



**CARBON BASED ENVIRONMENTAL
PTY LIMITED**
ABN 74 102 920 285

**ROCLA QUARRY PRODUCTS
CALGA QUARRY**

ENVIRONMENTAL MONITORING

**DUST DEPOSITION GAUGES, SURFACE AND
GROUND WATERS AND METEOROLOGICAL
STATION**

JANUARY 2008

A handwritten signature in black ink that reads 'Colin Davies'.

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Environmental Scientist
7 March 2008

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EXECUTIVE SUMMARY

Carbon Based Environmental is contracted by Rocla Quarry Products to conduct environmental monitoring at the Calga Sand Quarry.

The monitoring includes;

- Dust Deposition Gauges;
- Surface Waters;
- Ground Waters; and
- Meteorological Station.

This report was prepared by Carbon Based Environmental and includes the following;

- Dust Deposition results for January 2008;
- Surface Water quality results for January 2008;
- Ground Water depth and quality results for January 2008; and
- Meteorological report for January 2008.

The January 2008 dust deposition results show a slight increase in dust deposition rates this month. All sites, on a year to date average basis, are currently below the Air Quality Management Plan exceedence level of 3.7g/m².month. Results were found to be representative of dust levels as determined by the Australian Standard.

Surface water samples were collected at sites A, B, D, F and “Inflow” on the 18 January 2008 following a high rainfall event. Results show generally good quality water with slightly acidic pH and low Electrical Conductivity. Total Suspended Solids levels were elevated at site D, but generally low at the other sites sampled. Total Oil and Grease was detected at site F and “Inflow”.

Surface water samples were collected for the normal monthly sampling event on the 31 January 2008 at sites F and the small dam below site F, as the other sites were not flowing. At the time of sample collection, there was no water discharge observed from the site. Results show generally very good quality water with the two sites maintaining slightly acidic pH, low Electrical Conductivity, low Total Suspended Solids and no detectable Total Oil and Grease.

Groundwaters were sampled for normal monthly monitoring on 31 January 2008. Groundwater depths decreased at the majority of monitoring bores this month, indicating water moving towards the surface. There was a slight increase in pH at all monitoring bores this month, while EC levels remained stable.

The meteorological station continued to return high data recovery and operated well in January 2008. The predominant winds were from the NNE-SE, with stronger winds from the E. Recorded rainfall on site for January 2008 was 148.4mm, slightly lower than that recorded at the BOM Peats Ridge Station but above the Peats Ridge long-term average for January. Results are detailed below:

Rocla Calga Quarry	148.4mm
BOM Peats Ridge*	175.0mm
BOM Gosford*	192.0mm
BOM Peats Ridge Long term mean for January*	120.4mm

*Data sourced from Bureau of Meteorology (BOM) website (www.bom.gov.au)

1.0 SAMPLING PROGRAM

Rocla Calga Quarry conducts environmental monitoring in accordance to Development Consent, DEC (EPA) licence and Environmental Management Plans. Carbon Based Environmental are contracted to undertake dust deposition gauge, surface and groundwater and meteorological monitoring for the project. Carbon Based Environmental commenced monitoring from the April 2006 monitoring period.

Dust deposition gauges are operated to the Australian Standard AS3580.10.1 “Methods for Sampling and Analysis of Ambient Air Method 10.1 Determination of Particulates—Deposited Matter—Gravimetric Method”. Sampling is undertaken every 30 +/- 2 days and each gauge is analysed for insoluble solids and ash residue. The results are reported as g/m².month.

Surface water sites include local streams and dams. Basic analysis including pH, Electrical Conductivity, Total Suspended Solids and Total Oil and Grease is conducted monthly when sites A to D are flowing and Site F, a dam. Additional samples are collected when daily rainfall exceeds 50mm.

Groundwater sites are monitored at least bi-monthly for water quality and at least quarterly for water level. Groundwater monitoring loggers continuously record water levels in a selection of bores.

Meteorological monitoring is conducted at the quarry and displayed on the site computer with a real time display. Wind parameters are measured according to Australian Standard AS 2923 “Ambient Air— Guide for Measurement of Horizontal Wind for Air Quality Applications”.

The weather stations have the following sensor configuration;

- Air temperature
- Humidity
- Rainfall
- Atmospheric pressure
- Evaporation
- Solar radiation
- Wind speed
- Wind direction

Carbon Based Environmental continued to operate the monitoring equipment and utilise site collections at their existing locations.

2.0 MONTHLY RESULTS

2.1 DUST DEPOSITION GAUGES

Table 1 displays the results for January 2008 and the project average. Results are in g/m².month.

Table 1: Dust Deposition results: 2-Jan-2008 to 31-Jan-2008

Site	Monthly Insoluble Solids	Monthly Ash Residue	Monthly Combustible Matter	Monthly Ash Residue/ Insoluble Solids %	Current Project Average Insoluble Solids
CD1	1.4	0.3	1.1	21	1.4
CD2b	0.4	0.3	0.1	75	1.6
CD3	0.5	0.3	0.2	60	0.8
CD4	0.6	0.3	0.3	50	1.1
CD5	2.9	0.7	2.2	24	1.2
CD6	0.4	0.3	0.1	75	1.2

Insoluble Solids marked with an * indicate an excessively contaminated gauge. Contamination can include bird droppings, vegetation (such as plant matter, algae, pollen, seeds), and insects. Results in bold indicate insoluble solids levels above 3.7 g/m².month, the Development Consent annual average amenity criteria at residential locations. Project average was calculated from the 28 October 2005 (start of the Development Consent period) from results supplied by Rocla or from the installation date of the gauges.

