



## ENGINEERING SAFETY CONSULTANTS

*The Global Provider of Functional Safety Expertise and Technical Consultancy*

### Certificate of Conformity to IEC 61508 Safety Integrity Level (SIL) 3 in Terms of Random Hardware Performance Requirements

#### ***Functional Safety of Safety-Related Programmable Electronic Systems***

The **Paladon Systems Ltd, Helang Floating Production Storage and Offloading (FPSO) Unit Pressure Protection System (PPS)**, has been assessed and is considered capable for use in a low demand Safety Function up to SIL 3 with regard to random failure rate and architectural constraint.

The function of the PPS System is to provide control necessary to transfer the Layang Wellhead Platform (LWP) turret riser piping to a safe state, upon detection of high high pressure by pressure transmitters with a 2oo3 configuration which will trip two valves voted in a 1oo2 configuration.

The assessment was based on the assumptions, data provided, and recommendations given in:

- ESC Ltd Report: H031\_SV001 rev.2.

The assessment was carried out to determine compliance with IEC 61508 with regards to:

- Random Hardware Failure (Predicted failure rate  $\leq 9.2E-04$  per year);
- Architectural Constraint (Type B for the sensing and logic solver subsystems and Type A for the final element subsystem).

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Member of the IEC61508 committee

Assessment Date: August 2018, valid to August 2020

Certificate: H031\_CT001 rev.1

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