



QAL Media Release

16 December 2020

QAL commissions new odour-reduction technology

As part of Queensland Alumina Limited's (QAL) \$400M 5-Year Environment Strategy to improve environmental performance and reduce community impacts, QAL has commissioned a new \$3.3M thermal oxidiser that will boost the plant's odour reduction capabilities.

The new thermal oxidiser, which is a large burner that destroys odorous gases, can process four times more gas than the previous, 15-year-old unit. The old thermal oxidiser will remain available for when the new unit is being maintained.

The oxidiser processes odorous gases from the Digestion section of the refinery — the plant's highest source of odour, where organics in the bauxite are mixed with caustic soda and heated to 250 degrees Celsius.

QAL general manager Pine Pienaar said thermal oxidisers are one of the few readily available technologies for alumina refineries to combat odour.

"The beauty of this project is that it is proven technology and now we have a bigger and better version," Pine said.

"To put it in simple terms, you could compare the thermal oxidiser to a giant Bunsen burner. We capture and send odorous gases into the gas burning chamber and the flame burns it, effectively destroying the smell."

The new thermal oxidiser is burning at 950 degrees Celsius, which is around 200 degrees more than the old unit and allows for 100% odour-destruction efficiency.

On top of the thermal oxidiser, QAL is investing millions of dollars and a dedicated research and development team with specialist skills into never-before-done studies and projects to reduce other sources of plant odour.

In one example last year, QAL completed a plant trial with non-thermal plasma technology, which delivered 90 per cent odour destruction from the odorous bad wash water tank. QAL's owners have now approved fit-out of the bad wash water tank with this technology, at an estimated cost of \$1.5M, with expected completion by the end of 2021.

The research and development team is now working on projects to use the thermal oxidiser to destroy more of the plants odours.

"At the Digestion relief tanks, where roughly one third of the plant's odour comes from, we are trialling two separate technologies that will allow more odorous gases to be sent to the thermal oxidiser for destruction," Pine said.

FACTS AND FIGURES ON NEW THERMAL OXIDISER

- 10,800 hours construction and commissioning - zero injuries

- Travelled from Melbourne on 3 trucks
- Weighs 21 tonnes
- Can burn up to 950 degrees
- Four times the capacity of previous unit
- QAL is working on several projects to capture, process and transfer odour sources to the new thermal oxidiser

BACKGROUND

QAL is one of the largest alumina refineries in the world, refining bauxite into alumina.

When the organics within the bauxite meet the high temperatures of 250 degrees Celsius and are mixed with caustic soda, an odour is formed. While not harmful, this odour is not pleasant and can often impact the neighbouring community.



QAL's digestion employees are pleased with the new thermal oxidiser L-R Ross Stephenson – Shift Maintenance Superintendent, Jake Mackay – EI Apprentice, Anna Kepper – Trades Alumina Producer, Steven Herbst – Digestion Supervisor



The new unit (left) has 4 times the capacity of the old unit. The old unit will now be on standby, allowing the plant to have a thermal oxidiser operating and destroying some of the site's odour at all times.

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