yellow circle: ≥ 5 MG/L
- Red triangle: ≥ 10 MG/L



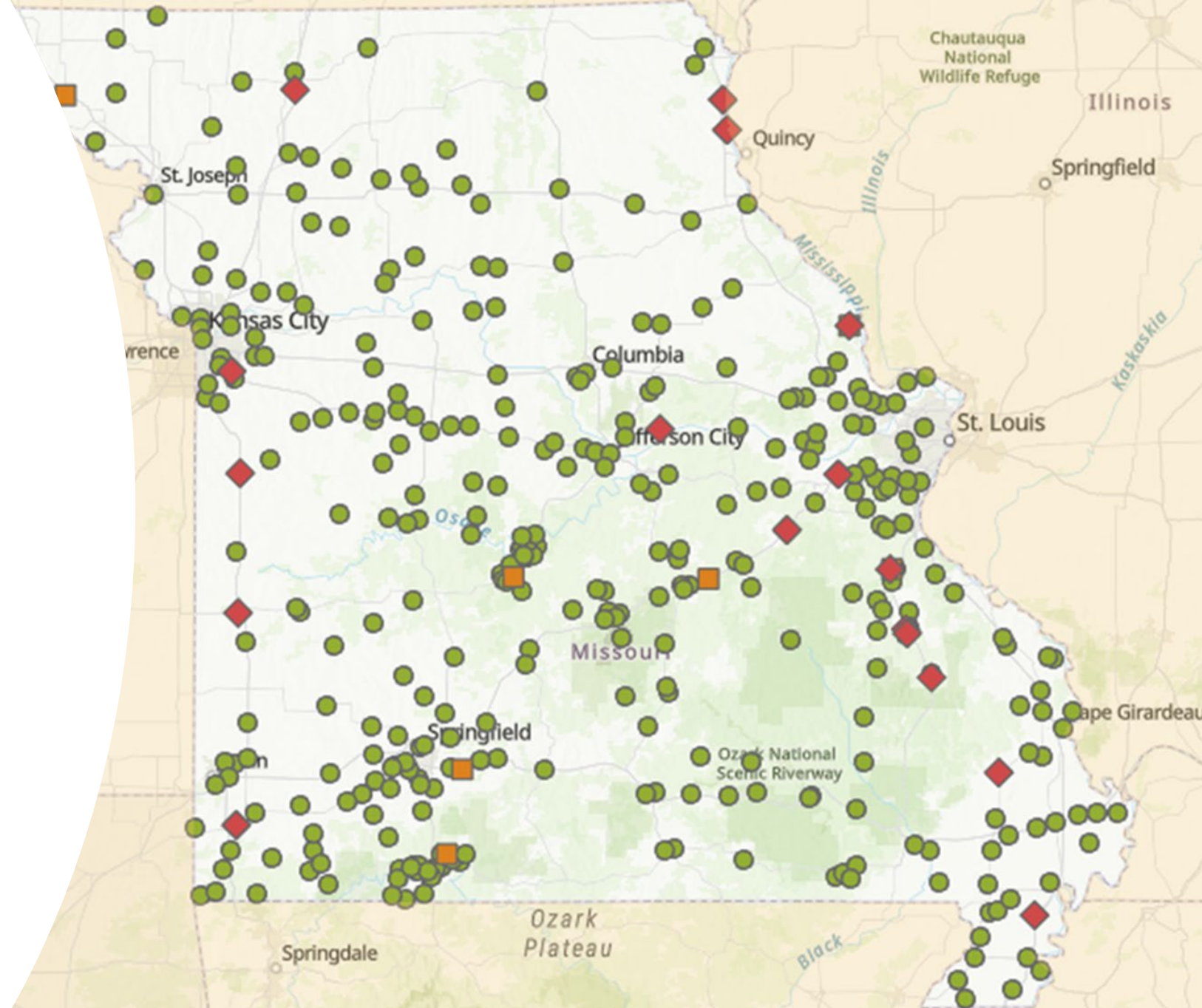
Elevated Nitrate Samples



Arsenic & Manganese

PFAS Sampling at Public Water Systems as of June 21, 2024

[Missouri PFAS Viewer \(arcgis.com\)](https://arcgis.com)



PFAS Sampling at Public Water Systems as of April 24, 2026



Missouri PFAS Viewer

Legend

PFAS Sample Location Maximum Contaminant Level Comparisons

-  Detect Above MCL
-  PFAS Detect
-  No Detect

Symbols are determined by the water systems most recent sampling results. For more information on historical detects use the '**Generate PWS Report**' tool on the blue navigation ribbon at the top right of this page or download all results from the data table at the bottom of this page.

EPA PFAS Maximum Contaminant Levels

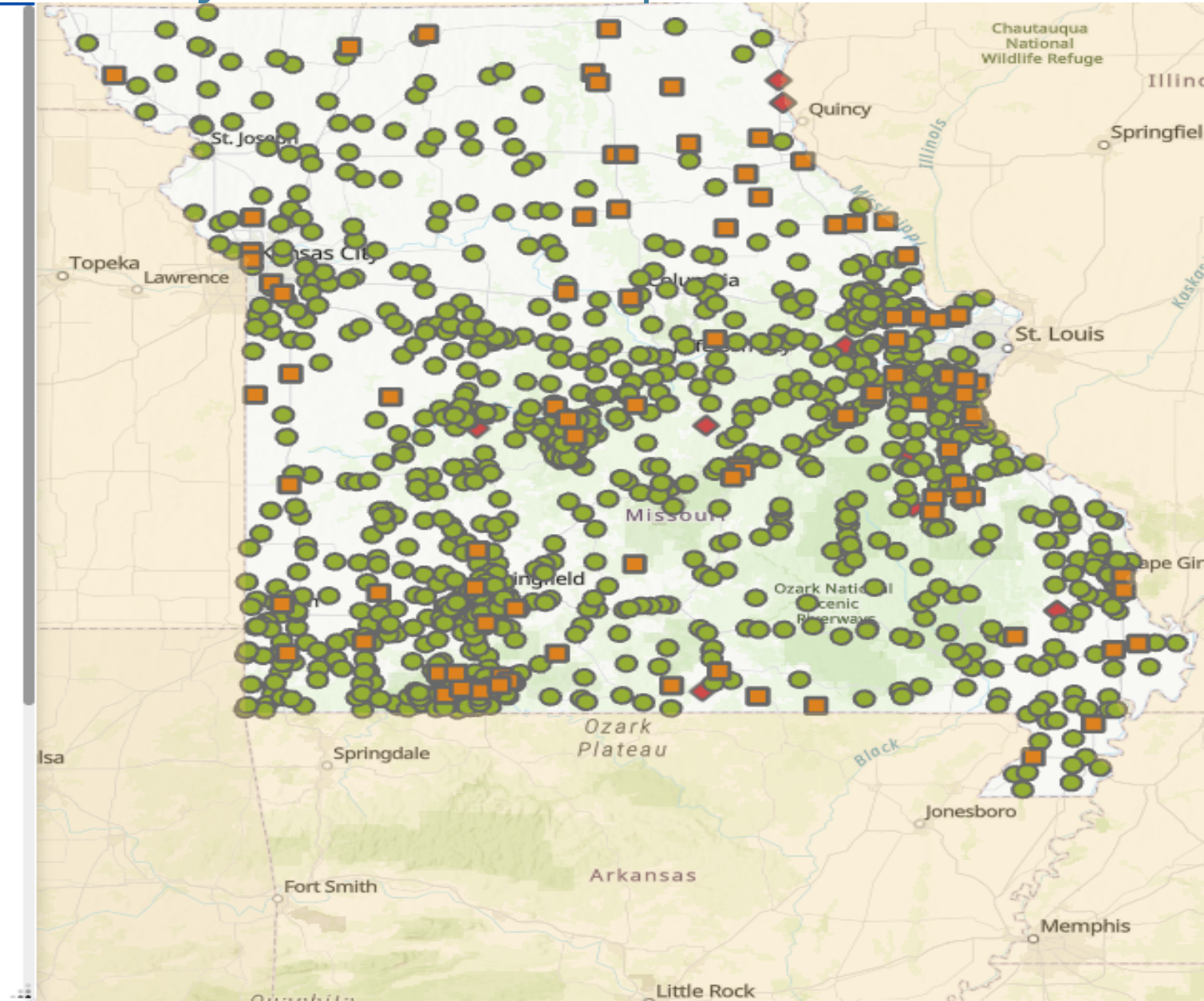
Perfluorooctanoic Acid (**PFOA**) - 4.0 ng/L (ppt)
Perfluorooctane Sulfonic Acid (**PFOS**) - 4.0 ng/L (ppt)

