

# Pipeline capacity augmentation project zooms ahead

Gas Authority of India Limited is constructing a new pipeline and increasing the capacity of its existing Vijaipur – Kota Pipeline in order to meet growing demand for natural gas in the state of Rajasthan, India. Careful planning has seen the project already overcome a number of challenges, with construction progressing at a phenomenal pace.



In January 2011, Gas Authority of India Limited (GAIL) awarded Punj Lloyd a contract to lay 112 km of pipeline from Vijaipur, Madhya Pradesh, to Boreri, Rajasthan, and to augment the capacity of the existing Vijaipur – Kota Pipeline.

Built as part of the Hazira – Vijaipur – Jagdishpur Pipeline expansion, the original 198 km Vijaipur – Kota Pipeline was commissioned in January 2007, costing a total of \$US66 million. The pipeline transports natural gas from Vijaipur in Madhya Pradesh to Kota in Rajasthan and has the capacity to transport 3.47 MMcm/d of gas. The main trunkline has an 18 inch diameter while the Gadepan to Keshoraj Patan section has a 16 inch diameter.

The current project involves the installation of 292 km of spur pipelines with diameters of 12 and 18 inches to meet the demand of natural gas from various consumers in the Boreri, Bhilwara and Chittaurgarh districts in the state of Rajasthan. Engineers India Limited was contracted to perform the design and engineering works for the project, which commenced construction in February 2011.

Construction of the Vijaipur – Kota Pipeline posed a number of challenges, including a requirement for specialised machinery and manpower to overcome the 20 per cent hard rock encountered along its route. The route also traverses the 400m-wide River Parbati, which has a rocky bed; this section of the pipeline was horizontally directionally drilled.

Due to the fact that 1.5 km of pipeline and piping works had to be performed in the operating process area of GAIL's online gas terminals, special health, safety and environment (HSE) measures were necessary. A HSE plan and procedures were developed and monthly HSE committee meetings were organised. All employees were required to have a HSE induction before deployment and were engaged in daily toolbox talks directing them how to go about their daily work and how to navigate hazards.

The narrow right-of-way was in a forest area, and required further safety precautions. Hazard identification and risk control was conducted for all critical activities, including excavation and trenching, lowering in, blasting and hydrotesting. Every quarter, the

lifting tools and tackles were inspected, colour coded and certified by a third party. An emergency plan was also prepared in case of incidents such as fire, grave injury, collapse of equipment and floods, and mock drills of this plan were executed periodically to ensure all workers were aware of the procedure.

GAIL said that the project construction progress rate have been excellent, with all critical and major items completed on time, and with approximately 170 joints made per day without any repair – no mean feat considering the small size of the crew. GAIL's large and young plant fleet also enabled fast mobilisation of equipment, ensuring minimum downtime.

At the time of writing, the project was expected to reach completion at the end of August 2011.