Agenda Item 6 - Overview of Operations (Jan - Feb 2014)

- No land was rehabilitated during the months of January and February.
- Overburden was on target in January but lower then budget and plan in February due primarily to weather.
- The total number of people employed at Mt Arthur Coal (employees and contractors) was 1,902 at the end of February 2014.

Agenda Item 7 - Overview of Environment (Jan - Feb 2014)

- On 19 February 2014, Mt Arthur Coal fired a blast at its mine that resulted in fume travelling towards the Industrial Estate on Thomas Mitchell Drive. The blast was timed to ensure that the wind conditions would prevent any fume from travelling off site. However, due to a change in conditions immediately after the blast, some fume did travel towards the industrial estate. In accordance with the *Protection of the Environment Operations Act 1997*, Mt Arthur Coal immediately initiated the site's Pollution Incident Response Management Plan and notified the relevant authorities of the 5C blast fume event. Mt Arthur Coal also issued a media release advising that although the majority of fume from the blast had dispersed while on site, there was the possibility that exposure could cause irritation to the eyes and respiratory system. Mt Arthur Coal suggested that anyone with concerns should seek medical advice as a precautionary measure. The community was also encouraged to call the Mt Arthur Coal Community Response Line (1800 882 044). Mt Arthur Coal apologised for any impacts they may have experienced from the blast. As the fume was dispersed within a relatively short timeframe, no lasting environmental impacts occurred.

- Three additional reportable blast fume events occurred in January and February 2014. All of these events were reported to the Department of Planning and Infrastructure (DP&I). Mt Arthur Coal is currently working with the authorities to investigate options to improve blast fume management at the mine:
    - 24 January: 3B fume from shot WMn3117/BOW and the fume left site across Denman Road, which was closed at the time, and dispersed on Mt Arthur Coal land
    - 29 January: 4C fume from shot CAn2744/BOW
    - 19 February: 4C fume from shot WMn3122/BOW

- The following incidents related to monitoring results occurred at Mt Arthur Coal during January and February 2014 and Mt Arthur Coal notified the relevant authorities accordingly:
    - Five elevated HVAS results (24 hour and annual average results) were recorded at the Sheppard Avenue and Roxburgh Road monitors and four elevated TEOM results were recorded at the Sheppard Avenue monitor in January and February 2014. Investigations for all these incidents revealed Mt Arthur Coal's contribution to these elevated results was below statutory limits.
    - Elevated EC and pH was recorded at groundwater site OD1082-PIEZO during routine sampling in August, October and December 2013 and February 2014. Investigations are currently being undertaken for these elevated results.

- No penalty notices (fines) were received by Mt Arthur Coal in January or February 2014.

- Mt Arthur Coal published the *Mt Arthur Coal Annual Coal Transport Report 2013* on its regulatory website in January 2014, in accordance with project approval requirements.

- Mt Arthur Coal issued the *Mt Arthur Coal Six-monthly Spontaneous Combustion Report July to December 2013* to the Division of Resources and Energy (DRE) and the EPA in February 2014.

Agenda Item 8 - Environmental Monitoring Data (Jan - Feb 2014)

This monitoring data is provided for your reference prior to the meeting. Exceedances or elevated results since the last meeting will be discussed by exception only.

Monitoring locations are shown in Appendix 1.

1. Blasting Data (Jan - Feb 2014)

Blasting Criteria:

Blast Impact Assessment Criteria

10. The Proponent shall ensure that blasts on site do not cause exceedances of the criteria in Table 8.

Table 8: Blasting impact assessment criteria

Location	*Airblast overpressure (dB(Lin Peak))*	*Ground vibration (mm/s)*	*Allowable exceedance*
Residence on privately owned land	120	10	0%
	115	5	5% of the total number of blasts over a period of 12 months
Heritage sites, including Edinglassie and Rous Lench	133	10	0%

Blasting Summary:

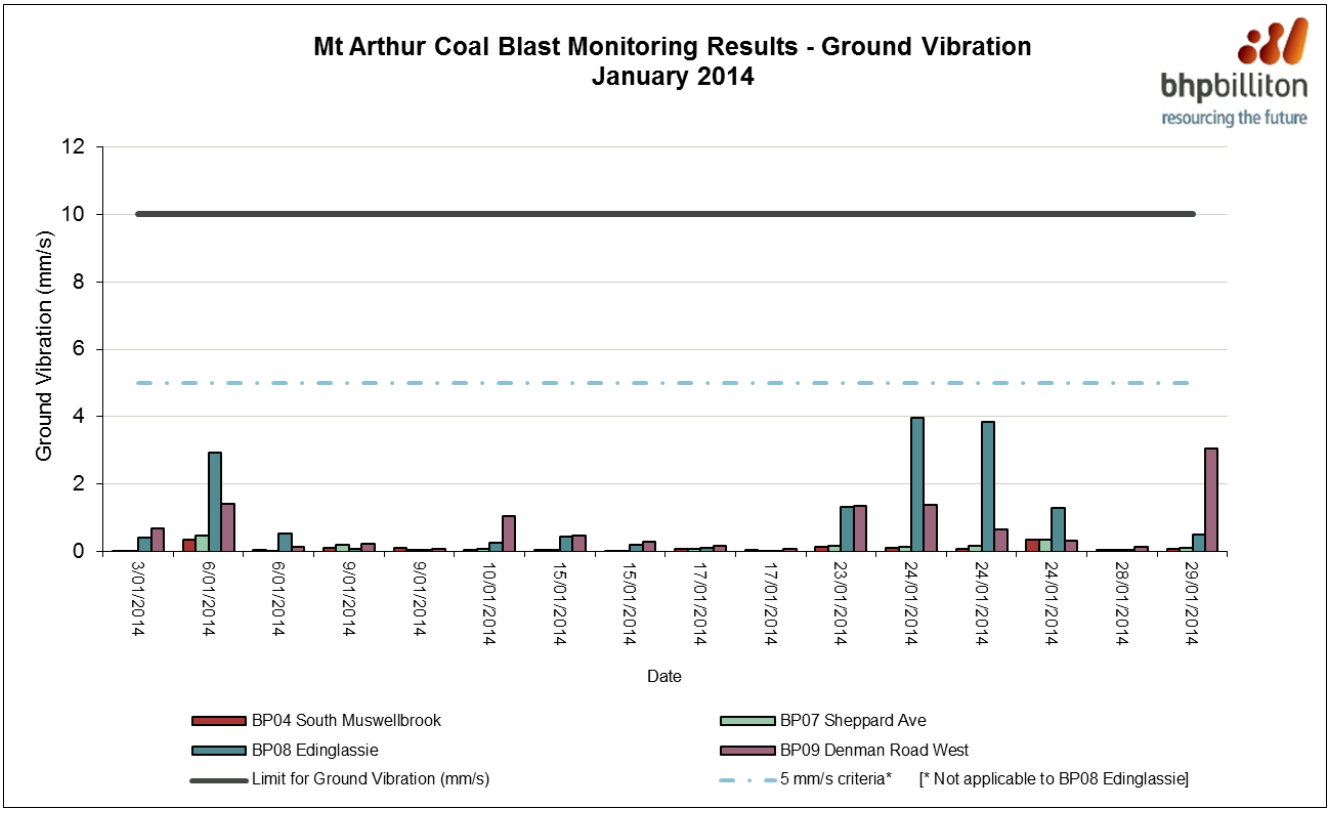
- There were two road closures, on 24 January and 19 February 2014.
- There were 33 blast events in January and February.
- 9 blasts were delayed in January and February due to unfavourable weather conditions.
- There were four reportable blast fume events in January and February:
  - 24 January: 3B fume from shot WMn3117/BOW and the fume left site across Denman Road, which was closed at the time, and dispersed on Mt Arthur Coal land
  - 29 January: 4C fume from shot CAn2744/BOW
  - 19 February: 4C fume from shot WMn3122/BOW
  - 19 February: 5C fume from shot MCe2206/EG1 and the fume left site, travelling towards the Thomas Mitchell Drive Industrial Estate
- There were no elevated blast vibration or blast overpressure noise results recorded during January or February.

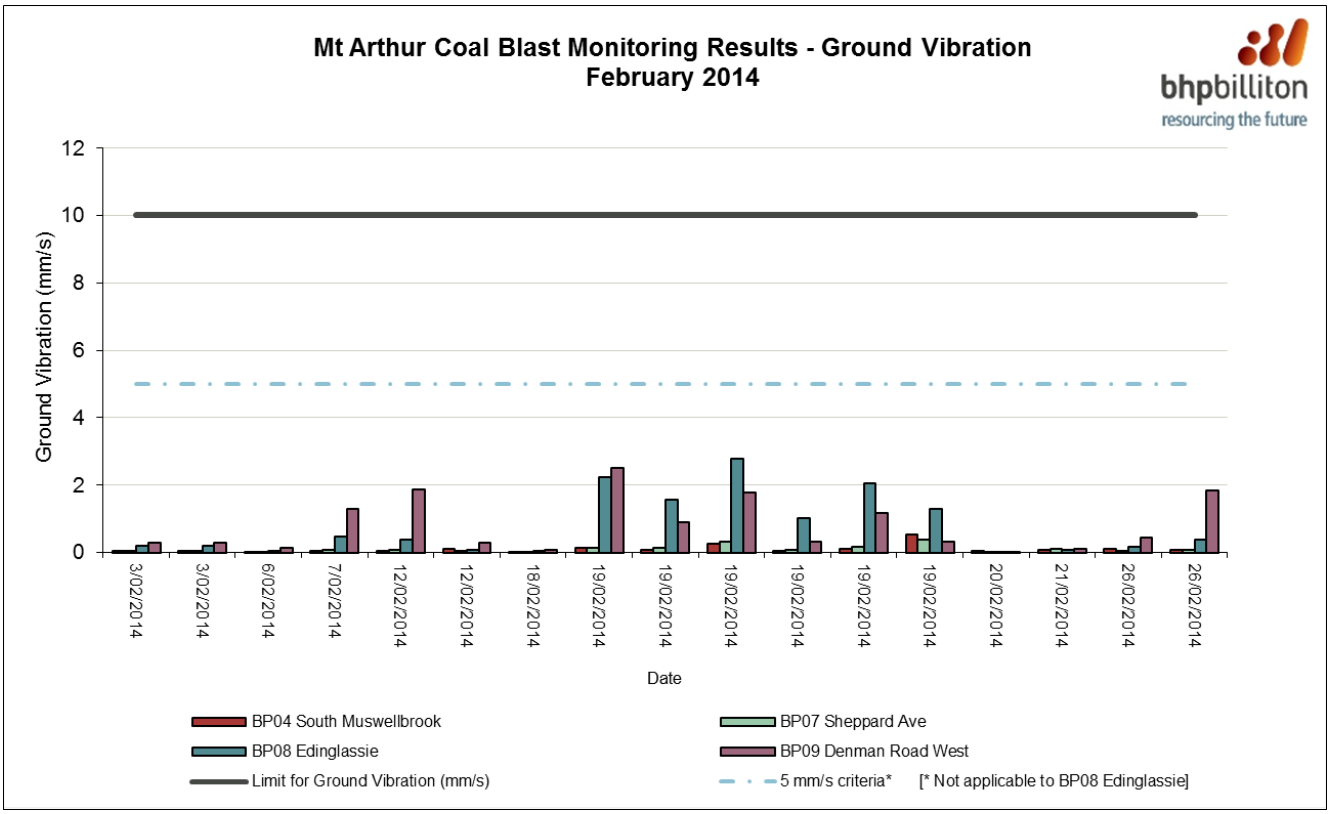
Blast Monitor Data Capture Rates:

	South Muswellbrook	**Sheppard Avenue**	**Edinglassie**	**Denman Road West**
Site ID	BP04	BP07	BP08	BP09
Jan-14	100%	100%	100%	100%
Feb-14	100%	100%	100%	100%

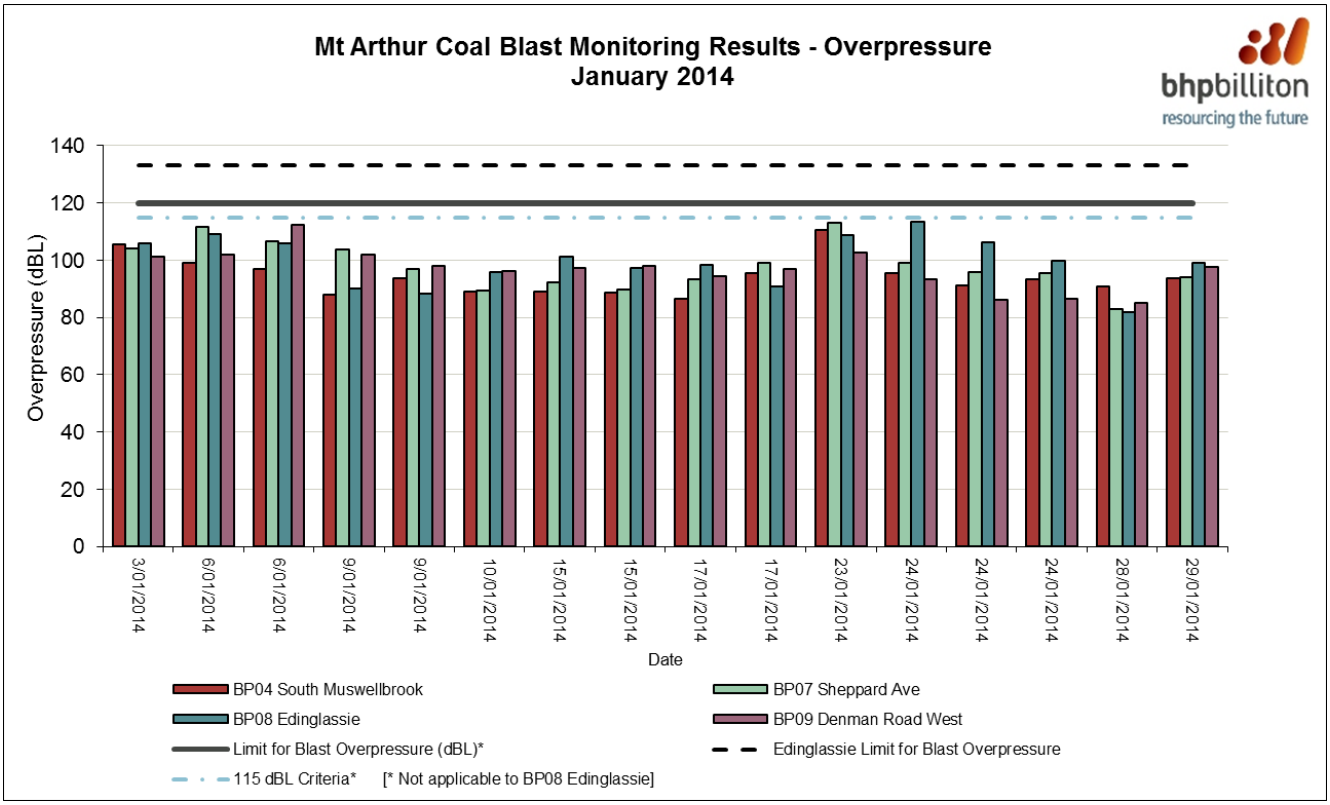
Note: The data capture rate is the percentage of the total number of blasts for which blast monitoring results were obtained.

