
WAMBO COAL PTY LIMITED

MONTHLY ENVIRONMENTAL MONITORING REPORT

March 2013

Table of Contents

1.0	INTRODUCTION.....	1
2.0	METEOROLOGICAL DATA.....	1
3.0	SURFACE WATER SAMPLING.....	1
4.0	GROUNDWATER SAMPLING.....	3
5.0	DEPOSITIONAL DUST SAMPLING	4
6.0	HIGH VOLUME AIR SAMPLING	5
7.0	BLAST EVENTS	6
8.0	REAL-TIME AIR QUALITY MONITORING.....	8

1.0 Introduction

This report presents environmental monitoring results for the reporting period **Friday 1 to Sunday 31 March 2013**. Monitoring during this period includes meteorological measurement, surface and ground water sampling, depositional dust sampling, High Volume Air Sampling, blasting events and PM10 real time air monitoring results. Real time noise monitoring results are reported in a quarterly format and can be found on the Peabody Wambo website at <http://www.peabodyenergy.com.au/nsw/wambo-mine.html>

2.0 Meteorological Data

Results for reporting period are available in **Appendix A**.

3.0 Surface Water Sampling

Surface water samples are collected in accordance with **AS/NZS 5667.4:1998 – *Guidance on sampling from lakes, natural and man-made*** and **AS/NZS 5667.6:1998 – *Guidance on sampling of rivers and streams***. All samples collected were analysed in the field for **pH**, electrical conductivity (**EC**) and temperature. Selected sites were analysed in a **NATA*** accredited laboratory for total suspended solids (**TSS**) and total dissolved solids (**TDS**).

*National Association of Testing Authorities - **NATA is the authority that provides independent assurance of technical competence.**

Samples collected along Longford Creek displayed elevated TSS readings during the reporting period. Longford creek monitoring sites are located approximately 8km from the Wambo Mine site, adjacent to the Golden Highway and existing rail network. These sites are also located within the discharge path of an adjacent mine operation which may have had some influence on results.

Table 1: Monthly Surface Water Results – March 2013

Sample Location	pH	EC (µS/cm)	TSS (mg/L)	TDS (mg/L)	Oil & Grease (mg/L)	Temp (°C)	Comments
WOLLOMBI BROOK							
Wollombi Brook							
SW01 - Wollombi Brook Up	-	-	-	-			No Access
SW03 - Wollombi Brook Pump Out	7.10	226	220	165			
SW02 - Wollombi Brook Down	7.40	288	21	208			
SW40 - Confluence with SWC	7.10	135	55	146			
NORTH WAMBO CREEK							
North Wambo Creek							
SW04 - North Wambo Creek Up	7.30	256	5	157			
SW27 - North Wambo Creek Middle Lower	7.60	267	4,440	916			
SW32 - North Wambo Creek Pump	7.60	330	2,310	622			
SW05 - North Wambo Creek Down	7.30	280	1,110	415			
SOUTH WAMBO/STONY CREEKS							
South Wambo/Stony Creek							
SW06 - South Wambo Creek	-	-	-	-			No Access
SW07 - South Wambo/Stony Creek	7.40	237	102	147			
SW08 - Stony Creek	-	-	-	-			No Access
LONGFORD/DOCTOR'S CREEKS							
SW43 - Longford Creek Up	7.30	190	272	280	<2	-	
SW44 – Longford Creek Down	7.40	204	396	412	<2	-	
SW46 - Doctors Creek Up	7.30	329	90	258	<2	-	
SW45 – Doctors Creek Down	7.30	340	79	250	<2	-	
WATERFALL CREEK							
SW39 – Waterfall Creek Midstream	8.00	99	96	182			
MINE WATER DAMS							
SW11 - West Cut Dam Pipe	Not Pumping						
SW12 - West Cut Dam	8.20	5,650	-	-	-	-	-
SW14 - Box Cut Dam (Admin)	9.00	1,307	-	-	-	-	-
SW15 - Eagles Nest Dam	9.00	5,430	47	3,060	-	-	-
SW20 - Dam Adjacent to West Cut Dam	7.90	1,382	-	-	-	-	-
SW29 - SCB Dam	7.50	1,088	-	-	-	-	-
SW30 - Turkeys Nest	9.20	6,500	-	-	-	-	-
SW31 - Gordon Below Franklin	9.10	3,480	-	-	-	-	-
SW37 - Wollemi Sump	8.30	932	-	-	-	-	-
SW38 - Homestead Open Cut	8.90	7,300	-	-	-	-	-
SW47 - NWU Pumpout Water	-	-	-	-	-	-	Site Dry
SW48 - Inpit sample	8.10	5,870	-	-	-	-	-
SW49 - Bates Pit Pumpout	8.60	1,068	-	-	-	-	-
SW51 – South Dam	9.1	5510	-	-	-	-	-
SW50 - Hunter River Water	Not Pumping						

