

BOYNE ISLAND SMELTER TANK REMOVAL

MAY 2023

BOYNE SMELTER LIMITED (RIO TINTO)

\$0.5 M

The Boyne Island alumina smelter, owned by Rio Tinto is located in the Gladstone region. DEMEX was engaged by Boyne Smelters Limited as a principal contractor to undertake removal of hazardous Spent Cell Lining material from five 5,000m³ tanks and demolition of the tanks.

Due to the nature of the Spent Cell Lining material, which is a by-product from the aluminium smelting process, as well as concerns about potential contamination of the site, the project scope went through multiple iterations in conjunction with several BSL stakeholders from various teams. Under guidance provided by DEMEX, a final demolition methodology was devised and finally approved by BSL.

CHALLENGES

Prior to commencing, the team undertook integrity checks to identify potential leakage points, the extent of corrosion, and the volume of residual material. This process informed the risk management approach and ensured the most effective methodology was selected for demolition.

The toxicity of the material in the tanks meant it was necessary for works to be conducted at night and under optimal weather conditions, i.e., an extremely low wind chill factor, in order to be completed safely and prevent dispersal of the Spent Cell Lining material.

Demolition was conducted over two stages using a controlled collapse method. The tanks were pierced with a long extendable pick arm attachment to release the material, followed by mechanical dismantling of the tanks. Due to the age of the tanks and impact of the Spent Cell Lining material, the structural integrity of the tanks was compromised, however, all tanks were safely demolished without any environmental or safety incidents. Machines worked concurrently to clean up after demolition of each tank, thereby preventing any uncontrolled release of the hazardous material.

DEMEX received positive feedback from Rio Tinto for the efficient way in which the project was conducted and the team's responsiveness which allowed the works to be conducted at the ideal time and ahead of schedule.