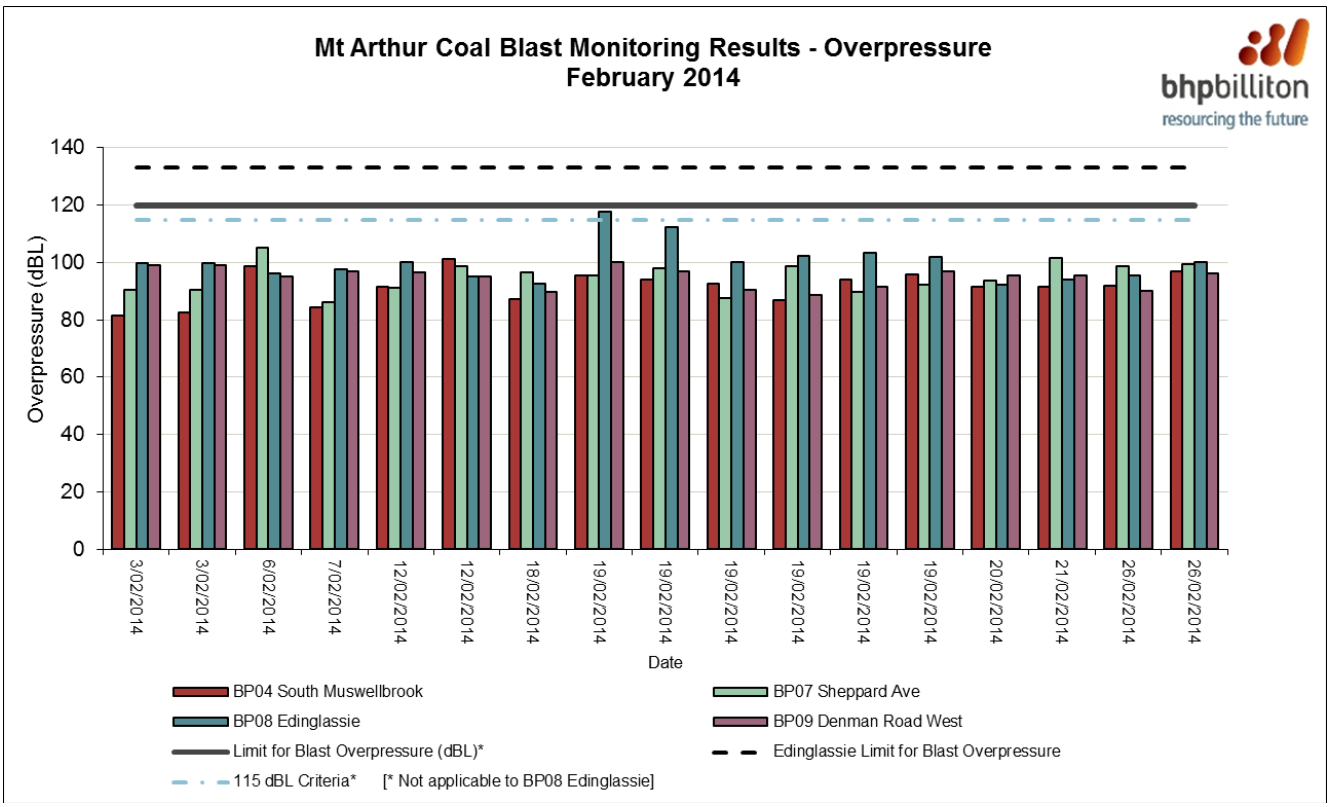
Ground Vibration:





Airblast Overpressure:





2. High Volume Air Sampling (HVAS) Data (Jan - Feb 2014)

HVAS Criteria:

Impact Assessment Criteria

20. The Proponent shall ensure that the dust emissions generated by the Mt Arthur mine complex do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 9, 10 and 11 at any residence on privately owned land, or on more than 25 percent of any privately owned land, except where such exceedance is predicted in the EA. For these properties, the Proponent shall comply with the air quality predictions in the EA.

Table 9: Long term impact assessment criteria for particulate matter

Pollutant	Averaging period	Criterion	Basis
Total suspended particulate (TSP) matter	Annual	90 µg/m^3	Total[1]
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3	Total[1]

Table 10: Short term impact assessment criterion for particulate matter

Pollutant	Averaging period	Criterion	Basis
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3	Total[1]

HVAS Summary:

- Mt Arthur Coal has three statutory HVAS monitors.
- All statutory HVAS monitoring locations currently have annual averages below relevant regulatory criteria, except for DF06 (Sheppard Avenue), as detailed in the elevated results table below.
- The following elevated results were recorded during January and February:

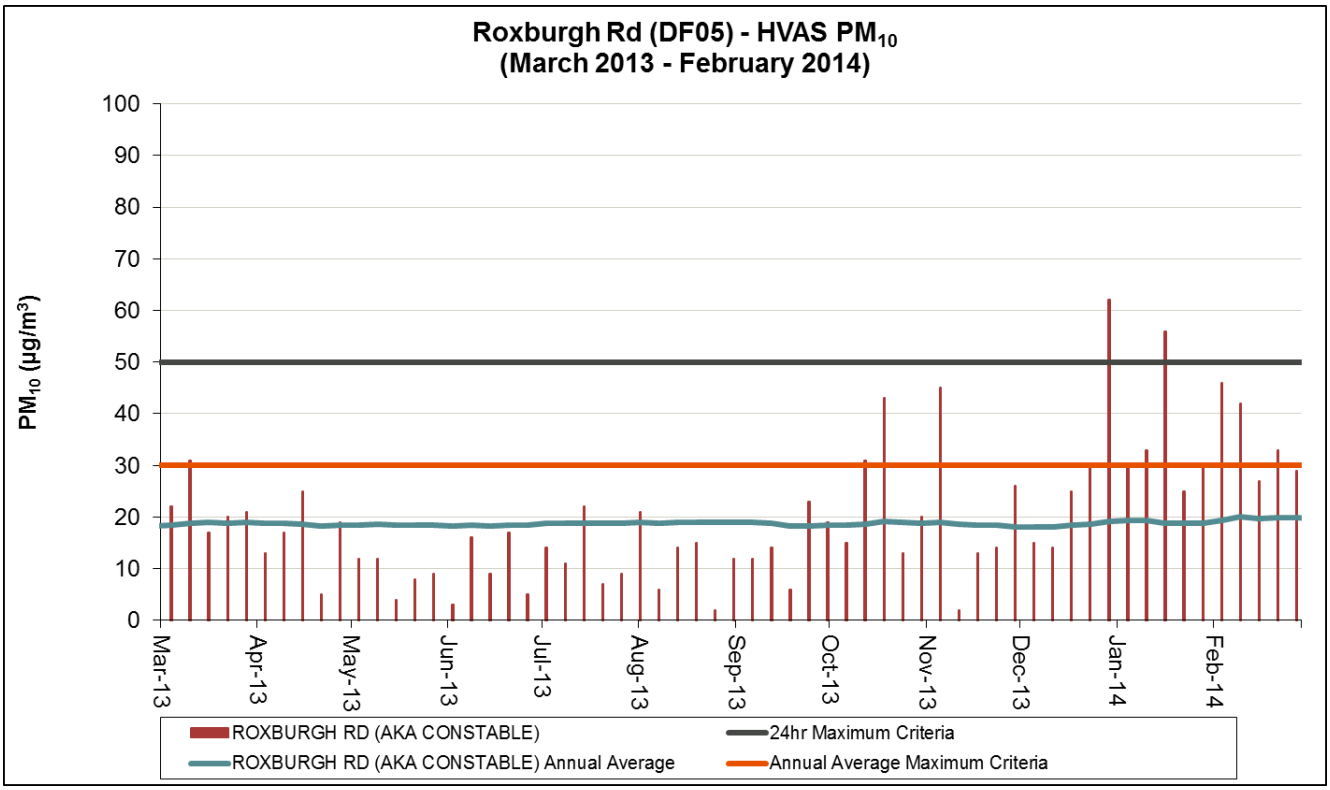
Date	Site	Elevated PM_{10} result (µg/m^3)	Mt Arthur Coal's contribution (µg/m^3)	Exceedance investigation results
16/1/14	Roxburgh Road (Constable)	56.0	26.8	This monitor is located north west of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east, with north westerly winds between 9am and 2pm. During approximately 47.92 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.
16/1/14	Sheppard Avenue	68.0	5.7	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east, with north westerly winds between 9am and 2pm. During approximately 8.33 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.

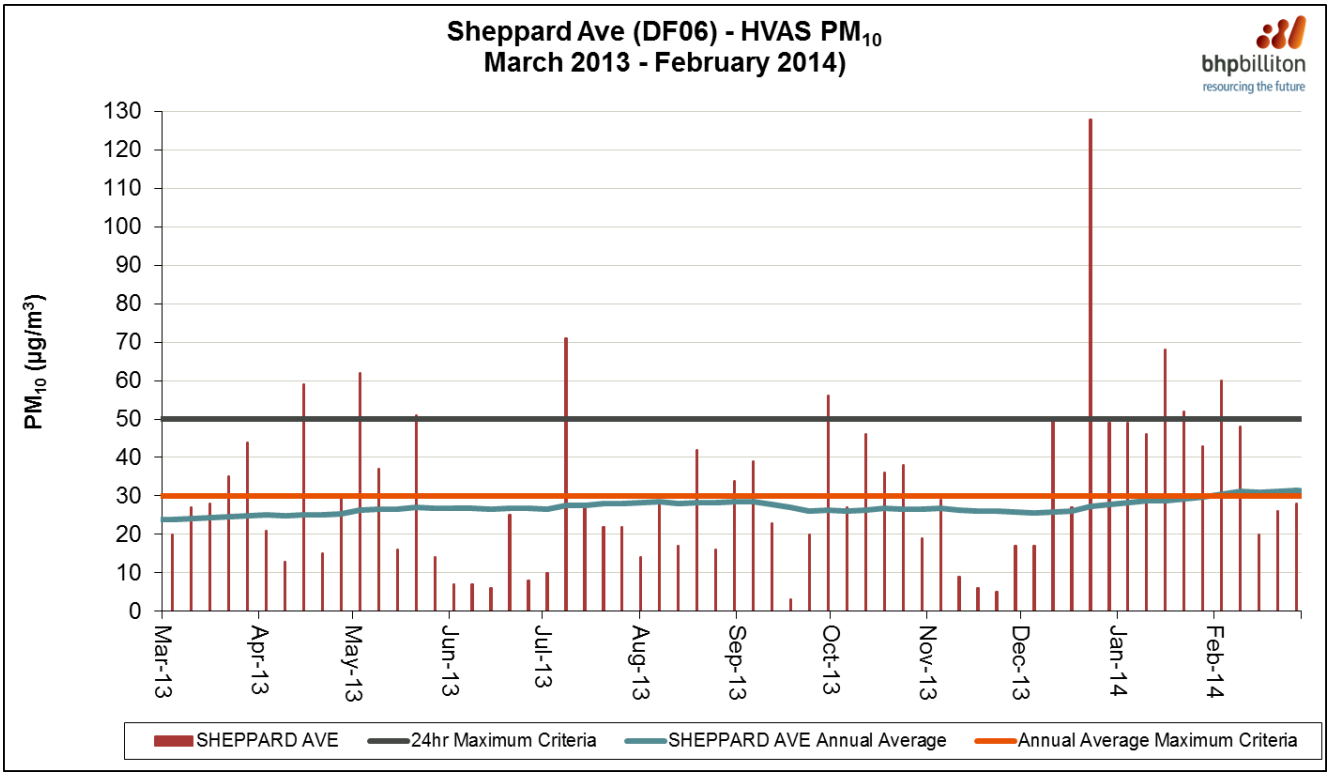
Date	Site	Elevated PM_{10} result ($\mu g/m^3$)	Mt Arthur Coal's contribution ($\mu g/m^3$)	Exceedance investigation results
22/1/14	Sheppard Avenue	52.0	0.0	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east. During approximately 0.00 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.
3/2/14	Sheppard Avenue	60.0	30.0	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south to south east on this day. During approximately 50.00 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.
Feb-14	Sheppard Avenue	Annual Average: 31.3	Annual Average: 22.2	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. This monitor recorded elevated annual average PM_{10} results over 30 $\mu g/m^3$ from 3 February 2014 to 27 February 2014. Further investigation has revealed that if an adjustment is made for occasions when the 24-hour result recorded at DF06 exceeded the 24-hour limit of 50 $\mu g/m^3$, by replacing the recorded result with Mt Arthur Coal's calculated contribution for these days, the annual average is calculated to be less than the impact assessment criteria of 30 $\mu g/m^3$.

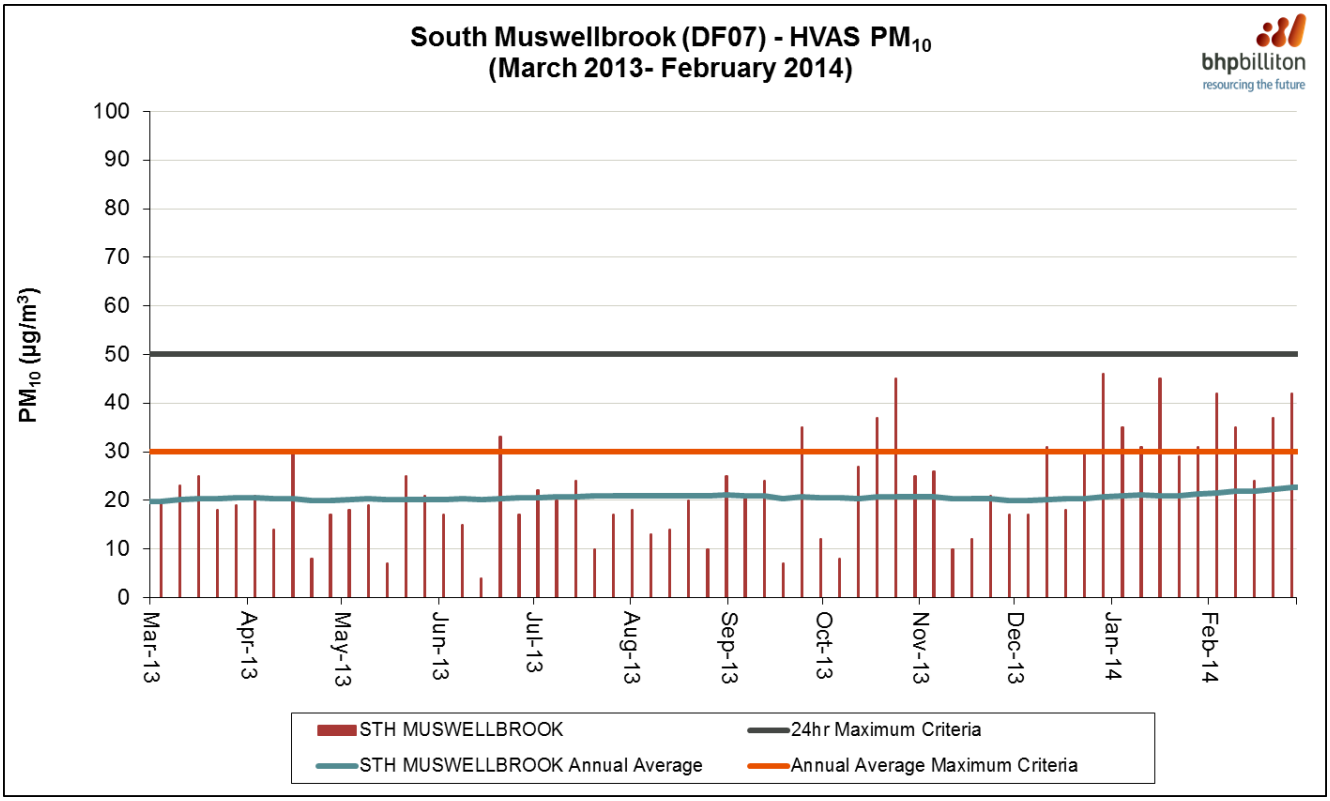
HVAS Data Capture Rates:

	Roxburgh Road (Constable)	Sheppard Avenue	South Muswellbrook
Site ID	DF05	DF06	DF07
Jan-14	100%	100%	100%
Feb-14	100%	100%	100%

HVAS PM_{10}:


Roxburgh Rd (DF05) - HVAS PM10
(March 2013 - February 2014)
PM10 (µg/m3)
100
90
80
70
60
50
40
30
20
10
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
ROXBURGH RD (AKA CONSTABLE)
24hr Maximum Criteria
ROXBURGH RD (AKA CONSTABLE) Annual Average
Annual Average Maximum Criteria


Sheppard Ave (DF06) - HVAS PM10
March 2013 - February 2014)
bhpbilliton
resourcing the future
PM10 (µg/m3)
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SHEPPARD AVE
24hr Maximum Criteria
SHEPPARD AVE Annual Average
Annual Average Maximum Criteria


South Muswellbrook (DF07) - HVAS PM10
(March 2013- February 2014)
bhpbilliton
resourcing the future
PM10 (µg/m3)
100
90
80
70
60
50
40
30
20
10
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
STH MUSWELLBROOK
24hr Maximum Criteria
STH MUSWELLBROOK Annual Average
Annual Average Maximum Criteria

3. Real-time Air Quality Monitoring Data (Jan - Feb 2014)

Real-time Air Quality Monitoring Criteria:

Impact Assessment Criteria

20. The Proponent shall ensure that the dust emissions generated by the Mt Arthur mine complex do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 9, 10 and 11 at any residence on privately owned land, or on more than 25 percent of any privately owned land, except where such exceedance is predicted in the EA. For these properties, the Proponent shall comply with the air quality predictions in the EA.