Note: Figures in bold are outside trigger levels.

4.0 Groundwater Sampling

Wambo groundwater monitoring is conducted on a bi-monthly basis and so was not done during March.

Table 2: Ground Water Results – March 2013

Sample Location	pH	EC ($\mu\text{S/cm}$)	Depth to Water (m)	Temp ($^{\circ}\text{C}$)	Comments
GW02	-	-	-	-	
GW11	-	-	-	-	
P106	-	-	-	-	
P109	-	-	-	-	
P110	-	-	-	-	
P111	-	-	-	-	
P114	-	-	-	-	
P116	-	-	-	-	
P202	-	-	-	-	
P206	-	-	-	-	
P301	-	-	-	-	
P311	-	-	-	-	
P315	-	-	-	-	
GW12	-	-	-	-	
GW13	-	-	-	-	
GW14	-	-	-	-	
GW15	-	-	-	-	
GW16	-	-	-	-	
GW17	-	-	-	-	
GW18	-	-	-	-	
GW19	-	-	-	-	
GW20	GW20 is a vibration wire multi-piezometer installation				
GW21	-	-	-	-	
GW22	-	-	-	-	
P1	-	-	-	-	
P3	-	-	-	-	
P5	-	-	-	-	
P6	-	-	-	-	
P11	-	-	-	-	
P12	-	-	-	-	
P13	-	-	-	-	
P15	-	-	-	-	
P16	-	-	-	-	
P17	-	-	-	-	
P18	-	-	-	-	
P20	-	-	-	-	

Note: All depths measured to top of casing, except United bores which are to ground. Figures in bold are outside trigger levels listed in Table 5 of the Ground Water Monitoring Programme (GWMP), which is part of the Site Water Management Plan.

5.0 Depositional Dust Sampling

Sixteen (Table 3) depositional dust gauges were collected for the reporting period. Sampling and analysis is conducted in accordance with **AS 3580.10.1 – 1991 – Determination of particulates – Deposited matter – Gravimetric method**. All gauges were analysed for insoluble solids (IS) and ash residue (AS). Field observations include water quantity and quality, and any visible contaminants in the sample.

Table 3: Dust Deposition Results – March 2013

Site	Insoluble Solids (IS) (g/m ² .month)	Ash Residue (AR) (g/m ² .month)	IS:AR Ratio	IS YTD Average (g/m ² .month)	AR YTD Average (g/m ² .month)
D01	13.6	3.7	27	8.9	4.1
D03	2.2	1.6	73	3.4	2.3
D07	3.8	2.5	66	6.1	3.2
D09	3.1	2.0	65	6.4	3.3
# D11	2.6	1.9	73	2.7	2.0
# D12	3.2	2.5	78	4.1	2.9
D14					
# D17	5.2	2.5	48	3.5	1.6
D19	3.2	2.4	75	3.8	2.6
D20	1.4	0.7	50	2.0	1.3
# D21	1.90	1.60	84	2.2	1.6
# D22	2.7	1.6	59	2.2	1.7
D23	1.5	1.0	67	1.8	1.3
# D24	1.9	1.2	63	1.1	0.9
# D25	4.7	2.7	57	2.7	2.0
D26	1.3	1.0	77	1.7	1.2

Note: Results in **bold** are YTD average above 4g/m²/month
Results # are dust gauges not on WCPL owned land. DD gauges on Wambo Coal land and above criteria level are not considered non-compliance.

