CASE STUDY

SOLAN EPC DEVELOPMENT

Topsides Engineer Procurement and Construction

ODE acted as Design subcontractor under BiFab, who acted as Topsides EPC contractor, for this West of Shetland facility. The field design consisted of four subsea wells (two producers and two injectors) tied-back to a topsides processing facility on a single slim jacket installation, with produced oil stored in a subsea storage tank for shuttle tanker offloading via a single anchor loading (SAL) System.

Project Name
Solan EPC Development

Client
Premier & Chrysaor

Location
West of Shetland

Date
June 2011 - June 2016

The project involved several innovative features such as full field automation from an onshore control facility in Aberdeen, and the use of hydrostatic displacement of the subsea storage facility with treated seawater, to allow transfer of the produced oil to the offloading tankers.

ODE's Tech Safety scope included the following studies and engineering deliverables:

- Technical Safety & Environmental Philosophies (inc. Fire Protection, F&G Detection Blast Philosophies)
- HAZID/ ENVID and HAZOP and SIL Identification Studies
- FRA, Toxic Gas Dispersion Analysis
- Explosion Modelling
- CFD Exhaust Plume Modelling Analysis
- Natural Ventilation Analysis
- Fire & Gas Detection Study
- Firewater demand & Hydraulic Analysis.

Work also included Layouts – Fire Zoning, F&G Detection, Hazardous Areas, Fire Protection & Equipment, Escape Routes & LSA; Fire Cause & Effects; Dropped Object Study; Smoke and Gas Ingress Analysis.

ODE carried out TRIA; EERA; QRA; ESSA; Flare Study; RAM; Fire Water Pump Availability Technical Note; TEMPSC ALARP Study; SCE & Performance Standards; Nosie & Vibration; Human Factors; and Environmental Discharge Report & BAT Report.

Key aspects / areas of the project which required special Technical Safety attention included:

H2S content in the fluid streams. The presence of H2S involved the provision of fixed H2S detection on the topsides facilities, but also specialist personal protection equipment for worker groups and development of procedural controls to mitigate and manage the hazards associated with H2S.

TEMPSC provisions - due to the varied POB associated with the different stages of operation and uncertainty in the SOLAN manning status during normal production, various options regarding the number, size and configuration of TEMPSCs were reviewed, also considering a TEMPSC availability review. The final TEMPSC configuration of a single freefall facility also had to consider the proposed drop height (circa 40m) and the lifeboat vendors certification for use of their TEMPSC vessels at these heights.

Demonstration to HSE of suitability of two electrical firewater pumps versus more the more traditional arrangement using diesel pumps.

St George's House
St George's Road
Wimbledon
London SW19 4DR

T: +44 (0)20 8481 1190
F: +44 (0)20 8546 4346
bd@ode-ltd.co.uk
www.ode-ltd.co.uk

PremierOil

CHRYSAOR

ode
A DORiS Group Company