Coastal Facilities Decommissioning Challenges
A Review of Recent Decommissioning Projects

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Past Decommissioning Projects

- CSLC Summerland Beach Legacy Well P&A’s
- Unocal Ventura Tanker
- Chevron 4H Platforms
- Exxon Belmont Island
- PG&E Line 182
- PG&E SF-Oakland Bay Bridge 10” DRM Reroute
- El Paso Hercules San Pablo Bay MOT
- Exxon OST Facility (OCS)
- SWARS Subsea Well Abandonment Program
- Gaviota Marine Terminal
- Unocal Cojo Marine Terminal
- Mobil Seacliff Pier Complex
- Texaco Hollister Ranch Pipeline and Onshore Processing Facilities
- ARCO Bird Island
- SCE SONGS 1 OTC
- SCE Mandalay MOT
- CSLC Coastal Hazards Removal Program
- PG&E Line 114, Line 114-1 and Line SP4Z San Joaquin River
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Chevron 4H Platforms

- Permitting – Know the Issues
- Technical – Know the Facility
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Exxon Belmont Island

- Permitting – Artificial Reefing
- Technical – Know the Facility
Unocal Cojo Marine Terminal

- Permitting – T&E Issues
- Technical – Site Conditions Impact Methods
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Mobil Seacliff Pier Complex and ARCO Bird Island

- Permitting – The Art of Explosives
- Technical – Improvements in Cutting Tech
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SCE Mandalay Marine Oil Terminal

- Permitting – Don’t Underestimate Surf Zones and Their Surprises
- Technical – Pig, Pig, Pig
Current Decommissioning Project Overview

- **Encina Marine Oil Terminal Decommissioning Project**
- **Morro Bay Marine Oil Terminal Decommissioning Project**
Encina Marine Oil Terminal Decommissioning Project

- Cabrillo Power LLC
- Encina Power Station, City of Carlsbad.
- Installation in 1953.
- Project Components
  - 3,855 feet of submarine pipeline
  - Mooring anchors
  - Beach rip-rap
  - Underpass
  - Beach valve pit
Application Process and Key Dates

- Formal Decommissioning Application Filed in July 2014
- CSLC MND completed December 2015
- Remaining permits acquired:
  - CCC CDP – November 8, 2016
  - ACOE 404 – February 15, 2017
  - State Parks – March 1, 2017
  - RWQCB 401 – April 26, 2017
  - Archaeological Permit – February 9, 2018
- Work started January 2, 2018
- Work suspended May 31, 2018
Encina Marine Oil Terminal Decommissioning Project

Technical
- Contract Based on a Comprehensive Set of Plans and Specifications
- Contractors Typically Aren’t Prepared for the Level of Administrative and Technical Support Required by Marine Decom Projects
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Morro Bay Marine Oil Terminal Decommissioning

- Dynegy Morro Bay LLS
- Morro Bay Power Plant, City of Morro Bay
- Facilities Constructed circa 1954
  - CSLC Lease PRC 1390.1 Originated 1954.
    CSLC Lease Revised 1976 and 2004
  - Tanker Berth Mooring System and Cargo
    Hoses Removed in 1996
  - Tanker Berth Operational Status Changed to
    USCG “Caretaker” Status in 1997
- Project Components
  - MBPP Facilities
  - Pipeline Segments (16- and 24 inch)
    - Sand Dune Segment (1,180 ft)
    - Beach Segment (810 ft)
    - Surf Zone Segment (1,300 ft)
    - Offshore Segment (2,500 ft)
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Application Process and Key Dates

- Facilities Constructed circa 1954
- CSLC Lease PRC 1390.1 Originated 1954. CSLC Lease Revised 1976 and 2004
- Tanker Berth Mooring System and Cargo Hoses Removed in 1996
- Tanker Berth Operational Status Changed to USCG “Caretaker” Status in 1997
- Duke Energy submitted CSLC Application for Decommissioning – September 2004 (application withdrawn)
- Dynegy submitted CSLC Application for Decommissioning – February 2016
- CSLC MND completed February 2018
- Final Permits acquired August 2018
- Work started August 2018
Morro Bay Marine Oil Terminal Decommissioning

Challenges

- Old Facilities Come with Surprises
- Pig, Pig, Pig
- Timing is Everything on Coastal Projects
- Things Change – The Lagoon
- West Coast Offshore Contractor Resources Aren’t What They Used to Be
- Offshore Successes – Surgical Excavation, Shearing and Grappling
Lessons Learned and Observations for Upcoming West Decommissioning Projects

- **State Waters Facilities**
  - Platform Holly – Ellwood Field
  - Rincon Island
  - Estero Marine Terminal
  - Morro Bay Marine Oil Terminal
  - Grubb Lease Intake/Outfall
  - Encina Marine Oil Terminal

- **OCS Facilities**
  - Point Arguello Field
  - Santa Clara Unit
  - Platform Habitat

- **Non-Oil and Gas Facilities**
  - Diablo Nuclear Power Generation Station
  - San Onofre Nuclear Power Generation Station
  - AT&T Fiber Optic Cables
  - Numerous Intake/Outfall Structures
Future Permitting Challenges

- Federal, State and Local agencies have not permitted a large scale decommissioning project.
  - Regulatory approval timelines and requirement increase complexity in scheduling and implementing a project.
  - Integration of key regulatory processes untested and likely will requirement extended permitting timeline.
  - Strong entrenched NGO positions will likely complicate and extend the permitting process.
- Alternative/reuse should be examined
- Abandonment in place alternatives may be best alternatives – should be carefully considered:
  - Structural integrity and depth of burial can present environmental and safety challenges
  - Long term liability issues complicate otherwise viable options.
- Aging facilities present many new challenges during the implementation phase and these uncertainties need to be built into the permit approach and final permit conditions.
Future Implementation Challenges

- Installations were not designed with removal in mind.
  - Installation process used gravity and techniques that are often hard to permit today.
- Aging facilities become increasingly more difficult to remove.
- Facility modification over time are often not well documented and can present unexpected challenges during decommissioning.
- Sea state present operational and safety challenges.
- West Coast decommissioning equipment and experience is limited.
Key Lessons Learned

• The fact it was successfully installed does not mean it can be taken out – Gravity is not on your side.

• Regulatory agency staff need to be shown the engineering and environmental challenges facing a project.

• Time is not on your side.
  – Start engineering and permitting process as soon as possible.
  – Identify and understand key issues and drivers.

• Work with an integrated team.

• The surf zone is not your friend.