

**INFORMATIONAL
CALENDAR ITEM**

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S. Curran

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**STAFF REPORT ON THE
STATE LANDS COMMISSION'S EFFORTS
TO REMEDIATE OIL LEAKAGE IN THE
SUMMERLAND BEACH AREA,
SANTA BARBARA COUNTY**

PARTY:

California State Lands Commission
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BACKGROUND:

The Summerland Oil Field was developed in the late 1890s from shore and from wharfs that extended into the Pacific Ocean in an area of naturally occurring oil and gas seeps. The field was the first offshore oil development in the United States. No records exist of the drilling and abandonment of the wells. When production ceased to be economical in the early 1900s, operators left many of the wells and piers to deteriorate. To the extent operators performed well abandonments, they used contemporary procedures that do not meet current regulatory requirements.

John Treadwell, a mining engineer, who appeared to have a close relationship to the Southern Pacific Railroad Company, built one of the piers, the Treadwell Pier, in 1898. As the Pier was being constructed, oil wells were also being drilled. By August 1899, 18 wells had been drilled, with the average production of each well between two and four barrels of oil per day. The Pier had multiple purposes, serving as a dock for loading and unloading vessels to transfer materials to shore or the rails of the Southern Pacific railroad, and as a wharf that could anchor oil wells drilled into the ocean floor. When the Pier was completed, it extended 1,230 feet from the shore and supported 20 wells. Most historical maps and documents from the early 1900s refer to the Treadwell Pier as the Southern Pacific Company's Pier and wells.

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In the late 1960s, the California State Lands Commission (Commission) conducted a Summerland Beach Cleanup Project that included the abandonment of 60 wells with short cement plugs (about five feet) and cutting off of the casings. Well Number 10 was one of those 60 wells. In 1975, because of oil seepage near the previously abandoned Treadwell Number 10 well, the Commission re-abandoned the well using a six-foot diameter concrete filled tub to cap the well at the seafloor.

In 1993, the Commission abandoned three wells on Summerland Beach as part of its Summerland Well Abandonment Project. The objective of the program was to properly abandon wells that were not properly abandoned in 1907. The three wells differed from the Treadwell Number 10 well because they were located on the Summerland Beach and were exposed at low tide and submerged about three feet at high tide. The wells were abandoned using a rig mounted on a 20-foot high steel structure, the Surf Sled Vehicle (SSV). The project was completed for approximately \$863,000. The oil seepage from the natural seeps continues in the near shore waters at Summerland Beach.

In 1994, the Commission, the Office of Oil Spill Prevention and Response, and the offices of U.S. Senator Feinstein and State Representative Jack O'Connell requested the U.S. Coast Guard (USCG) to secure Oil Spill Liability Trust Fund revenues to re-examine the area and determine if old abandoned wells in the area might be responsible for some of the continuing oil seepage. The USCG conducted a two-phase study of the Summerland area seeps. The first phase was a geophysical/ hydrographic sight survey. A Summerland area map describing the oil well casings, oil seeps, and wharf and pier piling type hazards was developed from the survey. Forty-three potential targets were identified for further investigation. During phase two, seven of the 43 sites were identified to require excavation to determine seep sources. Oil sheens in the area were believed to be caused by natural seepage, some that may be finding their way to the surface from the outside of old well casings as a conduit. After spending about \$215,000 on the study, the USCG determined that one well could positively be identified as an oil seep source (originally drilled from the long since removed Becker Pier) and which, when excavated, leaked about ½ barrel oil. That well is described as the Becker well. Oil seepage occurring from this well becomes visible approximately 10 days every year.

In March 2011, oil was observed leaking on Summerland Beach at very low tide. Commission staff and Santa Barbara County representatives from Office of Emergency Services and Office of Planning, Development and Energy visited the Summerland Beach on the next low tide date of April 12, 2011. The oil was not present on this visit,

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but the location coincides with the inshore Becker well which was referenced in the 1994 USCG study Staff is seeking additional funds from various sources to address the problem.

