

THE GORGON PROJECT

THE CRANE BUILT TO SURVIVE A PERFECT STORM

AT A GLANCE

CLIENT	KELLOGG JOINT VENTURE – GORGON (KJVG)
PROJECT	THE CHEVRON-OPERATED GORGON PROJECT
LOCATION	WESTERN AUSTRALIA
SECTOR	OIL & GAS
DATE	2012 – 2017

CRANES	6 X M2480D
ENGINEERS	5
INSTALLATION CREW	9
MAINTENANCE CREW	2

The north west coast of Australia is known for its cyclonic weather. So when we were asked to put the world's largest capacity tower crane on a tug-towed barge delivering freight to a remote location 906 nautical miles away, we knew we were in for a challenge. What we didn't expect to engineer was a world-first solution that would become the project of a lifetime for Marr's team.

Located approximately 60kms off the northwest coast of Western Australia, the Gorgon Project is one of the world's largest natural gas projects and the largest single resource development in Australia's history.

After working with the Project's downstream engineering, procurement, construction and management contractor on the delivery of craneage solutions for the Project's materials offloading facility on Barrow Island in 2010 and marine loading facility at the Australian Marine Complex (AMC) Henderson, Perth in 2011, there was an even bigger task ahead.

THE CHALLENGE

In September 2012, the Project wanted to put a heavy lift crane on a super barge and tow it up the coastline from AMC Henderson to the LNG Plant on Barrow Island. It was a feat that had never been done before, but we were confident we'd find a solution to the problem.

In order to meet the massive logistical needs the Project had to look at the job differently.

By employing a 122-metre super barge and a 60-metre anchor-handling tug, materials could be stacked higher and, with a maximum capacity of 25 tonne per square metre, they still faced the challenge of getting a large crane to Barrow Island.

The challenge was that we had to come up with a craneage solution that didn't impede on the cargo-carrying capacity of the barge. Additionally, the crane solution had to be able to transition from sea transit and lashing mode to operating and lifting mode within four hours of arriving at port.

With the additional challenge of operating in a cyclonic region, this posed one of the greatest challenges we had ever taken on as a business.

OUR SOLUTION

We engineered a solution adapted from previous marine applications. An M2480D was placed onto the barge on a rail system that we incorporated into the barge structure. The crane was set up on a travelling gantry base that allowed maximum deck space to be maintained for cargo and the crane was able to operate without restriction 14 metres above the barge deck (compared with at deck level using a crawler crane). The most significant benefit was that the crane was able to operate and be stored in sea transit mode, (over the top of containers stacked three high), without significantly reducing the cargo-carrying capacity of the vessel.

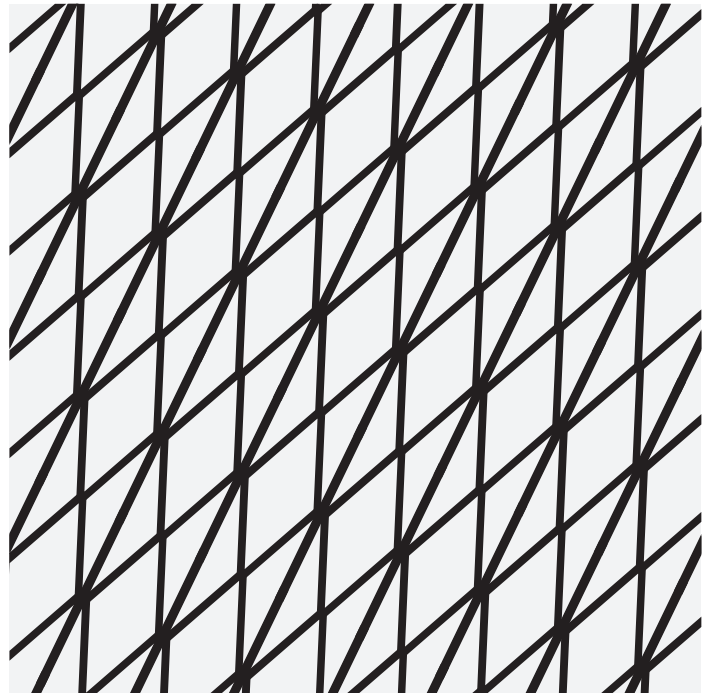
The solution created a vessel that had independent craneage and was able to dock at any port, and load and unload cargo irrespective of whether land-based craneage was available or not.

THE RESULT

In May 2013, the crane was built and in another world-first solution loaded onto a super barge by SPMT trailers for its voyage to Barrow Island.

On a later return voyage to the AMC all our engineering was put to the ultimate test when the vessel ran into a storm. With the port closed, the crew weathered the storm and as a testament to our rigorous engineering process, the M2480D returned safely to port unscathed.

