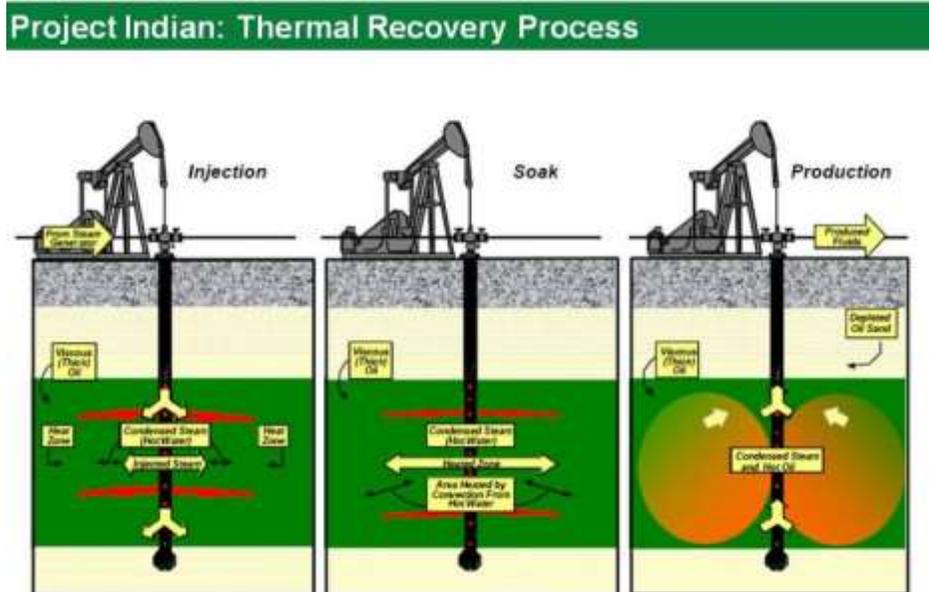


WHAT EVERY SAN BENITO RESIDENT SHOULD KNOW ABOUT CYCLIC STEAM INJECTION OIL DRILLING



Q. What is cyclic steam injection?

A. Cyclic steam injection is used to extract very heavy oil. This technique, also known as “huff and puff” and “thermal recovery”, is an energy intensive, polluting and dangerous well stimulation technique that decreases the viscosity of oil so that it can flow and be more easily extracted. For each well, more than a million gallons of water are super-heated and injected at high pressure underground, in order to liquefy the deep reserves of tar like oil. The technique has become more prevalent in the past decade because oil companies have to work harder to extract the remaining oil reserves on our planet.



Q. Are they doing cyclic steam injection in San Benito?

A. Yes. In 2013, the San Benito Planning Commission and Board of Supervisors approved a 15-well cyclic steam injection project called “Project Indian”, proposed by Citadel Oil Corporation of southern California. Project Indian site is just six miles south of the Pinnacles National Park, home to one of the nation’s premiere condor recovery programs. In hopes of bypassing the required state environmental review process, Citadel

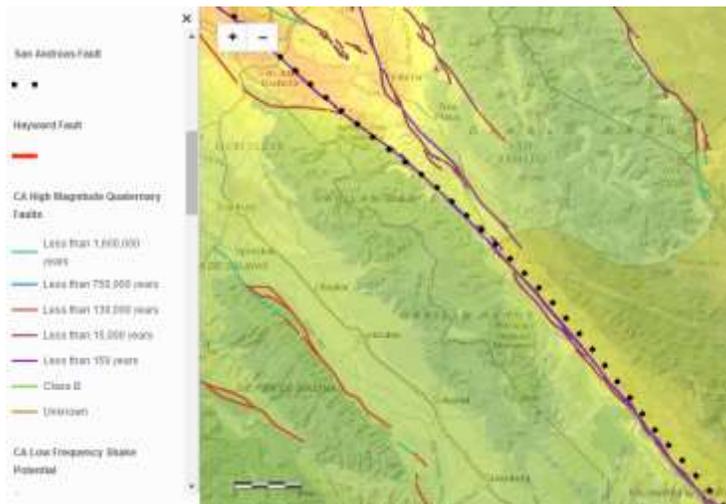
requested permits for “test wells”. The Board of Supervisors approved these test wells without conducting a full Environmental Impact Report. The Center for Biological Diversity, sued the county in order to halt the project, claiming that the supervisors had violated the law and cited the potential of Project Indian to pollute the watershed for the Salinas agricultural valley in Monterey County. Citadel proposes to drill many more steam injection wells on their oil lease which covers 688 acres. The [stock analysis web site, trefis.com](http://stockanalysisweb.com) states that Citadel expects to extract 100 million barrels of oil from Project Indian. This could result in a large oil field with cyclic steam injection wells similar to those found in Coalinga.



