

## CONVERSION OF TWO PLATFORM SUPPLY VESSELS TO WELL STIMULATION VESSELS IN DUBAI

### PARALLEL DOCKINGS FOR AL MANSOORI PRODUCTION SERVICES

To support an offshore contract, two of Al Mansoori's platform supply vessels, the Al Nisr and Al Kaser, required significant modifications to be converted into well stimulation vessels. After a competitive bidding process, Goltens was awarded the contract for the large project.

#### THE PLANNING:

The project required removal of the existing cement tanks and installation of new acid tanks. As this required a 20-meter by 5-meter opening to be cut in the main deck, it was decided that this was best accomplished in drydock to maintain the structural integrity of the vessels and minimize any dynamic forces from being afloat. The decision to do both dockings in parallel made the complex project even more challenging.

Goltens management laid out detailed project and logistical plans and completed structural calculations on the impact of the steel removal and mitigation plans prior to bringing the vessels into drydock in Dubai Maritime City.

#### THE EXECUTION:

Once planning was complete, the vessels were docked stern to stern to increase work efficiencies and the access holes were reinforced prior to cutting. Goltens installed additional stiffening around the newly cut openings to ensure there was no distortion to the hull as well as to ensure easy reinstallation of the removed sections afterwards.

Once the sections were removed, 4 cement tanks were rigged out of each vessel along with all piping, pumps and associated electrical connections.

As the newly modified compartments hold all of the acid tanks and associated piping for the vessels' operation, the compartments needed to be 100% coated in a special acid resistant paint to ensure the acid does not corrode the steel.

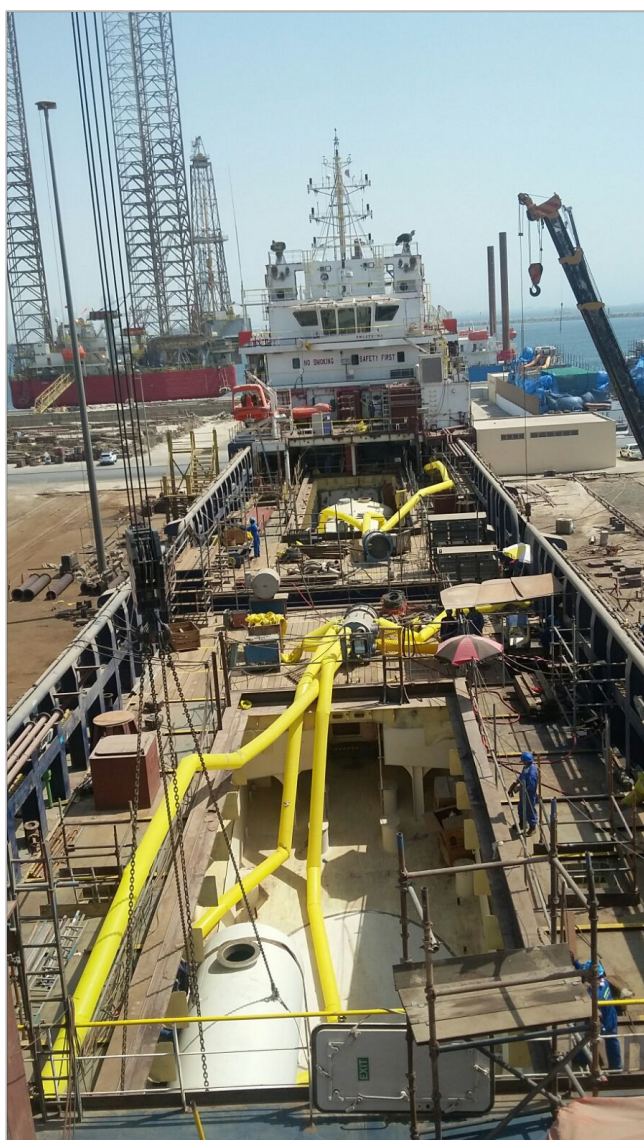
As a further modification, all electrical wiring and equipment had to be re-routed to newly made tunnels running under the acid compartment to avoid any possible corrosion as well.

#### PROJECT FACTS: VESSEL CONVERSIONS

Vessel names:	Al Nisr and Al Kaser
Year Built:	2014
Vessel Length:	59.6 meters
Beam:	15.2 meters
Customer:	Al Mansoori Production Services
Work Location:	Dubai Maritime City, UAE



Al Nisr and Al Kaser docked stern to stern



Tank install in process after compartment coating

#### CONVERSION SCOPE (EACH VESSEL):

- Installation of more than 250 tons of steel and 1.1 km of pipe
- Installation of three tunnels to encase the cardan shafts running from forward engine room to thrusters and electrical wiring
- Upgrade of all electrical components in the acid compartment to explosion proof standards
- Application of 2,700 m<sup>2</sup> acid resistant chem-flake coating system inside the newly fabricated acid compartment
- Installation of carbon and stainless steel acid tanks (9 on Al Nisr and 5 on Al Kaser)
- Installation of all PVC piping and penetrations from acid tanks to production equipment on deck
- Installation of 8 different systems on board (including bilge system, flare lines, deluge system, water curtain system, acid compartment ventilation system, acid tank ventilation system, compressed air system and shaft bearing temperature monitoring system)
- Installation of a 12 meter tall/6 ton King post and Flare boom for safe burning of the natural gas

#### THE RESULTS:

After successful completion of the conversion scope, a full cosmetic docking was undertaken in order to change the vessel paint scheme to customer-required colors and the vessels were returned to service. All modifications and repairs were fully inspected and accepted by vessel's class ABS.



Installation of Acid tanks



Connecting Flare Boom to King Post



Out of dry dock pierside for final checks



Underway and ready for charter