*Data updated weekly.

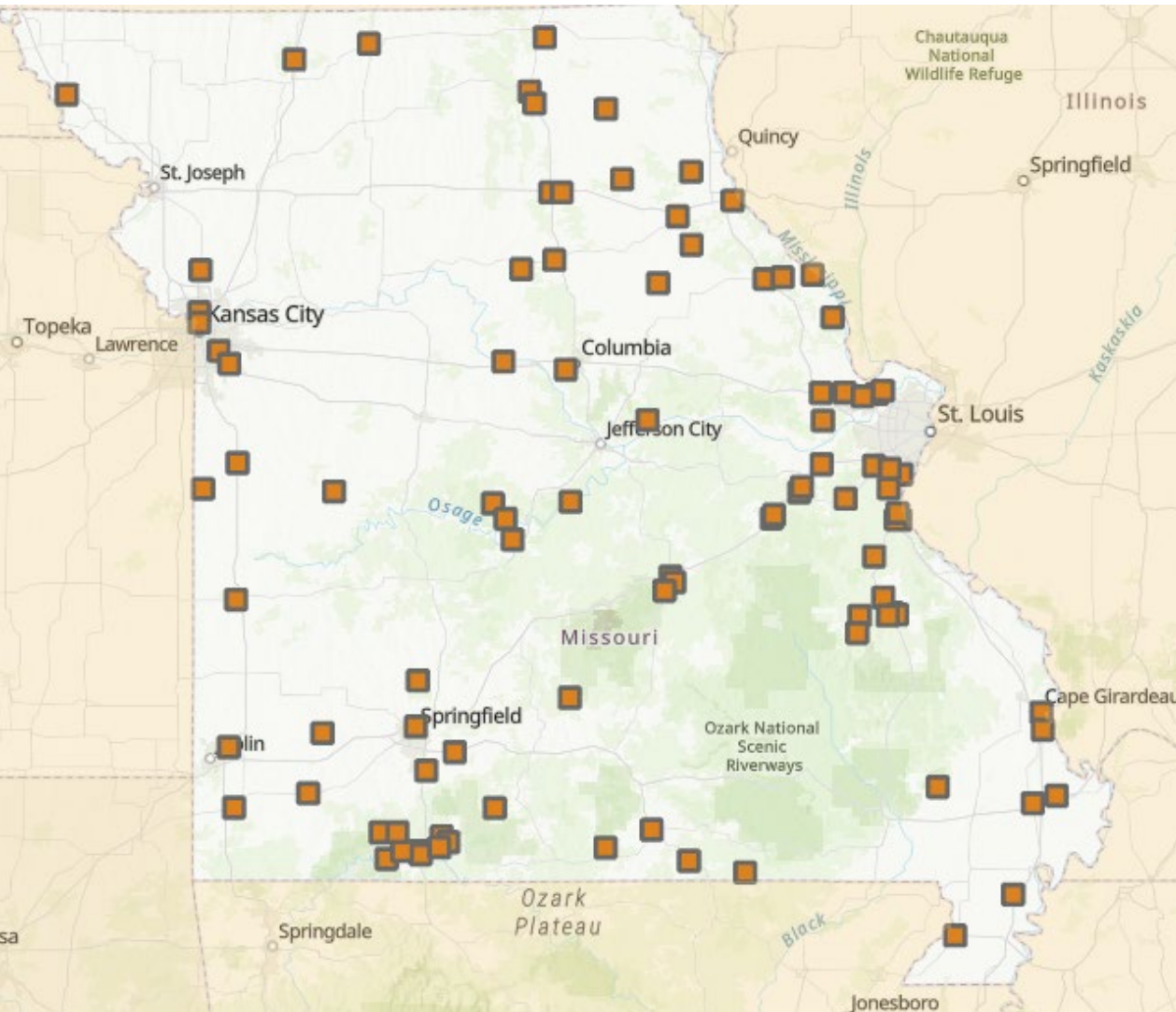
Underlying sample data updated continuously.

Public water systems on the map represent a general location for the PWS. The colored symbols represent historical levels and not a specific location of the detection.

