



the big dry

the importance of water conservation measures

anglesea environment report

AUGUST 2006

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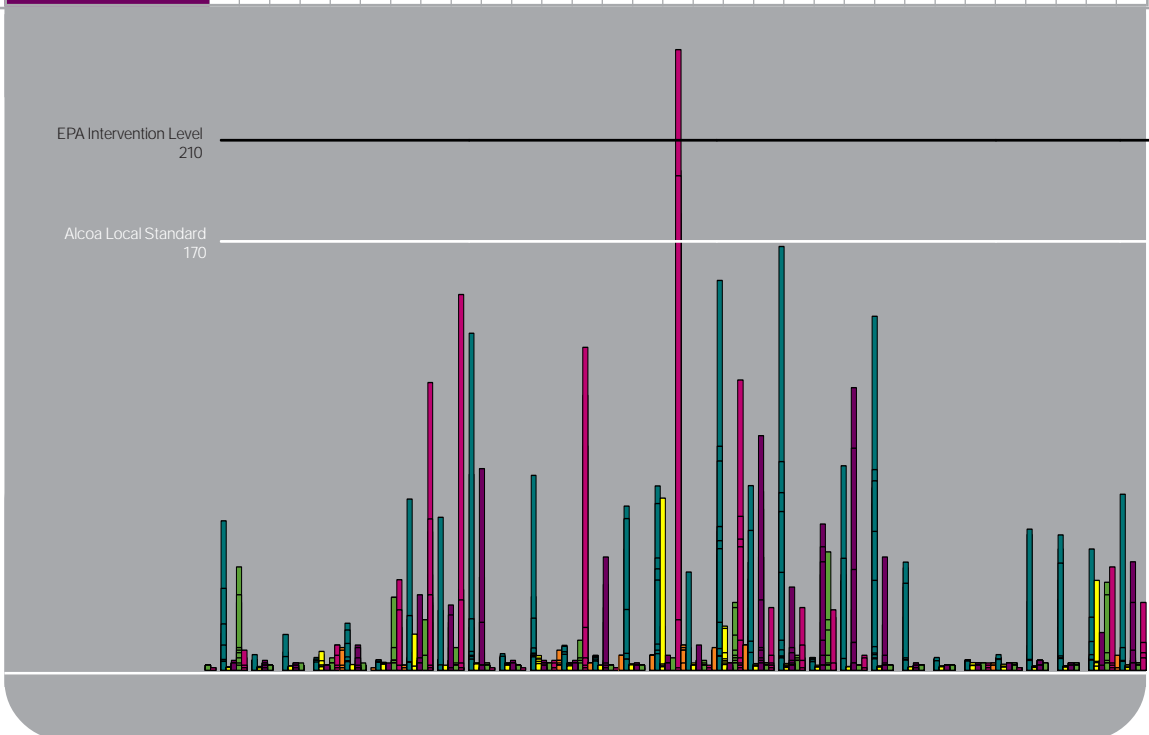
australia's aluminium

air

Air Monitoring	Average	Maximum
Stack Monitors		
Opacity g/m ³ 10-minute average	0.054	0.130
Stack SO ₂ kg/min 1-hour average Licence limit 111.34kg/min	67.50	76.21

Ambient Monitors	Average	Maximum
SO ₂ 1 hour ppb		
Community Centre	3	170
Primary School	4	246
Mt Ingoldsby	1	10
Scout Camp	10	168
Camp Wilkin	2	68
Camp Road	5	112