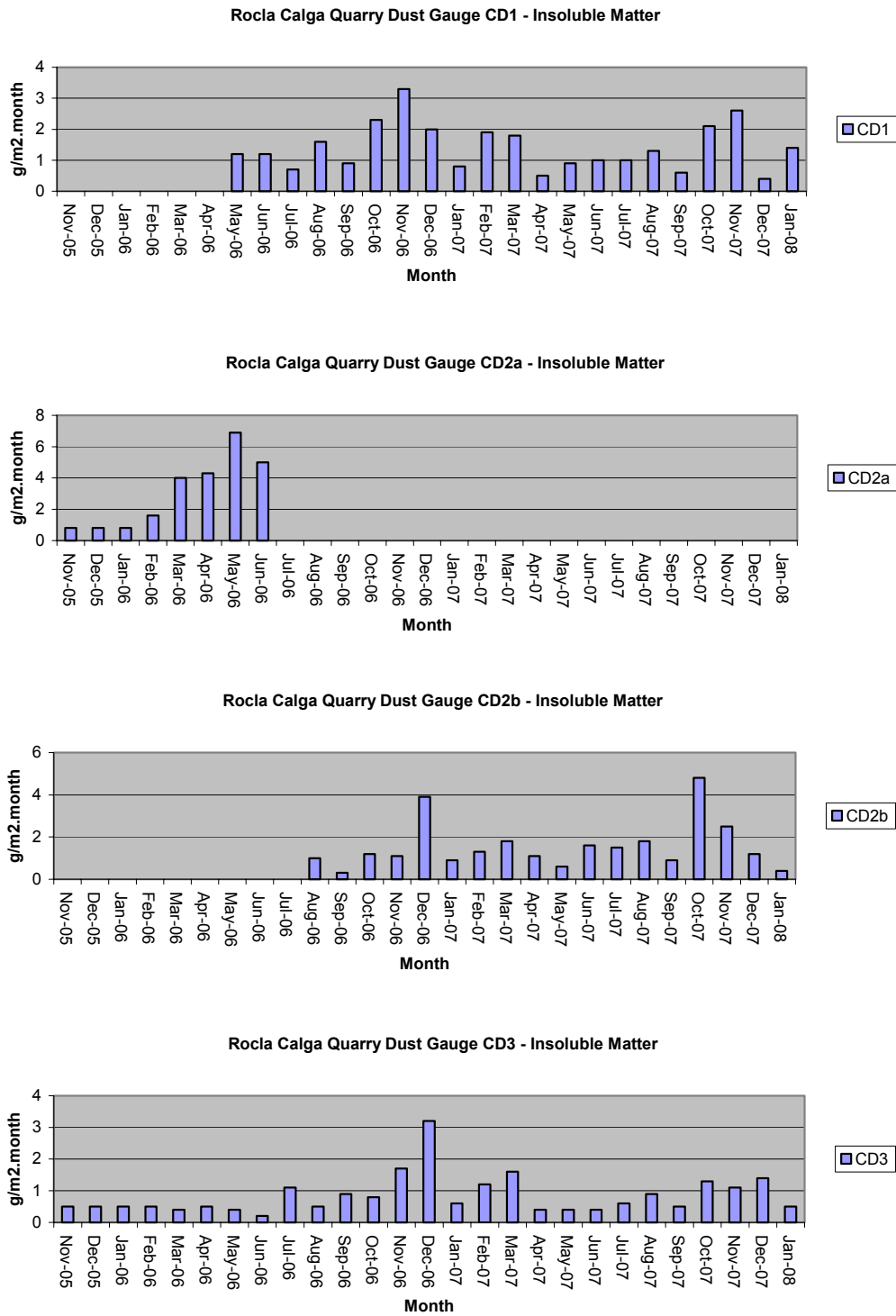
NA= Not Available.

CD1 was installed on the 1 May 2006. CD2a was discontinued at the start of August 2006 due to quarry operations “mining out” the site of the gauge. The replacement gauge, Site CD2b, was located in a position adjacent to the boundary between B. Kashouli and F. & J. Gazzana in conformance with the Air Quality Management Plan. CD4 was installed on 3 October 2006, to gauge air quality impacts to the south of the site operations, as were CD5 and CD6 which were installed on the 14 December 2006.

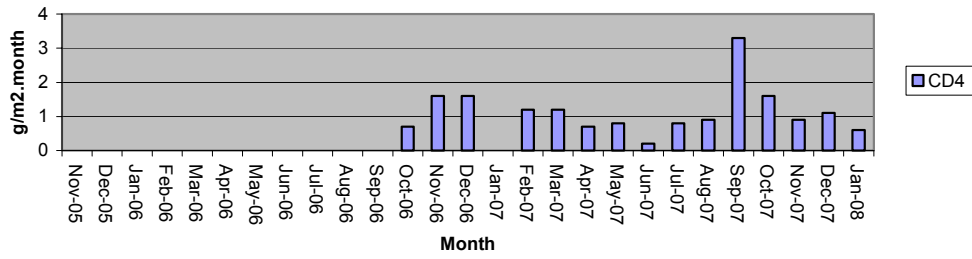
Dust deposition charts for all dust gauge sites appear in **Figure 1** below. The laboratory analysis is provided in **Appendix 1**.

Predominant winds were from the NNE-SE, with strongest winds from the E.

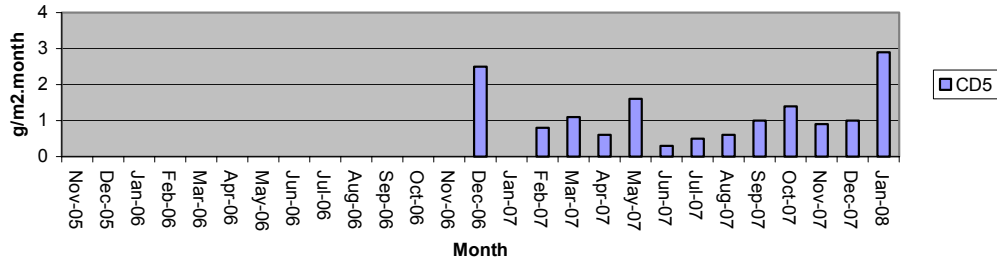
Figure 1: Dust Deposition Charts



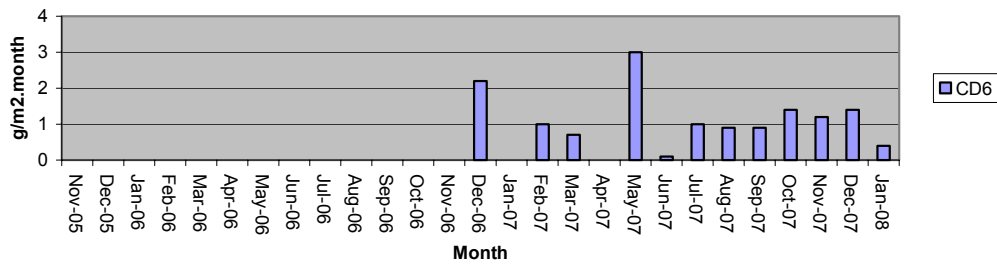
Rocla Calga Quarry Dust Gauge CD4 - Insoluble Matter



Rocla Calga Quarry Dust Gauge CD5 - Insoluble Matter



Rocla Calga Quarry Dust Gauge CD6 - Insoluble Matter



2.2 WATER MONITORING

2.2.1 Surface Waters

Monthly surface water monitoring was conducted on the 31 January 2008 and results are listed in **Table 2**. Results from sampling on the 18 January 2008 following a high rainfall event are listed in **Table 3**. The laboratory analysis sheets are provided in **Appendix 1**.

Table 2: Monthly surface water monitoring (January) - grab sample results

Site	Observed Flow Rate	Water Colour	Turbidity	pH	EC (uS/cm)	TSS (mg/l)	Oil and Grease (mg/l)
A	Not Flowing	--	--	--	--	--	--
B	Not Flowing	--	--	--	--	--	--
C	Not Flowing	--	--	--	--	--	--
D	Not Flowing	--	--	--	--	--	--
F	Dam	Clear	Clear	5.93	73	7	<5
Dam below F (Lower dam)*	Dam	Clear	Clear	5.89	72	8	<5

At the time of sampling, there were no water discharges off site from any sampling location.

* The dam below Site F is not a requirement of the Site Water Management Plan.

There was no flow from any site at the time of sampling with two samples collected from dams; these were Site F and a small dam below site F, additional to the Site Water Management Plan requirements. The samples were collected and analysed for a monthly sampling event. Results show very good water quality with slightly acidic pH, low Electrical Conductivity, low Total Suspended Solids and no detectable Total Oil and Grease.

Table 3: Surface water quality (special high rainfall event: 18-Jan-08) - grab sample results

Site	Observed Flow Rate	Water Colour	Turbidity	pH	EC (uS/cm)	TSS (mg/l)	Oil and Grease (mg/l)
A	Flowing	--	--	5.93	60	6	<5
B	Flowing	--	--	6.10	75	6	<5
C	Not Flowing	--	--	--	--	--	--
D	Flowing	--	--	5.84	62	142	<5
F	Dam	--	--	4.36	67	25	7
INFLOW	--	--	--	5.37	53	11	6

Surface water quality results from the special high rainfall sampling event show generally good quality water with slightly acidic pH and low Electrical Conductivity. Total Suspended Solids levels were elevated at site D due to the high rainfall runoff, but were generally low at the other sites sampled. Total Oil and Grease was detected at site F and “Inflow”.

