Jump-Starting the Nigerian Agricultural Revolution: Safe, Efficient Reroute of NGL Line Helps Keep Fertilizer Plant Construction on Track

T.D. Williamson uses line intervention to keep feedstock flowing while line is rerouted during construction of world’s largest gas-to-urea fertilizer plant

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PORT HARCOURT, RIVERS STATE, NIGERIA, NOVEMBER 18, 2015 – What can a company do when a petrochemical feedstock supply pipeline runs right through the construction site of the world’s largest single-stream gas-to-urea fertilizer plant – and shutdown is not an option?

That was the question facing Indorama – one of Asia’s leading holding companies – which is building the US$1.2 billion Indorama Eleme Fertilizer & Chemicals Limited plant within the company’s petrochemical complex on the outskirts of Port Harcourt, Rivers State, in southern Nigeria.

The answer: Decommissioning and rerouting the 1 km (.62 mi) line using double block and bleed isolation technology, allowing supply to continue while optimizing safety and minimizing leak paths.

Fertilizer Expected to Help National Economy

With a capacity of 1.4 metric tonnes per annum (MTPA), the Indorama fertilizer plant is expected to help Nigeria’s farmers increase crop yields and thereby improve the nation’s food security. In addition, the facility has been hailed as a way for Nigeria to diversify its economy from oil resources as well as to expand its intra-Africa trade.

Any project of this magnitude is staggering in its complexity. But in this case, an additional complication arose in the form of an 8-inch natural gas liquids (NGL) pipeline passing through the construction site.
In order to mitigate the risk of damaging the NGL pipeline during fertilizer plant construction, Indorama decided the line should be rerouted. However, in order to avoid a shutdown that could result in the loss of millions of dollars’ worth of production, Indorama contracted T.D. Williamson (TDW) to develop an effective intervention that would keep the pipeline in service during the reroute.

According to Naimi Diallo, TDW hot tapping & plugging engineer, the company used four STOPPLE® Train plugging systems – also referred to as a “double-double” – along with LOCK-O-RING® Plus completion plugs to isolate the section of the NGL line, set up the bypass, and tie-in and commission the new line, safely and efficiently.

STOPPLE® Train Technology Reduces Fittings, Hot Taps

As Diallo explains, “STOPPLE Train double block and bleed technology allows two independent seals to enter the pipeline through a single hot tap opening, reducing the total number of fittings and hot taps required. A bleed port between the two seals then allows for pressure and product evacuation, which means workers performing welding or pipe cutting downstream are separated from the line’s pressurized contents.”

In addition, the intervention included the installation of venturi systems, installed away from the line and hosed to the bleed port, which allowed the gas to evacuate safely and far from the operating site, a step essential with NGL. Diallo notes that working with NGL presents a number of challenges, particularly as it can easily change state from a liquid to a gas and requires special control procedures to maintain acceptable pressures and temperatures.

The intervention, completed over a three-month period from March through June 2015, was instrumental in keeping this mega-project, critical to Nigeria’s future, on track. Construction of the fertilizer refinery began in early 2013; Indorama anticipates commissioning will occur toward the end of 2015.

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About T.D. Williamson

Drawing upon a 95-year history of industry leadership, TDW is a global solutions provider for the owners and operators of pressurized piping systems. TDW delivers a comprehensive portfolio of solutions for onshore and offshore applications, including hot tapping and plugging, pipeline cleaning, integrity inspection, pigging, and non-tethered plugging pig technology.

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