

CASE HISTORY

Application: **Renewables**

Technology: **PS Logger®, 3-Arm Caliper, 2000m Marine Winch**

Location: **Moray Firth Offshore Wind Farm (OWF), Scotland**

Background:

The Moray West OWF is located in the Moray Firth in the Northeast of Scotland. The projected power output of the 60 x 14MW turbines will be 882MW, enough to power 640,000 businesses and homes.

Requirement:

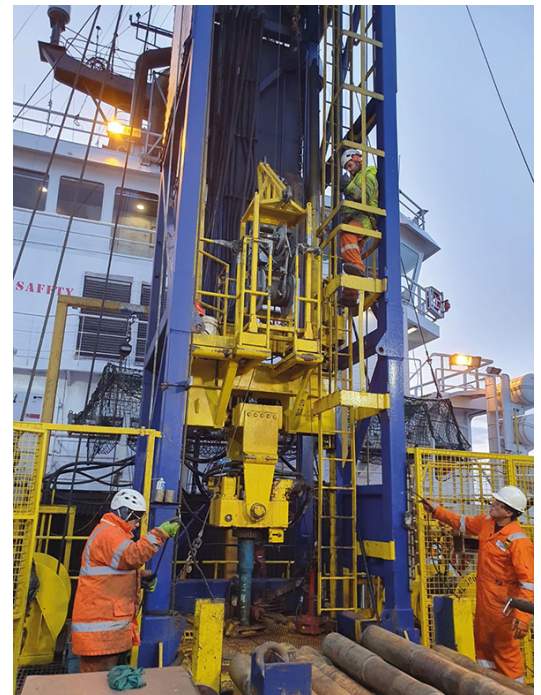
Robertson Geo Services (RGS) was contracted by Gardline to conduct PS Logging operations on three boreholes from their heave compensated drill ship for the Moray Firth West OWF, managed by a joint venture between Ocean Winds, EDPR and Ignitis Group.

Equipment:

PS Logger®: to determine P and S wave velocities in unconsolidated soils and hard rocks

3-Arm Caliper: to identify weak sections of the borehole before deploying the PS Logger®

The PS Logger® probe, with its integral source, measures compressional (P) and shear (S) wave velocities in a single borehole in soft and hard formations. The velocity data was used to derive Poisson's Ratio and when combined with density values can be used to calculate the small strain moduli, with Shear Modulus (G) being important for offshore wind turbine foundation design.



Operations:

The port of Aberdeen was used as the base of operations for the vessel during the project. Before the project could begin the engineer installed the 2000m Marine Winch into a custom-built frame which would be mounted on the rooster box during operations. All installation work was conducted following the thorough safety practices set out by the engineer and crew on board the vessel. Three boreholes were logged on the project, using multiple casing pulls to mitigate the risk of borehole collapse and to maximise data recovery should any unstable zones be encountered. Before each run of the PS Logger® the engineer would run the 3-Arm Caliper probe to ensure the integrity of the borehole and to discover any potential collapses before sending the PS Logger® probe into the borehole.

Challenges and Solutions:

The first operational challenge was to install the winch in the frame and secure the frame in the rooster box, requiring a degree of customisation as each vessel and drill rig has a unique set up and operating environment. The second challenge was to work efficiently within the weather "windows" where wave heights were still in the safe zone.

End value to client:

The logging programme was successfully completed without issue or deviation from the original logging programme.