

CASE STUDY

GHANA FPSO APPLETON CRANE HYDRAULIC MODELLING, TROUBLESHOOTING & RECTIFICATION

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OVERVIEW

An Appleton Crane on an FPSO in Ghana was experiencing repeated uncontrolled load-lowering incidents on the auxiliary winch of its port crane. Previous investigations by two contractors and the OEM had been unable to identify the root cause, putting safe and reliable crane operations at risk.

APPROACH

Pressure Dynamics mobilised a Lead Crane Technician to the FPSO to undertake detailed fault-finding and collect operational data. In parallel, our Hydraulic Systems Engineer used this data to develop and analyse the hydraulic system using Pressure Dynamics' multi-functional digital twin modelling, simulation and troubleshooting technology. The investigation identified an incorrect counterbalance valve pilot control ratio, which caused the valve to open before the winch brake was fully released. This resulted in pressure fluctuations, repeated brake application and progressive damage to the hydraulic motor.

OUTCOME

Pressure Dynamics successfully identified the underlying design fault and engineered a solution to rectify the issue. Replacement componentry was sourced and manufactured, installed offshore, and the crane was modified, tested and recommissioned for safe, fault-free operation. The investigation also identified several additional hydraulic, control and component issues requiring rectification, allowing the client to address wider reliability and operational risks across the crane system.

