

## Overview of Operations (September – October 2011)

### Operations Summary:

- RX1 equipment continued to be delivered (coal digger, trucks, dozers, grader, and watercart)
- Further reshaping and rehabilitation occurred on VD1 (Visual Dump) and CD1
- Aerial seeding operations took place on CD2 and across parts of Saddlers pit.
- Production records on OB and Coal were achieved during October.

## Environmental Monitoring Data (September – October 2011)

This monitoring data is provided for your perusal prior to the meeting. We will discuss any exceedances or elevated results since the last meeting by exception only.

### 1. Blasting Data (September – October 2011)

#### Blasting Criteria:

<b>Blast Impact Assessment Criteria</b>			
10. The Proponent shall ensure that blasts on site do not cause exceedances of the criteria in Table 8.			
<i>Table 8: Blasting impact assessment criteria</i>			
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:

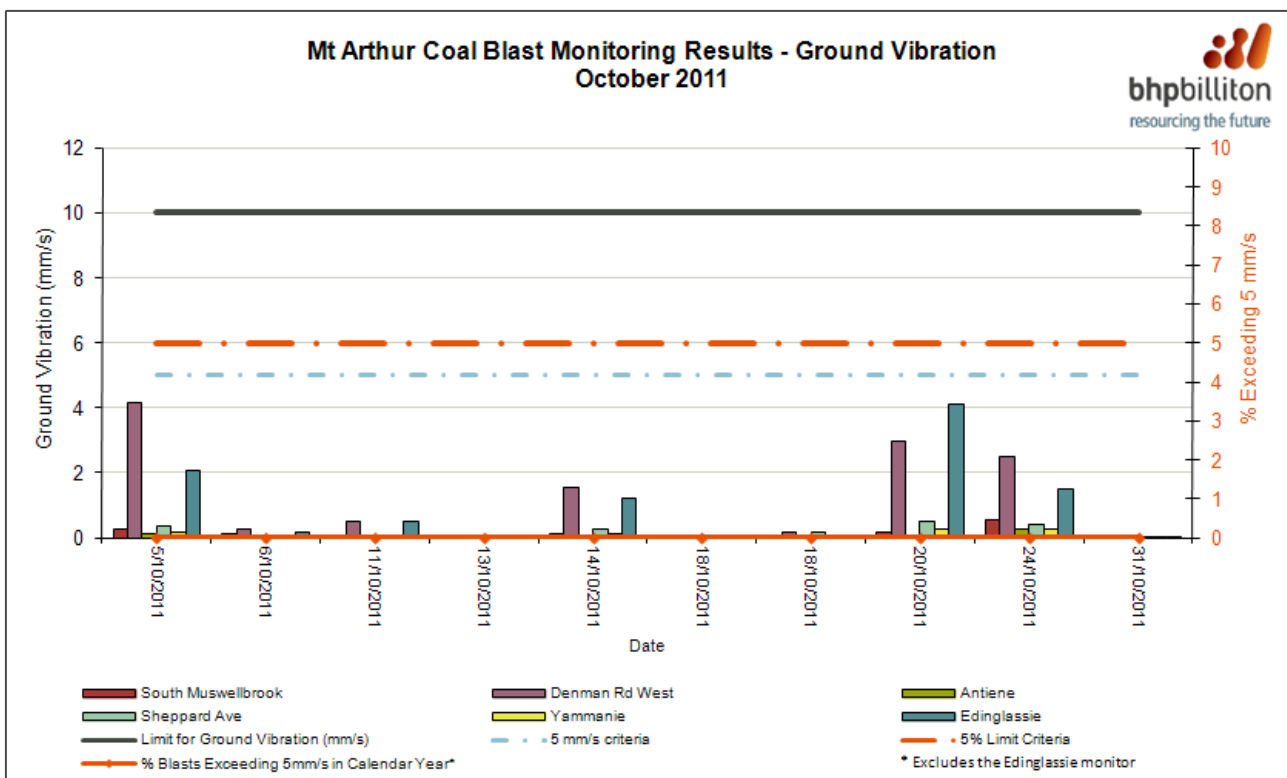
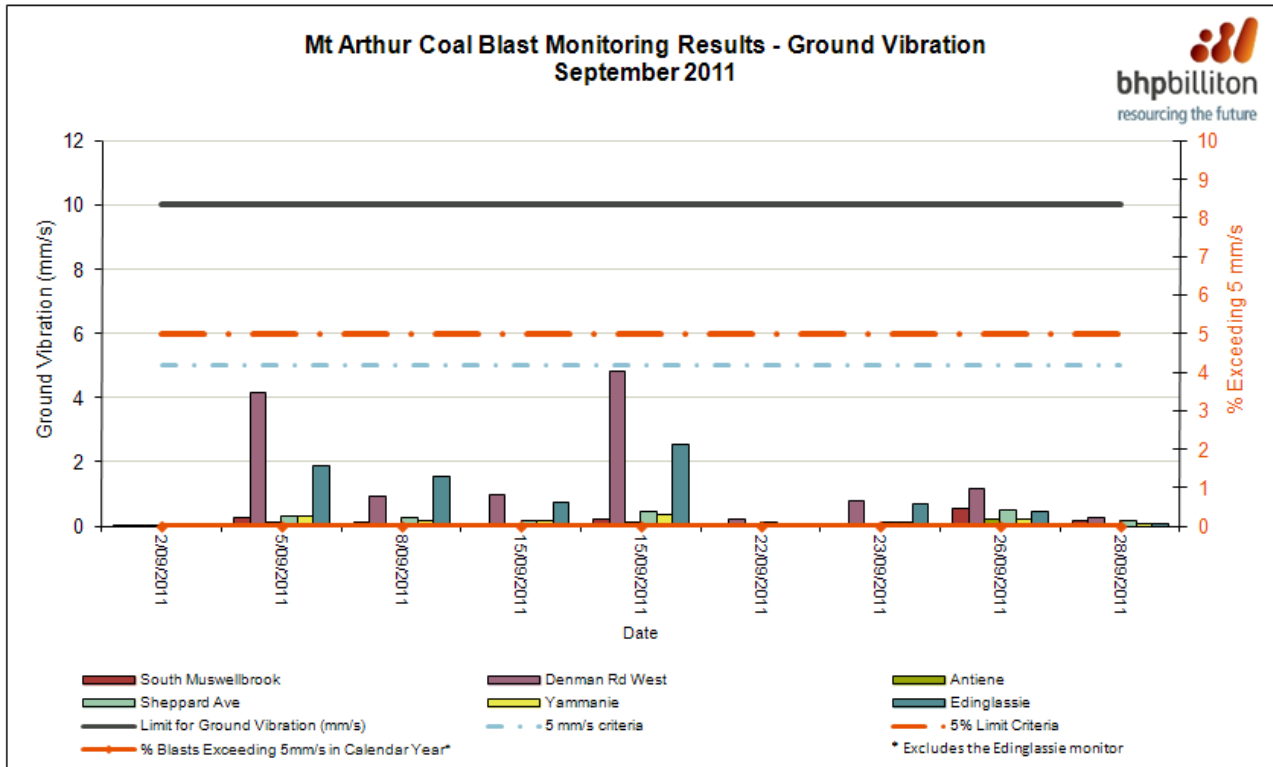
- All licensed blast monitoring stations recorded results below regulatory criteria for the September to October 2011 monitoring period.
- There were no road closures in the September to October 2011 monitoring period.
- There were 19 blasts fired in the September to October 2011 monitoring period.
- Eight blasts were delayed due to unfavourable weather conditions.
- DoP compliance officer visited site to inspect a planned blast near Macleans Pit.