EXHIBIT:

- A. Summerland Oil Field Presentation File

Summerland Oil Field

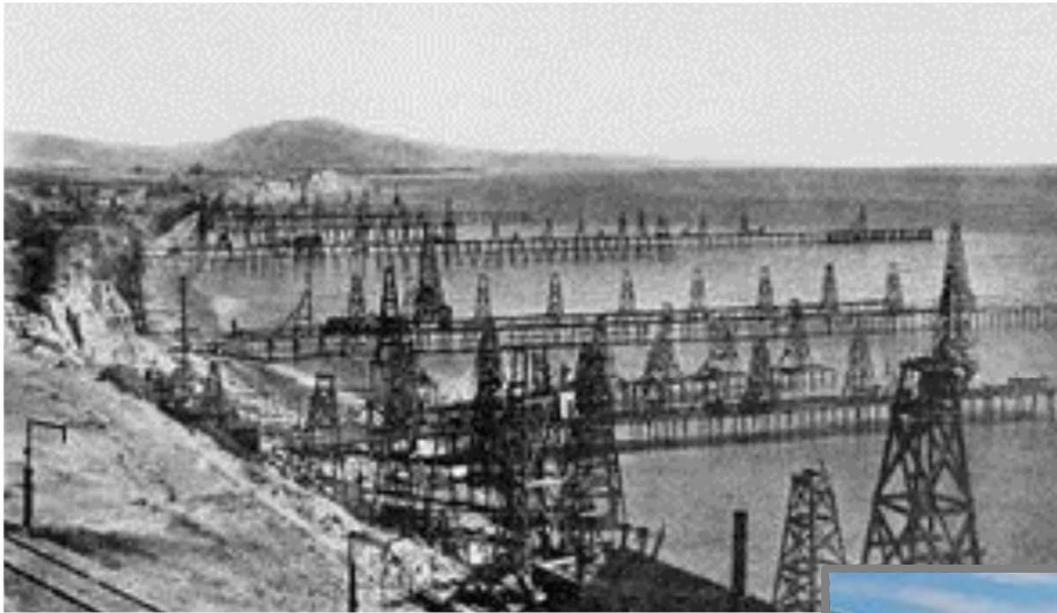


**Steve Curran, Drilling Engineer
California State Lands Commission**

September 1, 2011

Summary

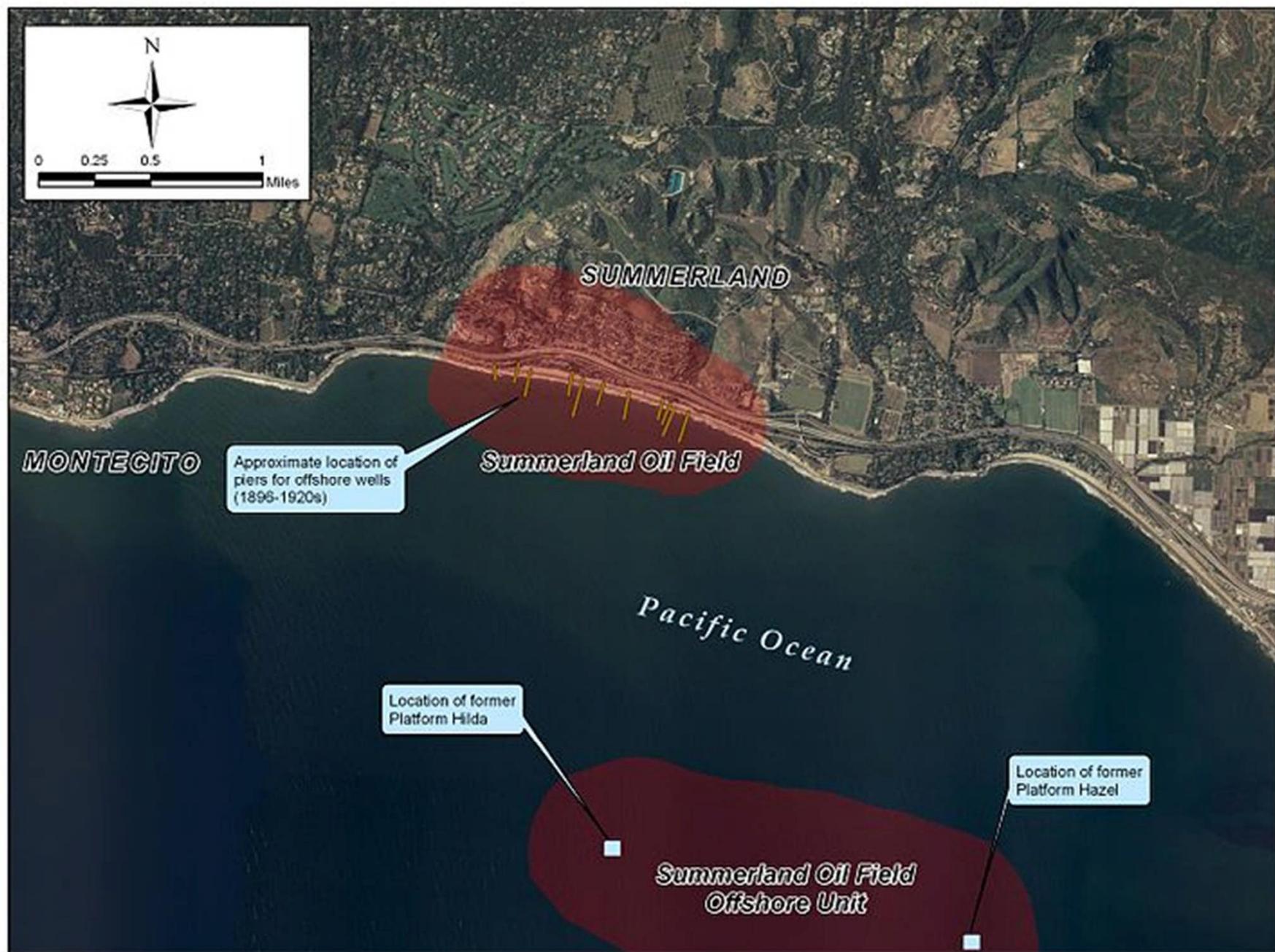
- History and Background
- Previous Remediation Efforts
- Leaking Becker Inshore Well
- 1993 Well Abandonment Work
- Proposed Approach to re-abandon Becker Inshore well
- Current Status
- Funding

