

PROJECT SHEET

CUYUTLAN, COLIMA, MEXICO
DRILLING AND BLASTING OF ROCK
IN ENTRANCE CHANNEL TO NEW LNG TERMINAL

INTRODUCTION

The new Manzanillo LNG terminal contract was originally awarded to DI who then entered into a joint venture with Dragamex. Two areas of rock were discovered in the entrance channel on the edge of the channel toe line and also on the slope. This rock

could not be removed by the CSD Ursa and so Rock Fall where contracted to blast the rock. The new entrance channel has been constructed to allow large LNG ships to enter into the new terminal which will supply LNG to the Manzanillo power plant and also other locations in the west of Mexico. The new LNG terminal is owned by Terminal KMS de GNL (KOGAS, Mitsui, Samsung) who will be supplying the electricity power plant, which is owned by Commission Federal de Electricidad (CFE), the natural gas as an alternative to reduce pollution in Manzanillo. The gas will also be piped to Guadalajara to supply the west of Mexico. The supply is Peruvian natural gas from the Peru LNG Terminal, supplied from YPF S.A.

FEATURES

Client	SCT - DGP
Location	Manzanillo, Colima, Mexico
Period	January 2012 – June 2012
Contractor	J.V. Dragamex / DIMEX



SCOPE OF WORK

The initial inquiry required that 76,979cu m of rock to be pre-treated by blasting of which over half of it was above the waterline. A Mexican drilling company was contracted by Dragamex to blast the rock above the waterline to a level of -3m CD then Rock Fall would drill and blast to design level. The quantity for Rock Fall was 6,453 sq m and 24,457 cu m over 2 areas. The design level was -15m in the channel then the slope was 1:5 up to a flat berm of -4m CD.

EXECUTION

The drilling and blasting of hard abrasive granite in the channel was very difficult due to the extreme sea conditions and drilling conditions where in some areas was solid granite, and the hole next to it was compacted sand and loose rock to design level. A drilling grid ranging from 3x3m to 2.5x2 m was used. The blasted rock was then dredged using a large grab dredger with a 10 cu m bucket



ENVIRONMENTAL MANAGEMENT

The main concern on the project was blasting at a minimum distance of 20m from a buried gas pipeline with a vibration limit of 20mm/s. Three vibrographs were used to record the ground vibration, this information was used to determine the vibration experienced on the pipeline. Rock Fall showed their experience as a company as blasting was completed 20m from the buried pipeline, the ground vibration was kept inside the limit of 20mm/s set out by TransCanada.



HEALTH & SAFETY MANAGEMENT

The Boskalis safety philosophy NINA (No Injuries, No Accidents) was used during the contract with great success. Numerous toolbox talks were carried out and an open culture was encouraged where people can share ideas to improve safety and challenge unsafe operations. A SHOC card system was introduced to allow workers the chance to identify areas for change and improvement. Rock Fall was awarded a certificate from the local council for participating in a beach clean-up along with the military and the local community.