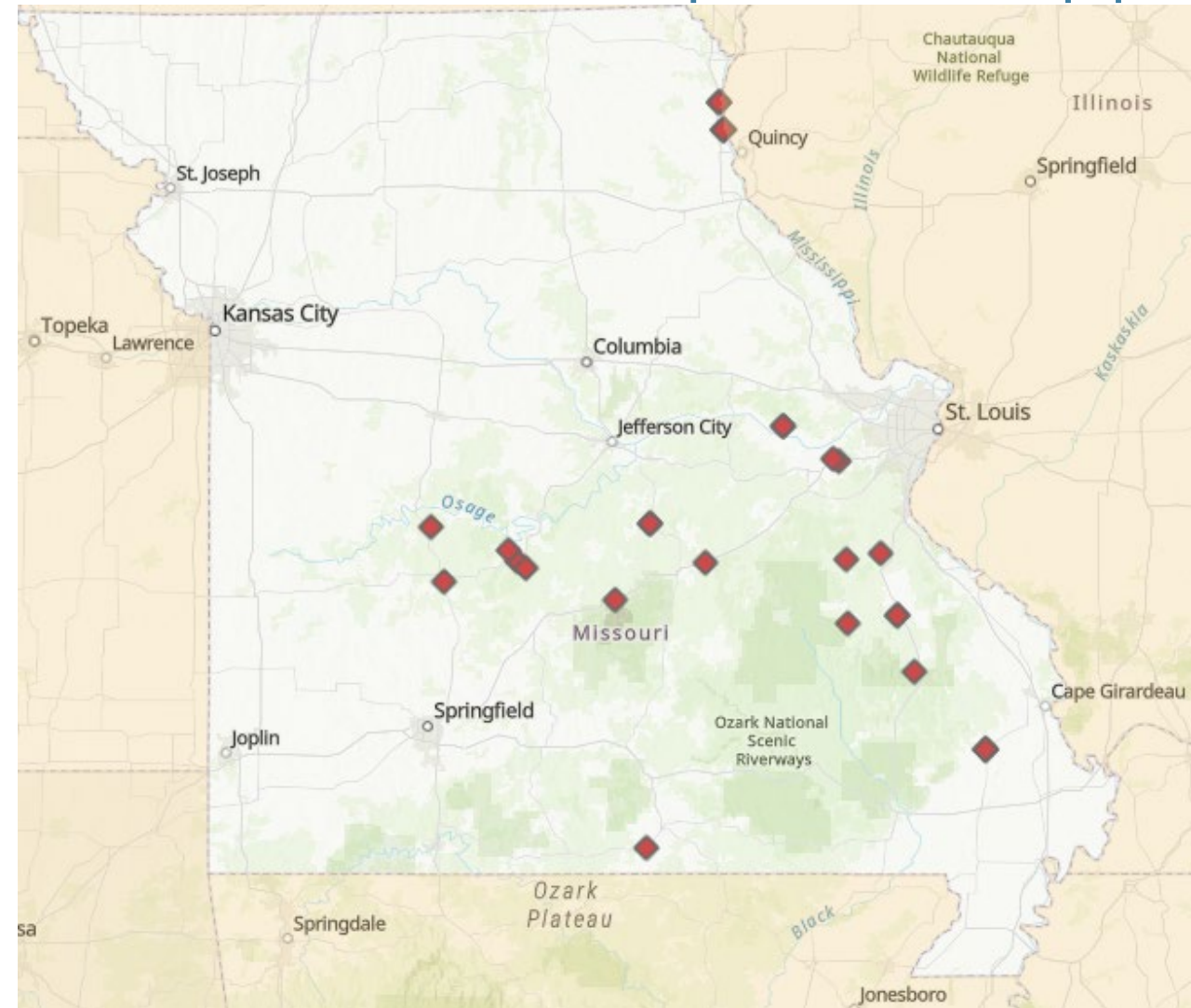
All historical data can be viewed in the **data tables** or by running the individual water system report or at [Drinking Water Viewer | Missouri Department of Natural Resources](#)

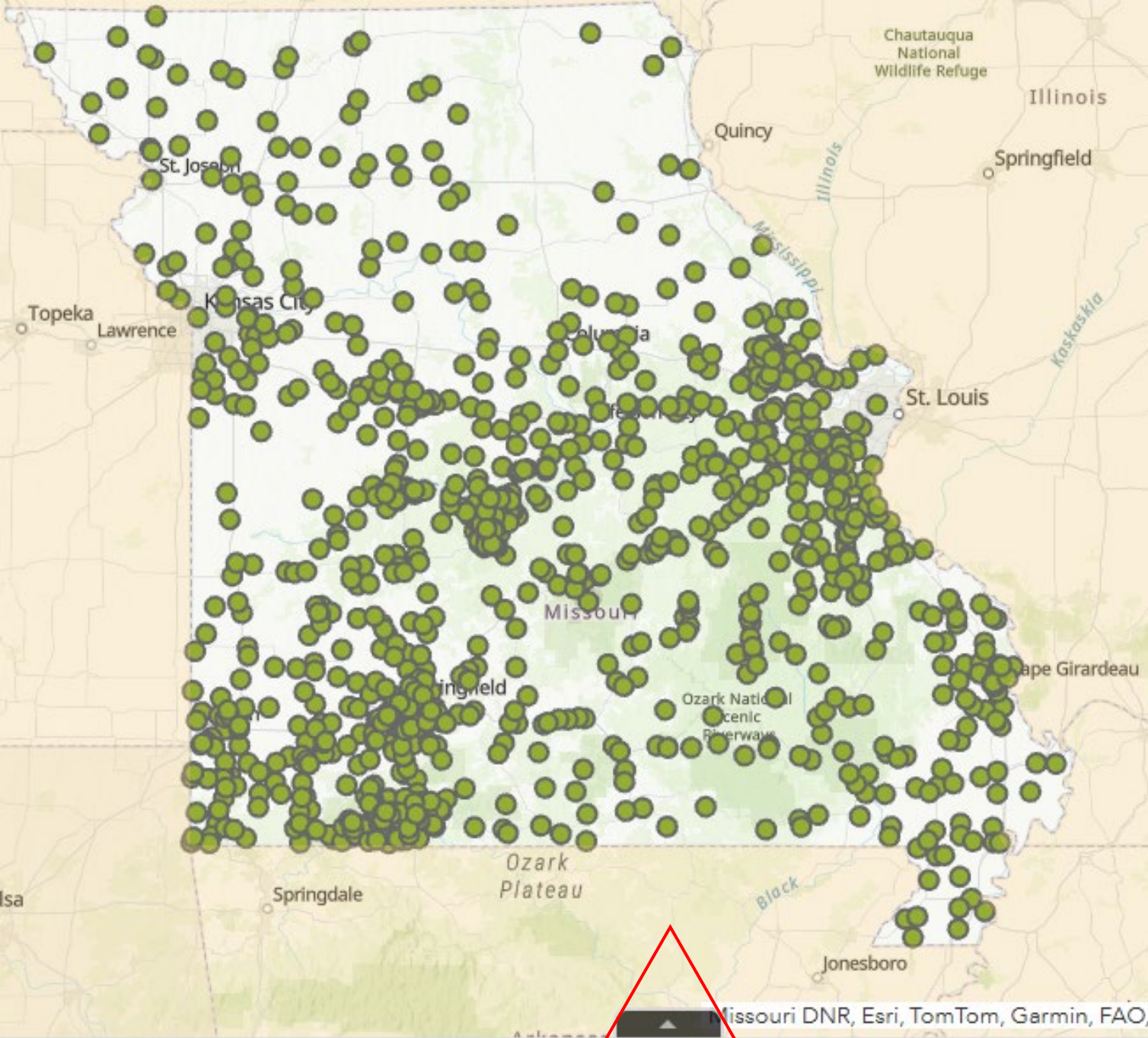


Any PFAS Detections



PFOA or PFOS Detections Greater than or equal to 4.0 ppt





Takeaway

No PFAS
detections =
No
Widespread
PFAS Issue

Missouri Public Drinking Water Systems and Contaminant Trends

Questions?

