Water for Oil & Gas Production: Legal Challenges and Opportunities*

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Abstract

Water is indispensable for oil and gas production. Its use in the process, however, is now under significant scrutiny as a result of environmental and health concerns, as well as unease over the volumes needed to extract oil and gas deposits. Moreover, the availability of water in various parts of the country is now limited due to dwindling local supplies and competing needs. As a result, oil and gas operators face a host of legal challenges - both for securing adequate quantities of water for extraction activities and for disposing of produced water - that could impede further oil and gas production activities. This presentation will discuss water law as it relates to oil and gas production and will consider the major water law-related challenges facing the industry.

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Solving Water Issues in the Oil Field:
Using Geology and More

26-27 February 2013 | Fort Worth, Texas

WATER USE IN OIL & GAS PRODUCTION: LEGAL CHALLENGES AND OPPORTUNITIES

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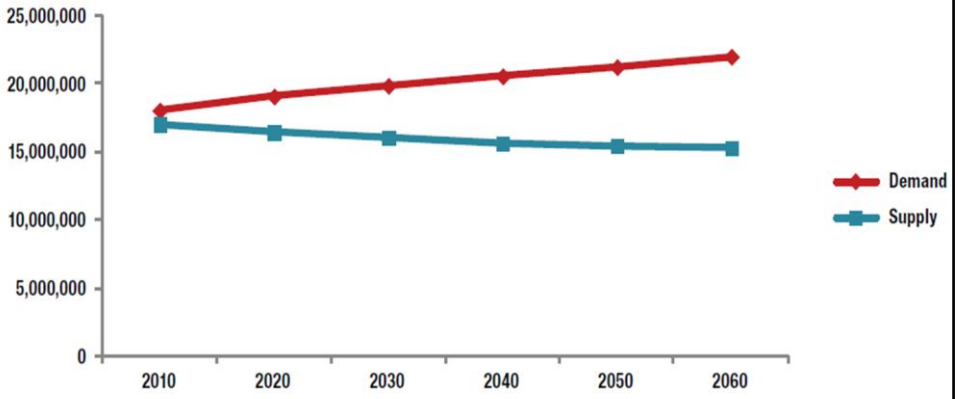
OUR WATER DILEMMA

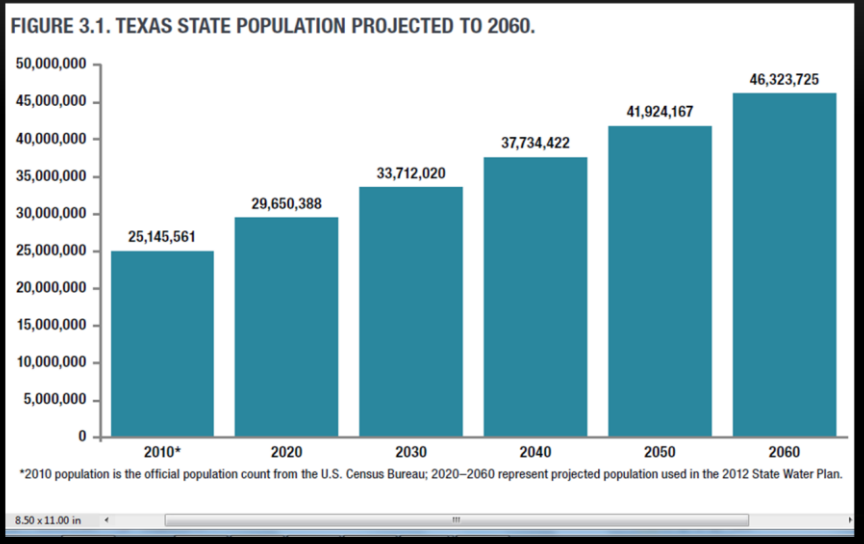
FIGURE ES.2. PROJECTED WATER DEMAND AND EXISTING SUPPLIES (ACRE-FEET PER YEAR).



Water For Texas: 2012 State Water Plan (Executive Summary, p. 3)
http://www.twdb.state.tx.us/publications/state_water_plan/2012/2012_SWP.pdf

Presenter's notes: Water Demand in Texas: Projected to increase 22% percent b/w 2010 to 2060--From ~18 MAC/year to ~22 MAC/year.
Water Supply in Texas (surface water, groundwater, and reuse water): Projected to decrease ~10% b/w 2010 to 2060--From ~17.0 MAF/year to ~15.3 MAF/year; Groundwater supplies projected to decrease 30%; From ~8 MAF/year to ~5.7 MAC/year. Decrease is primarily due to depletion of the Ogallala Aquifer and mandated reduced withdrawals in Gulf Coast Aquifer to prevent land subsidence.
Same trend across most of the US.

