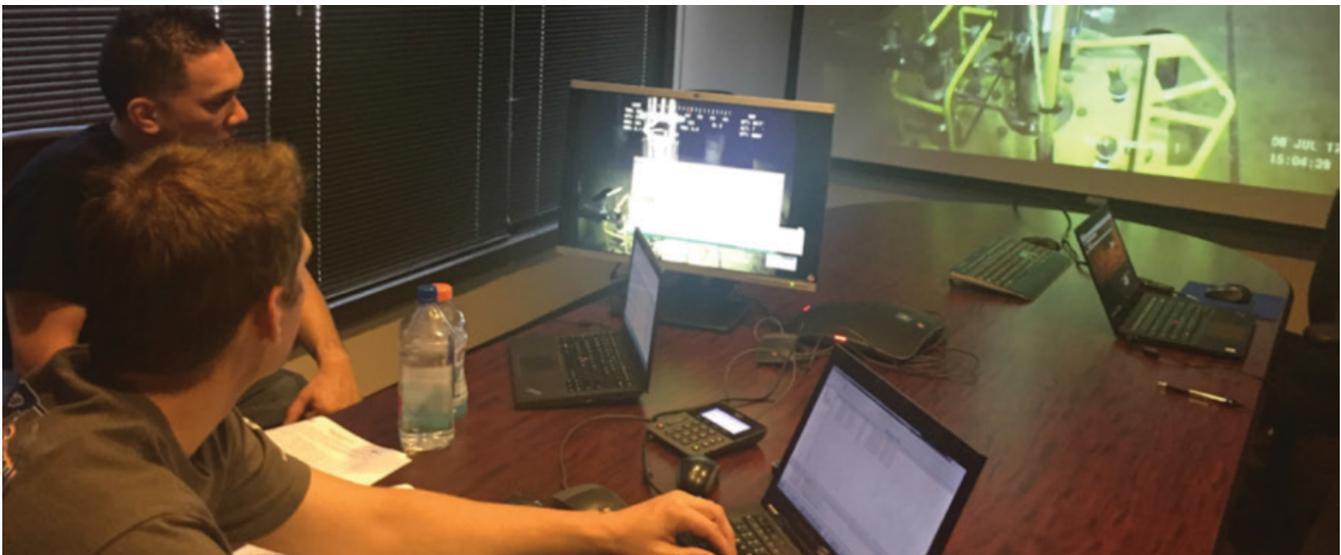


## Oceanearing Sets Marker Buoys Using Remotely Operated System

Elimination of vessel requirements enables cost savings and increases efficiency



### Project Overview

A major customer was interested in using Oceanearing remotely operated survey (ROS) capabilities to save costs and increase efficiency during the setting of marker buoys. The project, completed in the Gulf of Mexico in more than 3,281 ft (1000 m) water depth in December

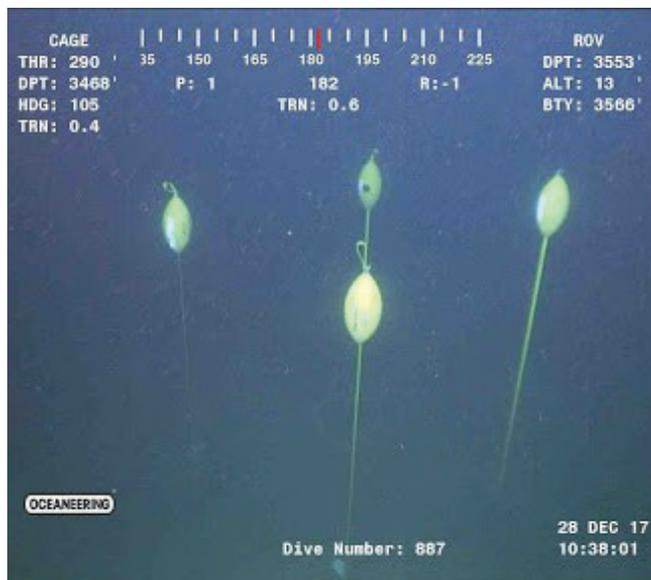
2017, was scheduled during rig pre-spud and during pre-site maintenance. The customer wanted to avoid contracting an additional vessel to complete the scope of work and engaged Oceanearing to develop a viable solution.

## Challenges

Effective communication between the remotely based surveyors and the remotely operated vehicle (ROV) team on board was essential. The customer needed highly accurate data in order to set the marker buoys that would act as visual aids indicating the location of future spud-ins.

