DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| ANADOLU SHIPYARD | FSS Naval Vessel | ANADOLU SHIPYARD | Turkey | ~ | 1. Expert witness in Naval Architecture<br>2. Technical review of the engineering & design of Fast Surface Support vessels for the Navy. | | 2025 |
| LLOYDS REGISTER | CORAL FLNG | Lloyd's Register | Mozambique | 2,000 m | 1. Preparation of documentation for the operation FLNG.<br>2. HAZID & Document review<br>3. Preparation of the On-shore Emergency Response Plan | | 2025 |
| STRAITS BIO-LNG | Straits Bio-LNG Terminal | STRAITS BIO | Malaysia | 20 m | 1. Design of a floating LNG Terminal including<br>a. General Naval Architecture<br>b. Hull design<br>c. General Structural Engineering<br>d. Stability Analysis<br>e. Process & Piping<br>f. Power & electrical<br>g. Instrumentation<br>2. Management of team of engineers<br>3. Liaise with Class<br>4. HAZID / HAZOP | | 2025 |
| ARGO MARINE | Container Barge | ARGO MARINE | PNG | ¬ | 1. Engineering & design of the conversion of barges to become container transport barges.<br>a. General Naval Architecture<br>b. Hull & deck strength design<br>c. General Structural Engineering<br>d. Container system design & strength<br>e. Stability Analysis<br>2. Obtaining class approval for the new classified barge.<br>3. Naval architecture, stability, structural engineering. | | 2025 |
| MOOREAST | BSRC | MOOREAST | Thailand | 20 m | 1. General review of vessels, suitability and requirements<br>2. Design & Engineering of installation procedures.<br>3. Full Offshore installation engineering, drawings, analysis.<br>4. Offshore Construction Management and Offshore Execution of the installation | | 2025 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| BHIC | MRDF | | Malaysia | 25 m | 1. Design & Engineering, review of vessels, barges & other installation requirements<br>a. General Naval Architecture<br>b. Hull & deck strength design & Structural Engineering<br>a. Stability Analysis<br>b. Bending moments on hull<br>c. Localised extreme deck loads<br>2. Obtaining class approval for the new classified barge.<br>3. Full Offshore installation engineering, drawings, procedures. | | 2025 |
| YNTEGRA GROUP | Floating Paddle Court | yntegra | USA | 10 m | 1. Engineering & Design of a floating paddle court for use in harbours and protected waterways.<br>a. General Naval Architecture<br>b. Hull & deck strength design<br>c. General Structural Engineering<br>d. Stability Analysis<br>e. Bending moments on hull<br>2. USA Coastguard approval<br>3. | | 2024 |
| OPPY INTNAL | DELFT House | Oppy | Netherlands | 5 m | 1. Naval Architecture & design support for a floating office<br>a. General Naval Architecture<br>b. Hull & deck strength design<br>c. Stability Analysis<br>d. Bending moments on hull | | 2024 |
| LNG EASY | MFP | LNG Easy | Malaysia | 25 m | 1. Design of LNG Terminal Barge & general naval architecture<br>2. Design of mooring system / Design of flexible hose system | | 2023 |
| VENTURER TIMBERWORK | Cave Cay | Venturer Timberwork Building with Nature | Bahamas | 25 m | 1. Naval Architecture & design for a floating suite<br>a. Survey & review of existing floats<br>b. General Naval Architecture<br>c. Hull & deck strength design<br>d. Stability Analysis<br>e. Bending moments on hull<br>f. Mooring analysis, Hurricane system mooring | | 2023 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| BUREAU VERITAS | FPSO Armada Sterling V | | Singapore / India | 400 m | 1. Independent review on behalf of Bureau Veritas of the yard completion of the SPOG FPSO Hull, marine, process, electrical & instrumentation systems for sail away status and readiness from the yard<br>2. Independent review of the commissioning status of marine, process, electrical & instrumentation systems.<br>3. Independent review of classification Society status.<br>4. Independent review of the health Safety and Environment plans, HAZOP's, etc. | | 2022 |
| SEAGULL GROUP | Vessel refurbishment | Seagull | Singapore | ~ | 1. Piping lay-out /<br>2. Piping isometrics / Piping drawings | | 2022 |