Cyclic Steam Injection wells (Coalinga, CA)

Q. Can cyclic steam harm our water?

A. Yes. Because it uses so much water, cyclic steam can deplete our limited aquifers. In addition, when a well has been “steamed”, a large amount of contaminated wastewater (“produced water”) is generated that’s toxic to wildlife and ranch stock. This produced water often contains salts, heavy metals and radioactive substances. Citadel is drilling “shallow” wells. This means that they are drilling not far below the aquifers used for water supplies. Additionally, Citadel will be injecting steam at high pressure underground. We know that any fluid or gas will naturally move from areas of high pressure to low pressure. This is a law of physics. Where is the low pressure underground? Toward the surface. This means that contaminated water will naturally move toward the surface. This can pollute the groundwater and surface water, and eventually enter the nearby streams and rivers. Additionally, Project Indian is located near earthquake faults, including the San Andreas Fault. This makes cyclic steam injection even riskier.

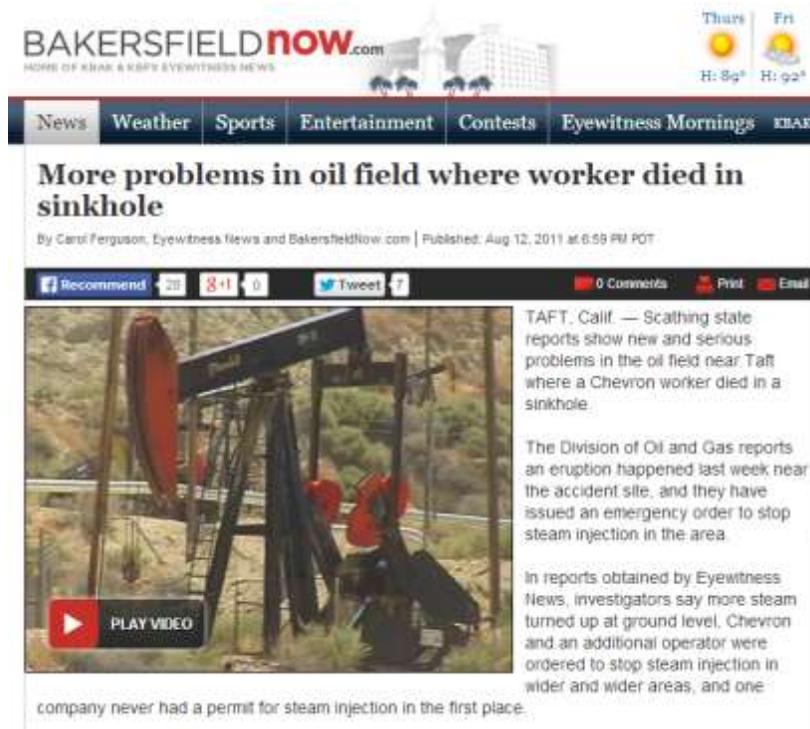


Q. Won't the "Project Indian" site bring in jobs and money to our county?

A. No. In fact, it could have an adverse affect on our agricultural and tourism economy. The few short term jobs that Citadel provides will go to oil riggers from out of county -- most likely from King City or San Ardo. Since the first 15 wells will consume 17.5 million gallons of precious water, ranchers in the Bitterwater area may see a drop in their domestic well pressure. Oil field sites are often associated with an increase in truck traffic and accidents. Any increase in truck traffic on Highways 25 (Airline Highway) and G-17 to King City would damage these already fragile roads and incur repair costs that the county is unprepared to cover.

Q. Citadel says that cyclic steam injection is very safe. Is this true?

A. No. In Kern County, a number of sinkholes have been linked to cyclic steam injection. A Chevron worker was killed in 2011 when he fell into a sinkhole that erupted near a cyclic steam injection well, located in Taft, CA.



References:

- 1) Sara Ruben, "Enviro Group Sues San Benito County to Stop Oil Exploration", Monterey County Weekly, July 11, 2013, http://www.montereycountyweekly.com/blogs/news_blog/article_bdcf9fae-e992-11e2-b3ed-0019bb30f31a.html
- 2) Citadel Exploration web page on Project Indian, <http://www.citadelexploration.com/index.php/projects/project-indian>
- 3) Morgan Smith, "Profit from Oil Field Redevelopment with Citadel", July 5, 2012, Trefis.com investor article: <http://www.trefis.com/stock/coil/articles/130549/profit-from-oil-field-redevelopment-with-citadel/2012-07-05>
- 4) Johannes Alvarez, Sungyun Han (Dept. of Petroleum Engineering, College Station, Texas) "Current Overview of Cyclic Steam Injection Process", Journal of Petroleum Science Research, Volume 2, Issue 3, July 2013
- 5) Dr. Timothy Krantz (Professor of Environmental Studies, University of Redlands), Letter to San Juan Bautista City Council, April 14, 2014
- 6) Carol Ferguson, "More Problems in Oil Field Where Worker Died in Sinkhole", Eyewitness News and BakersfieldNow.com, August 12, 2011, <http://www.bakersfieldnow.com/news/local/127624563.html>