



# Platform Holly Sub Sea Power Cable Replacement

October 8, 2014

# Platform Holly Cable Replacement

## Platform Holly Cable

- Installed in 1966 as part of original Platform
- Power Cable de-rated over years
- At times Cable has limited production
- Bundled communication cables had already failed
- Cable pre-dated modern design and codes
- Cable and Power Supply Reliability in question





# Platform Holly Cable Replacement

## Project Goals

- As Built Replacement of Power Cable
- Restore power supply to original load capability
- Update communications cable to fiber optics
- Minimize Environmental Impact
- No platform down time due to cable replacement project
- Complete during routine platform maintenance shutdown in 2014
- **KEEP THE LIGHTS ON !**



# Platform Holly Cable Replacement

## Project Phases:

- Preliminary Cable Routing
- Cable Design / Specification
- Order the Cable
- Finalize Design
- Permitting
- HDD bore
- Platform I-tube and routing
- Pipeline Crossing
- Construction
- Testing
- Power Cut Over



# Platform Holly Cable Replacement

## ■ Cable Selected:

**KERITE CATALOG NUMBER 341G25-J4458**

3.79"

- 48 AWG (18) Filled Uncoated Compressed Copper
- Permeoidal Stress Control Layer
- Kerite (EP) Insulation (280 mil)
- Insulation Shield
- Extruded Neoslon Layer
- 8 mil Copper Tape
- 80 mil Black PVC Jacket Printed with PHASE III, (XL) HV-198, FOR CUT TIME, SUNLIGHT RESISTANT, Polypropylene Fibers
- 2 inch, APL 24 Fiber, Single Mode, Optical Members in an Inconel 625 tube with oversize jacket.
- Cable Tape
- Polypropylene Sealing
- 4 BSW Galvanized Steel Armor Wires
- Black HDPE Jacket (48 mil)

Approx. Weight in Air = 11.09 lbs/Lt  
Approx. Weight in Salt Water = 6.97 lbs/Lt

Note: All dimensional data subject to manufacturing tolerances.

	341G25-J4458	341G25-J4458	
	341G25-J4458	1/1/20	None

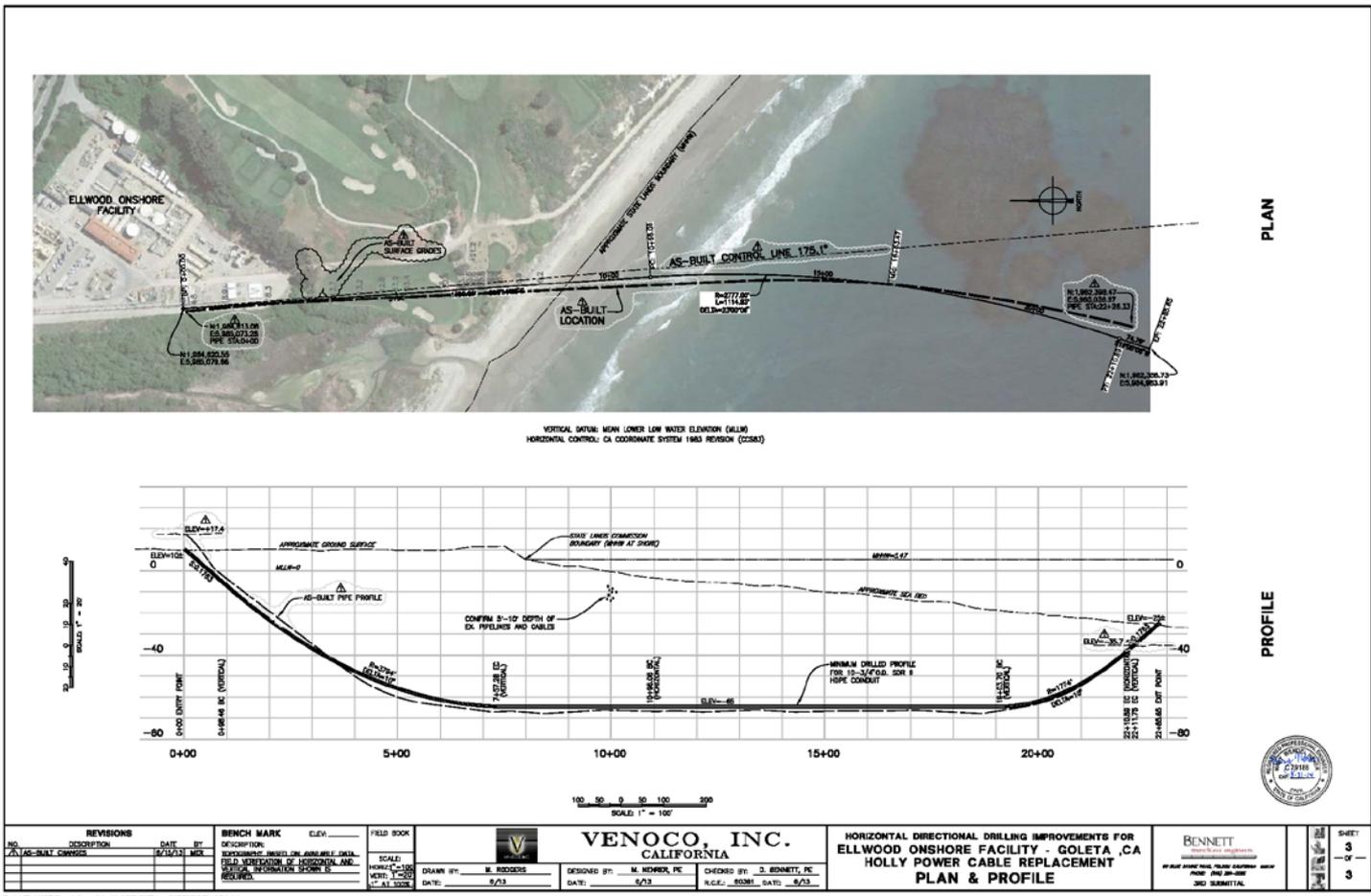
341G25-J4458  
341G25-J4458  
1/1/20  
None