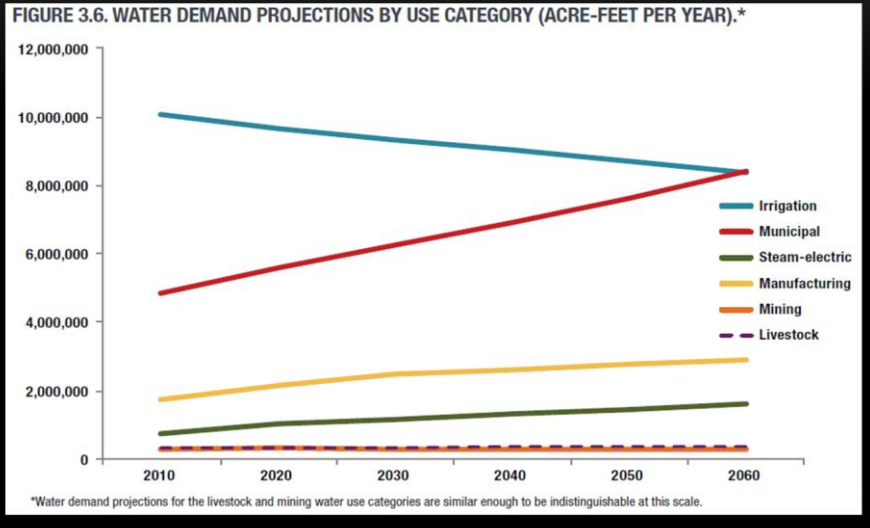
OUR WATER DILEMMA



Water For Texas: 2012 State Water Plan (p. 130)
http://www.twdb.state.tx.us/publications/state_water_plan/2012/2012_SWP.pdf

Presenter's notes: One of the chief reasons for growing demand is population growth, as illustrated by Texas. BUT, that not the sole reason.

OUR WATER DILEMMA



Water For Texas: 2012 State Water Plan (p. 137)
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OUR WATER DILEMMA

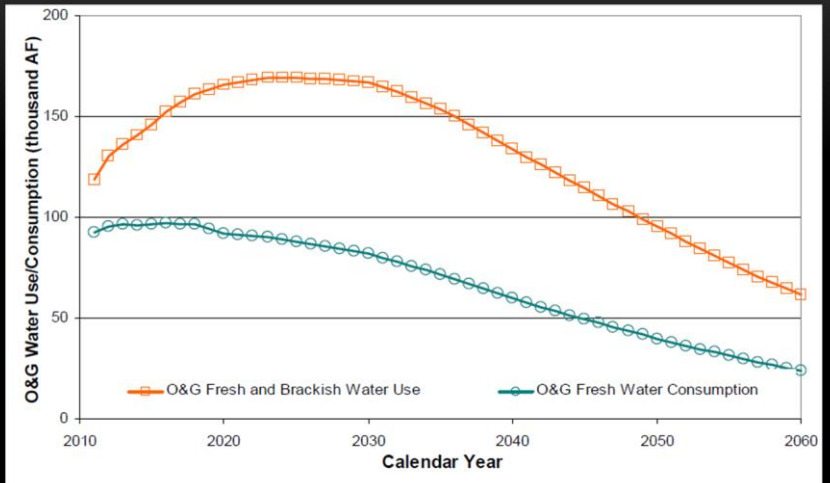


Figure 49. State-level projections to 2060 of oil and gas industry water use and fresh-water consumption.

Oil & Gas Water Use in Texas: Update to the 2011 Mining Water Use Report, Prepared for Texas Oil & Gas Association, Bureau of Economic Geology, The University of Texas at Austin (p. 81)

Presenter's notes: In light of the decline of water supplies, water for mining activities can be (and has been increasingly) a controversial topic.