2.2.2 Ground Waters

Groundwaters were sampled on the 31 January 2008. Water quality tests for pH and electrical conductivity were conducted by Carbon Based Environmental Pty Limited. For water quality purposes, water was purged from the bore until constant pH (± 0.1 pH units) and Electrical Conductivity ($\pm 5\%$) was obtained between samples. Data is displayed in **Table 4** and **Figures 2 to 5**.

Groundwater depths decreased at the majority of monitoring bores this month, indicating water moving towards the surface. The CP series of bores generally show larger increases and decreases in depth to water due to pumping from the bores. Longer term monitoring is required to fully evaluate groundwater depth trends.

Groundwater quality results indicated a slight increase in pH at all monitoring bores this month. EC levels remained low and stable. Detailed biannual water quality monitoring was conducted in October 2007 and is next due in April 2008.

Table 4: Ground Water Quality Data

Reference	Bore	Type	Depth to water TOC (m) April 06	Depth to water TOC (m) This report	pH This report	Electrical Conductivity (uS/cm) This report
CQ1	Voutos	* Monitor	20.59	19.44	5.5	135
CQ2	Voutos	DIP Only	6.23	5.02	5.2	70
CQ3	Voutos	* Monitor	10.53	10.19	5.5	125
CQ4	Voutos	* Monitor	8.78	5.68	4.9	95
CQ5	Gazzana	DIP Only	8.69	5.00	4.8	175
CQ6	Gazzana	DIP Only	16.00	10.59	4.8	135
CQ7	Gazzana	* Monitor	6.89	5.95	4.8	105
CQ8	Gazzana	* Monitor	11.03	6.00	4.8	185
CQ9	Gazzana	DIP Only	10.10	9.31	4.9	110
CQ10	Voutos	* Monitor	NI	22.08	5.6	140
CQ11S	Gazzana	* Monitor	NI	7.08	4.7	155
CQ11D	Gazzana	* Monitor	NI	8.45	4.7	125
CQ12	Gazzana	* Monitor	NI	3.97	4.9	150
CQ13	Kashouli	* Monitor	NI	10.90	4.6	195
CP3	Gazzana	Domestic	10.40	6.17	4.7	160
CP4	Kashouli	Domestic	13.63	4.95	4.5	220
CP5	Kashouli	Domestic	16.61	6.29	4.5	270
CP6	Kashouli	Domestic	16.27	10.82	4.2	240
CP7	Kashouli	Production	8.56	1.39	4.7	260
CP8	Rozmanec	Domestic	22.17	NR	NR	NR
MW7	Rocla Bore	* Monitor	15.76	15.28	5.0	125
MW8	Rocla Bore	* Monitor	9.82	6.87	5.0	115
MW9	Rocla Bore	* Monitor	22.44	21.84	5.4	100
MW10	Rocla Bore	* Monitor	15.41	13.13	4.9	125

Notes:

TOC = Water level measured from top of bore case to water.

NM = Not Monitored – unable to sample water due to access restrictions.

NR = Not Required by resident.

* = Logger Installed.

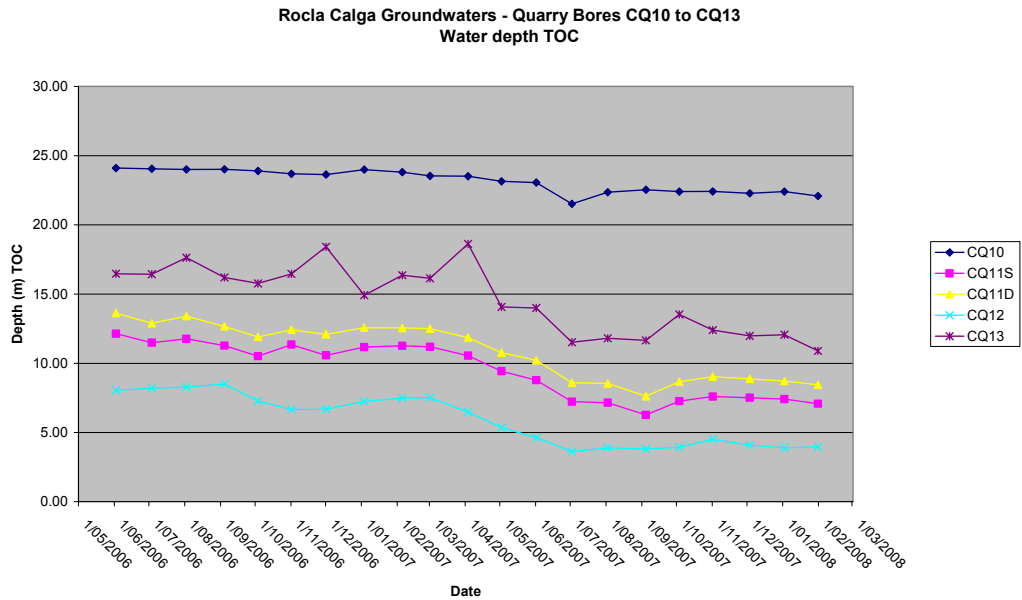
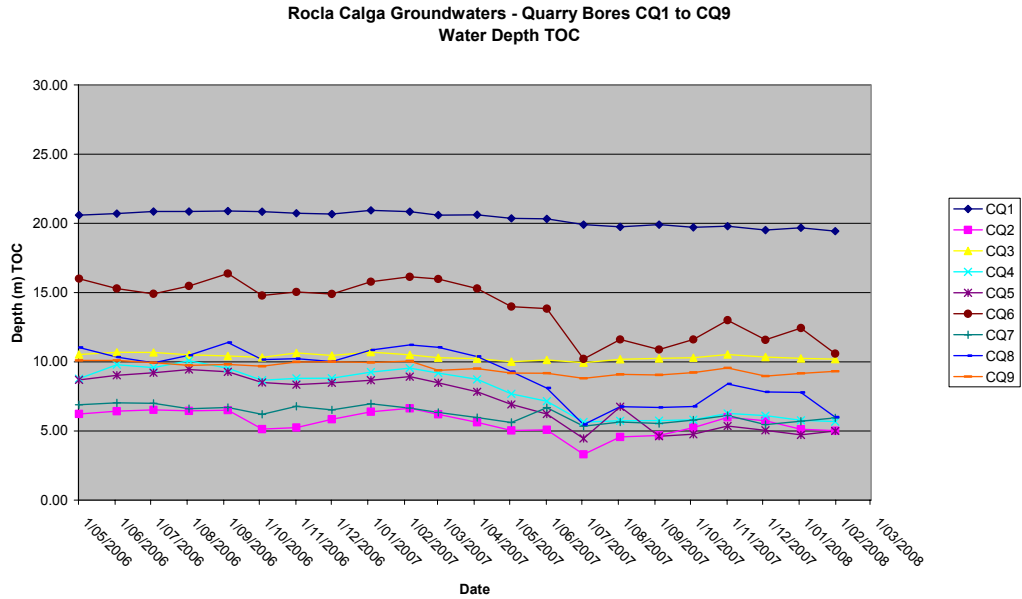
NI = These bores were not installed in April 2006 but are now operational. April 2006 was the first set of measurements taken by Carbon Based Environmental Pty Limited.

