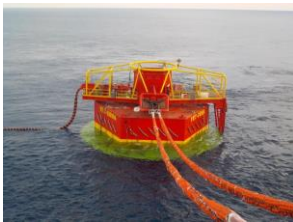




TORQUE
ENGINEERING AUSTRALIA

EXPERIENCE & TRACK RECORD



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SUMMARY OF MAJOR PROJECTS

The record below incorporates significant projects executed by **Torque Engineering** & their associates, and joint venture projects with **Denith Engineering**, and **SPT Terminals**.

Petronas Carigali Myanmar Ltd Yetagun CALM Buoy

Year	-	2017
Client	-	Blue Water Engineering Sdn Bhd
Buoy	-	CALM
Water Depth	-	80 msw
Location	-	Yetagun Field
Scope	-	Installation Engineering Detailed procedures Release tanker T&I CALM buoy



Yetagun CALM Buoy

Year	-	2017
Client	-	Petronas Carigali Myanmar Limited
Buoy	-	Hex 06
Water Depth	-	80 msw
Location	-	Yetagun Field
Scope	-	EPCIC Dual product Swivel - 3 product lines FSO included with bridal system and floating hoses
Certifying Authority	-	ABS



EPCIC of CALM Buoy – Banner Hex 02

Year	-	2017
Contractor	-	Banner Engineering / PT AEM
Client	-	CNOOC SES Ltd
Field	-	Cinta Field, West Java
Water Depth	-	50 msw
Manufacturer	-	Banner – 6 legs
Swivel	-	4 products
Certification	-	BKI
Scope of work	-	Full EPCIC Mooring analysis & FEA FSO Mooring Bridle Assembly Provision of Anchor Chains & Hawsers Offshore Installation Supervision



Electric 30 kN SWL Winch for Sapura 3000

Year	-	2016
Client	-	SapuraAcergy
SWL	-	30 kN
Wire	-	200 m x Ø16 mm (5 layers)
Speed	-	26 m/min
Inverter	-	37 kW
Mass	-	1,400 kg
Standard	-	ABS



SPM – Kakap Natuna IRM

Year	-	2015
Contractor	-	SPM Terminals / PT AEM
Client	-	Duta Marine Star Energy
Field	-	Kakap, Natuna
Water Depth	-	100 msw
Scope of work	-	In-situ Inspection Early YOKE Arrangement



Powered Under Rollers / Reel Drive Base

Year	-	2015
Client	-	NorCE
SWL	-	300 kN
Reel	-	300 tonnes - Ø6 m to Ø11 m
Speed	-	30 m/min
HPU	-	110 kW (473 l/min @ 250 bar)
Mass	-	26 000 kg
Standard	-	ABS



SPM – JOB Petrochina IRM

Year	-	2015
Contractor	-	SPM Terminals / PT AEM
Client	-	JOB Petrochina
Field	-	Turban, East Java
Water Depth	-	30 msw
Scope of work	-	In-situ Inspection



CALM Buoy Hawser Connector

Year	-	2014
Client	-	PetroSA
Field	-	Oryx / Oribi
Water Depth	-	85 msw
Manufacturer	-	Bluewater – 6 legs
Scope of work	-	Design & Supply 300 te SWL Connector T&I Engineering & Procedures Transfer damaged riser to vessel



Sabah Oil & Gas Terminal (SOGT) Export Pipeline Works

Year	-	2014
Client	-	Amaniaga Resources Sdn. Bhd
	-	Samsung Engineering
Scope of work	-	SPM1 & SPM 2 Refurbishment
	-	Dewatering 36" & 28"
	-	Intelligent Pigging



EPCIC of CALM Buoy – Banner Hex 01

Year	-	2014
Contractor	-	SPM Terminals / PT AEM
Client	-	CNOOC SES Ltd (Now Pertamina)
Field	-	Cinta Field, West Java
Water Depth	-	50 msw
Manufacturer	-	Banner Engineering
Swivel	-	4 products
Certification	-	BKI
Scope of work	-	Full EPCIC
	-	Mooring analysis & FEA
	-	FSO Mooring Bridle Assembly
	-	Provision of Anchor Chains & Hawsers
	-	Offshore Installation Supervision



SOGT SPM Rectification Works

Year	-	2014
Client	-	Amaniaga Resources Sdn. Bhd
	-	Samsung Engineering
Scope of work	-	Towing, Repair Re-installation of Floating Hoses



20 te SWL Hoist for DLB NorCE Endeavour

Year	-	2013
Client	-	NorCE
SWL	-	200 kN
Rope	-	240 m x Ø 36 mm (3 layers)
Speed	-	55 m/min
Power	-	5 x 37 kW motors
Size	-	130 x 248 x 150 cm high
Mass	-	5,800 kg



FPSO Perisai Marine Hose Installation

Year	-	2013
Client	-	Carigali Hess
Scope of work	-	OCIMF Recertification of Floating Hose

5 te Electric Man Riding Hoist for DLB NorCE Endeavour

Year	-	2012
Client	-	NorCE
SWL	-	50 kN
Wire	-	170 m x Ø 28 mm (2,5 layers)
Speed	-	50 m/min
Power	-	2 x 22 kW motors
Size	-	125 x 227 x 140 cm high
Mass	-	3,000 kg



10 te Hook Load Fast Winch – Gumusut Project

Year	-	2011
Client	-	SapuraAcergy
SWL	-	121 kN
Rope	-	1400 m x Ø 28 mm (11 layers)
Speed (Max)	-	63 m/min (75 Hz)
Power	-	90 kW 400 Vac
Size	-	8.80 x 4.80 x 3.0 meters
Mass (no wire)	-	14,200 kg
Standard	-	DNV 2.7-1; Lloyds; DNV; ABS