# Platform Holly Cable Replacement

## Final HDD Bore Design – Bennett Trenchless Engineers

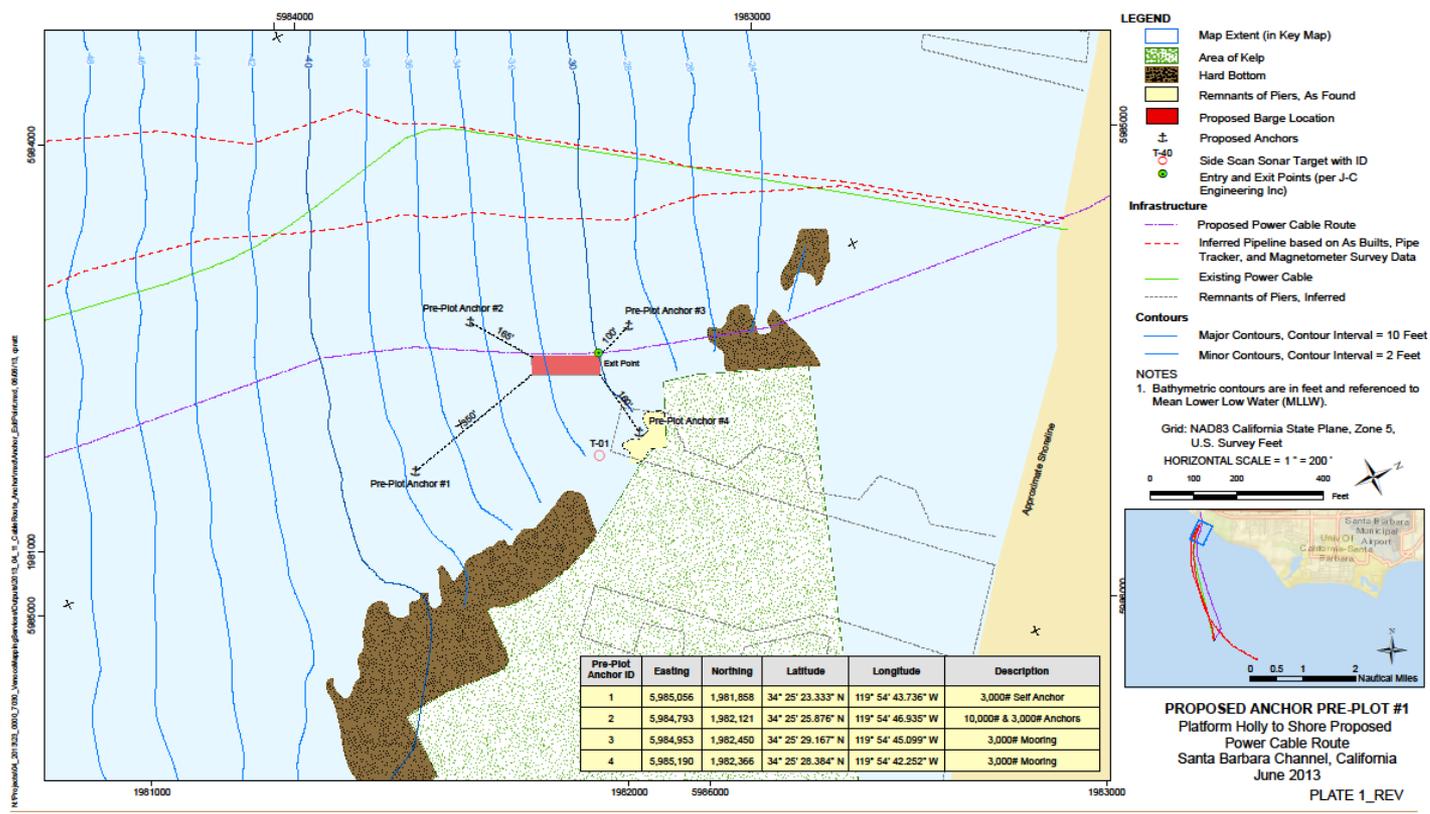




# Platform Holly Cable Replacement

## Final HDD Bore Design – New Exit Point

Venoco  
Project No.23.00007030





# Platform Holly Cable Replacement

## Permitting

- California State Lands Commission – Lead Agency
- California Coastal Commission
- California Regional Water Quality Control Board
- Department of the Army – Corps of Engineers
- City of Goleta
- Santa Barbara County Air Pollution Control District
  
- Hundreds of Pages / Scores of Conditions
- Months to Obtain



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HDD Bore + Regulatory Monitoring - Every Operation - Every Day - Every Site



**5 Monitors for 3 -4 ft Entry Hole**  
**3 = EQAP Monitors in Blue Hats**  
**1 = Cultural Resources in White Hat**  
**1 = Native American Monitor in White**