| BW ENERGY / TUFF OFFSHORE | Maromba Field FPSO | BW ENERGY<br>TUFF | Brazil | 152 m | 1. Detailed mooring design, field lay-out<br>2. Fatigue Analysis<br>3. Offloading analysis<br>4. Specifications for mooring system and offloading systems | | 2022 |
| LLOYDS REGISTER | CORAL FLNG | Lloyd's Register | Mozambique | 2,000 m | 1. Preparation of documentation for the operation of the FLNG<br>2. HAZID & Document review<br>3. Preparation of the Emergency Cyclone Response Plan | | 2022 |
| EPCM ENGINEERS LIMITED | Barge | EPCM | Nigeria | 70 m | 1. Design of flare bridge<br>2. Pile mooring design<br>3. Mooring design | | 2021 |
| BWO / SEAGULL | FSRU | Seagull | Singapore | NA | 1. Design and engineer of pump support system for LNG tanks<br>2. Integration of support with existing tanks | | 2021 |
| SAIPEM | Barges | SAIPEM | Thailand | 20 m | 1. Engineering support for offshore installation<br>2. Engineering, procedures, drawings, analysis | | 2020 |
| NOC / TUFF | FSO & CALM Buoy | شركة نفط الشمال North Oil Company | Qatar | 70 m | 1. FEED STUDY level 2&3 for the mooring systems and vessel conversion requirements for FSO and CALM Buoy system<br>2. Chain stoppers and mooring system, specifications, RFQ<br>3. Naval Architecture for conversion of Hull, riser supports, mooring & hull integration | | 2019 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| | | TUFF | | | 4. Mooring analysis<br>5. Mooring Fatigue analysis<br>6. Mooring system design | | |
| NOC | FSO & CALM Buoy | شركة نفط الشمال North Oil Company | Qatar | 70 m | 1. FEED level 1 STUDY for the mooring systems and vessel conversion requirements<br>2. Chain stoppers and mooring system<br>3. Thruster and their requirements and analysis<br>4. Full Naval Architecture for the conversion | | 2019 |
| AMANIAGA | CALM Buoy | AMANIAGA | Malaysia | 30 m | 1. Inspection of CALM Buoy prior to removal<br>2. Engineering, stability, and dynamic analysis for Calm Buoy removal and Tow out.<br>3. Decommissioning procedures<br>4. Support personnel for the preparation of the Tow out<br>5. Tow-out and delivery to quay side. | | 2019 |
| MOPU HOLDINGS | Temporary Storage Tanker | MOPU HOLDINGS A Cepsa Company | Malaysia | 60 m | 1. Reinstatement of Mooring System<br>2. Complete analysis design checks and reviews for the mooring system<br>3. Complete Installation procedures and on-going review | | 2019 |
| HESS EXPLORATION & PRODUCTION | FSO | HESS | Malaysia | 56 m | 1. Principal Naval Architect and Technical Lead<br>2. Appointed as the overall Technical and Managerial consultant for the engineering of the offshore installation.<br>3. DEEPBLUE personnel were appointed as the overall HESS Transport & Installation Management, onshore and during the offshore campaign for the FSO, mooring and SURF Installation.<br>4. Including flowline lay, mooring installation and hook-up, SAT diving etc. | | 2018 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| HESS EXPLORATION & PRODUCTION | Temporary Storage Tanker | HESS | Malaysia | 56 m | 1. Complete EPIC contract of the Temporary Storage Tanker<br>2. Design of the mooring system for a Temporary Storage Tanker (TST) for condensate storage<br>3. Design of the subsea flowline, riser and hose system for condensate transfer from Central Processing Platform (CPP) to the TST<br>4. Design of subsea support bases | | 2018 |
| HESS EXPLORATION & PRODUCTION | Temporary Storage Tanker | HESS | Malaysia | 56 m | 1. Upgrading of 6-point mooring system to 8-point mooring system to increase the operability<br>a. Install 2 chain stoppers and 1 QRH at the stern of the TST<br>b. General Naval Architecture & Structural Engineering<br>c. Stability Analysis<br>d. Localised extreme deck loads<br>2. Installation engineering for the tanker, mooring and SURF.<br>3. Provision of all personnel for installation, management, Flowline installation management<br>4. EPIC of the Offshore installation of the tanker, mooring system and SURF<br>5. Offshore TST changeout of 6-point moored tanker with a new 8-point moored tanker<br>6. Design engineering and offshore procedures for offloading of condensate | | 2017-2018 |
