

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
Venturer Timberwork	Cave Cay	Bahamas	~	25 m	<ol style="list-style-type: none"> <li>Survey &amp; review of existing materials and floats</li> <li>Review of structural design</li> <li>Stability analysis for Neptune floating suite</li> <li>Mooring analysis</li> <li>Hurricane system design</li> </ol>		2023
BW Energy / Tuff Offshore	Maromba Field FPSO	Brazil	ABS	152 m	<ol style="list-style-type: none"> <li>Turret mooring system engineering &amp; design</li> </ol>		2023
UTS	General	Singapore	ABS	~	<ol style="list-style-type: none"> <li>Design of SPHLM Platform</li> </ol>		2023
Boskalis	FPSO Armada Sterling V	India	ABS	400 m	<ol style="list-style-type: none"> <li>Design of Offshore installation hang off platform and incorporation into the Installation vessel for the subsea flexibles' installation.</li> </ol>		2022
Bureau Veritas	FPSO Armada Sterling V	Singapore / India	ABS	400 m	<ol style="list-style-type: none"> <li>Independent review of the SPOG FPSO marine and oil and gas systems for sail away status and readiness from the yard</li> <li>Independent review of the commissioning status of marine, vessel and process systems.</li> <li>Independent review of classification Society status.</li> <li>Independent review of the health Safety and Environment plans, HAZOP's, etc.</li> </ol>		2022
Boskalis	Boko Tiamat	Singapore	ABS	~	<ol style="list-style-type: none"> <li>Design review of crane boom support structure and FEA</li> </ol>		2022
SEAGULL GROUP	Vessel refurbishment	Singapore	ABS	~	<ol style="list-style-type: none"> <li>Piping design and lay-out</li> <li>Piping isometrics</li> <li>Piping drawings</li> </ol>		
Indian Navy / METS	Floating Dock	India	LR	20 m	<ol style="list-style-type: none"> <li>Engineering, analysis and procedures for the unmooring and relocation of the dock</li> <li>Procedures adapted to the existing vessel spread</li> <li>Towing of Floating dock</li> <li>Relocation of Floating dock along the quay side</li> <li>Offshore Construction Manager on-site for the offshore phase</li> </ol>		2022

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BW Energy / Tuff Offshore	Maromba Field FPSO	Brazil	ABS	152 m	<ol style="list-style-type: none"> <li>Detailed mooring design, field lay-out</li> <li>Fatigue Analysis</li> <li>Offloading analysis</li> <li>Specifications for mooring system and offloading systems</li> </ol>		2022
Lloyds Register	CORAL FLNG	Mozambique	LR	2,000 m	<ol style="list-style-type: none"> <li>Preparation of documentation for the operation of the FLNG</li> <li>HAZID &amp; Document review</li> </ol>		2022
EPCM ENGINEERS LIMITED	Barge	Nigeria	ABS	70 m	<ol style="list-style-type: none"> <li>Design review and FEA analysis of flare structure and flare bridge</li> <li>Pile design &amp; review</li> <li>Mooring system review</li> </ol>		2022
Vestigo / Vantage	MAMPU-1 FPSO Nautica-Muar FSO	Malaysia	DNV	75 m	<ol style="list-style-type: none"> <li>Procedures, engineering &amp; analysis for mooring retrieval, mooring system installation and relocation of FPSO / FSO</li> <li>Procedures, engineering, analysis for riser retrieval &amp; hook-up at FPSO &amp; Platform</li> <li>Offshore Construction Manager offshore on-site</li> </ol>		2022
ECA	Gen-Set	Malaysia	~	~	<ol style="list-style-type: none"> <li>Client representative during the FAT</li> </ol>		2022
Yokohama Rubber Co	CALM Buoy Hoses	Japan	~	100 m	<ol style="list-style-type: none"> <li>CALM Buoy system hose design</li> <li>Complete Subsea Hose static &amp; dynamic analysis and design</li> <li>Subsea design of hose and ancillary equipment, buoys etc.</li> </ol>		2022

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Aramco / Kavin Engineering	Marjan Field	Saudi Arabia	ABS	55 m	<ol style="list-style-type: none"> <li>Detailed design of 3.4 km, 15 kV Subsea Power Cable with fibre optic and ancillary equipment, between two existing platform</li> <li>On-bottom stability, On-bottom walking assessment</li> <li>Route assessment and final route design</li> <li>Installation engineering, analysis, procedures &amp; requirements</li> <li>Bend stiffeners, J-tube, protection</li> <li>Specifications for the cable and its equipment</li> </ol>		2021 / 2022
ECA Vantage BSES	Subsea Equipment	Malaysia	~	25 m	<ol style="list-style-type: none"> <li>Design of installation frames (100 Mton)</li> <li>Engineering, design, analysis of subsea installation</li> <li>Engineering design and analysis of subsea cable installation (10 km)</li> </ol>		2021 / 2022
Yokohama Rubber Co	CALM Buoy Hoses	Indonesia	~	50 m	<ol style="list-style-type: none"> <li>CALM Buoy system hose design</li> <li>Subsea Hose static analysis</li> </ol>		2021
MOOREAST	Klang River Rubbish collector	Malaysia	~	10 m	<ol style="list-style-type: none"> <li>Mooring analysis of vessel</li> <li>Analysis of floating booms</li> <li>Review design suitability</li> <li>Installation requirements &amp; procedures</li> </ol>		2021
BWO / SEAGULL	FSRU	Singapore	DNV	NA	<ol style="list-style-type: none"> <li>Design and engineer of pump support system for LNG tanks</li> <li>Integration of support with existing tanks</li> </ol>		2021
SAIPEM	Barges	Thailand	ABS	20 m	<ol style="list-style-type: none"> <li>Engineering support for offshore installation</li> <li>Engineering, procedures, drawings, analysis</li> </ol>		2020

