

Integral solution for Dos Bocas PEMEX marine facilities beach erosion problem at Tabasco, Mexico

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Abstract

Dos Bocas PEMEX marine facilities have suffered progressive beach erosion compromising oil conduction and storing infrastructure integrity. Major issue of the problem refers to marine conduction pipes sand foundation lost within the surf zone leading to potential risk of pipe failure; such event would represent catastrophic economical and environmental consequences, since a representative amount of national oil production is carried through these pipes. Solution adopted involved using geotextile tube technology as part of integral solution, consisting in: a) Geotextile tubes filled with sand working as oil conduction pipes' support elements; b) Installation of submerged breakwater using geotextile tubes along 1.9 Km of coastline; c) A 62,000 m³ beach nourishment. Paper describes elements design criteria and installation process, field survey data as before and after beach profiles comparison and graphical material is presented; analysis corroborates natural beach recovery after breakwater installation. After construction evidences are also given leading to the conclusion that project has worked as expected ensuring long-term oil conduction and storing facilities integrity.

Keywords: Geotextile tube, beach erosion, oil conduction pipes