Three dust gauges (**D01, D07 and D09**) recorded insoluble solids results above 4g/m² for the Year To Date averages due to contaminants (i.e. bird droppings, insects and spiders). Insoluble solid results are reported on the **annual average of 4g/m²/month** of all **uncontaminated results** which are not located on Wambo Coal owned land.

No sites located outside of Wambo owned land were outside of prescribed compliance levels.

6.0 High Volume Air Sampling

Four high volume air sampler (HVAS) operated at locations surrounding Wambo during the reporting period (**Table 4**). All units sampled Total Suspended Particulates (TSP) over a 24-hour period on a six day cycle, in accordance with **AS 2724.3 – 1984 – Determination of total suspended particulates (TSP) – High volume sampler gravimetric method**.

Table 4: HVAS Results – March 2013

Date of Run	HV01 - Coralie TSP ($\mu\text{g}/\text{m}^3$)	HV02 - Caban TSP ($\mu\text{g}/\text{m}^3$)	HV03 - Thelander TSP ($\mu\text{g}/\text{m}^3$)	HV04 - Muller TSP ($\mu\text{g}/\text{m}^3$)
04/03/13	73.8	33.0	57.4	51.9
10/03/13	61	46.5	53.9	68.5
16/03/13	67.8	71.8	59.9	93.3
22/03/13	84.3	111.0	44.5	59.3
28/03/13	72.1	69.7	46.1	44.8
Monthly Mean	72	66	52	64
Yearly Mean	76	68	52	70

Note: * No viable sample collected.

Wambo did not exceed the project criteria for the reporting period with all **annual averages** below **90 $\mu\text{g}/\text{m}^3$** .

7.0 Blast Events

Four monitoring sites measure ground vibration and air blast overpressure for blasts conducted at Wambo. Eight blasts were conducted during the reporting period. Monitoring at all four sites is conducted under the blast monitoring requirements set out in the **Wambo EPA licence (EPL 529) and DA 305-7-2003**.

All blasts conducted (**Table 5**) were within development consent and EPL limits of **120dB** (linear peak) for overpressure and **10mm/s** for vibration.

Wambo continues to comply with the EPL condition that 95 per cent of all blasts (in a reporting year) shall have overpressure results less than 115dB (linear peak) and ground vibration results less than 5 mm/s.

Table 5: Blast Results – March 2013

Blast Number	Date	Time	Identification	Homestead (BM01)		Kelly (BM02)		Muller (BM05)		Harris (BM03)	
				Overpressure dB(L)	Vibration (mm/sec)	Overpressure dB(L)	Vibration (mm/sec)	Overpressure dB(L)	Vibration (mm/sec)	Overpressure dB(L)	Vibration (mm/sec)
1	05/03/13	15:37	M14WRA2	93.1	0.15	95.5	0.08	108.3	0.35	98.3	0.09
2	08/03/13	15:36	M17WWA7	97.2	0.17	<111.0	<0.22	112.2	0.52	97.0	0.12
3	13/03/13	15:39	M15RCA4	93.1	0.08	<111.0	<0.22	105.9	0.30	94.5	0.08
4	19/03/13	15:30	M12WRC1	93.1	0.09	90.0	0.08	110.7	0.16	<111.0	<0.22
5	21/03/13	15:31	M17WWA8	101.9	0.11	109.6	0.07	106.7	0.44	100.0	0.08
6	26/03/13	15:38	M19WWA1	103.4	0.18	100.2	0.16	108.1	0.78	102.2	0.14

