

environment improvement plan  
status report for quarter 2 2011



australia's aluminium

alcoa point henry

# contents



- key points** **3**
- environmental management** **4**
- environmental management..... 4
- air emissions management** **6**
- fluoride..... 6
- sulphur dioxide..... 8
- greenhouse gas & energy management.... 9
- particulates..... 12
- fume system management..... 13
- class 3 indicators..... 14
- water management** **15**
- water management..... 15
- waste management** **16**
- waste to landfill..... 16
- SPL and process by-products..... 16
- land management** **19**
- land management..... 19
- oil in groundwater..... 19

Status	Description
Complete	Project has been completed.
On Track	Project is on track (either in progress or ongoing in nature).
Overdue	Project has either not yet started, or running behind schedule.

# key points

## Environmental Management

Alcoa of Australia Limited's (Alcoa's) Point Henry Smelter maintained certification of its Environmental Management Systems to ISO14001 (2004) during 2010.

Alcoa Australia Rolled Products Pty Ltd's (Alcoa ARP's) rolling mill at Point Henry Environmental Management Systems was recertified to ISO14001 (2004) during 2010.

The Employee Suggestion Scheme has resulted in 208 suggestions being implemented related to environment and/or waste reduction since 2008.

The first reporting period for Alcoa and Alcoa ARP's Environment and Resource Efficiency Plans (EREP) Actions Plans has been completed. Alcoa's EREP saw greenhouse gas emissions reduced by 72,000 tonnes CO<sub>2</sub> e, energy reduced by 30,500 GJ and 6 ML of water saved. Alcoa ARP's EREP resulted in greenhouse gas emissions reduced by 8,900 tonnes CO<sub>2</sub> e, energy reduced by 35,000 GJ, 19 ML of water saved and solid inert waste reduced by 900 tonnes.

## Air Emissions Management

Point Henry recorded an environmental non-compliance in 2010 due to the A398 fume system not meeting a 99.7% operational availability requirement.

Full funding for the Sulphur Dioxide Ground Level Concentration Reduction project (\$AU45M) has been received from the Alcoa Executive Council. Project implementation is underway.

Full funding for the Greenmill Fume Collection and Treatment project (\$AU16M) has been received from the Alcoa Executive Council. Detailed design is completed and civil works and implementation has commenced, planning for completion in 2011.

Smelter greenhouse efficiency has improved each year since 2007 to a 2010 performance of 20.95 tCO<sub>2</sub> e/t Al. This is the best efficiency on record for Point Henry's operations. Energy efficiency teams have been formed to further focus on energy reductions.

Alcoa met its million tonne CO<sub>2</sub>e reduction challenge locally in 2008 and 2009, by reducing anode effect duration to record low levels. Alcoa Inc has reduced its PFC emissions by 2.55 million tonnes CO<sub>2</sub> e since 2005.

The use of high solid lacquers and coatings in Alcoa ARP has proven successful in reducing total emissions, including Class 3 emissions.

## Water Management

Total site water usage has decreased by 22% since 2000.

The Barwon Water and Alcoa partnership has continued since the 2009 launch of the "Water Secure Home" project funded in part by the Alcoa Water Conservation Fund. The partnership has launched an incentive based program for Alcoa employees to install water tanks. Total water savings as a result of the project are estimated at 34ML per year.

All urinals have been converted to waterless urinals, expected to save approximately 10ML per year.

Ingot Mill blow down optimisation is currently saving 0.05 ML per day.

## Waste Management

Alcoa was awarded Gold Wastewise certification by Sustainability Victoria for its waste management systems.

Regain Services Pty Ltd continues to be engaged by Alcoa to process spent pot lining (SPL) and other carbon based waste materials at its facility.

Significant reductions in Prescribed Industrial Waste have been achieved during the duration of this EIP. Point Henry Smelter has reduced PIW to landfill by 90%, and Alcoa ARP has reduced by 20% since 2008.

## Land Management

Alcoa and Greening Australia's *Moolapio* project won a Victorian Coastal Council award for Excellence for Coastal Planning and Management for its implementation of the *Moolapio* Land Management Plan. This adds to the United Nations (Australia) World Environment Day Award for best specific environmental initiative. Implementation of the land management plan continues.

**ENVIRONMENTAL MANAGEMENT**

Alcoa Point Henry's aim is to improve our environmental management processes. This will be demonstrated by improved audit results and a reduction in the number of environmental incidents.