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	2	41	2	3	5	3	29	20	9	3	2	3	12	2	2	5	4	27	3	6	47	2	2	2	2	3	3	3	3	35	3
Primary School	1	8	0	0	10	0	36	114	149	1	1	4	128	1	0	246	2	115	25	25	24	6	0	0	0	3	1	0	0	41	27
Mt Ingoldsby	0	0	0	0	9	1	2	0	0	0	0	8	3	6	6	10	9	10	0	0	0	0	0	0	0	3	0	0	0	6	0
Scout Camp	59	6	14	5	19	4	68	61	134	7	77	10	6	65	73	39	154	73	168	5	81	140	43	5	4	6	56	54	48	70	5
Camp Wilkin	1	2	1	2	8	2	3	14	2	3	3	6	3	2	3	68	3	17	3	3	2	2	2	1	2	3	3	2	2	36	2
Camp Road	4	4	3	2	10	3	30	26	80	4	4	4	45	3	6	10	3	93	33	58	112	45	3	2	3	3	4	3	15	43	93



water



Water Storage

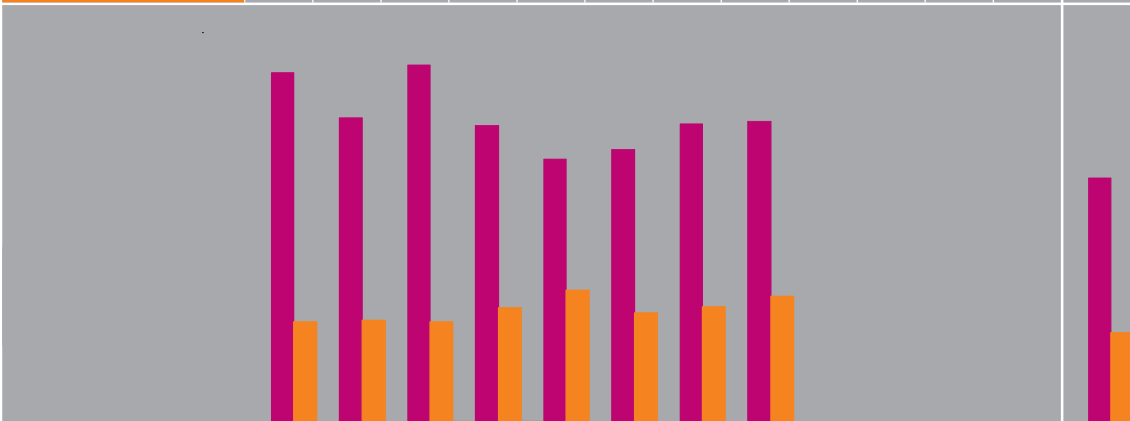
Barwon Water storage levels within the Geelong system at 29.1% capacity. Stage 1 restrictions apply.

Water Discharge	August	Total
ML		
Ashponds (SP1)	148	1156
Mine (SP4)	0	0.8

Water Monitoring 14/08/2006	SP1 Ashpond		SP4 Mine		SP3 Final	
	EPA limit	Lab Result	EPA limit	Lab Result	EPA limit	Lab Result
pH	4-10	8.6	3-9	-	5-9	7.3
Susp. Solids	100	3	100	-	30	< 2
Colour	50	3	50	-	50	4
Aluminium	10	0.2	10	-	5.5	< 0.1
Iron	10	0.6	0	-	4.0	< 0.1
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	0.8	1.0	1.1					9.0
Bore Water	279	243	285	237	210	218	238	240					1950
Mine Water	81	82	81	92	106	88	93	101					724



water conservation



In this, Victoria's tenth year of low rainfall, with a growing population, climate change and degrading river systems, we need to change the way we use water. Water is scarce, we need to use it wisely.

Alcoa Anglesea is proving successful in it's bid to use its town water more wisely with a reduction from 35 ML in 2000 to 18 ML in 2005. This trend has continued into 2006, where our forecast for the year is 14ML of town water. These reductions have been achieved by process improvements plus water saving measures such as flow restrictors on taps, showers + basins, conversion of toilets to low grade water for flushing and improved work practices by employees.

Further water conservation can be achieved if we consider water in the planning of our work: is the use of water necessary, and if it is, can it be substituted with a lower grade water? An example of using low grade water is the dust suppression program in the mine. Here, low grade water is used in preference to higher quality water suitable for other purposes.