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MISSOURI DEPARTMENT OF
**HEALTH &
SENIOR SERVICES**

Missouri Healthy Drinking Water Programs

Common Contaminants and Health Effects

Sam Francus, Christopher Reeves, Hillary Wakefield

Bureau of Environmental Epidemiology

Our Services

DHSS Private Drinking Water Program



Community Awareness

Drinking water hazards, exposures, and related illnesses



Test Kit Distribution

Chemical and bacterial test kits provided upon request

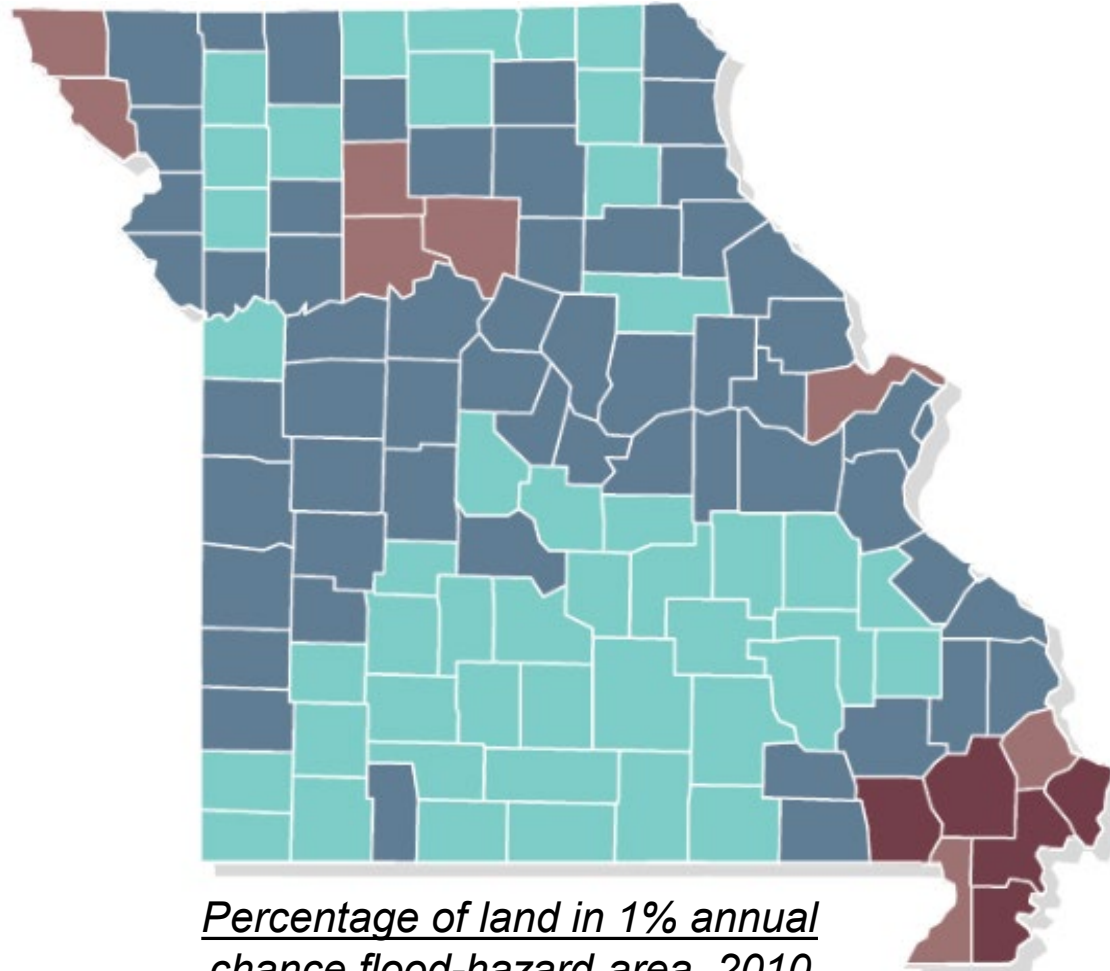


Test Result Interpretation

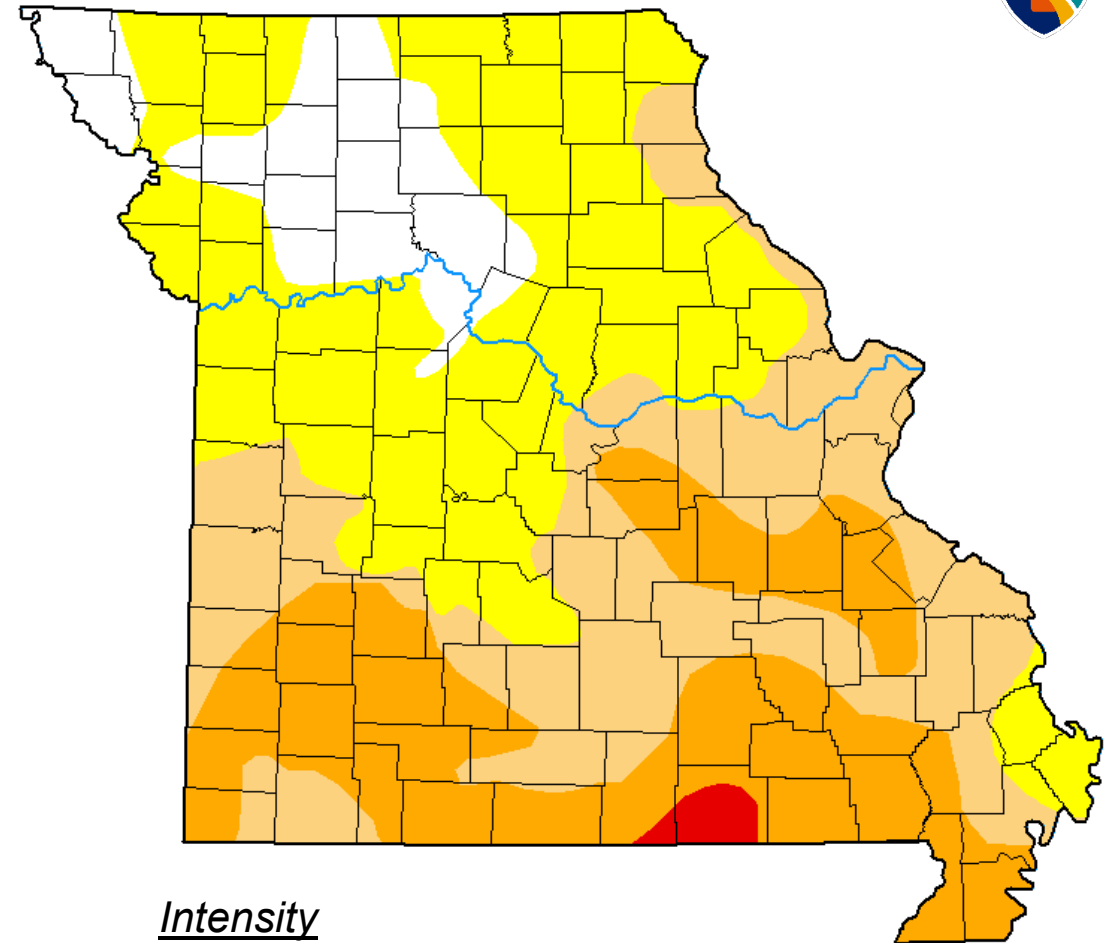
Provide interpretation and treatment recommendations as needed