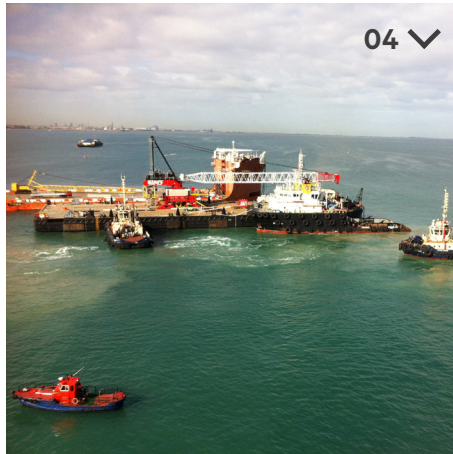
In November 2013, we also used the SPMT trailer lift solution we'd developed to move the crane onto the barge to relocate additional M2480D tower cranes being used in the construction of the LNG site on Barrow Island. By allowing the cranes to be moved from one location to another on wheels within two hours instead of being dismantled and rebuilt, saved time when a crane was required to be moved. We also eliminated risk by building the cranes on the roadside and isolating construction away from the worksite and plant workers.





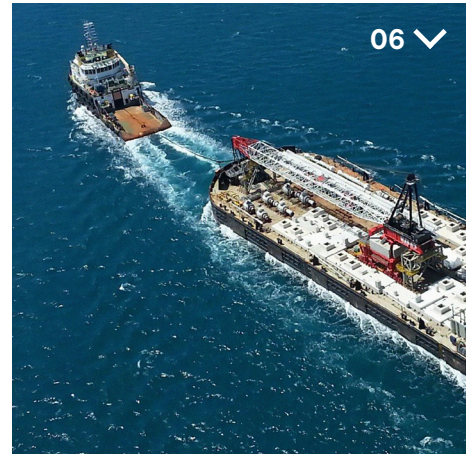
01 / LOCATION ✓

The Chevron-operated Gorgon Project is located within a Class A Nature Reserve on the north west coast of Australia.



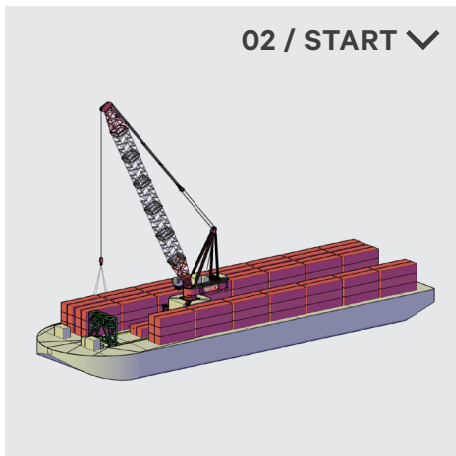
04 ✓

SEPTEMBER 2012. We engineered a solution to place an M2480D on the barge – with the confidence it would have the capacity to survive the cyclonic region.



06 ✓

Fully loaded with cargo, the barge safely made her maiden voyage to Barrow Island.

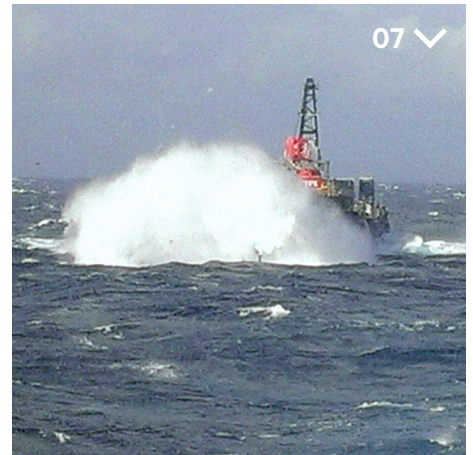


02 / START ✓

A solution was developed to transport the required freight to build this mega-project, which ranged from processing equipment weighing more than 1,000 tonnes to construction vehicles and general freight and containers.



05 ✓



07 ✓

On a later return voyage, the AMC Henderson port was closed due to a storm. Despite it being the worst storm the captain had experienced in his 40-year career, the barge and the M2480D crane returned safely to port unscathed.



03 ✓

The challenge was to provide craneage that didn't impede on the cargo-carrying capacity of the barge, could change from sea transit and lashing mode to operating and lifting mode within four hours from arriving at port, and withstand the extreme sea conditions.



MAY 2013. Self-propelled modular transporter systems were used to load the 1,000 tonne M2480D tower crane onto the Barrow Island-bound super barge.



08 / FINISH —

NOVEMBER 2013. 18 months later the SMPT trailer solution we used to load the M2480D was employed at the LNG Plant to move tower cranes around the construction site.