

## **When Oilfields Become Water Fields, the Saga of Small Producers in California**

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California oilfields now operate on the average at a water oil ratio of 7:1 producing about 2.1 billion barrel of oil annually. Many of the fields previously operated by major oil companies have now become challenging operations for small producers. Pumping units and surface operations originally designed to handle primarily oil and some water are now producing primarily water and traces of oil. Economics of oil production in many cases look dismal even at occasional high prices. Added on top of that the environmental concerns about substantial produced water have brought many of California operations to the verge of extinction. Substantial resources of small producers are wasted through power cost to lift, process and dispose of voluminous amount of water. This paper documents geologic- and completion-related causes of high water production in some of these geriatric oilfields and projects the type of investments needed to rescue these fields from pre-mature abandonment.