**environmental management**

actions	status	comment
Undergo Integrated Audit.	Complete	Alcoa and ARP underwent an Integrated audit in May 2011. Both locations received a Good rating.
Undergo ISO14001 recertification audit of Environmental Management System.	Complete	Point Henry Smelter underwent a continuing assessment audit in Quarter 3, 2010. Certification was maintained with no non-conformances to the standard identified. Alcoa ARP's rolling mill underwent a re-certification audit in Quarter 4, 2010. Certification was maintained.
Continue focus on reporting of "Environmental Near Miss" incidents.	On Track	Alcoa and Alcoa ARP continue to encourage reporting of near-miss incidents. 189 near misses raised in 2008, 202 near misses reported in 2009 and 190 in 2010. 131 near misses raised so far in 2011.
Maintain environmental auditing process at Level 5 (Good)	On Track	Audits continue to be completed on schedule. Independent assessment of the location's systems by the Alcoa Audit Department rated the process "sustainable" which is equivalent to Level 5.
Utilise Employee Suggestion Scheme for Environment Improvement ideas.	On Track	In 2008, the employee suggestion scheme resulted in 195 environment or waste reduction related suggestions being made of which 82 have been accepted and 78 implemented (remainder were not accepted). In 2009, there have been 124 suggestions (related to waste or environment), 58 of these have been accepted and 51 implemented (remainder were not accepted). In 2010, there have been 189 suggestions (related to waste or environment), 101 of these have been accepted and 54 implemented (remainder were not accepted). In 2011 YTD, there have been 125 suggestions (related to waste or environment), 38 of these have been accepted and 25 implemented (remainder were not accepted).
Review EIP reporting mechanisms	Complete	EIP report developed in 2007 continues and can be found online.



## AIR EMISSIONS MANAGEMENT

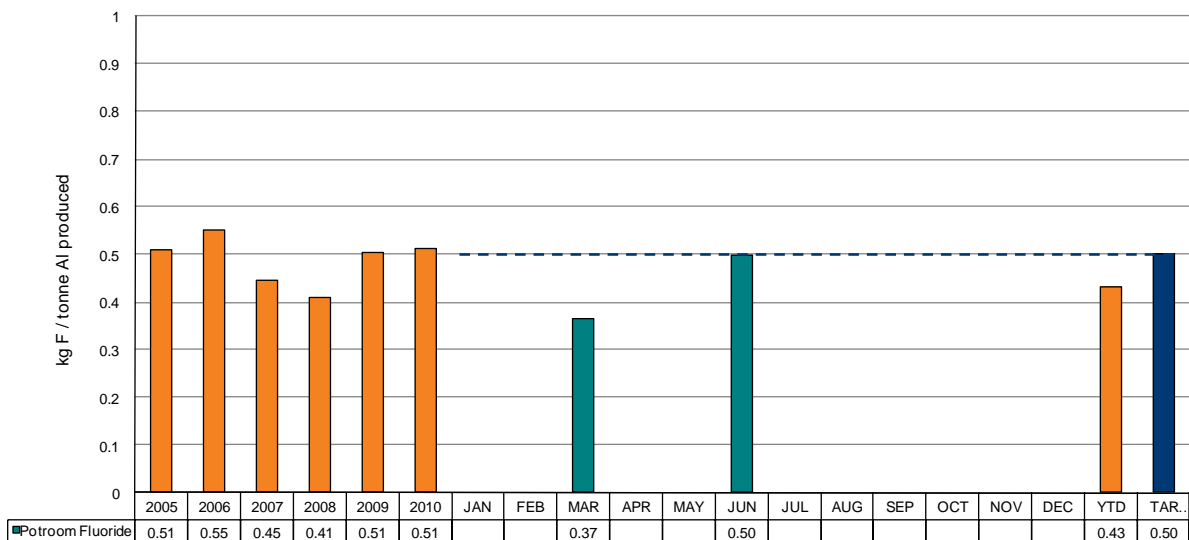
Alcoa Point Henry's aim is to reduce/maintain current air emission levels, including reducing Class 3 emissions to the maximum extent achievable.

