Underground Injection Control

in California

Drinking Water Protection Section
US EPA Region 9
April 21, 2015

Current Events

San Francisco Chronicle

Oil waste pumped into state's aquifers

HOW DID THIS HAPPEN ?

Los Angeles Times

LOCAL / CALIFORNIA

State lawmakers slam oil regulators after embarrassing lapses

San Francisco Chronicle

EDITORIALS

Regulatory snafu in oil fields may be tainting water supplies

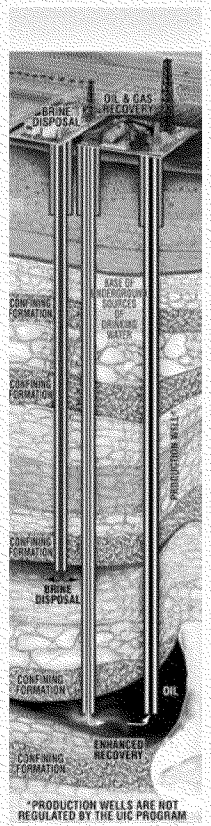
San Francisco Chronicle | March 6, 2015 | Updated: March 6, 2015 2:01pm

http://www.sfgate.com/business/article/State-let-oil-companies-taint-drinkable-water-in-6054242.php

State let oil companies taint drinkable water in Central Valley

By David R. Baker Updated 12:11 pm, Sunday, February 1, 2015

Outline



Background:

- ❑ SDWA & UIC Program
- ❑ USDWs, Aquifers & AEs
- ❑ Well Classes
- ❑ Class II Wells

California Class II UIC Program:

- ❑ State Primacy
- ❑ EPA Audit & Review
- ❑ Well Investigation by State
- ❑ Well Closure & Evaluation
- ❑ EPA Request for Compliance & State UIC Revision Plan
- ❑ EPA Response to Plan
- ❑ Legislative Action
- ❑ Latest News

SDWA & UIC Program

The Safe Drinking Water Act (**SDWA**) is the main federal law that ensures the quality of Americans' drinking water.

The Underground Injection Control (**UIC**) Program is responsible for regulating the construction, operation, permitting and closure of injection wells that place fluids underground for storage or disposal. There are 6 categories of UIC wells (well Classes I – VI).

SDWA and the UIC Program are designed to protect by preventing endangerment of underground sources of drinking water (**USDW**s).

USDWs, Aquifers & AEs

What is an USDW?

An aquifer or portion of an aquifer that:

- supplies any public water system *or* contains a sufficient quantity of ground water sufficient to supply a public water system, *and*
- currently supplies drinking water for human consumption, or
- contains fewer than 10,000 mg/L total dissolved solids (TDS) *and* is not an exempted aquifer.

What is an aquifer?

An underground geologic formation that is capable of yielding a significant amount of water to a well or spring.