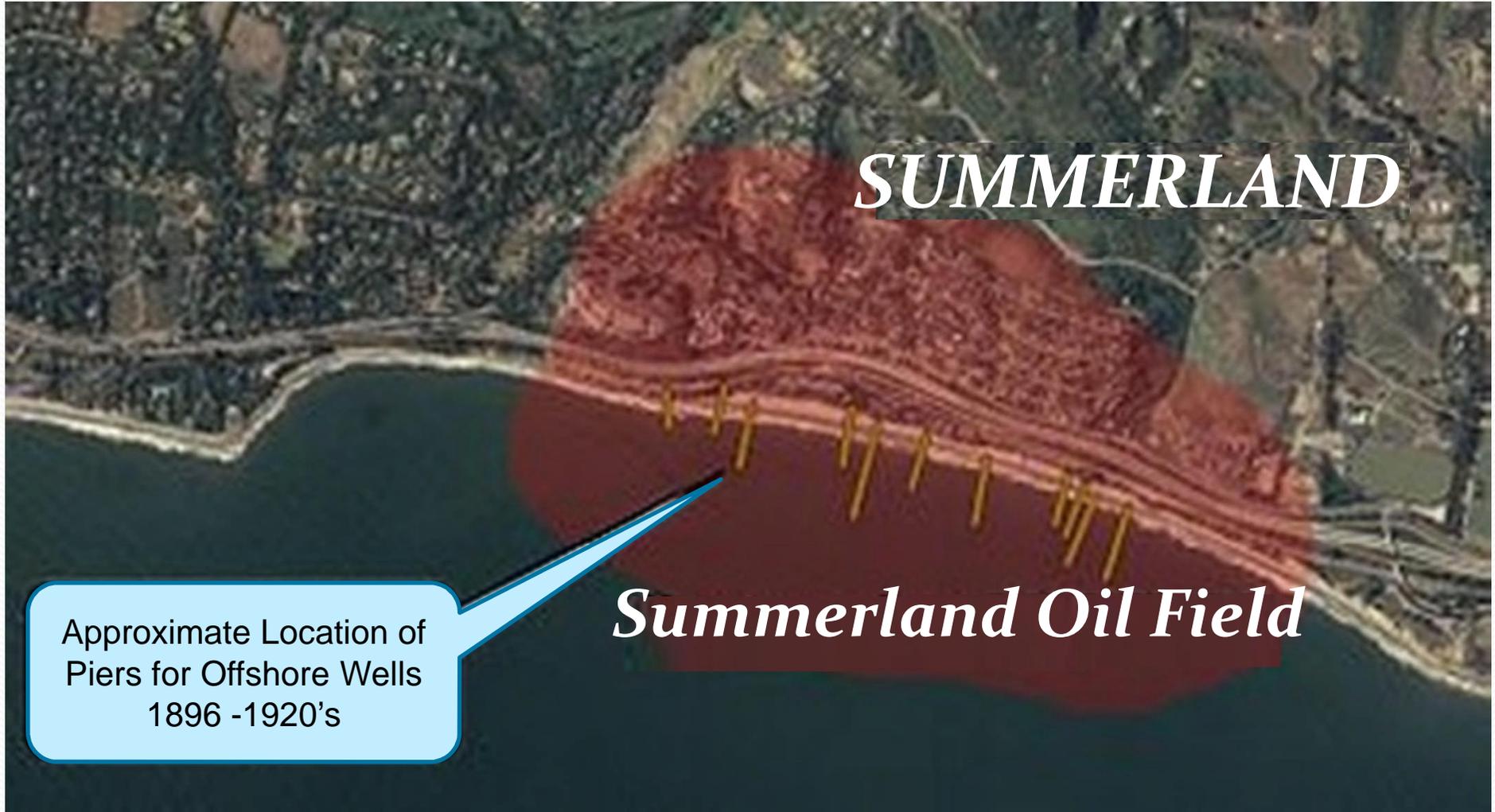


Piers with California's first offshore oil wells, Summerland Field, before 1906

The same view in 2009; the piers and oil wells are gone, and the beach is a tourist destination



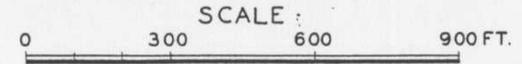




Approximate Location of
Piers for Offshore Wells
1896 -1920's

Summerland Oil Field

MARGINAL MAP B
SUMMERLAND OIL FIELD



LEGEND

- SITE OF OLD PIERS
- * OLD ABANDONED WELLS, NO RECORDS
LOCATION FROM U.S.G.S. MAP DATED 1907
- PRODUCING - OIL
- ◆ ABANDONED - DRY HOLE
- ◆ ABANDONED - OIL
- ☆ ABANDONED - GAS

