

AOS Offshore - Marine Contracting Services



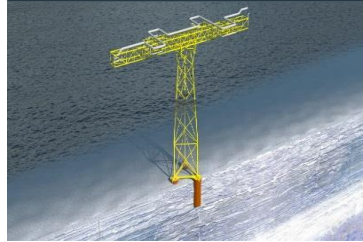
Revolutionary Solutions to Marine Challenges



Project Management



Construction



Load out and Transportation



Offshore Installation Services



Rig Move Services



Inspection, Maintenance, Repair



Decommissioning



Project Management

- Specialised in project management services for offshore operations such as:
 - Construction
 - Load outs and transportation
 - Offshore installation services
 - Rig move
 - Inspection, maintenance & repair
 - Decommissioning
- Highly experienced workforce with an in-depth knowledge of the marine and offshore industries
- Access to a vast number of highly qualified naval architects and structural engineers to perform analysis for any field development.



FPSO, Risers and Moorings



AOS Offshore offers efficient and innovative solutions in the following areas :-



Permanent Mooring System Installation

- Driven Piles
- Suction Anchors
- Drag Embedment Anchors
- Chain / Wire / Poly Lines



Flexible and Umbilical Installation

- Seabed Flowlines & Jumpers
- Flexible Flowlines & Risers
- Umbilicals and Cables
- Flying Leads & Jumpers



Floating Production System / CALM / Submerged Buoy Tow & Hook-Up

- Vessel Towing & Positioning
- Mooring Pull-In & Tensioning
- Riser Pull-In & Hang-Off



Subsea Structures Installation

- Manifolds
- Riser Bases
- Mid Water Arches



Heavy Transportation & Special Lifting

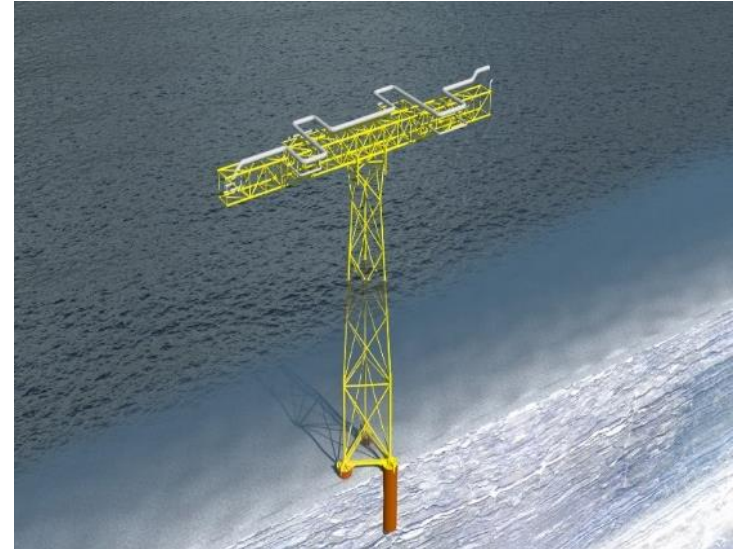
- HLV Transport
- Topsides Module Installation



- Diving Installation Solutions
- Diverless Installation Solutions
- Inspection, Maintenance, Repair
- Mooring System Replacement

Construction

- Knowledge and capability to take on full EPCI projects of minor objects such as modules, bridges, tripods and other smaller platforms
- Good knowledge of construction yards, providing services such as
 - Preparation of technical specifications
 - Invitation to tender documents
 - Evaluations of the construction yards
 - Full responsibility for constructing the above objects, including supervision and follow up of the process
- Other facets of the EPCI type of contracts related to temporary phases, such as load out, transportation and installation, are part of our core services