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James Fischer / Kris Energy	Apsara Field	Cambodia	ABS	80 m	<ol style="list-style-type: none"> <li>Supply of Offshore construction Manager and project engineer for offshore installation</li> <li>Design of riser and power cable hang-off balcony at the platform.</li> <li>Offshore installation of risers and Power cable</li> <li>OCM &amp; Engineers for the installation</li> </ol>		2020
Yokohama Rubber Co	CALM Buoy Hoses	Japan	~	100 m	<ol style="list-style-type: none"> <li>CALM Buoy system hose design</li> <li>Complete Subsea Hose dynamic analysis and design</li> <li>FSO</li> <li>Complete floating Hose analysis</li> </ol>		2020
LNG EASY	MFP	Myanmar	ABS	10 m	<ol style="list-style-type: none"> <li>Mooring &amp; SURF Installation, hook-up, and commissioning engineering of an LNG Floating platform for the connection with an LNG Tanker as FSU</li> <li>Installation and commissioning Management</li> <li>Installation and commissioning manager of the MFP</li> </ol>		2020
NOC	FSO & CALM Buoy	Qatar	ABS	70 m	<ol style="list-style-type: none"> <li>FEED STUDY level 2&amp;3 for the mooring systems and vessel conversion requirements for FSO and CALM Buoy system</li> <li>Chain stoppers and mooring system, specifications, RFQ</li> <li>Structural design and engineering for reinforcements on vessel</li> <li>Naval Architecture for conversion</li> <li>Mooring analysis</li> <li>Fatigue analysis</li> <li>Mooring system design</li> </ol>		2019
SOA / Hyundai (HOB)	CALM Buoy	Korea	ABS	34 m	<p>Review of life remaining in mooring chain.</p> <ol style="list-style-type: none"> <li>Review of chain thickness report</li> <li>Calculating and establishing the chain remain Life from a strength point of view</li> <li>Calculating and establishing the chain remain Life from a fatigue point of view</li> <li>Procedures for changing out chain segments</li> <li>Approval from Class Society for the change out proposed.</li> <li>Chain tensioning system engineering, analysis, procedures and drawings</li> <li>Offshore installation analysis and procedures</li> <li>Structural modifications design &amp; engineering</li> </ol>		2020

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NOC	FSO & CALM Buoy	Qatar	ABS	70 m	<ol style="list-style-type: none"> <li>FEED STUDY for mooring systems options</li> <li>Technical commercial review of solutions</li> <li>Design of mooring system , mooring analysis</li> </ol>		2020
Yokohama Rubber Comp.	MVS	Vietnam	ABS	90 m	<ol style="list-style-type: none"> <li>Dynamic analysis of offloading hose when free floating behind FPSO</li> <li>Dynamic analysis of offloading hose when looped back behind FPSO</li> <li>Dynamic analysis of offloading hose when used in Tandem FPSO – Shuttle tanker</li> <li>Loads from floating hose on full system.</li> </ol>		2020
UTS / CORTEZ	Offshore Installation	Singapore	DNV	500 m	<ol style="list-style-type: none"> <li>Structural design and engineering of requirements and changes for the VLS system to be loaded on board the installation vessel, for the SURF installation of flowlines and risers</li> <li>Integration of new system with existing systems</li> </ol>		2020
NOC	FSO & CALM Buoy	Qatar	ABS	70 m	<ol style="list-style-type: none"> <li>FEED level 1 STUDY for the mooring systems and vessel conversion requirements</li> <li>Chain stoppers and mooring system</li> <li>Thruster and their requirements and analysis</li> <li>Structural reinforcements on vessel</li> <li>Naval Architecture for conversion</li> </ol>		2019
Amaniaga	CALM Buoy	Malaysia	ABS	30 m	<ol style="list-style-type: none"> <li>Detailed Mooring Analysis, including Fatigue for CALM Buoy</li> <li>Review of requirements for upgrade of buoy.</li> <li>Procedures for installation</li> </ol>		2019
Blueseas Energy / EA Technique	TST SEPAT - C	Malaysia	LR	53 m	<ol style="list-style-type: none"> <li>Detailed Riser and flowline design</li> <li>Field lay-outs</li> <li>Fabrication of components</li> <li>Management of Riser / flowline system</li> </ol>		2019

