

DRL FPSO & FLNG Activities

- Leviathan Gas FPSO – PMT Leads Concept to Detail
- 1.2 MTPA FLNG Conversion FEED
- ROC Oil – EWT FPSO Keppel Yard Team
- Murphy Azurite FDPSO Removal – PMT
- Noble FLNG Feasibility PMT with ABS
- Husky Madura Sour Gas FPSO – OE
- FE appraisal of Griffin Venture
- Petrofac Cendor FPSO – EM
- Aker AFP Benita FPSO FEED
- Aker AFP Dhirubai Gas FPSO (850 MMscfd)
- DRL personnel ex PROSAFE, SBM, BAB, AFP, EMAS

From concept through to operations.
 Assess, Feasibility, VE Studies, Select, Definition and Execution
 Contracting Strategy, Benchmark Costing, Global Pricing
 Tender Documents, Market Assessment, FPSO Providers, CP Planning,
 Tender Evaluations, Mechanical Completion, Installation & Commissioning.



Decommissioning of Azurite FDPSO, Pointe Noire



FPSO - SINGAPORE

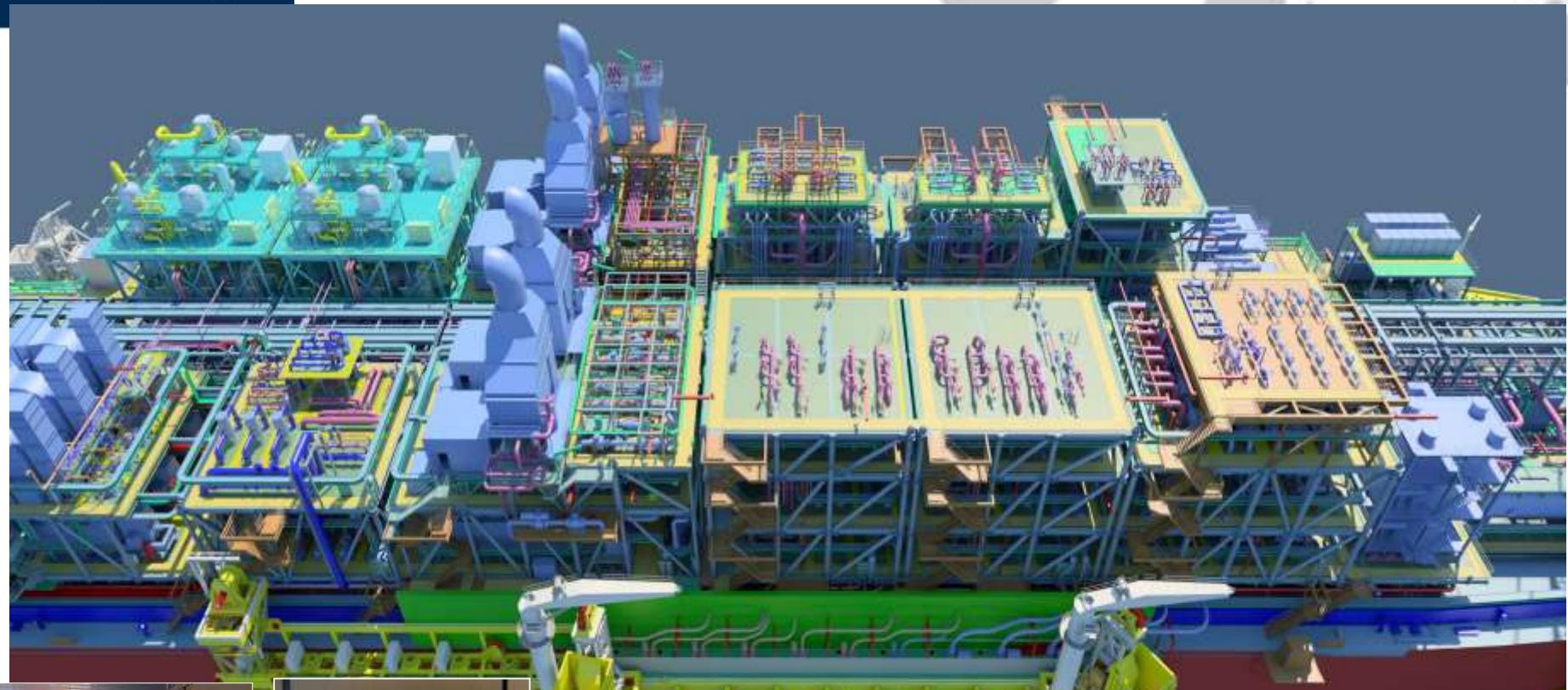


**Managing FPSO Shipyard Conversion
At Keppel Taus Yard, Singapore**



Azurite FDPSO Decommissioning

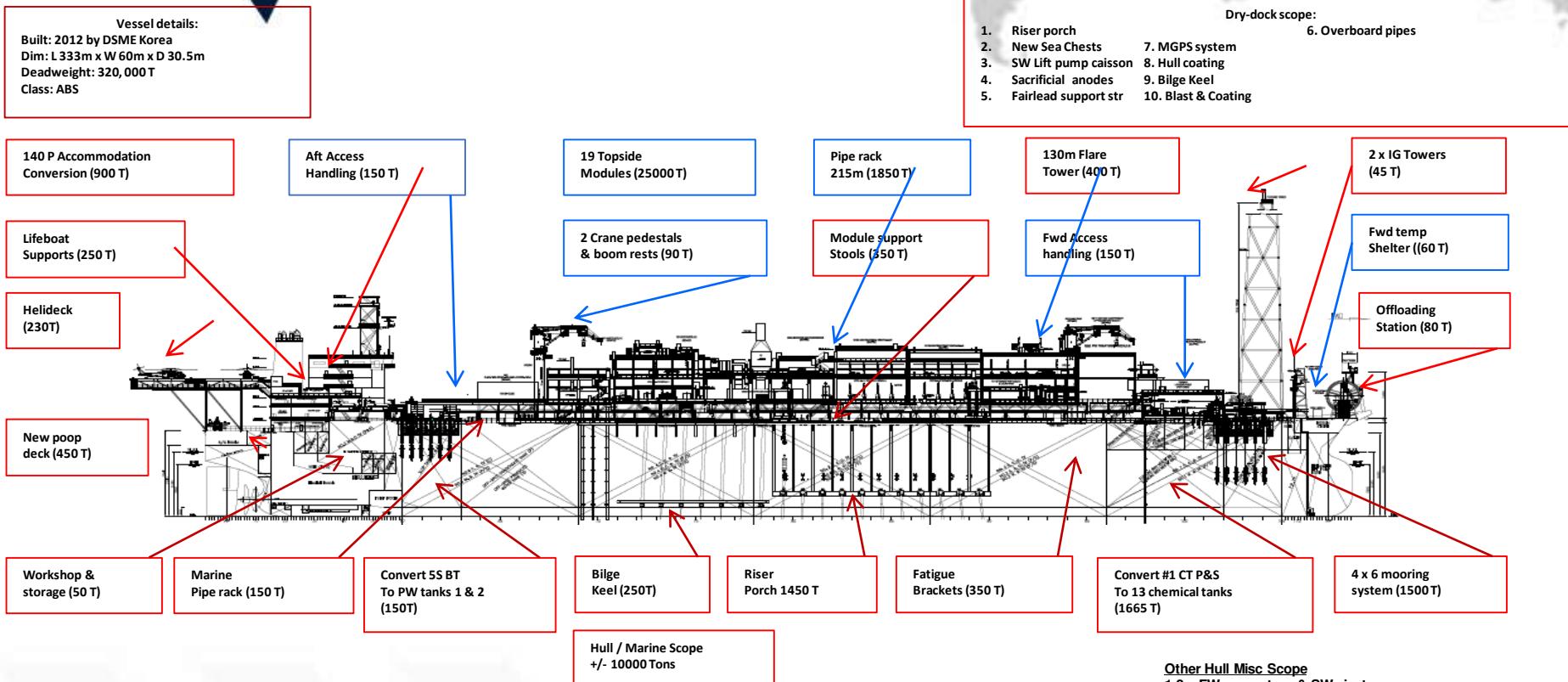




Our Personnel – lead roles in Owner PMT



Leviathan Gas FPSO Fabrication Scope of Work



Hull Demolition Scope

- 1.Fwd windlass x 1 unit
- 2.Anchor chain x 1 unit
- 3.Poop deck winch x 3 units
- 4.Main deck winch x 5 units
- 5.Hose handling crane x 2 units
- 6.Provision crane x 2 units
- 7.Bow thruster
- 8.Main deck piping & conduit
- 9.Main deck outfitting
- 10.Telcom & Navigation equip
- 11.LQ equipment
- 12.Engine Room equipment
- 13.E&I items