Table 9: Long term impact assessment criteria for particulate matter

Pollutant	*Averaging period*	*Criterion*	*Basis*
Total suspended particulate (TSP) matter	Annual	90 µg/m^3	Total[1]
Particulate matter < 10 µm (PM_{10})	Annual	30 µg/m^3	Total[1]

Table 10: Short term impact assessment criterion for particulate matter

Pollutant	*Averaging period*	*Criterion*	*Basis*
Particulate matter < 10 µm (PM_{10})	24 hour	50 µg/m^3	Total[1]

Real-time Air Quality Monitoring Summary:

- The real-time air quality monitors used by Mt Arthur Coal are called Tapered Element Oscillating Microbalances (TEOMs).
- Mt Arthur Coal has six statutory TEOMs.
- All statutory real-time air quality monitors currently have annual averages below regulatory criteria.
- The following elevated results were recorded during January and February:

Date	Site	Elevated PM_{10} result (µg/m^3)	Mt Arthur Coal's contribution (µg/m^3)	Exceedance investigation results
2/1/14	Sheppard Avenue	57.8	0.3	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east. During approximately 6.25 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.
19/1/14	Sheppard Avenue	51.2	2.7	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east. During approximately 6.25 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.

Date	Site	Elevated PM_{10} result ($\mu g/m^3$)	Mt Arthur Coal's contribution ($\mu g/m^3$)	Exceedance investigation results
4/2/14	Sheppard Avenue	51.9	10.8	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east. During approximately 16.67 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.
10/2/14	Sheppard Avenue	51.0	4.8	This monitor is located near Muswellbrook Racecourse and monitors PM_{10} levels to the north-north-east of the operation. Further investigation of meteorological conditions indicates that the wind direction was predominately from the south east. During approximately 11.46 per cent of the day this monitor was located downwind of Mt Arthur Coal's operations.

Real-time Air Quality Monitoring Data Capture Rates:

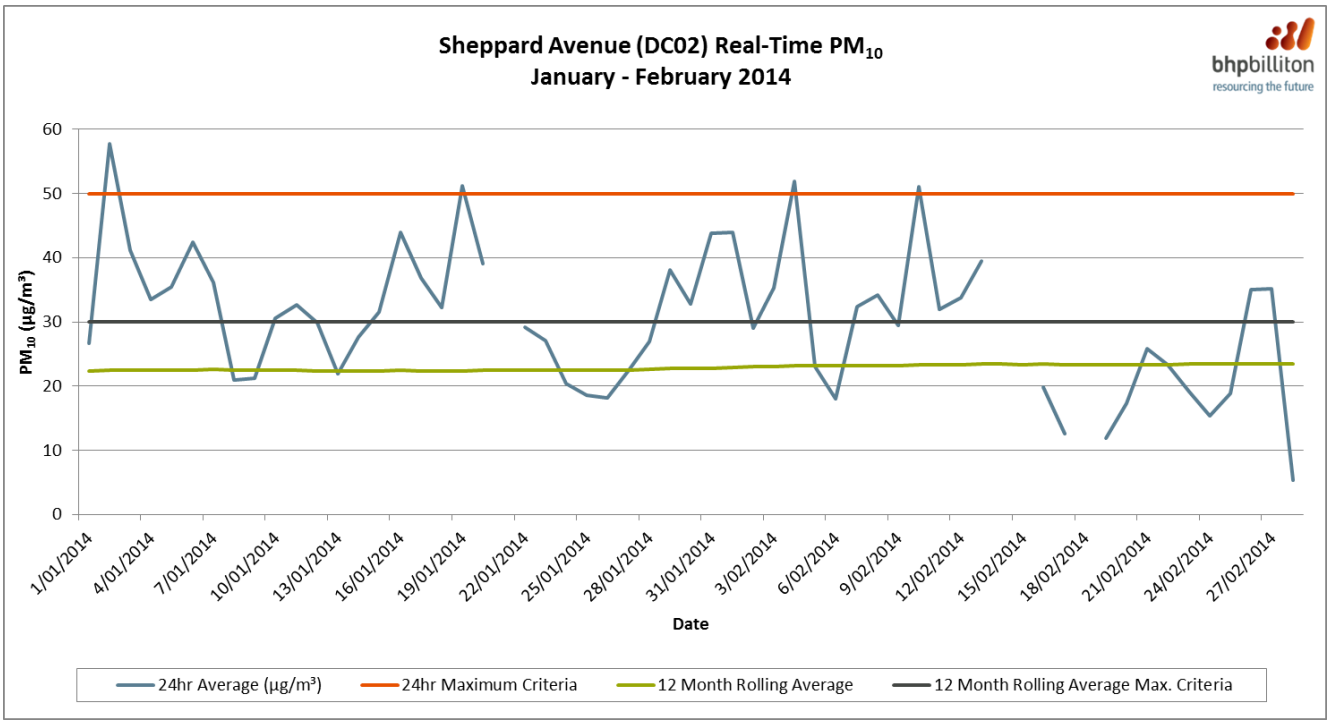
	Sheppard Avenue	South Muswellbrook	Roxburgh Road	Edderton Homestead	Antiene	Wellbrook
Site ID	DC02	DC04	DC05	DC06	DC07	DC09
Jan-14	97%*	97%*	100%	100%	100%	97%*
Feb-14	89%*	96%*	100%	93%*	68%*	86%*

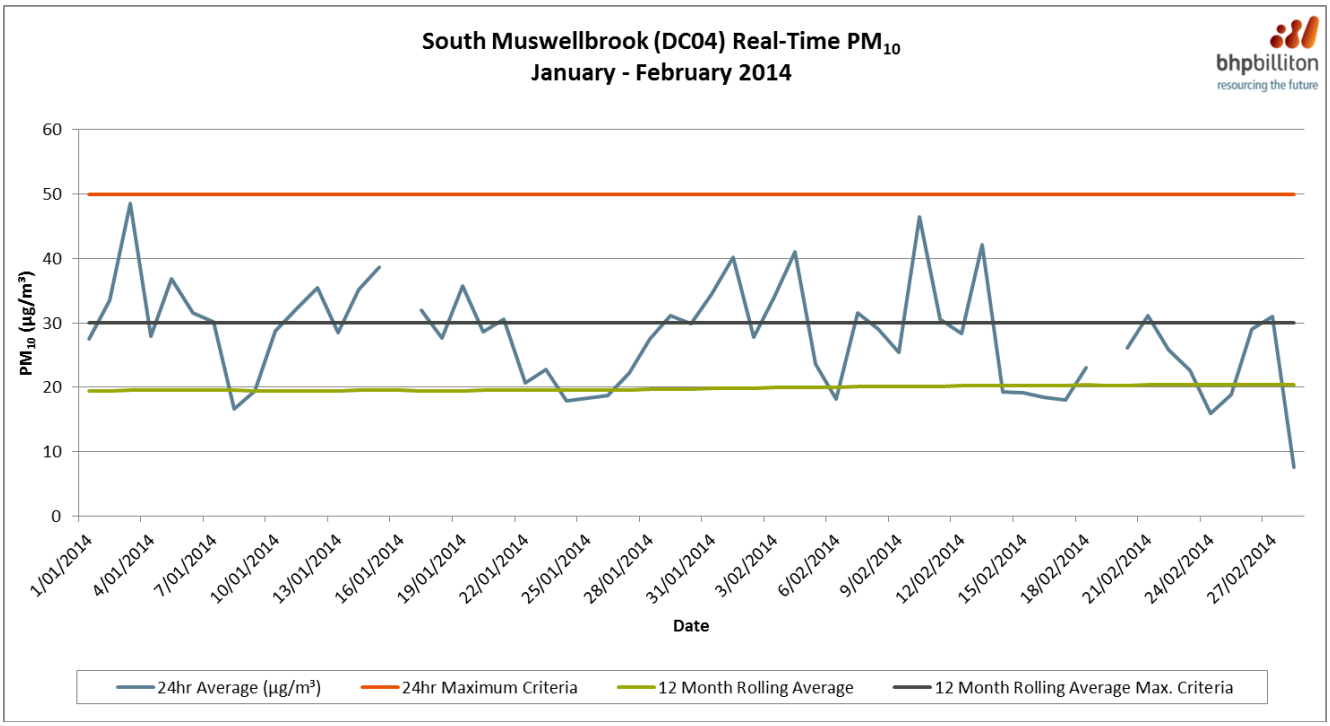
N/A = Not available at the time of preparing this report. This data will be presented in the CCC meeting.

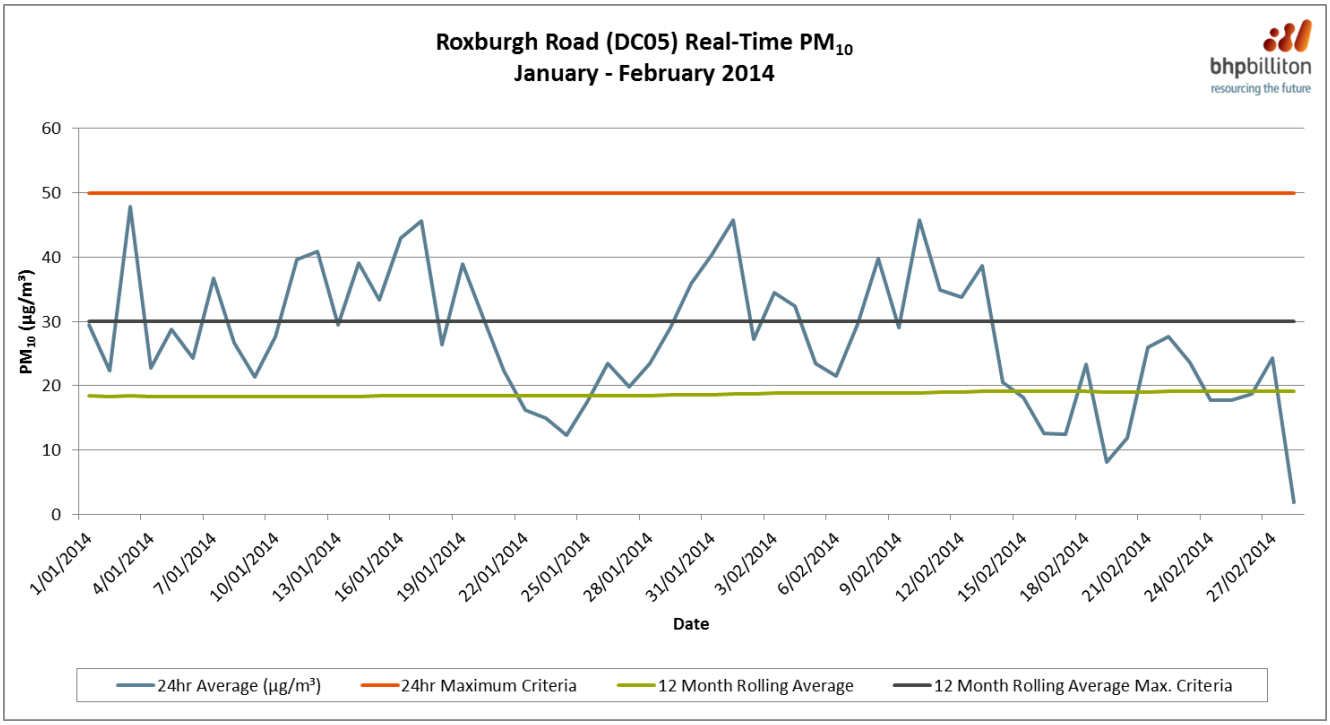
* Data capture rates below 100% are as follows:

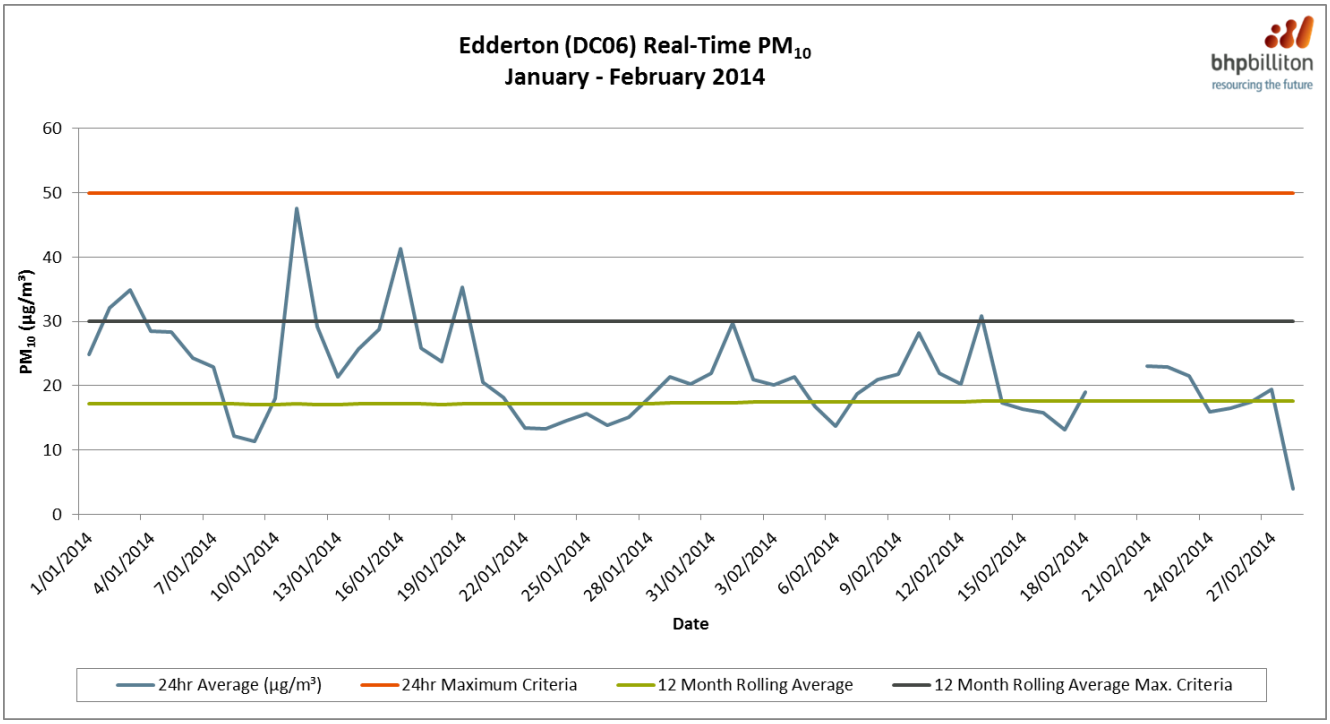
- DC02:
  - Insufficient data on 21 January 2014 due to a power failure
  - Insufficient data on 14 and 15 February 2014 due to erratic moisture readings
  - Insufficient data on 18 February 2014 due to equipment calibration (zero test)
- DC04:
  - Insufficient data on 16 January 2014 due to a power failure
  - Insufficient data on 19 February 2014 due to equipment calibration (zero test)
- DC06:
  - Insufficient data on 19 and 20 February 2014 due to equipment calibration (zero test)
- DC07:
  - Insufficient data on 19 and 20 February 2014 due to equipment calibration (zero test)
  - Data deemed invalid from 20 to 28 February 2014 due to temperature/relative humidity sensor failure
- DC09:
  - Insufficient data on 3 January 2014 due to erratic moisture readings
  - Insufficient data on 17 and 18 February 2014 due to a power outage
  - Insufficient data on 19 and 20 February 2014 due to equipment calibration (zero test)