WATER USE IN FRACING

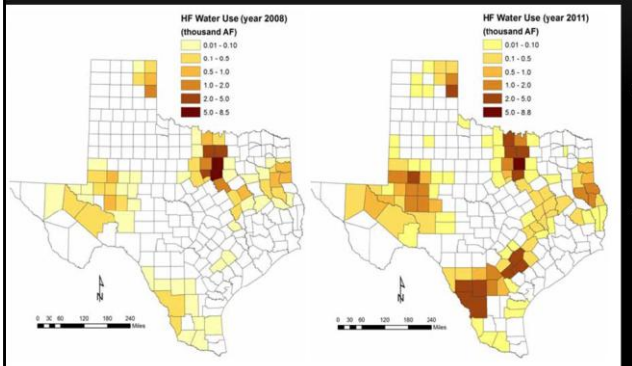


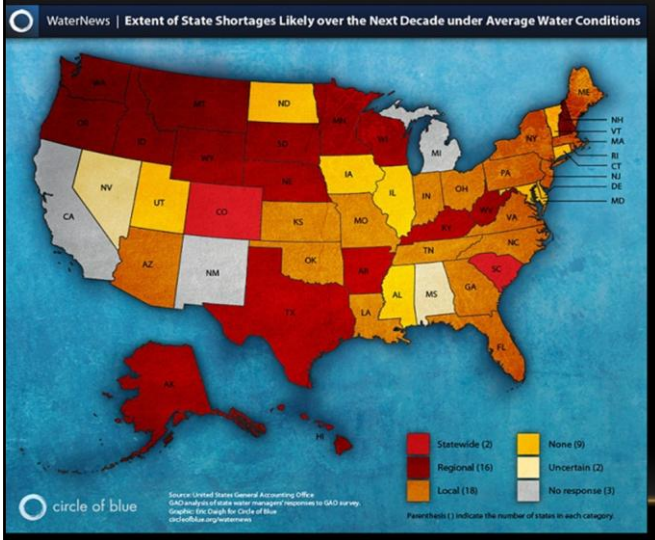
Figure 45. Spatial distribution of HF water use in 2008 and 2011.

Oil & Gas Water Use in Texas: Update to the 2011 Mining Water Use Report, Prepared for Texas Oil & Gas Association, Bureau of Economic Geology Scott W. Tinker, Director Jackson School of Geosciences The University of Texas at Austin (p. 60)

- Nationally, water use for hydraulic fracing comprised 0.1–0.8% of total water use by basin
- In 2011, 0.96% of total water sold by TRWD for oil/gas drilling
- ***BUT***
  - By 2020, 40% of water in Eagle Ford's La Salle County, TX is expected to be used in fracing operations
  - In Upper Trinity Groundwater Conservation District (west of Fort Worth), in the first half of 2011, share of groundwater used in fracing was 40%, up from 25% in 2010

Presenter's notes: While this is not necessarily a state-wide (or national) issue, it is certainly a local issue.

CONCERNS ABOUT WATER USE IN OIL/GAS INDUSTRY

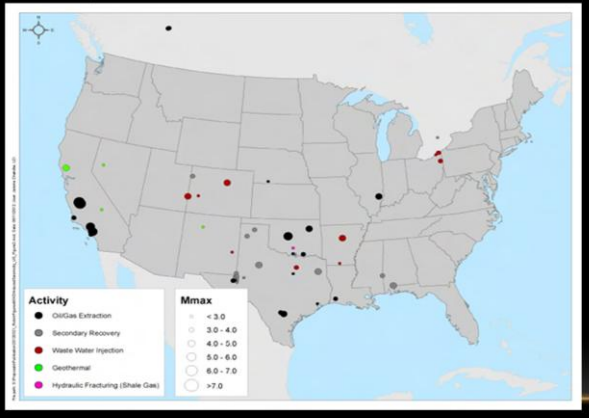


Competing Water Needs for Increasingly Scarce Fresh Waters

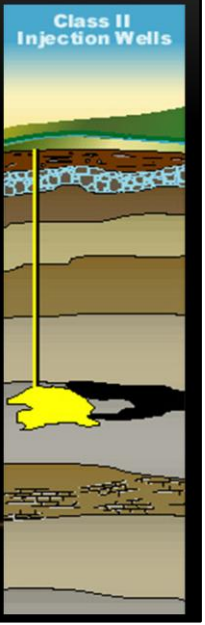
- Growing populations
- Industry & manufacturing
- Agriculture
- The environment
- Mining

CONCERNS ABOUT WATER USE IN OIL/GAS INDUSTRY

- Removal from the hydrologic cycle through "permanent" injection/ storage of waste water in deep formations
- Earthquakes

