



cultural revolution

Work continues on Alcoa Anglesea's Cultural Heritage Management Plan

alcoa anglesea

environment report

december

2009



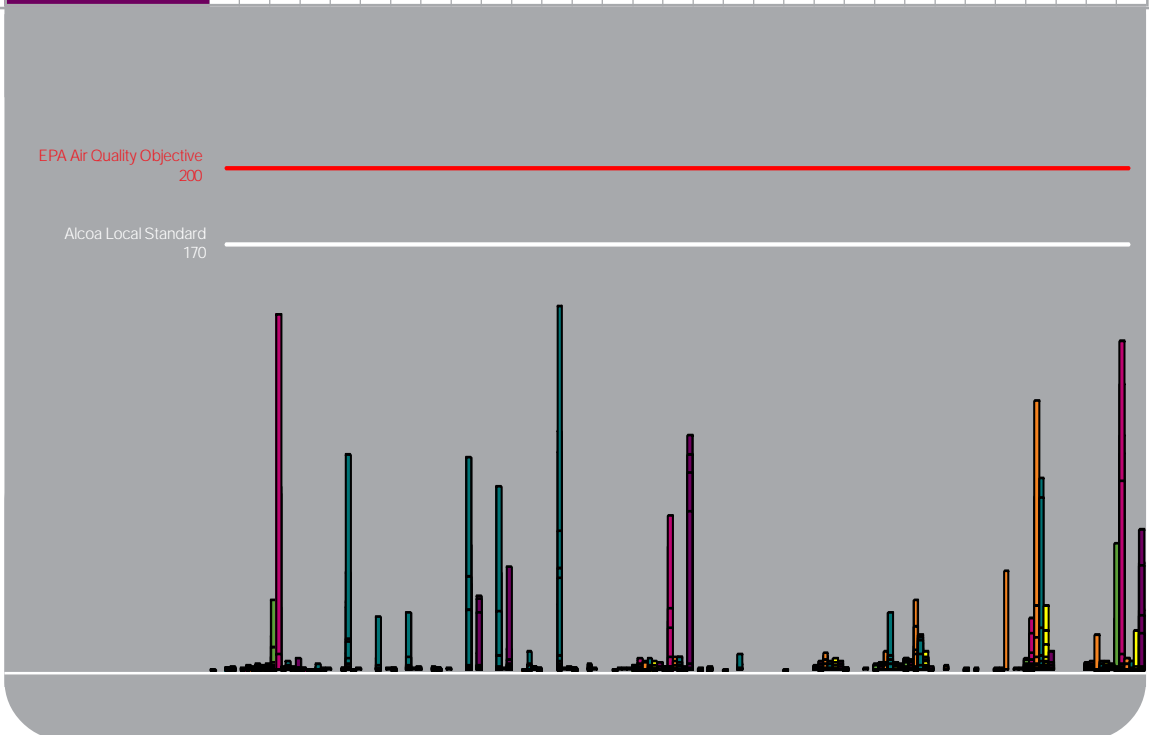
australia's aluminium

# air

Air Monitoring	Average	Maximum
Stack Monitors		
Opacity g/m <sup>3</sup> 10-minute average	0.054	0.222
Stack SO <sub>2</sub> kg/min 1-hour average Licence limit 100kg/min	63.35	77.32

Ambient Monitors	Average	Maximum
SO <sub>2</sub> 1 hour ppb		
Community Centre	1	50
Primary School	1	142
Mt Ingoldsby	1	107
Scout Camp	3	145
Camp Wilkin	1	25
Camp Road	2	94

Ambient Monitors																															
SO <sub>2</sub> Maximum 1 hour averages (ppb)																															
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Community Centre	0	0	28	0	0	0	1	0	0	0	0	0	0	0	2	1	0	0	0	0	2	0	2	4	0	0	1	5	0	3	50
Primary School	0	2	142	0	0	0	0	0	0	0	0	0	0	4	62	0	0	0	0	4	0	3	4	0	0	0	20	0	3	131	
Mt Ingoldsby	0	1	1	0	0	0	1	0	0	1	0	0	0	3	5	0	0	0	0	7	0	7	28	1	1	39	107	0	14	5	
Scout Camp	0	2	3	2	86	21	22	0	85	73	7	145	2	0	4	5	1	6	0	0	3	0	23	14	0	0	0	77	0	3	3
Camp Wilkin	1	2	1	1	0	0	1	0	0	1	1	1	1	1	4	1	0	0	0	1	4	1	3	7	0	0	1	25	0	3	16
Camp Road	0	2	4	1	1	1	1	1	30	41	0	1	0	1	3	94	0	0	0	0	3	0	2	1	0	0	1	7	0	2	56



