



A-OK for AQCS

Anglesea's Air Quality Control System commissioning gets underway

alcoa anglesea

environment report

september

2009



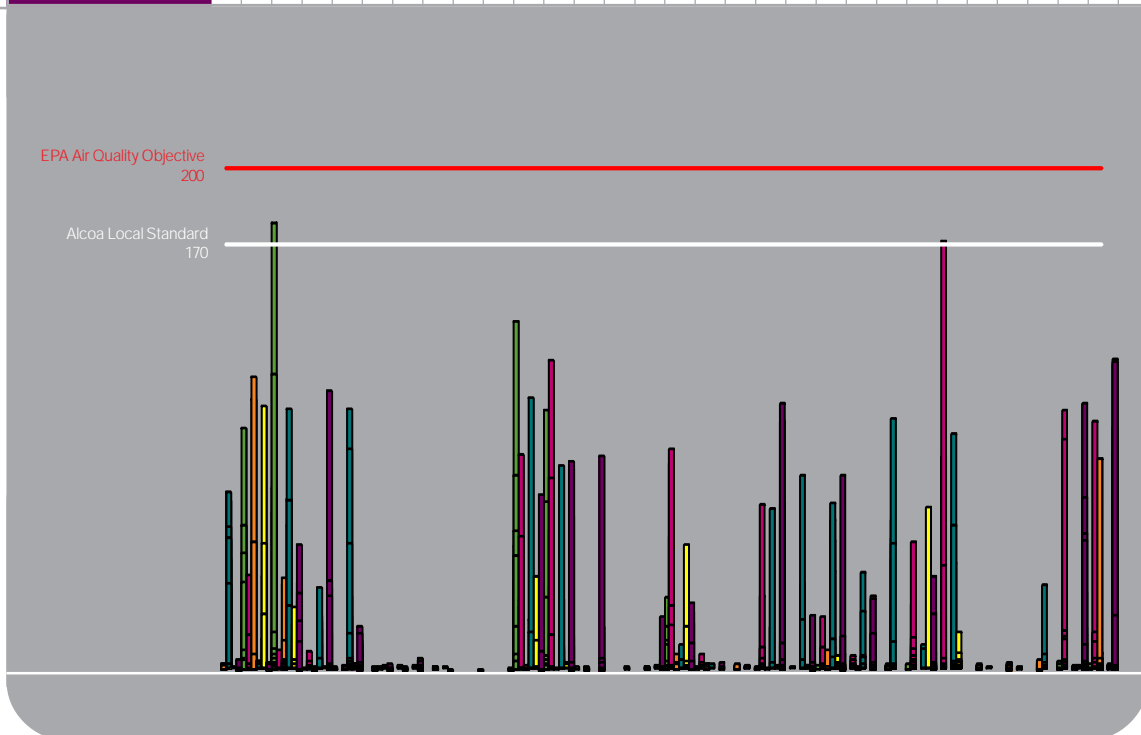
australia's aluminium

air

Air Monitoring	Average	Maximum
Stack Monitors		
Opacity g/m ³ 10-minute average	0.047	0.315
Stack SO ₂ kg/min 1-hour average Licence limit 100kg/min	64.46	80.08

Ambient Monitors	Average	Maximum
SO ₂ 1 hour ppb		
Community Centre	3	178
Primary School	3	171
Mt Ingoldsby	1	117
Scout Camp	5	108
Camp Wilkin	1	105
Camp Road	4	124

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
Community Centre	0	96	178	1	1	0	0	0	0	0	139	104	1	0	0	29	1	0	1	0	1	0	0	2	0	0	0	0	3	2
Primary School	0	38	7	7	0	0	1	0	0	0	86	123	0	0	0	88	6	0	66	1	21	5	0	51	171	0	0	0	103	99
Mt Ingoldsby	2	117	36	1	1	1	1	1	0	0	2	1	1	0	1	6	2	2	1	0	8	1	2	-	0	2	3	4	0	84
Scout Camp	71	3	104	32	104	1	0	0	0	0	108	81	-	-	0	10	2	0	64	77	0	66	39	100	5	94	0	0	33	1
Camp Wilkin	1	105	25	1	2	2	1	1	0	0	37	3	0	1	1	49	0	1	2	1	5	0	0	65	15	1	1	1	1	2
Camp Road	4	3	50	11	17	2	4	0	0	0	70	83	85	0	21	27	3	0	106	22	77	29	0	37	0	0	0	0	106	124



