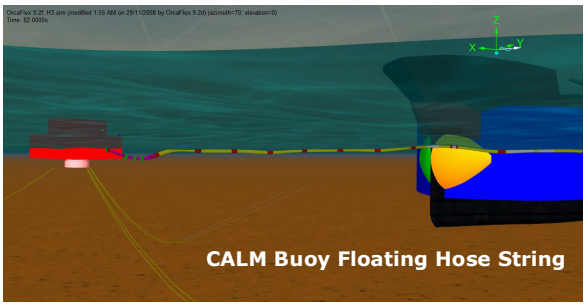
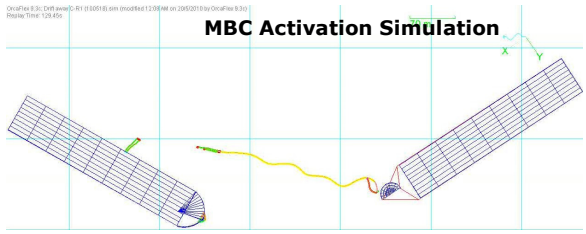
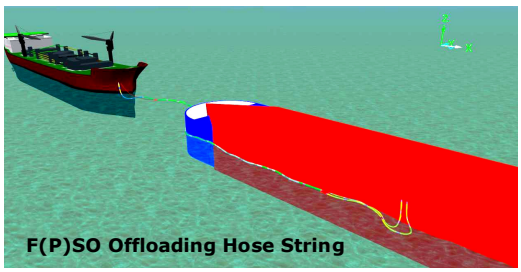
Global Finite Element Analysis of Marine Hose Systems using ORCAFLEX

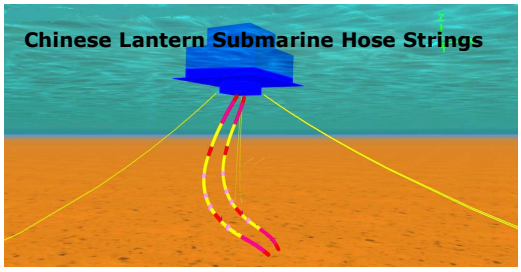
Allied Marine LOGISTICS LIMITED

HOSE SYSTEM DESIGN INTEGRITY & OPTIMISATION


CALM Buoy Floating Hose String


MBC Activation Simulation


F(P)SO Offloading Hose String


Chinese Lantern Submarine Hose Strings

We perform static, quasi-static and dynamic global analysis of marine hose systems using ORCAFLEX for:-

System Design Verification & Manufacturer Qualification:

- Qualification of suppliers of original equipment or replacement hoses.
- Floating and submarine hose string length calculation and optimisation.
- Submarine hose string configuration and bead float arrangement checks.
- Stiffness and buoyancy optimisation of hoses adjacent to F(P)SO and MBCs.
- Verification of system changes to support Management of Change (MOC) requirements.

Failure Finding & System Troubleshooting Simulations:

- Support RCFA to help identify the root cause of kinking or other failure modes.
- Marine Breakaway Coupling (MBC) activation.
- Quick Connect/Disconnect Coupling (QCDC) activation.
- Reeling and chute deployment and recovery.
- Auto-submergence prevention.
- F(P)SO tether (hold back) system design (length and MBL).

Compatibility Studies:

- Verify compatibility of hoses from different brands mixed within the same hose string.
- Benchmark performance of hoses from different manufacturers.

Life Extension Risk Assessment:

- Benchmark performance of hoses at different terminals to justify life extension.

Our Modelling Experience includes:

- CALM, SALM, SAL, FPSO and FSO single point mooring terminals.
- Floating hose strings: Permanently deployed or stored on reel or chute.
- Catenary hose strings: Permanently deployed or stored on reel or chute.
- Submarine hose strings: Chinese Lantern, Lazy-S, Steep-S, with bead floats or buoyancy tanks.

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