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Case Study: NWI Group Installs Giant 54-Metre EX Rated Weighbridge for CEFA

NWI Weighbridges

OVERVIEW

NWI Group were approached to provide one of the longest weighbridge systems we've ever designed. Clean Energy Fuels Australia (CEFA) required a new EX rated weighbridge solution for their LNG loading operations. This new system needed to accommodate the unique requirements of their site, which is classified as an explosive zone due to the nature of LNG.

The weighbridge had to be robust, accurate, and capable of handling the specific axle groups of their transport trucks, ensuring precise weight measurements. NWI Group provided our full steel Centurion Weighbridge, as the best fit for all of CEFA's requirements.



CLIENT

Clean Energy Fuels Australia (CEFA) is a leading provider of liquefied natural gas (LNG) solutions, focusing on delivering cleaner, more efficient energy alternatives. CEFA operates in high-risk environments, handling LNG at extremely low temperatures (around -162°C), requiring specialised equipment to ensure safety and accuracy in their operations.

CHALLENGES

Explosive Zone Compliance:

The weighbridge had to be designed and installed to meet strict safety standards for explosive environments, where even minor sparks could lead to catastrophic consequences. Compliance with IECEx standards was mandatory to ensure the safety and integrity of the operation.

Temperature Extremes:

The weighbridge had to function effectively in extremely low temperatures, as LNG is loaded and transported at around -162°C .

Axle Group Weighing:

The requirement to weigh specific axle groups separately, rather than as a single unit, introduced complexity in the design and integration of the weighbridge system.

Comprehensive Display System:

A need for a sophisticated display system that could show individual axle weights as well as the total weight on a single pole.



SOLUTION



The solution that NWI provided was a whopping 54-meter full steel Centurion model weighbridge, split into seven independent decks to facilitate precise axle group weighing.

Key features of the solution included:

- **Seven Deck Configuration:** Each of the seven decks operates independently, allowing for accurate weighing of specific axle groups. This setup ensures that CEFA can monitor and control the weight distribution across the vehicle, which is critical for safety and efficiency.

Eight Display Screens:

A single pole was installed with eight display screens – one for each of the seven decks and an additional screen showing the total weight sum. This allows operators to easily read and record weights.

Ex Rated Design

The entire weighbridge system was designed and constructed to be compliant with Ex rated zone standards, specifically adhering to IECEx standards for hazardous areas. This included using materials and technologies that eliminate the risk of sparks or other ignition sources in the explosive environment.

Durability and Accuracy

The weighbridge was built to withstand the harsh conditions of the LNG environment, ensuring accurate measurements even at extremely low temperatures.



OUTCOME



- **Enhanced Accuracy:** The segmented deck design allows CEFA to accurately weigh each axle group, ensuring compliance with weight regulations and preventing overloading fines.
- **Improved Efficiency:** Real-time weight data for each deck and the total weight sum enables quick assessment and adjustment of vehicle loads, reducing wait times and enhancing overall logistical efficiency.
- **Data Integration:** The integration with CEFA's logistics software automates data collection and reporting, improving data accuracy and providing valuable insights for optimising transport operations.
- **Future-Proofing:** The innovative and flexible design of the weighbridge system ensures CEFA is equipped to handle evolving logistics demands, maintaining their position at the forefront of the clean energy industry.

