



SO₂ achievement
Anglesea ends 2008 without an exceedance in SO₂

alcoa anglesea

environment report

2008
december



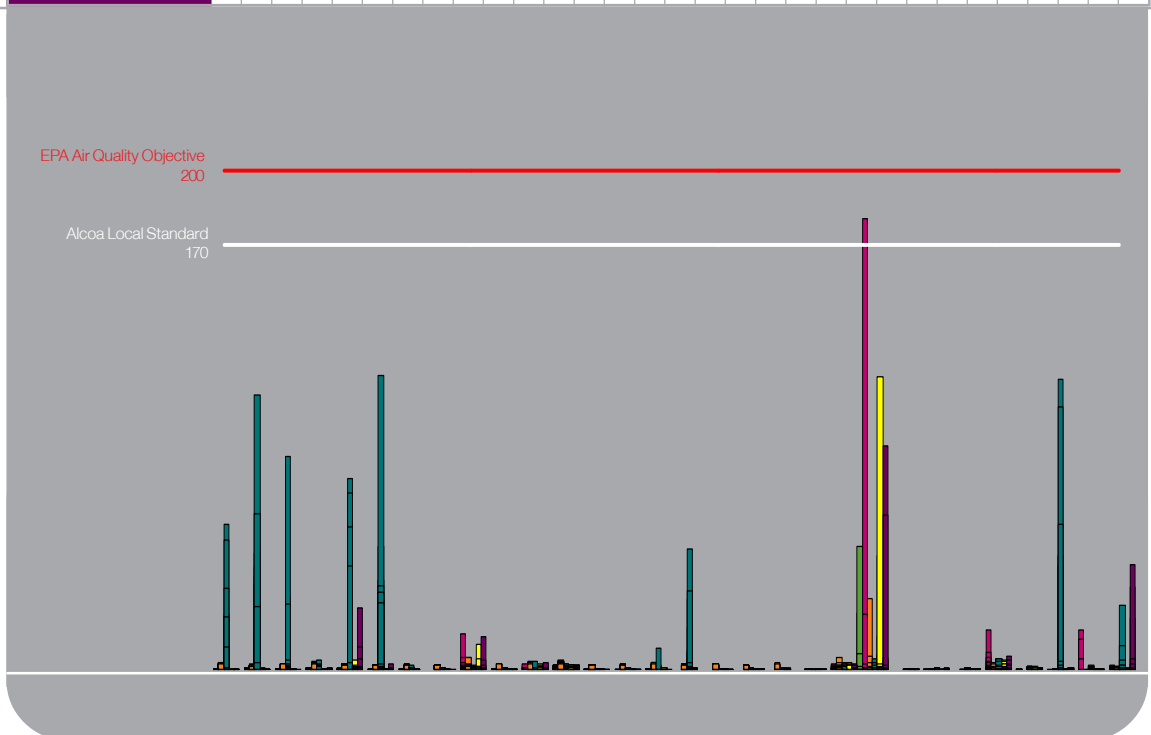
australia's aluminium

air

Air Monitoring	Average	Maximum
Stack Monitors		
Opacity g/m ³ 10-minute average	0.083	0.308
Stack SO ₂ kg/min 1-hour average Licence limit 100kg/min	63.30	83.28

Ambient Monitors	Average	Maximum
SO₂ 1 hour ppb		
Community Centre	0	49
Primary School	< 1	181
Mt Ingoldsby	1	29
Scout Camp	4	118
Camp Wilkin	< 1	117
Camp Road	< 1	90

Ambient Monitors																																
SO ₂ 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	0	0	0	0	0	0	0	0	0
Primary School	0	1	0	1	1	0	0	0	14	0	2	2	0	0	0	-	0	0	0	0	2	181	0	0	0	16	0	0	0	16	0	
Mt Ingoldsby	3	2	2	3	2	2	2	2	5	3	3	4	2	2	3	2	2	2	3	0	5	29	0	0	0	3	0	0	0	1	0	
Scout Camp	58	110	86	4	77	118	2	1	1	1	4	2	0	1	9	48	0	1	1	0	3	4	0	1	1	5	1	116	2	26	19	
Camp Wilkin	0	0	0	0	4	0	0	0	10	0	2	2	0	0	1	1	0	0	1	0	3	117	0	0	0	4	1	0	0	1	0	
Camp Road	0	0	0	1	25	2	0	0	13	0	3	2	0	0	0	0	0	0	0	0	2	90	0	1	0	5	1	1	0	42	0	