Load Out and Transportation

- Full responsibility for executing all work involved with load out, load in and transportation or tow of any objects that need to be transferred from one place to another:
 - Load out and load in of modules including all preparatory work such as design of the operation, ballasting, mooring and securing the module for later transportation. The modules can be transferred by means of lifting, skidding or by hydraulic trailers
 - Make sea fastening and grillage arrangement for transportations of module and other objects on barges or other vessels
 - Make transportation arrangement towages and other type of transportations including floatover operations onto Heavy Lift Vessels (HLV's)



Offshore Installation Services



- Safe, innovative and cost effective installation solutions
- Guidance to commercial decision-makers and operational experts; including oil companies, drilling and installation contractors
- Full contracting (EPCI) responsibility for offshore installations;
 - Installation of offshore structures (FPSO and other floaters, GBS's and minor jackets) including pipelines and other subsea structures
 - Towing of all kind of vessels and transportation of any objects
 - Floatover operations
 - Installation of pre-laid mooring systems and hook-up of floating vessels and rigs
 - Rig move and installation of jack-ups
 - Execution of subsea and diving operations
 - Installation of offshore renewables
 - Supply of tow masters and charterers representatives during towage and offshore installations



Rig Move Services

- Our experienced team provides complete rig consultancy services such as:
 - Installation and rig move execution services and procedures development
 - Offshore supervision
 - HAZID and HAZOOP meetings with client
 - Mobilisation and logistic planning
 - Wet and dry tow services and execution
- Through support from our partners, we also provide;
 - Mooring analyses, design services, systems and equipment
 - Site geotechnical analysis for jack-up deployment
 - Stability and weight analysis, inclining experiments and displacement tests
 - Operability and downtime simulations



Inspection, Maintenance & Repair



- Working closely with other industry experts, we provide a range of inspection, maintenance and repair services to clients around the world
- The range of services vary from provision of IMR support vessels and ROVs with personnel, to full services provision incorporating studies and operations management for:
 - Mooring systems
 - Flexible and rigid riser systems
 - Subsea assets
 - Renewable energy



Decommissioning

- Full range solutions for challenging decommissioning activities;
 - Full project management for removal of offshore installations such as topside, jackets, floaters, pipelines etc.
 - Preparation of all removal and transportation procedures
 - Full removal scope including subsea
 - All logistics associated with full decommissioning scope
- Our project team can further provide solutions like;
 - FEED studies
 - Full removal analysis
 - Transportation analysis



PROJECT REFERENCES

Project References



Year	Project	Location	WD	Client	Project Scope	Project Particulars
2015	Jasmine Mooring Replacement	Thailand	100	Mubadala/Petrofac	Life Extension/Mooring Replacement	<ul style="list-style-type: none"> • Disconnection of 6 Mooring Lines • Replacement of 6 ea 500mtr Wire Sections • Work performed while FPSO still producing
2014	Jasmine Riser Replacement	Thailand	100	Mubadala / Petrofac	Life Extension / Replacement of Riser System	<ul style="list-style-type: none"> • Disconnection and Recovery of Existing Riser. • Installation of New Riser. • Saturation Diving
	Azurite Decommissioning	Congo	1400	Murphy	FDPSO Decommissioning	<ul style="list-style-type: none"> • Disconnection and abandonment of Risers & Umbilicals • Disconnection and abandonment of Moorings
	Berge Helene, Moorings Replacement	Mauritania	700	Petronas	FPSO Mooring Replacement	<ul style="list-style-type: none"> • FPSO Heading Control • Upper mooring chains replacement • Subsea IRM (SCM/Choke Changeout, Flying Lead replacement, Field Survey, etc)
2013	Berge Helene, Moorings Repair	Mauritania	700	Petronas	FPSO Mooring Repair	<ul style="list-style-type: none"> • FPSO Heading Control • Upper mooring chain repair after mooring line failure
	FPSO P-63, Papa Terra	Brazil	1200	Petrobras	Tow and Installation Scope	<ul style="list-style-type: none"> • FPSO Ocean Tow from China to Singapore • FPSO High Speed Ocean Tow from Singapore to Brazil (10-knts ave) • FPSO tow to Field • Pull in & Hook up of 25 mooring lines • Pull in & Hook up of 21 risers & 17 umbilicals

