

**CALENDAR ITEM
INFORMATIONAL**

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**INFORMATIONAL REPORT ON THE STATUS OF THE INVENTORY OF OFFSHORE
LEGACY WELLS AT SUMMERLAND, ELLWOOD, AND RINCON AREAS IN
SANTA BARBARA AND VENTURA COUNTIES**

INTRODUCTION:

The purpose of this staff report is to update the Commission on staff's continued work on inventory of legacy wells and to provide a brief history of the Commission's nearly 60 year involvement in legacy well issues.

BACKGROUND:

Recent proposed legislation, Senate Bill 900 (Jackson), sought to establish and fund the Commission's coastal hazard removal and legacy oil and gas well remediation program. Senator Jackson introduced this bill because of concerns about the ongoing presence of oil along the shores off Santa Barbara and Ventura counties, and more specifically in response to beach closures and health warnings, due to oil, at Summerland Beach in Santa Barbara County. The bill was intended to provide modest yet reliable funding for the Commission to create a detailed inventory of legacy wells in the coastal zone that have a high potential to leak oil, monitor those wells and properly abandon high risk legacy wells. Legacy wells are those wells where no responsible party can be found. The bill was also intended to provide a framework for the State to remove coastal hazards, many of which are remainders of legacy oil and gas development infrastructure, which may impact health and safety as well as impede access and recreational opportunities to the public.

The Governor vetoed SB 900. The Governor's veto message directs the Department of Conservation, through the Division of Oil, Gas and Geothermal Resources (DOGGR), to work with the Commission to develop an inventory of legacy oil and gas wells and other hazards along the California coastline to determine oil seepage locations, rates and environmental impacts. The Governor stated that having this information will better inform what remedial actions might be warranted for the short- and long-term and appropriate ways of funding the

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needed actions.

The Commission has a long history of coordinating with DOGGR and will continue that coordination to ensure the inventory is as comprehensive and accurate as possible. The Commission continues to believe that this is incredibly important work to improve the health and safety of the communities in these areas and to protect the marine environment.

Independent of SB 900, the Commission directed staff on August 9, 2015, to undertake assessment efforts for the Becker Well, at Summerland Beach, and to continue research aimed at developing an inventory of legacy oil and gas wells and other hazards along the California coastline. Commission staff has worked over the past year to complete the research necessary to create the inventory and is in the process of finalizing its findings.

Summerland Beach is located approximately 10 miles southwest of the City of Santa Barbara and is adjacent to Lookout Park. Lookout Park provides a beautiful panoramic view of the ocean, and the Santa Barbara Channel, as it sits atop the bluffs overlooking the beach. The park also provides free public parking and access to Summerland Beach. While the beach is frequently impacted by oil, both visual and odor related, it provides a local and regional benefit. Summerland Beach is ideally located for significant public use and if ongoing health and safety concerns related to oil contamination can be mitigated, it would be a benefit to all citizens of the State.

LEGACY WELL INVENTORY:

Legacy wells are defined as wells with no, limited, or substandard abandonment histories which are the responsibility of the State. As such, staff focused its research on wells within the following categories:

- Wells located offshore up to the mean high tide line within the State waters.
- Plugged or abandoned prior to 1938 or with unknown date of abandonment Identified by DOGGR as plugged/buried oil & gas wells and as “not abandoned to current standards” or “not verified” in that time frame.
- Drilled by operators that are no longer in business (and not associated with any current operators or lessees) making them the responsibility of the State in the event of a leakage.

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After doing extensive research, it was determined that Legacy Wells were primarily located in the Summerland oil field. Well data has also been collected for other old oil fields such as Elwood and Rincon which were developed after Summerland (around 1929). Comprehensive research was conducted by reviewing DOGGR records. For wells having no DOGGR records, museums, universities, libraries, news articles and other sources of information were used to gather relevant information on individual wells. All collected information has been compiled, organized and analyzed and as a result, staff maintains files with all available data, including last operators, for these wells.

After extensive research, Commission staff has identified and categorized offshore legacy wells into Category 1, and wells of concern into Category 2 and 3, in accordance with a risk-based prioritization as shown here:

Category 1 (High Priority): Legacy Wells

- Have minimal or no individual well histories regarding the well construction or the abandonment techniques used
- Were drilled by operators that no longer exist and are not associated with any current operators or lessees)
- Were plugged or abandoned prior to 1938; and
- Are located in State waters (within the 3 mile offshore limit extending shoreward to the mean high tide line)

Category 2 (Medium Priority): Wells of Concern

- Plugged/abandoned between 1938 and 1950
- Most have some documentation for the abandonment process that may help identify inadequate abandonment, and
- May have a credible operator accountable in the event of a leak

Category 3 (Low Priority): Wells of Concern

- Wells abandoned after 1938
- Based on their abandonment process may not meet current standards, and
- Have a current operator, or may have a prior operator that can be traced to a current operator

Commission staff's research has identified a total of 198 Category 1 Legacy Wells. Of that, 190 are located in the Summerland oil field offshore of Santa Barbara County. The remaining eight Category 1 Legacy Wells reside in the Elwood and Rincon fields, which were developed after Summerland (around 1929).