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T7GLOBAL / CHOC	FSO Puteri Cakerawala	Malaysia	ABS	55m	<ol style="list-style-type: none"> <li>Detailed design of offloading floating hose system.</li> <li>Dynamic analysis and resonance analysis of floating hose during offloading and during extreme conditions.</li> </ol>		2019
Amaniaga	CALM Buoy	Malaysia	ABS	30 m	<ol style="list-style-type: none"> <li>Inspection of CALM Buoy prior to removal</li> <li>Engineering, stability, and dynamic analysis for Calm Buoy removal and Tow out.</li> <li>Decommissioning procedures</li> <li>Support personnel for the preparation of the Tow out</li> <li>Tow-out and delivery to quay side.</li> </ol>		2019
MOPU HOLDINGS	Temporary Storage Tanker	Malaysia	ABS	60 m	<ol style="list-style-type: none"> <li>Reinstatement of Mooring System</li> <li>Complete analysis design checks and reviews for the mooring system</li> <li>Complete Installation procedures and on-going review</li> </ol>		2019
SOA / Hyundai (HOB)	CALM Buoy	Korea	ABS	34 m	<ol style="list-style-type: none"> <li>Hydrodynamic analysis of CALM Buoy</li> <li>Complete Mooring analysis, design and engineering, fatigue assessment etc.</li> <li>Riser analysis, design and engineering</li> <li>Detailed Installation Procedures</li> </ol>		2019
HESS Exploration & Production	FSO	Malaysia	ABS	56 m	<ol style="list-style-type: none"> <li>On going Technical and Marine Consultancy</li> </ol>		2019
LNG-EASY	FSRU-Barge	Singapore / Indonesia	ABS	25 m	<ol style="list-style-type: none"> <li>FEED for the development of a Regassification LNG Barge to be moored and to receive offloading LNG vessels, and transfer gas to power plants on-shore.</li> <li>Naval Architecture, Motion analysis, stability checks.</li> <li>Structural design of the barge.</li> </ol>		2018-2019
HESS Exploration & Production	FSO	Malaysia	ABS	56 m	<ol style="list-style-type: none"> <li>DEEPBLUE was appointed as the overall Technical and Managerial consultant for the engineering of the offshore installation.</li> <li>Multiple DB personnel were appointed as the overall HESS Transport &amp; Installation Management, in order to manage the different subcontractors from a technical and managerial point of view onshore and during the offshore campaign for the FSO, mooring and SURF Installation.</li> <li>Including flowline lay, mooring installation and hook-up, SAT diving etc.</li> </ol>		2018

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CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
CAFHI	Jet-fuel offloading terminal	Singapore	ABS	15 m	<ol style="list-style-type: none"> <li>Design and engineering of the mooring system for several size tankers for the offloading of cargo.</li> <li>Design and engineering of the Hose and SURF system for the offloading of the cargo at the terminal.</li> </ol>		2018
HESS Exploration & Production	Temporary Storage Tanker	Malaysia	ABS	56 m	<ol style="list-style-type: none"> <li>Complete EPIC contract of the Temporary Storage Tanker.</li> <li>Design of the mooring system for a Temporary Storage Tanker (TST) for condensate storage.</li> <li>Design of the subsea flowline, riser and hose system for condensate transfer from Central Processing Platform (CPP) to the TST.</li> <li>Design of subsea support bases and gravity systems.</li> <li>Upgrading of 6-point mooring system to 8-point mooring system to increase the operability.</li> <li>Structural modifications to install 2 chain stoppers and 1 QRH at the stern of the TST.</li> <li>Installation engineering for the tanker, mooring and SURF.</li> <li>Provision of all personnel for installation, management, Flowline installation management</li> <li>EPIC of the Offshore installation of the tanker, mooring system and SURF.</li> <li>Offshore TST changeout of 6-point moored tanker with a new 8-point moored tanker.</li> <li>Design engineering and offshore procedures for offloading of condensate.</li> </ol>		2017-2018
JMUS	Floating Dock Installation	India	LR	25 m	<ol style="list-style-type: none"> <li>Installation engineering and procedures for mooring installation and hook up.</li> <li>Offshore installation of the mooring system.</li> <li>Offshore Personnel support during the installation.</li> </ol>		2017
Ardent Global	Containership Salvage	New Caledonia	BV	5 m	<ol style="list-style-type: none"> <li>Hydrodynamic analysis for the crane barge for the salvage of the grounded container ship.</li> <li>Motion and acceleration analysis for the crane barge</li> </ol>		2017
Compass Energy	Stability analysis – LNG vessel	Singapore	LR	-	<ol style="list-style-type: none"> <li>Stability analysis for the LNG Fortune</li> <li>Stability analysis for the LNG Lucky</li> </ol>		2017

