



DIESEL GANTRY & PIPEWORK EXPANSION

SHELL TERMINAL, MACKAY, QUEENSLAND





The Project

Fitzroy Engineering Australia was awarded the principal contract to complete an upgrade of the existing Shell Terminal, Mackay, North Queensland. The upgrade involved expanding the existing facilities by adding a new road tanker loading gantry, including a new dedicated 4 arm diesel gantry which increased the loading capacity. The contract included management of all disciplines, civil, structural, mechanical piping, electrical & instrumentation.

The new gantry was designed for the potential to implement biodiesel blending with existing diesel products.

One of the project constraints was that the existing gantry needed to be kept operational for the duration of the project. Dedicated hot work windows were incorporated into the schedule to achieve this. The project involved a crew of 16 trades people over a six month period for a total of 9000 hours with zero environmental or personal incidents.

Civil & Structural Scope

Civil and structural works for the diesel gantry expansion involved the construction of a new gantry bay attached to the existing gantry bay, and all associated civil works.

Civil works associated with the new diesel gantry extension included the following:

- Demolition and disposal as required,
- New drainage system in new and existing gantry bays
- New column footings plinths, islands, roll-over bunds and pavement, modifications to existing gantry bay steelwork and new gantry structural steelwork
- Connecting the new gantry structural steelwork to existing
- All required anchors and cast-in hd bolts
- Cladding
- Grouting of all new column base plates



New Load-out Bay Structure

Electrical Scope

The electrical installation works for the gantry expansion included:

- Power supply of DKI loading arm skids
- Supply and install of 1 x APC Back-UPS, 300 Watts / 500 VA, Input 230V / Output 230V UPS for Accuload control backup (30 minutes) including 8 pole UPS DB, Supply and install covered HD Cable ladder
- MX506702 Main switchboard and MCC) MX086504 cable ladder route plan MCC to gantry bay 2, Supply and install additional I/O card along with terminal blocks, IS Barriers etc. required in the existing PLC and control cabinet
- Controls cabling between skid controllers (i.e. Accuload) and site PLC located in the MCC room, MX086504 cable ladder route plan MCC to gantry bay 2 MX086506 Gantry Bay 2 Control System Block Diagram
- Supply and installation of fibre optic 6 core 62.5/125 OM2 fibre cabling between Accuload Junction Boxes and DKI Omega Terminal Automation Server (TAS),
- ESD system for gantry bay 2
- Supply, installation and wiring of gantry bay 2 task lighting

Mechanical & Piping Scope

The mechanical installation and piping work included:

- Installation of two (2) DKI loading arm skids
- The supply and installation of the various piping systems from/to the specified contract termination points
- The supply of all instruments, valves and equipment including positioning, fitting, assembly and erection including levelling, alignment and grouting
- The removal and disposal of AGO and ULP pipework to enable tie-in to new overhead piping for gantry Bay 1
- Slurry filling of redundant underground piping within the existing gantry, and cut back / covering of protruding nozzles to 200mm below grade level.



DKI Loading Skids

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