



digging deep

barwon water's anglesea borefield project

alcoa anglesea

environment report

april

2008



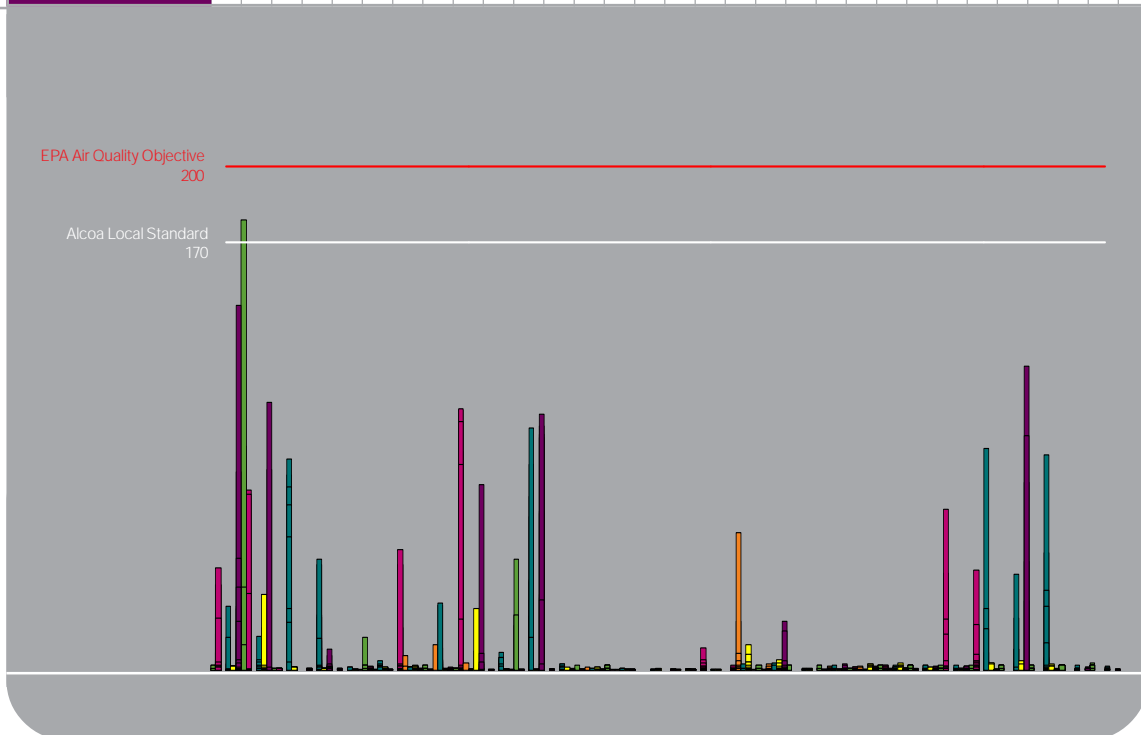
australia's aluminium

# air

Air Monitoring	Average	Maximum
Stack Monitors		
Opacity g/m <sup>3</sup> 10-minute average	0.069	0.335
Stack SO <sub>2</sub> kg/min 1-hour average <b>Licence limit</b> 100kg/min	60.45	85.23

Ambient Monitors	Average	Maximum
SO <sub>2</sub> 1 hour ppb		
Community Centre	1	179
Primary School	3	104
Mt Ingoldsby	< 1	55
Scout Camp	3	96
Camp Wilkin	< 1	30
Camp Road	3	145

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
Community Centre	2	179	1	0	0	13	0	2	1	0	44	0	2	2	0	0	0	0	2	2	2	1	2	2	2	2	2	2	3	
Primary School	41	72	1	1	0	0	1	2	48	0	104	1	0	1	0	0	0	0	9	2	0	0	1	2	0	64	-	-	2	40
Mt Ingoldsby	0	0	0	0	0	0	1	10	0	3	0	0	0	1	0	0	1	0	55	2	2	2	1	0	0	0	0	0	0	
Scout Camp	26	13	8	84	44	1	4	1	27	2	21	96	0	1	1	0	0	1	3	3	2	0	2	2	7	88	38	86	2	2
Camp Wilkin	2	30	1	1	0	0	1	2	0	1	25	1	0	1	0	1	1	0	10	4	1	0	2	3	1	1	-	0	3	4
Camp Road	145	106	0	8	0	0	1	1	74	0	102	1	0	0	0	0	0	0	20	3	2	1	2	2	1	121	0	1	1	48