| AMANIAGA | Offshore Installation | AMANIAGA | Malaysia | 70 m | 1. Design of installation aids<br>2. Full design drawings | | 2017 |
| SPT OFFSHORE | Accommodation barge | SPT OFFSHORE | Netherlands / Malaysia | 73 m | 1. Field lay-out and mooring system design<br>2. Mooring analysis and design for a construction support barge<br>3. All engineering drawings for the design and installation | | 2017 |
| OPTIMA ENERGY | Multi Buoy Mooring for LPG Offloading | optima | Cameroon | 20 m | 1. Feasibility and FEED study for the mooring of LPG Offloading System<br>2. Preliminary costing for equipment and installation | | 2017 |
| OPTIMA ENERGY | Multi Buoy Mooring for LPG Offloading | optima energy group | Nigeria | 8 m | 1. Feasibility and FEED study for the mooring of LPG Offloading System<br>2. Preliminary costing for equipment and installation | | |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| ECA (FRANCE) | Subsea Design | ECA GROUP | Malaysia | 20 m | 1. Design and engineering of subsea support system, templates, frames etc.<br>2. Installation engineering and design of subsea templates.<br>3. Procedures for Offshore installation of subsea templates.<br>4. Offshore management and engineering support by personnel. | | 2017 |
| ANGLO EASTERN SHIPMANAGEMENT | Gas Concord | ANGLO-EASTERN | Singapore | 120 m | 1. Decommissioning Support to Client at shipyard of an LPG Carrier.<br>2. Perform stability analysis of the vessel.<br>3. Perform lightship measurement and calculations.<br>4. Obtain stability sail away approval from BV. | | 2017 |
| WOODSIDE / SAPURA KENCANA | Balnaves RTM | SapuraKencana PETROLEUM | Australia | 140 m | 1. Detailed analysis and engineering of mooring system removal<br>2. Detailed analysis and engineering of riser system removal<br>3. Detailed analysis and engineering of Tower lowering from vertical to horizontal position<br>4. Tow analysis and procedures of the RTM<br>5. Stability analysis and simulation of ballasting and de-ballasting sequence off shore<br>6. Offshore support engineering personnel | | 2016 |
| COASTAL ENERGY | Banang Field | COASTAL ENERGY | Malaysia | 70 m | 1. General Naval Architecture<br>2. Engineering & Detailed design of a temporary mooring system for the tanker<br>3. Detailed installation procedures, analysis and drawings<br>4. MWS approval<br>5. Offshore Installation management and engineering execution by personnel | | 2016 |
| COASTAL ENERGY | Kappal Field | COASTAL ENERGY | Malaysia | 70 m | 1. General Naval Architecture<br>2. Detailed design and engineering of removal of the mooring system<br>3. Detailed de-installation procedures, analysis and drawings<br>4. Offshore removal of Tanker<br>5. MWS approval<br>6. Offshore management and engineering support by personnel | | 2016 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| EXON MOBILE / AMANIAGA | Mooring system Installation | ExxonMobil | PNG | 15 m | 1. Detailed design and engineering of mooring system installation.<br>2. Sea-fastening of all equipment.<br>3. Detailed installation procedures, analysis and drawings.<br>4. HAZID – SIMOPS.<br>5. Offshore management and engineering support by personnel | | 2016 |
| EXON MOBILE / AMANIAGA | Mooring system decommissioning | ExxonMobil | PNG | 15 m | 1. Detailed design and engineering of mooring system decommissioning<br>2. Sea-fastening of all equipment<br>3. Detailed decommissioning procedures, analysis and drawings<br>4. HAZID – SIMOPS<br>5. Offshore Support personnel | | 2016 |
| MITSUI | Floating Windmill | MITSUI & CO. | Japan | 70 m | 1. Detailed design Naval Architectural requirements<br>2. Mooring and anchoring system<br>3. Suction piles and drag anchors design<br>4. Installation procedures and engineering review<br>5. Cost estimation for mooring system and installation | | 2016 |
| ECA (FRANCE) | Jacket | ECA GROUP | Malaysia | 20 m | 1. FEED Design and Engineering of Jacket<br>2. Structural design and Jacket in place stress analysis<br>3. Geotechnical design for jacket stability and strength | | 2016 |