T 4 N R 26 W

Becker Inshore Well

Becker Pier

Treadwell Pier

Summerland Past Efforts to Remediate

- **1950- 1960s**
 - **Removed obstructions, Surveyed and mapped well casings and pilings (90 total)(Approximately 60 were well casings)**
 - **Summerland Beach clean up project, 60 wells surface plugs placed and casings cut off**

- **1970s**
 - **Treadwell #10 well re-abandoned, Five more wells abandoned and removed three other wellheads**

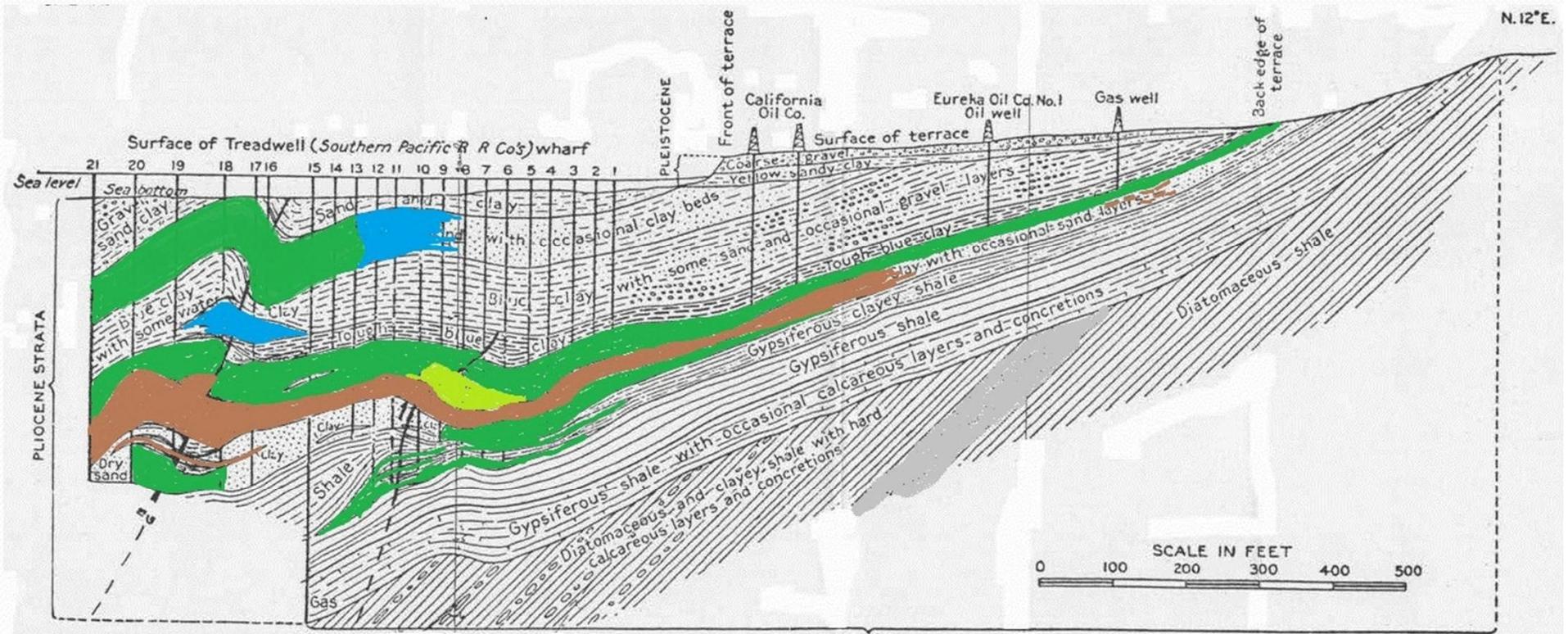
- **1980s**
 - **Plugged Treadwell #17 well, seep inspection conducted**

