



Case Study LNG #24

LNG Marine Bunkering



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Highlights:

Location — Jacksonville, FL

First onshore bunkering station in a US port

Scope of Project:

- Engineering & project for 2000 m³ of LNG storage with centrifugal submerged pumps inside a spill containment
- Fueling system to meet growing demand for marine fuel
- Project Completion: Q2 2018

[Click here to view the time lapse video on moving the tanks](#)

Application:

LNG bunkering at Port of Jacksonville for fueling LNG powered container and ConRo ships.

Project Background:

The LNG fuel provider approached Chart for this marine bunkering project based on our experience in bunkering plants consisting of submerged pump technology, shop-built tanks, and liquid flow technology that can support 900 gpm. Due to space constraints at the waterside port location, the outer jacket would need to provide the secondary spill containment. The project required a pump system able to support the high flow rates to bunker vessels as well as incorporating full vapor return lines.

System Configuration:

The storage consists of two 1,000 m³ vessels engineered for the bunkering application including stainless steel outer jackets. All process lines come off the top of the vessel with no other penetrations in the outer tanks. The two independent gauge circuits, which included liquid and gas phase isolations valves and five-way valve manifolds, are all wired to a single junction box. (3" top fill and 3" bottom fill circuits).

Significant Accomplishments:

- All plumbing and line connections on the tanks are bundled within the top connections of each tank
- BOGs (boil off gases) are captured, returned via the vapor return lines, and reliquefied within the overall system using liquid nitrogen
- Nitrogen is also used as a fuel conditioner—this atmospheric liquid gas ties into the same overall single system
- Using LNG over traditional ship fuels reduces CO₂ and other greenhouse emissions