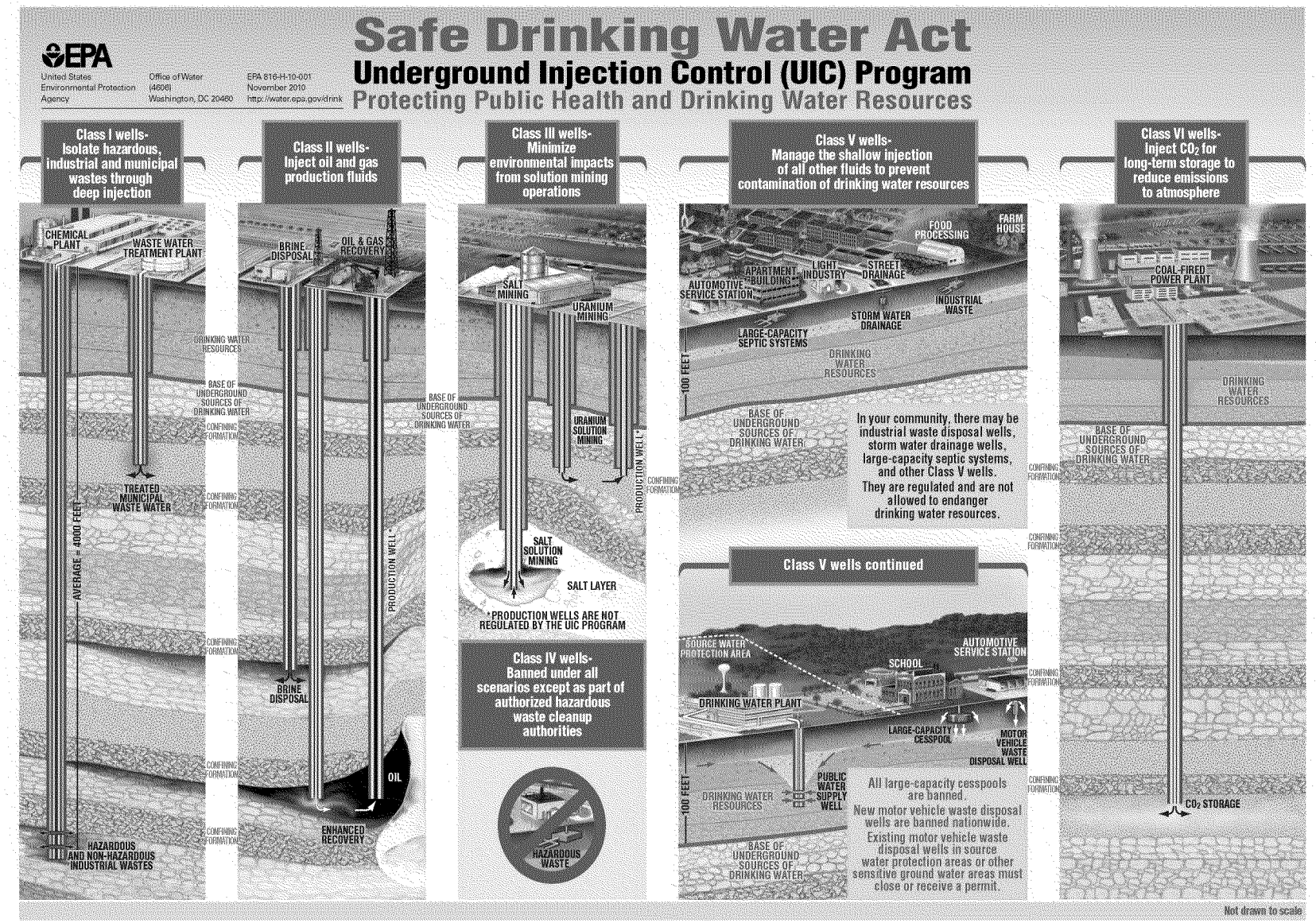
What is an aquifer exemption (AE)?

40 CFR 144.16 allows EPA to exempt certain USDWs from SDWA protection if:

- they contain oil or minerals
- recovery is impracticable
- they are contaminated
- they contain TDS greater than 3,000 mg/L.

All AEs require EPA review and approval. EPA has final responsibility for AE decisions, even if a state has primacy for the UIC program.

Well Classes



Class II Wells

What is a Class II Well?

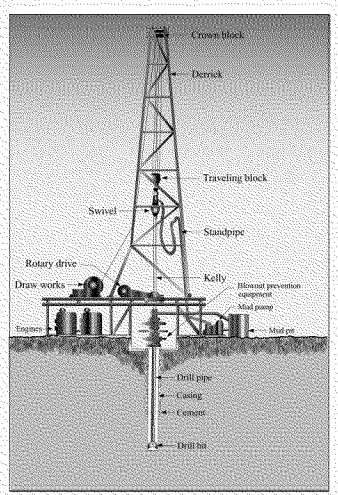
Class II wells inject fluids associated with oil & natural gas production. Most of the injected fluid is salt water (brine), which is brought to the surface in the process of producing (extracting) oil and gas. In addition, brine and other fluids are injected to enhance (improve) oil and gas production.

What are the types of Class II wells?