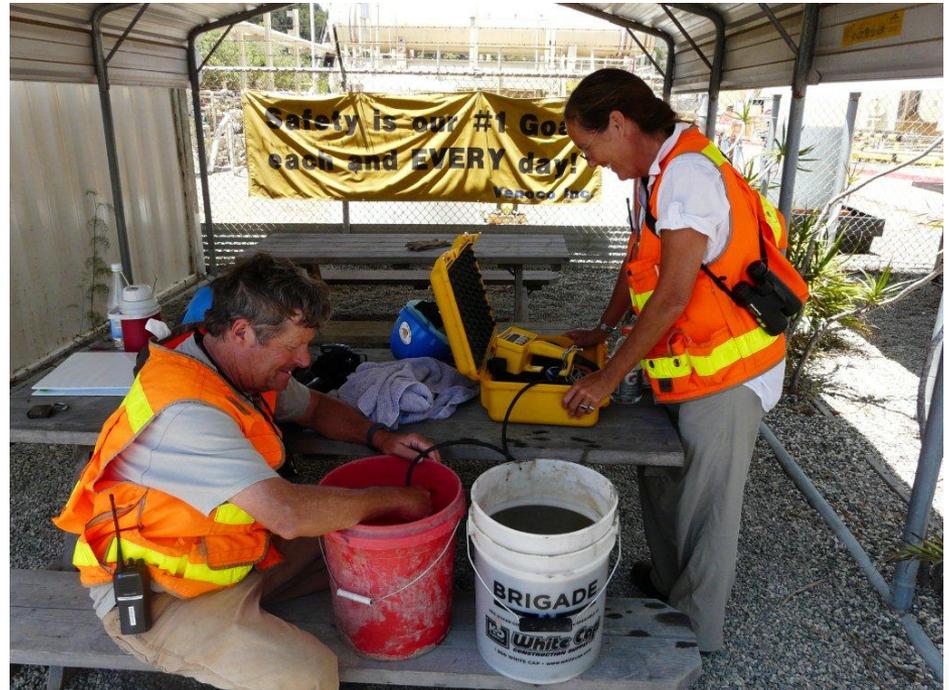
# Platform Holly Cable Replacement

Contingency Dive Team – Ready on Standby All Day





# Platform Holly Cable Replacement Rhodamine Dye Requirement





# Platform Holly Cable Replacement

- Inadvertent Surface Release of Drilling Mud
  - Material detected in water, no dye detected
- New Plan
  - Drill and Ream the last 300' with Water Only (No Drilling Mud)



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# Platform Holly Cable Replacement





