

WAMBO COAL PTY LIMITED
MONTHLY ENVIRONMENTAL MONITORING
REPORT
February 2014

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1.0 Introduction

This report presents environmental monitoring results for the reporting period **Saturday 1 to Friday 28 February 2014**. 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/content/404/Australia-Mining-New/New-South-Wales/Wambo-Mine>

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.

Surface water reporting for the period recorded TSS results for SW06; SW27a; SW32a; SW39 were outside trigger levels. SW06 results for EC were also outside trigger levels for the reporting period.

Table 1: Monthly Surface Water Results – February 2014

Sample Location	pH	EC (μ S/cm)	TSS (mg/L)	TDS (mg/L)	Oil & Grease (mg/L)	Temp ($^{\circ}$ C)	Comments
WOLLOMBI BROOK							
Wollombi Brook							
SW01 - Wollombi Brook Up	7.80	754	5	335	-	26.1	-
SW03 - Wollombi Brook Pump Out	7.30	1,562	24	797	<2	24.7	-
SW02 - Wollombi Brook Down	8.30	961	3	474	<2	24.7	-
SW40 - Confluence with SWC	7.80	759	5	363	-	24.8	-
NORTH WAMBO CREEK							
North Wambo Creek							
SW04 - North Wambo Creek Up	-	-	-	-	-	-	Sample site dry
SW27a - North Wambo Creek Middle Lower	8.50	662	1,490	1,850	-	23.1	-
SW32a - North Wambo Creek Pump	9.20	609	2,140	640	-	21.5	-
SW05 - North Wambo Creek Down	7.70	1,020	77	513	-	22.1	-
SOUTH WAMBO/STONY CREEK							
South Wambo/Stony Creek							
SW06 - South Wambo Creek	8.10	658	193	285	-	24.2	-
SW07 - South Wambo/Stony Creek	-	-	-	-	-	-	Sample site dry
SW08 - Stony Creek	-	-	-	-	-	-	Sample site dry
LONGFORD/DOCTOR'S CREEKS							
Longford/Doctors Creeks							
SW43 - Longford Creek Up	7.90	716	104	248	<5	25.2	-
SW44 - Longford Creek Down	-	-	-	-	-	-	Sample site dry
SW46 - Doctors Creek Up	-	-	-	-	-	-	Sample site dry
SW45 - Doctors Creek Down	-	-	-	-	-	-	Sample site dry
WATERFALL CREEK							
Waterfall Creek							
SW39 - Waterfall Creek Midstream	7.60	433	326	276	-	23.4	-
MINE WATER DAMS							
Mine Water Dams							
SW11 - West Cut Dam Pipe	Not Pumping						
SW12 - West Cut Dam	9.10	7,210	-	-	-	23.5	-
SW14 - Box Cut Dam (Admin)	8.90	951	-	-	-	26.1	-
SW15 - Eagles Nest Dam	9.10	7,750	25.00	5,160	<2	25.6	-
SW20 - Dam Adjacent to West Cut Dam	-	-	-	-	-	-	Sample site dry
SW29 - SCB Dam	8.80	1,643	-	-	-	22.0	-
SW30 - Turkeys Nest	9.20	7,710	-	-	-	25.5	-
SW31 - Gordon Below Franklin	9.30	8,590	-	-	-	25.0	-
SW37 - Wollemi Sump	-	-	-	-	-	-	No longer exists
SW38 - Homestead Open Cut	8.70	8,640	-	-	-	22.4	-
SW47 - NWU Pumpout Water	-	-	-	-	-	-	Sample site dry
SW48 - Inpit sample	8.40	6,990	-	-	-	23.3	-
SW49 - Bates Pit Pumpout	8.00	2,670	-	-	-	22.8	-
SW51 - South Dam	8.9	9490	-	-	-	25.1	-
SW50 - Hunter River Water	Not Pumping						

Note: Figures in bold fall outside trigger levels.

4.0 Groundwater Sampling

Groundwater results collected on a bi-monthly basis.