- enhanced recovery wells
- disposal wells
- hydrocarbon storage wells.

How do Class II wells protect drinking water resources?

By injecting the brine deep underground, Class II wells prevent surface contamination of soil and water.



State Primacy

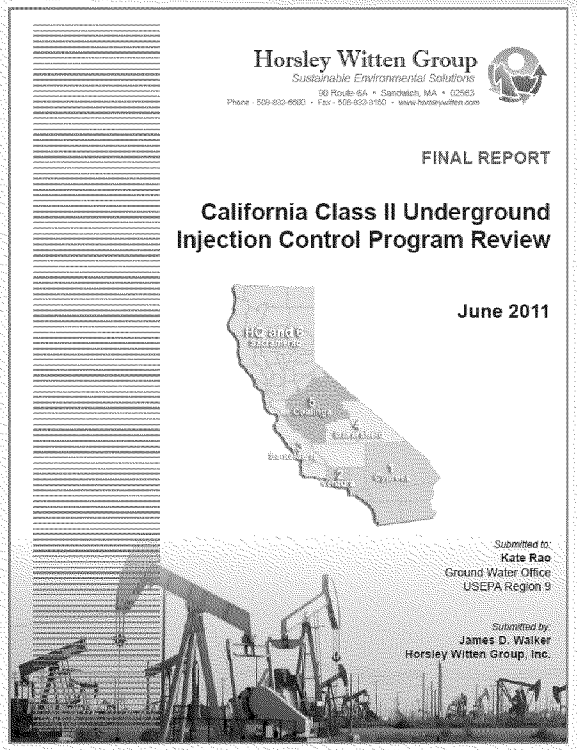
March 1983: The California Division of Oil, Gas and Geothermal Resources (DOGGR) was granted primacy to implement the Class II UIC program.

Petroleum Industry's Contribution to California's Economy	
Sales -	$143 billion (direct, indirect and induced)
Employment -	364,032 jobs (direct and indirect)
Wages -	$22 billion (direct, indirect and induced)
Taxes -	$5 billion

Source: LECG, based on 2004 data

There are a total of **50,000** Class II injection wells in California.

EPA Audit & Review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FINAL REPORT

California Class II Underground Injection Control Program Review

June 2011

Submitted to:
Kate Rao
Ground Water Office
USEPA Region 9

Submitted by:
James D. Walker
Horsley Witten Group, Inc.

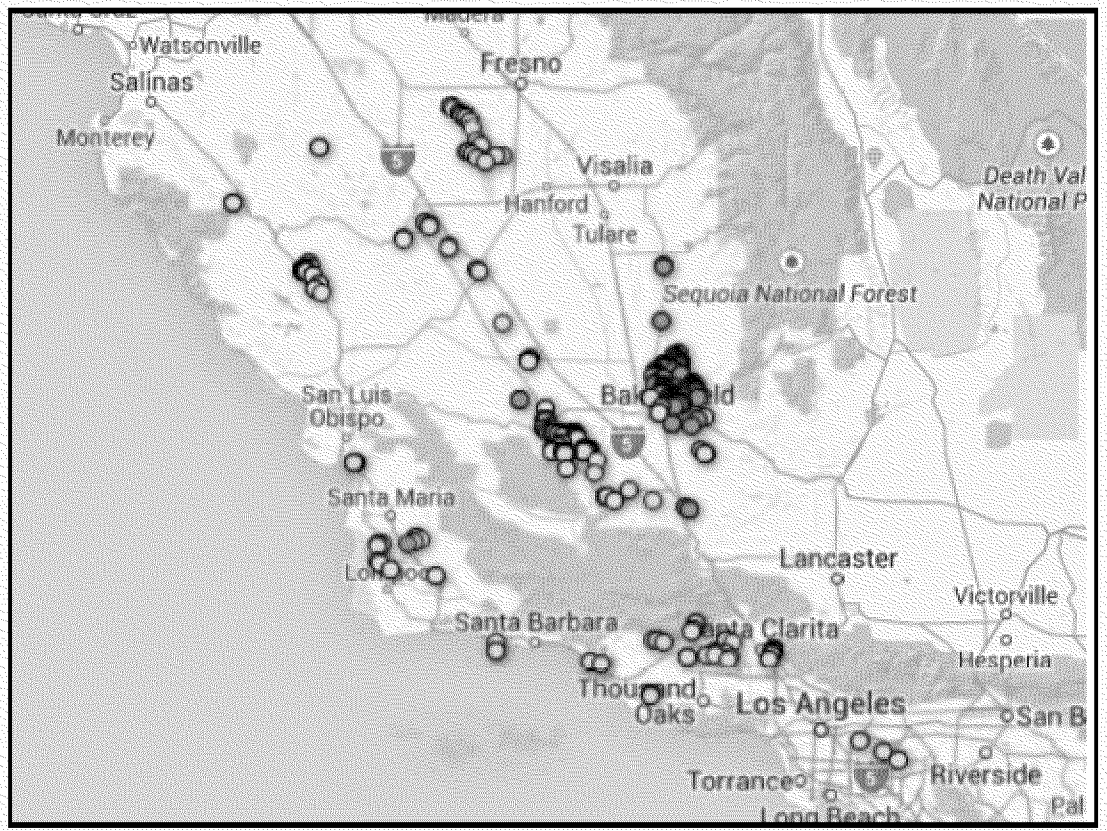
2011: EPA conducted an audit of the State Class II UIC Program, identifying deficiencies such as how the State defines protectable USDWs and their methods for identifying an appropriate Area of Review when permitting new wells.

