



QUEENSLAND ALUMINA
LIMITED

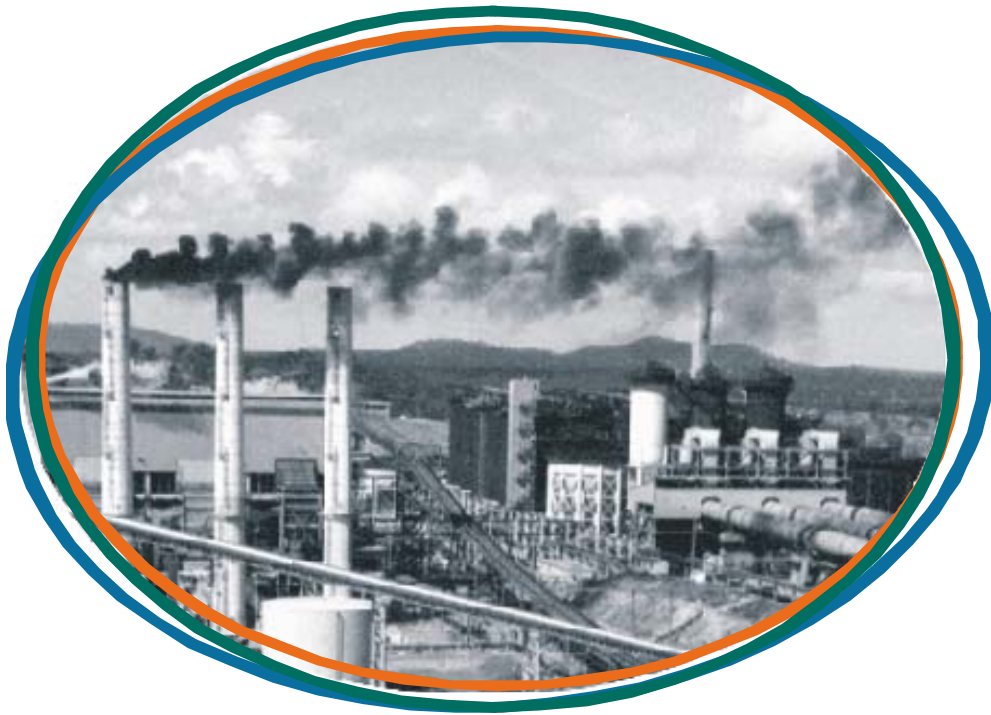


QAL Environmental Improvements 2001 -2011

SAFER. CLEANER. BETTER.