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Amaniaga	Offshore Installation	Malaysia	ABS	70 m	<ol style="list-style-type: none"> <li>Design of installation aids</li> <li>Structural FEA analysis and incorporation into vessel</li> <li>Full design drawings</li> </ol>		2017
SPT Offshore	Accommodation barge	Netherlands / Malaysia	ABS	73 m	<ol style="list-style-type: none"> <li>Field lay-out and mooring system design.</li> <li>Mooring analysis and design for a construction support barge.</li> <li>All engineering drawings for the design and installation.</li> </ol>		2017
LNG Link	FSRU	Indonesia	-	4 to 10 m	Feasibility and FEED study at multiple locations for <ol style="list-style-type: none"> <li>Mooring system</li> <li>SURF and Hose system</li> <li>Budgets and project execution.</li> </ol>		2017
Optima Energy	Multi Buoy Mooring for LPG Offloading	Cameroon	-	20 m	<ol style="list-style-type: none"> <li>Feasibility and FEED study for the mooring of LPG Offloading System</li> <li>Preliminary costing for equipment and installation</li> </ol>		2017
Optima Energy	Multi Buoy Mooring for LPG Offloading	Nigeria	-	8 m	<ol style="list-style-type: none"> <li>Feasibility and FEED study for the mooring of LPG Offloading System</li> <li>Preliminary costing for equipment and installation</li> </ol>		
ECA (France)	Subsea Design	Malaysia	BV	20 m	<ol style="list-style-type: none"> <li>Design and engineering of subsea support system, templates, frames etc.</li> <li>Installation engineering and design of subsea templates.</li> <li>Procedures for Offshore installation of subsea templates.</li> <li>Offshore management and engineering support by DEEPBLUE personnel.</li> </ol>		2017



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Anglo Eastern Shipmanagement	Gas Concord	Singapore	BV	120 m	<ol style="list-style-type: none"> <li>Decommissioning Support to Client at shipyard of an LPG Carrier.</li> <li>Perform stability review of the vessel.</li> <li>Perform lightship measurement and calculations.</li> <li>Obtain stability sail away approval from BV.</li> </ol>		2017
Yinson	FPSO	Singapore	ABS	300 m	<ol style="list-style-type: none"> <li>Review of mooring proposals performed by others</li> <li>Review of hydrodynamics performed by others</li> </ol>		2017
UAE Company	FPSO	UAE	DNV	80 m	<ol style="list-style-type: none"> <li>OCM for the offshore mooring &amp; SURF Installation, FPSO Hook-up.</li> <li>Engineering and design of Offshore mooring, SURF installation &amp; Hook-up.</li> <li>Additional DEEPBLUE engineering personnel during Offshore installation.</li> </ol>		2016-2017
Woodside / Sapura Kencana	Balnaves RTM	Australia	LR	140 m	<p>Decommissioning Engineering. Detailed analysis and procedures for the removal and disconnecting of the Riser Tower Mooring system and its components:</p> <ol style="list-style-type: none"> <li>Detailed analysis and engineering of mooring system removal.</li> <li>Detailed analysis and engineering of riser system removal.</li> <li>Detailed analysis and engineering of Tower lowering from vertical to horizontal position.</li> <li>Tow analysis and procedures of the RTM</li> <li>Structural review of the system during offshore de-commissioning.</li> <li>Analysis and simulation of ballasting and de-ballasting sequence off-shore.</li> <li>Offshore support engineering personnel.</li> </ol>		2016
Coastal Energy	Banang Field	Malaysia	ABS	70 m	<ol style="list-style-type: none"> <li>Engineering &amp; Detailed design of a temporary mooring system for the tanker.</li> <li>Detailed installation procedures, analysis and drawings.</li> <li>MWS approval</li> <li>Offshore Installation management and engineering execution by DEEPBLUE personnel</li> </ol>		2016

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CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
Coastal Energy	Kappal Field	Malaysia	ABS	70 m	Mooring decommissioning of Storage Tanker and Offshore de-installation detailed engineering and design and execution: <ol style="list-style-type: none"> <li>Detailed design and engineering of removal of the mooring system.</li> <li>Detailed de-installation procedures, analysis and drawings.</li> <li>Offshore removal of Tanker</li> <li>MWS approval</li> <li>Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2016
CAFHI	Vessel Terminal	Singapore	ABS	15 m	Detailed design and Engineering: <ol style="list-style-type: none"> <li>Mooring system design and analysis for loading vessel.</li> <li>Mooring design and analysis for vessel along the quay side.</li> <li>Naval Architectural review of the vessel with respect to the components and systems required for Mooring.</li> <li>Drawings, analysis, procedures.</li> <li>Installation procedures.</li> </ol>		2016
Exon Mobile / Amaniaga	Mooring system Installation	PNG	ABS	15 m	Mooring Offshore installation detailed engineering and design and execution: <ol style="list-style-type: none"> <li>Detailed design and engineering of mooring system installation.</li> <li>Sea-fastening of all equipment.</li> <li>Detailed installation procedures, analysis and drawings.</li> <li>HAZID – SIMOPS.</li> <li>Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2016
Exon Mobile / Amaniaga	Mooring system decommissioning	PNG	ABS	15 m	Decommissioning of complete mooring system: <ol style="list-style-type: none"> <li>Detailed design and engineering of mooring system decommissioning.</li> <li>Sea-fastening of all equipment.</li> <li>Detailed decommissioning procedures, analysis and drawings.</li> <li>HAZID – SIMOPS.</li> <li>Offshore Support personnel.</li> </ol>		2016