8.0 Real-Time Air Quality Monitoring

Four real time Tapered Element Oscillating Microbalance (**TEOM**) units were in operation during the reporting period. The sites are located at Coralie (**PM01**), the Caban residence (**PM02**), Thelander residence (**PM03**) and the Muller residence (**PM04**). These units measure particulate matter less than 10 microns in diameter (**PM₁₀**) on a continuous basis and provide a 24 hour average result. These units operated and sampled in accordance with **AS 3580.9.8 - 2002, Method for Sampling and Analysis of Ambient Air - Determination of Suspended Particulate Matter - PM₁₀ Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser.**

During the reporting period, there were no exceedances recorded at any of the approved receivers. The year to date average results at all **PM10** sites were below the guideline for annual average **24hr period (30ug/m³)**.

Table 6 PM10 Results – March 2013

Date of Run	AQ01 (Coralie)		AQ02 (Wambo Road)		AQ03 (Thelander)		AQ04 (Muller)	
	PM10 24 Hour Result (ug/m ³)	YTD Average	PM10 24 Hour Result (ug/m ³)	YTD Average	PM10 24 Hour Result (ug/m ³)	YTD Average	PM10 24 Hour Result (ug/m ³)	YTD Average
01/03/13	4.7	23.82	4.1	24.36	3.5	19.53	3.9	20.55
02/03/13	7.0	23.75	5.5	24.28	6.2	19.47	5.9	20.49
03/03/13	17.4	23.72	13.6	24.24	17.3	19.46	14.1	20.46
04/03/13	25.6	23.73	17.8	24.21	24.4	19.48	19.9	20.46
05/03/13	18.9	23.71	15.7	24.18	20.7	19.49	18.6	20.45
06/03/13	20.4	23.70	15.0	24.14	15.9	19.48	20.9	20.45
07/03/13	14.7	23.66	15.4	24.11	13.2	19.45	14.4	20.43
08/03/13	17.4	23.64	15.0	24.07	16.1	19.44	18.8	20.42
09/03/13	15.3	23.60	15.0	24.03	14.6	19.42	19.2	20.42
10/03/13	18.6	23.58	20.3	24.02	17.5	19.41	19.1	20.41
11/03/13	18.5	23.56	15.7	23.99	19.9	19.41	17.3	20.40
12/03/13	17.6	23.54	15.6	23.95	18.9	19.41	22.6	20.41
13/03/13	17.9	23.52	18.2	23.93	16.2	19.40	20.4	20.41
14/03/13	27.5	23.53	24.0	23.93	33.7	19.45	26.9	20.43
15/03/13	17.3	23.51	18.8	23.91	18.6	19.45	20.5	20.43
16/03/13	23.1	23.51	26.3	23.92	17.3	19.44	24.7	20.45
17/03/13	21.4	23.50	21.9	23.91	19.5	19.44	21.3	20.45
18/03/13	20.2	23.49	22.1	23.90	26.6	19.47	25.6	20.47
19/03/13	16.4	23.46	16.1	23.87	20.8	19.47	24.9	20.49
20/03/13	14.5	23.43	16.1	23.84	18.2	19.47	20.0	20.49
21/03/13	21.6	23.42	32.5	23.88	17.4	19.46	20.8	20.49
22/03/13	23.6	23.42	39.2	23.94	17.7	19.45	20.1	20.49
23/03/13	13.1	23.38	17.0	23.91	14.5	19.44	15.6	20.47
24/03/13	19.8	23.37	20.7	23.90	11.7	19.41	14.5	20.45
25/03/13	36.5	23.42	32.8	23.93	33.0	19.46	26.9	20.47
26/03/13	29.6	23.44	9.6	23.88	30.3	19.50	18.5	20.47
27/03/13	14.4	23.41	24.8	23.88	-	-	13.0	20.44
28/03/13	17.9	23.39	34.4	23.92	-	-	17.2	20.43
29/03/13	14.1	23.35	12.1	23.88	-	-	10.9	20.39
30/03/13	17.2	23.33	19.5	23.86	17.6	19.49	16.0	20.37
31/03/13	17.9	23.31	15.5	23.83	13.0	19.47	11.6	20.34