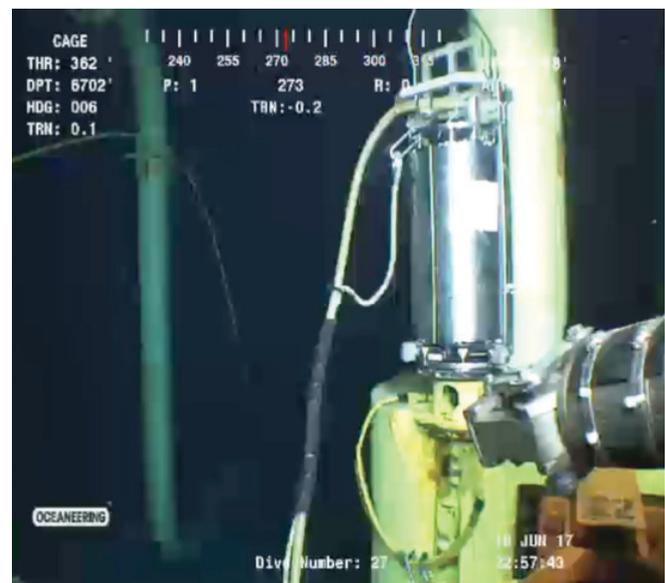
## The Oceanering Solution

Oceanering Survey Services is equipped with plug-and-play equipment capable of generating the required data. This setup and marker buoys were to be mobilized to the rig. The ROV crew on board the *Ocean Blackhawk* installed the equipment sent by the Oceanering Survey Services team, which was also on stand-by waiting at a local office to collect data on marker buoy locations and was prepared to aid the ROV to the correct marker buoy locations.



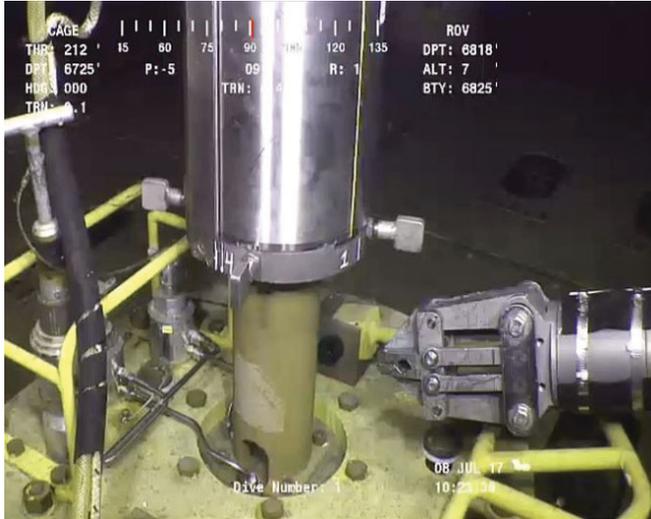
## Execution Plan

The project benefited from two weeks of detailed planning. The ROV technicians were provided with the necessary training before mobilization from Morgan City, Louisiana. This was enabled to happen as planned when considering an achievable time frame. The survey equipment was plug and play, and the ROV was outfitted and ready to set marker buoys within six hours of starting the mobilization on December 27, 2017. Marker buoy sets were then started, finishing out the locations within 12 hours on December 28, 2017. All offshore operations were completed in under one week and were performed simultaneously with other operations.



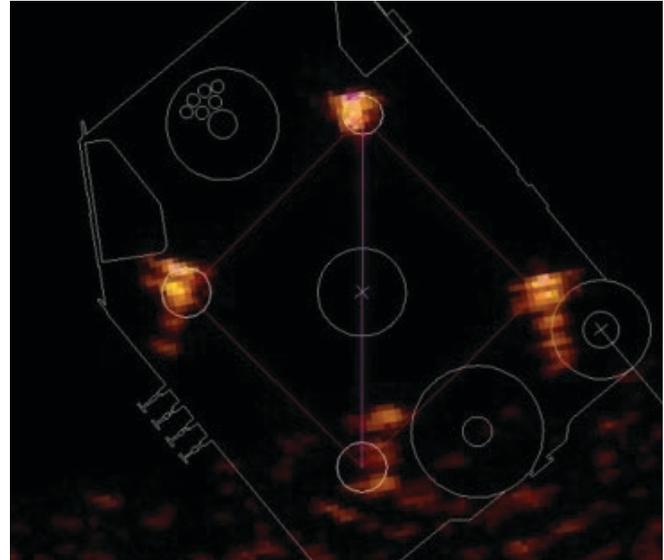
## Challenges

Initially, communications were difficult between the surveyor team on shore to the ROV team offshore. Once the first buoy set was complete, there was a better understanding between the two teams regarding what needed to be accomplished for the remaining two marker buoy sets.



## Results

The results were very positive. The customer was able to complete all data collection activities by using the availability of the ROV on the rig, thus removing the costly requirement to contract a vessel to do the work.



## Project Highlights

This was the first time that a survey job scope of setting marker buoys via an ROS was conducted and results were excellent. Using the ROS for more than surface navigation and adapting it to the subsea aspect of setting marker buoys (which previously required a vessel to complete operations) prior to the drillship arriving on location provides not only substantial cost savings but also efficiencies when considering the reductions in time and mobilizations required to complete the setting of marker buoys.



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