

Project Profile

Demolition of Redundant Fire Water Storage Tank



Client	Terminals Pty Ltd
Location	Sydney, NSW
Duration	1 Week, May 2017
Contract	Demolition Works of Redundant Fire Water Storage Tank
Cost	\$65,000

Project Overview

Terminals Pty Ltd are Australia's largest independent bulk liquid storage company. They provide bulk liquid storage at four major ports within Australia for companies importing or exporting bulk liquid chemicals, fuels, petroleum products, vegetable oils and liquefied gasses.

McMahon Services was engaged by Terminals Pty Ltd to undertake the dismantling and demolition of the redundant fire water storage tank from within their active fuel storage facility in Botany Bay. The demolished structure was 16 metres high with a diameter of 16 metres. The Botany Bay facility consists of 72 fuel storage tanks with a total capacity of 87,00 m³.

McMahon Services adopted a mechanical demolition approach to the works, using elevated safe work platforms for crew safety and ease of access to all components of the tank including the roof capping. Initial works comprised of pre-cutting the tank walls and external pipework and preparing each section for hoisting. Then working from top to bottom, work crews using oxy cutting tools segmented the tank into equal sized and massed elements for ease of dismantling.

Before each element was fully dismantled, lift chains were fixed to earlier prepared hoisting penetrations before being lifted away from the structure by a 55 tonne crane. This minimised crane lift movements and ensured crane slew arcs were tight, minimising

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risk of damage to adjacent bulk liquid storage infrastructure.

Dismantled tanks sections measured approximately four metres at their longest edge. This size was too large for transport, so a secondary crew again using oxy cutting tools vertically sliced the walls into more manageable sizes. A 12 tonne excavator with a grapple attachment then loaded the final cuts into scrap recycling bins for latter load out and transportation to a recycling facility. A total of 20 tonnes of steel was recycled from the tank achieving a 100% recycling outcome for the project.

Project Challenges

A key risk on the project was conducting hot works with the oxy cutting tools in an operational fuel storage facility. McMahon Services were required to adhere to a strict Permit to Work system and all works were closely monitored by Terminals Pty Ltd. Job Safety Analysis, Safe Work Method Statements, Project Management Plans and Safety Procedures were developed and approved well in advance of any works occurring to mitigate risks.

The demolition site was clearly delineated from operational areas of the facility with high visibility bunting and signage. Cranage plans were developed in advance to eliminate the risk of demolition activities effecting ingress and egress from the site, or damaging other facility structures including adjacent operational storage tanks.

The demolished tank fronted an existing internal road within the Botany Bay facility, which was also a designated emergency service road. Terminals Pty Ltd applied to the Fire Fighting Authority prior to project commencement seeking and receiving permission to close the road for the duration of the project. Another road was then designated as the emergency service road for the duration of the works, an access lane that was not anywhere near the demolition works, again mitigating another potential work site safety risk.

Delivery Performance

All works were self-performed using McMahon Services own employees. Plant and equipment utilised on site included a 25m knuckle boom, 55t rough terrain crane, 12t excavator with a grapple attachment and McMahon Services four wheel drive utility vehicles. All works were completed on time within the one week timeframe, the project accumulated 240 man hours with a peak workforce of 5, including one Indigenous personnel and one woman on the team.



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