Note: Results in red are greater than the 24hr period guidelines of 50ug/m³
 Results in red are greater than the annual average 24hr period guidelines of 30ug/m³
 Results in bold are between 30ug/m³ and 50ug/m³
 - data unavailable due to instrument error

Appendix A
Wambo Weather Station
Meteorological Data

Meteorological Data March 2013

Date	Temp (2m)			Temp (10m)			Temp Inversion			Humidity			Solar Radiation			Rain mm	Wind Speed		
	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max	Min	Avg	Max		Min	Avg	Max
01/03/13	16.1	17.5	19.0	16.8	18.0	19.3	4.0	6.8	8.8	86.5	92.5	95.4	-1.5	38.4	176.5	29.6	1.0	2.9	4.3
02/03/13	16.0	17.1	18.0	16.6	17.7	18.5	4.2	6.7	8.7	85.5	92.6	96.3	-1.5	43.6	185.4	19.4	1.9	2.7	4.5
03/03/13	17.8	21.1	24.8	18.4	21.4	24.9	-44.5	4.5	9.4	60.2	78.7	95.9	-1.5	160.6	801.4	0.4	1.6	3.5	7.1
04/03/13	17.9	21.9	26.4	18.7	21.9	25.3	-81.0	0.1	11.3	57.8	73.9	88.2	-1.5	172.0	625.8	0.0	0.9	3.5	6.6
05/03/13	0.7	24.7	31.3	18.8	22.2	26.0	-103.3	-30.3	252.4	56.4	73.9	91.7	-1.5	214.6	808.2	0.0	0.6	2.8	6.0
06/03/13	7.1	21.1	32.6	18.0	22.9	27.6	-71.8	22.1	190.4	48.4	72.1	96.0	-1.9	269.9	644.8	0.0	0.0	1.9	4.0
07/03/13	5.1	19.4	31.2	16.4	22.5	28.2	-54.3	38.5	157.0	44.9	71.6	96.3	-1.4	294.6	968.5	0.0	0.0	1.5	4.9
08/03/13	17.8	23.7	27.4	16.8	22.2	27.4	-96.7	-18.8	19.2	46.7	72.8	95.3	-1.5	214.6	963.9	0.0	0.0	1.9	4.5
09/03/13	17.5	22.7	28.2	18.5	23.4	28.4	-2.5	8.2	19.5	45.4	70.3	92.3	-1.4	217.9	911.6	0.0	0.3	1.6	3.6
10/03/13	15.8	21.9	28.2	16.9	22.5	28.2	-3.6	7.8	15.9	45.6	74.8	96.8	-1.5	245.6	932.5	0.0	0.0	1.3	4.1
11/03/13	17.0	22.3	27.7	18.1	22.8	27.6	-2.1	6.4	16.1	50.6	74.3	94.9	-1.5	247.3	920.1	0.0	0.3	2.3	6.5
12/03/13	16.6	21.6	27.1	17.6	22.3	27.0	-2.7	8.5	21.3	47.7	74.1	95.3	-1.5	232.9	949.4	0.0	0.1	1.8	5.0
13/03/13	14.1	21.2	29.2	15.3	21.8	28.8	-8.0	7.5	18.4	36.6	73.2	96.8	-1.5	266.9	879.0	0.0	0.0	1.0	3.2
