



so₂ solution
the action plan for Anglesea

anglesea environment report

MAY 2006

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Plus we talk to an employee about their contribution to improving the environment

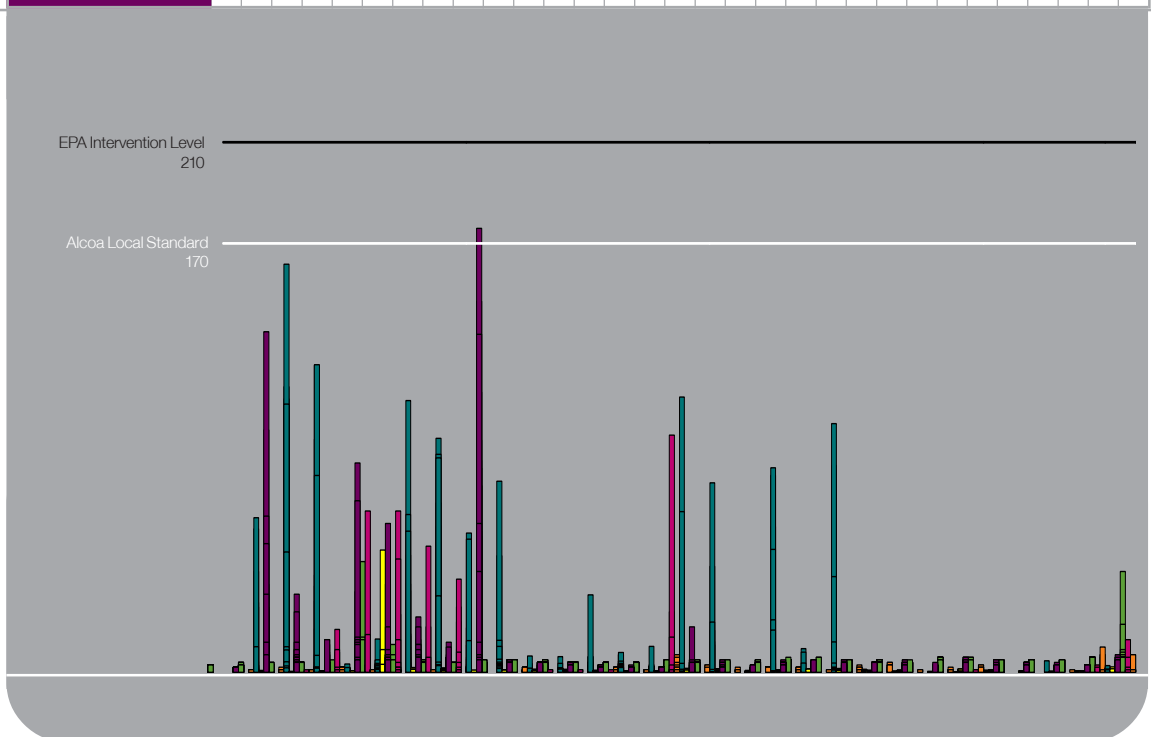


air

Air Monitoring	Average	Maximum
Stack Monitors		
Opacity g/m ³ 10-minute average	0.055	0.338
Stack SO ₂ kg/min 1-hour average Licence limit 111.34kg/min	73.65	87.32

Ambient Monitors	Average	Maximum
SO₂ 1 hour ppb		
Community Centre	5	44
Primary School	1	94
Mt Ingoldsby	< 1	10
Scout Camp	7	162
Camp Wilkin	< 1	48
Camp Road	7	176