water



Water Storage

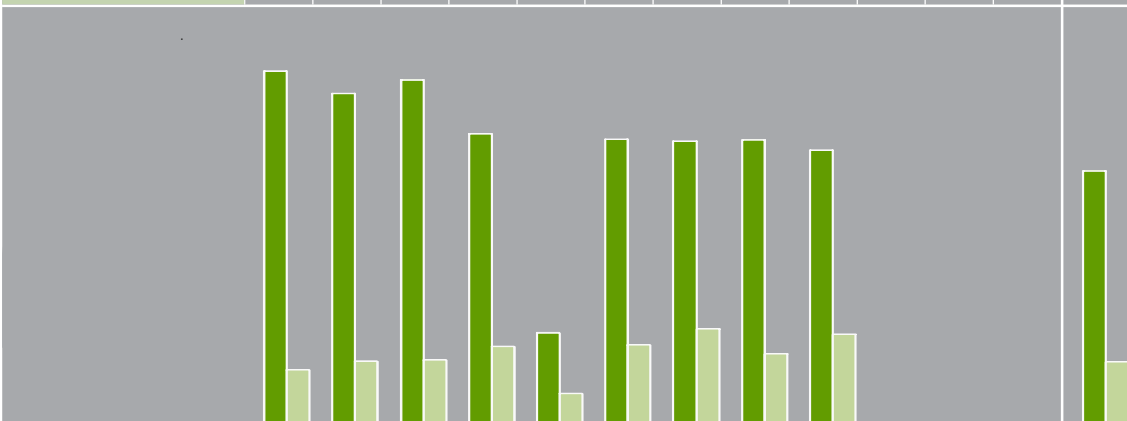
Barwon Water storage levels for the Geelong system at 35% capacity. Stage 4 restrictions apply with a Daylight Savings exemption to permit limited residential garden watering.

Water Discharge ML	September	Total
Ashponds (SP1)	150	1152
Mine (SP4)	0	0

Water Monitoring 21/09/2009	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	no	5-9	7.6
Susp. Solids	100	< 4	100	discharge	30	< 4
Colour	50	4	50	at	50	5
Aluminium	10	0.37	10	time	5.5	0.26
Iron	10	0.45	20	of	4.0	0.013
Zinc	0.4	0.045	2.0	sampling	0.30	0.024

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				14.1
Bore Water	288	270	281	237	76	233	231	232	224				2072
Mine Water	46	53	54	65	27	66	79	59	75				524



AQCS commissioning gets underway



The long awaited commissioning process for the Air Quality Control System (AQCS) for sulphur dioxide emissions management commenced in late September. The AQCS comprises of a predictive and reactive system, which can be considered more sophisticated than the current load reduction protocol, which is purely a reactive tool.

In order to minimise the risk of any Ground Level Exceedences (GLCs) occurring during the commissioning phase, we have developed a five stage implementation process. This cautious commissioning process has been employed to ensure compliance with the Ambient Air Quality Objective of 200 parts per billion averaged over a clock hour.

"Tollgate" evaluations will be conducted by the SO₂ Lead Team to judge the success of the current stage and to determine whether or not to initiate the next stage.

We are currently at the second of the five stages of implementation, with the predictive output of the tool is used, in addition to the new reactive alarms on low risk days. Instead the traditional Load Reduction Protocol is followed. In order to ensure any issues can be dealt with immediately, the AQCS commissioning will occur only on day shift until stage 5 commences. Night shift will continue to use the Load Reduction Protocol as per usual.

The five stages are as follows:

- 1/ use of predictive output and no reactive alarms followed - use of the traditional load reduction protocol
- 2/ use of predictive output and following reactive alarms on low risk days
- 3/ use of predictive output and following reactive alarms on medium risk days
- 4/ use of predictive output and following reactive alarms on high risk days
- 5/ sole operation using AQCS

We will keep everyone updated on the progress of commissioning over the next few weeks.

PLANT OF THE ANGLESEA HEATH

ANGAHOOK CALADENIA (*Caladenia maritima*)

Caladenia...from the Greek, *calos*, beautiful, and *adenos*, a gland, which refers to the many calli on the labellum of the species in this genus

maritima... refers to the fact that the locality where the orchid is found overlooks the sea, and is derived from the Latin, *maritimus*, for the sea.

The common name indicates the orchid grows within the Angahook area of the Great Otway National Park.

Size: stem to 25 cm high

Form: erect herb

Habitat: coastal woodland

endemic to Anglesea, the species was first recorded in 1998

Foliage: single hairy leaf grows to 10-15cm high

Flowers: hairy flower stem bears a single flower
large white flowers of this species are very striking, especially in an extensive

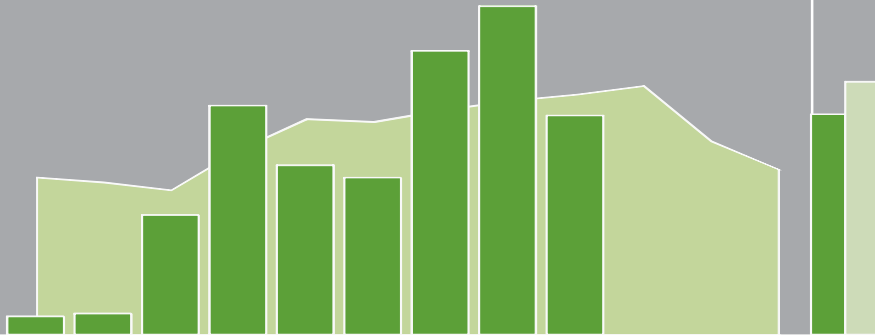
CALADENIA MARITIMA



LAND

RAINFALL (mm)