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Then

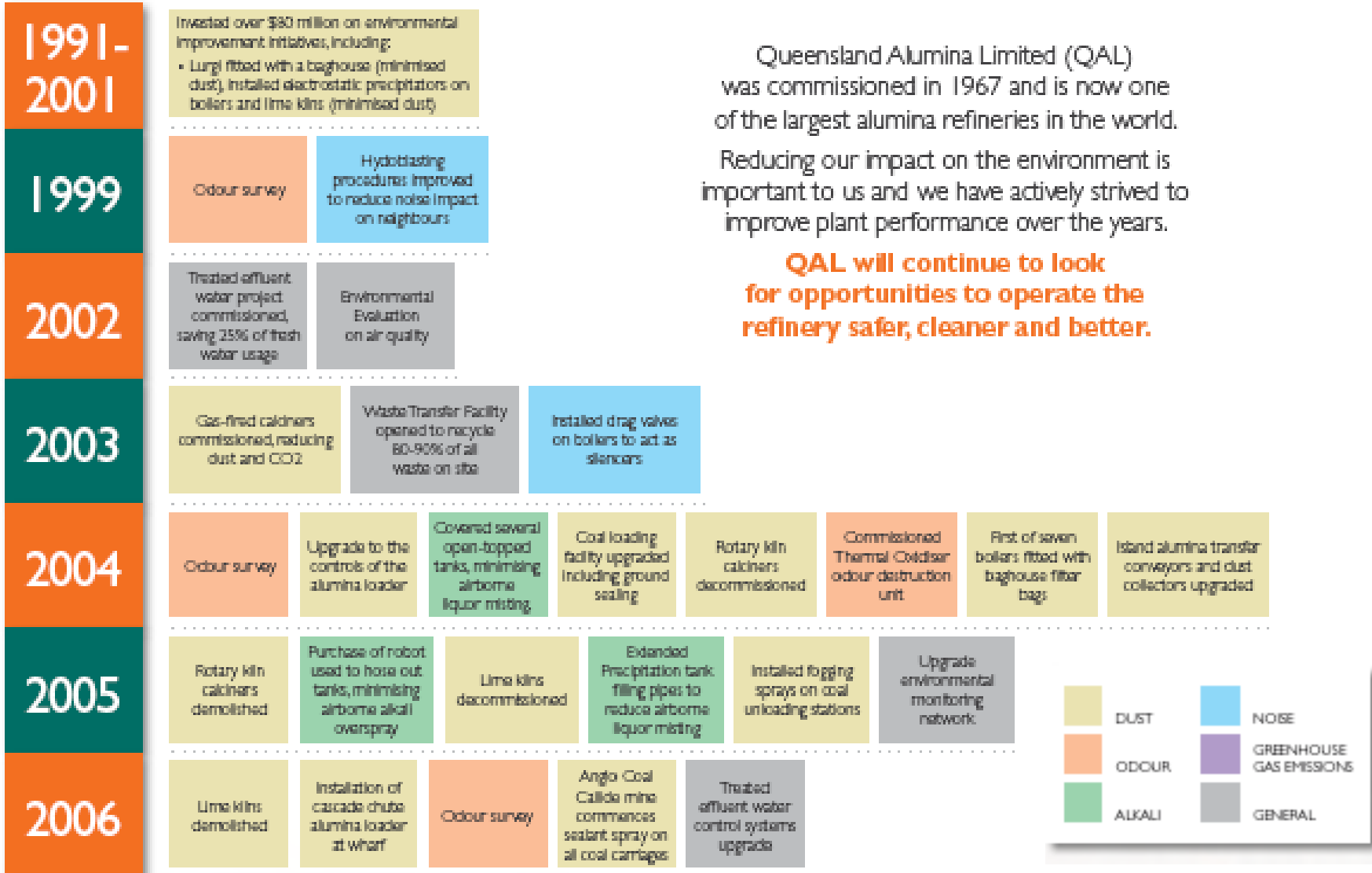


Now



QUEENSLAND ALUMINA LIMITED

Timeline of improvement projects







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DUST



DUST - CALCINERS



2004 - 2005 Rotary Kilns
decommissioned & demolished



85% reduction in mass of
particulates emitted

2003 - Gas Fired FFE
Calciners commissioned





DUST – BOILERHOUSE STACKS

2004 – 2007 all seven boilers fitted with baghouses





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DUST – Lime Kilns

2006 – Lime Kilns demolished





DUST – ALUMINA LOADER

2006 – Installation of cascade chute

2010 – Cascade chute upgraded with vacuum shroud





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DUST – COAL LOADING FACILITY UPGRADE 2004

- Fogging sprays installed on train unloader
- Installation of fixed and mobile sprays on coal stockpile
- Dust suppression systems at transfer points
- Ground sealed around coal silos





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ALKALI



ALKALI – CONCRETE PUMPING ARM 2010

- Trial of tank clean-out performed with a modified concrete pump arm
- Reduced alkali emissions by 98%
- Reduced noise (duration by 50% & level by 25%)
- Concrete pumping arm is now used for targeted hydroblasting minimising airborne spray



Old method



New method



ALKALI – TERTIARY TANK HOSE OUT



Old method



New method



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ODOUR



ODOUR – SURVEYS

- Odour Surveys were conducted in 1999, 2004 & 2006.
- Comprehensive surveys to identify significant sources of odour on site and implement odour improvement projects.
- Involved site and community surveys.
- Surveys have resulted in odour reduction projects.



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ODOUR – THERMAL OXIDISER 2004

- Thermal Oxidiser commissioned in 2004
- It burns odour producing gases at a high temperature and releases them as CO₂ and water.
- Odour emissions are reduced by 40%.
- In 2008 all 12 Evaporation trains were connected to the thermal oxidiser further capturing and destroying odour.
- In 2009 increased quench air to thermal oxidiser which improved system reliability.





ODOUR – DESTRATIFICATION UNITS AT RED MUD DAM 2007

- Two solar powered destratification units were installed at the Red Mud Dam.
- The purpose is to mix water layers and eliminate temperature inversions in the water body minimising odour generation.





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GENERAL



WATER – TREATED EFFLUENT 2002

- In partnership with the former Gladstone City Council, QAL undertook the State's largest water recycling plan by incorporating Gladstone City's treated effluent water into the final washing stage of the refining process.
- Project has reduced QAL's freshwater consumption by an estimated 2.5 gigalitres per year (the equivalent of 2500 Olympic sized pools).
- Currently constructing infrastructure to receive BITS treated effluent





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WASTE – WASTE TRANSFER FACILITY

- QAL Waste Transfer Facility opened in 2003.
- Purpose built, dedicated waste management facility for QAL's waste segregation.
- 2011 YTD 4,230 tonnes of recyclable waste have been processed by the Waste Transfer Facility and sent for recycling.





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REVEGETATION & LAND MANAGEMENT

- Since commencement of the revegetation program over 26,000 trees have been planted between QAL and the Barney Point community.
- Purpose has been to increase habitat values for native fauna, improve visual aesthetics and manage erosion and dust.





PROJECTS 2012 & BEYOND

- Potential construction of co-generation plant
- Continuation of the revegetation program
- Precipitation pump off pumps trial ongoing – aim to reduce alkali emissions from top filling tanks.
- Relief Tanks – odour from relief tanks are still a major source of odour – two external groups are currently looking at options to reduce odour.
- Alumina dust reduction projects



Dust

- Shiploading
 - Modification to Boom Door completed however not totally successful. Currently reviewing another modification.
- Island A frame Airslide Improvement
 - Design complete and currently being bid. Construction Q1 2012
- Wharf Alumina Transfer
 - Design being finalized with construction Q1/Q2 2012.



Alkali Emission

- Precipitation Pump off Pumps
 - Use of Wash Tanks as accumulation storage
 - Design complete
 - Tanks cleaned out and currently being inspected
 - Construction Q4 / Q1



GOING FORWARD

“QAL will continue to implement improvements to make the refinery safer, cleaner and better”