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Mitsui	Floating Windmill	Japan	DNV	70 m	Detailed Engineering and design for a floating windmill:  <ol style="list-style-type: none"> <li>1. Naval Architectural requirements</li> <li>2. Mooring and anchoring system</li> <li>3. Suction piles and drag anchors design</li> <li>4. Installation procedures and engineering review</li> <li>5. Cost estimation for mooring system and installation</li> </ol>		2016
ECA (France)	Jacket	Malaysia	API	20 m	FEED for Jacket:  <ol style="list-style-type: none"> <li>1. Design and Engineering of Jacket</li> <li>2. Structural design and Jacket in place stress analysis</li> <li>3. Geotechnical design for jacket stability and strength</li> </ol>		2016
UAE Company	FPSO	UAE	DNV	80 m	EPIC for the following:  <ol style="list-style-type: none"> <li>1. Mooring system, anchors, winches</li> <li>2. Subsea, Risers and umbilical</li> <li>3. Detailed design of under deck strengthening for all non-process related topsides and marine equipment</li> <li>4. Design of riser &amp; Umbilical porches, floating hose porches</li> <li>5. General Naval Architecture</li> <li>6. Marine systems engineering and design</li> <li>7. Offshore Installation support, engineering and procedures</li> </ol>		2015-2016
Dolphin Drilling/Viking	Mooring Analysis	Indonesia	ABS	30 m	Detailed design and Engineering:  <ol style="list-style-type: none"> <li>1. Mooring analysis of drill ship with Class / MWS approval</li> <li>2. Drawings of mooring system and field layout</li> <li>3. Installation specification for the mooring systems</li> </ol>		2015

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Confidential	FSO, subsea system and semi-submersible	India	ABS	60 m	Expert witness to the Arbitral Tribunal in Delhi, India for all technical matters comprising: <ol style="list-style-type: none"> <li>1. Mooring System.</li> <li>2. Subsea System.</li> <li>3. Offshore Installation.</li> <li>4. Offshore Operations.</li> <li>5. Emergency operations.</li> <li>6. Analysis and simulations of System failure and vessel behaviour.</li> <li>7. Preparation of Affidavits for the Arbitral Tribunal and representation in court.</li> </ol>		2015
GLOCAL	Floating Windmill	Japan	DNV	70 m	Detailed Engineering and design for a floating platform: <ol style="list-style-type: none"> <li>1. Naval Architectural requirements</li> <li>2. Hydrodynamics</li> <li>3. Mooring design and anchoring system</li> <li>4. Suction piles and drag anchors design</li> <li>5. Installation procedures and engineering review</li> <li>6. Cost estimation for mooring system and installation</li> </ol>		2015
ING – Bank	FPSO OSX-2 Decommissioning and lay-up	Indonesia	ABS	15 m	Decommissioning and lay-up for the mooring system, design & engineering: <ol style="list-style-type: none"> <li>1. Decommissioning of the mooring system</li> <li>2. Detailed mooring analysis for vessel lay-up.</li> <li>3. Structural strength analysis of the FPSO and jetty bollards.</li> <li>4. Offshore installation drawings.</li> <li>5. Acted as owner representative.</li> </ol>		2015

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Bumi Armada	FSO Feasibility Studies	Myanmar	ABS	20 m	<p>Feasibility study of the FSO to be stationed offshore Myanmar comprising of:</p> <ol style="list-style-type: none"> <li>1. Mooring analysis for spread moored system.</li> <li>2. Offloading analysis of FSO and shuttle tanker.</li> <li>3. Field layout and mooring drawings.</li> <li>4. Comparative study of various mooring and offloading options.</li> </ol>		2015
BC Petroleum	EPV Balai Mutiara	Malaysia	ABS	70 m	<p>Engineering design and Consultant for the EPV Upgrade for SURF, mooring and installation:</p> <ol style="list-style-type: none"> <li>1. Field lay-out review and development.</li> <li>2. Mooring analysis, mooring fatigue, tandem analysis.</li> <li>3. Riser analysis.</li> <li>4. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.</li> <li>5. Specifications for mooring systems, components, vessel equipment, offloading hoses, winches and dependant structures and equipment.</li> <li>6. Offshore installation analysis, procedures, methodology, requirements and specifications.</li> <li>7. Review of Company produced engineering packages and detailed design.</li> <li>8. Review of Company subcontractors work and proposals.</li> <li>9. Marine warranty surveyor, review of 3rd party engineering.</li> </ol>		2014 - 2015

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COBALT	Cameia	West Africa	ABS	2800 m	<p>SURF, Subsea mooring and installation detailed engineering for an FPSO comprising of:</p> <ol style="list-style-type: none"> <li>1. Field lay-out review and development.</li> <li>2. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water.</li> <li>3. Mooring analysis for turret and spread-moored</li> <li>4. Riser and umbilical analysis, coupled analysis with mooring system, for the different options.</li> <li>5. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.</li> <li>6. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment.</li> <li>7. Offshore Installation analysis, procedures, methodology, requirements and specifications.</li> </ol>		2014
FOS	KK-Field Accommodation	Malaysia	ABS	60 m	<p>Study for an accommodation barge:</p> <ol style="list-style-type: none"> <li>1. Field lay-out review and development of vessel positioning in proximity of platforms.</li> <li>2. Mooring analysis, mooring fatigue, Specifications for mooring systems, components, vessel equipment and dependant structures and equipment.</li> </ol>		2014
M3nergy	Perintis FPSO	Indonesia	ABS	30 m	<p>Mooring and installation detailed design &amp; engineering:</p> <ol style="list-style-type: none"> <li>1. Detailed Mooring analysis for vessel lay-up.</li> <li>2. Specifications of mooring system.</li> <li>3. Offshore Installation requirements.</li> </ol>		2014
Coastal Energy	Banang Field	Malaysia	ABS	70 m	<p>Mooring and Offshore installation detailed engineering and design and execution:</p> <ol style="list-style-type: none"> <li>1. Detailed design and engineering of mooring system.</li> <li>2. Detailed design and engineering of Side by Side offloading, simulation of SBS.</li> <li>3. Detailed installation procedures, analysis and drawings.</li> <li>4. Offshore Installation</li> <li>5. Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2014