# water



## Water Storage

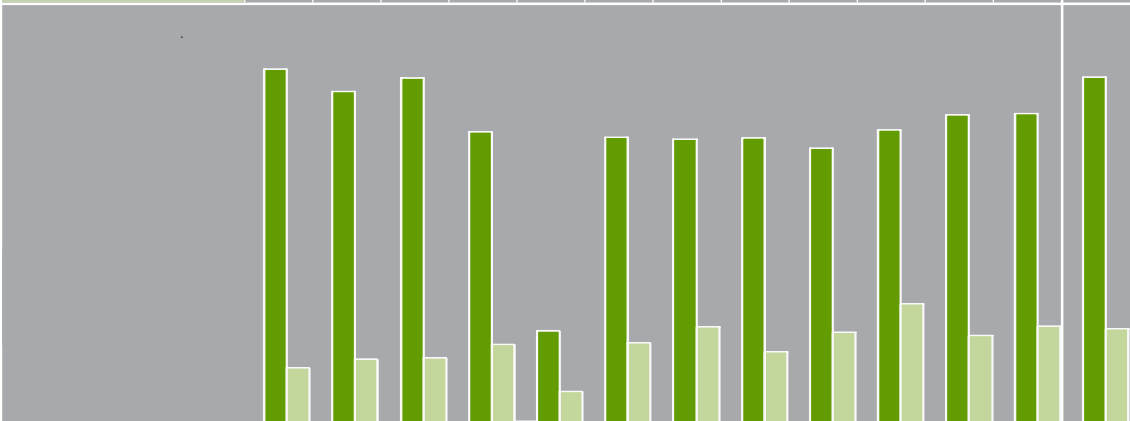
Barwon Water storage levels for the Geelong system at 34.7% capacity. Stage 4 restrictions apply with a Daylight Savings exemption to permit limited residential garden watering.

Water Discharge	December	Total
ML		
Ashponds (SP1)	153	1613
Mine (SP4)	0	0

Water Monitoring 09/12/2009	SP1 Ashpond		SP4 Mine		SP3 Final	
	EPA limit	Lab Result	EPA limit	Lab Result	EPA limit	Lab Result
pH	4-10	7.3	3-9	no	5-9	7.2
Susp. Solids	100	< 4	100	discharge	30	< 4
Colour	50	4	50	at	50	4
Aluminium	10	0.30	10	time	5.5	0.23
Iron	10	0.28	20	of	4.0	0.10
Zinc	0.4	0.14	2.0	sampling	0.30	0.020

## WATER WATER USAGE PER MONTH (ML)

Date	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Town Water	2.5	1.0	1.5	1.5	2.9	1.6	0.6	1.1	1.4	0.7	0.6	0.8	<b>16.2</b>
Bore Water	288	270	281	237	76	233	231	232	224	239	251	252	<b>2814</b>
Mine Water	46	53	54	65	27	66	79	59	75	98	72	80	<b>774</b>



## cultural heritage management plan



New Victorian Government Aboriginal Heritage Regulations came into effect in 2007, which have changed the way in which Alcoa Anglesea approaches cultural heritage. In order to proceed with any vegetation clearing and mining in the future, we need to have an approved Cultural Heritage Management Plan (CHMP).

The *Wada wurrung* clan are the traditional owners of this land. Their territory extends along the coast from Painkalac Ck at Airey's Inlet to the Werribee River and north as far as Mt Emu Creek. There are few direct historic accounts of Aboriginal people for the Anglesea area. In the absence of this information, archaeological sites and materials are often the only means of gathering information about the aboriginal past.

Alcoa Anglesea values the relationship and engagement we have with the traditional owners of the land we now mine. Previously, Alcoa Anglesea had worked hard to establish a Memorandum of Understanding (MOU) with the Wathaurong Co-operative. However, the new legislation has legally invalidated this MOU. We are now required to enlist the assistance of a government approved Cultural Heritage Advisor and work in conjunction with a Registered Aboriginal Party (RAP).