# water



## Water Storage

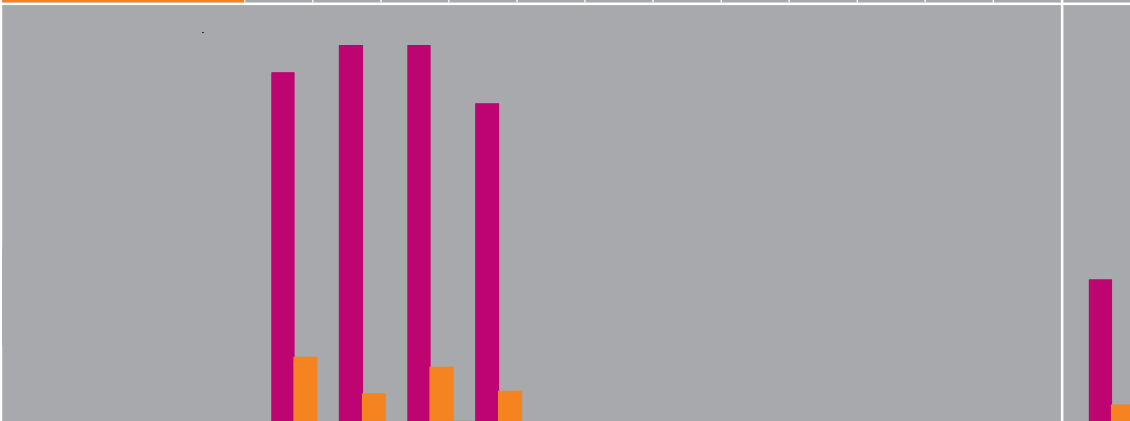
Barwon Water storage levels for the Geelong system at 25.8% capacity. New Stage 4 winter water restrictions commenced in April with an exemption to permit limited residential garden watering.

Water Discharge	April	Total
ML		
Ashponds (SP1)	145	537
Mine (SP4)	0	0

Water Monitoring 14/04/2008	SP1 Ashpond		SP4 Mine		SP3 Final	
	EPA limit	Lab Result	EPA limit	Lab Result	EPA limit	Lab Result
pH	4-10	7.9	3-9	-	5-9	7.1
Susp. Solids	100	< 4	100	-	30	< 4
Colour	50	4	50	-	50	5
Aluminium	10.00	0.13	10	-	5.50	0.06
Iron	10.00	0.17	20	-	4.00	0.13
Zinc	0.40	< 0.01	2.0	-	0.30	< 0.01

## 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									5.4
Bore Water	279	304	305	254									1142
Mine Water	53	24	45	26									148



# anglesea borefield project

## background

Twelve months ago we reported on Barwon Water's investigation into a new groundwater resource for the greater Geelong region. The Anglesea borefield project, identified in the Victorian Government's *Central Region Sustainable Water Strategy*, has been brought forward three years in response to declining surface water storages, the uncertainty of a return to average rainfall, and to meet future growth in the region by early 2009. It is anticipated the borefield could provide up to 20 megalitres (ML) of water a day to customers in the greater Geelong region, including Geelong, the Bellarine Peninsula, Torquay, Anglesea, Winchelsea, Lara and Bannockburn.

Two borefield investigation zones have been identified. A northern investigation zone is located in the vicinity of Barwon Water's Forest Road basin site and a southern investigation zone is located adjacent to Coal Mine Road, along the southern boundary of the Alcoa coal mine.