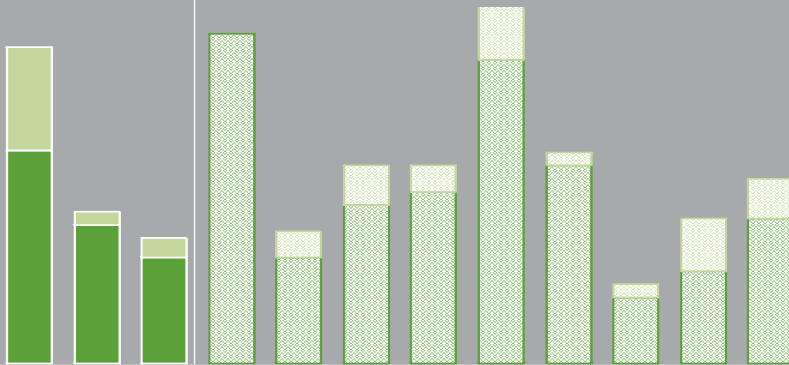
Month	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC	TOTAL
2009 Rainfall	5.0	5.8	33.4	63.8	47.2	43.8	79.2	91.6	61.0				430.8
1968-2008 Average	43.9	42.5	40.4	51.6	60.2	59.5	62.6	65.2	67.0				492.8



WATER

TOWN WATER USE (ML)

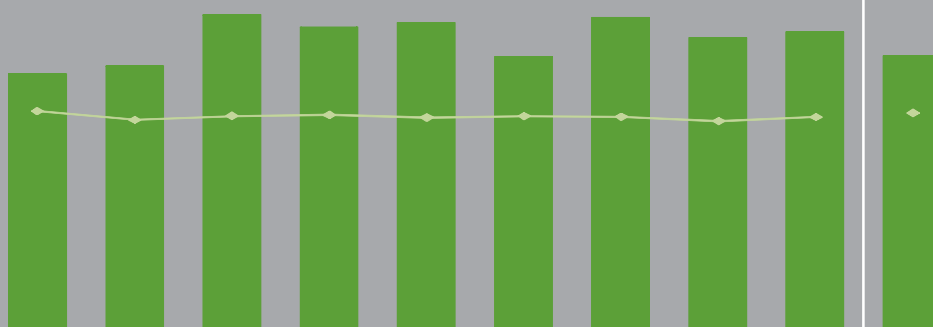
	2000	2008	2009	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Process	23.9	15.5	11.9	2.5	0.8	1.2	1.3	2.3	1.5	0.5	0.7	1.1			
Amenity	11.6	1.5	2.2	0.0	0.2	0.3	0.2	0.6	0.1	0.1	0.4	0.3			



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	1.31
◆ GHG t/MWh	1.24	1.19	1.21	1.21	1.20	1.21	1.20	1.18	1.20	1.23



environmental improvement

Environmental Management Targets	September	2009 Total	Forecast	2009 Target
Reportable Environmental Incidents	0	1	1	0
Env Near Miss vs Env Incident Run Rate (ratio)	1.5	2.1	2.1	2.5
Monthly EHS ASAT Audit Completion (%)	100	93	93	90

Air Emission Targets	September	2009 Total	Forecast	2009 Target
Ambient SO ₂ (no. readings > 200ppb)	0	2	2	0
Stack SO ₂ (no. hrs > 100kg/min)	0	0	0	0
SO ₂ Load Reductions (lost MWh)	5953	30055	40073	N/A
GHG Efficiency (t CO ₂ e/MWh)	1.22	1.23	1.23	1.20
Opacity (10 min av > 0.25g/m ³ normal operation)	0	0	0	0

Water Targets	September	2009 Total	Forecast	2009 Target
Town Water (ML)	1.4	14.2	18.9	14.2
Bore Water (ML)	224	2072	2763	4000

Waste Targets	September	2009 Total	Forecast	2009 Target
Waste to Landfill (t)	4.34	11.64	15.5	8.0
Solid Prescribed Waste to Landfill (t)	0.0	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 EMPLOYEE

Hi Steph, I understand you are the sponsor for the Air Quality Control System (AQCS) for sulphur dioxide management. Where did the AQCS come from?

We engaged a consulting firm, Environ, to develop and commission this tool for us. They completed the same project at Kalgoorlie Gold Mine in WA. The mine historically has had issues with sulphur dioxide exceedences, and have implemented this tool with much success.

What are you aiming to achieve by using the AQCS?

The AQCS is the next level of sophistication on our Load Reduction Protocol. It has new predictive capabilities and a different set of reactive trigger points. The tool is very visual and binary in its instructions to the operators, and we hope that with continuous improvement it will be less stressful for our operators during periods of high sulphur dioxide concentrations. The AQCS should help us to meet our target of zero environmental non-compliances.

Thanks Steph, we look forward to hearing great results!

...STEPHANIE PEARCE