Private well water is not regulated like public water, and there is no direct funding for private well testing.

Flood and Drought



Percentage of land in 1% annual chance flood-hazard area, 2010



Intensity



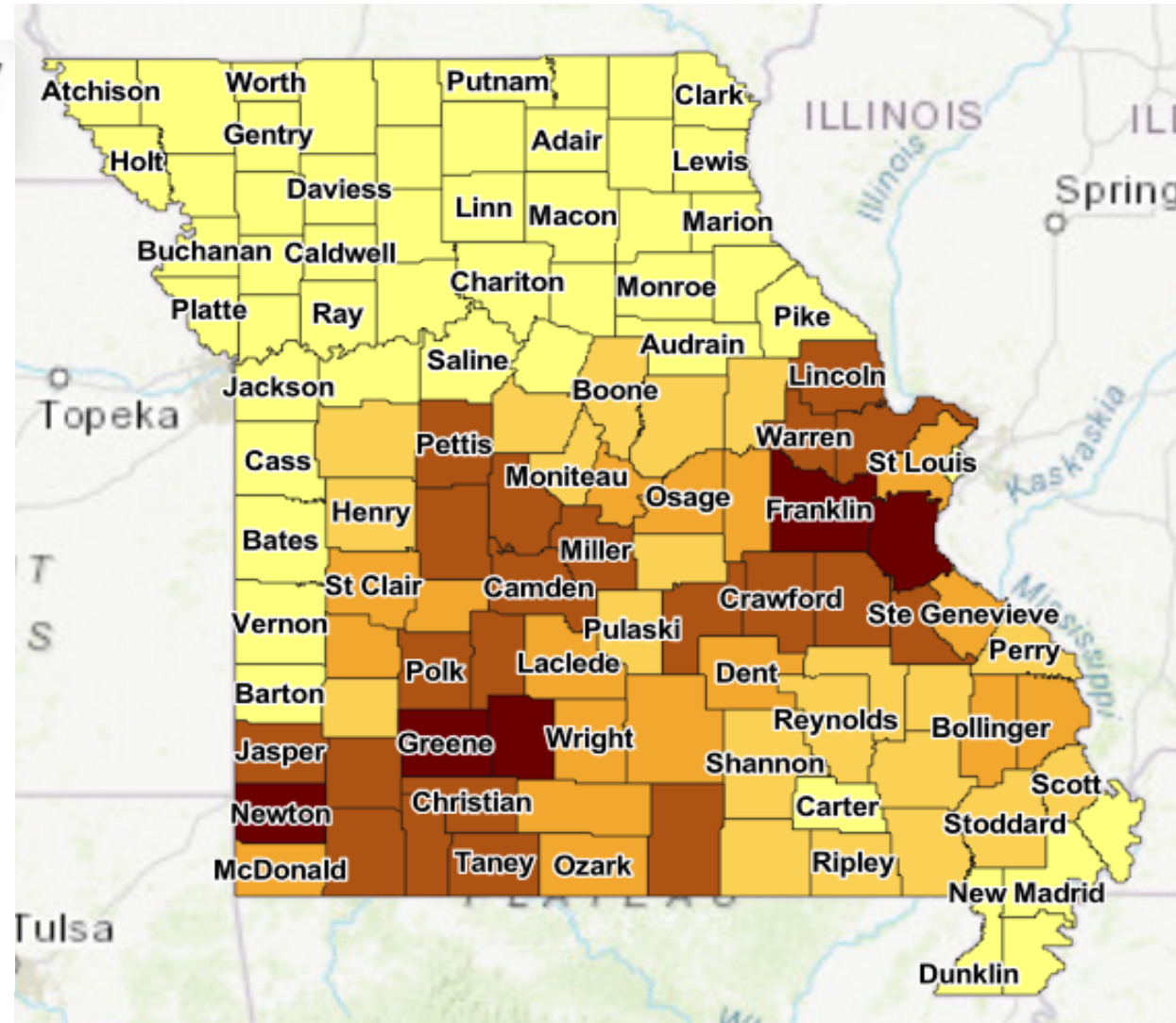
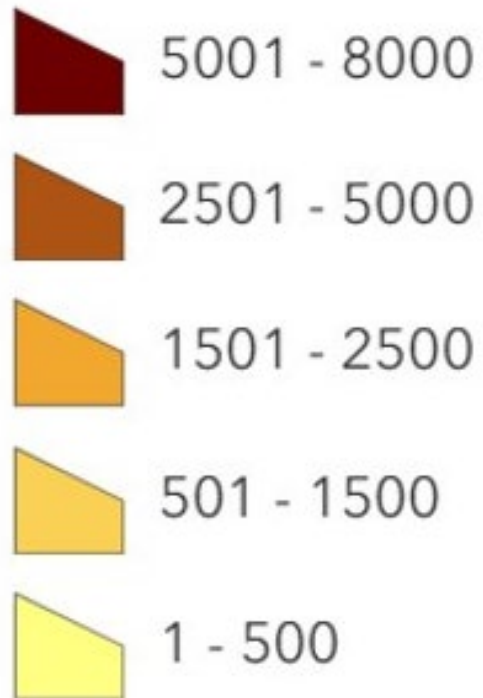
Private Well Distribution



