

JAMNAGAR REFINERY PIPELINES, INDIA

Geotextile solution for seafloor pipeline



Industry: Energy
Application: Waste management
Location: India
Product: **MIRAFI® Polyfelt® Heavy Duty TS009**

it was decided to dispose of the treated wastewater through pipelines laid on the seafloor. The project involved laying five 1.4 m (4.6 ft) diameter pipes over a distance of two and a half kilometers (1.6 miles) in a pre-dredged trench measuring 70.5 m (231.3 ft) wide and 3.5 m (11.5 ft) deep.

Overview

The Jamnagar refinery, located in northwest India, is a crude oil refinery with a production capacity of 661,000 barrels per day. To accommodate the planned expansion of doubling its production capacity to 1.2 million barrels per day, a significant amount of wastewater will be generated during the crude oil extraction process. To prevent environmental contamination,

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CASE STUDY

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Solution

To ensure separation between the bedding material and the silt, a layer of **MIRAFI Polyfelt TS009** nonwoven geotextile was placed at the bottom of the trench. This was followed by a 300 mm (11.8 in) thick layer of well-graded aggregates. The **MIRAFI Polyfelt TS009** geotextile acted as a separator, preventing the loss of aggregate into the soft subgrade of the seafloor and maintaining the structural integrity of the aggregate fill layer. After the pipes were installed, the trench was backfilled with in-situ soils. The decision to lay the pipelines in a trench was made to protect them from potential damage caused by local navigation.



On-site, two sections of **MIRAFI Polyfelt** geotextiles measuring 4 m (13.1 ft) in width were stitched together longitudinally, forming 7.5 m (24.6 ft) wide geotextile panels. These panels were then accurately deployed at the base of the trench using an 8 m (26.2 ft) wide spreader bar mounted on a crane situated on a floating barge. The 7.5 m (24.6 ft) wide x 2.5 km (1.6 miles) long **MIRAFI Polyfelt TS009** geotextile was rolled off into the water with the assistance of counterweights in the form of bags filled with aggregate. Divers were employed to facilitate the installation of the **MIRAFI Polyfelt TS009** geotextile. The pipes were placed at a distance of 3.5 m (11.5 ft) center to center within the trench. This careful selection of construction materials and their installation proved to be a significant cost-saving measure.



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