

# Groundwater Quality Standards and Implementation

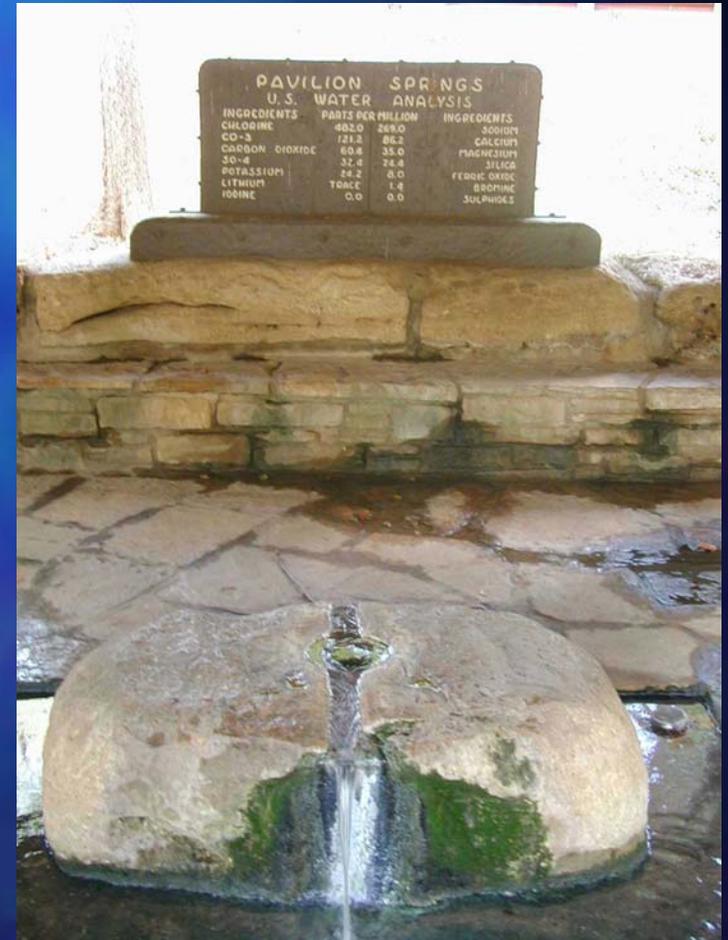
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# Why is Groundwater protection important?



# Direct Impact to Human Health



- 909 Public Water Supply systems use groundwater as their primary source of water (out of a total of 1,629 systems statewide)
- These systems provide 734,553 Oklahomans with drinking water – over 20% of the population of the state

# Private Drinking Water Wells



- In addition to public water supply systems, many rural Oklahomans get their water from private wells
- 44,435 private water wells are registered with the OWRB – serving approximately 150,000 individuals

# Agriculture Industry

- Approximately \$575 million of Agriculture industry in Oklahoma is dependent on irrigation from groundwater
- Unusable groundwater is no better than no groundwater at all!



# Groundwater is NOT Surface water!

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- No Clean Water Act requirement for protection
- Limited Federal Agency oversight
- Surface waters are public, but groundwater use is a private property right

# Philosophical differences

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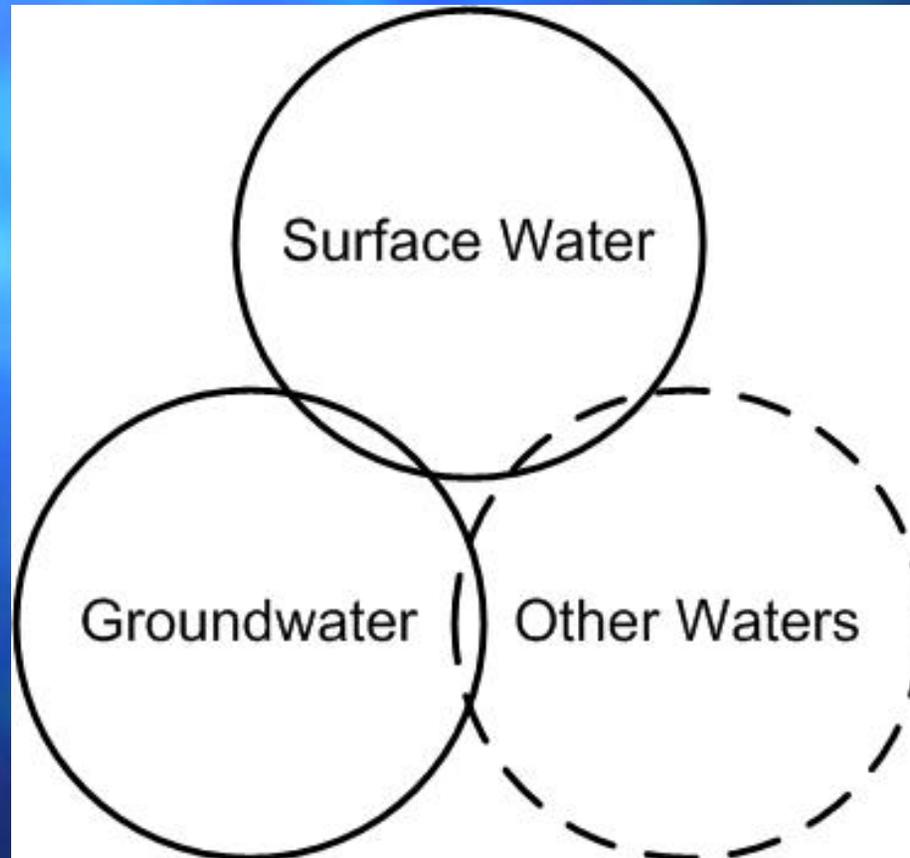
## ■ Surface waters