Total Wells by County

>189,000 registered wells

TOTAL



Private Well Issues

Common Contaminants



Lead

Naturally occurring

Mined since 1700's



Nitrate

Naturally occurring

Found in soil



Fluoride

Naturally occurring

Found in bedrock

Analysis includes: *aluminum, antimony, arsenic, barium, beryllium, cadmium, chloride, chromium, cobalt, copper, iron, lithium, manganese, mercury, molybdenum, nickel, selenium, sulfate, strontium, thallium, thorium, tin, titanium, uranium, vanadium, and zinc.*

<http://www.health.mo.gov/private-drinking-water>

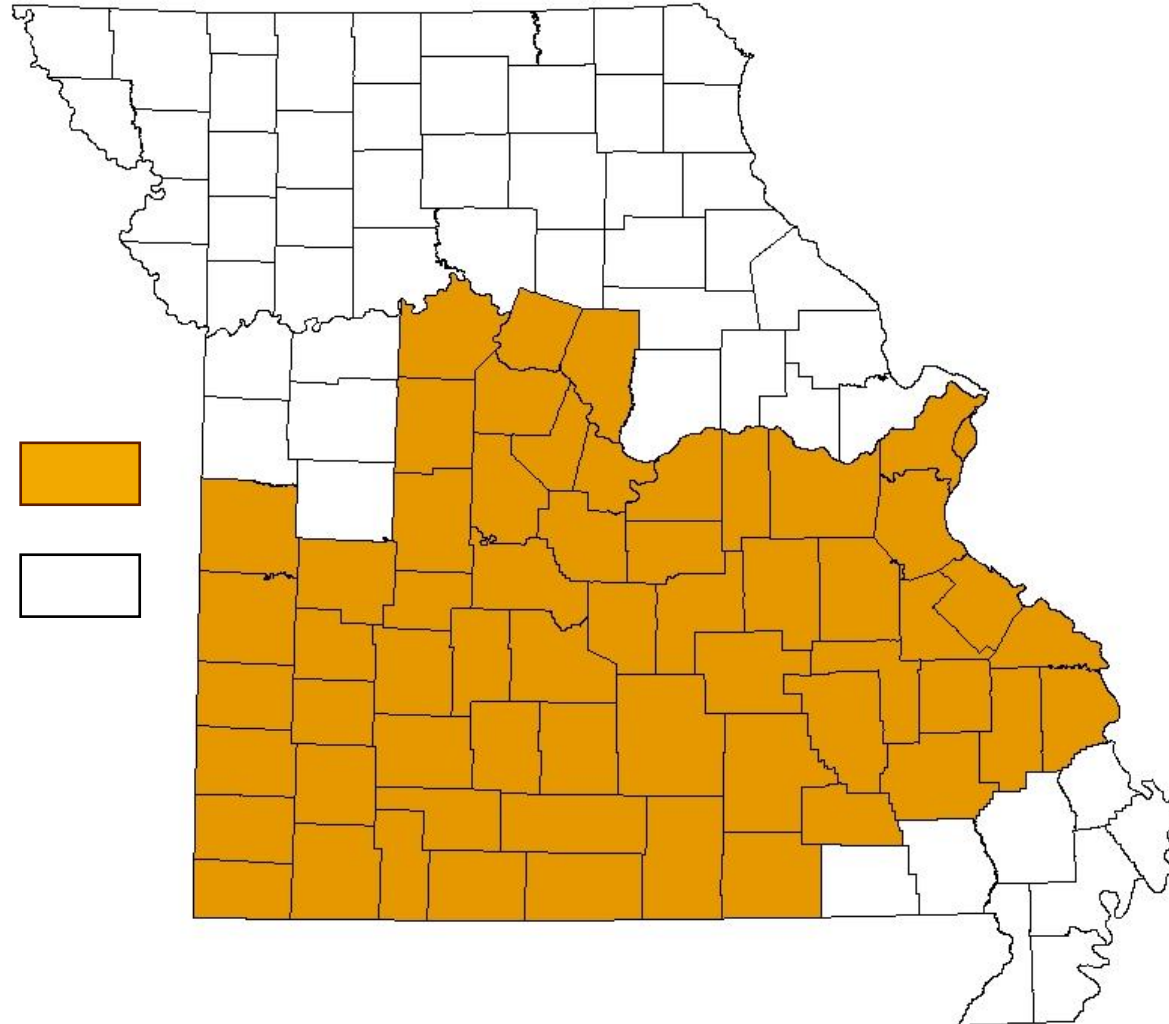
Lead History



Lead Mining Impacted Counties



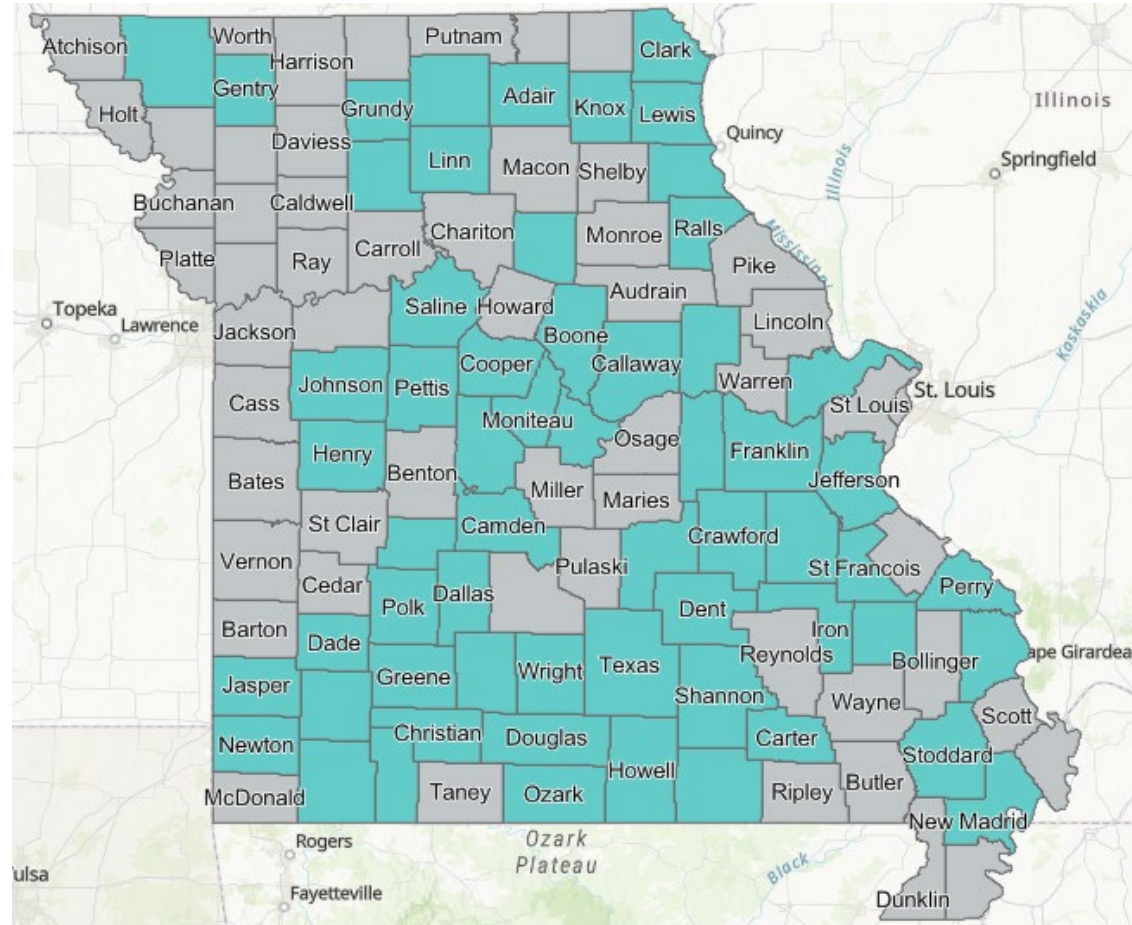
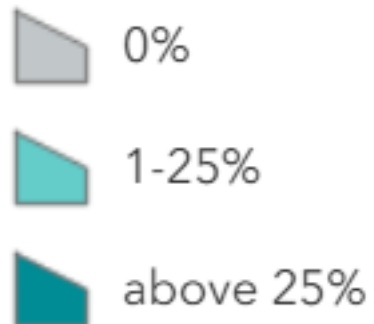
Other Counties