Shading is used to indicate the following trends in water depth (compared to last reading):

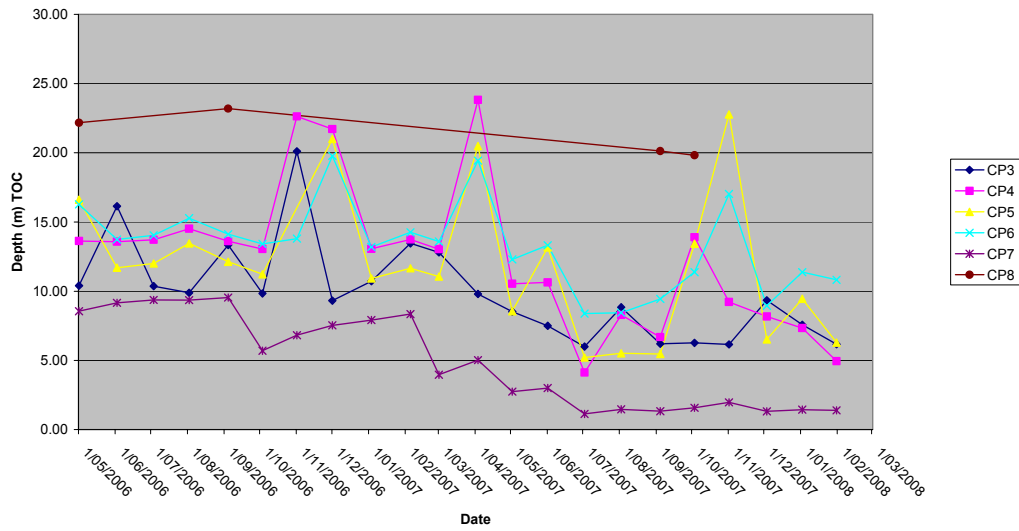
	Increase to ground water depth (water moved away from surface)
	Decrease to ground water depth (water moved towards surface)
	Stable water depth (+/- 0.01m)

Available groundwater loggers were downloaded and forwarded to the Rocla Calga Quarry groundwater consultant.

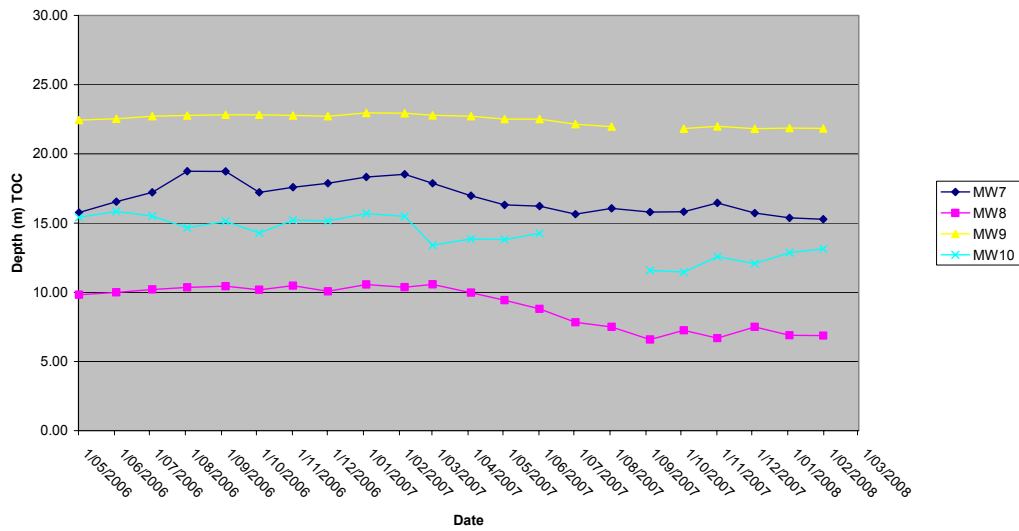
Figures 2 to 5: Groundwater Depth Charts.



Rocla Calga Groundwaters - Quarry Bores CP3 to CP8
Water Depth TOC



Rocla Calga Groundwaters - Quarry Bores MW7 to MW10
Water Depth TOC



2.3 METEOROLOGICAL MONITORING

The Rocla Calga Quarry weather station was fully operational in January 2008 with approximately 100% data recovery. The weather station data follows and includes;

- Monthly data numerical summary;
- Weather charts of air temperature, humidity, heat index and wind chill, atmospheric pressure, solar radiation, evapotranspiration, rain, wind speed and data reception; and
- Wind rose (frequency distribution diagram of wind speed and direction).

Monthly weather statistics from two nearby Bureau of Meteorology (BOM) stations, Peats Ridge and Gosford are included in **Appendix 2** for comparison purposes.

Data for January 2008 shows slightly lower rainfall at the Rocla Calga Quarry station compared to the nearby Peats Ridge BOM station and Gosford BOM station. The rainfall comparison is provided below:

Rocla Calga Quarry	148.4mm
BOM Peats Ridge*	175.0mm
BOM Gosford*	192.0mm
BOM Peats Ridge Long term mean for January*	120.4mm

*Data sourced from Bureau of Meteorology (BOM) website (www.bom.gov.au)