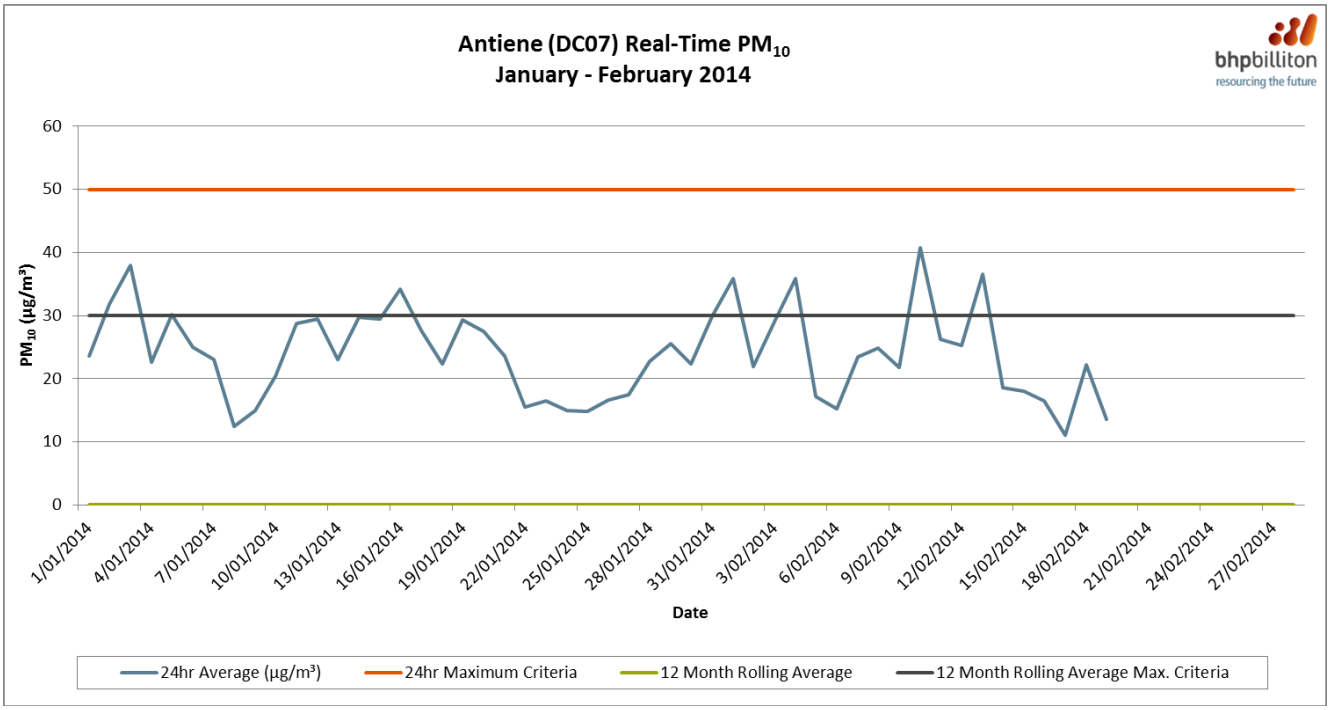
TEOM PM_{10}:

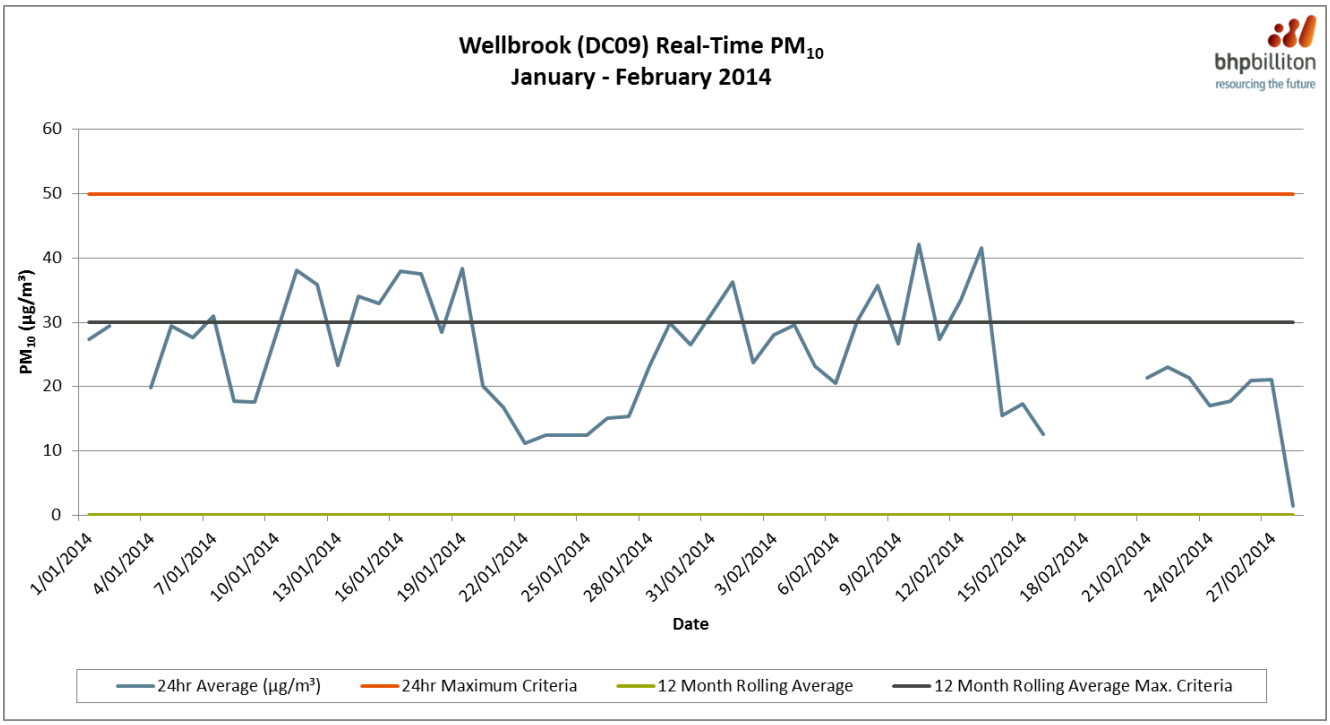

Sheppard Avenue (DC02) Real-Time PM10
January - February 2014
bhpbilliton
resourcing the future
PM10 (µg/m³)
60
50
40
30
20
10
0
1/01/2014
4/01/2014
7/01/2014
10/01/2014
13/01/2014
16/01/2014
19/01/2014
22/01/2014
25/01/2014
28/01/2014
31/01/2014
3/02/2014
6/02/2014
9/02/2014
12/02/2014
15/02/2014
18/02/2014
21/02/2014
24/02/2014
27/02/2014
Date
24hr Average (µg/m³)
24hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


South Muswellbrook (DC04) Real-Time PM10
January - February 2014
bhpbilliton
resourcing the future
PM10 (µg/m³)
60
50
40
30
20
10
0
1/01/2014
4/01/2014
7/01/2014
10/01/2014
13/01/2014
16/01/2014
19/01/2014
22/01/2014
25/01/2014
28/01/2014
31/01/2014
3/02/2014
6/02/2014
9/02/2014
12/02/2014
15/02/2014
18/02/2014
21/02/2014
24/02/2014
27/02/2014
Date
24hr Average (µg/m³)
24hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Roxburgh Road (DC05) Real-Time PM10
January - February 2014
bhpbilliton
resourcing the future
PM10 (µg/m³)
60
50
40
30
20
10
0
1/01/2014
4/01/2014
7/01/2014
10/01/2014
13/01/2014
16/01/2014
19/01/2014
22/01/2014
25/01/2014
28/01/2014
31/01/2014
3/02/2014
6/02/2014
9/02/2014
12/02/2014
15/02/2014
18/02/2014
21/02/2014
24/02/2014
27/02/2014
Date
24hr Average (µg/m³)
24hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Edderton (DC06) Real-Time PM10
January - February 2014
bhpbilliton
resourcing the future
PM10 (µg/m³)
60
50
40
30
20
10
0
1/01/2014
4/01/2014
7/01/2014
10/01/2014
13/01/2014
16/01/2014
19/01/2014
22/01/2014
25/01/2014
28/01/2014
31/01/2014
3/02/2014
6/02/2014
9/02/2014
12/02/2014
15/02/2014
18/02/2014
21/02/2014
24/02/2014
27/02/2014
Date
24hr Average (µg/m³)
24hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Antiene (DC07) Real-Time PM10
January - February 2014
bhpbilliton
resourcing the future
PM10 (µg/m³)
60
50
40
30
20
10
0
1/01/2014
4/01/2014
7/01/2014
10/01/2014
13/01/2014
16/01/2014
19/01/2014
22/01/2014
25/01/2014
28/01/2014
31/01/2014
3/02/2014
6/02/2014
9/02/2014
12/02/2014
15/02/2014
18/02/2014
21/02/2014
24/02/2014
27/02/2014
Date
24hr Average (µg/m³)
24hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria


Wellbrook (DC09) Real-Time PM10
January - February 2014
bhpbilliton
resourcing the future
PM10 (µg/m³)
60
50
40
30
20
10
0
1/01/2014
4/01/2014
7/01/2014
10/01/2014
13/01/2014
16/01/2014
19/01/2014
22/01/2014
25/01/2014
28/01/2014
31/01/2014
3/02/2014
6/02/2014
9/02/2014
12/02/2014
15/02/2014
18/02/2014
21/02/2014
24/02/2014
27/02/2014
Date
24hr Average (µg/m³)
24hr Maximum Criteria
12 Month Rolling Average
12 Month Rolling Average Max. Criteria

4. Depositional Dust Data (Jan - Feb 2014)

Depositional Dust Criteria:

Table 11: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase[2] in deposited dust level	Maximum total[1] deposited dust level
Deposited dust	Annual	2 g/m^2/month	4 g/m^2/month

[1] *Background concentrations due to all other sources plus the incremental increase in concentrations due to the mine complex alone.*
[2] *Incremental increase in concentrations due to the mine complex alone.*

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

Depositional Dust Summary:

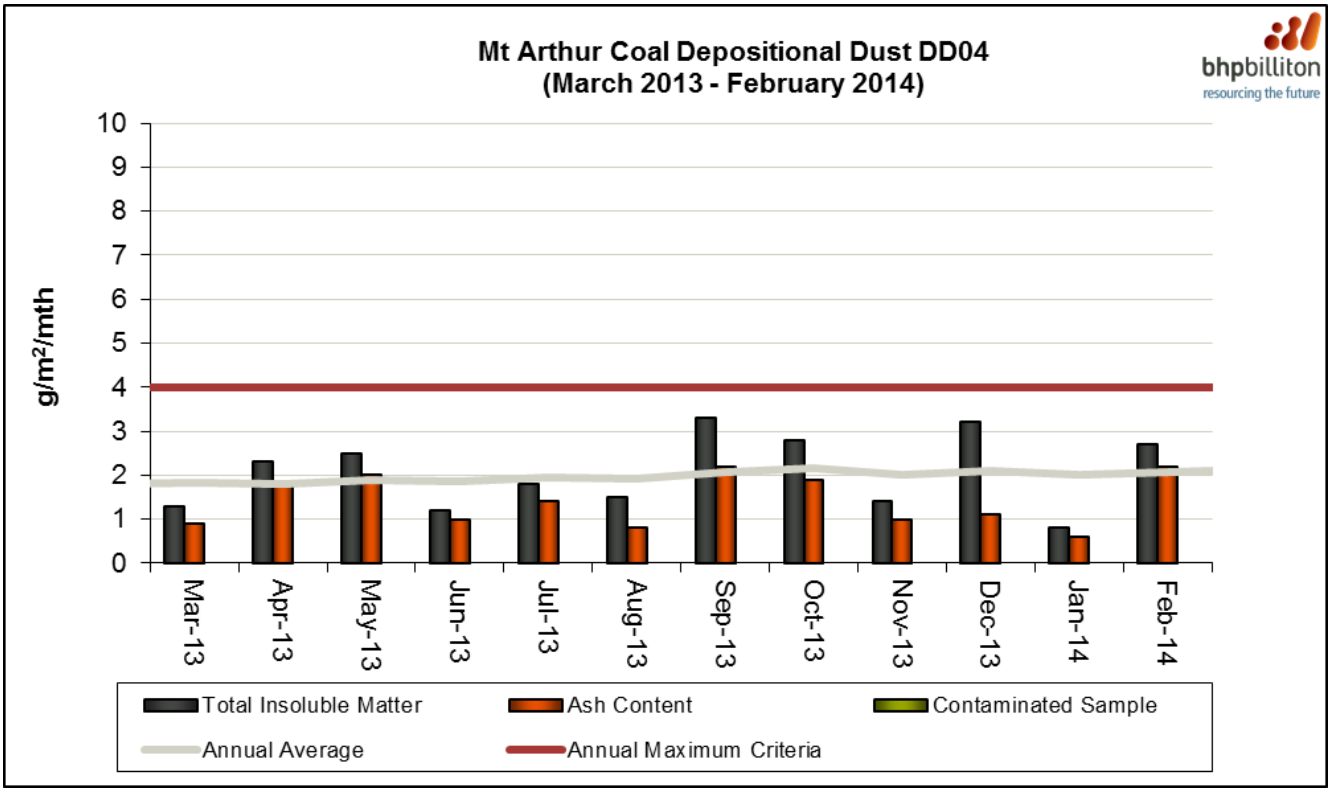
- Mt Arthur Coal's air quality monitoring network contains 13 depositional dust gauges, which includes six statutory monitors, as listed in the table below and discussed in this section.
- All annual rolling averages were below relevant regulatory criteria at the statutory gauges.
- There was only one contaminated depositional dust result in February 2014 at DD15.