water



Water Storage

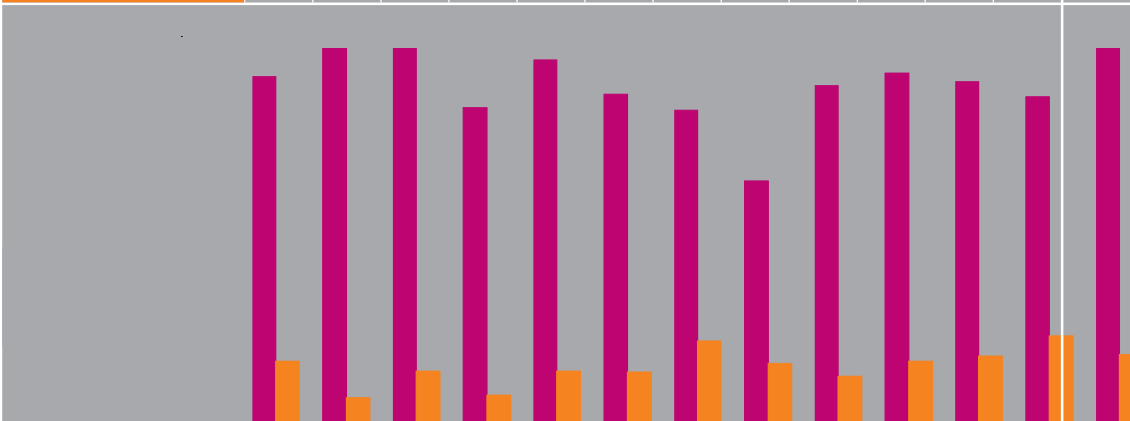
Barwon Water storage levels for the Geelong system at 27.2% capacity. Stage 4 Water Restrictions - Daylight Savings are now in force until April 5, 2009. Garden watering limited to 7PM-8PM twice weekly.

Water Discharge	December	Total
ML		
Ashponds (SP1)	146	1661
Mine (SP4)	0	1.1

Water Monitoring 15/12/2008	SP1 Ashpond		SP4 Mine		SP3 Final	
	EPA limit	Lab Result	EPA limit	Lab Result	EPA limit	Lab Result
pH	4-10	8.4	3-9	no	5-9	7.4
Susp. Solids	100	< 4	100	discharge	30	< 4
Colour	50	5	50	at	50	6
Aluminium	10.00	0.39	10	time	5.500	0.09
Iron	10.00	0.13	20	of	4.000	0.071
Zinc	0.400	< 0.005	2.0	sampling	0.300	< 0.005

WATER WATER USAGE PER MONTH (ML)

Date	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Town Water	1.4	0.9	0.9	2.2	1.0	0.9	1.7	2.2	1.0	1.3	0.9	2.6	17.0
Bore Water	279	304	305	254	292	265	252	196	272	282	275	263	3239
Mine Water	53	24	45	26	45	44	69	51	41	53	57	73	581



year in review



The Sulphur Dioxide Management Project has been the number one environmental initiative for Anglesea in 2008. The year saw the development and part implementation of the Early Warning Modelling Tool and improvements to our rigorous load management protocol. These highly effective systems have played an integral role in the success of achieving zero non compliance. This is the best result since the comprehensive 'real time' SO₂ monitoring commenced, and is reflective of the amount of time and effort undertaken during the year by Anglesea employees. Further work is planned for 2009 with the introduction of the new northern meteorological station and full implementation of the Early Warning Tool.

2008 also saw a reinvigoration of our community consultation program. This included the development of the Alcoa Anglesea Newsletter, providing information to our local community on our operations, opportunity for people to become involved in our business and updates on the

progress made with our SO₂ Management Project.

The Peregrine Falcon pair of Sheila and Havoc returned and successfully raised three male chicks, Midnight, Rocket and Stan. The webcam on www.alcoa.com/falcons generated unprecedented attention world-wide with correspondence coming from China, UK, USA, Germany, Netherlands, Canada, Italy and Poland.

The drought continued in 2008 with only 501.4mm recorded at Anglesea this year. This is the seventh consecutive year of below average rainfall. Only 2000 and 2001 have provided any average, or above average, rainfall since 1996.

After significant achievement in reducing town water use in previous years, several tube leaks and minor outages throughout the year resulted in the failure to achieve the 2008 target of 14.2ML.