Summerland Past Efforts to Remediate

- **1990s**
 - Summerland Well Abandonment Project, abandoned three shore side wells (1993)**
 - Two phase study by USCG – Phase One geophysical/hydrographic/magnetometer survey for mapping well casings, oil seeps and wharf and pier remnants**
 - Phase Two – Identified critical targets Seeps, Treadwell #10 well and Becker inshore well**
- **2000 to Current**
 - Fairweather Pacific LLC prepares a Summerland Well Research Project (2000),**
 - Alan Grosbard prepares an in depth historical review of the Summerland Field and the Treadwell Number 10 well (2001)**
 - Fairweather Pacific LLC prepares a Treadwell Number 10 Seep Remediation Project Execution Plan (2002).**
 - Oil Emissions from Nearshore and Onshore Summerland Final Report By UCSB, DFG- OSPR and NOAA (Studies 2001-2005) Report (2007)**
 - Periodic sightings of oil on Summerland Beach from Becker Inshore Well**



Cross Section Treadwell Wells



B. SECTION THROUGH TREADWELL (SOUTHERN PACIFIC COMPANY'S) WELLS.

Reference # 4A

N. 12° E. to a point immediately northwest of big oil tank in Summerland. Section is about 1,000 feet west of Oxnard wharf. (See Pl. VIII, Section C.)

CSLC 1993
Abandonment of three
shore side wells

16 Feet Tall Surf Sled
Vehicle 2 (SSV₂)
located offshore
Summerland



CSLC 1993 Abandonment Work Mobilization and Site Preparation

Winch Apron Piling and
Sub-structure



Winch Apron with
Winch

Winch Apron Complete
with Winch Pin



CSLC 1993 Mobilization



SSV1 Launch at Port Hueneme



SSV1 Aligned on Pontoon

CSLC 1993 Abandonment Work

Marine Tow and Onsite Preparation/Skidding



SSV1 Under Tow

SSV1 Skid Wires Attached



CSLC 1993 Abandonment Work Surf Sled Vehicle Positioning



Surf Sled Vehicle 1 at (-) 22 FSW

SSV₁ Nearshore in Place



Continued Efforts

- CSLC weekly inspection of and monitoring of beach area
- Summerland residents report to Santa Barbara County when oil surfaces on beach or visible oil sheen is in the water
- Most Recent Occurrence – March 2011
- CSLC Engineering Staff met with local residents and Santa Barbara County onsite – April 2011



Summerland Beach Becker Inshore Well

Oil on Beach
Surface March
2011



Current Status

- Natural oil seeps remain active and represent the majority of oil to surface
- Limited access to surf zone
- August 2011 presentation to Santa Barbara County (SBC) Board of Supervisors, requested to develop master plan for remediation work at Summerland
- Becker Inshore Well Remediation Effort

Becker Inshore Well

- Well drilled at turn of century
- Leaking well casing discovered in 1994 USGS survey and excavation work
- Well is located at the inshore end of where the Becker Pier existed
- Conditions for Becker well, oil to surface on beach
 - Low Tides
 - Beach sand cover removed by tidal action
 - Seasonal – late spring and fall months
- Frequency – 10 to 15 days per year

Funding

- CSLC is pursuing funding through State budget process for next fiscal year
- Possible OSPR Environmental Enhancement Fund Grant (EER) grant up to \$300,000 per year