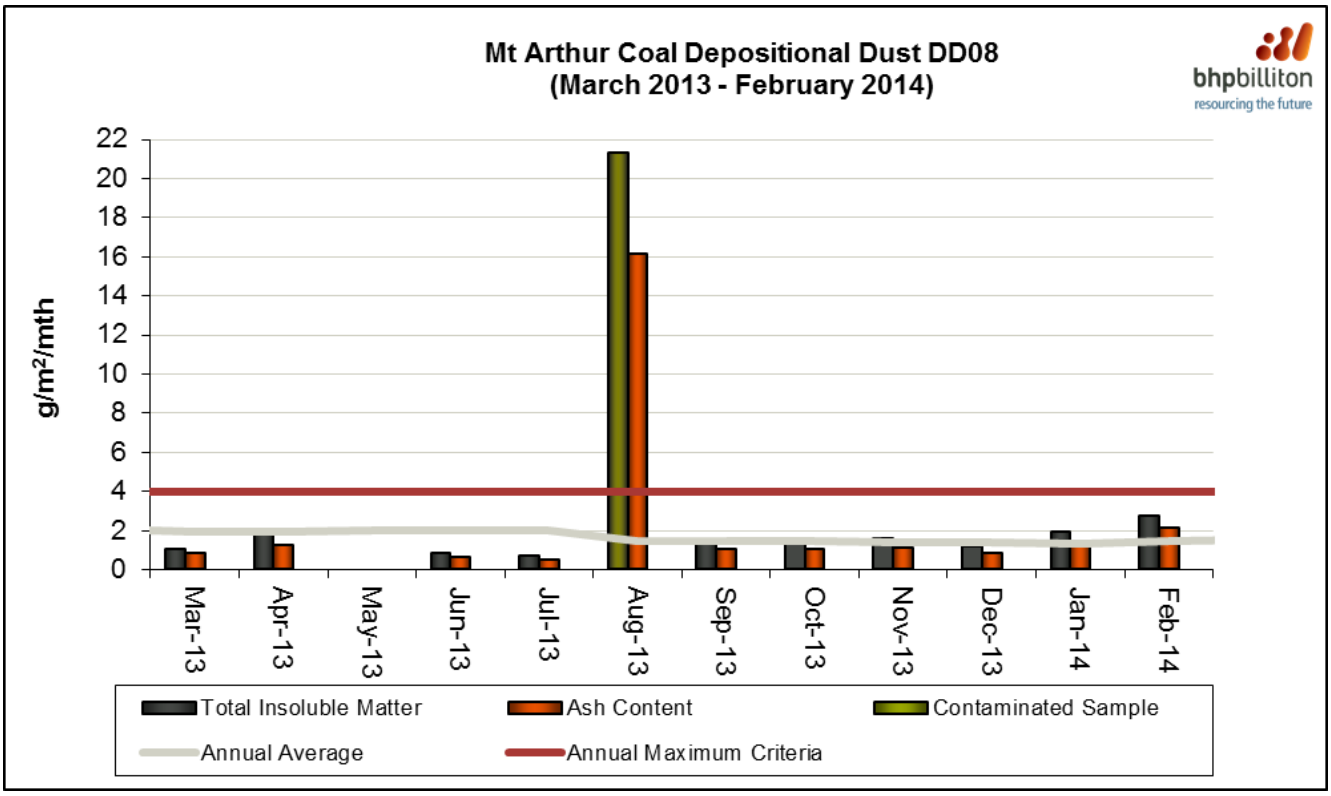
Depositional Dust Data Capture Rates:

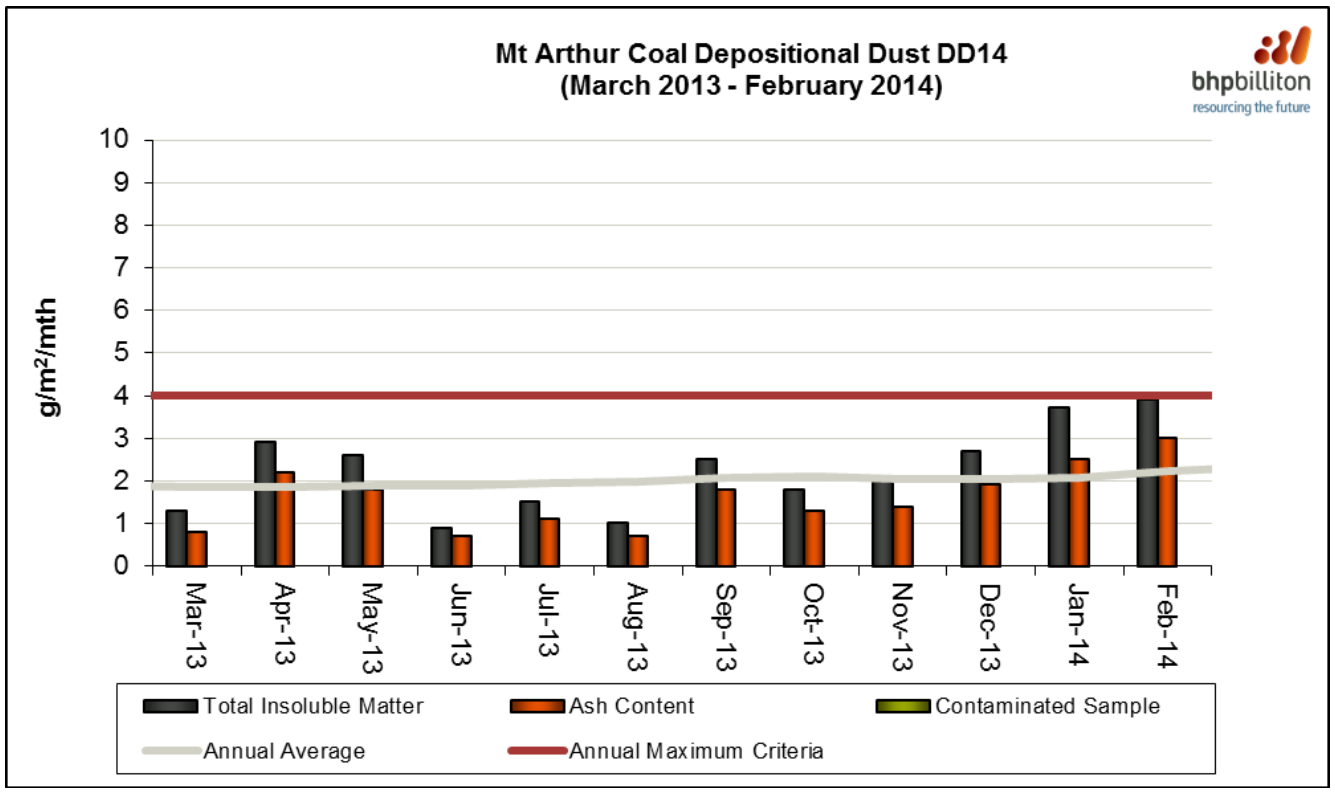
	Antiene	Edderton Homestead	Roxburgh Road	Denman Road West	Sheppard Avenue	South Muswellbrook
Site ID	DD04	DD08	DD14	DD15	DD19	DD21
Jan-14	100%	100%	100%	100%	100%	100%
Feb-14	100%	100%	100%	100%*	100%	100%

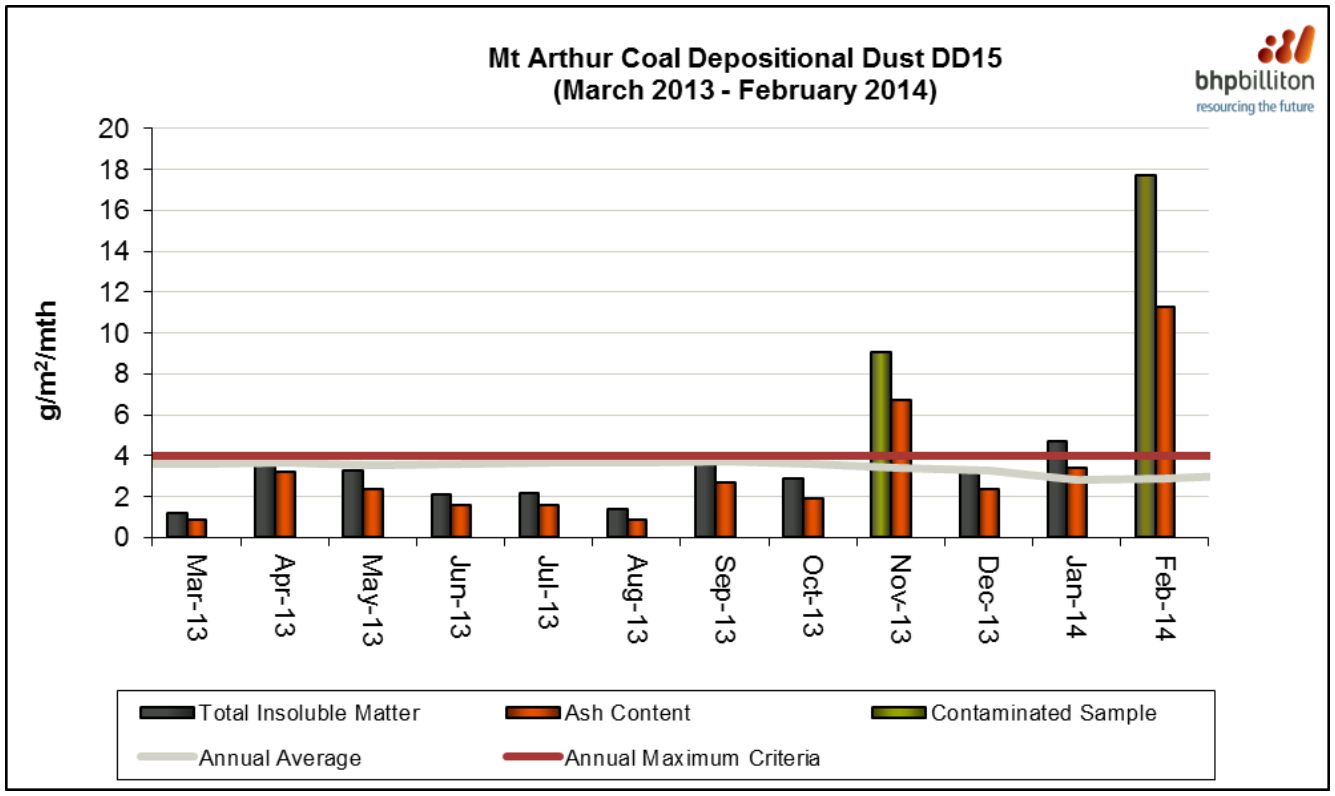
* Contaminated result

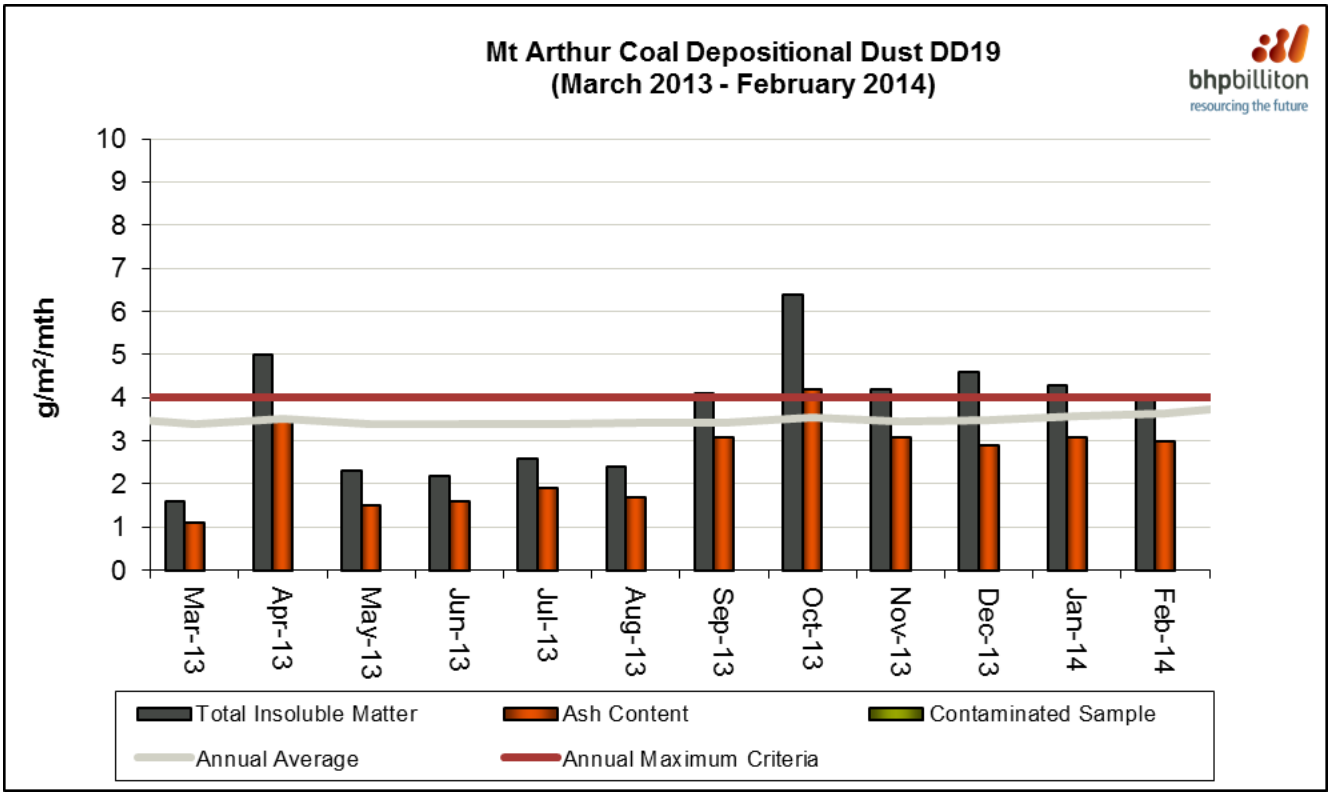
Depositional Dust:

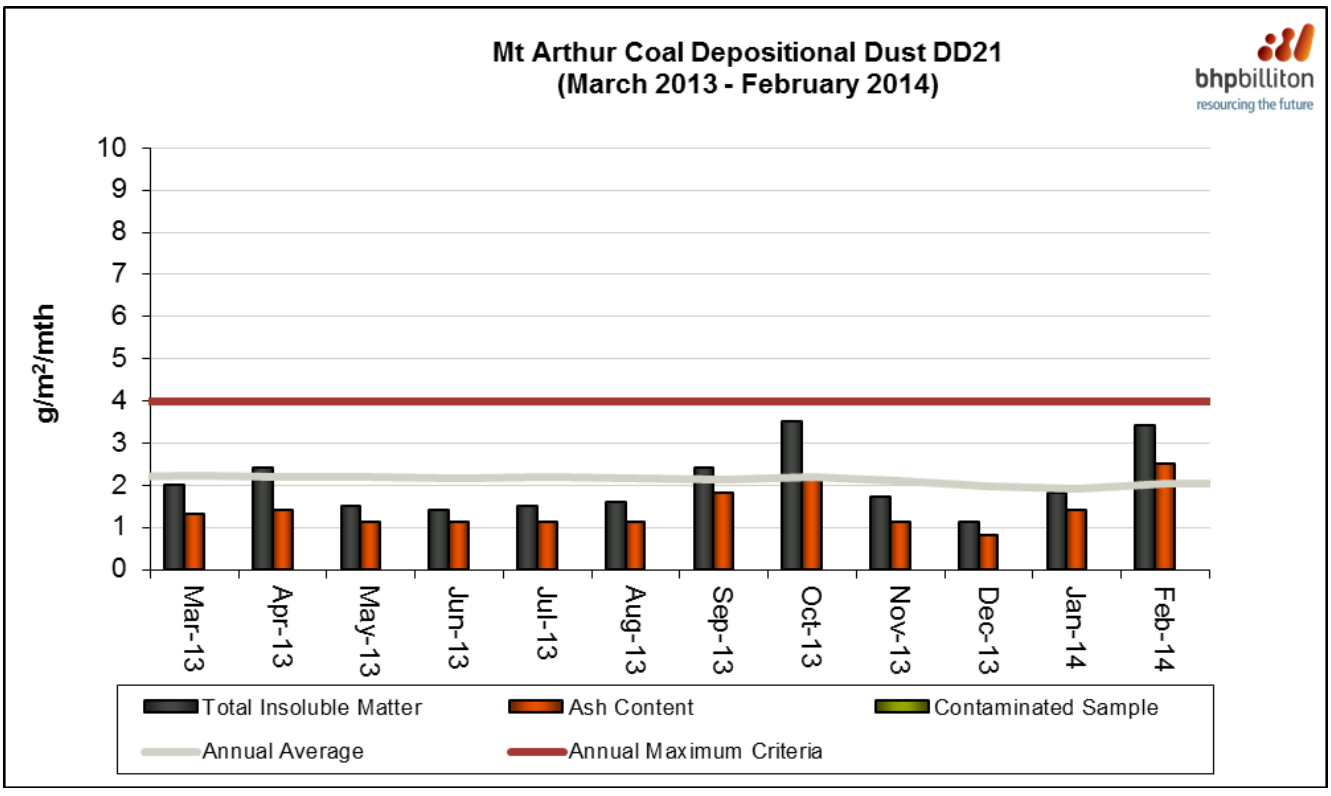





Mt Arthur Coal Depositional Dust DD14
(March 2013 - February 2014)
bhpbilliton
resourcing the future
g/m²/mth
0
1
2
3
4
5
6
7
8
9
10
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria


Mt Arthur Coal Depositional Dust DD15
(March 2013 - February 2014)
bhpbilliton
resourcing the future
g/m²/mth
0
2
4
6
8
10
12
14
16
18
20
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria


Mt Arthur Coal Depositional Dust DD19
(March 2013 - February 2014)
bhpbilliton
resourcing the future
g/m²/mth
0
1
2
3
4
5
6
7
8
9
10
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria


Mt Arthur Coal Depositional Dust DD21
(March 2013 - February 2014)
bhpbilliton
resourcing the future
g/m²/mth
0
1
2
3
4
5
6
7
8
9
10
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
Total Insoluble Matter
Ash Content
Contaminated Sample
Annual Average
Annual Maximum Criteria

5. Surface Water Data (Jan - Feb 2014)

Surface Water Criteria:

Table 5: Surface water impact assessment criteria

Focus Area	Parameter	Trigger Value	Monitoring Site
Surface water quality	pH	If recorded value at a monitoring site is outside the range 6.5 – 9.0 for 3 consecutive readings	SW01, SW02, SW03, SW04,SW12, SW13, SW15, SW18
	EC	If recorded value at a monitoring site is greater than the 90th percentile of baseline data for 3 consecutive readings	
	TSS		

Table 6: Surface water impact assessment trigger values

Site ID	pH		EC (µc/cm)		TSS (mg/L)	
	Low Trigger	High Trigger	90th Percentile Trigger	Number of data points	90th Percentile Trigger	Number of data points [1]
SW01	6.5	9.0	9,638	168	55	162
SW02			9,200	132	31	132
SW03			8,394	182	11	173
SW04			12,000	186	29	178
SW09			6,755	46	174	43
SW10			8,440	97	185	96
SW12			5,807	124	89	114
SW13			760	31	1,144	30
SW15			4,739	82	37	73
SW18			3,984	65	15	64

Notes: 1. based on a baseline data up to the 1st of September 2010

Surface Water Summary:

- SW13 at Fairford Creek has been removed from the Surface Water Monitoring Program due to the construction of the alluvial cut-off wall along Denman Road. The Surface Water Monitoring Program is currently being reviewed in consultation with the DP&I.
- No reportable elevated results were recorded during January or February.

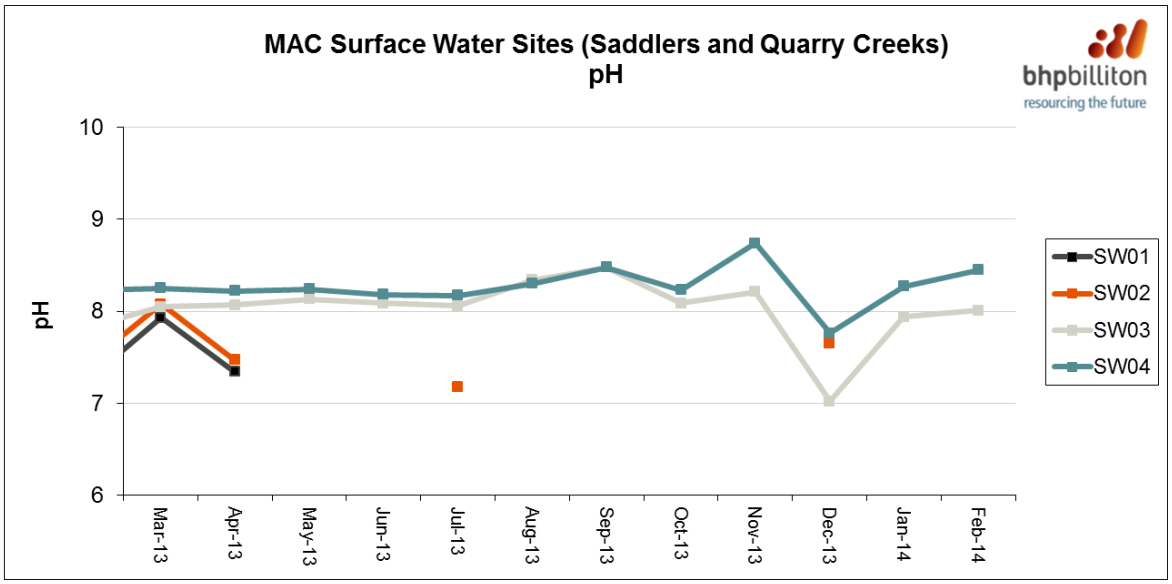
Surface Water Data Capture Rates:

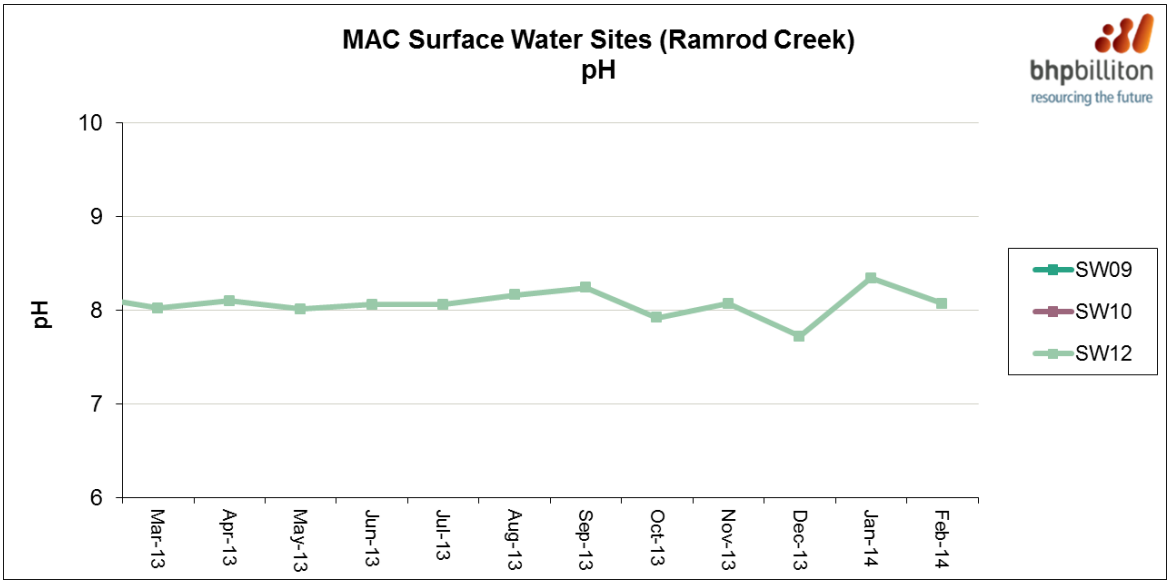
	Saddlers Creek			Quarry Creek	Ramrod Creek			Whites Creek	
Site ID	**SW01**	**SW02**	**SW03**	**SW04**	**SW09**	**SW10**	**SW12**	**SW15**	**SW18**
Jan-14	0%+	0%^	100%	100%	0%+	0%+	100%	0%^	100%
Feb-14	0%+	0%+	100%	100%	0%+	0%+	100%	0%^	100%

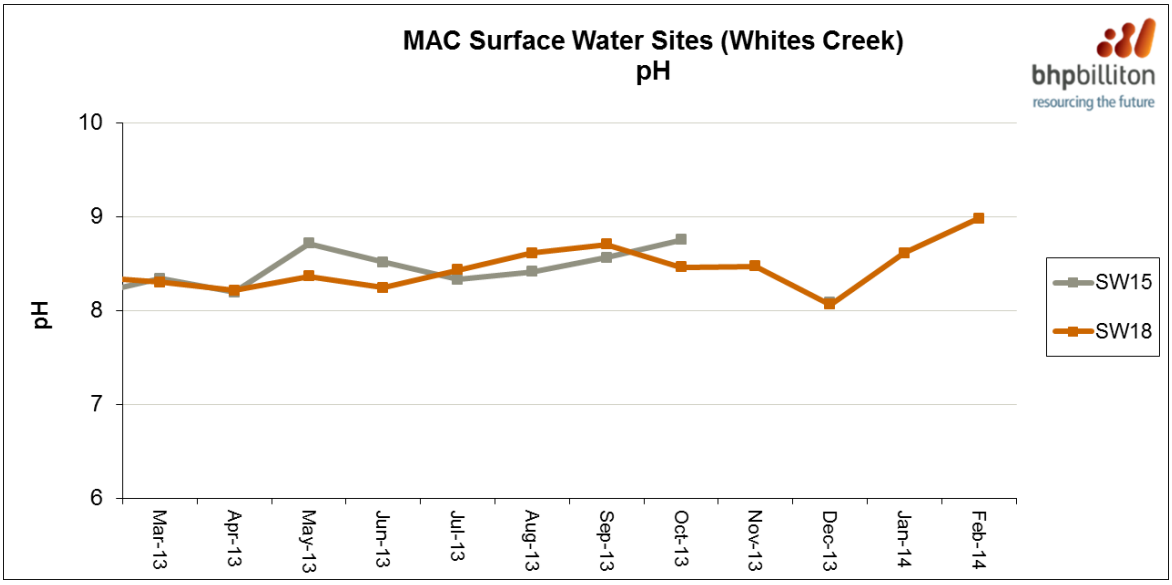
^ Watercourse was too low to sample

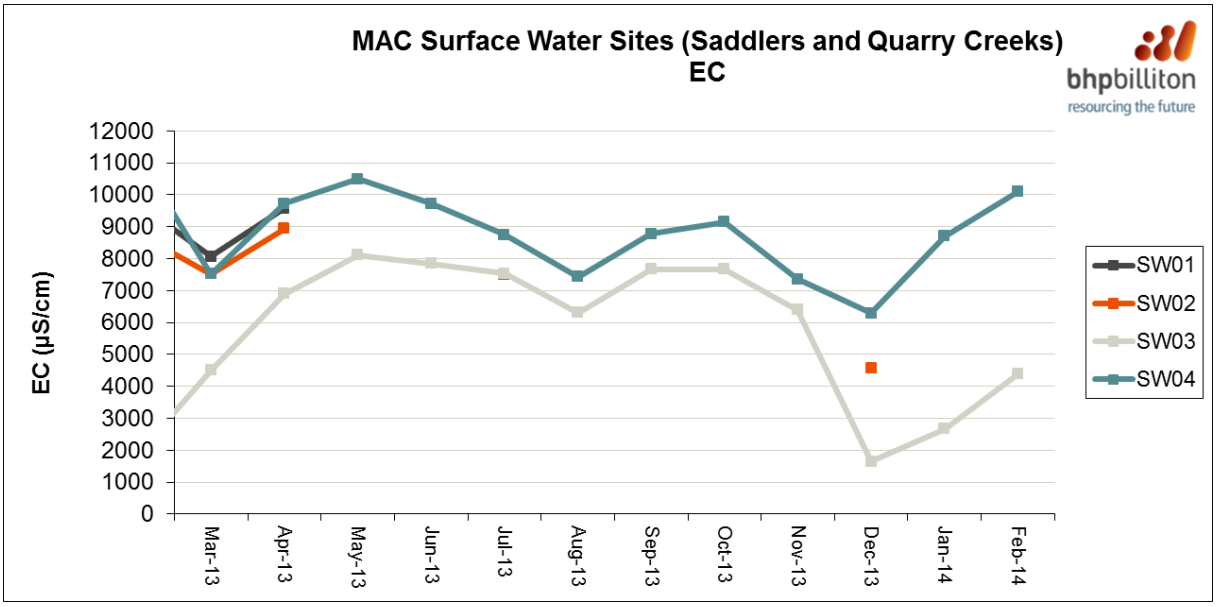
+ Watercourse was dry

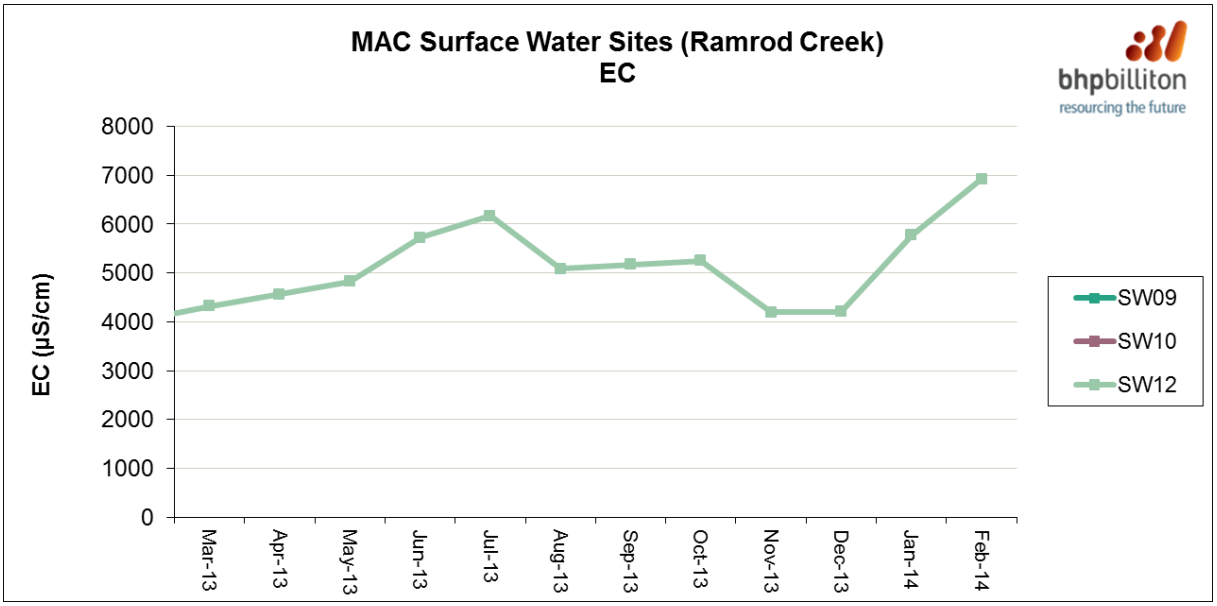
Surface Water Parameters:

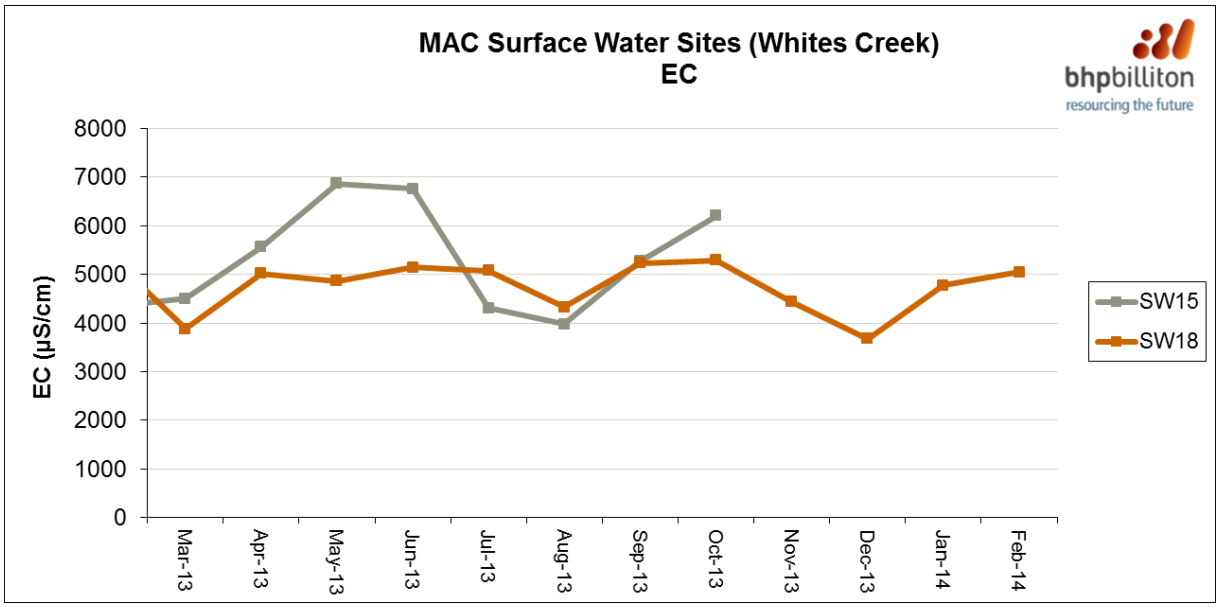


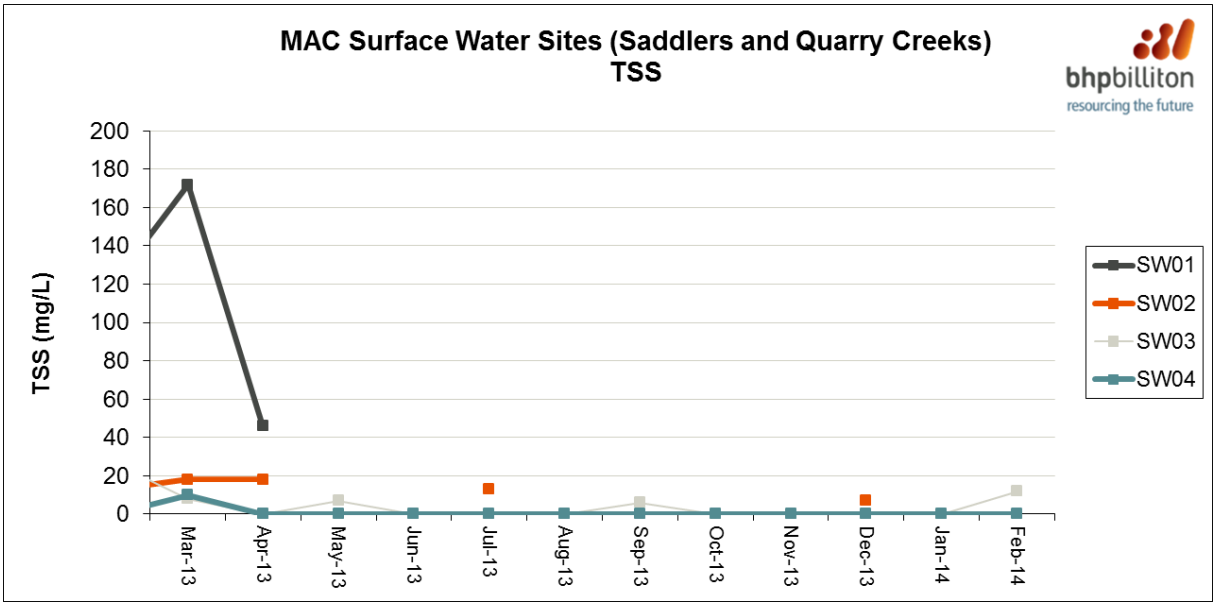


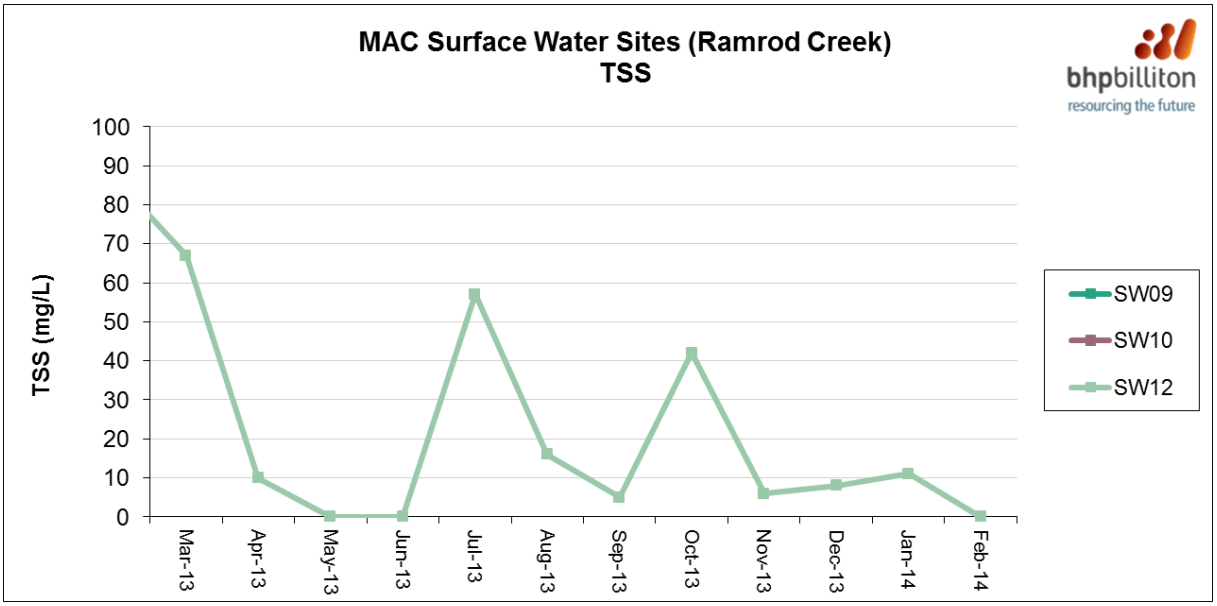


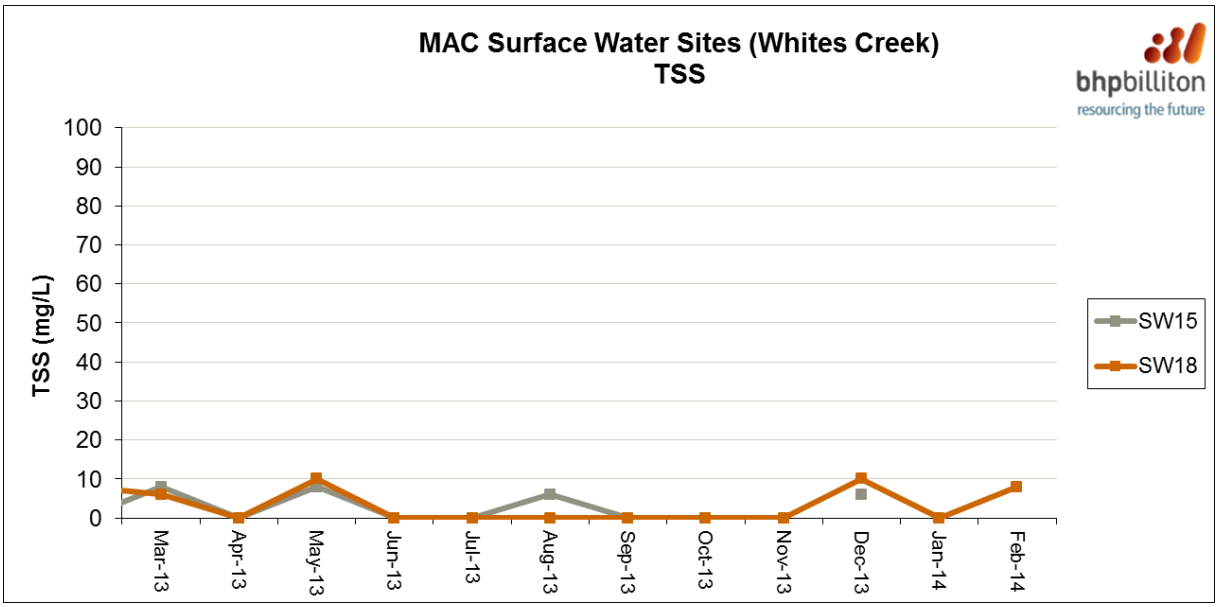

MAC Surface Water Sites (Saddlers and Quarry Creeks)
EC
bhpbilliton
resourcing the future
EC (µS/cm)
12000
11000
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SW01
SW02
SW03
SW04


MAC Surface Water Sites (Ramrod Creek)
EC
bhpbilliton
resourcing the future
EC (µS/cm)
8000
7000
6000
5000
4000
3000
2000
1000
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SW09
SW10
SW12


MAC Surface Water Sites (Whites Creek)
EC
bhpbilliton
resourcing the future
EC (µS/cm)
8000
7000
6000
5000
4000
3000
2000
1000
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SW15
SW18


MAC Surface Water Sites (Saddlers and Quarry Creeks)
TSS
bhpbilliton
resourcing the future
TSS (mg/L)
200
180
160
140
120
100
80
60
40
20
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SW01
SW02
SW03
SW04


MAC Surface Water Sites (Ramrod Creek)
TSS
bhpbilliton
resourcing the future
TSS (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SW09
SW10
SW12


MAC Surface Water Sites (Whites Creek)
TSS
bhpbilliton
resourcing the future
TSS (mg/L)
100
90
80
70
60
50
40
30
20
10
0
Mar-13
Apr-13
May-13
Jun-13
Jul-13
Aug-13
Sep-13
Oct-13
Nov-13
Dec-13
Jan-14
Feb-14
SW15
SW18

6. Noise Data (Jan - Feb 2014)

Noise Criteria:

Impact Assessment Criteria

2. The Proponent shall ensure that the noise generated by the Mt Arthur mine complex does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, except where such exceedance is predicted in the EA. For these properties, the Proponent shall comply with the noise level predictions in the EA.

However, these noise limits do not apply if the Proponent has an agreement with the relevant owner/s of these residences/land to generate higher noise levels, and the Proponent has advised the Department in writing of the terms of this agreement.

Table 2: Noise Impact Assessment Criteria dB(A)

Location	Day ($L_{Aeq\ (15min)}$)	Evening ($L_{Aeq\ (15min)}$)	Night ($L_{Aeq\ (15min)}$)	Night ($L_{A1\ (1\ min)}$)
A – Antiene Estate	37	40	38	45
B – Skelletar Stock Route, Thomas Mitchell Drive, Denman Road East	39	38	37	45
C – Racecourse Road	41	40	39	45
D – Denman Road North-west, Roxburgh Vineyard (north-east), Roxburgh Road	37	36	35	45
E – South Muswellbrook	39	39	39	45
F – Denman Road West, Roxburgh Vineyard (west)	37	36	35	45
G – East Antiene	41	40	39	45

Land Acquisition Criteria

3. If the noise generated by the Mt Arthur mine complex exceeds the criteria in Table 3 at any residence on privately-owned land or on more than 25 per cent of any privately-owned land, the Proponent shall, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in conditions 7-8 of schedule 4.

Table 3: Land acquisition criteria dB(A) $L_{Aeq\ (15min)}$

Location	Day	Evening	Night
A – Antiene Estate	42	45	43
B – Skelletar Stock Route, Thomas Mitchell Drive, Denman Road East	44	43	42
C – Racecourse Road	46	45	44
D – Denman Road North-west, Roxburgh Vineyard (north-east), Roxburgh Road	42	41	40
E – South Muswellbrook	44	44	44
F – Denman Road West, Roxburgh Vineyard (west)	42	41	40
G – East Antiene	46	45	44

Definitions:
$LA_{eq\ (15min)}$ – The average noise energy during a 15 minute period.
$LA_{1\ (1min)}$ – The noise level exceeded for 1% of 1 minute. This measurement is generally regarded as the maximum noise level during a monitoring period.

Noise Summary:

- Mt Arthur Coal has eight statutory attended noise monitoring locations.
- There were no reportable exceedances recorded in January or February.
- Statutory attended noise monitoring results for January and February for $L_{Aeq\ (15min)}$ and $L_{A1\ (1min)}$ are shown below.

Noise Data Capture Rates:

	NP04	NP07	NP10	NP12	NP13	NP14	NP15	NP16
Jan-14	100%	100%	100%	100%	100%	100%	100%	100%
Feb-14	100%	100%	100%	100%	100%	100%	100%	100%

$L_{Aeq\ (15min)}$	NP04	NP07	NP10	NP12	NP13	NP14	NP15	NP16
Representative residential assessment zone	A	C	E	G	N/A	D	D & F	B
Noise impact assessment criteria (intrusive criteria) ($L_{Aeq\ (15min)}$)	38	39	39	39	N/A	35	35	37
Land acquisition criteria ($L_{Aeq\ (15min)}$)	43	44	44	44	N/A	40	40	42
Predicted noise level for 2016 for each monitoring location^	38	37	38	39	N/A	34	35	38
16-17 January 2014	IA*	33*	30*	IA*	<30*	27*	30*	31*
26-27 February 2014	NM*	32*	<30*	IA*	IA	IA	25	32*
$L_{A1\ (1min)}$	**NP04**	**NP07**	**NP10**	**NP12**	**NP13**	**NP14**	**NP15**	**NP16**
Representative residential assessment zone	A	C	E	G	N/A	D	D & F	B
Noise impact assessment criteria ($L_{A1\ (1min)}$)	45	45	45	45	N/A	45	45	45
16-17 January 2014	IA*	36*	33*	IA*	<30*	30*	33*	33*
26-27 February 2014	NM*	36*	<30*	IA*	IA	IA	27	37*

^ Modelling for 2016 is considered to be representative for FY14.

NM – Mt Arthur Coal's operations were audible but not measurable.

IA – Mt Arthur Coal's operations were inaudible.