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Now that staff has concluded the initial records research, staff plans to take the following steps, assuming appropriate funding is available, in developing additional information to ensure the inventory is as comprehensive as possible to inform potential abandonment and remediation activities:

1. Initiate research to find any available data on onshore drilling and abandonment practices of the last operators associated with Category 1 wells during that time period
2. Initiate research to find any available data on general oil field industry drilling, completion and abandonment practices during that time period which may shed light on the legacy well status and abandonments
3. Conduct aerial surveys to identify oil seeps that may correspond to wells in either Category 1 or 2
4. Develop a prioritized list of the wells in Category 1 and 2 based on their proximity to identified seep locations
5. Conduct targeted dive and magnetometer surveys to further explore and specify well location and status
6. Update bathymetry surveys, as needed for barge access
7. Develop a prioritization matrix and plan for well abandonment and remediation

HISTORY OF EARLY OFFSHORE PRODUCTION:

In the 1890's, the world's first offshore oil was produced in Summerland oil field by wells drilled from piers extending into the Santa Barbara Channel. By the end of 1895, there were a total of 42 drilled wells in the Township of Summerland. By 1900, there were 22 operators, 305 producing wells, and 59 abandoned wells. The Summerland coast was virtually obscured by wharfs and piers that jutted out over the water supporting derricks and pumps. The Summerland legacy wells are very shallow and range in depth from 150 feet to a maximum of 600 feet. These were the first offshore oil wells in the world and the beginning of the offshore oil and gas industry in the Santa Barbara Channel.

By 1903, a total of 412 wells had been drilled in the Summerland Field. Of that number, 198 wells were producing an average of 1.82 barrels a day per well, 100 wells had been abandoned and the remaining 114 were idle. Later in 1903, a storm battered the unstable wells, many of which were then abandoned.

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By 1906, oil production was down 61 percent from 1899 peak production (approximately 200,000 barrels per day) to 81,848 barrels of oil. The cumulative oil production from the Summerland Field from 1895 to 1906 was 1,373,980 barrels. By the close of 1913 there were 150 producing wells, the remainder having been “abandoned” or left “idle.”

In 1915, the California Division of Oil and Gas was formed and the State Oil and Gas Supervisor documented that:

“Wells wrecked by a storm a number of years ago were never repaired. In 1912 broken casing could be seen under the water with small quantities of oil and gas continually escaping. The field is also of note in that operations are continued, notwithstanding the very low production per well, which only amounts to 1.03 barrels per day. This is due partly to the fact that there is a local market for the product and also the fact that operating costs are very low. The wells are shallow and very close together and a large number can be operated from one power source.”

The last operating wells at Summerland ceased producing by the end of 1939.

PRIOR WORK AT SUMMERLAND:

Over the past 60 years, the Commission has coordinated a significant number of cleanup, debris removal and abandonment operations to reduce leakage from old wells in Summerland. Commission staff has worked with DOGGR for permitting and occasional past funding from the DOGGR Hazardous and Idle-Desert Well Abatement Fund (previously called the Hazardous Well Fund), as well as the United States Coast Guard, the predecessor to the Federal Bureau of Ocean Energy Management (BOEM) and the Federal Bureau of Safety and Environmental Enforcement (BSEE). The following summarizes these cleanup and abandonment operations.

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Year	Operation
1956-1957	Removal of obstructions from approximately 1/2 mile of beach.
1960	Survey to prepare a map (Lindbergh Map) of all well casings and pilings that could be located. Ninety targets identified, approximately 60 were well casings.
1967	Located, cleaned out and re-cemented 2 wells on beach. Removed casing from 1 offshore well. Beach Clearance Project No. 1
1967	Located, cleaned out and cemented "A" well. Beach Clearance Project No. 2.
1968	Locate, cleanout, and place a 5' cement plug in and remove casings from 60 wells plus retrieving a substantial amount of bottom debris. No correlation exists as to which wells were addressed. Beach Clearance Project No. 3.
1975	Remove three wellheads and other beach obstructions. Cemented Treadwell #10 in 6' diameter pipe (Griswold work).
1976	Abandonment of wells Williams #1, 2A, 3A, and Becker Fee #2 and one other unidentified well.
1981	Cemented Treadwell #17, inspected Freckman Seep #1 and inspected Treadwell #10
1993	Abandoned 3 wells in Work Area #2, identified as State Lands Commission wells #'s 10, 11 & 13.
1994	Perform hydrographic, sonar and magnetometer and a diver survey which tied the wharves and piers back to the current location of the Summerland city streets.

Between 2000 and 2015, studies and assessments of the legacy well and coastal hazard issues in Summerland have continued with occasional non-governmental organization and academic funding. In 2013, the Commission staff worked with a Summerland citizen's group to develop an incident report form to better track and understand the frequency of leakage. The incident report form is available for use by citizens on the Commission's website. The information from the incident report form is organized and maintained by the Commission staff. In 2015, the Commission authorized an assessment of the Becker Onshore Well and Commission staff successfully located, assessed and marked the well for future

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abandonment. Following this assessment, Commission staff worked with a consultant to develop a series of engineering solutions to abandon the Becker Onshore Well.

On October 4, 2016, Commission staff released the Notice of Preparation of a Draft Environmental Report for the Becker Well Abandonment and Remediation Project. The EIR process will continue through the end of the second quarter of 2017, at which point the Commission will work to undertake the full abandonment project.

CONCLUSION:

Commission staff will continue its long standing coordination with the Department of Conservation and the myriad of other stakeholders who have an interest in these legacy well issues, consistent with the direction of the Commission and with the Governor's veto language. In addition, as funding becomes available, staff will continue to build on its existing Legacy Well inventory. Staff will also proactively pursue opportunities for funding the work necessary to properly abandon and remediate these legacy wells.