Table 2: Ground Water Results – February 2014

Sample Location	pH	EC (µS/cm)	Depth to Water (m)	Temp (°C)	Comments
GW02	7.20	491	7.32	20.6	-
GW11	7.40	535	5.08	20.5	-
P106	-	-	-	-	Bailed dry
P109	6.70	693	5.49	20.0	-
P110	7.10	676	5.19	19.3	-
P111	8.10	777	6.75	17.3	-
P114	6.50	6,600	5.69	20.2	-
P116	7.10	1,002	5.61	20.7	-
P202	7.10	5,880	8.93	19.7	-
P206	7.40	2,180	16.12	20.6	-
P301	6.70	6,600	15.79	20.9	-
P315	6.90	417	8.31	21.0	-
GW12	-	-	-	-	Bailed dry
GW13	6.90	3,500	5.36	20.9	-
GW14	-	-	-	-	Dry
GW15	7.20	671	10.91	20.5	-
GW16	7.80	666	8.52	20.3	-
GW17	7.50	5,080	11.17	21.1	-
GW18	-	-	-	-	Dry
GW19	-	-	-	-	Dry
GW20	GW20 is a vibration wire multi-piezometer installation				
GW21	-	-	36.55	-	Bailed dry
GW22	8.30	6,700	35.68	21.8	-
P1	6.86	8390	26.20	-	-
P3	-	-	-	-	Removed
P5	7.6	858	10.87	-	-
P6	-	-	-	-	Removed
P11	-	-	31.36	-	Dry
P12	7.9	523	7.40	-	-
P13	7.16	1015	7.54	-	-
P15	7.68	7,160	6.55	-	-
P16	7.43	8,580	7.77	-	-
P17	7.49	10450	6.56	-	-
P18	7.48	8580	7.99	-	-
P20	7.40	10840	8.33	-	-

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.

* Represents data that is provided on a quarterly basis. The results are to be updated once available.

5.0 Depositional Dust Sampling

Fourteen depositional dust gauges were collected for the reporting period (**Table 3**). 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 – February 2014

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	4.3	3.0	70	2.9	2.0
D03	6.7	4.8	72	4.0	2.9
D07	9.2	4.8	52	6.0	3.4
D09*	7.0	2.3	33	2.0	1.6
# D11	3.4	2.2	65	2.0	1.3
# D12	4.9	3.4	69	3.4	2.5
# D17	2.7	1.9	70	2.0	1.4
D19	5.8	4.3	74	4.0	2.9
D20	1.9	1.4	74	1.5	1.2
# D21	3.20	2.60	81	2.8	2.2
# D22	4.0	3.0	75	2.8	2.0
D23	2.4	1.8	75	1.8	1.2
# D24	-	-	-	-	-
# D25	5.40	4.20	78	4.6	3.4
D26	2.6	2.4	92	2.5	2.0

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.

* Contaminated sample

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. Depositional Dust 25 (D25) was outside the prescribed criteria level for the reporting period.

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 – February 2014

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 ($\mu\text{g}/\text{m}^3$)
3/02/2014	126	87.8	93.5	134
9/02/2014	106	130	108	169
15/02/2014	79.1	59.9	62.4	71
21/02/2014	67.1	71	70.5	74.7
27/02/2014	49.4	27.9	42.7	66.3
Monthly Mean	85.5	75.3	75.4	103
Yearly Mean	106.3	87.7	86.3	109.6

Reported yearly means for HV01 and HV04 are above the reporting criteria of $90\mu\text{g}/\text{m}^3$.

7.0 Blast Events

Four monitoring sites measure ground vibration and air blast overpressure for blasts conducted at Wambo. Seven 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 measured blast events for February 2014 were within the prescribed criteria limits.

Table 5: Blast Results – February 2014

Date	Time	Location	Kelly Residence – A0728			Wambo Homestead – A0722			Harris Site – A6006			Muller Residence – A6005		
			Over Pressure (dB(L))	Vibration (mm/s)	Wave-form	Over Pressure (dB(L))	Vibration (mm/s)	Wave-form	Over Pressure (dB(L))	Vibration (mm/s)	Wave-form	Over Pressure (dB(L))	Vibration (mm/s)	Wave-form
4/02/2014	11:07:00	BS5WWD1	102.5	0.34	YES	105.3	2.44	YES	102.4	0.58	YES	99.3	0.17	YES
6/02/2014	15:33:00	BS2WWD2	100.6	0.3	YES	111	1.28	YES	109.2	0.35	YES	105.6	0.13	YES
13/02/2014	15:45:00	BS5WWD3	106.1	0.18	YES	114.3	0.91	YES	109.2	0.33	YES	99.3	0.1	YES
13/02/2014	15:45:00	BS5WW7	106.1	0.18	YES	114.3	0.91	YES	109.2	0.33	YES	99.3	0.1	YES
13/02/2014	16:06:00	M12WMA5	92.5	0.13	YES	96.4	0.23	YES	93.3	0.36	YES	<115.0	<0.16	No
19/02/2014	15:32:19	M16WRA5	91.4	0.05	YES	<115.0	<0.16	NO	96.4	0.06	YES	101.8	0.22	YES
21/02/2014	11:03:47	BS2WWD3	96.3	0.23	YES	103.2	0.62	YES	102.8	0.2	YES	98.1	0.1	YES

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.**

All **PM₁₀** sites were within the yearly average criteria limits of **30ug/m³**, no sites were outside of 24hr average criteria of **50ug/m³** for a single day during this reporting period.