### fluoride

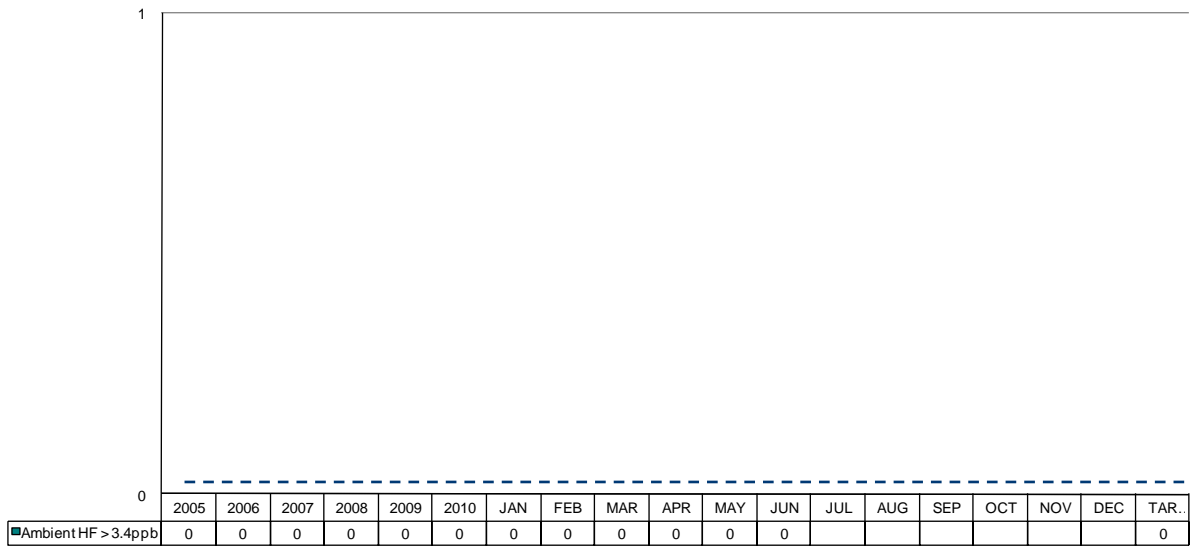
actions	status	comment
Continue vegetation surveys.	Complete	2010 vegetation health survey conducted with 152 sites inspected. Report indicates that impact is similar to 2009. Assessment planned for November 2011, with Professor Alan Davison undertaking assessment.
Continue using real time lasers to assist with monitoring fluoride levels.	On Track	Lasers continue to be used as a process tool in the pot rooms. A reaction plan that immediately sends SMS messages to supervisors when intervention is required has been implemented. Investigations into alarms are recorded. Laser trends are part of process standardised work.
Investigate feasibility of improved pot cover design.	Complete	Trial of new pot covers conducted but no improved sealing measured. Alternate pot cover design received, but currently no plan to progress purchase and implementation.
Continued auditing of anode covering, conformance to standard work instructions for tasks and pot cover condition and placement.	On Track	Audits are a standard work practice for area supervision and auditors.
Assess the feasibility of rod seals	Complete	Trial indicated that further fluoride reductions may be possible with the use of rod seals. No further progress on this initiative planned.
Investigate modifying fume dampers to reduce damage.	Complete	Alcoa completed a program to modify fume dampers. Dampers are now inspected to ensure they are in good working order as pot superstructures are returned from refurbishment.

### targets

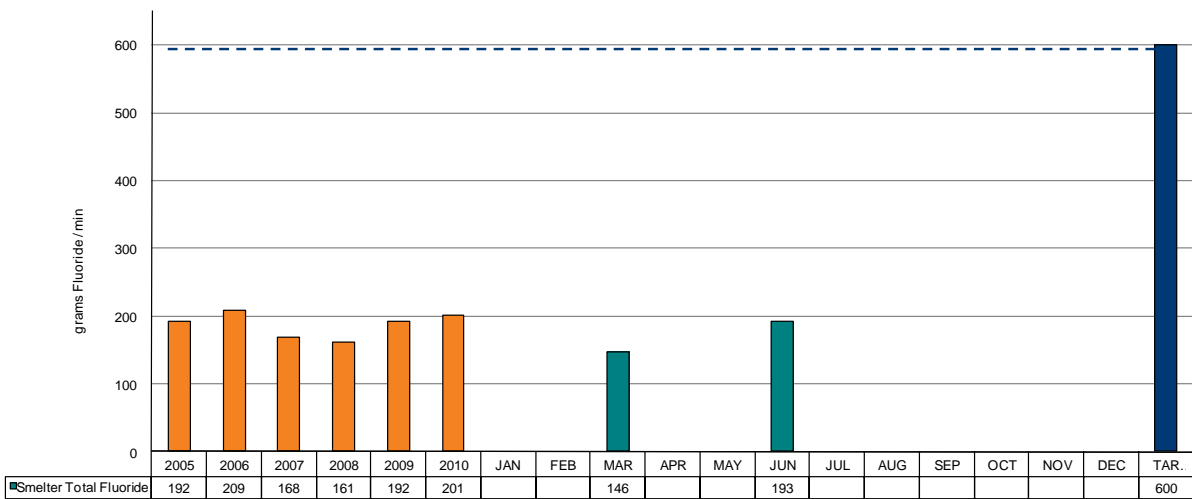
Aim to achieve a Quarterly total fluoride of less than 0.55 kgF/t Al



**Aim to achieve Ambient HF less than 3.4ppb for 24 hourly averaged data at the Pt Henry Ambient Air Monitoring Station.**



**Compliance with site fluoride emission limit of 600 g/min.**



**AIR EMISSIONS MANAGEMENT**

Alcoa Point Henry's aim is to reduce/maintain current air emission levels, including reducing Class 3 emissions to the maximum extent achievable.