2012: EPA conducted a preliminary review of AEs in California, which indicated injection into fresh formations and beyond AE boundaries.

Well Investigation by State

June 2014: DOGGR, working with the State Water Resources Control Board (**Water Board**), identified instances where

- injection had been permitted into non-exempt aquifers containing high quality water
- Injection wells were located in the vicinity of water supply wells.



Wells under Investigation

as of August 2014

- 0-3000 ppm
- 3000-10000 ppm
- unknown

Well Closure & Evaluation

July 2014: DOGGR ordered operations ceased at 11 wells due to injection in non-exempt high quality aquifers.

Thursday, Jul 31 2014 04:14 PM

State shuts another Kern oil injection well

BY JOHN COX Californian staff writer jcox@bakersfield.com

July 2014: EPA requested that DOGGR and the Water Board (the **State**) provide

- ✓ drinking water source evaluation from improper Class II injection
- ✓ documentation on AEs.

September 2014: The State responded to EPA, describing their identification and assessment efforts to date.

EPA Request for Compliance

December 2014: EPA issued a follow up request for a UIC Program Revision Plan by February 2015 to ensure program compliance by <u>February 15, 2017</u>, addressing

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 22, 2014

Jonathan Bishop
Chief Deputy Director
California State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812-0100

Steven Bohlen
Oil and Gas Supervisor
Division of Oil, Gas and Geothermal Resources
California Department of Conservation
801 K Street, MS 18-05
Sacramento, CA 95814-3530

Dear Messrs. Bishop and Bohlen:

- ✓ Class II wells that may be injecting into non-exempt aquifers
- ✓ process for consideration/submittal of new and expanded AEs
- ✓ review of exempt aquifers using new data.

State UIC Revision Plan

CA Reviewing Oil Wells as EPA Cracks Down on "Mismanaged" Program

© AP Photo/ Rich Pedroncelli
Environment
04:52 10.02.2015(updated 10:51 10.02.2015)

The US Environmental Protection Agency is going to review California's underground injection control program amid concerns about the impact of oil and gas companies on the quality of drinking water in the region, the EPA told Sputnik.

The New York Times | http://nyti.ms/1zre1Vv

U.S. | NATIONAL BRIEFING | WEST

California: Water Safety Plan Sent to E.P.A.

By THE ASSOCIATED PRESS FEB. 9, 2015

February 2015: The State submitted the requested Class II UIC Program Revision Plan.