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	3	4	4	4	5	44	11	5	4	5	5	5	4	4	4	5	5	5	5	6	6	5	5	5	6	6	5	5	5	6	40
Primary School	-	-	0	1	17	64	64	50	37	0	0	1	1	1	0	94	0	0	0	0	0	0	0	0	0	1	0	0	0	3	13
Mt Ingoldsby	0	1	2	1	2	1	0	1	0	1	2	0	0	2	1	7	3	2	2	2	1	3	4	1	2	3	-	-	1	10	7
Scout Camp	-	61	162	122	3	13	108	93	55	76	6	6	31	8	10	109	75	0	81	9	99	1	1	0	0	1	0	5	1	3	2
Camp Wilkin	0	1	0	1	1	48	2	2	1	1	1	1	1	1	0	2	1	1	1	1	2	1	1	0	1	1	1	0	1	2	27
Camp Road	2	135	31	13	83	59	22	12	176	5	4	4	3	3	2	18	5	3	5	5	5	4	5	4	6	5	4	4	3	7	7



water



Water Storage

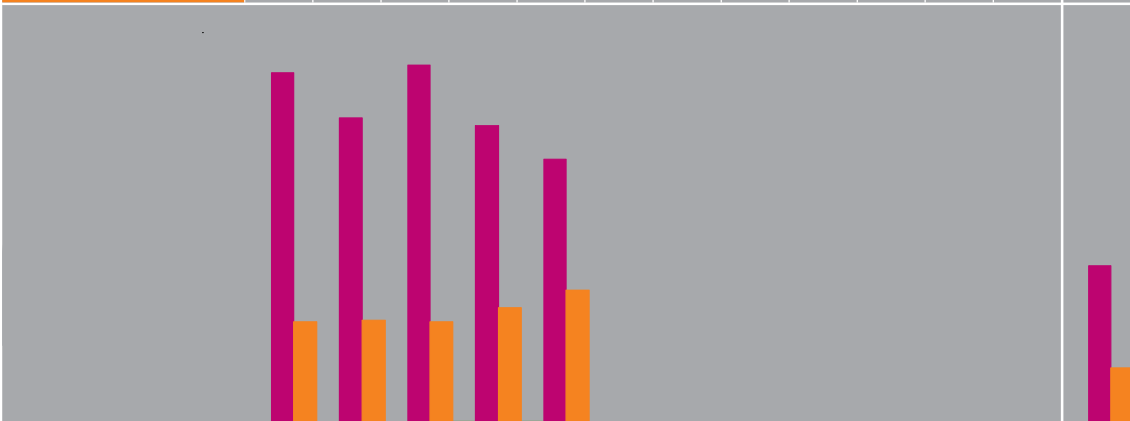
Barwon Region water storage levels continue to decrease, with the Geelong system at 25.9% capacity.

Water Discharge	May	Total
ML		
Ashponds (SP1)	151.5	714.6
Mine (SP4)	0	0.8

Water Monitoring 17/05/2006	SP1 Ashpond		SP4 Mine		SP3 Final	
	EPA limit	Lab Result	EPA limit	Lab Result	EPA limit	Lab Result
pH	4-10	7.8	3-9	-	5-9	7.4
Susp. Solids	100	3	100	-	30	< 2
Colour	50	5	50	-	50	10
Aluminium	10	0.5	10	-	5.5	0.1
Iron	10	0.7	0	-	4.0	0.2
Zinc	0.4	< 0.1	2.0	-	0.3	< 0.1

WATER WATER USAGE PER MONTH (ML)

Date	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
Town Water	1.0	1.0	1.0	1.5	1.6								6.1
Bore Water	279	243	285	237	210								1254
Mine Water	81	82	81	92	106								442



sulphur dioxide



During May, Alcoa Anglesea presented an action plan to the Environment Protection Authority (EPA) to reduce the SO₂ ground level concentrations in the Anglesea township.

Alcoa, EPA and the community have been working hard in recent years to understand and minimise our SO₂ emissions. Activities undertaken include the installation of the stack gas instrumentation, extra monitoring locations in Anglesea, detailed emission modelling and the load reduction strategies. Although somewhat effective, these actions have not completely eliminated the high readings we sometimes see during specific weather condition events.

