



# COASTAL HAZARDS AND LEGACY OIL AND GAS WELL REMOVAL AND REMEDIATION PROGRAM

PROGRESS REPORT | DECEMBER 2019



**CALIFORNIA  
STATE LANDS  
COMMISSION**

Commissioners:

Eleni Kounalakis, Lieutenant Governor

Betty T. Yee, California State Controller

Keely Bosler, Governor's Director of Finance

Jennifer Lucchesi, Executive Officer

## INTRODUCTION

Established in 1938, the California State Lands Commission manages 4 million acres of tide and submerged lands and the beds of natural and navigable rivers, streams, lakes, bays, estuaries, inlets, and straits. These lands, often referred to as sovereign or Public Trust lands, stretch from the Klamath River and Goose Lake in the north to the Tijuana Estuary in the south, and the Colorado River in the east, and from the Pacific Coast 3 miles offshore in the west to world-famous Lake Tahoe in the east, and includes California's two longest rivers, the Sacramento and San Joaquin.

The Commission also monitors sovereign land granted in trust by the California Legislature to approximately 70 local jurisdictions that generally consist of prime waterfront lands and coastal waters. The Commission protects and enhances these lands and natural resources by issuing leases for use or development, providing public access, resolving boundaries between public and private lands, and implementing regulatory programs to protect state waters from oil spills and invasive species introductions. Through its actions, the Commission secures and safeguards the public's access rights to navigable waterways and the coastline and preserves irreplaceable natural habitats for wildlife, vegetation, and biological communities. The Commission also protects state waters from marine invasive species introductions and prevents oil spills by providing the best achievable protection of the marine environment at all marine oil terminals in California and offshore oil platforms and production facilities.

SB 44 (Jackson) Chapter 645, Statutes of 2017 provided funding to the California State Lands Commission to administer a Coastal Hazards and Legacy Oil and Gas Well Removal and Remediation Program. SB 44 requires the Commission to report to the Legislature annually, until January 1, 2026, on the activities and accomplishments of the Program for the prior year. The purpose of this report is to provide information on the Commission's activities from December 1, 2018, through November 30, 2019.



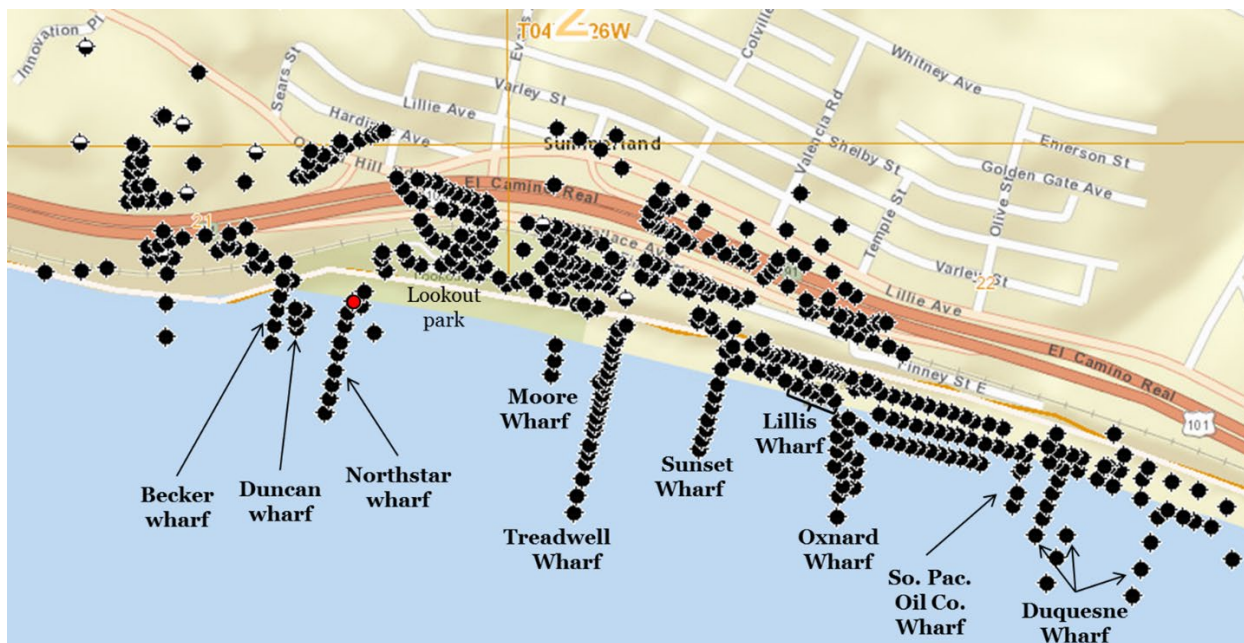


Figure 1. Summerland Legacy Wells in Santa Barbara County



Figure 2. Exposed railroad irons near Goleta Beach

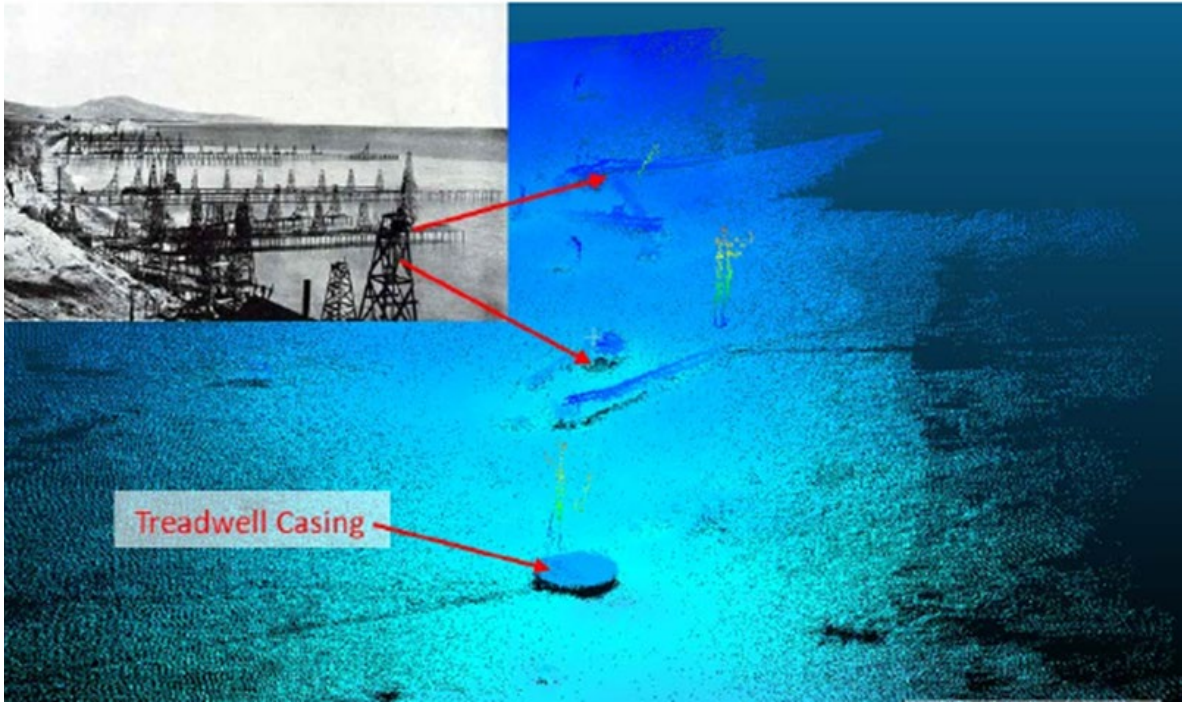
## PROGRAM ACCOMPLISHMENTS—2019

### a. Legacy Oil and Gas Wells (Legacy Oil Well Engineering Project)

In January 2019, the Commission retained InterAct PMTI, Inc., an oil and gas engineering consulting firm. Under its contract, InterAct provides engineering analysis, develops abandonment plans and cost estimates, and assists with California Environmental Quality Act (CEQA) preparation associated with the plugging, replugging, and abandonment of leaking legacy wells. InterAct also assists the Commission with field investigations to determine the origin and cause of surfaced oil. This work is a precursor to hiring a contractor to execute each abandonment plan.

As of November 2019, detailed draft engineering reports and abandonment plans have been developed for three legacy wells located off Summerland beach: The Treadwell #10 well, the CH Olsson #805 well, and the Duquesne #910 well. A draft addendum Environmental Impact Report has also been developed to facilitate CEQA compliance and allow for the three wells to be plugged and abandoned.

Treadwell #10 is a Category 1 legacy well located offshore in approximately 18 feet of water and is known to be leaking. The Commission surveyed the Treadwell #10 well in May 2019 to determine the well's condition and the source of leaking oil. Divers investigated the condition of an existing 6-foot diameter well cap that was found to be cracked in several places. The dive determined that the oil was leaking from an uncemented well casing, while also identifying nearby seeps that are suspected to be natural but will require further investigation. Sonar, bathymetric, and magnetometer surveys determined the water depth and gathered valuable ocean floor data. Sonar surveys showed the leaking well cap on the seafloor along with debris.



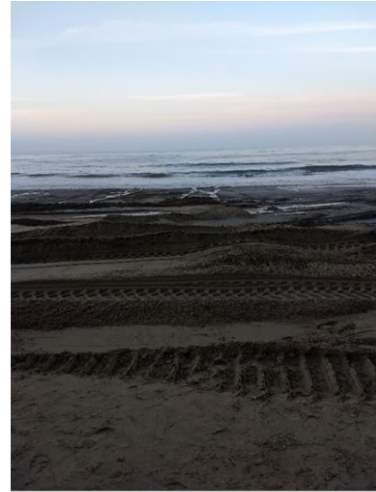
*Figure 3. Treadwell #10 well*

C.H. Olsson #805 is a Category 1 legacy well located in the tidal zone approximately 40 feet waterward of the Mean High Tide Line. On July 3, 2019, the Commission investigated the condition of the C.H. Olsson #805 well by means of surface excavation. Earthmoving equipment was mobilized in the early morning hours during low tide to excavate an area around the well to assess its condition and determine if a cofferdam installation is possible as part of a future abandonment plan. A cofferdam would protect the well head and work area from seawater intrusion during the abandonment process. The investigation confirmed the viability of abandoning the well using a cofferdam. The well was successfully uncovered, its structure assessed, and overburden debris (boulders, cement, timber, etc.) removed to ease future abandonment operations. The investigation concluded with site restoration and the removal of all equipment.





Before



After

*Figure 4. C.H. Olsson #805 well*

The Duquesne Wharf well #910 is on the east end of Summerland Beach, located in the tidal zone roughly 100 feet waterward of the Mean High Tide Line. The wellhead is 4 to 8 feet below the beach surface during the winter months at low tide. The well has a concrete cap but was leaking oil through the side of the casing in February 2017. The well was surveyed and measured when it was exposed in 2017. After the Olsson 805 wellbore was excavated in July 2019, surveyors were sent to the other end of the beach to locate Duquesne 910 relative to the -1.3' low tide that morning. It was estimated that the water level was about 60' below the well location at low tide.



**Duquesne  
Wharf**



**Well 910  
20" Casing**



*Figure 5. Duquesne #910 well*

As a result of the investigations, the Commission developed engineering assessments for the Treadwell #10, CH Olsson #805, and Duquesne #910 wells. These assessments analyze plug and abandonment options for each well, with a recommended approach for each based on the relative safety, efficacy, and cost. The Environmental Impact Report Addendum<sup>1</sup> assesses the potential for environmental impacts associated with the plug and abandonment of these near shore and tidal zone wells. This Addendum is intended to be used for CEQA compliance when pursuing future well abandonment projects along the coast. This programmatic approach will reduce costs associated with environmental impact analysis. The Commission is on track to consider the Environmental Impact Report Addendum, retain a consultant contractor, and execute the actual plug and abandonment of 1-3 Summerland beach wells in 2020. The actual number of wells abandoned will depend on project cost, permitting, and weather constraints.

#### Additional investigatory work:

- **Ramp Seep Investigation.**

Following reports from local residents, on August 14, 2018, the Commission identified a crude oil release of unknown origin near the access ramp at Summerland beach (just west of the bottom of the Lookout Park beach access ramp). The seep warranted further investigation to determine if the source of oil was from a legacy well or is naturally occurring. The first phase of the investigation was a metal detector survey that was inconclusive because of the metal detector's inability to detect metal more than 1 foot below the mudline. Subsequently, survey divers located the Ramp Seep and confirmed and updated its coordinates. The seep was video recorded and confirmed to be active. The divers confirmed the presence of metal at the seep location. This data is being processed and further investigation is planned in January 2020 to confirm whether it is associated with a legacy well from the Northstart Wharf, a former oil production wharf.

- **Carpinteria State Beach seeps.**

Several oil seeps have recently been active on Carpinteria State Beach, leaking near previously abandoned wells. As with the Ramp Seep, the Commission started an investigation into whether the seeps are naturally occurring or are from nearby abandoned wells. The Commission surveyed the sites on November 25, 2019, using a magnetometer to locate any evidence of metal well casings and to gain an accurate GPS location for both the oil seeps and nearby legacy wells. Two main seeps were found to be active and had positive magnetometer hits near their locations corresponding to a previously exposed well. Excavation of 1.5 feet revealed black

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<sup>1</sup> This is an addendum to the Becker & Legacy Wells Abandonment & Remediation Project Environmental Impact Report (State Clearing House No. 2016101008) certified by the Commission on August 17, 2017.

oily sand and gas bubbling up through the water above one magnetometer hit, but investigators were unable to verify any well casing visually. The second seep further down the beach was also found to be leaking. Investigators surveyed this seep and the corresponding magnetometer but, again, were unable to confirm the presence of a well visually. The Commission is preparing a further investigation, including conducting deeper excavations to verify leak sources.

**b. Coastal Hazards (legacy infrastructure, not including wells)**

Coastal hazards are the remnants of artificial coastal structures that have been abandoned and orphaned (i.e., no known responsible party). These hazards are typically buried in the coastal surf zone and include wood or steel pilings, H piles and H beams, railroad irons, cables, angle bars, ties, pipes, pipelines, seep tent related structural remnants of rip rap structures, wood structures, groins, jetties, piers, and oil and gas related infrastructure located along the California coastline. Hazard exposure depends on tide and beach erosion. Many hazards are only exposed during the high tidal erosion that occurs during winter. The Commission can respond to hazard removal subject to permit conditions.

The Commission hired Cushman Contracting Corporation in 2018 for a 2-year term to remove coastal hazards as they are identified. Hazards are usually removed by using small excavators or loaders. Through Cushman, the Commission removed 193 steel H beams, 36 railroad irons, 40 wooden sheet pilings, and two pipeline pieces about 81 feet in length from two sites at Ellwood Beach in Goleta, California. The hazards removal cost was \$126,000. The environmental monitoring cost was \$20,330, and the cost to re-inventory coastal hazards was \$17,600. This work will continue during the 2019-2020 winter season.





*Figure 6. H Beam being extracted near Bacara Resort*



*Figure 7. H Beam being extracted near Bacara Resort*

## PROGRAM PLANS 2020:

The Commission plans to use the predicate investigatory work conducted in 2019 to plug and abandon 1-3 legacy wells at Summerland beach in 2020. Each well has a different abandonment approach that must be engineered to ensure the safety of the work crews and the public. Water approaches, for example, may require use of a crane barge landing, whereas land-based approaches require the transport of heavy excavation equipment. The engineering plans that have been developed include alternatives and cost estimates to allow staff to plan each abandonment based on cost, equipment availability, and severity of the oil leakage. The Commission will also continue its investigatory work, which will allow planning for future abandonments in 2021. And it will continue its coastal hazard removal program. As always, the Commission consults with the Division of Oil, Gas, and Geothermal Resources (DOGRR) during each step of the abandonment process.

## ADDITIONAL DETAIL ABOUT 2020 PLANS:

### a. Execute the Plug and Abandonment Plans for up to three Summerland beach Legacy Wells

With the field investigations finished, engineering plans developed, and CEQA analysis nearly complete, Commission staff anticipate soliciting a qualified oil and gas engineering contractor to execute the actual plug and abandonment work for the Treadwell #10, CH Olsson #805, and Duquesne #910 wells by mid-2020. The plugging and abandonment approaches are similar to those used in the 2017 plugging of the Becker well, which was developed in close consultation with DOGGR.

### b. Commence development of an inventory and study of offshore seep activity

The Commission is seeking to coordinate with a contractor or university to perform historical research and inventory offshore natural tar, oil, and gas seeps; survey, study, and monitor tar, oil and gas seepage (seep studies) in state waters and tidelands to determine locations, rates, and fingerprinting techniques to characterize tar, oil, and gas samples originating from natural seeps, geologic framework and other conditions controlling seeps, as well as environmental impacts; pursue innovative solutions to address natural seeps; prepare cost estimates for this work, and; prepare documents and analysis consistent with CEQA requirements. Staff expects to solicit statements of qualifications for a consultant to perform this work in the third or fourth quarter of 2020.

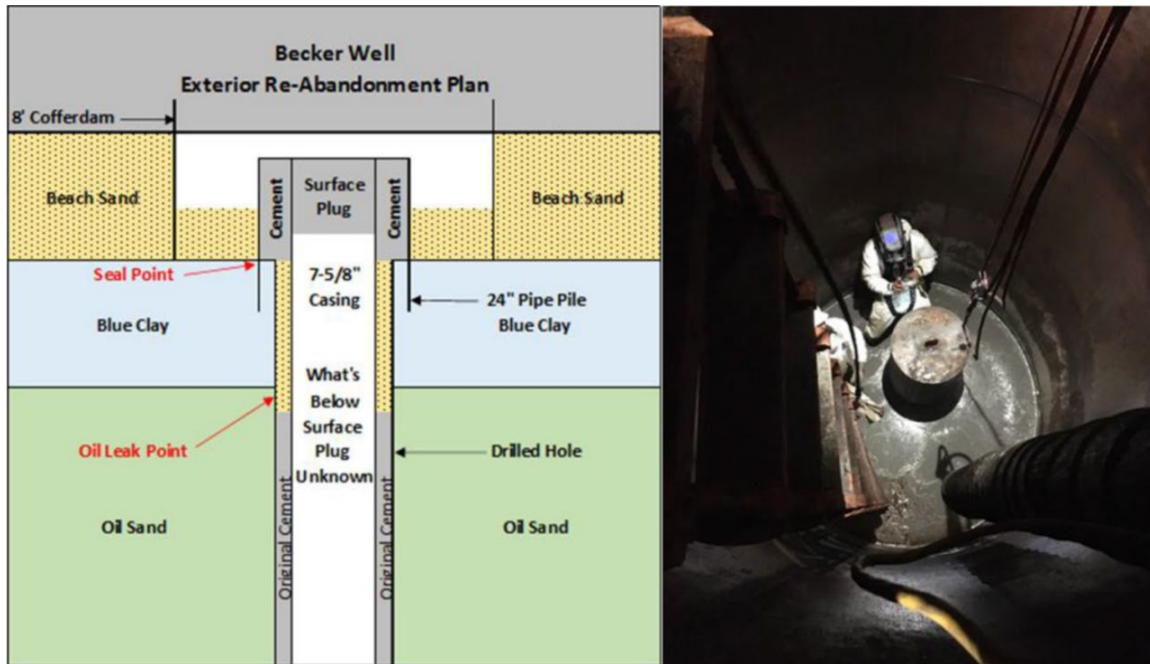


Figure 8. Becker Well abandonment method

## 2019 FUND ALLOCATION

Contract No.	Contractor	Start	End	Contract Total	FY 2018-19 (Actual)
<b>C2017041</b>	Cushman Contracting Corporation	9/1/2018	6/30/2020	\$1,000,000.00	\$126,000.00
<b>C2017043</b>	Padre Associates	2/1/2018	1/31/2020	\$1,500,000.00	\$37,930.00
<b>C2018031</b>	InterAct	1/15/2019	1/15/2023	\$3,000,000.00	\$628,359.00



## LOOKING AHEAD

The following table shows ongoing and anticipated projects:

#	Project description	Timeframe
1	Continue researching leaks discovered at Carpinteria beach southeast of the pier and the ramp seep.	4 <sup>th</sup> Qtr. 2019
2	Approve an Addendum to the Becker & Legacy Wells Abandonment & Remediation Project Environmental Impact Report. The addendum analyzes the potential environmental impacts associated with plug and abandonment of nearshore and tidezone legacy wells.	1 <sup>st</sup> Qtr. 2020
3	Issue a Request for Qualifications (RFQ) to retain an oil and gas engineering firm to plug and abandon 1 to 3 legacy wells.	1 <sup>st</sup> Qtr. 2020
4	Extend the contract for a coastal hazard removal mitigation monitoring contractor.	1 <sup>st</sup> Qtr. 2020
5	Execute the plug and abandonment of 1-3 legacy wells at Summerland Beach.	2 <sup>nd</sup> Qtr. 2020
6	Issue an RFQ to retain a consultant to perform a seep inventory/study project.	4 <sup>th</sup> Qtr. 2020
7	Re-inventory coastal hazards after winter storm beach scouring and update the 2000 inventory. About 70 percent of the hazards re-inventory work has been completed.	Ongoing
8	Continue coastal hazard inventory and removal as hazards become exposed.	Ongoing

## SUPPLEMENTAL BACKGROUND:

In the late 1800s, the area offshore of Summerland Beach in Santa Barbara County contained hundreds of oil wells and related drilling infrastructure. Today, the coastline area retains the vestiges of that extensive offshore oil production. These are the unfortunate legacy of the rapid and intensive offshore oil development along the coastline that began just before the turn of the twentieth century, primarily at Summerland Beach.

Most legacy oil and gas wells were abandoned in the early 1900s when oversight was nonexistent. Virtually no records exist regarding the drilling and abandonment of these wells. Removal, if any, varied from well to well and involved rudimentary procedures that fell well short of current health, safety, and environmental protection requirements. Based on the Commission's research, there are approximately 200 high priority legacy oil and gas wells (identified as Category 1 wells), that could, depending on their condition, leak oil into the marine environment, negatively impacting swimmers, surfers, recreational users, and marine

and coastal wildlife and fish and their habitats, as well as causing environmental degradation and public health and safety hazards. Legacy oil and gas wells are wells drilled before current abandonment standards. There is little or no information on the well's abandonment procedure and no viable company with the responsibility to re-abandon the well should it start leaking or pose a threat to the environment or to public health and safety. Other wells are categorized as medium (Category 2) to low (Category 3) priority wells because more information is available about the integrity and abandonment of these wells or because a responsible party is or may be available to address any leak that may occur.

The Legislature, when it passed SB 44, found that there is a critical need for funding to remove coastal hazards, to identify exact locations of legacy oil and gas wells that may be leaking, and to prioritize remediating wells with the highest risk. The funding enables the Commission to gather data to address the presence of oil along the coastline, determine where legacy wells are located and whether they are leaking oil, and prioritize remediation to address the highest risk wells first. The funding also enables the Commission to survey and monitor offshore oil seeps in state waters, to contract for studies to determine oil seepage locations, rates, and environmental impacts, and pursue innovative solutions to address natural seeps.

SB 44 added section 6212 to the Public Resources Code, which states that when the Legislature appropriates revenue the Commission shall, within two years, administer a coastal hazard and legacy oil and gas well removal and remediation program to do the following:

1. Complete an assessment of legacy oil and gas wells and other coastal hazards along the California coastline, including conducting aerial surveys and dives, and determine high-priority hazards and legacy oil and gas wells to remediate.
2. Survey, study, and monitor oil seepage in state waters and tidelands under the Commission's jurisdiction to determine oil seepage locations, rates, and environmental impacts; and partner with experts to facilitate innovative solutions.
3. In cooperation with the Division of Oil, Gas, and Geothermal Resources, begin the process of remediating improperly abandoned legacy oil and gas wells that have a high risk of leaking oil and are hazardous to public health and safety and the environment.

SB 44 authorizes up to \$2 million annually from the General Fund to the Commission's Kapiloff Land Bank Fund, beginning in Fiscal Year 2018-19 and through Fiscal Year 2027-28, to be available to administer the program. In July 2018, the Commission received the first \$2 million appropriation. SB 44 also authorizes the transfer of an amount sufficient to bring the unencumbered balance of the program funds back up to \$2 million annually through Fiscal Year 2027-28.