The Anglesea borefield will tap into the Lower Eastern View aquifer which extends from the eastern edge of the Otway Ranges and flows in a south easterly direction deep under Anglesea and beyond.

## recent investigations

During the first stage of investigative drilling three observation bores were constructed - two at

Barwon Water's Anglesea Basin on Forest Road, and one at the gravel dump on Camp Road, Anglesea. These bores have provided valuable data for the hydro-geological assessment component of the project. Current investigative drilling involves drilling of a deep test bore and another shallow observation bore at the Pony Club on Coalmine Road and to undertake a pump test.

The proposed pump test involves extracting approximately 5 ML a day for a 14 to 21 day period. Water extracted during the pump test will be used by Alcoa for the power station's cooling process. As evident by the pipe work in the contractor's car park, the water is being piped from Coalmine Road to a portable cooling tower and then into Well Site 1 where the water will follow the same treatment path as our regularly extracted bore water. As the recipient of this water, Alcoa will be able to temporarily stop extraction from the Upper Eastern View aquifer. Although only for a short period of time, it will provide a valuable opportunity for some recovery in the upper aquifer with less extraction.

## further info

A project team member will be in the Anglesea Office on the corner of Harvey and Parker Streets, Anglesea, every **Tuesday between 9.30am-4pm**. Please phone 5226 9178 to make an appointment. Further information can be found at [www.barwonwater.vic.gov.au](http://www.barwonwater.vic.gov.au)

### PLANT OF THE ANGLESEA HEATH

#### BEARDED MIDGE ORCHID (*Corunastylis morrisii*)

*Corunastylis*...from the Greek *koryne* (club) and *stylis* (column) refers to the shape of the species style  
*morrisii*... honours P.F. Morris, a former botanist of Melbourne Herbarium.

- Size: stem up to 30cm tall
- Distribution: Victoria, New South Wales and Tasmania
- Habitat: valley sclerophyll forest, grassy low open forest, open heathland and woodlands
- Foliage: leaf to 30cm long that closely sheathes the brownish flower stem, free for 20mm
- Flowers: a dense spike of 3 to 25 purplish flowers to 8mm across with purple and reddish markings; petals and labellum fringed with long dark purple hairs  
December - May, mainly March - April
- Requirements: damp clay soil
- Did you know? Pollination is thought to be by small flies

### BEARDED MIDGE ORCHID



LAND

RAINFALL (mm)

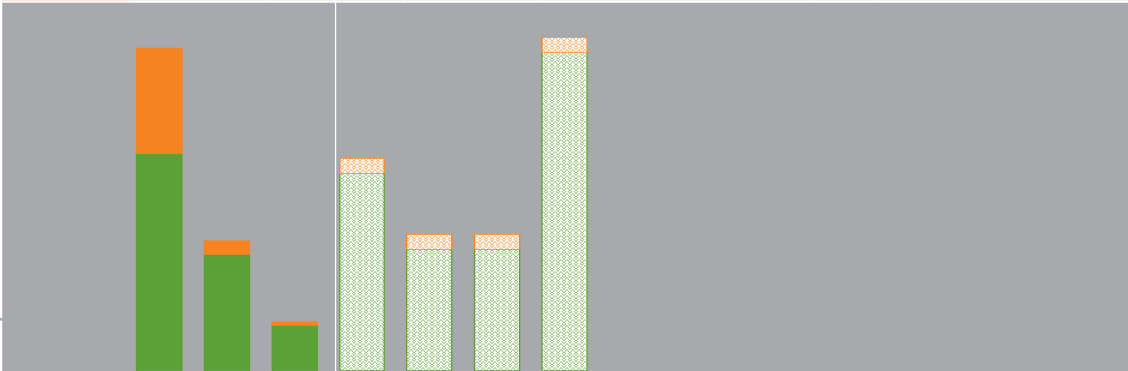
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2008 Rainfall	19.8	35.8	15.2	17.3									88.1
1968-2007 Average	44.5	42.7	41.1	52.5									180.8



WATER

TOWN WATER USE (ML)