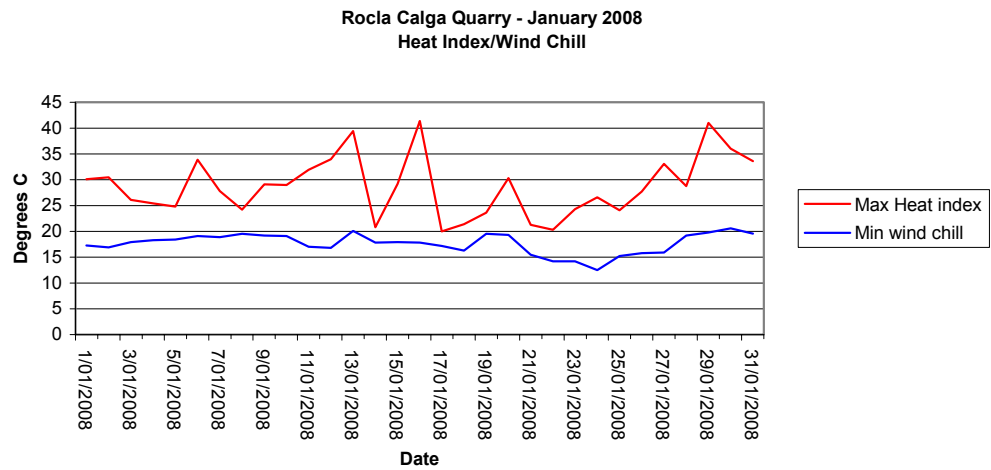
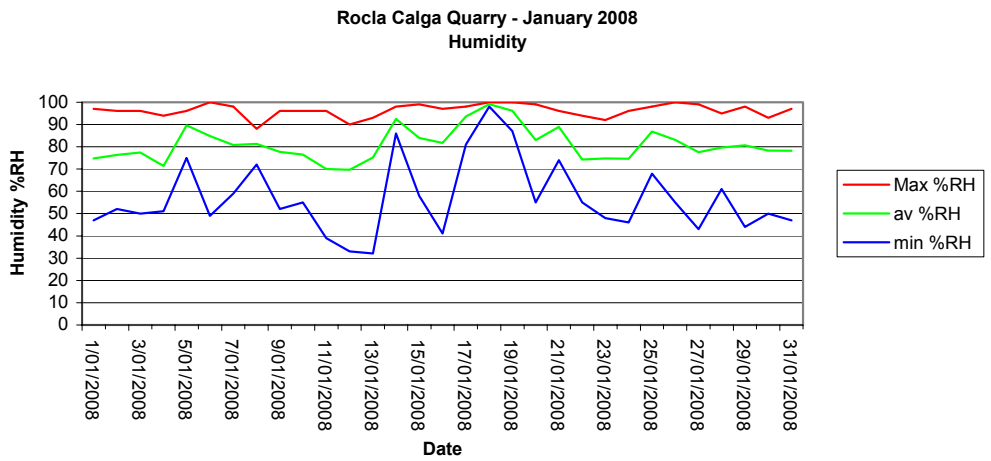
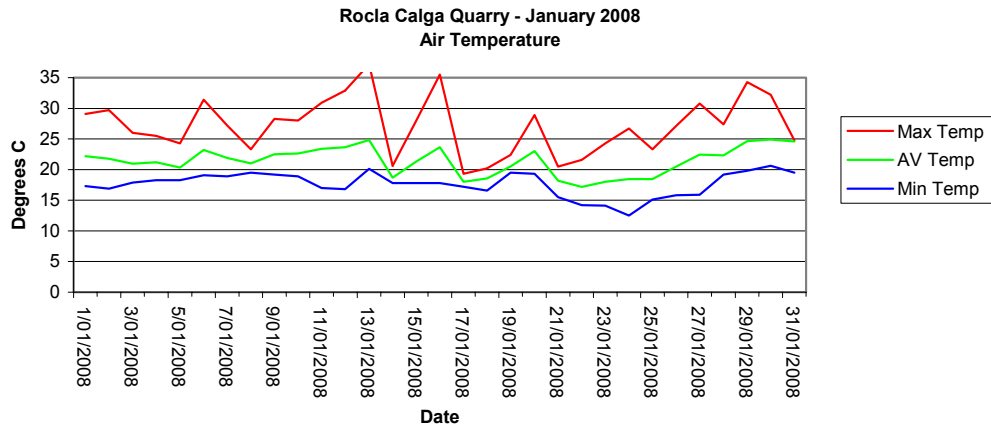
Results are displayed in the following table and figures.

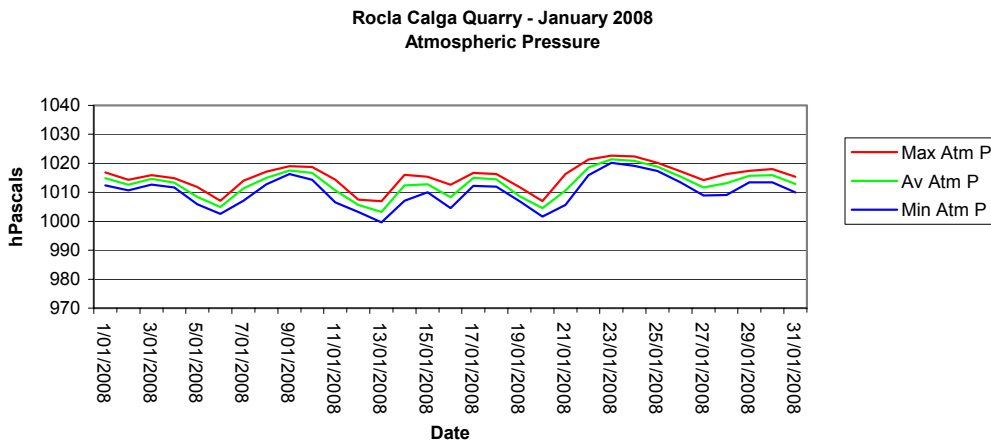
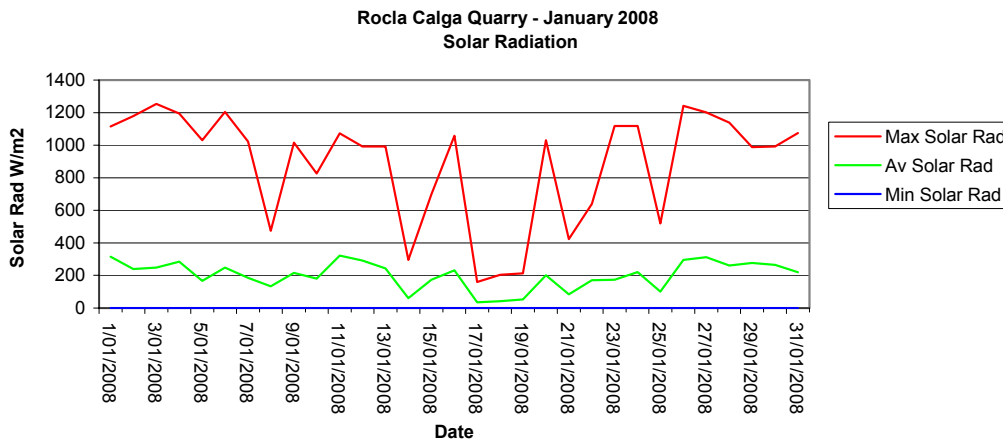
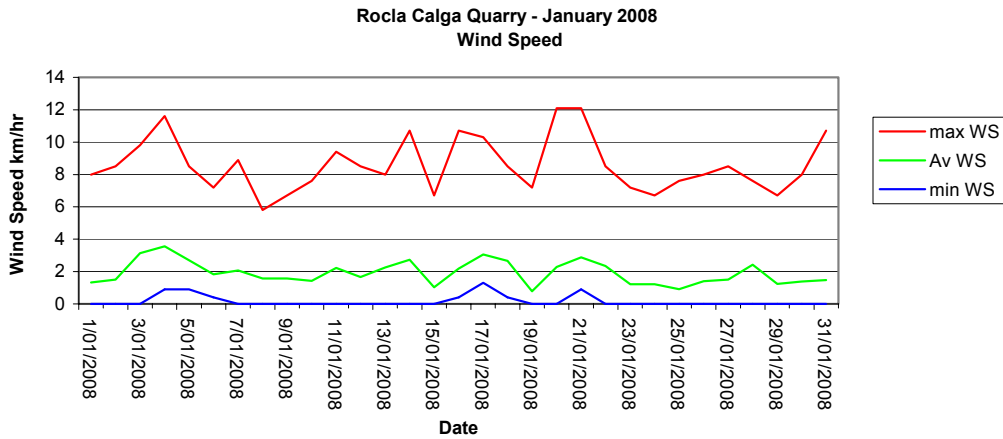
2.3.1 Monthly meteorological data summary

