

INJECTION WELLS IN CALIFORNIA

Crucial Backbone of Oil Production

HOW IT WORKS

Injection wells have been used for decades in California to assist in oil production – to increase oil recovery and safely dispose of water produced with oil and gas.

When oil is pumped from underground, it comes out co-mingled with water – called “produced water.” That water is either treated and used for enhanced oil recovery (EOR) or disposed of by injecting it back underground. A small portion is treated and provided for agricultural purposes, providing a critical source of irrigation water during the drought. This water must meet specific water quality standards and permit requirements dictated by local regulators.

50,000
INJECTION
WELLS
IN CALIFORNIA

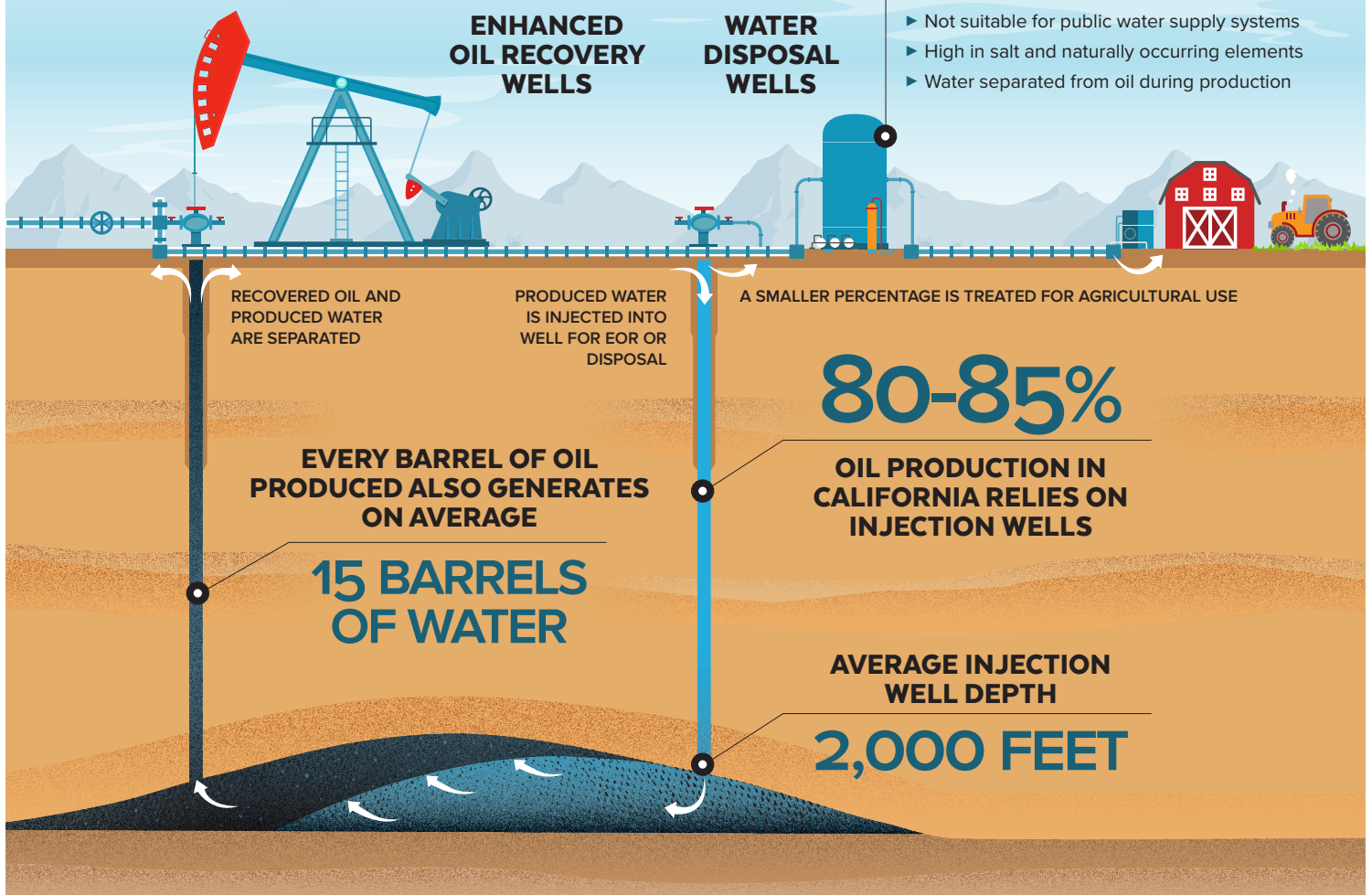
48,200 **1,800**

**ENHANCED
OIL RECOVERY
WELLS**

**WATER
DISPOSAL
WELLS**

PRODUCED WATER:

- ▶ Not suitable for public water supply systems
- ▶ High in salt and naturally occurring elements
- ▶ Water separated from oil during production



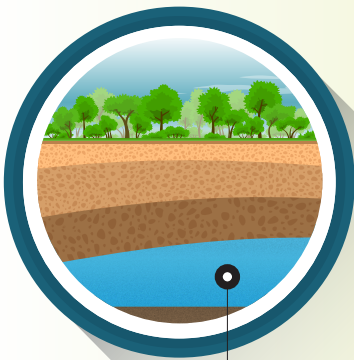
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LOCATION IS EVERYTHING

The Safe Drinking Water Act prohibits disposing of produced water into aquifers used for public water supply systems.

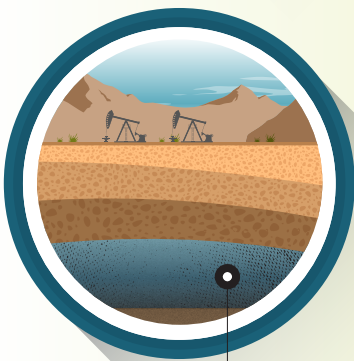
NOT ALL AQUIFERS ARE CREATED EQUAL



INJECTION PROHIBITED

“NON-EXEMPT”

Potential public water supply, such as drinking and irrigation water



INJECTION ALLOWED

“EXEMPT”

Not usable for public water supply, such as drinking and irrigation water

REGULATORY OVERSIGHT & COORDINATION

The Underground Injection Control (UIC) program regulates the operation of injection wells, providing both federal and state agency oversight:

- ▶ U.S. Environmental Protection Agency
- ▶ California Division of Oil, Gas & Geothermal Resources
- ▶ State Water Resources Control Board

RELIABLE DOMESTIC ENERGY SOURCE



PROVIDES CALIFORNIA **455,940**

JOBS



GENERATES **\$204 BILLION**

IN ECONOMIC ACTIVITY PER YEAR

\$38 BILLION IN LABOR INCOME PER YEAR



ENERGY SECURITY

REDUCING DEPENDENCY ON FOREIGN COUNTRIES OR OTHER STATES FOR OIL IMPORTS



LARGEST OIL

PRODUCING STATE IN THE NATION



HIGHEST

ENVIRONMENTAL STANDARDS



EVERY BARREL PRODUCED IN CALIFORNIA IS USED IN CALIFORNIA

Source: Los Angeles Economic Development Corporation's June 2015 Report: "The Oil and Gas Industry in California: Its Economic Contribution and Workforce in 2013."