14/03/13	14.8	21.8	28.0	15.5	22.3	27.8	-6.4	5.9	15.8	53.7	77.5	96.9	-1.5	212.3	852.1	0.0	0.0	1.4	4.1
15/03/13	20.1	22.3	26.5	20.7	22.7	26.0	-7.7	5.2	13.9	63.6	81.8	93.2	-1.5	155.2	1065.6	0.0	0.1	1.6	4.4
16/03/13	17.1	24.1	32.2	18.2	24.6	32.2	-10.2	6.6	37.4	42.6	74.9	96.8	-1.5	230.4	828.1	0.0	0.0	1.9	5.8
17/03/13	15.0	21.2	25.0	16.6	21.9	24.9	-6.2	9.3	34.8	31.6	53.8	88.6	-1.5	242.7	897.5	0.0	0.1	2.7	5.2
18/03/13	13.6	18.1	22.9	14.6	18.6	22.8	-4.2	5.7	19.7	47.9	64.8	88.4	-1.5	202.9	846.7	0.0	0.0	2.2	4.6
19/03/13	12.9	18.6	24.7	13.9	19.2	24.7	-6.3	6.5	14.3	45.3	71.1	92.5	-1.5	206.4	928.9	0.0	0.0	2.0	5.0
20/03/13	14.3	19.8	26.5	15.3	20.4	26.3	-3.6	7.7	18.5	44.4	72.6	94.4	-1.5	223.1	915.4	0.0	0.1	1.5	5.7
21/03/13	12.0	20.5	29.5	13.0	21.1	29.1	-7.4	7.9	20.9	36.0	71.4	96.6	-1.5	215.4	822.7	0.0	0.0	1.2	3.8
22/03/13	16.7	25.6	31.0	17.9	26.2	30.9	-2.0	7.6	27.1	47.2	59.6	92.7	-1.5	158.6	782.7	0.0	0.3	4.7	9.3
23/03/13	19.6	25.0	31.4	20.9	25.5	31.3	-6.1	5.5	17.5	44.7	66.5	91.4	-1.5	218.5	795.6	0.0	0.0	2.6	5.8
24/03/13	17.7	23.8	32.2	19.0	24.6	32.2	-7.5	9.9	31.4	26.7	67.9	95.9	-1.5	234.3	862.9	0.0	0.0	1.5	5.2
25/03/13	13.8	22.2	30.4	14.9	23.1	30.5	-2.0	11.2	36.3	32.8	65.2	95.6	-1.5	235.5	802.8	0.0	0.0	1.4	4.3
26/03/13	18.7	23.9	31.1	19.6	24.4	30.4	-9.2	6.3	16.9	46.9	72.9	93.3	-1.5	182.4	799.7	0.0	0.0	1.0	2.7
27/03/13	16.5	24.0	33.2	17.4	24.5	33.0	-10.4	6.9	21.8	32.7	72.4	97.3	-1.5	223.1	765.2	0.0	0.0	1.3	4.2
28/03/13	16.8	24.6	33.0	18.0	25.2	32.9	-5.1	7.7	18.9	34.5	67.8	96.4	-1.5	205.3	785.3	1.8	0.0	2.4	6.3
29/03/13	13.9	19.4	23.5	15.5	19.9	23.2	-3.9	6.0	21.7	46.2	65.6	92.5	-1.5	214.6	949.4	0.5	0.0	2.2	5.5
30/03/13	10.5	18.3	26.9	11.7	19.0	26.7	-7.0	8.3	22.6	39.2	73.3	96.7	-1.6	228.5	796.6	0.0	0.0	0.8	2.5
31/03/13	14.5	19.2	25.6	15.7	20.0	25.6	-5.5	9.9	29.0	37.1	71.5	95.2	-1.5	88.9	578.3	0.0	0.0	1.1	4.4
MONTH	0.7	21.6	33.2	11.7	22.2	33.0	-103.3	6.4	252.4	26.7	72.5	97.3	-1.9	206.9	1065.6	51.7	0.0	2.0	9.3