Summary Jan-08 Rocla - Calga

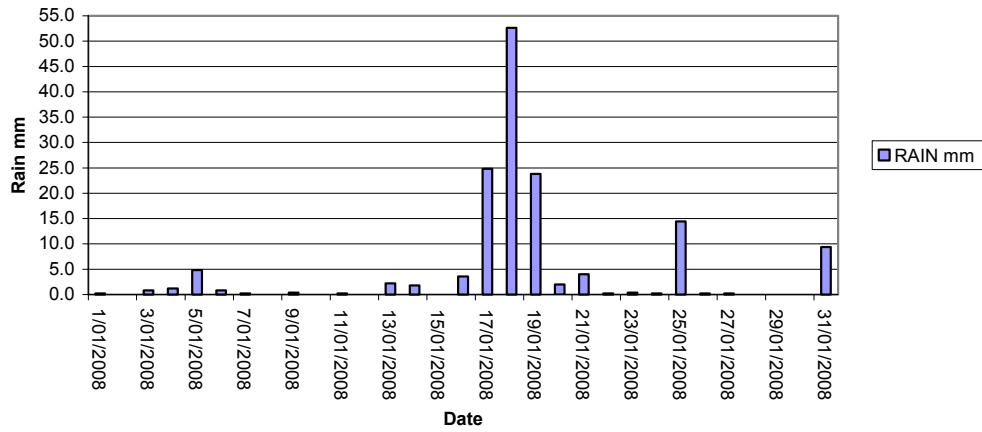
Date	Min Temp	AV Temp	Max Temp	min %RH	av %RH	Max %RH	RAIN mm	ET mm	min WS	Av WS	max WS	Min wind chill	Max Heat index	Min Atm P	Av Atm P	Max Atm P	Min Solar Rad	Av Solar Rad	Max Solar Rad	Min Data %	Av data %	Max Data %
1/01/2008	17.3	22.2	29.1	47	75	97	0.2	5.5	0	1.3	8	17.3	30.1	1012.4	1014.9	1016.9	0	314.6	1115	91.8	99.4	100
2/01/2008	16.9	21.8	29.7	52	76	96	0.0	4.5	0	1.5	8.5	16.9	30.5	1010.7	1012.6	1014.3	0	239.8	1179	95	99.6	100
3/01/2008	17.9	21.0	26	50	77	96	0.8	5.0	0	3.1	9.8	17.9	26.1	1012.7	1014.6	1015.9	0	248.5	1253	92.1	99.6	100
4/01/2008	18.3	21.2	25.5	51	71	94	1.2	5.9	0.9	3.6	11.6	18.3	25.4	1011.6	1013.3	1014.9	0	285.0	1195	93	99.7	100
5/01/2008	18.3	20.3	24.3	75	90	96	4.8	2.9	0.9	2.7	8.5	18.4	24.8	1005.9	1008.4	1011.8	0	167.1	1031	98.2	99.8	100
6/01/2008	19.1	23.2	31.4	49	85	100	0.8	4.2	0.4	1.8	7.2	19.1	33.9	1002.5	1004.9	1007.1	0	247.3	1205	91.2	99.8	100
7/01/2008	18.9	21.9	27.2	59	81	98	0.2	3.4	0	2.1	8.9	18.9	27.8	1007.1	1011.3	1014	0	186.3	1023	93	99.8	100
8/01/2008	19.5	21.0	23.3	72	81	88	0.0	2.6	0	1.6	5.8	19.5	24.2	1012.8	1015.0	1017.1	0	133.2	474	79.2	99.6	100
9/01/2008	19.2	22.5	28.3	52	78	96	0.4	4.2	0	1.6	6.7	19.2	29.1	1016.3	1017.5	1019	0	216.2	1015	98	99.9	100
10/01/2008	18.9	22.6	28	55	76	96	0.0	3.5	0	1.4	7.6	19.1	29	1014.3	1016.6	1018.8	0	179.9	827	98.5	99.9	100
11/01/2008	17	23.4	30.9	39	70	96	0.2	6.3	0	2.2	9.4	17	31.9	1006.5	1010.7	1014.4	0	322.3	1073	96.2	99.7	100
12/01/2008	16.8	23.7	32.9	33	70	90	0.0	5.8	0	1.7	8.5	16.8	34	1003.2	1005.7	1007.5	0	291.7	992	84.2	99.6	100
13/01/2008	20.1	24.8	37.2	32	75	93	2.2	5.1	0	2.3	8	20.1	39.4	999.6	1003.2	1006.9	0	242.8	992	98.8	99.9	100
14/01/2008	17.8	18.7	20.6	86	93	98	1.8	1.1	0	2.7	10.7	17.8	20.8	1007.1	1012.4	1016	0	60.1	296	98.2	99.6	100
15/01/2008	17.8	21.3	28	58	84	99	0.0	3.1	0	1.0	6.7	17.9	29.2	1010	1012.8	1015.3	0	174.1	699	97.1	99.6	100
16/01/2008	17.8	23.6	35.5	41	82	97	3.6	4.3	0.4	2.2	10.7	17.8	41.4	1004.5	1008.3	1012.6	0	230.9	1058	98.2	99.9	100
17/01/2008	17.2	18.0	19.3	81	94	98	24.8	0.7	1.3	3.1	10.3	17.2	20	1012.2	1015.0	1016.7	0	34.9	161	92.1	99.3	100
18/01/2008	16.6	18.6	20.2	98	99	100	52.6	0.6	0.4	2.7	8.5	16.3	21.4	1011.9	1014.5	1016.3	0	42.5	204	94.4	99.3	100
19/01/2008	19.5	20.5	22.4	87	96	100	23.8	0.8	0	0.8	7.2	19.5	23.6	1007	1008.7	1011.8	0	52.6	212	91.2	99.4	100
20/01/2008	19.3	23.0	28.9	55	83	99	2.0	3.9	0	2.3	12.1	19.3	30.3	1001.6	1004.5	1007	0	200.0	1030	97.7	99.9	100
21/01/2008	15.5	18.2	20.5	74	89	96	4.0	1.6	0.9	2.9	12.1	15.5	21.3	1005.7	1010.6	1016.3	0	83.6	424	91.2	99.6	100
22/01/2008	14.2	17.2	21.6	55	74	94	0.2	3.3	0	2.3	8.5	14.2	20.3	1015.9	1018.6	1021.3	0	169.8	640	97.7	99.4	100
23/01/2008	14.1	18.0	24.3	48	75	92	0.4	3.2	0	1.2	7.2	14.2	24.3	1020.2	1021.4	1022.6	0	173.8	1118	92.7	99.5	100
24/01/2008	12.5	18.5	26.7	46	75	96	0.2	4.0	0	1.2	6.7	12.5	26.6	1019.1	1020.9	1022.4	0	220.8	1118	96.2	99.7	100
25/01/2008	15.1	18.5	23.3	68	87	98	14.4	1.7	0	0.9	7.6	15.2	24.1	1017.3	1018.9	1020.2	0	102.0	519	95.9	99.3	100
26/01/2008	15.8	20.5	27.1	55	83	100	0.2	4.8	0	1.4	8	15.8	27.7	1013.4	1015.5	1017.2	0	295.3	1242	93.6	99.7	100
27/01/2008	15.9	22.5	30.8	43	78	99	0.2	5.4	0	1.5	8.5	15.9	33.1	1008.9	1011.7	1014.2	0	312.8	1201	93.3	99.6	100
28/01/2008	19.2	22.3	27.4	61	80	95	0.0	4.8	0	2.4	7.6	19.2	28.8	1009.1	1013.2	1016.3	0	261.9	1139	84.5	99.6	100
29/01/2008	19.8	24.7	34.3	44	81	98	0.0	4.9	0	1.2	6.7	19.8	41	1013.4	1015.7	1017.4	0	276.6	989	93.9	99.6	100
30/01/2008	20.6	24.9	32.2	50	78	93	0.0	4.9	0	1.4	8	20.6	36	1013.4	1015.9	1018	0	265.4	992	94.4	99.8	100
31/01/2008	19.5	24.6	24.8	47	78	97	9.4	3.8	0	1.5	10.7	19.6	33.6	1009.9	1012.9	1015.3	0	218.7	1074	93.3	99.7	100
Monthly	12.5	21.4	37.2	32	81	100	148.4	115.6	0	1.9	12.1	12.5	41.4	999.6	1012.9	1022.6	0	201.6	1253	79.2	99.6	100

