

Gorgon Australia: meeting every challenge

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The Gorgon project was executed for Chevron Australia Pty Ltd, together with Kellogg Joint Venture - Gorgon. Boskalis Australia was involved in the early contractor involvement phase and was responsible for the design and construction of a major LNG harbour at Barrow Island, approximately 60 kilometres off the North West coast of Australia. The project included the construction of facilities for the transshipment of equipment, a 200-metre quay wall, a number of 'dolphins' and ro-ro facility. Boskalis was also responsible for the logistics and the program management for some of the basic infrastructure.

Logistical challenges

The isolated location of Barrow Island meant a huge logistical effort was required. "It was quite a challenge to get the people, the equipment and the rocks needed for the coastal protection on Barrow Island into the right place safely. Just transporting the rock, for example: about 475,000 tons of rock had to be transported all the way from Perth for the coastal protection structures," explains project director Raymond Yeung. "We used five large seagoing tugs that sailed back and forth with 10,000 and 12,000 tonne barges. That is the equivalent of a 3,000-kilometre voyage."

Accommodation and transportation for the workforce was also quite a challenge. One of the most remarkable aspects of the Gorgon Project was that everything took place at sea - working and living. Apart from an airport, Barrow Island has no other facilities. This meant that all the staff at the height of the project, more than 500 people, had to be housed on the accommodation vessel Finnmarken. Every day large quantities of food had to be delivered to the vessel and hundreds of employees had to be ferried to and

from work every day by ship. Given that embarkation and transferring between vessels carries well-known risks, much attention was paid to this during the preparation. A number of smaller boats used for crew changes underwent technical modifications to make transfers as safe as possible. This remained a recurring item at the so-called toolbox meetings. And it paid off, with around 450,000 safe transfers made during the course of the project.

The frequent cyclones in the region were also a complicating factor and constant contact was maintained with the Australian meteorological institutes. "If the weather conditions forced us to do so, all activities were halted," said Raymond. "All vessels and other equipment are demobilised to a sheltered location at Dampier, around 80 nautical miles east of the project. For instance, we were demobilised 12 times during the cyclone season of 2010-2011. Sometimes it lasted a few days, sometimes more than two weeks."

Environment

A priority on this project was the protection of the characteristic native animal and plant life on and around Barrow Island. The work was carried out under an extensive set of environmental requirements, ranging from the use of biodegradable hydraulic oil and waste separation, to stringent quarantine requirements.

Anyone travelling to Barrow Island by air or sea was subject to strict checks to prevent non-native plant and animal species from being introduced to the island. For example, all vessels had their hulls thoroughly cleaned, in many cases in dry dock. Every last piece of dry equipment was brought to a specially designated, demarcated area where it was taken apart and checked for the presence of any seeds, substances and small creatures.



Aerial photo made in april 2012



Top: FinnMarken; the accommodation vessel was the home base for hundreds of project staff for a long time; Next page, left to right: Trailing suction hopper dredger Gateway is able to dredge in adverse weather conditions; Around 450,000 safe transfers have been made during the course of the project



Safety

With over 2,600,000 man-hours worked the number of serious incidents on the Gorgon Project stands at zero.

Another challenging project in Australia

The Ichthys gas field is part of the Browse Basin and is more than 850 kilometres offshore from Darwin Harbour in the North of Australia. The gas will be taken to Darwin over the seabed through a 42-inch Gas Export Pipe. The construction of the pipeline, the longest in the southern hemisphere, will require as much steel as 93 Eiffel Towers. The pipe will run into a trench about 18 kilometres offshore. It will be held in place initially by smaller rocks. A layer of larger rock will follow, creating an artificial reef. This section of the pipeline will lead to Darwin Harbour, 100 metres to the south of the Bayu-Undan pipeline to Indonesia, another construction project in which Boskalis was closely involved back in 2004. The Boskalis work will include the trenching work, the rock placement, and the 'pipe pull' over a distance of approximately 3000 metres. For the landfall, a cofferdam and a winch platform will be built on land.

About the author



Raymond Yeung has an MSc in civil engineering from Delft University. Raymond has been working for Boskalis for over 20 years. He has been involved in large oil and gas projects in countries such as Singapore, Indonesia, India, Taiwan, Australia, Nigeria and Philippines.

About the company

Royal Boskalis Westminster N.V. is a leading global services provider operating in the dredging, maritime infrastructure and maritime services sectors. The company provides creative and innovative all-round solutions to infrastructural challenges in the maritime, coastal and delta regions of the world with the construction and maintenance of ports and waterways, land reclamation, coastal defense and riverbank protection. In addition, Boskalis offers a wide variety of marine services and contracting for the offshore energy sector including subsea, heavy transport, lifting and installation (through Boskalis Offshore and Dockwise) and towage and salvage (through SMIT). It also has a strategic partnership in terminal services (Smit Lamnalco). With a versatile fleet of over 1,100 units Boskalis operates in around 75 countries across six continents. Including its share in partnerships, Boskalis has more than 11,000 employees.

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