Hull Piping Systems

1. Cargo Oil System
2. Ballast Water System
3. Inert Gas system
4. Compressed Air system
5. Steam/Feed/Cond. Water sys
6. N2 system
7. MGPS system
8. SW cooling sys (Marine & Topside)
9. FW cooling sys
10. Offspec produced water & cond. sys
11. Open drain & closed drain system
12. FW distribution system
13. Fire system
14. Fixed fire suppression system
15. Hydraulic Oil sys
16. Fuel Gas system
17. MEG & Methanol sys
18. Foam System
19. Diesel Oil

Hull Coating & Painting

- 1.Hull painting - 450, 740m²
- 2.Main deck - 18, 000m²
- 3.11 WBT - 229, 526m²
- 4.11 COT - 155, 000 m²
- 5.Slop tanks 15, 000 m²
- 6.Offspec tanks - 19, 000m²
- 7.FWT - 1, 000m²
- 8.APT - 8,000m²
- 9.Chemical tanks - 25, 000m²
- 10.Ext Super Structure - 5, 170m²

Other Hull Misc Scope

- 1.2 x FW generators & SW ejectors
- 2.Lifting Equip
- 3.Cargo offload & mooring equipment
- 4.Safety equipment
- 5.Ballast tank dehumidifier
- 6.New emergency generator
- 7.New sewage treatment plant
- 8.Tank anodes 4, 800 # x 50 kg
- 9.Hull anodes 600 # x 100 kg
- 10.Hatch covers
- 11.Tank air vent heads
- 12.Refurbish machinery equipment
- 13.COW machine
- 14.Heating coils in slop tank
- 15.O/H valves
- 16.E&I navigation & communication equip

OE – HUSKY MADURA GAS FPSO



FLNG Development



DRL Engineering are assisting the License Block Operator (Owner), in technical management and risk assessment and due diligence of this major development .

DRL are fulfilling the roles of PM, EM, Structural Lead, Process and Marine





Accommodation, Machinery & Propulsion

- Class Rules & MODU
- IMO IGC Codes
- CFRs
- SOLAS
- MARPOL

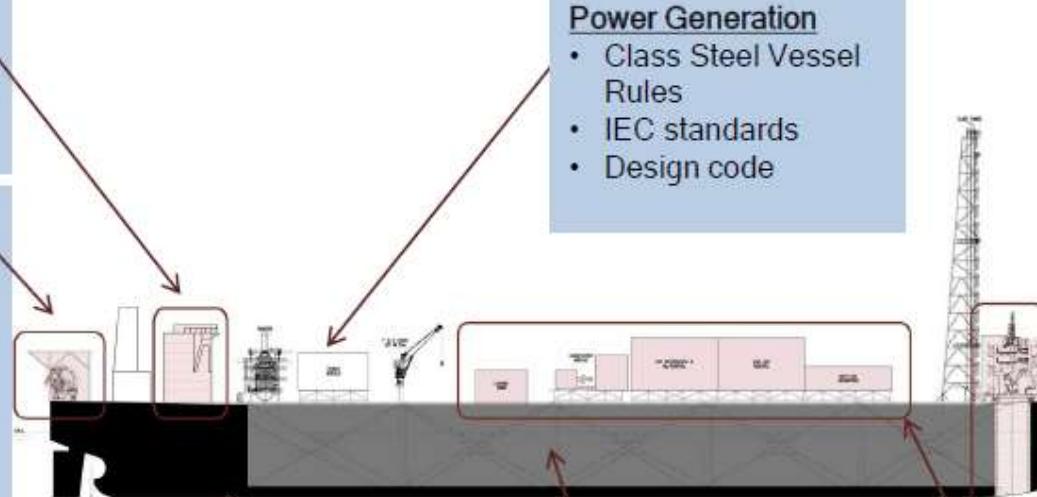
Offshore Cargo Transfer

- IMO IGC Codes
- SIGTTO, OCIMF
- IACS Requirements
- Class Rules
- SOLAS, MARPOL
- Class Offshore Terminal Guide

LNG FPSO

Power Generation

- Class Steel Vessel Rules
- IEC standards
- Design code



Hull & Structure

- Class Steel Vessel Rules
- MODU Rules
- DLA, SFA
- Class Rules for Building & Classing

LNG Containment

- Class Terminal Guide
- Design Code
- IMO IGC Codes
- Continuous Monitoring of Cargo Containment & critical structures

Process Plant

- IGC Code & NFPA
- API, ASME, ANSI
- ABS Facility Guide
- Steel Vessel Rules
- SIGTTO
- ABS Offshore Terminal Guide