Project References



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2012	FPSO BW Cidade de São Vicente Relocation	Brazil	2300	Petrobras	Installation Scope	<p>Relocation of FPSO BW Cidade de São Vicente in the Tupi/Lula Field, Santos Basin every 6-12 months:</p> <ul style="list-style-type: none"> • Disconnect Risers, Disconnect Moorings, FPSO tow to new location • Reconnect Moorings, Reconnect Risers • Simultaneous operations with 7 vessels on-site in SIMOPS
	TSB Field Development	Indonesia	100	Kangean Energy	EPCI contract with design and procurement of moorings, risers and umbilicals	<p>FPU Installation in 100m water depth, 100km north of Bali, Indonesia including :</p> <ul style="list-style-type: none"> • Spread Mooring System with driven piles , • 3 x 16" Flexible Risers / 2 x 5" Umbilicals (4.5km long) • FPU Positioning and Hook-up • Coordinate with local authority on HSEQ and importation of vessels
2011	Cascade & Chinook Mooring Line Rectification	US Gulf of Mexico	2600	Petrobras America	IRM Scope	<p>Stretching of 11 nos. mooring lines at BW Pioneer FPSO in 2600m water depth.</p> <ul style="list-style-type: none"> • Development and application of special purpose subsea tooling
	Ningaloo Vision DTM Buoy Repair Work	Western Australia	350	Apache	IRM Scope	<ul style="list-style-type: none"> • Removal of old / damage pull-in rope from the DTM Buoy • Reinstatement of Mooring Lines No. 4 & No. 9, including installation of new chain pawl stopper • Fender Replacement Works • Working with NOPSA to develop safety case

Project References



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2011	Neptune Umbilical replacement and PLEM Rectification	Boston, MA	80	GDF Suez	EPCI contract with design and procurement of replacement Umbilical	<ul style="list-style-type: none"> • Replacement of 1 x E/H Umbilical • Replacement of PLEM feedback line sensors • 14" Flexible and Umbilical piggyback • Air and Saturation diver intervention at Buoy / PLEM • Subsea Release of Diverless Bend Stiffener Connector • Subsea disconnection of Verderg Connector
	Sendje Berge Mini-Manifold Installation	Nigeria	N/A	Addax Petroleum	Installation Scope	<ul style="list-style-type: none"> • Installation of 3 x Topside Manifolds onto Sendje Berge FPSO at Okwori Field, Offshore Nigeria
2010	Neptune DWP Inspection and PLEM Feedback Line testing	Boston, MA	80	GDF Suez	Inspection and Testing Scope	<ul style="list-style-type: none"> • Yearly ROV inspection of STL systems at Neptune DWP and Subsea ROV Testing of PLEM feedback line
2009	Cascade and Chinook Installation	US Gulf of Mexico	2600	Petrobras America	EPCI Contract with Design, Procurement, Transport and Installation of STP system c/w complete mooring system	<ul style="list-style-type: none"> • STP System in 2600m water depth • 1 x STP Buoy (1900Te Ballasted) • 11 x Suction Anchors • 11 x Mooring Legs
	Neptune Deepwater Port Installation	Boston, MA	80	GDF Suez	EPCI Contract with Design, procurement, Transport and Installation of STL systems and Riser Base/PLEM	<ul style="list-style-type: none"> • 2 x STL Systems in 80m water depth • Suction Anchors up to 11m dia x 12m high x 150Te • 230Te Buoy lifts • 14" Flexible and Umbilical piggyback • Diverless Tie-ins
2008	Maari FPSO Installation	New Zealand	105	OMV/TPOT	Installation of APL submerged turret production buoy including mooring and riser system	<ul style="list-style-type: none"> • APL STP Buoy • 12-line mooring system with driven piles • Mid water Arch • 5-line Riser & Umbilical system