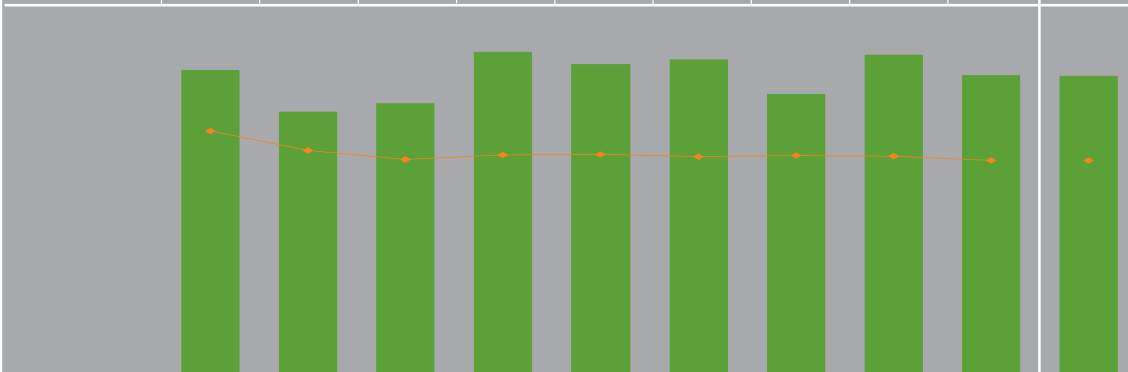
	2000	2007	2008	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	12.8	5.0	1.3	0.8	0.8	2.1								
Amenity	11.6	1.5	0.4	0.1	0.1	0.1	0.1								



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	1.39
GHG t/MWh	1.34	1.24	1.19	1.21	1.21	1.20	1.21	1.20	1.18	1.18



# environmental improvement

Environmental Management Targets	April	2008 YTD	Forecast	2008 Target
Reportable Environmental Incidents	0	0	0	0
Monthly EHS ASAT Audit Completion (%)	100	100	100	90
Air Emission Targets	April	2008 YTD	Forecast	2008 Target
Ambient SO <sub>2</sub> ( no. readings > 200ppb)	0	0	0	0
Stack SO <sub>2</sub> (no. hrs > 100kg/min)	0	0	0	0
SO <sub>2</sub> Load Reductions (lost MWh)	1934	3984	11952	N/A
GHG Efficiency (t CO <sub>2</sub> e/MWh)	1.19	1.18	1.18	1.20
Opacity (10 min av > 0.25g/m <sup>3</sup> normal operation)	0	0	0	0
Water Targets	April	2008 YTD	Forecast	2008 Target
Town Water (ML)	2.2	5.4	16.2	14.2
Bore Water (ML)	254	1142	3426	2370
Waste Targets	April	2008 YTD	Forecast	2008 Target
Waste to Landfill (t)	0.0	0.0	0.0	8.0
Solid Prescribed Waste to Landfill (t)	0.0	0.0	0.0	0.0
Mine Rehabilitation Targets	April	2008 YTD	Forecast	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

**Hey Bryce, what is the your new role of Operations Coordinator all about?** One of the main responsibilities is to be accountable for the day to day co-ordination of the four operating crews, along with this we also liaise closely with maintenance personnel to establish the most important items to be addressed from an operations prospective.

**The Control Room has involvement in a couple of environment issues at the moment - what does the Barwon Water project mean to you?** Managing the bore water whilst its quality is being established has created a number of challenges for both Alcoa and Barwon Water and has required constant monitoring of water quality and volume. Once the bore has been established and we are feeding the water into our well bore system management will be much easy to monitor and control.

**And SO2 initiatives continue in the Control Room?** We are constantly reviewing our SO2 load management protocol along with developing better methods to monitor and react to these events. A good example of the Mine and Operations working together to address this issue has been the introduction of coal blending, this process has had an impact on both departments in the way they operate but since this process has started no generation has been lost due to stack discharge.

...BRYCE HUTTON