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
NAE – Bumi Armada	ETAN FPSO	Nigeria	ABS	1800 m	FEED study for an FPSO comprising of: <ol style="list-style-type: none"> <li>1. Field lay-out review and development.</li> <li>2. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water.</li> <li>3. Preliminary riser and umbilical analysis, coupled analysis with mooring system.</li> <li>4. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.</li> <li>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment.</li> </ol>		2014
PETROBRAS – Bumi Armada	LIBRA FPSO	Brazil	ABS	2400 m	FEED study for an FPSO comprising of: <ol style="list-style-type: none"> <li>1. Field lay-out review and development.</li> <li>2. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water.</li> <li>3. Riser and umbilical analysis, coupled analysis with mooring system.</li> <li>4. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.</li> <li>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment.</li> </ol>		2014
M3nergy	Perintis FPSO	Malaysia	ABS	20 m	Mooring detailed design & engineering: <ol style="list-style-type: none"> <li>1. Detailed Mooring analysis for vessel lay-up.</li> <li>2. Specifications of mooring system.</li> <li>3. Offshore Installation requirements.</li> </ol>		2014
Bumi Armada	Cluster 7 FPSO	India	ABS	150 m	Offshore installation: <ol style="list-style-type: none"> <li>1. Technical consultant for the Offshore Installation of the C7-FPSO</li> <li>2. Providing management resources, Offshore Construction Manager, Technical support, Client representative, Marine Warranty Surveyor.</li> <li>3. Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2014

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
PTTEP	Bongkot	Thailand	ABS	70 m	Review of life remaining in mooring chain; <ol style="list-style-type: none"> <li>1. Review of chain thickness report</li> <li>2. Calculating and establishing the chain remain Life from a strength point of view</li> <li>3. Calculating and establishing the chain remain Life from a fatigue point of view</li> <li>4. Procedures for changing out chain segments</li> <li>5. Approval from Class Society for the change out proposed.</li> </ol>		2014
PTTEP	FSO-2	Thailand	ABS	80 m	Field development detailed design: <ol style="list-style-type: none"> <li>1. Review of the different alternatives for the condensate production without an FSO.</li> <li>2. Review of production platform requirements.</li> <li>3. Design and engineering of SPM CALM Buoy system.</li> <li>4. Subsea flow assurance of the production from the different fields.</li> </ol>		2014
PTTEP	FSO-2	Thailand	ABS	80 m	Detailed engineering study for FSO life extension: <ol style="list-style-type: none"> <li>1. Offshore measurement and review of vessel status.</li> <li>2. OPEX and CAPEX estimation of the life extension.</li> <li>3. Developing different alternatives with respect to the possible scenarios for life extension.</li> </ol>		2013 - 2014
ENI – Bumi Armada	OCTP FPSO	Ghana	ABS	900 m	FEED study for an FPSO comprising: <ol style="list-style-type: none"> <li>1. Field lay-out review and development.</li> <li>2. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water.</li> <li>3. Preliminary riser and umbilical analysis, coupled analysis with mooring system.</li> <li>4. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.</li> <li>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment.</li> </ol>		2013 - 2014



## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
Tullow	KUDU FPU	Namibia	DNV	160 m	FEED study for an FPU comprising: <ol style="list-style-type: none"> <li>1. Field lay-out review and development.</li> <li>2. Mooring analysis, mooring fatigue, tandem analysis, use of synthetic moorings for deep water.</li> <li>3. Preliminary riser and umbilical analysis, coupled analysis with mooring system.</li> <li>4. Design and engineering of vessel structural modifications requirements for mooring, risers, and the offshore installation.</li> <li>5. Specifications for mooring systems, components, vessel equipment and dependant structures and equipment.</li> </ol>		2013
PTTEP	FSO-2	Thailand	ABS	80 m	Offshore riser installation: <ol style="list-style-type: none"> <li>1. Technical support to PTTEP with the change out of existing risers.</li> <li>2. Offshore Installation support personnel.</li> <li>3. Review of Installation Company procedures and engineering.</li> <li>4. Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2013
Coastal Energy	Storage Tanker for Kapal Field	Malaysia	ABS	70 m	Mooring system for production tanker: <ol style="list-style-type: none"> <li>1. Detailed design and engineering of mooring system.</li> <li>2. Detailed design and engineering of Side by Side offloading, simulation of SBS.</li> </ol>		2013
PETRONAS – TECHNIP	Bukit Tua FPSO	Indonesia	ABS	70 m	Mooring and SURF: <ol style="list-style-type: none"> <li>1. Supply of mooring and riser engineering personnel.</li> <li>2. Mooring analysis, mooring fatigue analysis.</li> <li>3. Riser analysis, riser design.</li> <li>4. Design and engineering of mooring and riser systems on board the FPSO.</li> <li>5. Design and engineering of Marine systems.</li> <li>6. Design and engineering of the offshore installation for mooring and risers.</li> <li>7. Preparation of Detailed Specifications for all mooring, risers, subsea and marine systems.</li> </ol>		2012 - 2013