With local water storage levels currently at 29%, Stage 1 water restrictions were implemented by Barwon Water on July 1, 2006. These restrictions apply to our activities here at Alcoa Anglesea - the plant car wash was recently converted to using GS (treated bore) water and all town water hoses should have a trigger nozzle attached. These Stage 1 restrictions are in addition to the permanent water by-laws. Under these by-laws, the washing of concrete surfaces with town water, even with a hose fitted with a trigger nozzle, is not permitted. If using a broom is not sufficient, concrete surfaces should always be cleaned using low grade water.

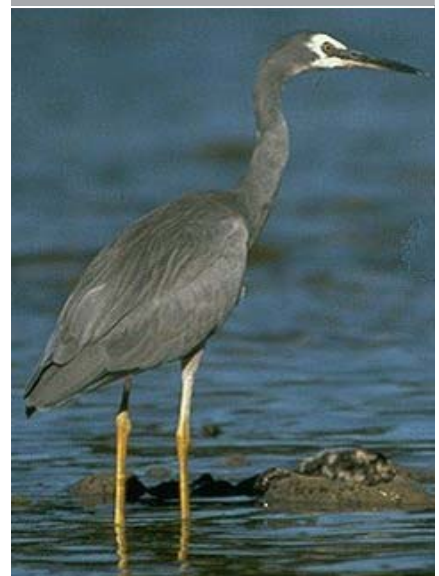
We need to find smarter ways to use and manage our water. We don't want to be in the same space as parts of regional Victoria. Coliban Water, which provides Bendigo's water supply, has just introduced Stage 4 water restrictions, with their reservoirs at 14% of capacity. These restrictions include a ban all outside watering of gardens, lawns and sportsgrounds and only windows and headlights of cars may be washed.

ANIMALS OF THE ANGLESEA HEATH

White-faced Heron (*Egretta novaehollandiae*)

Size:	70cm
Description:	unlikely to be mistaken for any other heron, it's grey plumage and prominent white face is distinct. It has a long slim neck, and a pointed grey-black bill. The legs are long and dull yellow in colour.
Distribution	the most commonly seen heron in Australia, they are found throughout mainland Australia and Tasmania and most coastal islands. They also occur in Indonesia, New Guinea, New Caledonia and New Zealand
Habitat:	can be found anywhere where there is water, from tidal mudflats and coastal reefs, waterways, lakes, and dams, to moist grasslands and gardens
Food:	a variety of prey including fish, insects and amphibians obtained by standing or walking in shallow water watching for movement

WHITE-FACED HERON



LAND

RAINFALL (mm)

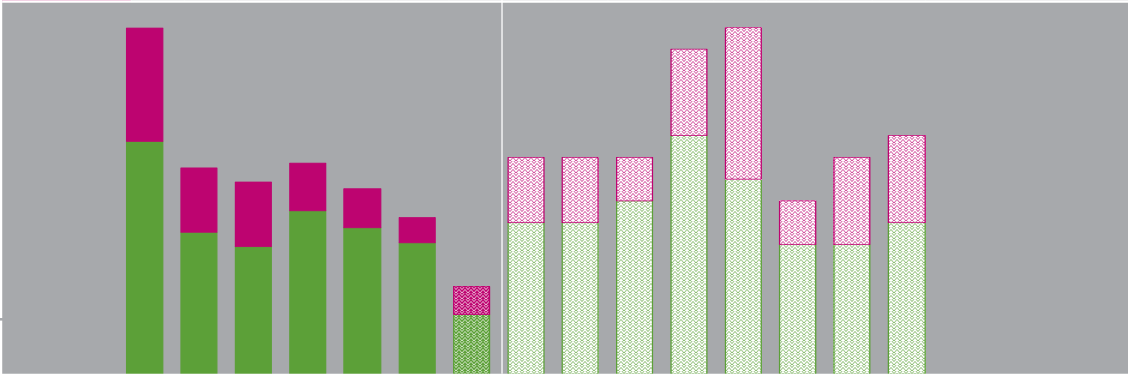
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2006 Rainfall	46.2	19.6	7.3	37.1	129.4	17.0	40.8	26.0					323.4
1968-2005 Average	44.6	43.9	42.5	53.5	59.3	60.8	61.1	67.0					432.6