The newly appointed RAP for our area is the Wathaurung Aboriginal Corporation. Although the name is similar, this is a different group to the one with which we held the MOU.

A walk through survey was conducted in early December to assess the presence of any cultural heritage items. Despite horrendous weather, several stone artefacts were found on the soil surface and documented.

Our Cultural Heritage Advisor and two representatives from the RAP returned a few weeks later to conduct a week of sub-surface testing. This involved the digging of many pits and sieving all dirt removed from the pit. This is done to ascertain the presence of any artefacts below the ground surface. However, after much digging and sieving, no sub-surface artefacts were found.

The CHMP will be written up by our Cultural Heritage Advisor over the next few weeks and then reviewed by the Wathaurung Aboriginal Corporation shortly thereafter.

Once Alcoa Anglesea has received the approved plan, we are able to begin vegetation clearing and continue the progression of the current mine pit.

### PLANT OF THE ANGLESEA HEATH

#### SCENTED PAPERBARK (*Melaleuca squarrosa*)

*Melaleuca*...from Greek *melas*; black and *leukos*; white, referring to black marks on the white trunks of some species due to fire

*squarrosa*... having scales or scale-like overlapping leaves, referring to the shape of the leaf

Size: 2 - 5m H x 1- 2 m W

Form: erect, open to compact large shrub or rarely, a small tree to 10m high

Foliage: stiff dark green ovate to triangular leaves to 18mm long; crowded in pairs and distinctly decussate (each pair at right angles to the pair below)

Flowers: profuse terminal spikes of scented cream to yellow flowers

September to February

Habitat: damp and valley sclerophyll forests, swamp and wattle tea-tree scrub; must be in moist to wet soils

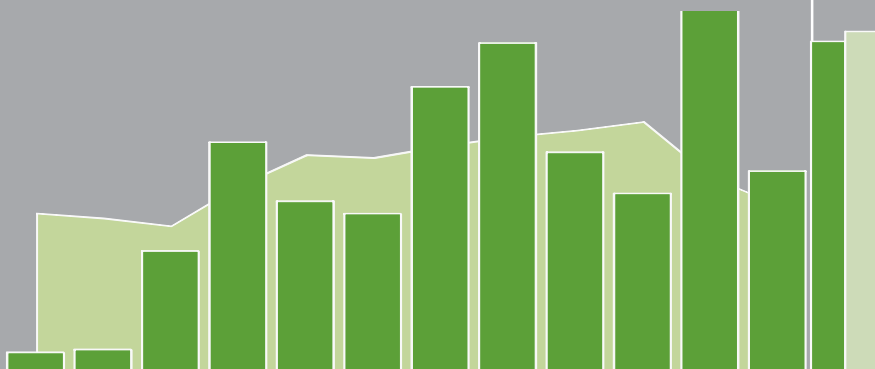
### MELALEUCA SQUARROSA



LAND

RAINFALL (mm)

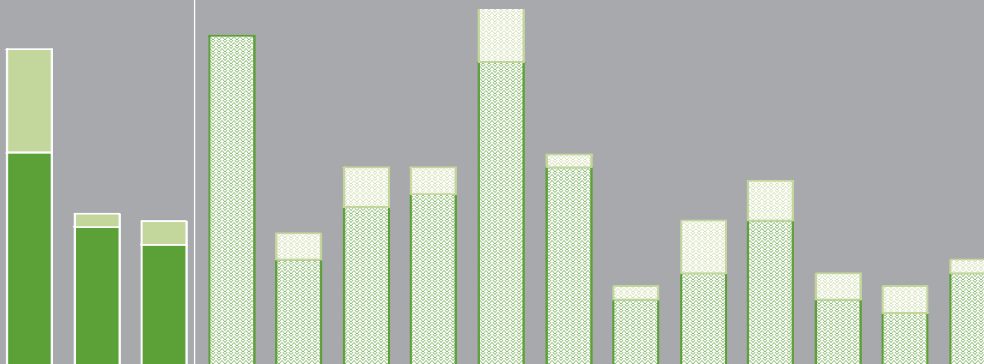
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2009 Rainfall	5.0	5.8	33.4	63.8	47.2	43.8	79.2	91.6	61.0	49.4	105.8	55.8	<b>641.8</b>
1968-2008 Average	43.9	42.5	40.4	51.6	60.2	59.5	62.6	65.2	67.0	69.4	53.9	46.1	<b>662.3</b>