Overall

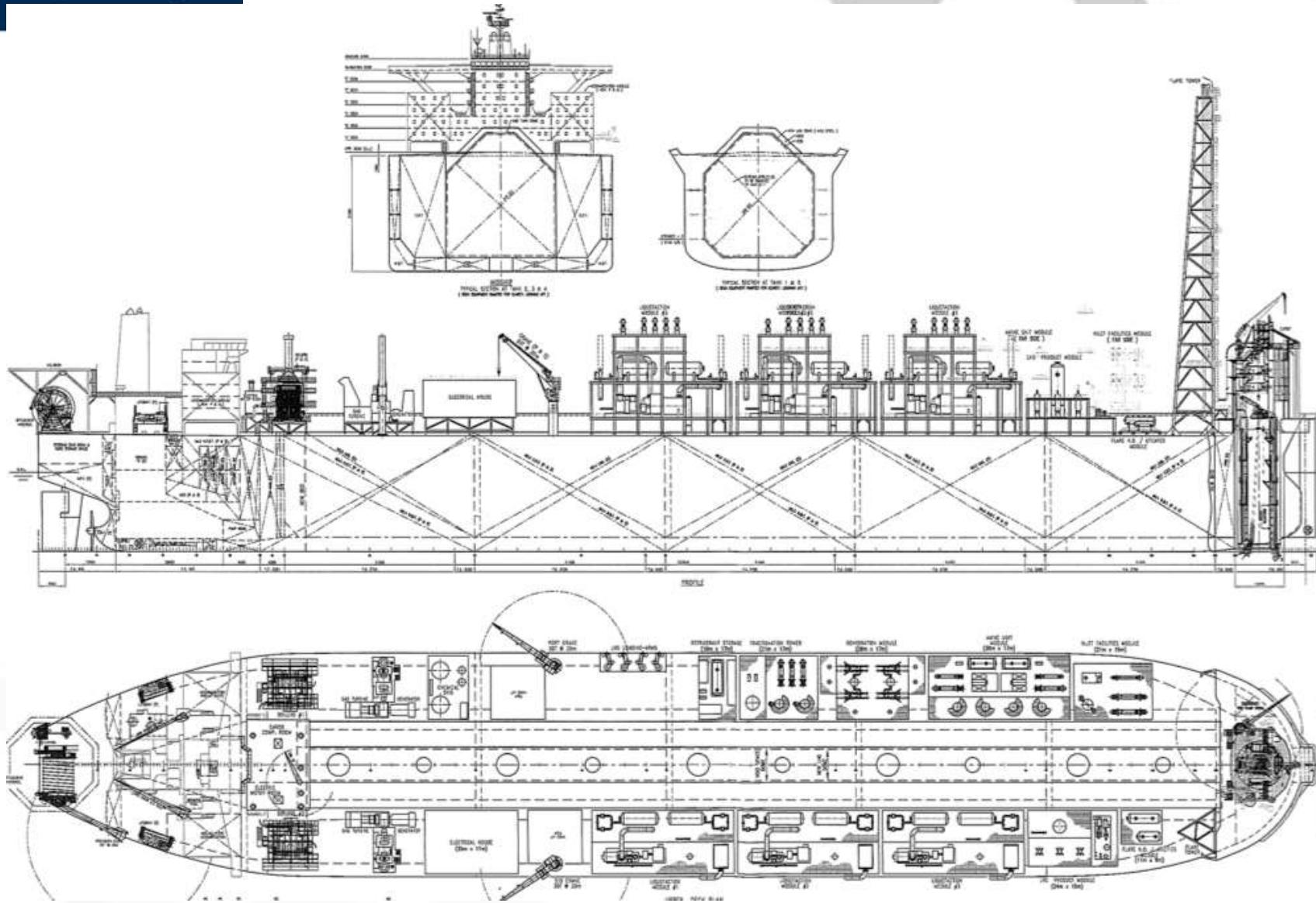
Risk Based Approach

- FSA, QRA
- Class Guidelines on Risk Assessment
- Special studies, etc...
- Risk acceptance criteria, ALARP Principle

Mooring & Turret

- Class SPM Rules
- Class Rules for Building & Classing
- Class Steel Vessel Rules

1.2 MTPA FLNG CONVERSION



Husky Madura FPSO - Indonesia

DRL Provide Consulting Services for:

- Value Engineering
- Lease Tender Contract Preparation
- Peer Reviews
- PMT Team members



Cendor FPSO - Malaysia

DRL Engineering Manager for the Cendor FPSO Detailed Engg