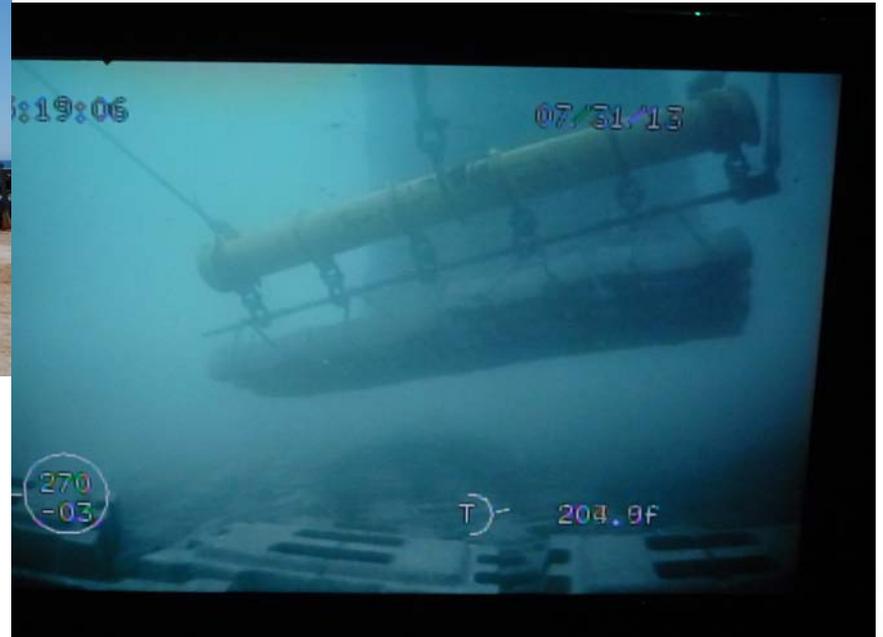
# Platform Holly Cable Replacement





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## Pipeline Crossing Mats





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





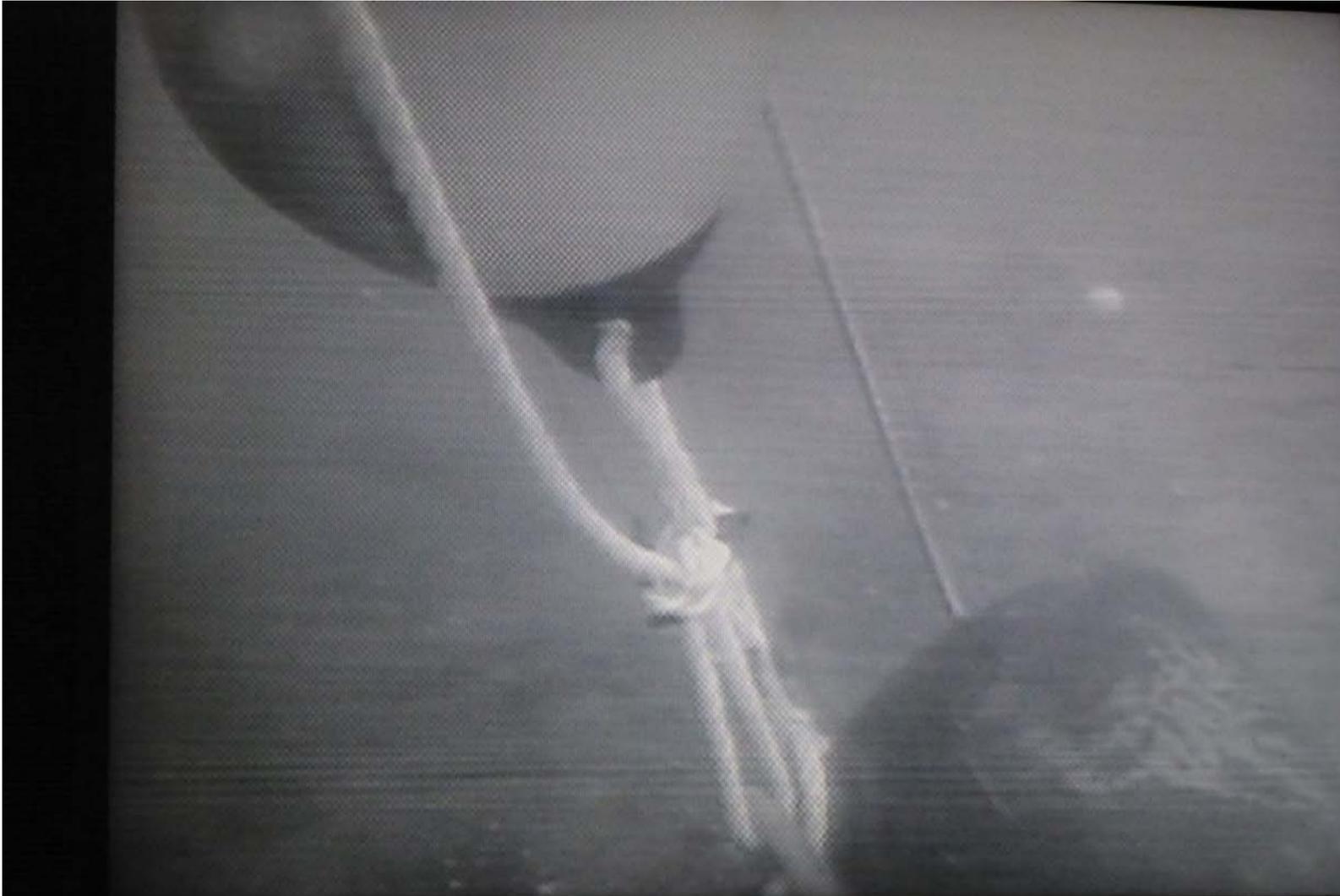
# Platform Holly Cable Replacement

Lay the Cable – First Pull Cable Into Ellwood Onshore Facility





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement

Lay the Cable – Now to Holly – Tight Work Space Constraints





# Platform Holly Cable Replacement





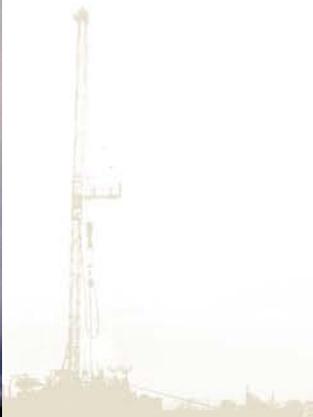
# Platform Holly Cable Replacement





# Platform Holly Cable Replacement

**OOPS !**





# Platform Holly Cable Replacement

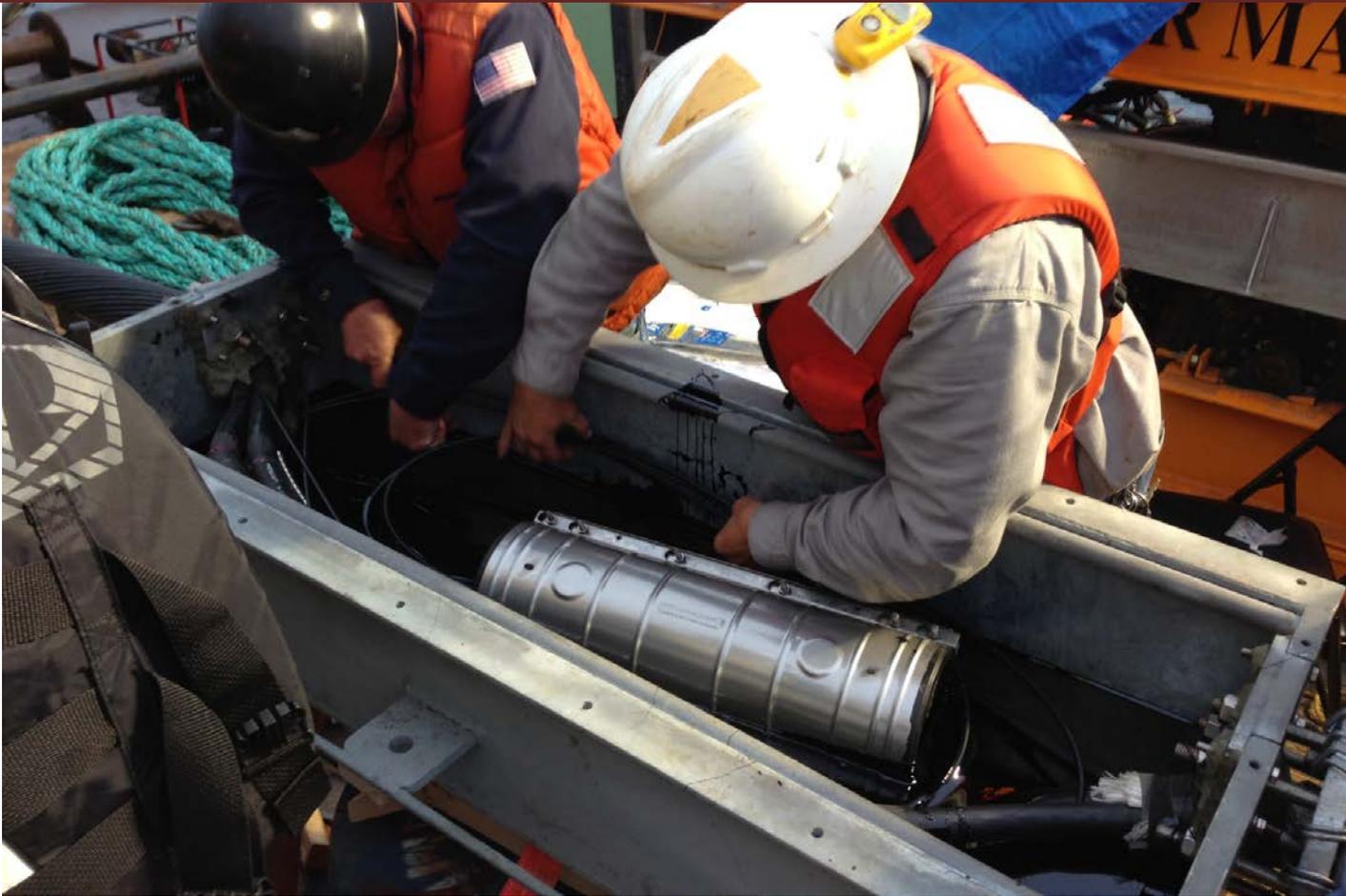