- Limited impacts can clean themselves in short order
- Regulatory environment with Federal government oversight

## ■ Groundwater

- Takes decades to recover from impacts
- Regulation left primarily to state government

# Arenas of Water Law

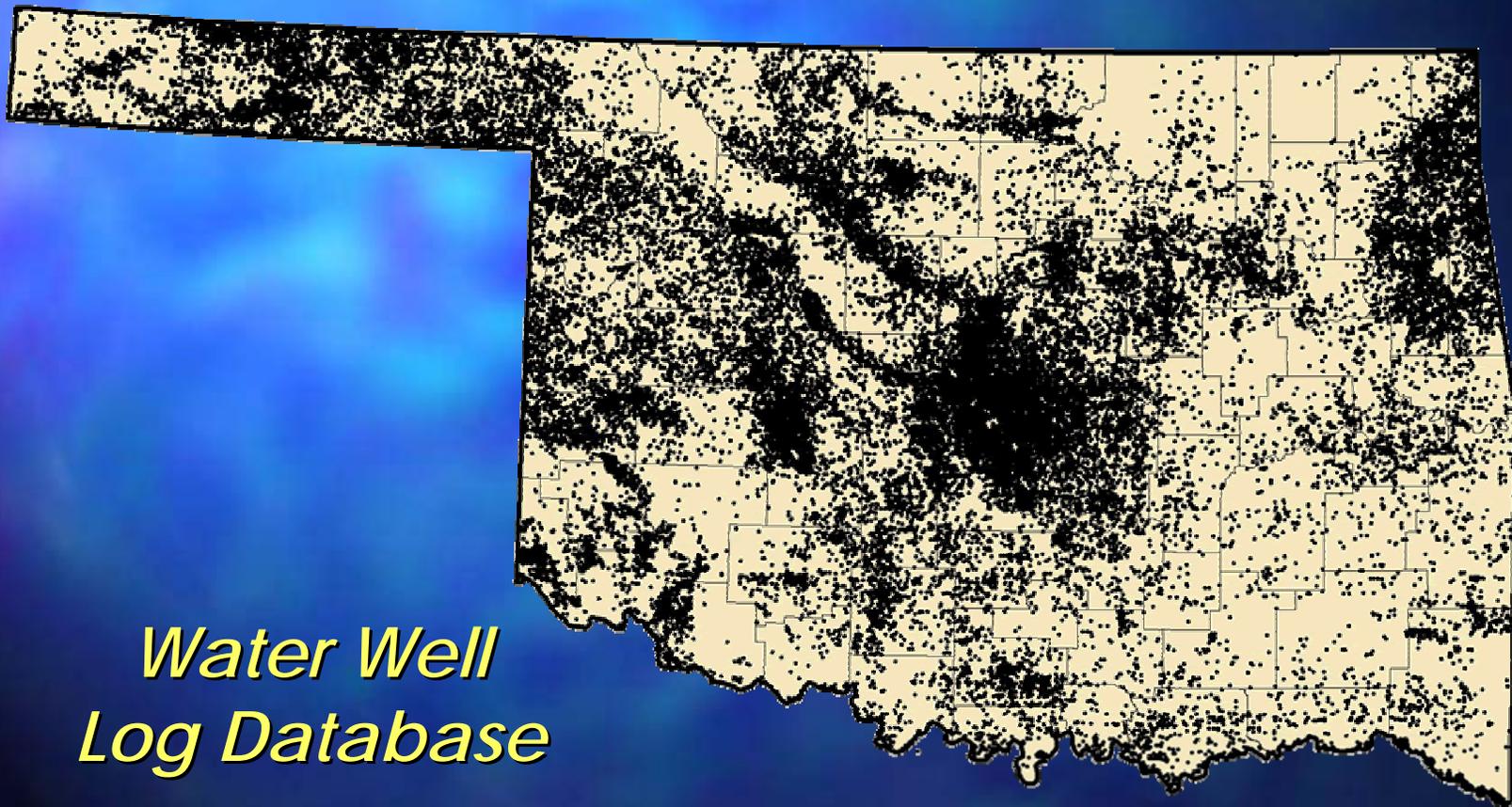


# Why do we need Groundwater Standards?

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- Oklahoma statutes prescribe it
  - OAC §82-1085.30
- Need a common philosophy and protection framework
- Human Health and economic integrity require it

