

Case Study – Tank Floor Blasting



Overview

We have a strong commitment to Safety, it is at the heart of everything we do, alongside the health and wellbeing of our people and suppliers. We are always looking for suppliers who bring efficient and environmentally friendly solutions to the challenges we set them; harnessing new technologies and state-of-the-art solutions that can help us support our customers and meet our sustainability objectives.

Approach

Recognised international codes and standards, such as EMMUA 159 and API 653, require a tank floor inspection in order to verify the floor quality and integrity during an out-of-service inspection. In order to achieve the correct surface preparation for inspection and lining application, abrasive blasting is used. There are, however, health hazards to conventional open abrasive blasting activities, including pressurised air, abrasive particles, dust, and noise pollution, especially when working in confined spaces.

We have worked alongside 'C&D Access' a Navigator Supplier, to minimise these risks, by performing abrasive blasting operations using floor blaster technology. The floor blaster is a compact machine that can fit through a standard 600mm diameter manway, it can achieve a coverage of 95% of the tank floor surface.

This approach retains the steel shot abrasive between the equipment and the floor, significantly reducing dust and noise, eliminating free abrasive particles and pressurised air lines. This has multiple benefits outlined below:

- Improved working conditions within the confined space
- Enhanced recycling of the abrasive and significantly reducing the sent waste to landfill.
- Improved conditions allowing for simultaneous inspection operations to be undertaken, such as visual and drone inspection, MFL and vacuum box, to be performed simultaneously, significantly reducing asset downtime.

Outcomes

The blasting, including removal of existing lining, of a 67-metre diameter tank floor (3,535 sqm) in was completed in 25 days. Using the floor blaster has a significant impact on the working environment, while reducing asset down time and waste, allowing for simultaneous activities. In addition, there is a circa 30% cost benefit over open blast methods.

	Technical Data Comparison			Benefits
	New Method	Previous Method		
Measure	Floor blaster	Open blast	Open blast	
Tank Area	3384 sqm		151 sqm	High % of tank floor can use new method
% of tank	95%		5%	
Time & Cost	15 days	40 days	10 days	- 25 days activity - 30% cost
Material	4 tons of steel shot abrasive	100 tons of steel shot abrasive	14 tons of steel shot abrasive	- 96 tons steel shot to landfill
Noise	88 dB	115 dB	115 dB	27 dB less noise pollution
Protective Kit	No RPE	RPE required	RPE required	Reduced RPE