**sulphur dioxide**

actions	status	comment
Continue to purchase and use the lowest sulphur petroleum coke, subject to satisfactory cost, suitability and availability.	On Track	Low sulphur coke continues to be sourced.
Seek all necessary external stakeholder approvals for the tall stack project in 2009.	Complete	Confirmation that a works approval is not required for this project was sought from the EPA in December 2008 and that confirmation was received in February 2009. This followed consultation with employees, unions, community advisory board (CAB), EPA, local neighbours, CASA, and local and state politicians. CASA and City of Geelong approvals also received.
Progress detailed engineering of the tall stacks project during 2009	Complete	Detailed engineering was completed in Quarter 1, 2010.
Subject to obtaining all necessary external stakeholder approvals, seek all necessary Alcoa internal approvals for the tall stacks project in 2009.	Complete	Full funds for project implementation was approved in Quarter 2, 2010.
Once all necessary approvals are obtained, implement tall stacks project with the objective of having the project complete in 2012 in order to ensure compliance with SEPP (AAQ) objectives.	On Track	Project is in implementation phase.

**targets**

Ensure compliance with SEPP (AAQ) objectives.

**AIR EMISSIONS MANAGEMENT**

Alcoa Point Henry's aim is to reduce/maintain current air emission levels, including reducing Class 3 emissions to the maximum extent achievable.

**greenhouse gas & energy management**

actions	status	comment
Complete energy audit in accordance with the Energy Efficiencies Opportunities Act.	Complete	Energy efficiency teams visited Alcoa and Alcoa ARP during May 2008 to conduct an energy audit. An audit report was provided that identified improvement opportunities against the requirements of the Act. These improvement opportunities have been addressed and the focus of the location energy team is now to identify and implement reduction opportunities.
Register and meet other Energy Resource and Efficiency Plan (EREP) requirements.	Complete	Registration and submission of plans has been completed. Alcoa and Alcoa ARP are now in the implementation and reporting phase. Refer key points for achievements.
Continue reporting of GHG emissions to the EPA and the community advisory board.	On Track	GHG emission data is a standard part of the EIP status report and smelter environment report. 2008 smelter emissions = 4.05Mt CO <sub>2</sub> e at an efficiency of 21.04 tCO <sub>2</sub> e/tAl. 2009 smelter emissions = 4.01 Mt CO <sub>2</sub> e at an efficiency of 21.00 tCO <sub>2</sub> /tAl. 2010 smelter emissions = 4.01 Mt CO <sub>2</sub> e at an efficiency of 20.95 tCO <sub>2</sub> /tAl. 2011 YTD smelter emissions = 2.00 Mt CO <sub>2</sub> e at an efficiency of 20.98 tCO <sub>2</sub> /tAl.
Continue to seek energy efficiency opportunities as part of daily smelting and fabricating operations.	On Track	An energy team has been formed and its charter incorporates investigation of efficiency improvements. A Best Practice Kaizen event on energy management and measurement is planned for Q3, 2011.
Participate in Alcoa one million tonne CO <sub>2</sub> e reduction challenge.	On Track	Alcoa locally met its million tonne challenge target in 2008 and 2009. The 2010 target was lowered as a result. Alcoa Inc has reduced its PFC CO <sub>2</sub> e emissions by 2.55 million tonnes since 2005 as a result of the million tonne challenge program.
Continue implementation of Make an Impact program.	On Track	Make an Impact (MAI) program is ongoing. Workshops on water savings and solar energy opportunities have been run, with employees reengaged during Month of Service to recalculate their carbon footprint. MAI has been rolled out globally within Alcoa, and also transferred outside of Alcoa with Barwon Water as a community partner who is rolling out the program to its employees. A MAI toolkit was launched at Moolap Primary School, and has been distributed to a further 9 schools.
Continued GHG Challenge Plus program membership, initiatives participation and reporting	On Track	Ongoing with GHG data now reported as per NGER's requirements.
Progressively replace mercury vapour lighting with 400w metal halide to reduce lighting energy	On Track	Replacement program is ongoing.
Replacement of PreHeat furnace 3 ceiling to further improve energy efficiency and reduce natural gas usage.	Complete	The rebuild of PreHeat 3 is on hold due to production downturns, which has meant that this furnace has been taken out of service. This action will be reviewed if production increases and this furnace is placed back in service.

