

Frequently Asked Questions About Recycled Oilfield Water for Crop Irrigation

In California, oil wells actually extract far more water than oil from underground oil-bearing geologic formations. The water that is brought to the surface during oil and gas production activities is called “produced water.” Produced water is first separated from the oil, and then is either disposed of in injection wells, treated and discharged to percolation ponds, or is treated and recycled. Recycled produced water has been used to irrigate crops in the areas east and north of Bakersfield for at least 30+ years. Kern County is an arid area with water supply issues, with an economy linked to agriculture and petroleum extraction.

Currently, there are four oil companies that send oilfield produced water to four irrigation districts. The Central Valley Water Board requires that these oil companies monitor the produced water for constituents in order to ensure that there will not be any negative impacts associated with the use of their produced water. To date, no studies have shown that irrigating food crops with produced water poses any threat to public health.

Nonetheless, some water quality advocates have contended that the monitoring requirements that the Regional Board has imposed are not sufficient to definitively conclude that irrigating with produced water is completely safe, and some have urged regulatory agencies to ban this practice entirely. In the interest of ensuring public safety and confidence in these practices, staff of the Central Valley Water Board recently took action by convening a Food Safety Expert Panel in order proactively seek additional expert input.

How Much Water is Produced During Oil Production?

In 2013, 1.9 billion barrels of water (about 240,000+ acre feet) were produced during the production of approximately 150 million barrels of oil (42 gallons/barrel). About 50,000 acre feet per year of produced water is used for irrigation of crops for human consumption. The remaining produced water is typically disposed in permitted underground injection wells or surface disposal (ponds and sprayfields).

What About Fracking?

Hydraulic fracturing, or “fracking,” consists of pumping a mixture of liquid, chemicals, and sand down an oil or gas well under high pressure to cause the geologic formations to crack. Oil wells that have been fracked also generate produced water. The Board and the public have different concerns about produced water from wells that have been fracked, since little is known about the toxicity of these fracking fluids. Therefore, the Board has never authorized the use of produced water from fracked wells on food crops.

How is Oilfield Water Treated and Regulated?

Produced water is treated by the oil companies and is blended with surface or groundwater before used for crop irrigation.

Cawelo Water District, North Kern Water District, Jasmin Mutual Water District, and Kern-Tulare Water District receive produced water to supplement imported surface water and pumped groundwater to meet irrigation needs of the crops grown within the Districts. This water is one of the significant water sources to 95,000 acres of cropland. These discharges of produced water to the Districts are regulated by Waste Discharge Requirements (WDRs) which conditionally allow the water to be used for irrigation and require monitoring.

How is Waste Water Regulated?

Recycling of water is encouraged by State policy as a means to supplement California's limited water supply, provided the water is suitable for the intended use. The Water Quality Control Plan for the Tulare Lake Basin, Second Edition, revised January 2004 (the "Basin Plan") provides that "blending of wastewater with surface or groundwater to promote beneficial reuse of wastewater may be allowed where the Regional Water Board determines such reuse is consistent with other regulatory policies set forth or referenced herein." The Basin Plan designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board.

What Type of Data is Collected on the Use of Recycled Oilfield Water for Crop Irrigation?

The Water Boards collect data on flow and oilfield waste constituents, and have recently expanded this list to include the expanded testing required by the [Groundwater Monitoring Model Criteria](#) adopted through SB 4. Monitoring and reporting results for the discharges of oilfield produced water to agriculture are available for review at the Central Valley Water Board's Fresno Office. Some data are also available [online](#). Review of the data is a priority, and if the food safety experts find a problem, the practice will end.

What Will the Food Safety Expert Panel Do?

Since the State Water Board and Regional Water Boards are not responsible for crop safety (*the California Department of Public Health is*) the Central Valley Water Board convened the Food Safety Expert Panel to advise in crop safety matters. The Central Valley Water Board will work with the Food Safety Expert Panel to investigate whether recent allegations concerning potential threats to food safety from oilfield produced water have merit.

The Food Safety Expert Panel is reviewing produced water reuse on agriculture, related constituents, and if they pose a threat to public health. If the Food Safety Expert Panel and the State and Regional Boards find there is a threat to public health associated with the application of oil field produced water to crops, the oil field operators will be required to modify their discharges so they do not pose a threat to public health or cease discharge.

Who Sits on the Food Safety Expert Panel?

The Food Safety Expert Panel includes representatives from the California Department of Public Health, Food and Drug Branch; California Department of Food and Agriculture; California Department of Fish and Game; State Water Resources Control Board; and, PSE Healthy Energy. The Project Charter can be found [here](#).

How Can I Stay Informed?

Visit the Central Valley Regional Water Quality Control Board webpage on [Oil Fields – Food Safety](#) for more information.

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