CALM Buoy Changeout – C100077 - SMR

Year	-	2010
Contractor	-	Banner Engineering
Client	-	Brunei Shell
Field	-	SMR Field
Water Depth	-	30 msw
Scope of work	-	Refurbishment of SBM 2
	-	Offshore Changeout
	-	Diving Services included



CALM Buoy Swivel Seal Changeout

Year	-	2010
Contractor	-	SPM Terminals / Banner Engineering
Client	-	Pertamina Indonesia
Field	-	Balikpapan Terminal
Scope of work	-	Refurbishment of Seals in-situ

LPG SPM Inspection

Year	-	2010
Contractor	-	SPM Terminals / Banner Engineering
Client	-	ConocoPhillips Indonesia
Field	-	Belinda Field, Natuna Sea
FSO	-	Concord
Scope of work	-	In-situ IRM
	-	Job Scoping for Overhaul

400 te Linear Winch (continuous pull)

Year	-	2009
SWL	-	4000 kN
Wire	-	< Ø4"
Speed	-	5 m/min
Power	-	2 x 220 kW Diesel HPUs
Size	-	2 x 40' Containers



CALM Buoy Swivel Seal Changeout

Year	-	2009
Contractor	-	SPM Terminals / Banner Engineering
Client	-	KRS – Chevron Indonesia
Field	-	Santan Terminal, Kalimantan
Scope of work	-	Refurbishment of Seals in-situ

CALM Subsea Hose Changeout & U/W Inspection

Year	-	2008
Contractor	-	SPM Terminals / Banner Engineering
Client	-	Petronas Penapisan Melaka Sdb. Bhd
Field	-	Melaka Refinery Terminal
Scope of work	-	Offshore Workbarge Banner 10
		Hose Change
		IRM
		Diving

SKEC CALM Buoy Relocation EPCI

Year	-	2008
Contractor	-	Banner Engineering
Client	-	SKEC
Location	-	Ulsan, South Korea
Water Depth	-	30 msw
Scope of work	-	Engineering & Procedures
	-	Relocate PLEM & CALM Buoy

Control Umbilical Reelers – 4 off -

Year	-	2007
Client	-	Well Ops UK Ltd
Torque	-	34 kNm
Umbilical	-	Ø 84 mm x 690 m (5 layers)
Drum Speed	-	10 rev/min (28 m³/min)
Power	-	22 kW – Pneumatic Drive
Size	-	3890 x 2780 x 3650 cm high
Gross Mass	-	17,800 kg
Standard	-	DNV 2.7-1; Lloyds; DNV; ABS
CE Mark	-	Yes



CALM Buoy Dry Docking

Year	-	2007
Contractor	-	Banner Engineering
Client	-	Brunei Shell
Field	-	SMR Field
Water Depth	-	30 msw
Manufacturer	-	Banner – 6 legs
Scope of work	-	Major Overhaul of Buoys
	-	Diving Services included



Hydraulic Tronic Umbilical Reeler

Year	-	2007
Client	-	Fugro-TSM
SWL	-	5 kN
Wire	-	200 m x Ø19 mm (5 layers)
Speed	-	44 m/min
HPU	-	7 kW (20 l/min @ 150 bar)
Mass	-	700 kg
Standard	-	DNV 2.7-1 (frame)



CALM Buoy Chain Replacement

Year	-	2007
Client	-	PetroSA
Field	-	Oryx
Water Depth	-	85 msw
Manufacturer	-	Bluewater – 6 legs
Scope of work	-	Engineering & Procedures
	-	Locate 2 broken chain legs
	-	connect new chain and re-establish



Hydraulic Man Riding Winch

Client	-	Neptune Marine
SWL	-	10 kN
Wire	-	200 m x Ø 13 mm (3 layers)
Speed	-	26 m/min
HPU	-	11 kW (60 l/min @ 80 bar)
Mass	-	700 kg
Standard	-	ABS



Pneumatic Man Riding Winch – 2 off

Client	-	Torque Engineering
SWL	-	10 kN
Wire	-	200 m x Ø 13 mm (3 layers)
Speed	-	26 m/min
Air	-	150 l / sec (320 cfm) @ 6 bar
Mass	-	700 kg
Standard	-	ABS



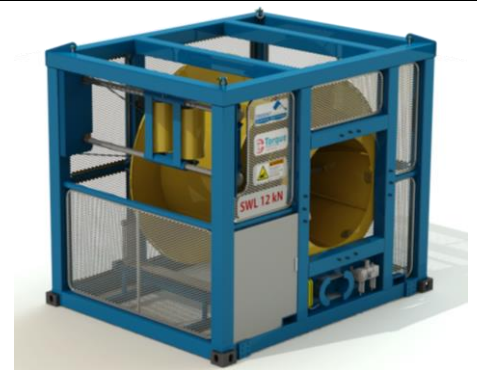
Saturation Diving Bell Winch

Client	-	HydroKarst
SWL	-	50 kN
Wire	-	316 m x Ø 24 mm (7 layers)
Speed	-	26 m/min
HPU	-	70 l/min @ 263 bar
Mass	-	4,8 tonnes
Rules	-	IMCA



Control Umbilical Reelers – 2 off

Client	-	Trident Australia
Torque	-	13 kNm
Umbilical	-	Ø 50 mm x 600 m
Drum Speed	-	0.7 rev/min
Power	-	22 kW – Pneumatic Drive
Size	-	3050 x 2440 x 2590 cm high
Gross Mass	-	5,500 kg
Standard	-	DNV 2.7-1; Lloyds; DNV; ABS



10 te SWL ROV Deployment Frame

Client	-	DOF Subsea
SWL	-	120 kN
Base Dimensions	-	8700 m x 3700 m
A-frame Height	-	7.2 m
Umbilical	-	Ø 45 mm