**AIR EMISSIONS MANAGEMENT**

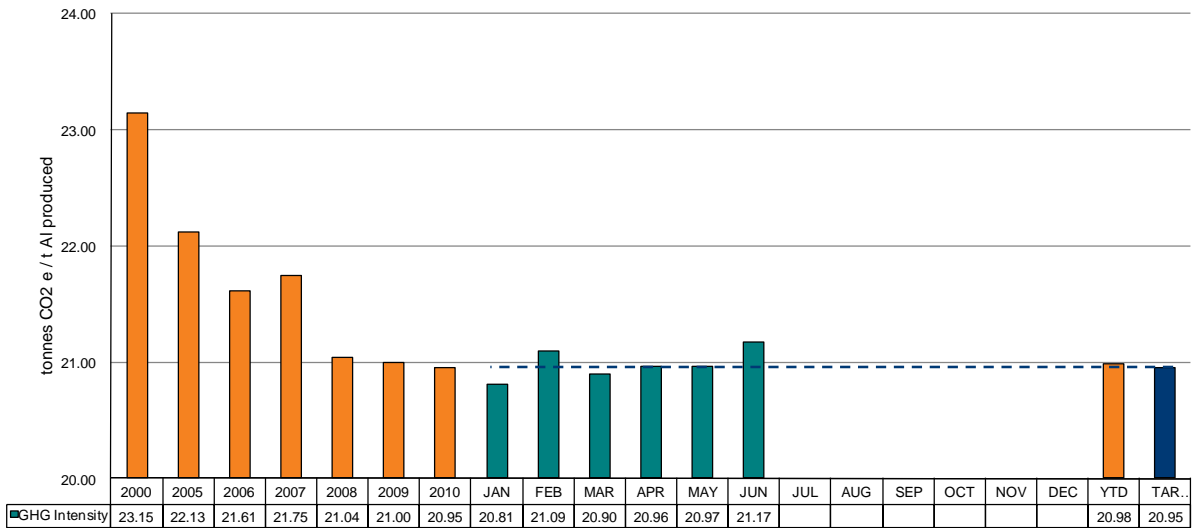
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**greenhouse gas & energy management**

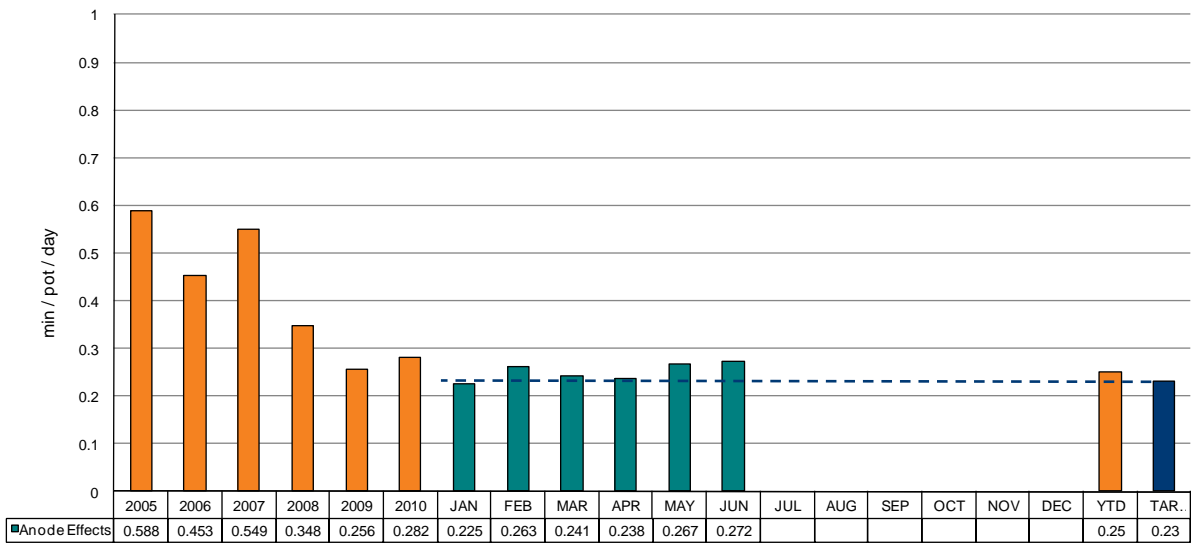
actions	status	comment
Planned DC 2 Capacity increase will utilise the latest worldwide technology and will reduce the usage of natural gas and oxides of Nitrogen emission (NOx).	Complete	Installation is complete and the facility is in production.
Investigate lowering of the L.E.L. (lower explosion limit) levels and the incorporation of online monitoring to improve CCL oven control and reduce overall energy consumption. To be progressed in line with planned CCL capacity increase.	On Track	The LEL instrumentation has been installed and is currently being optimised.

targets

■ Maintain or improve total greenhouse efficiency (tCO<sub>2</sub>e/t Al)



■ Aim to achieve Anode Effects < 0.36min/pot/day



■ Reduce Natural Gas and Energy Use (Alcoa ARP)