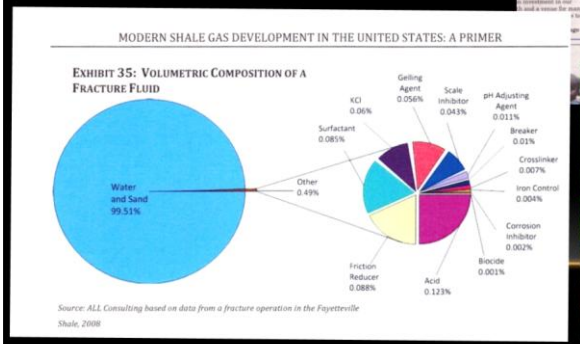


Circles indicate the location of earthquakes that were caused or "likely related" to energy technologies. The larger the circle, the larger the quake. (http://www.scientificamerican.com/article.cfm?id=fracking-can-cause-earthquakes)



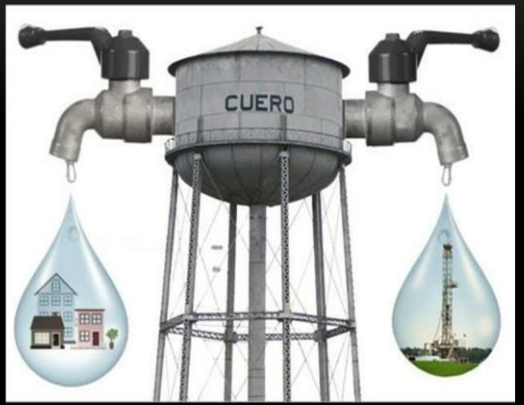
CONCERNS ABOUT WATER USE IN OIL/GAS INDUSTRY

- Chemicals used in fracing
- Seepage through formation into aquifers
- Leakages of gases along wellbore
- Inadequate storage, transportation, protection from storms and runoff
- Frac water discharges, spills, and leaks flowing into rivers, recharge zones, etc.



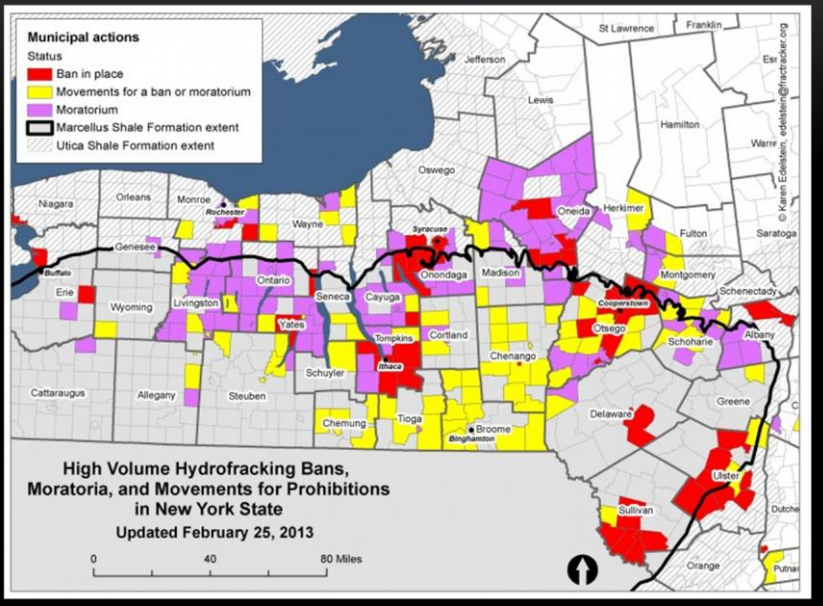
LOCAL RESPONSES TO CONCERNS

- Cities in Lavaca and DeWitt Counties (Eagle Ford area) citing municipal needs and drought conditions as reasons for not supplying water to oil and gas producers
- August 2011, City of Grand Prairie first TX municipality to ban use of city water for fracing
- August 2011, Arlington, TX cited Chesapeake for permit violation for using Arlington water to frac a well away from drill site



