



YEAR SUMMARY

For over 53 years Queensland Alumina Limited (QAL) has been producing alumina in Gladstone as one of the largest employers, generating billions of dollars of value for the Queensland economy.

While we have been steadily improving our environmental performance, we realise that to continue our legacy we need to be generating better environmental outcomes.

In 2018 we committed to a 5-Year Environmental Strategy (5YES) comprised of over 60 capital improvement projects and organisational culture change initiatives. The capital projects were developed to reduce short and long-term environmental risks in the areas of:

- **Air quality** (dust, odour and alkali) - emission and risk reduction
- **Water** - reduce the level of impact to waterways
- **Land** - reduce contamination to land
- **Noise** - engineering solutions to reduce noise.

2 years into the strategy we have completed over a third of the projects. Many are in the study or engineering phases with dozens more generating employment for locals through construction.

We initially estimated the investment to be up to \$260 million. Now that most of the 60 projects have been fully defined the program is estimated to see an investment of \$400 million.



What we have achieved so far...

\$60M



**Spent
to date**

\$40M



**Spent
locally**

20 of 60



**Projects
completed**

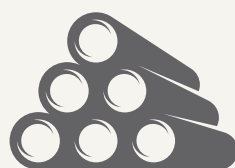
2,000



**Tonnes
of steel**

- Implemented Process Safety Management system (PSM) to add additional checks to prevent process incidents from occurring.
- Trialled odour destruction technology never used in alumina refineries (non-thermal plasma) on two odorous process tanks on site. Trial successful on one tank, now progressing to engineering for full scale application.
- \$3.3M new thermal oxidiser to destroy odorous gases – delivered safely from Victoria and commissioned Nov 2020.
- Three full time roles working on odour reduction options; two additional alternative technologies being explored.
- Works have commenced on replacing our caustic pipeline.
- Works commenced to replace red mud waste pipeline.
- Replacement and commissioning of new alumina transfer conveyor to BSL, eliminating dust emissions from this point.

22,000



**Metres of
pipe has
arrived on site**

The same distance if you were to drive from central Gladstone to Boyne Island.

**Over
10,000
hours**



3 full time roles
on odour
reduction projects

QAL and Xtreme Engineering team members installing the new thermal oxidiser. The thermal oxidiser destroys some of the plant's odorous gases. This will replace the old unit (shown behind), which will be brought online when the new unit is offline for maintenance. This ensures an odour destruction unit will be running 100% of the time.



Improving on our culture

QAL recognises that the culture of an organisation is a significant factor impacting the environmental performance of a business. While leadership commitment and governance structures are important to ensure that environmental improvement projects are effectively carried out, our environmental strategy will only succeed if we empower all of our teams to have due and proper consideration of environmental obligations and risks in their everyday tasks.

Redefining our site culture begins with our workforce having a greater understanding of the process safety aspects of our operation. The introduction of the Process

Safety Management system (PSM) has embedded this into the way we operate. Now in place for 18 months, this system puts checks and balances in place and appropriate accountabilities to prevent process incidents from occurring, protecting our people, the environment and our community.

We are continuing on the journey of empowering our people through improved leadership and communication. Our people are highly motivated to create improvement as they and their families live in the community and this has started many employee-driven environmental improvements in 2020.

What we have achieved so far...



93% of QAL employees feel able to make a difference in managing QAL's environmental impact.



70% of respondents had noticed an increased focus on how QAL manages its environmental impact



Supporting employees with a number of recycling initiatives, such as ear plugs, plastic lids, printer cartridges and containers for change, with the latter benefiting local charities.



23x major hazards being monitored and critical control tasks carried out under a Process Safety Management system.



Employees helping to create change by searching for environmentally sustainable alternatives. Our employee-driven team has so far eliminated styrofoam cups on site, implemented 'Who Gives a Crap' sustainable bamboo toilet paper and are currently looking for biodegradable options for other single-use consumables.

Employees conducting additional Process Safety Management (PSM) checks to ensure equipment safety.



Project progress

Polypipe

Polypipe to transfer filtered sea water at the Residue Disposal Area:

- \$3M+ worth of pipe (will cost another \$2.5M+ for installation)
- 10,000 metres of poly pipe, all Queensland made
- 480 lengths
- 1400 tonnes
- 1 metre diameter
- 100 truck loads



Oily water management facility

\$1.25M dedicated facility built to manage oily water, segregating this on site rather than transporting to an offsite facility. This also includes a dedicated vehicle wash bay to contain and manage any run off.

before



after



Tanks

\$20.2M remediation of 4 x caustic storage tanks. Complete rebuild including new bunds (external) and new flooring and lining (internal) to eliminate risk to surrounding environment and groundwater.



Drains

A lot of the site's drains and water run off points were either ripped out and completely rebuilt or refurbished.

before



after



Alkali

A project in Precipitation to reduce alkali emissions has worked well.

before



after



Conveyor Dust

New technology to reduce dust emissions from the transfer of alumina.

before



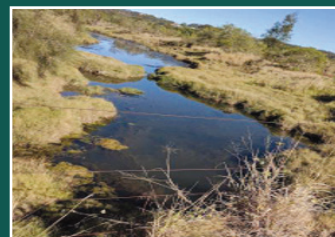
after



Stormwater Runoff

Installation of real-time water flow, level and quality monitoring instruments at runoff point

before



after



For more regular updates and project information, along with the full project implementation plan, please see our website

<http://www.qal.com.au/our-approach/environment.aspx>

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