**AIR EMISSIONS MANAGEMENT**

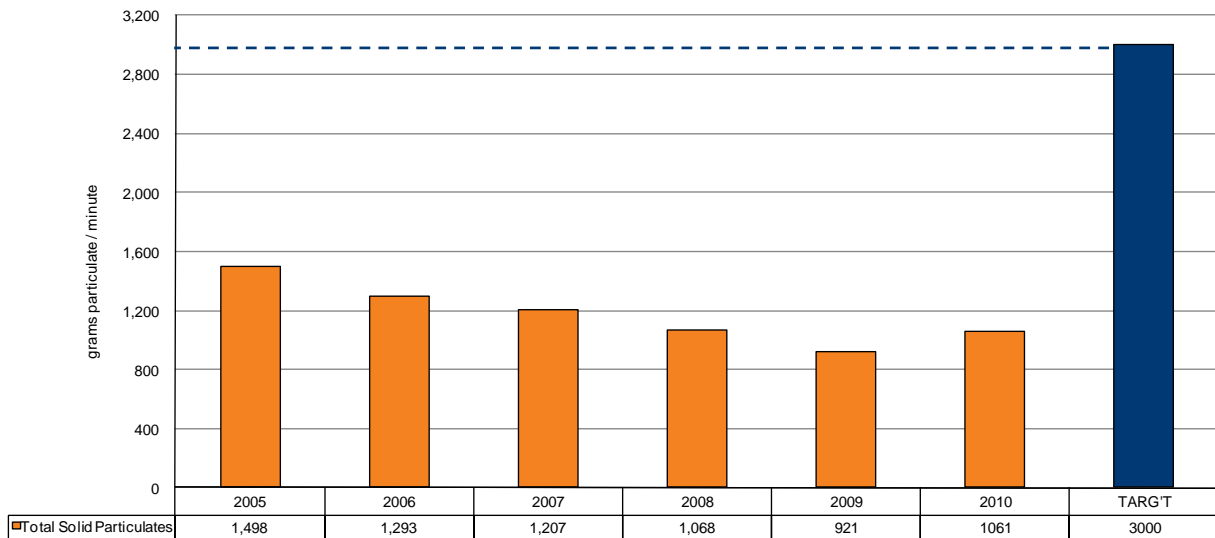
Alcoa Point Henry's aim is to reduce/maintain current air emission levels, including reducing Class 3 emissions to the maximum extent achievable.

**particulates**

actions	status	comment
Continue ambient particulate monitoring program and review and report results.	Complete	Program completed through 2008. Results show compliance with SEPP objectives. Program reviewed and completed in 2009.
Investigate opportunities to reduce alumina leaks in pot rooms.	On Track	A new design for dense phase lids has been trialled and found to be successful. These are being progressively installed.

**targets**

 Compliance with site particulate emission limit of 3000 g/min.



**AIR EMISSIONS MANAGEMENT**

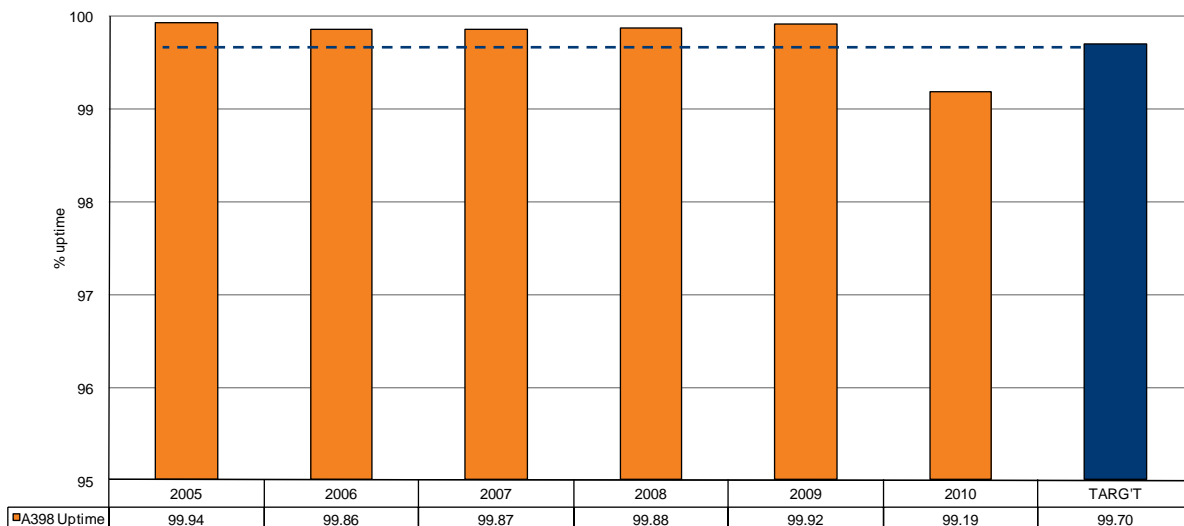
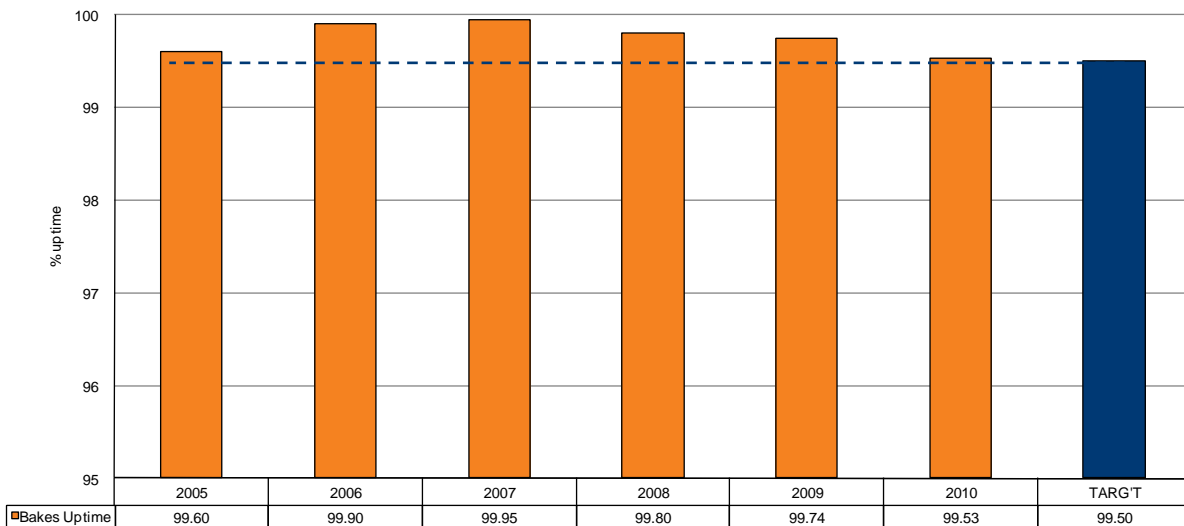
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**fume system management**