Many potential solutions for reducing ground level SO₂ concentrations were examined and the best option for Alcoa Anglesea is installing SO₂ scrubbing technology. This technology is

used widely in Europe and the US however there is currently no SO₂ scrubbing system installed on any other power station in Australia. It involves the gas passing through limestone with the end result as gypsum, a salable by-product depending on it's quality . The solution is not ideal, it is very expensive, the technology uses more water, there is no greenhouse gas reduction and we will see a slight loss in station efficiency. However, this solution will result in a significant reduction (50%) in SO₂ emissions.

Approval, design and construction will take approximate;y three years, with the final stage of commissioning envisaged to line up with the 2009 shutdown. Following the approval from the EPA in May, the project has commenced immediately with a search for a project manager already underway.

ANIMALS OF THE ANGLESEA HEATH

BLUNT EVERLASTING (*Argentipallium obtusifolium*)

Argentipallium....from Latin, *argenteus*, silver, and *pallium*, mantle, in reference to the silvery covering of fine hairs that covers the leaves and branches

obtusifolium... from Latin, *obtus*, blunt, and *folium*, leaf, referring to the blunt leaves

Size: 10 - 30 cm high

Form: twiggly multibranched perennial herb

Habitat: widespread in sandy soils in heathland, mallee-heathland and stringybark woodland

Foliage: leaves narrow-oblongate

0.4–2.5 cm long, 1–2 mm wide
upper surface glabrous* + green
lower surface silvery-white + woolly

Flowers: daisy-like flowers with a central yellow button surrounded by white papery petals
August to November

*glabrous = smooth without hairs

ARGENTIPALLIUM OBTUSIFOLIUM



LAND

RAINFALL (mm)

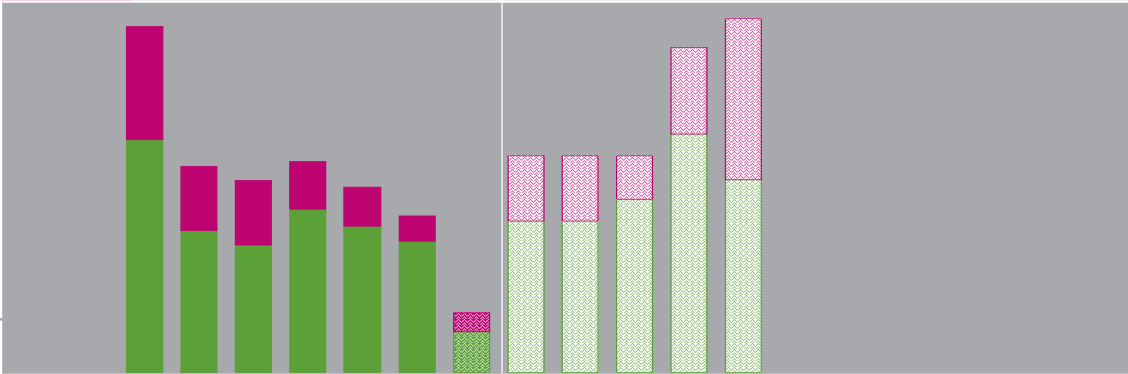
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2006 Rainfall	46.2	19.6	7.3	37.1	129.4								239.6
1968-2005 Average	44.6	43.9	42.5	53.5	59.3								243.8



WATER

TOWN WATER USE (ML)