2.3.2 Monthly weather charts

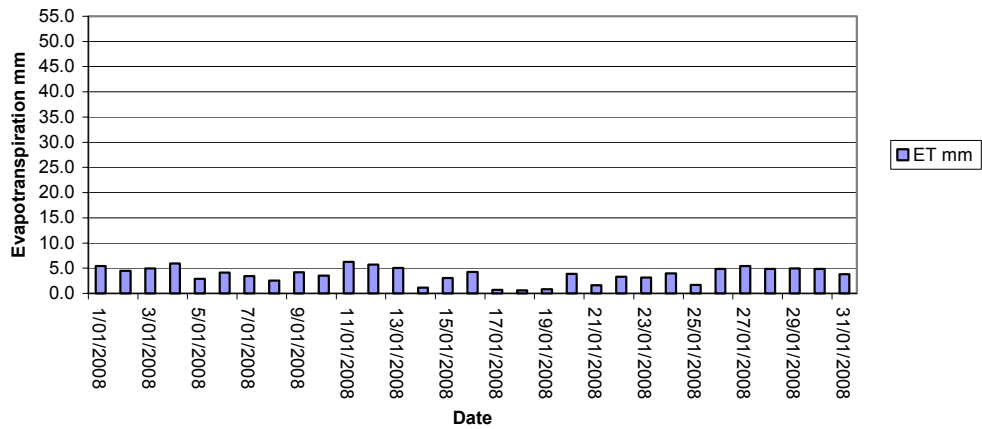




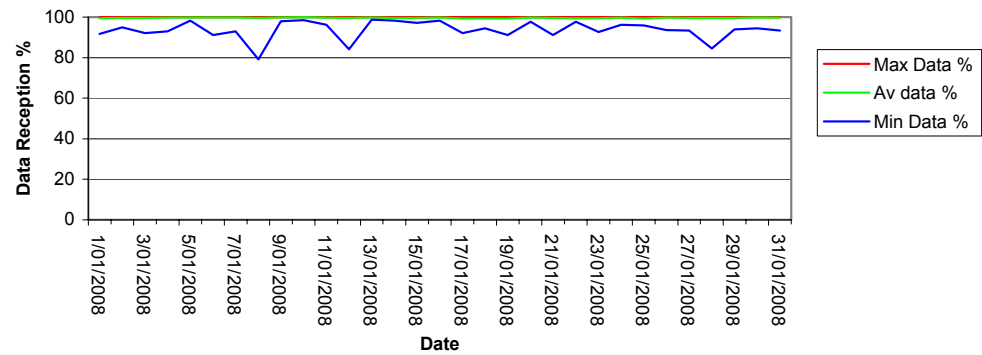
Rocla Calga Quarry - January 2008
Rainfall



Rocla Calga Quarry - January 2008
Evapotranspiration

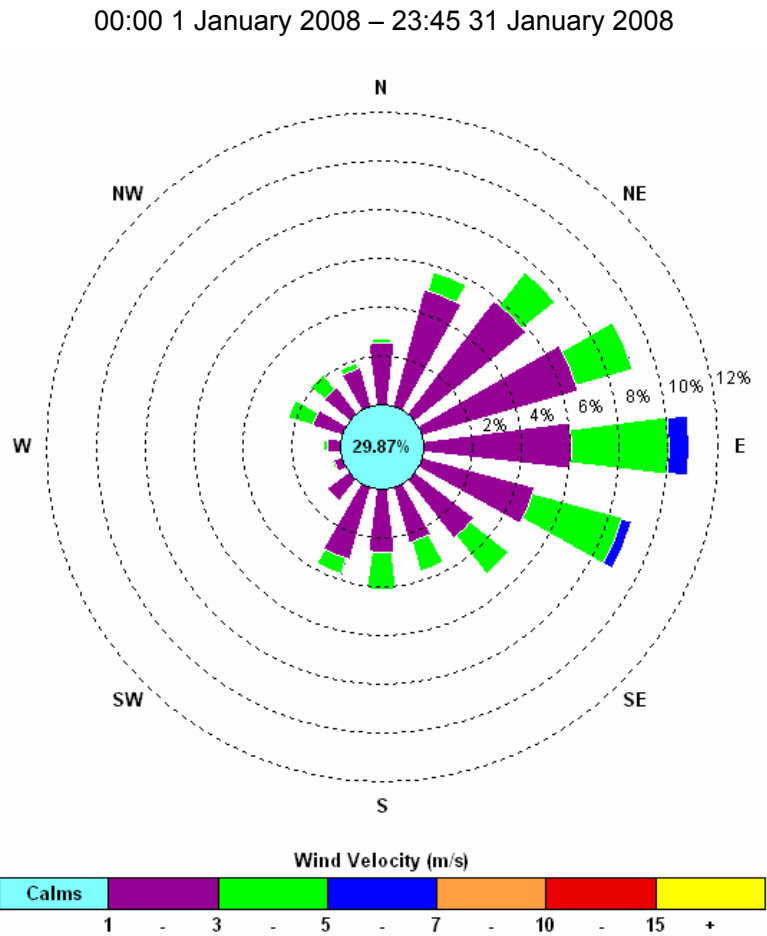


Rocla Calga Quarry - January 2008
Data Reception



2.3.3 Windrose plot

Frequency plot of the average wind speed and average direction over each 15 minute sampling period. Wind is considered calm when less than a 15 minute average of 1m/s.



The windrose shows predominant winds from the NE-ESE this month. The maximum wind speed was 12.1 m/s from the S and SW.