actions	status	comment
Maintain fume systems to ensure maximum reliability – Carbon Bake.	On Track	All bypass events associated with the commissioning of the 2008 carbon bakes sustainability project were reported on the Alcoa website in accordance with the approval granted by the EPA pursuant to section 30A of the Environment Protection Act (Vic).  The Carbon bake scrubber availability met target in 2008 - 2010. 2010 availability was 99.5%
Maintain fume systems to ensure maximum reliability – A398 Fume System.	On Track	The A398 Fume System availability met target in 2008 and 2009.  2010 availability was 99.2% and was impacted by operational issues with the Line 1 fume system.

**targets**

Ensure compliance within the sites uptime conditions for Carbon Bake and A398 reactors.



**AIR EMISSIONS MANAGEMENT**

Alcoa Point Henry's aim is to reduce/maintain current air emission levels, including reducing Class 3 emissions to the maximum extent achievable.

**class 3 indicators**

actions	status	comment
Following the completion of the preliminary engineering phase in 2007 into a Greenmill Fume Collection and Treatment system, now seeking funding approval to progress the detailed engineering phase and complete design work and project execution planning during 2008 in preparation to enable seeking full implementation funding approval during 2009.	Complete	Detailed engineering phase for Greenmill Fume Collection and Treatment system is complete. Confirmation that a works approval is not required for this project has been received from the EPA. Full funds for implementation of this project has been received. Civil work has been completed and project construction is progressing
Continue VOC and PAH monitoring and reporting.	On Track	Monitoring events completed as per schedule.
Develop proposed EPA licence limits for PAH, Benzo(a)Pyrene, VOC's and Benzene for next licence renewal.	Complete	Monitoring data has been statistically reviewed to develop proposed future licence limits.
Evaluate environmental improvement gained by Carbon Bakes Sustainability Project.	Complete	Commissioning monitoring after the Carbon Bake Scrubber rebuild shows a 98% reduction in PAH & CTPV emissions, a 90% reduction in VOC's, a 70% reduction in CO, no particulates detected and significant decreases in metal emission concentrations.
Trial to be undertaken at Coil Coating Line to evaluate the use of high solids lacquers & coatings to reduce total emissions including Class 3 Indicators	Complete	High solid coating now in full production. Currently working with domestic customers to trial water based coatings with their products.
Finalise commissioning of Coil Preparation Line Wet Scrubber and continue monitoring and reporting Class 3 Indicators	Complete	Wet Scrubber is commissioned and in use. Emission testing is performed annually

**targets**

Reduce class 3 emissions to the maximum extent achievable

*Note : Class 3 emission reduction projects are progressing, but not complete*



**WASTE MANAGEMENT**

Alcoa's aim is to reduce waste to landfill and reduce the production of waste by our processes.