WATER

TOWN WATER USE (ML)

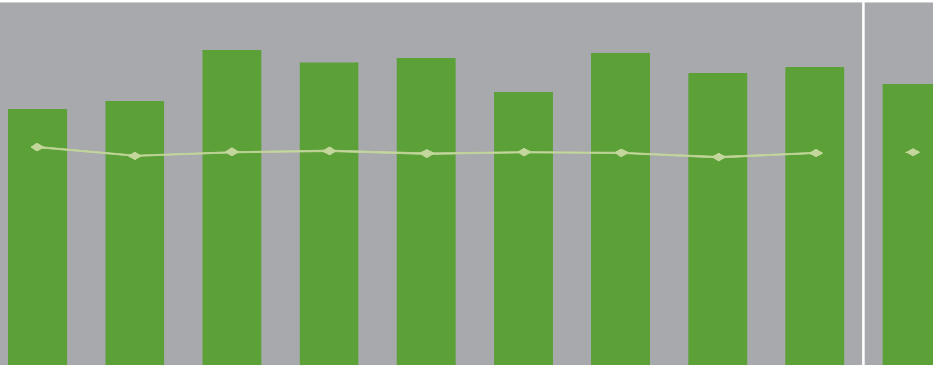
	2000	2008	2009	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	15.5	<b>13.5</b>	2.5	0.8	1.2	1.3	2.3	1.5	0.5	0.7	1.1	0.5	0.4	0.7
Amenity	11.6	1.5	<b>2.7</b>	0.0	0.2	0.3	0.2	0.6	0.1	0.1	0.4	0.3	0.2	0.2	0.1



AIR

GREENHOUSE GAS (GHG) TOTAL (Mt) & GHG EMISSION EFFICIENCY (t/MWh)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GHG Mt	1.23	1.27	1.50	1.45	1.47	1.31	1.49	1.40	1.42	<b>1.35</b>
◆ GHG t/MWh	1.24	1.19	1.21	1.21	1.20	1.21	1.20	1.18	1.20	<b>1.21</b>



## environmental improvement

Environmental Management Targets	December	2009 Total	2009 Target
Reportable Environmental Incidents	0	1	0
Env Near Miss vs Env Incident Run Rate (ratio)	6	2.8	2.5
Monthly EHS ASAT Audit Completion (%)	100	95	90

Air Emission Targets	December	2009 Total	2009 Target
Ambient SO <sub>2</sub> (no. readings > 200ppb)	0	2	0
Stack SO <sub>2</sub> (no. hrs > 100kg/min)	0	0	0
SO <sub>2</sub> Load Reductions (lost MWh)	2369	34996	N/A
GHG Efficiency (t CO <sub>2</sub> e/MWh)	1.19	1.21	1.20
Opacity (10 min av > 0.25g/m <sup>3</sup> normal operation)	0	0	0

Water Targets	December	2009 Total	2009 Target
Town Water (ML)	0.8	16.2	14.2
Bore Water (ML)	252	2814	4000

Waste Targets	December	2009 Total	2009 Target
Waste to Landfill (t)	0.0	11.64	8.0
Solid Prescribed Waste to Landfill (t)	0.0	0.0	0.0

Mine Rehabilitation Targets	2009 Total	2009 Target
2009 Area to Clear (ha)	0.245	0.0
2009 Area to Rehabilitate (ha)	0.658	0.0

### OUR ENVIRONMENT AND OUR EMPLOYEEE

**Hi Nick. I understand that some of your work in 2009 involved the development of an alternate haul road. Why was this done?**

This was done to enable the 2010 rehabilitation program to fill in the gully at the entrance to the mine where coal had been previously hauled. This would also optimise the coal hauling distance as the coal reserves are now located to the north.

**What will happen to the old haul road?**

The main part of the old haul road will be left in tact and used as an overburden haul road in the near future as we fill in the entry to the mine. The decommissioned section was stripped of its crushed rock, which was recycled and used on other haul roads and the remainder stockpiled.

**What environmental considerations have you had to take into account during this work?**

The main environmental considerations included setting up for the 2010 rehabilitation season, drainage of the haul roads and dealing with the associated rainwater runoff.

**Thanks Nick!**

...NICK BROCKMAN