APPENDIX 1
LABORATORY CERTIFICATES

APPENDIX 2

**ADDITIONAL BUREAU OF METEOROLOGY DATA
FROM PEATS RIDGE AND GOSFORD
MONITORING STATIONS**

**Peats Ridge, New South Wales
January 2008 Daily Weather Observations**



Date	Day	Temps		Rain mm	Evap mm	Sun hours	Max wind gust			9am					3pm						
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C					km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	hPa
1	Tu	15.2	26.1	0	4.8				21.8	77	3	ESE	4		25.2	61	3	ENE	4		
2	We	15.8	25.7	0	5.2				22.1	75	5	E	4		24.9	66	6	E	9		
3	Th	16.8	25.3	0	4.4				20.6	77	6	ESE	9		24.1	62	6	SSE	19		
4	Fr	16.8	24.9	0	3.6				21.0	72	7	ESE	9		23.2	60	5	E	9		
5	Sa	17.7	23.7	4.2	5.8				18.2	99	8	SE	4		22.2	90	7	SSE	4		
6	Su	17.9	29.4	8.6	0.4				19.9	97	8	SSW	4		29.2	54	6	SW	4		
7	Mo	19.3	24.8	0.8	3.0				20.2	82	8	S	4		24.0	71	8	S	4		
8	Tu	17.8	24.1	0	3.2				20.7	85	8	S	4		23.2	75	8	S	4		
9	We	18.3	25.7	0.2	2.2				21.6	83	8	E	4		24.6	72	6	NE	9		
10	Th	17.8	25.3	0	3.2				22.1	79	7	NE	4		24.9	69	7	NE	4		
11	Fr	14.9	28.3	0	3.2				22.6	70	1	NE	9		27.8	56	1	NE	9		
12	Sa	15.7	30.4	0	6.4				22.1	79	1	NE	4		28.2	57	3	NW	9		
13	Su	19.4	34.6	0	6.0				25.6	89	2	N	4		32.4	51	2	E	9		
14	Mo	17.6	19.6	3.4	4.6				18.2	96	8	S	9		19.0	93	8	SSW	4		
15	Tu	17.3	24.6	6.2	0.6				19.6	92	7	SE	4		22.6	76	8	NE	9		
16	We	18.9	32.7	0	2.0				24.4	80	2	NW	4		28.2	76	8	NE	9		
17	Th	16.8	18.7	12.4	5.8				17.6	96	8	SE	9		17.7	95	8	SSE	9		
18	Fr	16.3	21.8	47.6	0.8				18.2	99	8	SE	4		19.0	100	8	WSW	4		
19	Sa	17.8	23.6	37.0	0.4				21.6	88	8	NE	4		21.8	93	8	ENE	4		
20	Su	18.8	26.6	21.6	1.0				23.6	79	4	NW	19		24.4	77	8	NW	4		
21	Mo	18.1	20.2	13.2	3.0				18.8	91	8	S	4		19.0	83	8	N	4		
22	Tu	13.4	21.1	7.6	1.8				17.0	79	5	E	9		20.0	60	7	N	4		
23	We	12.4	22.1	0.2	3.0				17.6	84	8	SE	4		20.7	59	6	NE	9		
24	Th	11.4	24.3	0	2.4				18.6	72	1	NE	4		23.2	57	3	NE	9		
25	Fr	13.5	21.3	0	4.2				18.8	85	8	NE	4		21.3	87	8	SSE	4		
26	Sa	14.2	25.9	11.8	1.2				19.0	92	5	ESE	4		23.7	67	3	NE	4		
27	Su	15.2	28.2	0.2	4.0				20.8	87	4	NE	4		27.6	56	2	NE	9		
28	Mo	17.8	26.2	0	6.0				22.4	84	7	S	4		25.8	72	2	E	4		
29	Tu	18.9	31.4	0	3.4				22.1	87	8	ENE	4								
30	We	19.6	29.9	0	4.8				24.1	81	3	NE	4		29.2	63	2	NE	9		
31	Th	18.9	31.2	0	6.0				24.1	76	3	NE	4		27.6	74	8	NW	4		
Statistics for January 2008																					
Mean		16.8	25.7		3.4				20.8	83	5		5		24.2	71	5		6		
Lowest		11.4	18.7		0.4				17.0	69	1	#	4		17.7	51	1	#	4		
Highest		19.6	34.6	47.6	6.4				25.6	99	8	NW	19		32.4	100	8	SSE	19		
Total				175.0	106.4																

Gosford, New South Wales
January 2008 Daily Weather Observations



Australian Government
Bureau of Meteorology

Date	Day	Temps		Rain mm	Evap mm	Sun hours	Max wind gust			9am					3pm						
		Min	Max				Dirn	Spd	Time	Temp	RH	Cld	Dirn	Spd	MSLP	Temp	RH	Cld	Dirn	Spd	MSLP
		°C	°C					km/h	local	°C	%	eighths		km/h	hPa	°C	%	eighths		km/h	nPa
1	Tu	16.0	26.6	0			NE	24	14:27	22.6	78			Calm		25.7	63		ESE	9	
2	We	16.2	27.3	0			ENE	28	13:21	23.8	61			ESE	6	24.9	65		ENE	7	
3	Th	16.2	26.6	0			SE	33	16:29	23.8	66			ESE	9	25.1	60		ESE	11	
4	Fr	16.8	25.3	0.4			SE	35	13:21	23.0	66			SE	13	24.1	61		ESE	15	
5	Sa	19.3	25.6	4.2			SSE	28	11:59	21.3	92			SE	9	22.0	88		SSE	15	
6	Su	20.4	31.0	10.2			ENE	20	14:03	22.1	91			NNW	7	30.5	50		SE	4	
7	Mo	19.9	26.3	1.0			SSE	28	09:35	21.7	84			SSW	4	24.9	65		SSE	9	
8	Tu	18.8	24.9	0			SE	19	08:00	22.0	81			SE	7	24.2	69		SE	7	
9	We	19.4	26.6	0			SE	22	08:32	24.0	71			SE	2	24.5	69		SE	9	
10	Th	19.0	26.7	0			ENE	24	17:09	23.3	77			NNW	7	25.8	64		ENE	9	
11	Fr	16.1	27.9	0			ENE	30	16:10	23.6	71			NE	11	27.3	59		ENE	11	
12	Sa	15.6	29.8	0			ESE	26	16:16	24.7	73			E	6	27.9	58		NE	11	
13	Su	19.6	32.9	0			SSE	28	22:43	26.5	66			N	7	31.0	55		E	9	
14	Mo	20.0	21.5	3.0			SE	37	23:15	20.0	93			SE	13	21.3	82		SSE	11	
15	Tu	18.4	25.9	5.6			ENE	19	15:03	20.8	91			Calm		25.2	70		N	6	
16	We	20.4	33.4	0			SSE	44	16:56	25.5	74			N	7	29.7	65		NE	7	
17	Th	18.6	21.8	15.6			SE	39	09:48	19.0	91			SSE	6	19.2	97		SSE	11	
18	Fr	17.8	22.8	20.6			ESE	28	12:13	19.5	99			SSE	9	20.0	99		S	4	
19	Sa	19.5	24.3	51.4			NNW	17	19:01	22.7	88			NE	4	23.3	90			Calm	
20	Su	19.8	27.9	30.2			N	22	10:20	22.6	91			N	6	25.3	87		E	6	
21	Mo	20.3	23.5	1.8			SE	46	11:48	21.0	82			SSE	9	22.5	72		SSE	15	
22	Tu	15.1	22.9	3.4			SSE	28	09:37	19.1	71			S	4	22.2	54		SE	13	
23	We	13.7	24.0	0.2			SE	24	10:34	18.2	94			Calm		22.5	50		ESE	7	
24	Th	10.9	25.5	0			S	22	12:42	20.2	70			NW	4	25.0	51		E	9	
25	Fr	14.2	24.8	0			SE	24	15:41	18.9	93			Calm		24.0	68		ESE	7	
26	Sa	15.3	26.6	44.4			SE	24	13:27	22.1	86			E	4	25.5	65		SE	13	
27	Su	14.6	28.1	0			ENE	28	15:45	22.3	84			E	4	27.4	62		ENE	11	
28	Mo	16.1	26.3	0			SE	30	10:35	22.2	87			SE	11	25.9	69		SE	13	
29	Tu	18.5	30.6	0			NE	24	15:58	24.0	80			Calm		28.6	70		ENE	11	
30	We	22.3	29.2	0			NE	28	14:07	25.1	75					28.4	66		E	11	
31	Th	19.0	31.2	0			NE	28	14:07	26.2	75			ESE	6	28.2	69		ENE	7	
Statistics for January 2008																					
Mean		17.7	26.7							22.3	80			5		25.2	68			9	
Lowest		10.9	21.5							18.2	61			Calm		19.2	50			Calm	
Highest		22.3	33.4	51.4			SE	46		26.5	99			SE	13	31.0	99		#	15	
Total				192.0																	