| TUFF | FPSO | TUFF | UAE | 80 m | EPIC for the following:<br>1. General Naval Architecture<br>2. Hull & deck strength design & Structural Engineering<br>3. Detailed design of under deck strengthening for all non-process related topsides and marine equipment<br>4. Stability Analysis<br>5. Localised extreme deck loads<br>6. Mooring system, anchors, winches<br>7. Subsea, Risers and umbilical<br>8. Design of riser & Umbilical porches, floating hose porches<br>9. Marine systems engineering and design<br>10. Offshore Installation support, engineering and procedures | | 2015-2016 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| Confidential<br><br>Delhi International Arbitration Centre | FSO, subsea system and semi-submersible | DIAC Delhi International Arbitration Centre | India | 60 m | Expert witness to the Arbitral Tribunal in Delhi, India for all technical matters comprising:<br>1. General Marine & Naval Architecture<br>2. Mooring System, Subsea System, Offshore Installation, Offshore Operations, Emergency operations<br>3. Analysis and simulations of System failure and vessel behaviour<br>4. Preparation of Affidavits for the Arbitral Tribunal and representation in court | | 2015 |
| GLOCAL | Floating Windmill | GLOCAL JAPAN INC. | Japan | 70 m | 1. Detailed design Naval Architecture<br>2. Hydrodynamics<br>3. Mooring design and anchoring system<br>4. Suction piles and drag anchors design<br>5. Installation procedures and engineering review<br>6. Cost estimation for mooring system and installation | | 2015 |
| ING – BANK | FPSO OSX-2 Decommissioning and lay-up | ING BANK | Indonesia | 15 m | 1. Decommissioning of the mooring system.<br>2. Detailed mooring analysis for vessel lay-up<br>3. Structural strength analysis of the FPSO and jetty bollards<br>4. Offshore installation drawings<br>5. Acted as owner representative | | 2015 |
| BUMI ARMADA | FSO Feasibility Studies | BUMIARMADA | Myanmar | 20 m | 1. Mooring analysis for spread moored system<br>2. Offloading analysis of FSO and shuttle tanker<br>3. Field layout and mooring drawings<br>4. Comparative study of various mooring and offloading options | | 2015 |
| BC PETROLEUM | EPV Balai Mutiara | BC PETROLEUM | Malaysia | 70 m | Engineering design and Consultant for the EPV vessel Upgrade,<br>1. Vessel upgrade and Naval Architecture.<br>2. Field lay-out review and development<br>3. Mooring analysis, mooring fatigue, tandem analysis, Riser analysis<br>4. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation | | 2014 - 2015 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| | | | | | 5. Specifications for mooring systems, components, vessel equipment, offloading hoses, winches and dependant structures and equipment<br>6. Offshore installation analysis, procedures, methodology, requirements and specifications<br>7. Review of Company produced engineering packages and detailed design<br>8. Review of Company subcontractors work and proposals<br>9. Marine warranty surveyor, review of 3rd party engineering | | |
| FOS | KK-Field Accommodation | FOS ENERGY LLC | Malaysia | 60 m | Study for an accommodation barge<br>1. Field lay-out review and development of vessel positioning in proximity of platforms<br>2. Naval Architecture, Mooring analysis, mooring fatigue, Specifications for mooring systems, components, vessel equipment and dependant structures and equipment | | 2014 |
| NAE – BUMI ARMADA | ETAN FPSO | BUMIARMADA | Nigeria | 1800 m | FEED study for an FPSO comprising of:<br>1. Field lay-out review and development<br>2. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation<br>3. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water<br>4. Preliminary riser and umbilical analysis, coupled analysis with mooring system<br>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment | | 2014 |
| PETROBRAS – BUMI ARMADA | LIBRA FPSO | PETROBRAS | Brazil | 2400 m | FEED study for an FPSO comprising of:<br>1. Field lay-out review and development<br>2. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation. | | 2014 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| | | BUMIARMADA | | | 3. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water<br>4. Riser and umbilical analysis, coupled analysis with mooring system<br>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment | | |
| BUMI ARMADA | Cluster 7 FPSO | BUMIARMADA | India | 150 m | 1. Technical consultant for the Offshore Installation of the C7-FPSO<br>2. Providing management resources, Offshore Construction Manager, Technical support, Client representative, Marine Warranty Surveyor<br>3. Offshore management and engineering support by personnel | | 2014 |
| PTTEP | FSO-2 | PTTEP | Thailand | 80 m | 1. Review of the different alternatives for the condensate production without an FSO<br>2. Review of production platform requirements<br>3. Design and engineering of SPM CALM Buoy system<br>4. Subsea flow assurance of the production from the different fields | | 2014 |
| PTTEP | FSO-2 | PTTEP | Thailand | 80 m | 1. Offshore measurement and review of vessel status<br>2. OPEX and CAPEX estimation of the life extension<br>3. Developing different alternatives with respect to the possible scenarios for life extension | | 2013 - 2014 |
| ENI – BUMI ARMADA | OCTP FPSO | BUMIARMADA | Ghana | 900 m | 1. Field lay-out review and development.<br>2. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation<br>3. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water<br>4. Preliminary riser and umbilical analysis, coupled analysis with mooring system<br>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment | | 2013 - 2014 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| TULLOW | KUDU FPU |  | Namibia | 160 m | 1. Field lay-out review and development<br>2. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.<br>3. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water<br>4. Preliminary riser and umbilical analysis, coupled analysis with mooring system<br>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment | | 2013 |
| PTTEP | FSO-2 |  | Thailand | 80 m | 1. Technical support to PTTEP with the change out of existing risers.<br>2. Offshore Installation support personnel.<br>3. Review of Installation Company procedures and engineering.<br>4. Offshore management and engineering support by personnel | | 2013 |
| PETRONAS – TECHNIP | Bukit Tua FPSO | <br> | Indonesia | 70 m | 1. Supply of mooring and riser engineering personnel<br>2. Design and engineering of Marine systems and Naval Architecture<br>3. Mooring analysis, mooring fatigue analysis<br>4. Riser analysis, riser design<br>5. Design and engineering of mooring and riser systems on board the FPSO<br>6. Design and engineering of the offshore installation for mooring and risers<br>7. Preparation of Detailed Specifications for all mooring, risers, subsea and marine systems | | 2012 - 2013 |
| WOODSIDE / APACHE | Balnaves | <br> | Australia | 135 m | 1. Design and engineering of the RTM tower<br>2. Simulation of Hydrodynamic behaviour of the RTM tower<br>3. Simulation and analysis of RTM tower during tow, and installation.<br>4. Design and simulation of the different mooring lines during installation, connection and operations<br>5. Design and simulation of the different flexible risers during installation, connection and operations | | 2012 - 2013 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| PTTEP | FSO-3 | PTTEP | Thailand | 70 m | 1. Feasibility study and pre-FEED for the development of a new FSO and integration with the existing field architecture.<br>2. Mooring analysis and requirements for FSO, CALM buoy<br>3. Flexible riser analysis | | 2012 |
| BUMI ARMADA NAVIGATION | UDANG Installation | BUMIARMADA | Indonesia | 150 | 1. Mooring system installation<br>2. FPSO hook-up<br>3. Riser installation<br>4. Installation commissioning<br>5. Offshore management and engineering support by personnel | | 2012 |
| BWO | Brazilian FSO | BW OFFSHORE | Brazil | 800 m | 1. Riser engineering & analysis<br>2. Subsea pipeline engineering and analysis<br>3. PLEM design & geo-tech analysis<br>4. Offshore installation | | 2011 |