**waste to landfill**

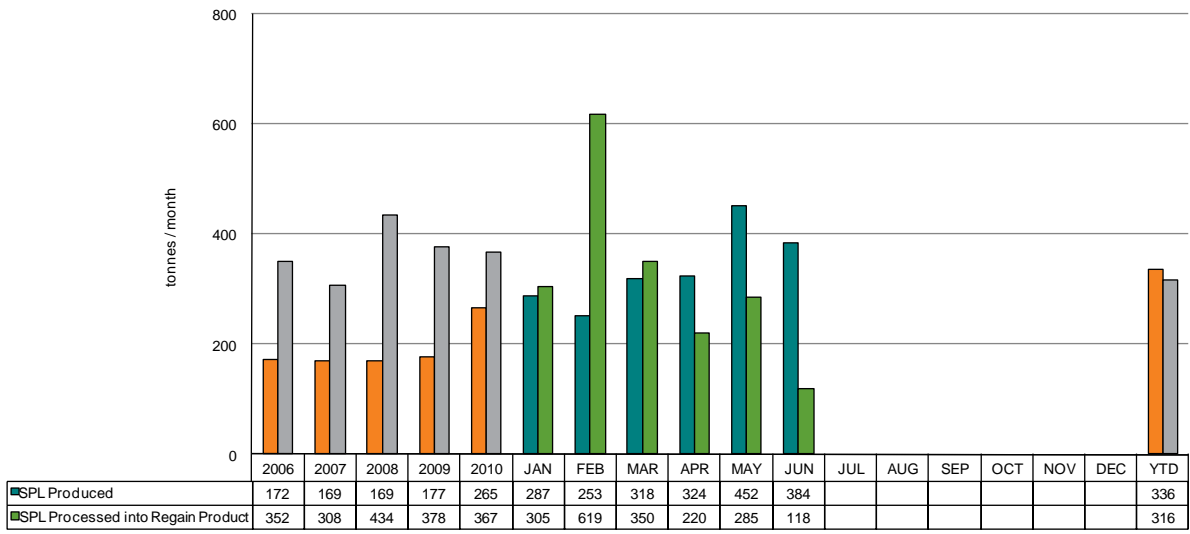
actions	status	comment
Review and update of existing waste management system	On Track	Review of waste system is ongoing. Waste to landfill was analysed as part of a smelter manufacturing analysis and some opportunities were identified for further assessment.  Alcoa was awarded Gold Wastewise certification for its waste management systems.  Improved lunchroom waste segregation system has been implemented.
Continue to look for opportunities for waste to landfill reductions.	On Track	Pt Henry Smelter reduced PIW to landfill by 75% in 2009 from 2008. A further 60% reduction was achieved in 2010 from 2009.  Seamix is now recycled into anode production, diverting 40 tonnes from landfill per annum.  An increase in general waste has occurred primarily from the focus on housekeeping throughout the plant.
Continue to discuss with third parties regarding landfill material recovery and rehabilitation.	On Track	Regular meetings are scheduled to track this item.
Investigate opportunities to be involved in solid waste management processes for the region, as being coordinated by Barwon Regional Waste Management Group.	Complete	Alcoa continues to discuss waste recycling options with COGG and BRWMG as part of this project.
Investigate the feasibility of drying Coil Preparation Line Filtercake	On Track	Engineers continue to review available technologies.
Continue trials for re-use of Diatomaceous earth as a fuel in cement kilns vs landfill	On Track	Trials have been successful. Discussions with waste contractors continue.
Initiate trials with external consultant to reduce DAF sludge	On Track	Initial trial has been completed. Project currently on hold.
Further dross reductions through Kaizens and Dross Management system improvements	On Track	Ongoing
Investigate feasibility of a fully closed loop system for dross processing through Kempe engineering.	On Track	Project currently on hold.
DC 2 capacity upgrade is expected to reduce waste refractory generation – Project pending business review.	On Track	Installation is complete and facility into production. Optimisation is underway. Refractory generation is monitored.
Investigate recycling of waste refractory.	On Track	Bricks are currently recycled. Investigation into furnace refractory recycling to be looked at with the Regain Process.

**SPL and process byproducts**

actions	status	comment
Process annual arisings of SPL and other carbon materials, and progressively process backlog of materials.	On Track	Alcoa continues to engage Regain Services Pty Ltd to process SPL and other carbon based by-products into alternative fuel for cement industry at its facility.  In 2009, 2124 tonnes of SPL was produced at Point Henry and Regain Services processed 4551 tonnes of Point Henry SPL.  2010 has seen Point Henry produce 3,184 tonnes of SPL and Regain Services have processed 4,400 tonnes of Point Henry SPL.  2011 YTD has seen Point Henry produce 2,018 tonnes of SPL and Regain Services have processed 1,898 tonnes of Point Henry SPL.



 Convert annual SPL arisings into alternative fuel.



**LAND MANAGEMENT**

Alcoa's aim is to cooperatively manage its land to achieve the best environmental, social outcome possible.



**land management**

actions	status	comment
Provide regular updates in the work completed and scheduled from the Land Management Plan.	On Track	Partnership continues with Greening Australia and regular updates provided to CAB during 2008 to 2010.  Funding for the next 3 year phase of Moolapio has been approved, which will extend the project to 2014.

**oil in groundwater**

actions	status	comment
Confirm management strategies have eliminated potential further hydrocarbon contamination	On Track	An independent accredited auditor has been appointed by Alcoa and to conduct further investigation. A report is expected in early 2011.  Monitoring programs continue.
Monitor groundwater plume annually	On Track	Installation of nine new monitoring wells completed in 2008.  Annual monitoring continues.  5 new additional wells were installed in 2010 to further delineate the plume.  Improvements to management programs are ongoing
Confirm underground pipe work integrity via inspections or leak tests.	On Track	Inspections and tests completed that confirmed the integrity of the underground pipe work

**targets**

-  Continue to progress Land Management Plan
-  Proactively manage issue to minimise impact



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