

Yarwun Operations sustainable development

2020 Scorecard



Safety			Putting the health and safety of our people first		
4	3	0.31			
Recordable injuries	Recordable occupational illnesses	All Injury Frequency Rate (AIFR)			
Safety	Yarwun embedded the Safety Maturity Model (SMM) using the leading for safety toolkit, leadership coaching and safety maturity health checks to successfully drive improvements in safety performance, stability and culture. This is the foundation for HSE growth in 2021.				
Employee health and wellbeing	The development of a joint COVID-19 Trigger Action Response Plan (TARP) between Yarwun, BSL and QAL had all sites working together to manage the health and safety of employees, contractors and our community throughout the year. The introduction of split shifts, working from home, cleaning regimes and entry screening programs were some of the changes implemented.				

Cash			Maximising cash to increase our resilience		
3.17Mt	\$338.7M	\$6.8M			
Alumina	State spend on goods and services	Taxes and royalties to local, state and Australian governments			
\$162.3M	\$454.5M	\$123.5M			
Local spend on goods and services	National spend on goods and services	Capital expenditure			

People			Building a workplace where we all feel valued, connected and can grow		
692	350	16.3%			
Full Time Equivalent (FTE) employees	Full Time Equivalent (FTE) contractors	Female employees (FTE)			
45	\$105.9M				
Apprentices and trainees	Salaries and benefits paid				

Growth			Growing our business responsibly to benefit future generations		
Flash tank bypass pilot	Confined space drone	Economic contribution			
Yarwun successfully ran a pilot where a pair of flash tanks can be cleaned and maintained while online.	The team constructed a caged drone that can carry out maintenance inspections within the confined space of a tank environment to remove employees from a high-risk environment.	(includes salaries, partnerships, in-kind support, taxes, total national supplier spend)			\$568M

Partnership						Building relationships that enable us to operate and pioneer progress					
\$58,802*	21	0	\$126,940**	Partner to operate		Environmental stewardship					
Community investment (includes in-kind support)	Community organisations supported	Significant community complaints	COVID response investment to local community	The Great Rio Tinto Yarwun Valley Rally was held in August with record attendance (74 vehicles), raising \$11,000 for the Yarwun State School.		We supported a print run of Colonisation .. Through Black Eyes , written Dr Kerry Blackman and Dr Lysbeth Ford, an historical recount of local Indigenous communities. A copy of the book was gifted to our local school libraries. Westowe Rural Fire Brigade received a \$20,000 donation to increase their capacity to service the region.		1 Significant environmental incidents		In 2020 Yarwun achieved its catchment stabilisation targets at the refinery. This work helps improve stormwater quality by reducing the potential for erosion and the generation of suspended solids.	
<p>*In addition to Rio Tinto's \$353,048 contribution to the Here for Gladstone program **Rio Tinto's contribution to the Gladstone region divided per three sites</p>											

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Our operation

Construction of our world-class Yarwun alumina refinery in Gladstone, Australia, began in 2002, and the first alumina shipped in late 2004.

An expansion in 2012 doubled production and today, Yarwun produces more than three million tonnes of alumina per year, which is exported to customers in Asia, the Middle East and the Pacific region.

In 2018, Gladstone became the home of innovation with Rio Tinto's Queensland Research and Development Centre (QRDC) relocating from Brisbane to Yarwun Refinery. QRDC is Rio Tinto's global centre for technology, research and development in the alumina refining process.



Case studies

Creating an inclusive and diverse workforce



Rio Tinto Yarwun wants its workforce to reflect the diversity of the wider community, and that includes gender diversity across our operational and support teams. A focus in 2020 was the recruitment of more women as process technicians (PTs).

To achieve success, Yarwun runs a two-year PT traineeship program that provides participants with a nationally recognised Certificate IV qualifications, leading to permanent employment as a PT. In 2020, more than 50 per cent of the 27 participants in the PT traineeship program were women. Those women were placed in the digestion, clarification and boilers areas, the wharf and the Residue Management Area (RMA). Yarwun is also looking at family-friendly rosters that align with school hours, as well as offering mentoring programs for women and men. We are also adapting operational practices and equipment to suit a more diverse range of employees, thereby mitigating the risk of muscular-skeletal injuries.

Successful shut during pandemic



During the COVID-19 pandemic, Yarwun delivered one of its most successful shuts (major maintenance program) with more than 500 external contractors onsite during the peak period. Despite logistical challenges such as international and state border restrictions, global shortages of PPE and other supplies, good planning enabled Yarwun to achieve success on all measures. The 2020 shut program also achieved several technological advances in the field (see drone story below), resulting in efficiencies and cost savings of approximately 20 per cent cost on the previous year. Yarwun also recorded an outstanding safety performance for the shut work with zero recordable incidents and has been acknowledged by similar industries across the region as resetting the bar for shutdown performance. We have been happy to share our approach to safety and technology for major maintenance programs with other sites in the region.

Drone technology reduces safety risks



As part of its annual shut program, we clean digestion pressure vessels using high-pressure water blasting and jack hammering to remove scale from the interior of the flash tanks. Historically, this process has required a maintainer to enter the tank, which is a confined-space, to jackhammer the remaining scale after the high-pressure water blasting has been completed. Confined-space work is one of Yarwun's highest risk activities, so the business focused its attention on reducing the risk to its maintainers. By using a fit-for-purpose drone, we can now survey and video of the interior of a flash tank before a maintainer is required to enter. Using the information collected by the drone's camera, the operations team assesses the amount of additional robotic hydro-blasting required before it is safe for an employee to enter to carry out maintenance on the tank interior. The improvement means that the need for jackhammering is entirely removed. This makes the entire process safer and less expensive. In 2020, Yarwun saved \$800,000 with this improvement.