Lead



Percent elevated
above action level



Well Sampling Data

Lead Effects



Effects of Lead Exposure in Children

There is no safe level of lead in the bloodstream; any amount of lead is toxic. Some symptoms are not obvious, which is why testing for lead levels in the blood is so important.

Children are at the highest risk of lead poisoning, especially from ages 0-6. Children under 3 should be tested yearly.

1, 2, 3 Test Me.



Brain and Nervous System

Lower IQ, behavior problems and learning disabilities. Damage to the nervous system function.



Body

Bone and muscle deterioration.



Kidneys

Abnormal function and damage.



Hearing

Hearing loss.



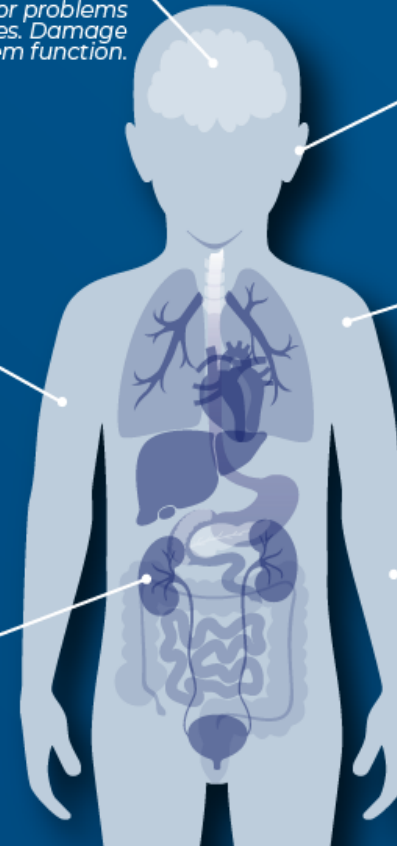
Growth

Slowed growth.