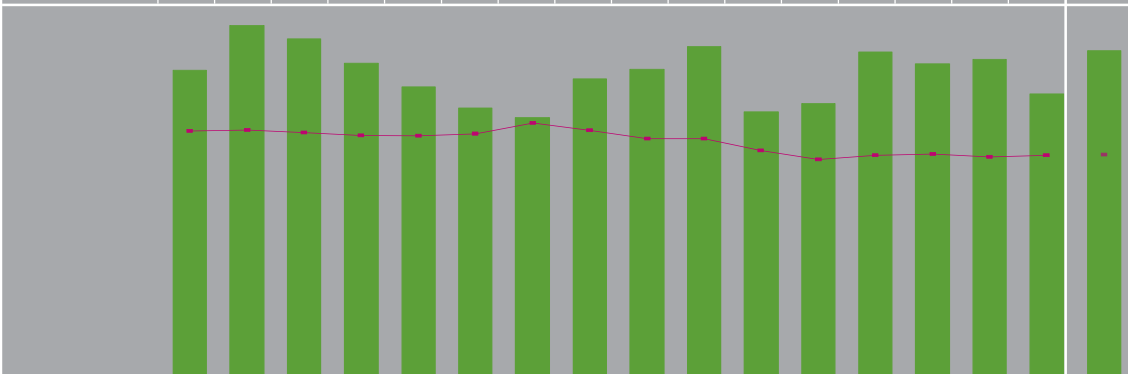
	2000	2001	2002	2003	2004	2005	2006	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	14.6	13.1	16.7	15.0	13.5	4.2	0.7	0.7	0.8	1.1	0.9							
Amenity	11.6	6.6	6.6	5.0	4.0	2.6	1.9	0.3	0.3	0.2	0.4	0.7							



AIR

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

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
GHG Mt	1.42	1.62	1.56	1.45	1.34	1.25	1.20	1.38	1.42	1.53	1.23	1.27	1.50	1.45	1.47	1.31	1.51
◆ GHG t/MWh	1.34	1.35	1.33	1.32	1.31	1.33	1.38	1.34	1.30	1.30	1.24	1.19	1.21	1.21	1.20	1.21	1.21



environmental improvement

Environmental Management Targets	May	2006 Total	Forecast	2006 Target
Reportable Environmental Incidents	0	0	0	0
Monthly EHS ASAT Audit Completion (%)	100	100	100	90
Air Emission Targets	May	2006 Total	Forecast	2006 Target
Ambient SO ₂ (no. readings > 210ppb)	0	0	0	0
Stack SO ₂ (no. hrs > 100kg/min)	0	0	0	0
SO ₂ Load Reductions	10	39	94	N/A
GHG Efficiency (t CO ₂ e/MWh)	1.21	1.21	1.21	1.20
Opacity (10 min av > 0.25g/m ³ normal operation)	0	0	0	0

#Visible emissions may have been observed from the stack during the month as a result of station outages.

Water Targets	May	2006 Total	Forecast	2006 Target
Town Water (ML)	1.6	6.1	14.6	17.2
Bore Water (ML)	210	1254	3010	2440

Waste Targets	May	2006 Total	Forecast	2006 Target
Waste to Landfill (t)	0.0	2.7	6.5	10.0
Solid Prescribed Waste to Landfill (t)	0.0	0.0	0.0	0

Mine Rehabilitation Targets	2006 Total	2006 Target
2006 Area Cleared (ha)	3.3	3.3
2006 Area Rehabilitated (ha)	7.5	> 3.3
2005 Mine Rehabilitation Species Richness (%)	N/A	100

OUR ENVIRONMENT AND OUR EMPLOYEES..

You have recently returned to Victoria as the EHS Manager. Where has your career with Alcoa taken you? My family and I have just returned from four years in China. We spent two wonderful years in Qingdao where I was the General Manager at Alcoa's chemicals business, followed by a further two years as the General Manager of Alcoa's Shanghai Aluminium Foil Products.

Anglesea's SO₂ emissions are a hot topic. Are we on the right track with a solution? Absolutely. The location has worked diligently over the past several years with employee, community and EPA input to continually manage ground level concentrations of SO₂ that might impact those in our community. It has now become clear that to totally eliminate risk of SO₂ impacting even the most sensitive community members, we need to make a step change to reduce the amount of SO₂ discharged into the local air shed. Our plans to install SO₂ scrubbing on our discharges to air will achieve this.

And your impression of the Anglesea location? Alcoa's best kept secret! Located on the doorstep of possibly the most beautiful coastline in the world, amongst a wonderful heathland and operating at a level of performance that is the envy of other power stations nationally.

...GERARD KENNEDY

