

# Oceaneering Delivers Full Project Support for Umbilical Project in West Africa

**Global project team completes integrated project scope including umbilical manufacturing and installation for customer in Angola**

## Project Overview

In June 2022, the Oceaneering Projects Group (OPG) completed a fully integrated umbilical project scope that was installed off the coast of Angola. A global project team completed all aspects of the contract, from umbilical and hardware design and manufacture to installation from an Oceaneering vessel, demonstrating the breadth and depth of the company's offering while delivering a streamlined project management structure to the client.

## Challenge

Oceaneering has a long-standing inspection, maintenance, and repair (IMR) contract with the client that covers their assets in West Africa. In 2020, the Oceaneering team documented a low insulation resistance (IR) reading on one of the client's umbilicals.

As all other components within the umbilical were functioning properly, the client was interested in a solution that enabled the replacement of only the failing electrical



components. The small diameter of the umbilical and its short length introduced various design and installation challenges, but provided the client with the most effective solution, including additional redundancy, should further issues arise.

Oceaneering's existing involvement at the project site and our ability to provide a one-stop package for the entire scope enabled the customer to eliminate the requirement to manage multiple interfaces.

## The Oceaneering Solution

Oceaneering leveraged its global expertise to deliver a solution that minimized costs to the client by avoiding a full umbilical replacement. The umbilical and hardware design, analysis, manufacturing, and testing were completed by Oceaneering Subsea Distribution Systems (SDS) at our Rosyth, Scotland manufacturing facility before being shipped to our Angola facility to await installation.

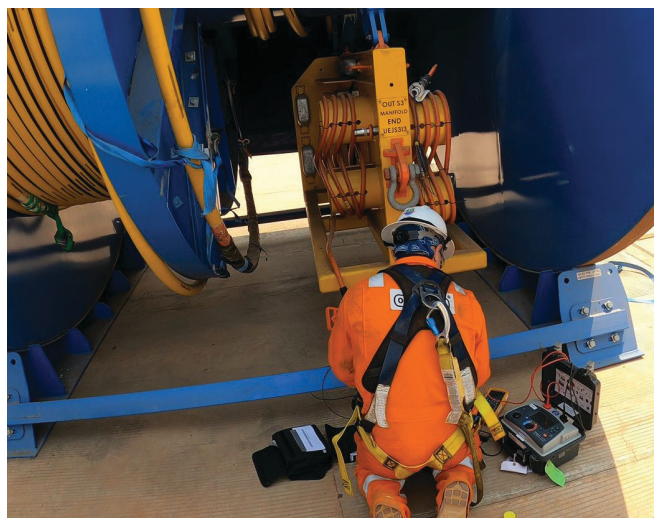
The design of both the umbilical and hardware were unique. The primary components, two electrical cores, on their own would have lacked the required strength and rigidity to withstand installation forces. The team in Rosyth, assisted by analysts in our global design center, generated a cross section design that incorporated a steel cable, oversheathing, and fillers that provided the required composition to meet project demands. The bespoke UTA acted as an installation aid as well as providing a housing for the electrical flying leads (EFL) enabling ROV installation once deployed subsea.

Simultaneously, analysis and engineering were being completed by Oceaneering's Offshore Projects Group to ensure the readiness of Oceaneering's Ocean Intervention III vessel. By using this vessel, the client was able to avoid mobilization for a larger, more costly construction vessel. Various pieces of deck equipment including tensioner base frames, subframes, winches, and installation aids were added to the vessel based on thorough installation analysis.

## Execution Plan

The umbilical design phase was completed between Nov 2020 and Jan 2021 with manufacturing running through Q2 2022.

The final product, a 1900m control umbilical and related hardware were shipped to Angola in preparation for installation. Due to client schedule constraints, the reel-packed products were stored at our Luanda facility for a year prior to being mobilized to the Ocean Intervention III for installation in 1400m water depths. Premobilization and deployment checks were conducted by SDS in collaboration with OPG to ensure a safe and successful installation.



## Results

Oceaneering worked with the client to develop a truly integrated solution. This enabled the client to realize schedule efficiencies, cost effectiveness, and minimized interface requirements.

The repair umbilical was successfully installed and now provides dual redundancy for the client. Oceaneering acted as the single point of responsibility to deliver the entire project scope. Because we continue to deliver the ongoing IMR services for the field, we have a firm understanding of the corrective actions, should there be any future issue. Additionally, we have developed a repeatable design for future life of field maintenance.