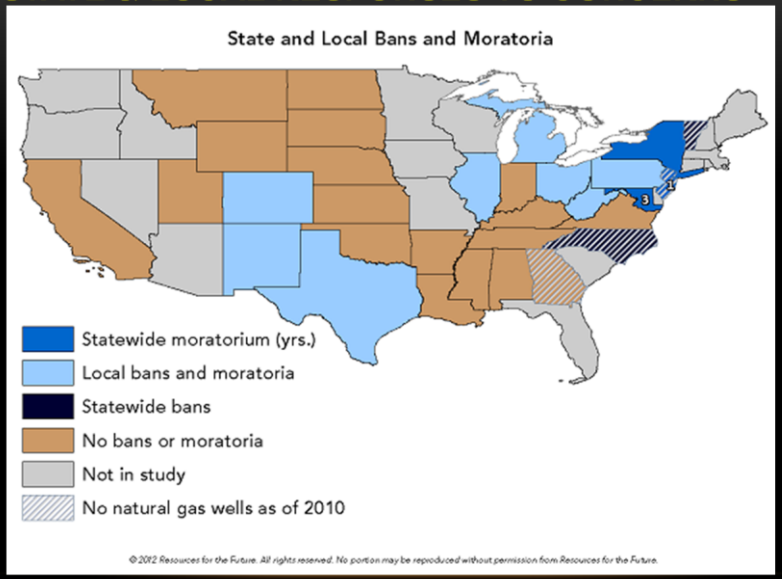
- Fort Worth – Ban on wastewater injection wells
- Denton – Moratorium on new drilling and production permits replaced in January 2013 with rules requiring closed-loop drilling systems and "green" completions
- Flower Mound – Freshwater wells setbacks; floodplain setbacks; pre-drilling, post-drilling, and post-fracturing water analyses; pre-drilling, post-drilling, and periodic soil sampling

LOCAL RESPONSES TO CONCERNS



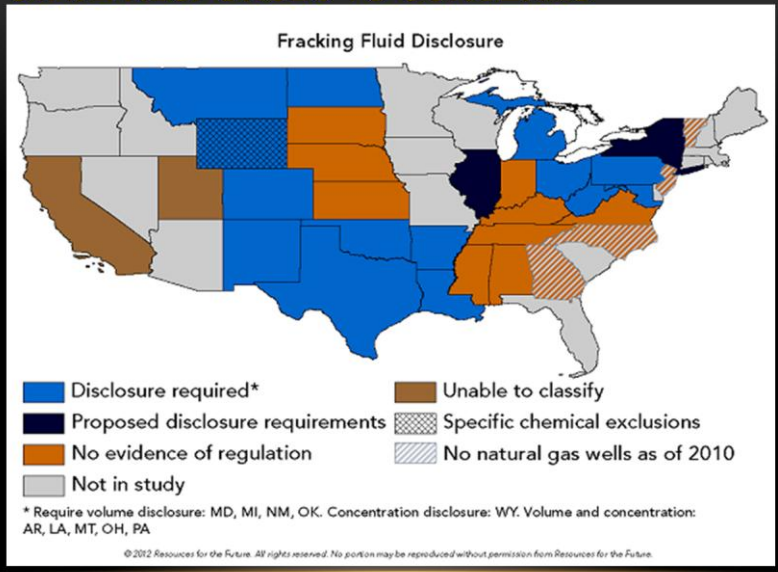
Fracktracker website: http://www.fractracker.org/maps/ny-moratoria/

STATE & LOCAL RESPONSES TO CONCERNS



Resources for the Future. *A Review of Shale Gas Regulations by State*, http://www.rff.org/centers/energy_economics_and_policy/Pages/Shale_Maps.aspx

STATE RESPONSES TO CONCERNS



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Presenter's notes: Texas is first state to require well-by-well disclosure of all ingredients of fracturing fluids being used anywhere in the state.

FEDERAL RESPONSES TO CONCERNS

US Environmental Protection Agency = Draft Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuel (*comments period closed August 2012*)

- Would make "oil and gas hydraulic fracturing operations using diesel fuels as a fracturing fluid, or as a component of a fracturing fluid.... subject to UIC Class II permitting requirements"
- Would apply where EPA is the permitting agency under SDWA's Underground Injection Control program and where diesel fuel is part of the fracturing fluid
- Would obligate EPA program administrators and permit writers to apply guidance going forward in their permitting of UIC Class II wells
- Final guidance document expected sometime in 2013

FEDERAL RESPONSES TO CONCERNS

US Department of Interior (BLM)