WATER

TOWN WATER USE (ML)

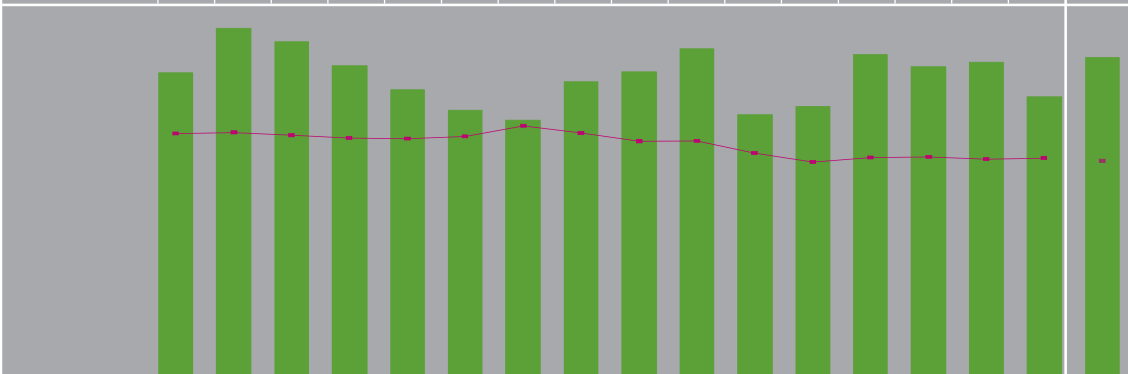
	2000	2001	2002	2003	2004	2005	2006	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	14.6	13.1	16.7	15.0	13.5	6.1	0.7	0.7	0.8	1.1	0.9	0.6	0.6	0.7				
Amenity	11.6	6.6	6.6	5.0	4.0	2.6	2.9	0.3	0.3	0.2	0.4	0.7	0.2	0.4	0.4				



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	1.49
◆ 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	1.19



environmental improvement

Environmental Management Targets	August	2006 Total	Forecast	2006 Target
Reportable Environmental Incidents	0	0	0	0
Monthly EHS ASAT Audit Completion (%)	100	94	94	90
Air Emission Targets	August	2006 Total	Forecast	2006 Target
Ambient SO ₂ (no. readings > 210ppb)	1	3	5	0
Stack SO ₂ (no. hrs > 100kg/min)	0	0	0	0
SO ₂ Load Reductions	13	78	117	N/A
GHG Efficiency (t CO ₂ e/MWh)	1.17	1.19	1.19	1.20
Opacity (10 min av > 0.25g/m ³ normal operation)	0	0	0	0
Water Targets	August	2006 Total	Forecast	2006 Target
Town Water (ML)	1.1	9.0	13.5	17.2
Bore Water (ML)	238	1950	2925	2440
Waste Targets	August	2006 Total	Forecast	2006 Target
Waste to Landfill (t)	4.66	7.36	11.0	10.0
Solid Prescribed Waste to Landfill (t)	0.0	0.0	0.0	0
Mine Rehabilitation Targets	August	2006 Total	Forecast	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..

John, Alcoa Anglesea has made some significant water savings recently. You were involved in much of this work, so it must be a pleasing result?

Yes it was, as it happened some of the gains were achieved by some very simple solutions. The fitting of flow restrictors to all amenity water outlets was one project that gave some very significant savings.

How can employees best minimise water use?

Make water conservation a part of the daily work routine, try high pressure washing instead of hosing things down for example. Water conservation should be a mind set, both here at Anglesea and at home. We are all encouraged to help with minimising water use across the site, the Water Lead Team is an ideal forum for people to table their ideas, this can be done by talking to either myself or any of the team members.

Can we reduce our water usage further?

Yes there are always new products and recycling processes being introduced. I feel that the largest gains to be made in the future will be in water recycling and storm water capture for reuse. Water conservation is now a part of everyday life and it is an evolving agenda.

...JOHN BINDOKAS