February and March 2015: State-sponsored workshops concerning AE proposal requirements were held in Bakersfield and Long Beach for oil and gas operators.

EPA Response to Plan

California Class II UIC Program Corrective Action Plan Schedule

A. **Drinking Water Protection Well Evaluations**

- Complete evaluations for "Category 1" injection wells **(M**
- Complete evaluations for "Category 2" injection wells **(Ju**
- Revise Enclosure B of the State's February 6th letter to inc schedule for completing a review of these wells and subm applicable, to meet the February 15, 2017 compliance de
- Complete evaluations for "Category 3" injection wells **(F**

B. **Well Shut-Ins**

- Shut-in deadline for wells injecting into non-exempt, non below 3,000 mg/l TDS **(October 15, 2015)**
- Shut-in deadline for wells injecting into the 11 aquifers hi exempted by EPA pursuant to this corrective action plan
- Shut-in deadline for all existing wells injecting into non-e mg/L TDS **(February 15, 2017)**

C. **Aquifer Exemption Process**

- Issue Aquifer Exemption Guidance **(April 1, 2015)**
- Deadline for submission to EPA of all proposed aquifer exemptions for Category 1 wells injecting into aquifers containing 3,000 mg/L TDS or less (excluding wells injecting into the 11 aquifers historically

March 2015: EPA responded to the State's plan, specifying a schedule of required activities and deliverables with target milestones and deadlines, in order to track progress towards meeting the February 2017 compliance deadline.

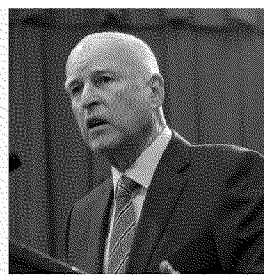
Legislative Action

March 2015: The CA State Legislature held a joint oversight hearing of the Senate Natural Resources & Water and Environmental Quality Committees titled "Ensuring Groundwater Protection: Is the UIC Program Working?"

BUSINESS

Lawmakers demand oil firms stop pumping waste into aquifers

By David R. Baker | March 20, 2015 | Updated: March 20, 2015 7:32pm



6 CA state senators wrote to Gov. Brown requesting steps be taken to stop illegal injection into non-exempt aquifers.

4 members of the US House of Representatives wrote to DOGGR requesting that all wells under investigation be shut down immediately.

Latest News

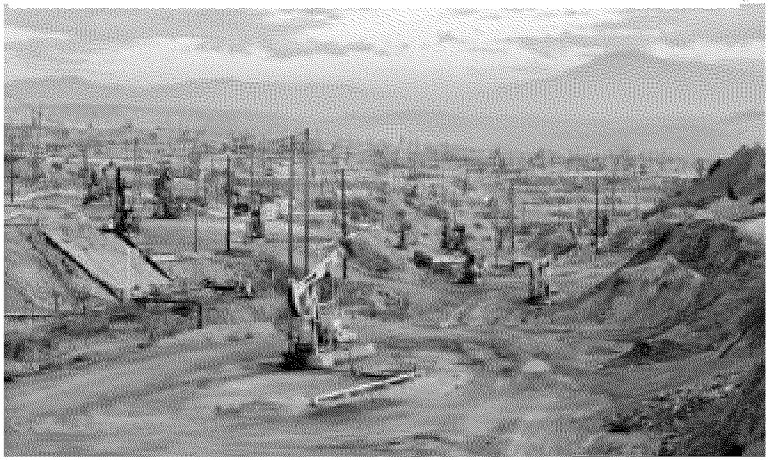
March 2015: The Kern County Board of Supervisors wrote to Administrator McCarthy requesting that EPA not order the further closure of any injection wells.

April 2015: While the State continues to implement their Revision Plan, EPA will continue its oversight to make sure that the State program meets federal requirements & that USDWs are protected.

U.S.

In California, Farmers Rely on Oil Wastewater to Weather Drought

by ZOÉ SCHLANGER / APRIL 5, 2015 6:54 AM EDT



ANY QUESTIONS ?