- May 2012 = Issued Draft Rule for Hydraulic Fracturing on Public and Indian Lands
- January 2013 = Withdrew draft and announced it would redraft the proposed draft rule
- Unpublished new draft now circulating on the Internet (*http://www.eenews.net/assets/2013/02/08/document_ew_01.pdf*)
  - Require public disclosure of fracing chemicals (after completing fracing operations) but allow reporting through Fracfocus.org
  - Well-bore integrity assurance requirements to verify that fluids used do not escape during fracturing operations
  - Requirements for oil and gas operators to have a water management plan for handling fracturing fluids that flow back to the surface

FEDERAL RESPONSES TO CONCERNS

US Environmental Protection Agency = Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources:

- Studying impact of fracing on drinking water at 5 stages of the fracing process
- Studying impacts of poor well construction and the potential hazards posed by nearby wells, natural fractures and the toxicity of chemicals used in the process
- Completion scheduled for late 2014

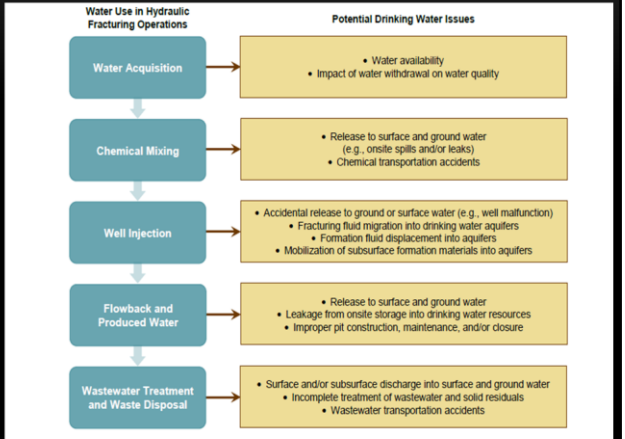

Figure 2. Potential drinking water issues associated with each stage of the hydraulic fracturing water cycle. The potential issues help to define the fundamental research questions. Figure reprinted from the Study Plan (US EPA, 2011e).

EPA Study of the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources; Progress Report (December 2012) (p. 9), http://www.epa.gov/hfstudy/pdfs/hf-report20121214.pdf

FEDERAL RESPONSES TO CONCERNS

US Securities and Exchange Commission = Requesting confidential disclosures from oil/gas companies of information about fracing fluids to ensure companies inform investors about risks the company may face related to its operations. Questions include: which chemicals the operator injects into the ground, what operators are doing to minimize water use, and what steps they are taking to minimize water use and environmental impacts. Also, the SEC is investigating whether operators are overstating the long term productivity of their natural gas wells.

CURRENT LEGAL ENVIRONMENT FOR WATER USE IN OIL/GAS DEVELOPMENT

Federal Laws

- ***Safe Drinking Water Act*** = Explicitly excludes "underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities" from the Underground Injection Control Program. (42 U.S.C. 300h(d)(1)(B)(ii))
- ***Clean Water Act***
  - Regulates disposal of discharges of pollutants (s.a., produced water) into surface waters of the US under NPDES program
  - Exempts stormwater discharges from oil/gas "exploration, production, processing, or treatment operations, or transmission facilities" (33 U.S.C. § 1362(24))

Presenter's notes: Exemptions under Energy Policy Act of 2005. UIC Program regulates the construction, operation, permitting, and closure of injection wells that place fluids underground for storage or disposal.

CURRENT LEGAL ENVIRONMENT FOR WATER USE IN OIL/GAS DEVELOPMENT

State Laws

- Subject to various state and municipal laws regulating water allocation and quality
  - Water rights permitting
  - Well spacing and design criteria
  - Wastewater disposal rules
- At least 16 states that have adopted or are considering fracing fluid disclosure laws (AR, CA, CO, LA, MA, MD, MI, MT, ND, NM, NY, OH, OK, PA, TX, & WY)
- Common Law
  - Nuisance
  - Subsurface Trespass

FUTURE OF WATER USE IN OIL/GAS DEVELOPMENT

Regulations

- ***Federal***
  - Environment Protection Agency
  - Department of Interior
  - Efforts to remove SDWA/CWA exemptions
- ***State***
  - Disclosure laws
  - Recycling requirements
  - Earthquakes?

Lawsuits

- Cases claiming water contamination and health injuries from fracing activities
- Cases related to water contamination filed against various state and federal agencies claiming failure to follow procedure and/or enforce existing rules

FUTURE OF WATER USE IN OIL/GAS DEVELOPMENT: CHALLENGES AND OPPORTUNITIES

Frac Water Recycling

Improved Fracing Technology

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