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
Woodside / Apache	Balnaves	Australia	LR	135 m	Mooring, SURF, naval architecture, offshore installation: <ol style="list-style-type: none"> <li>Design and engineering and simulation of Hydrodynamic behaviour of the RTM tower.</li> <li>Simulation and analysis of RTM tower during tow, and installation.</li> <li>Design and simulation of the different mooring lines during installation, connection and operations.</li> <li>Design and simulation of the different flexible risers during installation, connection and operations.</li> </ol>		2012 - 2013
Lundin – Bureau Veritas	IKDAM FPSO	Malaysia	DNV	70 m	Feasibility study and concept selection for mooring systems, SURF, and field lay-out of the IKDAM FPSO: <ol style="list-style-type: none"> <li>Mooring analysis.</li> <li>Field lay-out options review.</li> <li>HSE and operational analysis of the concepts.</li> <li>Commercial and Technical review of the concepts.</li> </ol>		2012
PTTEP	FSO-3	Thailand	ABS	70 m	Study of future production requirements, mooring, SURF, installation: <ol style="list-style-type: none"> <li>Feasibility study and pre-FEED for the development of a new FSO and integration with the existing field architecture.</li> <li>Mooring analysis and requirements for FSO, CALM buoy.</li> <li>Flexible riser analysis</li> </ol>		2012
Bumi Armada Navigation	UDANG Installation	Indonesia	ABS	150	Offshore installation engineering and provision of support personnel for the offshore phases: <ol style="list-style-type: none"> <li>Mooring system installation.</li> <li>FPSO hook-up.</li> <li>Riser installation.</li> <li>Installation commissioning.</li> <li>Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2012
SSP Offshore	SSP Floater & SCR's	USA	API	500 m	Hydrodynamic and riser study: <ol style="list-style-type: none"> <li>Hydrodynamic analysis of SPAR &amp; Floater</li> <li>SCR analysis for SPAR &amp; Floater</li> </ol>		2012

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
BMT Asia Pacific	LNG Terminal	PNG	ABS	50 m	<p>SURF and CALM buoy:</p> <ol style="list-style-type: none"> <li>Hydrodynamic analysis of CALM buoy &amp; riser.</li> <li>Preliminary analysis of CALM system with risers and moorings and vessel.</li> </ol>		2012
BWO	Brazilian FSO	Brazil	DNV	800 m	<p>FEED for mooring, SURF, vessels, installation:</p> <ol style="list-style-type: none"> <li>Riser engineering &amp; analysis</li> <li>Subsea pipeline engineering and analysis</li> <li>PLEM design &amp; geo-tech analysis</li> <li>Offshore installation</li> </ol>		2011
ONGC	D-1 FPSO	India	ABS	150 m	<p>Overall technical manager on behalf of ONGC for:</p> <ol style="list-style-type: none"> <li>Riser systems and subsea.</li> <li>Mooring system, offshore installation.</li> <li>Naval architecture, hull, vessel, structural systems.</li> <li>All marines systems on board the FPSO, marine engineering.</li> </ol>		2011 - 2012
KCA DEUTAG	Tender Barge	Singapore	BV	~	<p>Naval architecture study for:</p> <ol style="list-style-type: none"> <li>Hydrodynamic analysis and stability engineering.</li> <li>Crane upgrade &amp; structural engineering.</li> <li>Naval architecture.</li> </ol>		2011 - 2012
Coastal Energy	Songkhla	Thailand	ABS	20 m	<p>Detailed design, support at procurements and installation:</p> <ol style="list-style-type: none"> <li>Field lay-out, mooring design and analysis, SURF design and analysis, offshore installation.</li> <li>Hydrodynamic analysis of vessels</li> <li>Continuous EPIC support for the for the different. Songkhla FSOs.</li> </ol>		2011 - 2012