## It Gets Worse - Twisted





# Platform Holly Cable Replacement

## Cut & Splice it Together





# Platform Holly Cable Replacement

## Splice Again, Rinse & Repeat





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement





# Platform Holly Cable Replacement

## Up Through the I-Tube





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# Platform Holly Cable Replacement

## Testing the Cable and Fiber Optics





# Platform Holly Cable Replacement

## Pipeline Crossing – Cable Cover





# Platform Holly Cable Replacement





# Platform Holly Power Cable Replacement

Resident Inspectors Ecstatically signed off project





# Platform Holly Power Cable Replacement

## What did this all cost?

- |  |           |
|--|-----------|
| ➤ Planning, Engineering                    | \$ 357K   |
| ➤ Permitting, Monitoring                   | \$ 571K   |
| ➤ Cable Purchase                           | \$1,587K  |
| ➤ Installation                             | \$5,802K  |
| ➤ Total                                    | \$ 8,317K |
| ➤ <u>Not a single accident of any kind</u> |           |

The background of the slide features a large offshore oil platform, likely the Platform Holly, silhouetted against a bright, golden sunset sky. The platform's complex lattice structure is prominent. In the foreground, there are some industrial structures and containers. A semi-transparent map of the United Kingdom is overlaid on the left side of the image, with a red line indicating a specific location in the North Sea. The overall color palette is dominated by warm, golden-yellow tones from the sunset.

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Prevention First

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