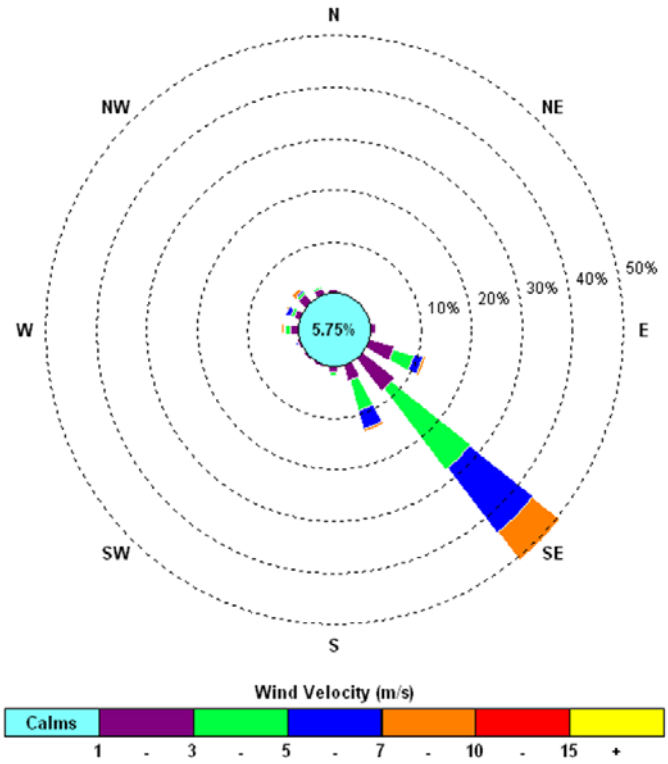
N/A – Predicted noise levels were not applicable as monitored on land owned by Mt Arthur Coal.

* Noise emission limits do not apply for winds greater than 3m/s (at a height of 10m), or temperature inversion conditions greater than or equal to 4ºC/100m.

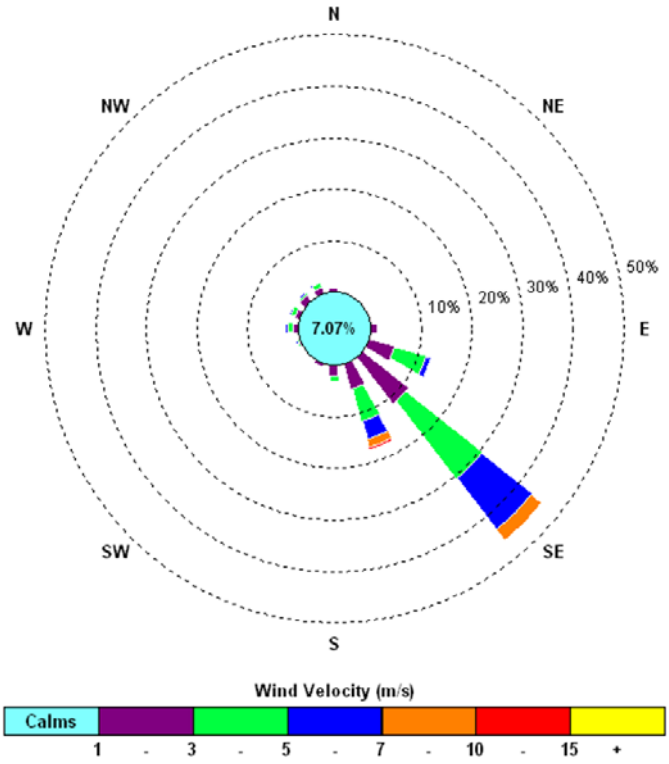
7. Weather Data (Jan - Feb 2014)

Monthly Windroses for Mt Arthur Coal Industrial Area Meteorological Station:

January 2014



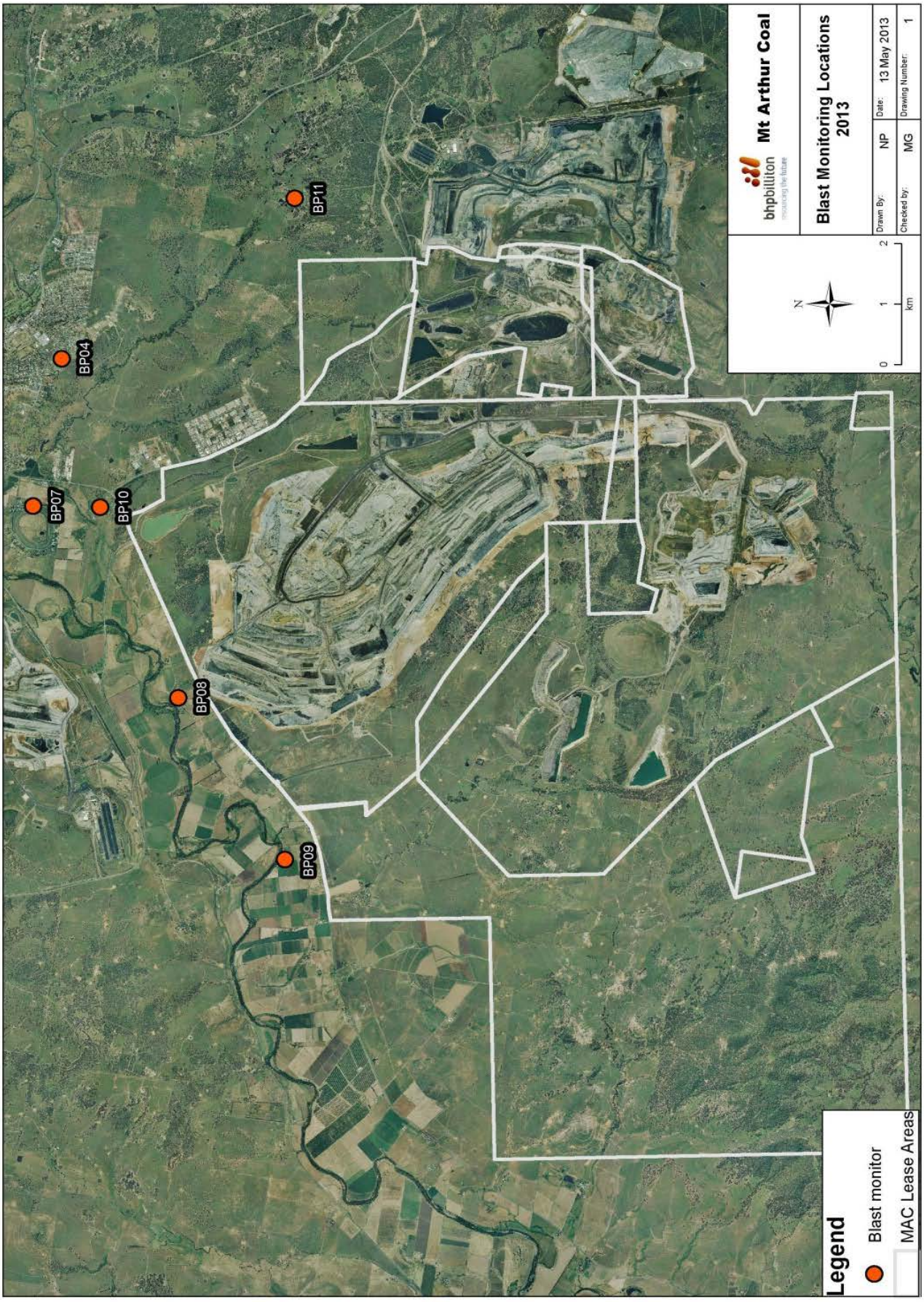
February 2014



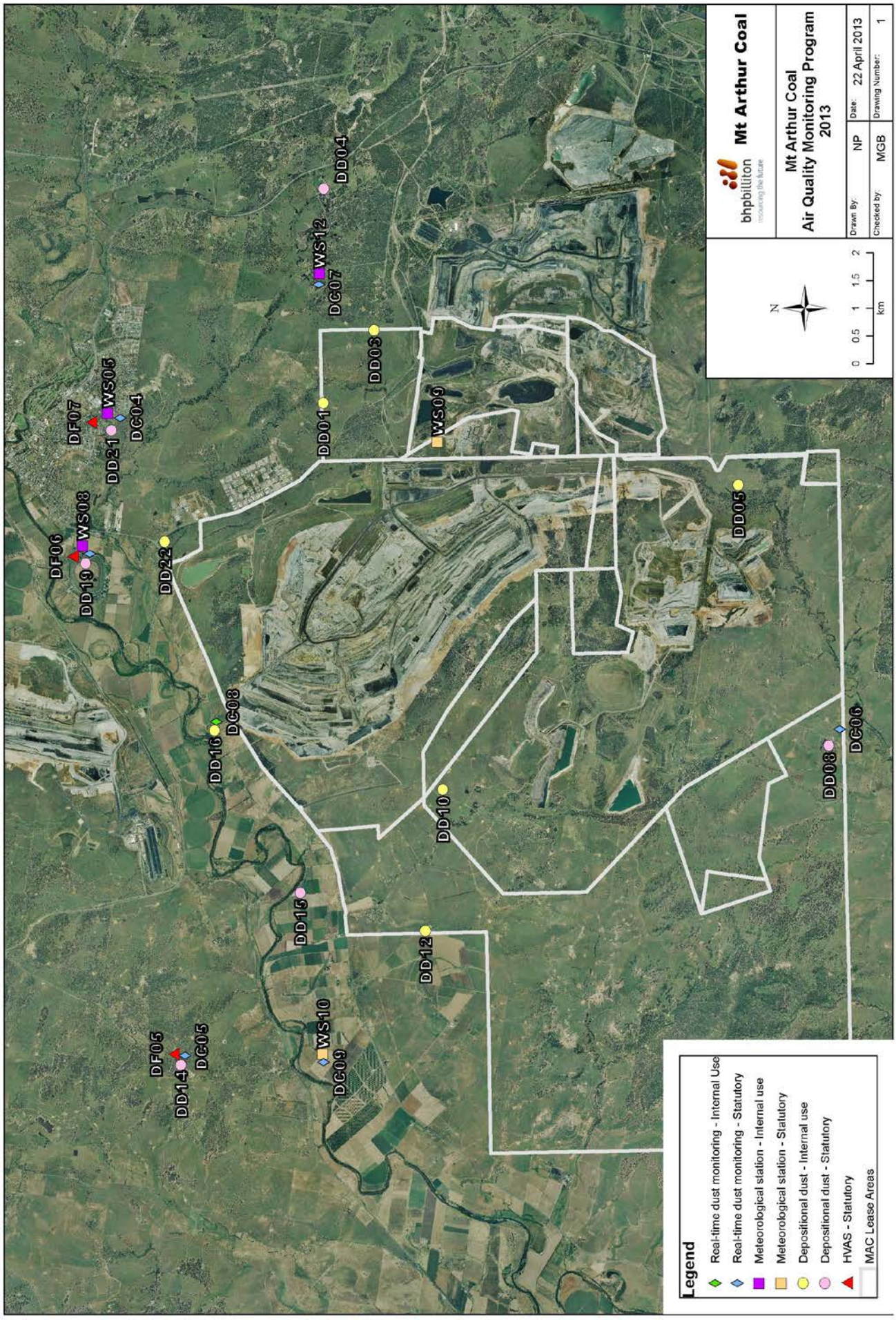
2014	Temperature 10m (°C)			Windspeed (m/s)			Sigma Theta			Solar Radiation (W/m^2)			Rainfall (mm)	No. of days rain >1mm
	Min	Average	Max	Min	Average	Max	Min	Average	Max	Min	Average	Max		
January	15.2	24.0	36.7	0.0	4.1	10.9	5.8	19.6	93.4	0.0	408.6	1687.1	8.4	1
February	13.6	22.6	36.3	0.0	3.7	13.0	5.9	17.8	95.0	0.0	339.1	1693.2	96.0	7

Appendix 1: Monitoring Locations

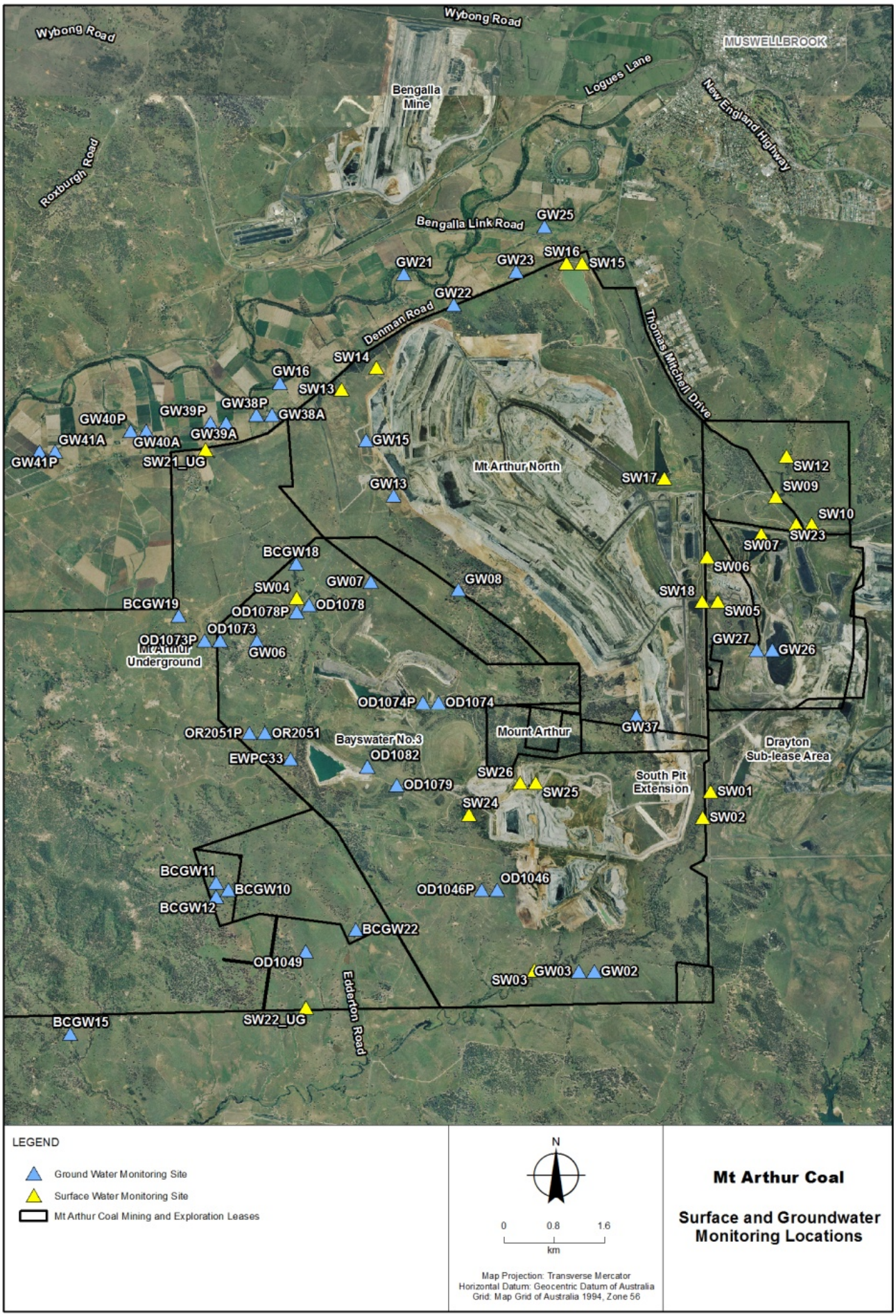
Blast Monitoring:



Air Quality Monitoring:



Water Monitoring:



Noise Monitoring: