

INTRODUCTION

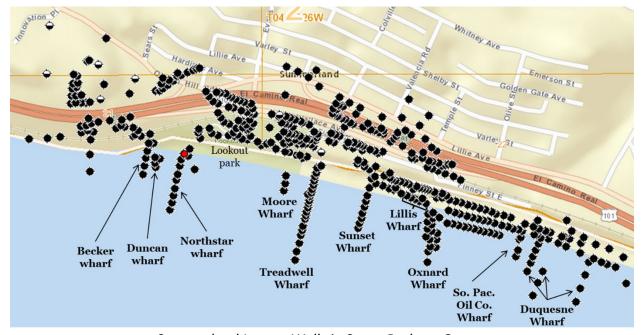
Established in 1938, the California State Lands Commission (Commission) manages 4 million acres of tide and submerged lands and the beds of natural and navigable rivers, streams, lakes, bays, estuaries, inlets, and straits. These lands, often referred to as sovereign or Public Trust lands, stretch from the Klamath River and Goose Lake in the north to the Tijuana Estuary in the south, and the Colorado River in the southeast. They also encompass the Pacific Coast 3 miles offshore in the west to world-famous Lake Tahoe in the east, and include California's two longest rivers, the Sacramento and San Joaquin. The Commission protects and enhances these lands and natural resources by issuing leases for use or development, providing and preserving 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 oversees 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 Summerland Oil Field at Summerland in Santa Barbara County was developed beginning in the late 1890s in an area of naturally occurring oil and gas seeps. Wells were first drilled on the beach and then later from piers that extended into the Pacific Ocean. The operators drilled, produced, and plugged and abandoned wells without regulation. Production ceased in the early 1900s. Virtually no contemporaneous records exist regarding the drilling or abandonment of the hundreds of wells in the Summerland Oil Field. Oil leaks and sheens are regularly observed on the beach and in the water near Summerland. Some oil leakage is from natural seeps, but some is from improperly plugged and abandoned legacy wells. CSLC desired a permanent abandonment solution for these wells as well as other Legacy wells throughout the region.

Legacy oil and gas wells are wells drilled before current abandonment standards, where there is little or no information on the well's abandonment procedure, and there is no viable company with the responsibility to re-abandon the well should it start leaking or pose a threat to the environment or public health and safety. Most legacy oil and gas wells were abandoned in the early 1900s and virtually no records exist regarding the drilling and abandonment of these wells. Based on the CSLC's research, there are 200 high-priority legacy oil and gas 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, as well as causing environmental degradation and public health and safety hazards.

SB 44 (Jackson) Chapter 645, Statutes of 2017, provided funding, up to \$2 million per year from fiscal years 2018-2019 to 2027-2028, to the Commission to administer a Coastal Hazards and Legacy Oil and Gas Well Removal and Remediation Program. Chapter 645 requires the Commission to provide an annual report to the Legislature until January 1, 2026, on the activities and accomplishments of the Program from the prior year and requires the Commission, on or before January 1, 2027, to submit a report to appropriate committees in the Legislature that covers the life of the Program and includes information necessary to aid the Legislature in determining the effectiveness of the program and the extent to which funding for the program should be reauthorized. The provisions of Chapter 645 become inoperative on July 1, 2028. The purpose of this report is to provide information on the Commission's activities from December 1, 2019, through November 30, 2020.



Summerland Legacy Wells in Santa Barbara County



Exposed railroad irons near Goleta Beach

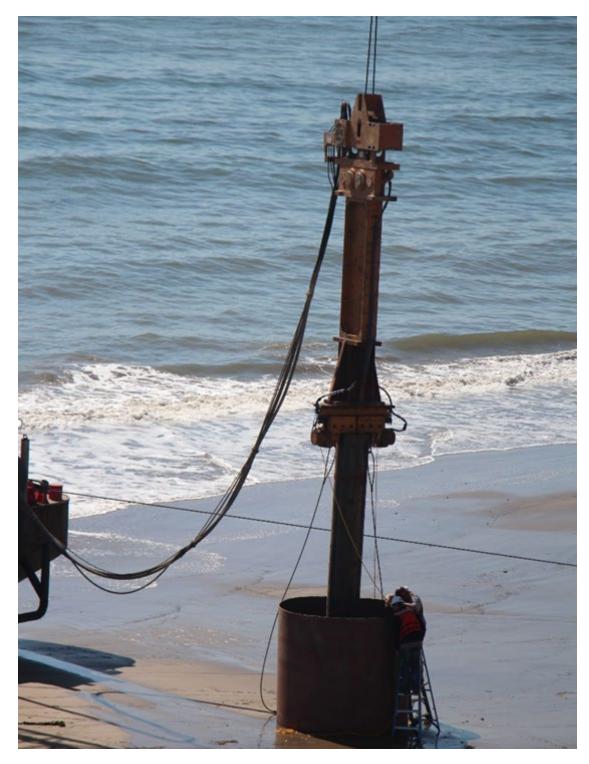
PROGRAM ACCOMPLISHMENTS—2020

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

1. Addendum to the Becker Environmental Impact Report

In February 2020, the Commission approved an Addendum to the Becker and Legacy Wells Abandonment and Remediation Project Final Environmental Impact Report (EIR) (https://www.slc.ca.gov/cega/becker/), to facilitate California Environmental Quality Act (CEQA) compliance for legacy well plug and abandonment. The original EIR covered the well abandonment approach and equipment considerations planned for the abandonment of the Becker well and similar shallow legacy wells located in the surf zone on Summerland Beach (Project area). Since the Becker well abandonment, the Commission has continued to investigate other legacy wells in the Project area, including the Treadwell, Olsson, Duquesne, and NorthStar wells. Initial investigations determined that an abandonment approach like the one used for Becker well would likely be an effective abandonment method for other legacy wells in the Project area; however, geologic conditions are slightly different at other well locations, with the bedrock formation estimated to be at a further depth. These variations resulted in additional impacts not previously analyzed in the EIR; as a result, an Addendum was required under CEQA. The success of the Becker Well Remediation Project in 2018 helped expand the original EIR to address additional legacy wells like the ones mentioned previously.

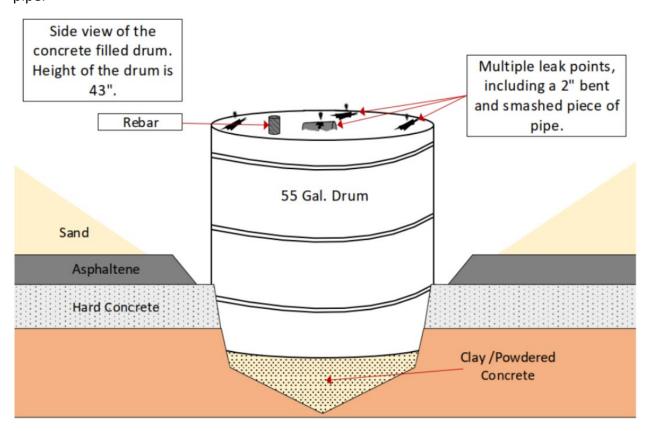
The Commission and its contractor, guided by the EIR addendum, developed a safe approach to stop leaking legacy wells by installing a pipe pile to encase the wellhead in cement to bedrock. This is different than traditional methods that required entering a well using a drilling rig. The pipe pile approach is suitable for addressing leaking legacy wells located in the tidal zone (between low and high-tide) and subtidal zone (waterward of low-tide), which encompass all abandonment scenarios contemplated in the Summerland area. Wells that have been targeted for this approach include the Treadwell #10 well, NorthStar #815 well, CH Olsson #805 well, and Duquesne #910 well.



Pipe pile used for the Becker Well abandonments

2. Ramp seep investigation (NorthStar 815 well)

In August 2018, following reports from residents, the Commission identified a crude oil release of unknown origin near the Summerland Beach access ramp. In 2019, the Commission investigated the potential leak sources to determine whether it emanated from a natural seep or a legacy well. Findings from diver and magnetometer surveys and a search of historical records indicated that the leak was likely associated with the NorthStar #815 legacy well. In order to confirm these findings, the Commission conducted a dive survey to excavate the ramp seep leak site. The Commission determined that the NorthStar #815 well cement cap, which consists of a 55-gallon drum filled with concrete, was the seep source. The cap was 6 feet below the mud line. The outer steel casing was deteriorating and had sharp edges. Oil was observed leaking from the cement cap in multiple places, including a piece of bent over and smashed pipe.



Profile of NorthStar 815 well excavation

This information was timely because it allowed the Commission to include Northstar #815 well in its 2020 plug and abandonment program (more below).

3. Well Abandonment Plans Were Developed for Four Legacy Wells offshore of Summerland Beach

In 2019, the Commission retained Interact PMTI, to develop detailed engineering and abandonment plans to plug four legacy wells located off Summerland beach in Santa Barbara County. In June 2020, abandonment plans were completed for the Treadwell #10 well (subtidal zone), the NorthStar #815 well (subtidal zone), the CH Olsson #805 well (tidal zone), and the Duquesne #910 well (tidal zone). The abandonment plans were developed as a blueprint for all legacy wells in the tidal and subtidal zones, including future wells under consideration for re- abandonment. InterAct PMTI remains under contract to develop engineering plans for additional wells, as needed, until January 15, 2023.

4. The Commission Hired a Consultant to Execute the Well Abandonment Plans

In February 2020, the Commission began the consultant services solicitation process to retain an engineering firm to execute the well abandonment plans. The objective was to secure the most qualified firm to maximize the potential for successful project execution within the budget allowable. In April 2020, the Commission published a Request for Qualifications and received submissions from four firms.

After a competitive selection process, the Commission again chose InterAct PMTI to execute the well abandonments. This selection was based on InterAct PMTI's understanding and experience with legacy well abandonments, including their experience abandoning the Becker well. Staff executed a three-year contract with InterAct PMTI in June 2020.

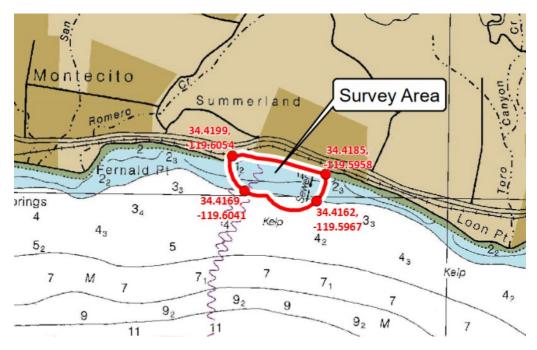
5. The Commission and InterAct obtained all required permits

By October of 2020, the Commission had coordinated with numerous agencies and either provided consultation or obtained the permits necessary for the four well abandonments. Consulting and permitting agencies include:

- California Geologic Energy Management Division (CalGEM): permit to conduct well operations
- Santa Barbara County Air Pollution Control District: written determination of permit exemption
- California Coastal Commission: Coastal Development Permit
- U.S. Army Corps of Engineers: nationwide permit verification
- Central Coast Regional Water Quality Control Board: water quality certification
- Santa Barbara County Planning and Development: Lookout Park permit
- U.S. Coast Guard: pre-work notification
- CDFW Office of Spill Prevention and Response: pre-work notification
- Santa Barbara County Parks: pre-work notification

• Joint Oil Fisheries Liaison Office: pre-work notification

The California Coastal Commission, as a permit approval condition, required an eelgrass survey and mitigation before work began to determine whether eelgrass was present in the project area and to avoid any negative impacts. In September 2020, Seaventures Inc. and Merkel & Associates, Inc. conducted an eelgrass/habitat mapping survey for the Treadwell 10 and NorthStar 815 wells. The survey area included a 750-foot radius surrounding the Treadwell Casing and NorthStar wellhead.



Eelgrass survey area

No eelgrass was detected; however, scattered rocky substrate supporting canopy forming kelp (Egregia menziesii) was present along with an understory of foliose and turf algae on rock. From the several features detected during the survey, the conclusion is that it was best to position equipment, anchors and spuds as far from rocky substrate as possible because this offered the greatest potential for deeper sand deposits. The habitats within the survey areas can be seen in the following figure:



Eelgrass survey results

6. Mobilization and Plugging of Two Legacy Wells in November 2020

On November 29, 2020, the Commission and InterAct PMTI completed the reabandonments of the Treadwell #10 and NorthStar #815 wells using a barge, divers, and heavy equipment.

This re-abandonment work was an essential part of the Commission's efforts to permanently stop the hydrocarbon source from leaking into surrounding waters and onto the beach. The work was conducted from a derrick barge and a dive vessel anchored nearby.

The project started on November 1, 2020, with the mobilization of the work vessel *Danny C*. The Treadwell #10 well, chosen first for re-abandonment, was covered by a 6-foot by 4-foot cement well cap that had to be removed using divers before abandonment.



Danny-C vessel working on Treadwell #10

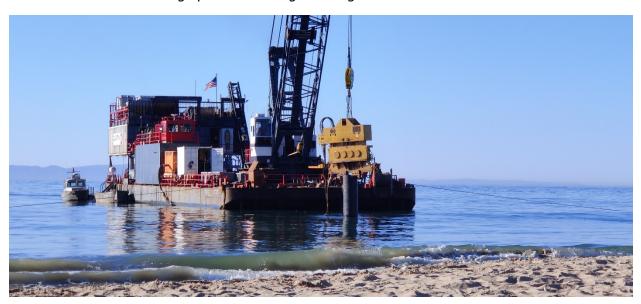


Danny-C vessel working on Treadwell #10

A pipe pile was then placed over the wellhead and driven into the ocean floor to a point of refusal, encapsulating the wellhead. The pipe pile was cleaned out and pumped full of cement to act as a barrier to prevent the future migration of hydrocarbons to the surface.



Pile driving operations using the barge on Treadwell #10



Pile driving operations using the barge on NorthStar #815

The final step was to weld a steel plate on to the top of each pipe pile. This acts as a secondary barrier to hydrocarbon migration.

After a slight weather delay, the process was repeated on the NorthStar # 815, and completed on November 29, 2020. No spill response was activated during the operations, although as a precautionary measure spill response equipment and trained personnel were staged in the Lookout Park parking lot in case it was needed.



Spill response equipment stationed at Lookout Park

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 and remove hazards subject to permit conditions.

In 2018, the Commission hired Cushman Contracting Corporation to remove coastal hazards as they are identified. Hazards are usually removed by using small excavators or loaders. No coastal hazard removal work was conducted during the 2019/2020 winter exposure season due to lower than expected coastal erosion at suspected hazard sites.

The Commission's contractor remains on call to remove hazards as they appear during the winter exposure season.





H Beam being extracted near Bacara Resort in 2018

An additional component is the ongoing hazards inventory conducted on behalf of the Commission by Padre Associates. Padre Associates conducts surveys annually using handheld GIS data collection units as beach exposure occurs. Once the sand moves away from the beaches (typically starting in November) the Commission will resume documenting remaining features. At this point in time, roughly 70 percent of the inventory of documented hazard sites has been completed.

PROGRAM PLANS 2021:

The Commission intends to continue performing investigatory work on seep sites for association with legacy wells and plans to execute future abandonments as funding allows. The Commission will also continue its coastal hazard removal program.

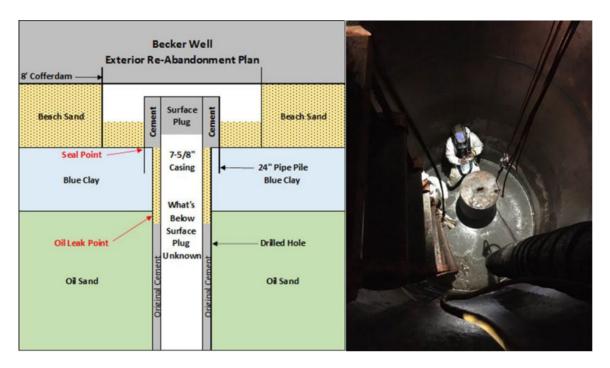
ADDITIONAL DETAIL ABOUT 2021 PLANS:

a. Execute the Plug and Abandonment Plans for two Summerland Beach Legacy Wells

With the field investigations finished, engineering plans developed, and CEQA analysis complete, the Commission anticipates plugging and abandoning two additional wells, CH Olsson #805 and Duquesne #910, in 2021. The plugging and abandonment approaches will be similar to the approach used in the Becker, Treadwell, and NorthStar abandonments, but should be less technically complex given the well heads are located in the tidal zone and are not fully submerged. This work will occur, depending on fund availability, in the second half of 2021.

b. Develop an inventory and study of offshore Seep activity

The Commission anticipates contracting with a university, nonprofit organization, or private entity to develop a comprehensive study of natural seeps. This will likely require historical research and an inventory of offshore natural tar, oil, and gas seeps; the survey, study, and monitoring of tar, oil, and gas seepage (seep studies) in state waters 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 their environmental impacts. The Commission expects to solicit statements of qualifications for a consultant to perform this work in the second half of 2021, depending on budget availability.



Becker Well abandonment method

FUND ALLOCATION

Contract No.	Contractor	Start	End	Contract Value
C2017041	Cushman Contracting Corporation	9/1/2018	6/30/2021	\$1,000,000.00
C2017043	Padre Associates	2/1/2018	1/31/2022	\$1,500,000.00
C2018031 (Engineering Plans, EIR Addendum & Permitting)	InterAct	1/15/2019	1/15/2023	\$3,000,000.00
C2019060 (Plug & Abandonment work)	InterAct	06/30/2020	06/29/2023	\$6,500,000.00

LOOKING AHEAD

The following table shows ongoing and anticipated projects:

#	Project description	Timeframe
1	Plug and abandon wells Olson #805 and Duquesne #910.	3 rd Qtr. 2021
2	Issue an RFQ to retain a consultant or firm to perform a seep inventory and study.	3 rd Qtr. 2021
3	Continue researching leaks that may be associated with legacy wells or natural seeps.	Ongoing
4	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 and largely unregulated 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 regulatory 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 state's General Fund to the Commission's Kapiloff Land Bank Fund (https://www.slc.ca.gov/kapiloff) beginning in Fiscal Year 2018-19 and through Fiscal Year 2027-28, to administer the program. In July 2018, the Commission received the first \$2 million appropriation. SB 44 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.