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FURPHY ENGINEERING

Furphy Tanks & the Petrochemical Industry

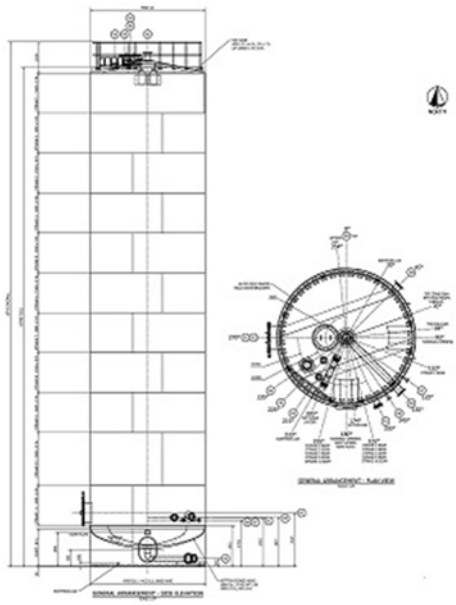
Client: Puma Energy
Location: Townsville, Queensland
Project: 4 Diesel Fuel Tanks + 2 ULP Fuel Tanks
Fuel Storage Tanks to support mining and local industries

Project Specification Changes:
Originally specified as Carbon Steel tanks, the 6 storage tanks were converted to Stainless Steel vessels. The decision was based on the benefits of increased fuel quality, lower maintenance requirements and project cost savings.

Conversion to Stainless Steel:
Stainless Steel provides superior corrosion resistance, compared to Carbon Steel tanks. As a result, a corrosion allowance was not required, to be built in to the thickness of each tanks' walls. Stainless Steel also offers a higher strength to material thickness ratio, enabling a thinner gauge of steel to be specified. These attributes delivered cost savings to the client.

Storage in a Stainless Steel vessel also provides a more sterile environment. Unlike Carbon Steel a Stainless Steel surface does not require a paint system. This removes the need for repainting during the life of the tank and delivers an internal surface that will not flake or contaminate the fuel with paint particles; reducing maintenance requirements and increasing the quality of stored fuel.

Design Considerations:



All elements of design considered Australian and International standards to optimise the life and performance of each tank. Structural design considered the density of stored fuels - diesel and ULP, along with the venting requirements for petrochemicals, in accordance with AS1692. Additional components were added to each tank; these included access points for maintenance and internal floating roof systems to create vapour barriers.

Townsville's geographic location; the local wind and earthquake loads, determined each tank's height, depth and structural requirements. Tank components such as nozzles, floor structures and roof installation were developed according to API650 and AS1210, with finishing welds meeting AS1554.6-2012 II (a), for structural integrity.

Build Requirements:
All tanks were fabricated at Furphy's Shepparton plant in Victoria using stainless steel sourced through Australian-based supply outlets. The project used 96 tonnes of stainless steel and required 15 weeks to complete.

NADA approved non-destructive testing (NDT) was carried out by third party providers to evaluate the properties of each tank; ensuring they passed all code requirements.

Transportation:
With manufacture taking place in Shepparton and installation in Townsville, tank design needed to consider suitability for long haul transport. The tanks weighed 15 tonnes and were up to 21 metres long, requiring heavy haulage equipment and the support of pilot vehicles, for the trip.

Tank design considered the most suitable transportation method, the cost to transport and how to maintain the structural integrity of each tank throughout the delivery and installation process.

For more information visit http://www.furphys.com.au