

# PROJECT SHEET

**PIPELINE REPAIR**  
INSPECTION, REPAIR, MAINTENANCE & LIGHT CONSTRUCTION  
DUBAI, UNITED ARAB EMIRATES

## BOSKALIS' ENERGY SOLUTIONS

Boskalis is a leading global dredging and marine expert. With safety as our core value we provide innovative, sustainable and all-round solutions for our clients in the energy market. Realizing projects in remote locations with a heightened environmental focus is one of our specialties. Under brands such as Boskalis, Dockwise, Fairmount, VBMS and Smit we offer more services than any other company in our industry, making us your next one-stop solution provider. We support the development, construction, maintenance and decommissioning of oil and gas import and export facilities, fixed and floating exploration and drilling facilities, pipelines and cables and offshore wind farms.

## INTRODUCTION

SMIT Komodo operates on a long term contract for Dubai Petroleum Establishment (DPE). The baseline service provided is routine IRM with light construction provisions. Part of the light construction scope, the SMIT Komodo has successfully completed several subsea pipeline repairs, the majority of these repairs has been emergency response with urgent mobilization of SMIT Komodo saturation diving system.

The types of subsea pipeline repairs completed from SMIT Komodo have ranged between 8 and 30 inch diameter, seabed depth of -130 and -200 ft, pipeline flow content Water, Oil and Gas. The different repair methods that have been used; Smart Flange and spool section repair, hydro clamps (Pildco) repair and pipeline decommissioning and removal.

On the 6<sup>th</sup> August 2015 Boskalis was requested to investigate a potential pipeline leak on the CC-GG-8-G pipeline that is running from CC-Platform to GG-Platform, high pressure 8 inch gas pipeline in the client Fateh oil field the approximate length of this pipeline is 9,914 ft.

## FEATURES

Client	Dubai Petroleum Establishment (DPE)
Location	Offshore Dubai, United Arab Emirates
Period	10.09.2015 - 14.09.2015
Contractor	Boskalis Offshore Subsea Services Middle East LLC



- A Pipeline investigation (ruptured gas pipeline)
- B UT and ovality inspections in preparation for smart flange
- C As Built smart flange and spool section



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Boskalis investigated the pipeline leak and identified a catastrophic failure of the pipeline. The damage observed on the pipeline consisted of a longitudinal tear caused by pipe wall failure whilst under pressure. The damaged area was estimated to be 18.6 feet (5.18 m) in length. All weight coat had been removed by the blow out for the full length of damage and approximately 6 feet either side of the damaged area. The damage was concentrated around the 12 o'clock position of the pipeline.

Following the investigation results Boskalis was instructed to repair the pipeline section. Boskalis mobilised the saturation diving team on board SMIT Komodo for the execution of the repair, the approximate water depth at this repair location was 138 ft.

### METHOD

The damaged pipeline section cut at location A, B and C, damage 2x sections removed, smart flange installed location C, corridor spool installed, 2<sup>nd</sup> corridor spool installed, pre measured corridor lengths, direct to final smart flange closure at location A, completion of scope.

### MATERIALS & EQUIPMENT

Diamond wire cutter, hydratight bolt tensioning spread.  
Pipe handling A-frames, UT reader, high pressure water jet.  
2 x Corridor 12 m spool sections, 1 x 900 class smart flange set,  
1 x ovality ring 8", 60 x hydratight bolts.

### DIVING TECHNIQUES

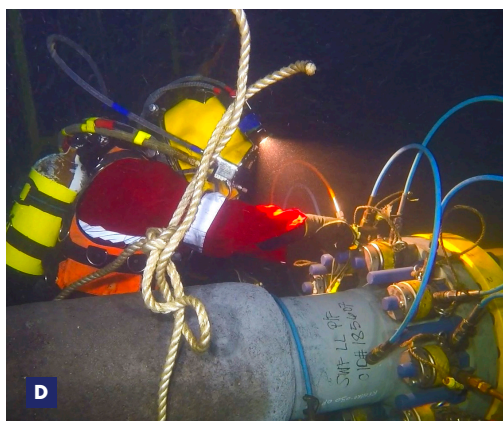
Saturation diving, Sat3, storage 110 ft 2 man bell.  
Diving operations conducted from SMIT Komodo.

### CONCLUSION

The pipeline repair was completed successfully and to satisfaction of the client. Two smart flanges and 2 x 12 meter spools were installed and pressure tested.

### RELATED WORK PACKS COMPLETED PIPELINE REPAIRS

DWP title	Pipeline	Start date	Completion date	Depth	DSV	Repair method	Dive method
Pipeline repair	FAT ZA-K2-30-O	22.04.2012	10.05.2012	175 ft	Altus Exertus	Smart flange	Saturation
Pipeline repair	FAL-FA-FB-8-G	26.05.2014	05.06.2014	176 ft	Altus Optimus	PLIDCO	Saturation
Pipeline repair	FAT-M-N-14-W	07.07.2015	13.07.2015	178 ft	SMIT Komodo	Smart flange	Saturation
Pipeline repair	FAL-FA-FB-8-G	05.11.2014	09.11.2014	173 ft	SMIT Komodo	PLIDCO	Saturation
Pipeline repair	FAL-FA-FB-8-G	10.11.2015	13.11.2015	176 ft	SMIT Komodo	PLIDCO	Saturation
Pipeline repair	FAT-ZA-ZB-30-O	28.11.2012	20.12.2012	177 ft	SMIT Komodo	Smart flange	HeO <sub>2</sub> & Sat
Pipeline repair	B-K2-16-O	13.07.2015	15.07.2015	164 ft	SMIT Komodo	P/L removal	Saturation
Pipeline repair	CC-GG-8-G	10.09.2015	14.09.2015	137 ft	SMIT Komodo	Smart flange	Saturation
Pipeline repair	CCP1-CP2-20-O	07.06.2016	06.07.2016	148 ft	SMIT Komodo	Smart flange	Saturation
Pipeline repair	RC-CP2-6-G	23.07.2016	25.07.2016	105 ft	SMIT Komodo	AXring replacement	SurdO <sub>2</sub>
Pipeline isolation	K3 Deadleg	31.07.2016	14.08.2016	146 ft	SMIT Komodo	Isolation PLUG	Saturation
Pipeline repair	LL-MM-12-G	05.10.2016	11.10.2016	140 ft	SMIT Komodo	Smart flange	Saturation



D Diver conducting 50% bolt tensioning