While this result is disappointing, employees are to be congratulated on maintaining a significantly low amenity use throughout 2008 of only 1.5ML.

PLANTS OF THE ANGLESEA HEATH

THATCH SAW-SEDGE (*Gahnia radula*)

Size:	1-2m H x 0.5-2cm W
Habitat:	dry and valley sclerophyll forests, sclerophyll woodland, grassy low open forest, wattle tea-tree scrub
Distribution:	widespread in southern Australia
Form:	clumping perennial herb spreading by underground rhizomes
Foliage:	long, flat, raspy, deep green leaves with very sharp inrolled margins
Flowers:	ovate, loosely arranged chesnut brown panicle to 60cm, becoming black and pendulous; nuts dark brown to black most of the year
Did you know?	Plants are tolerant of <i>Phytophthora cinnamomi</i> . The vigorous rhizomes are useful in controlling soil erosion. Foliage has been used for roof thatching.

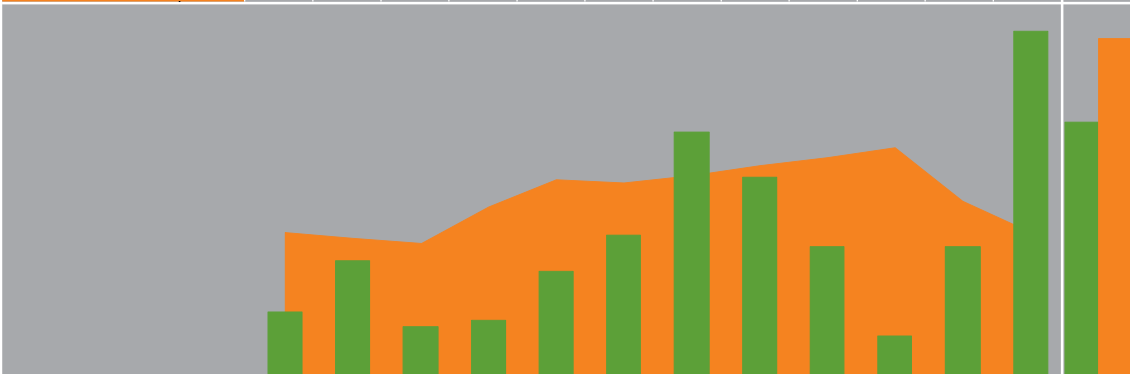
THATCH SAW-SEDGE



LAND²

RAINFALL (mm)

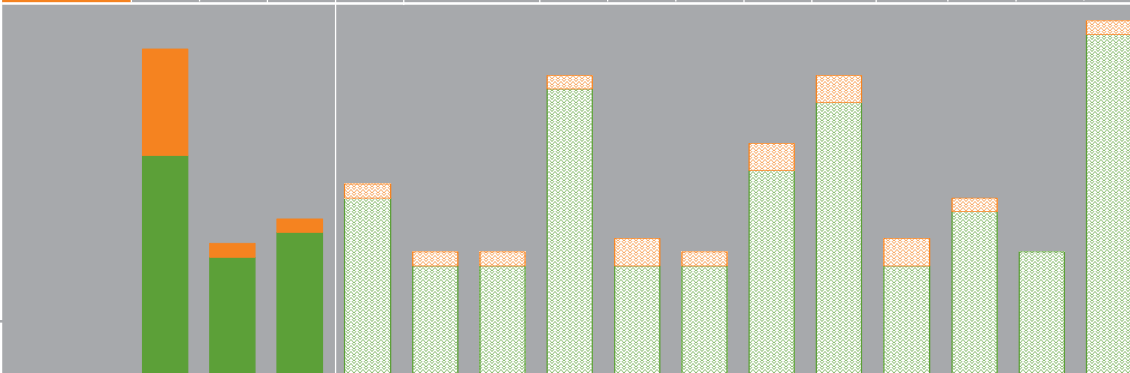
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2008 Rainfall	19.8	35.8	15.2	17.3	32.5	43.8	75.8	61.6	40.0	12.4	40.0	107.2	501.4
1968-2007 Average	44.5	42.7	41.1	52.5	61.0	59.9	62.2	65.3	67.7	70.9	54.3	44.4	666.5



WATER

TOWN WATER USE (ML)