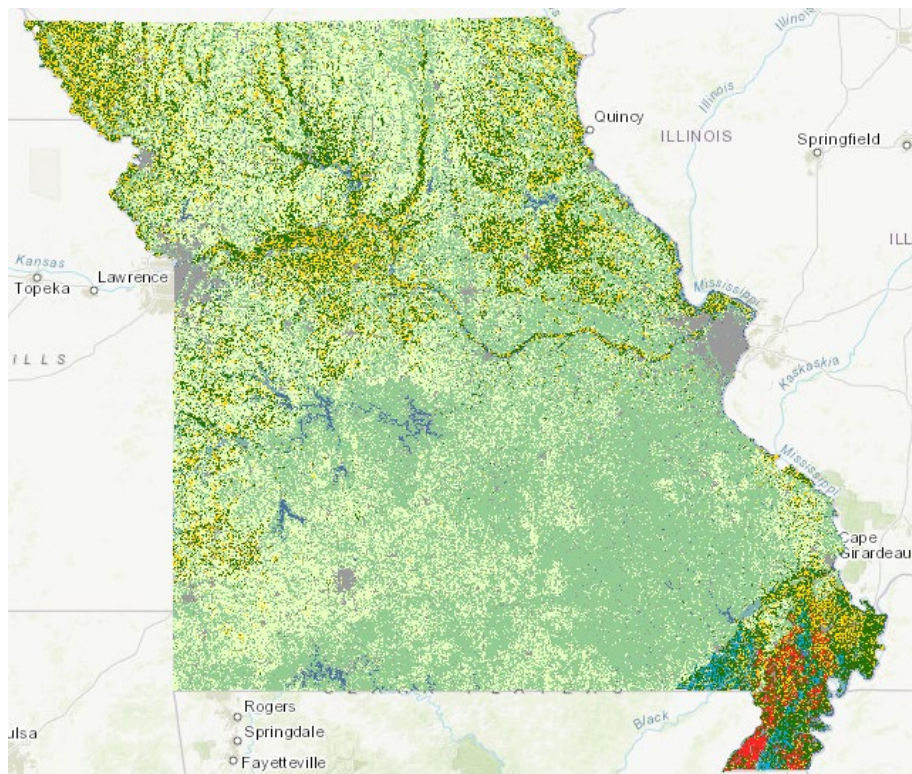


Blood

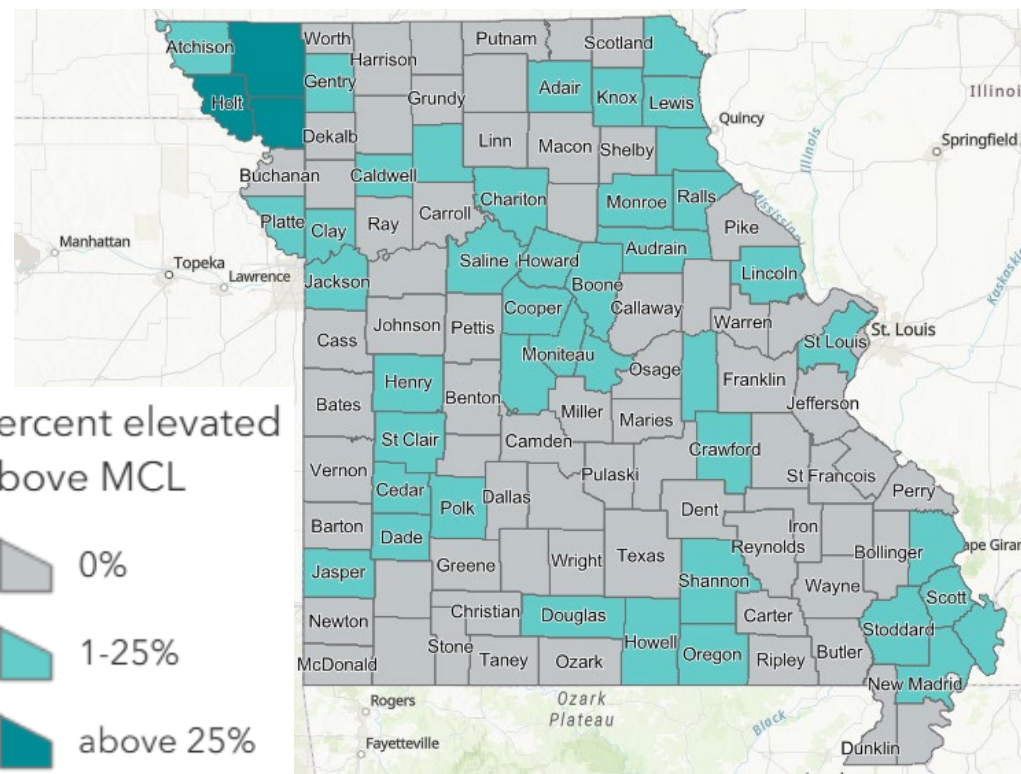
Anemia.



Nitrate



Agriculture Distribution

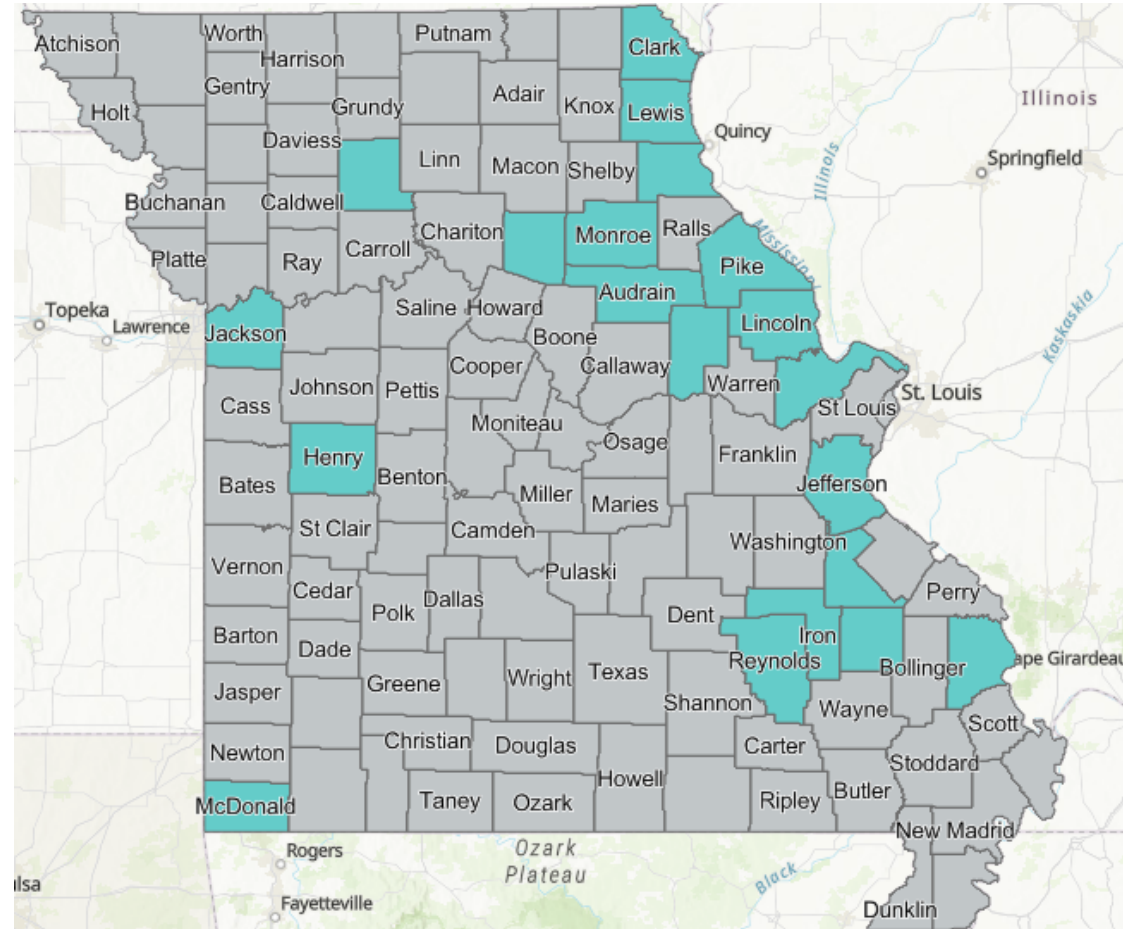
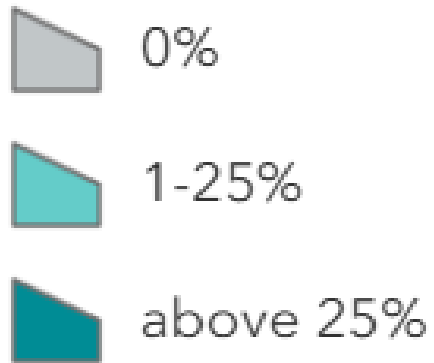


Well Sampling Data

Fluoride



Percent elevated
above MCL



Well Sampling Data

PFAS – Emerging Contaminants

Per- and polyfluoroalkyl substances



Bioaccumulating synthetic chemicals

Health effects

- Increased cholesterol levels
- Lower antibody response to vaccines
- Liver enzyme changes
- Pregnancy-induced hypertension
- Reduced birth weight
- Kidney and testicular cancer



PFAS in microwave popcorn bags

Water Infrastructure Improvements for the Nation Act - WIIN

SDWA Section 2107



Get the Lead Out of School (GLOS) Drinking Water Act



RSMo 160.077

- **Mandatory water testing – effort to further reduce lead exposure in children**
- **<5 ppb lead; EPA Action Level 15 ppb**
- **\$27M → Testing, remediation, and/or filtration reimbursement**
 - 473 of 565 school districts reimbursed (funding has expired)
 - ~\$12 million paid out
- **92 school districts noncompliant w/ reporting**
- **Schools are to retest and report every 5 years**

Missouri Private Drinking Water



Safe Water is in Your Hands

health.mo.gov/private-drinking-water



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