2011 Engineering Approach for Re – Abandonment Becker Inshore Well

- Large Crane on Bluff at Lookout Park
- Cofferdam caisson placement with jetting equipment around well casing
- Working Platform on top of Cofferdam caisson
- Coil Tubing type rig on the Bluff
- Coil Tubing injector head on working Platform with support from crane connected to wellhead
- Support equipment on Bluffs (ie pumps and tanks) with minimal staging on the beach as inshore as feasible
- Proceed with cleanout and cement plugging of Becker inshore well
- Requires CEQA treatment and other permits



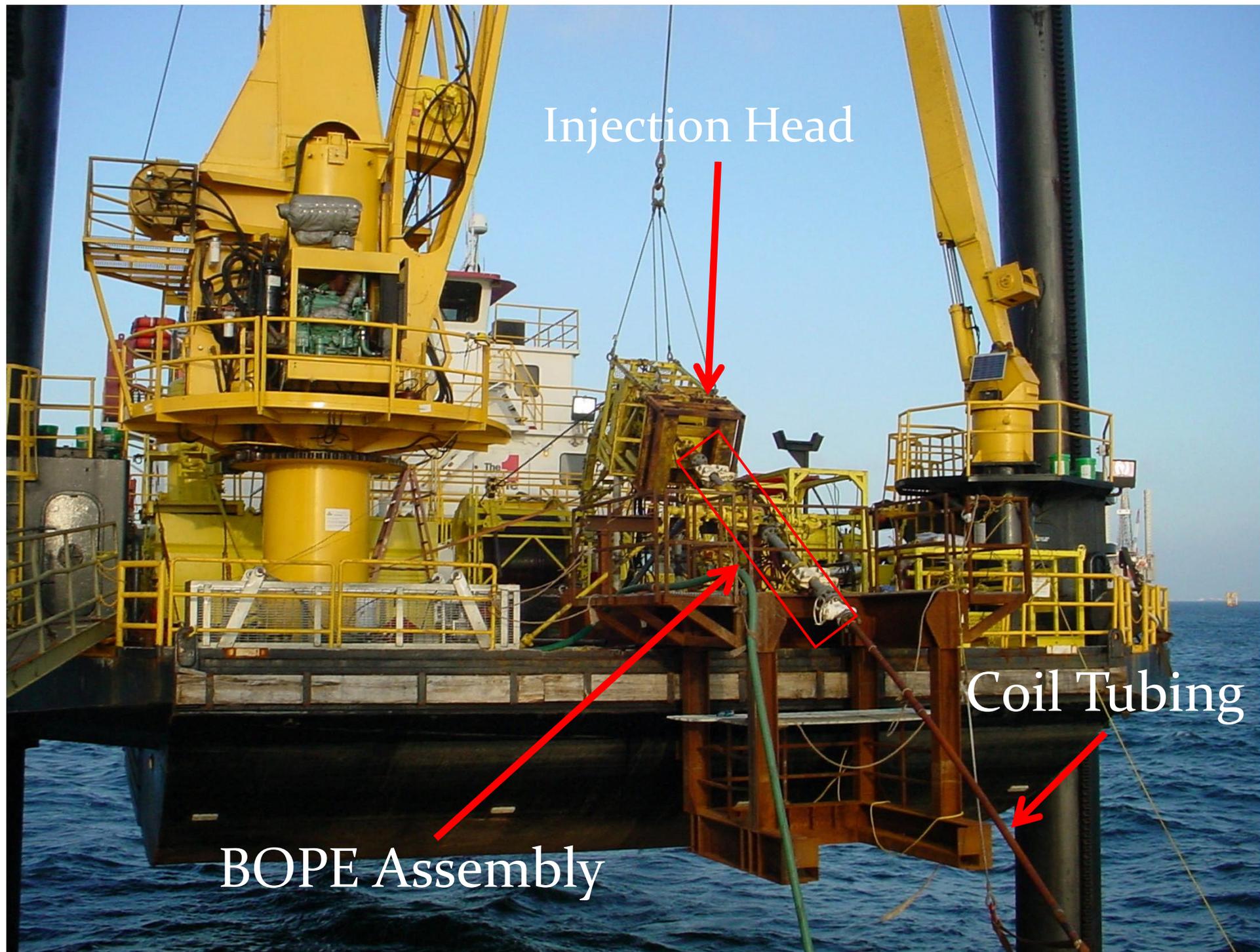
Platform

Caisson with Well Head Tree

Coil Tubing Injection Head
with Blow Out Preventer

Coil Tubing Spool





Injection Head

Coil Tubing

BOPE Assembly