# All Water Wells in Oklahoma (2003)



*Water Well  
Log Database*

# Existing Groundwater Quality Standards Philosophy



# Existing GWQS Philosophy

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- Protect to background
- Clean up to the criteria of the assigned beneficial use
- Beneficial uses are defined in the Standards and include Public and Private Water Supply, Agriculture, and Industrial and Municipal process and cooling water

**But is all groundwater the same? No!**

# Existing Groundwater Quality Standards

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- Classes are defined by TDS (Total Dissolved Solids) level, and beneficial uses assigned by class
- Newly proposed additions to the standards define specific areas where different beneficial uses apply, either because of areas of contamination or because greater protection is needed

# Groundwater classes

Class I Groundwater – Special Source Groundwater	Class IV Groundwater – 5,000-10,000 mg/L TDS
(Scenic River areas, wellhead protection areas, etc.)	Class III Groundwater – 3,000 – 5,000 mg/L TDS
	Class II Groundwater – Under 3,000 mg/L TDS

# Assigned Beneficial Uses

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- Special Source groundwater and groundwater under 3,000 mg/L TDS have Public and Private Water Supply, Agriculture, and Industrial and Municipal process and cooling water
- Groundwater from 3,000 to 10,000 mg/L TDS has Agriculture and Industrial and Municipal process and cooling water

# Groundwater Protection Concepts

- Preserve and protect background quality of groundwater
- Synthetic substances or any substances not occurring in that location shall not exceed the PQL (Practical Quantitation Limit)



# Groundwater Cleanup Criteria

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- Restore polluted groundwater to a quality that will support its designated beneficial use
- May also restore groundwater as specified in a site-specific remediation plan from a state environmental agency

# Future of Groundwater Quality Standards



# Quality/Quantity Issues

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- Evaluate known areas of groundwater contamination and publicize them
- Control contaminated areas to limit migration

# Quality/Quantity Issues

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- Recognize that Water Quality affects usable quantity of aquifers and vice versa
- Control new permit withdrawal applications from aquifers not meeting their assigned beneficial uses

# Surface Water/Groundwater Issues



- How do we manage contaminated groundwater discharges to surface water?
- Define some groundwater sources as tributaries to surface water in gaining streams
- Are streams nothing more than groundwater discharge features?

# Surface Water/Groundwater Issues

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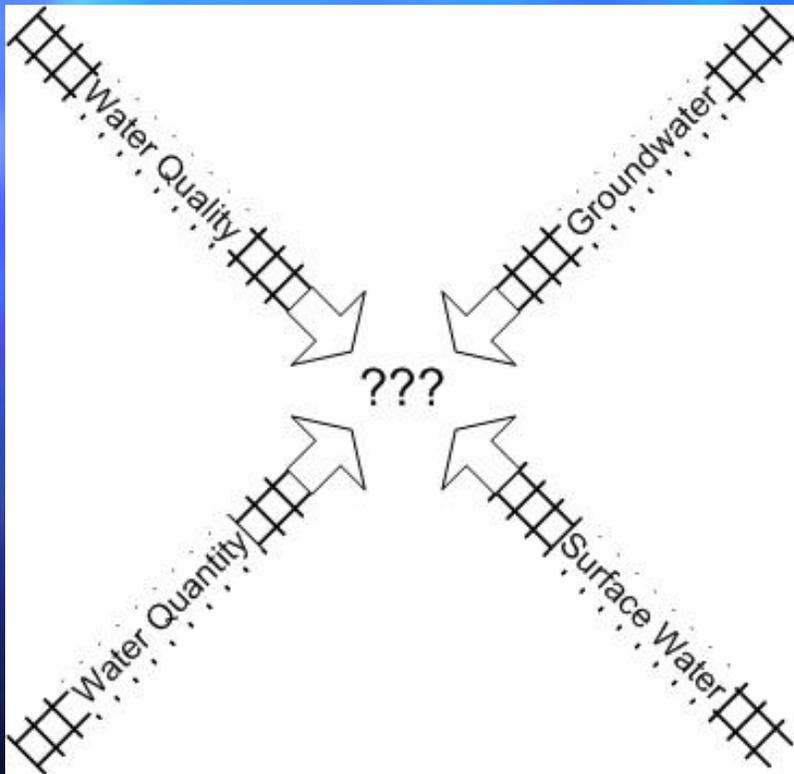
- Foster and coordinate GWQS implementation by sister state agencies
- Formalize the hydrological connection between surface and groundwater (like the Arbuckle study is doing now)

# General Groundwater Standards Development

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- Background concentration definition
- Identify contaminated areas
- Special consideration for sole source aquifers
- Implementation of beneficial use designation by TDS
- Classes of groundwater above 10,000 mg/L TDS

# Train wreck?



- Must recognize inter-relationships and develop a **HOLISTIC** strategy to protect and utilize our water resources

# What can you do?



- Let us and your elected officials know your expectations
- Learn about the law and become involved from a position of knowledge

[www.owrb.state.ok.us](http://www.owrb.state.ok.us)

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