Table 6
PM₁₀ Results – February 2014

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
01/02/14	32.7	27.8	30.4	26.2	35.2	27.0	43.6	28.8
02/02/14	35.2	28.0	36.2	26.5	29.6	27.0	28.6	28.8
03/02/14	25.8	27.9	24.1	26.4	21.3	26.9	25.0	28.7
04/02/14	28.9	28.0	18.1	26.2	17.1	26.6	39.8	29.0
05/02/14	26.3	27.9	20.2	26.0	28.2	26.6	25.0	28.9
06/02/14	15.3	27.6	18.0	25.8	20.8	26.5	22.6	28.7
07/02/14	23.5	27.5	29.1	25.9	23.3	26.4	34.1	28.9
08/02/14	26.0	27.4	48.2	26.5	28.0	26.4	33.6	29.0
09/02/14	21.4	27.3	31.1	26.6	28.7	26.5	35.6	29.2
10/02/14	32.1	27.4	26.9	26.6	31.0	26.6	36.0	29.3
11/02/14	22.6	27.3	24.0	26.5	25.1	26.6	22.5	29.2
12/02/14	28.9	27.3	22.1	26.4	25.8	26.5	22.3	29.0
13/02/14	34.8	27.5	29.6	26.5	34.4	26.7	32.5	29.1
14/02/14	16.0	27.2	15.4	26.3	16.5	26.5	18.7	28.9
15/02/14	16.0	27.0	13.2	26.0	15.7	26.3	16.2	28.6
16/02/14	21.4	26.9	13.3	25.7	12.7	26.0	17.9	28.4
17/02/14	16.1	26.7	13.7	25.5	14.7	25.7	14.2	28.1
18/02/14	21.8	26.6	16.9	25.3	20.5	25.6	20.8	27.9
19/02/14	17.7	26.4	14.8	25.1	13.9	25.4	16.0	27.7
20/02/14	15.4	26.2	16.8	24.9	12.9	25.1	12.5	27.4
21/02/14	*	*	21.7	24.8	24.1	25.1	22.7	27.3
22/02/14	*	*	24.0	24.8	27.1	25.2	25.2	27.3
23/02/14	*	*	19.5	24.7	22.5	25.1	21.7	27.2
24/02/14	*	*	14.0	24.5	18.2	25.0	18.4	27.0
25/02/14	13.5	25.9	17.4	24.4	17.1	24.9	21.2	26.9
26/02/14	15.0	25.7	22.5	24.4	12.6	24.6	21.0	26.8
27/02/14	17.1	25.6	13.9	24.2	17.4	24.5	19.6	26.7
28/02/14	5.7	25.2	5.5	23.9	5.8	24.2	6.1	26.3

Note:

Results in **red** are greater than the 24hr period guidelines of 50ug/m³

Results in **bold** are between 30ug/m³ and 50ug/m³

* Equipment failure – no result

Appendix A
Wambo Weather Station
Meteorological Data

Meteorological Data February 2014

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
01/02/14	17.7	26.6	35.2	20.3	27.1	34.6	-10.8	7.0	35.2	30.3	54.3	79.4	-1.6	314.3	930.5	0.0	0.4	2.1	3.5
02/02/14	19.4	25.7	33.7	20.1	26.0	33.1	-10.6	3.2	15.3	31.0	58.0	87.4	-1.6	315.3	927.8	0.0	1.1	2.4	3.8
03/02/14	18.3	25.4	34.4	19.5	25.7	34.0	-11.0	4.3	14.7	21.1	56.3	86.6	-1.6	298.7	955.9	0.0	1.1	2.0	3.3
04/02/14	16.5	22.5	31.7	17.9	22.9	31.0	-9.6	5.3	29.8	34.4	67.8	89.9	-1.6	206.3	909.7	0.0	0.1	2.6	3.9
05/02/14	18.2	20.5	25.2	18.6	20.7	24.5	-10.3	2.5	6.5	36.1	56.4	72.9	-1.6	133.4	839.2	0.0	1.7	2.6	3.6
06/02/14	16.4	20.7	26.3	17.7	20.9	25.7	-11.2	2.4	17.1	38.7	58.0	75.0	-1.6	242.5	1130.8	0.0	0.7	2.1	3.6
07/02/14	11.4	21.6	32.3	13.5	22.2	32.0	-10.8	7.3	32.8	25.6	61.4	92.9	-1.7	302.1	950.9	0.0	0.3	1.7	3.4
08/02/14	12.1	24.0	35.3	13.8	24.7	34.7	-8.6	8.1	34.4	22.0	58.3	94.3	-1.7	305.1	916.8	0.0	0.2	1.8	3.4
09/02/14	13.3	25.6	38.0	15.5	26.4	37.6	-9.8	9.4	31.6	13.7	57.8	94.5	-1.6	311.7	934.5	0.0	0.2	1.6	3.3
10/02/14	16.6	24.9	33.5	18.2	25.4	33.1	-11.9	6.8	40.3	38.9	63.6	87.4	-1.6	243.7	904.4	0.0	0.3	2.4	3.7
11/02/14	22.3	26.1	34.4	22.8	26.3	33.6	-11.7	1.8	8.0	36.3	63.5	79.1	-1.6	260.0	923.5	0.0	1.2	2.2	3.5
12/02/14	20.3	26.2	33.9	21.4	26.4	33.4	-9.1	2.8	17.5	34.6	63.6	87.6	-1.6	274.6	892.0	0.0	1.0	2.4	3.9
13/02/14	21.2	25.9	33.6	22.0	26.2	33.5	-9.4	3.4	13.3	37.6	63.5	85.3	-1.6	202.5	886.8	0.0	0.8	2.0	3.7
14/02/14	19.2	21.2	22.8	19.7	21.7	23.3	-3.4	6.2	14.0	79.2	89.7	95.0	-1.6	48.0	285.5	4.1	0.1	1.0	1.8
15/02/14	20.7	23.2	27.4	21.3	23.6	27.3	-1.4	5.9	15.4	68.0	87.6	96.2	-1.6	78.3	575.7	2.5	0.1	1.5	2.2
16/02/14	20.3	23.0	27.5	20.9	23.7	28.1	4.6	8.4	17.1	66.3	90.4	95.6	-1.6	34.5	197.2	22.8	0.3	1.6	3.2
17/02/14	19.0	22.3	28.1	19.5	22.6	27.7	-7.8	3.7	9.9	42.2	70.9	92.9	-1.6	179.5	1013.8	0.2	1.1	2.3	3.5
18/02/14	19.2	22.6	28.4	19.6	22.9	28.2	-10.1	3.4	11.3	58.5	76.1	89.8	-1.6	175.2	1103.1	0.0	0.8	1.8	2.9
19/02/14	20.7	24.2	32.2	21.6	24.7	31.8	-9.1	6.4	13.2	51.7	85.9	96.2	-1.6	120.4	1034.0	40.1	0.1	1.7	3.3
20/02/14	18.7	24.8	31.0	20.0	25.3	30.9	-7.4	6.5	25.1	30.7	66.6	97.1	-1.6	270.9	1035.9	0.2	0.1	2.0	3.7
21/02/14	18.5	22.5	27.6	19.7	22.9	27.4	-10.4	4.4	15.7	39.0	57.6	87.4	-1.6	288.5	1020.3	0.0	0.8	2.1	3.6
22/02/14	18.2	22.0	27.7	18.9	22.3	27.4	-6.3	4.0	9.5	43.1	64.0	80.4	-1.6	214.9	1043.9	0.0	0.7	2.2	3.5
23/02/14	17.4	20.9	25.1	18.1	21.3	24.9	-6.6	4.3	12.4	48.3	68.4	87.1	-1.6	136.3	647.4	0.0	0.4	2.0	3.3
24/02/14	18.5	22.8	29.0	19.2	23.2	28.9	-5.3	4.8	11.6	42.2	67.9	85.5	-1.6	221.8	1070.4	0.0	0.1	1.8	3.5
25/02/14	17.2	23.2	30.9	18.4	23.8	30.5	-14.0	7.5	22.3	37.5	68.6	94.5	-1.6	252.2	984.1	0.0	0.4	1.6	2.4
26/02/14	15.7	25.4	34.4	17.3	26.1	33.7	-12.1	8.8	34.0	28.5	60.6	95.0	-1.6	228.5	1071.6	0.0	0.1	2.0	3.5
27/02/14	19.0	23.8	30.3	20.1	24.3	29.8	-9.1	5.3	18.7	50.2	72.4	90.3	-1.6	182.2	1104.9	0.0	0.2	2.1	3.4
28/02/14	18.6	20.0	21.3	19.2	20.5	21.7	1.4	5.5	8.2	75.7	86.6	96.1	-1.6	25.1	152.2	41.6	1.5	2.3	3.1
MONTH	11.4	23.5	38.0	13.5	23.9	37.6	-14.0	5.3	40.3	13.7	67.7	97.1	-1.7	209.5	1,130.8	111.4	0.1	2.0	3.9