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
Bumi Armada Navigation	SEPAT FPSO	Malaysia	ABS	70 m	Offshore installation, mooring & SURF: <ol style="list-style-type: none"> <li>Design and engineering, analysis and procedures for Offshore Installation of mooring and risers and FPSO.</li> <li>Provision of management personnel for the mooring installation, FSO hook-up SURF installation, and riser hook-up.</li> <li>Execution of the complete offshore Installation.</li> <li>Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2011
PTTEP	Bongkot FSO-2	Thailand	ABS	70 m	Offshore riser installation. Technical engineering and commercial support for: <ol style="list-style-type: none"> <li>Riser and hose analysis and engineering.</li> <li>Review and evaluation of tender documents.</li> <li>Offshore management and engineering support by DEEPBLUE personnel</li> </ol>		2011
KEI – TJS	Sepanjang FSO	Indonesia	ABS	45 m	Mooring, SURF, installation, naval architecture: <ol style="list-style-type: none"> <li>Design and engineer of mooring system and riser system for the FSO.</li> <li>Offshore installation engineering and provision of support personnel for the offshore phase.</li> </ol>		2010 - 2011
ONGC-DPS	D-1 FPSO	India	ABS	150 m	FEED study for: <ol style="list-style-type: none"> <li>Mooring systems, riser systems, subsea components, offshore installation.</li> <li>FSO structural, marine and naval architectural requirements.</li> <li>Preparation of technical specification and RFQs for the above in order to issue for BID to EPIC Contractor.</li> </ol>		2010
Chevron – EDG	FSO Vietnam Block B Gas Project FEED Study	Vietnam	ABS	150 m	Detailed design and FEED study for: <ol style="list-style-type: none"> <li>Mooring systems, riser systems, subsea components, offshore installation.</li> <li>FSO structural, marine and naval architectural requirements.</li> <li>All marine systems, IG, cargo, ballast, HVAC, LQ, ER, electrical, mechanical etc.</li> <li>Preparation of technical specification and RFQs for the above in order to issue for BID to EPIC Contractor.</li> </ol>		2010

# PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
ONGC – DPS	D-1 FPSO FEED Study	India	ABS	150 m	Conceptual design and FEED for: <ol style="list-style-type: none"> <li>1. Mooring systems, riser systems, subsea components, field lay-out.</li> <li>2. FSO structural, marine and naval architectural requirements.</li> <li>3. Preliminary installation method statements.</li> <li>4. Preparation of Technical Specification and RFQs for the above in order to issue for BID to EPIC Contractor.</li> </ol>		2010
Petrofac – DPS	FPSO FEED Study Cendor II	Malaysia	ABS	80 m	FEED study for: <ol style="list-style-type: none"> <li>1. Mooring systems, Riser Systems, Subsea components</li> <li>2. FSO structural, marine and Naval Architectural requirements</li> <li>3. All Marine systems, IG, Cargo, ballast, HVAC, LQ, ER, Electrical, mechanical etc.</li> <li>4. Preparation of Technical Specification and RFQs for the above in order to issue for BID to EPIC Contractor.</li> </ol>		2009 – 2010
Coastal Energy	Songkhla FSO	Thailand	ABS	20 m	Mooring, SURF, field lay-out: <ol style="list-style-type: none"> <li>1. Design of new and review of existing system with respect to mooring, risers, offshore and subsea arrangement.</li> <li>2. Mooring analysis and design.</li> <li>3. Offloading analysis and design.</li> <li>4. Riser analysis and design.</li> <li>5. Hose analysis and design.</li> <li>6. Vessel mooring requirements and Installation requirements.</li> </ol>		2009 – 2010
Galoc Petroleum Company	FPSO	Philippines	DNV	600 m	Review of client’s subcontractors design and engineering <ol style="list-style-type: none"> <li>1. Mooring system,</li> <li>2. Riser and SURF</li> <li>3. Offshore Installation</li> </ol>		2009 – 2010
Mistubishi Oil	Sepanjang FSO	Indonesia	ABS	45 m	Review on behalf of Client the detailed design of mooring and risers, review of subcontractors.		2009
Kangean Energy Indonesia	Temporary Sepanjang FSO	Indonesia	ABS	45 m	Design, delivery and installation of mooring system and support during operational phase.		2009
Qatar Petroleum	BH & MM Field	Qatar	~	0 – 50 m	Feasibility study for the change out of umbilicals for 60+ platforms.		2009
Qatar Petroleum	Halul Field	Qatar	~	0 – 50 m	Hydrodynamic engineering for electric cable.		2009

## PROJECTS TRACK RECORD

CLIENT	PROJECT	COUNTRY	CLASS SOCIETY	WATERDEPTH	DESCRIPTION OF PROJECT	TYPE	YEAR
Hallin Marine	SPEX – Malaysia	Philippines	DNV	500 m	Naval architectural support to the implementation of a hydraulic gangway on DP-2 vessel for offshore operations.		2009
Prosafe Productions	POLVO FPSO	Brazil	ABS	800 m	Offloading mooring analysis for moored FPSO POLVO.		2008
Prosafe Productions	ABO FPSO	Nigeria	ABS	600 m	Mooring analysis for the extension of the riser system and its installation.		2008
Pvep Dai Hung	Dai Hung Phase 2	Vietnam	ABS	120 m	Estimation analysis and review of offshore installation EPIC contract.		2008
Larsen Oil & Gas	FPSO X	Singapore	DNV	200 m	Design responsibility for field lay-out riser configuration, subsea systems, mooring systems, and offshore works.		2008
MODEC - JVPC	Turret FSO, Subsea Equipment	Vietnam	ABS	60 m	Offshore installation for detailed engineering & design FSO hook-up, PLEM, riser installation. Preparation of all procedures of the offshore installation.		2007 – 2008