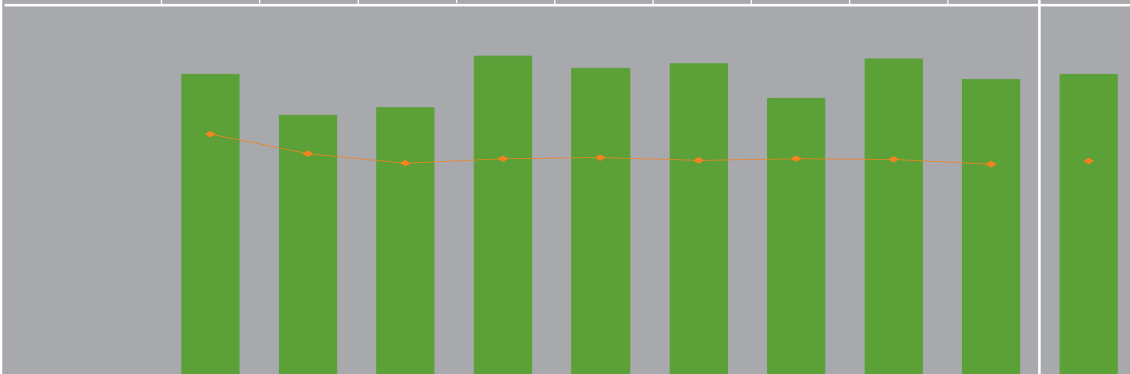
	2000	2007	2008	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	12.8	15.5	1.3	0.8	0.8	2.1	0.8	0.8	1.5	2.0	0.8	1.2	0.9	2.5
Amenity	11.6	1.5	1.5	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.1



AIR

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

	1990	2000	2001	2002	2003	2004	2005	2006	2007	2008
GHG Mt	1.42	1.23	1.27	1.50	1.45	1.47	1.31	1.49	1.40	1.41
GHG t/MWh	1.34	1.24	1.19	1.21	1.21	1.20	1.21	1.20	1.18	1.20



environmental improvement

Environmental Management Targets	December	2008 Total	Forecast	2008 Target
Reportable Environmental Incidents	0	0	-	0
Monthly EHS ASAT Audit Completion (%)	100	100	-	90
Air Emission Targets	December	2008 Total	Forecast	2008 Target
Ambient SO ₂ (no. readings > 200ppb)	0	0	-	0
Stack SO ₂ (no. hrs > 100kg/min)	0	0	-	0
SO ₂ Load Reductions (lost MWh)	1006	22285	-	N/A
GHG Efficiency (t CO ₂ e/MWh)	1.21	1.20	-	1.20
Opacity (10 min av > 0.25g/m ³ normal operation)	0	0	-	0
Water Targets	December	2008 Total	Forecast	2008 Target
Town Water (ML)	2.6	17.0	-	14.2
Bore Water (ML)	263	3239	-	2370
Waste Targets	December	2008 Total	Forecast	2008 Target
Waste to Landfill (t)	0.00	12.54	-	8.0
Solid Prescribed Waste to Landfill (t)	0.0	0.0	-	0.0
Mine Rehabilitation Targets		2008 Total		2008 Target
2008 Area to Clear (ha)		0.0		0.0
2008 Area to Rehabilitate (ha)		0.0		0.0
2007 Mine Rehabilitation Species Richness (%)		N/A		100

OUR ENVIRONMENT AND OUR EMPLOYEE

Hi Mark, how was 2008 for you?

Busy at work with a great result with the SO₂ load management protocol we rigorously implemented in 2008. We recorded zero exceedances of the ground level SO₂ concentration (GLC) limit in the Anglesea township which is the best result since the comprehensive 'real time' SO₂ monitoring commenced.

And personally you were involved in two special activities?

Yes - I was lucky to share some terrific experiences with the KIDS Foundation. Colin Patterson and I volunteered at Camp Phoenix which was a fabulous camp in Queensland for burns survivors and their families. I also participated in the Charity Challenge which was a 'once-in-a-lifetime' Himalayan Trek to Nepal.

What were the highlights from the Camp and the Trek?

Camp Phoenix showed me how hard some families are doing it and how much we can all help. The courage and resilience some of the kids showed made me realise how trivial some of my own worries really are. To see the smile on the kids' faces was an absolute highlight. The Charity Challenge was an inspirational trip starting at Kathmandu and trekking to the Langtang Valley in the breathtaking Himalayas. It was an eye opening trip - physically, mentally and emotionally challenging, with many fantastic friendships and memories I took away with me.

...MARK BOLLEMAN