| ONGC | D-1 FPSO | ओएनजीसी ONGC | India | 150 m | 1. Client Technical Lead for Naval architecture, hull, vessel, structural systems<br>2. Riser systems and subsea<br>3. Mooring system, offshore installation<br>4. All marines' systems on board the FPSO, marine engineering and Naval Architecture. | | 2011 - 2012 |
| KCA DEUTAG | Tender Barge | KCA DEUTAG | Singapore | ~ | 1. Hydrodynamic analysis and stability engineering<br>2. Crane upgrade & structural engineering<br>3. Naval architecture | | 2011 – 2012 |
| PTTEP | Bongkot FSO-2 | PTTEP | Thailand | 70 m | 1. Riser and hose analysis and engineering.<br>2. Review and evaluation of tender documents.<br>3. Offshore management and engineering support by personnel | | 2011 |
| KEI – TJS | Sepanjang FSO | Kangean Energy Indonesia | Indonesia | 45 m | 1. General Naval Architecture review<br>2. Design and engineer of mooring system and riser system for the FSO<br>3. Offshore installation engineering and provision of support personnel for the offshore phase | | 2010 - 2011 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| CHEVRON – EDG | FSO Vietnam Block B Gas Project FEED Study | Chevron | Vietnam | 150 m | 1. FSO structural, marine and naval architectural requirements.<br>2. All marine systems, IG, cargo, ballast, HVAC, LQ, ER, electrical, mechanical et<br>3. Mooring systems, riser systems, subsea components, offshore installation<br>4. Preparation of technical specification and RFQs for the above in order to issue for BID to EPIC Contractor | | 2010 |
| ONGC – DPS | D-1 FPSO FEED Study | ओएनजीसी ONGC | India | 150 m | 1. FSO structural, marine and naval architectural requirements<br>2. Mooring systems, riser systems, subsea components, field lay-out<br>3. Preliminary installation method statements<br>4. Preparation of Technical Specification and RFQs for the above in order to issue for BID to EPIC Contractor | | 2010 |
| PETROFAC – DPS | FPSO FEED Study Cendor II | Petrofac | Malaysia | 80 m | 1. FSO structural, marine and Naval Architectural requirements<br>2. Mooring systems, Riser Systems, Subsea components<br>3. All Marine systems, IG, Cargo, ballast, HVAC, LQ, ER, Electrical, mechanical etc<br>4. Preparation of Technical Specification and RFQs for the above in order to issue for BID to EPIC Contractor | | 2009 – 2010 |
| COASTAL ENERGY | Songkhla FSO | COASTAL ENERGY | Thailand | 20 m | 1. Design of new and review of existing system with respect to mooring, risers, offshore and subsea arrangement<br>2. Mooring analysis and design<br>3. Offloading analysis and design<br>4. Riser analysis and design<br>5. Hose analysis and design<br>6. Vessel mooring requirements and Installation requirements | | 2009 – 2010 |
| GALOC PETROLEUM COMPANY | FPSO | GPC Galoc Production Company | Philippines | 600 m | 1. General Naval Architecture<br>2. Mooring system,<br>3. Riser and SURF<br>4. Offshore Installation | | 2009 – 2010 |
| MISTUBISHI OIL | Sepanjang FSO | MITSUBISHI | Indonesia | 45 m | 1. Review on behalf of Client of all naval architecture related items, as well as the detailed design of mooring and risers, review of subcontractors | | 2009 |

DEEPBLUE CONSULTANCY & ENGINEERING

# NAVAL ARCHITECTURE TRACK RECORD

| CLIENT | PROJECT | CLIENT | COUNTRY | WATERDEPTH | DESCRIPTION OF PROJECT | TYPE | YEAR |
|---|---|---|---|---|---|---|---|
| HALLIN MARINE | SPEX – Malaysia | Hallin | Philippines | 500 m | 1. Naval architectural support to the implementation of a hydraulic gangway on DP-2 vessel for offshore operations | | 2009 |
| LARSEN OIL & GAS | FPSO X | LARSEN OIL & GAS | Singapore | 200 m | 1. General Naval Architecture<br>2. PM support<br>3. Design responsibility for field lay-out riser configuration, subsea systems, mooring systems, and offshore works | | 2008 |
| MODEC - JVPC | Turret FSO, Subsea Equipment | MODEC | Vietnam | 60 m | 1. Naval Architecture requirements for installation.<br>2. Offshore installation for detailed engineering & design FSO hook-up, PLEM, riser installation.<br>3. Preparation of all procedures of the offshore installation | | 2007 – 2008 |