

PIPELINE PROTECTION NAOC 24" Kwale OB/OB, NIGERIA

Pipeline Protection

Product: Articulated Concrete Block Mattresses (ACBM)

Problem

The Kwale-OB/OB gas pipeline is a 48 Km, 24 inch pipeline. It is the only means of delivering natural gas from Kwale Gas Plant to OB/OB Gas Treatment Plant which in turn delivers Gas to Bonny LNG. Installation of the pipeline was carried out in 2004. Towards the end of September 2012, Nigeria experienced the worst flooding in 50 years and it was during this period or afterwards that the pipeline section of the river crossing on the Kwale end was damaged and consequently gas supply to the OB/OB gas treatment plant was interrupted on the October 2012.

A detailed investigation was carried out and reported findings reveal an extensively erosion and several changes on the riverbed. This coupled with the high flood water current and probably high gas velocity, created a weak point along the pipe which resulted to a breakage at the weak point.



Intervention schedule

Due to the strategic importance of the pipeline, an urgent repair intervention has been carried out starting from November 2012.

Objective of this intervention was:

- To ascertain the extent of the damaged 24" gas pipeline;
- To confirm the point of damage of the HDD (Horizontal Directional Drilling) line and the landed section;
- To establish the coordinates of the damaged points of the 24" line and check the relative distances;
- To ascertain the integrity of the pipeline at the damaged section;
- Finally identify the best possible solution for the repair of the gas pipeline while undertaking HDD installation method as the permanent solution.

Solution

In between the possible solutions, thanks to the support of Maccaferri Group, NAOB and FENOG identified ACBM mattresses as the best suitable solution to restore functionality of the pipeline.

ACBM mattresses were used to reach the protection (also

against flow scouring) and stabilization of the pipeline. The high flexibility and modularity of the ACBM, allowed a quick installation guaranteeing meanwhile a protection of the pipeline.

Thanks to this intervention and the use of ACBM the distribution of gas to power generation facilities throughout the country was restored in a short time.

Maccaferri Supplied:

- **130 ACBM mattresses with dimensions 5,26x2,26x0,20 m.**
- **1 ACBM manual lifting frame for mattresses installation**

Client:

Nigerian AGIP Oil Company Limited - NAOB

Main contractor:

Fenog Nigeria Ltd

Products used:

ACBM mattresses

Date of construction

April 2013



ACBM mattresses during loading operations



ACBM mattresses in stock

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MACCAFERRI

Officine Maccaferri S.p.A. Global Headquarters

Via JF Kennedy 10, 40069 Zola Predosa (BO) - Italy

T: (+39) 051 6436000 F: (+39) 051 236507

E: comes@maccaferri.com

www.maccaferri.com

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