#### Blast Monitor Data Capture Rates:

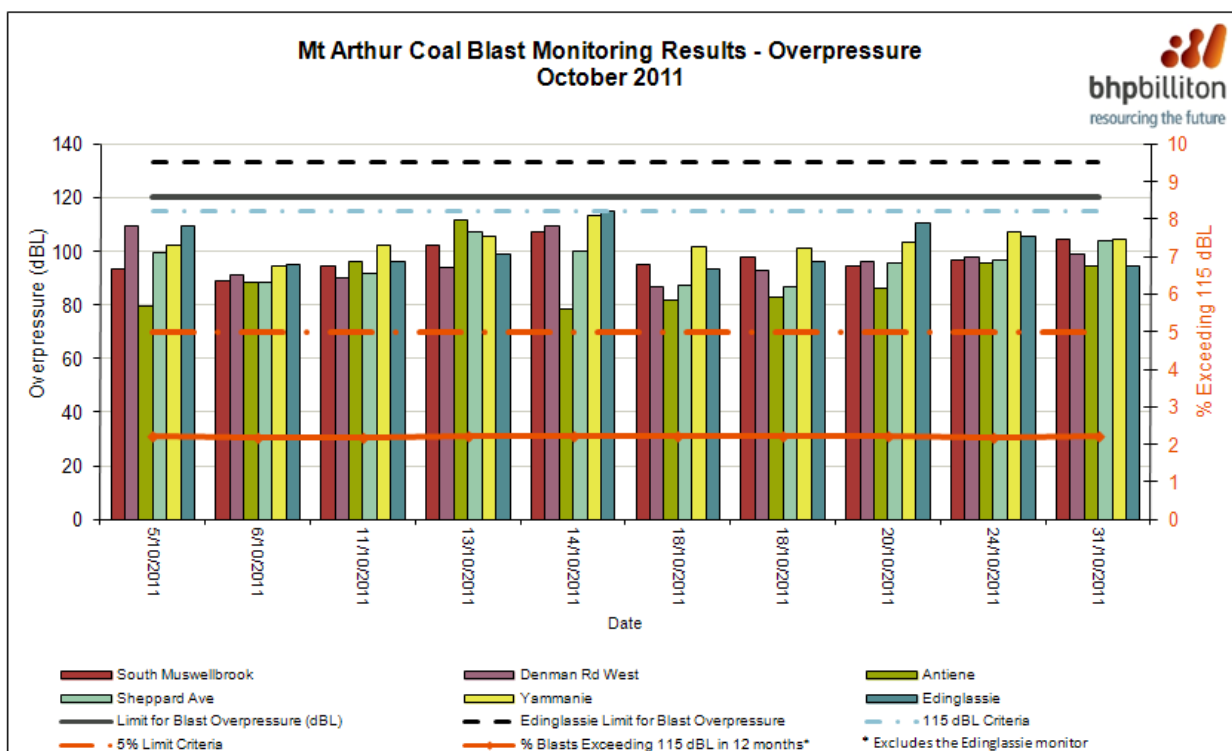
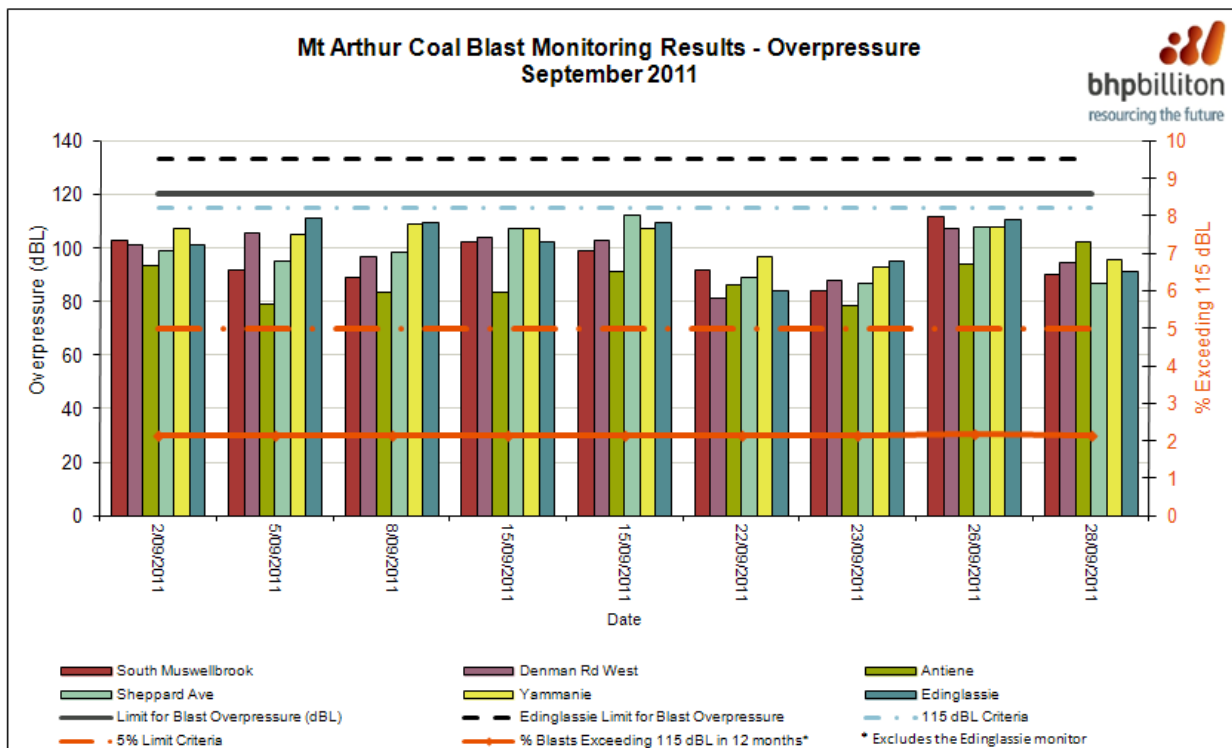
	Antiene	Denman Road West	Edinglassie	Racecourse	South Muswellbrook	Yammanie
<b>Sep-11</b>	100%	100%	100%	100%	100%	100%
<b>Oct-11</b>	100%	100%	100%	100%	100%	100%

Note. Data Capture Rate equals the number of zero or missing blast results ÷ number of blasts

## Ground Vibration



# Overpressure



## 2. High Volume Air Sampling (HVAS) Data (September – October 2011)

### 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.		
<i>Table 9: Long term impact assessment criteria for particulate matter</i>			
<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>	<i>Basis</i>
Total suspended particulate (TSP) matter	Annual	90 µg/m <sup>3</sup>	Total <sup>1</sup>
Particulate matter < 10 µm (PM <sub>10</sub> )	Annual	30 µg/m <sup>3</sup>	Total <sup>1</sup>
<i>Table 10: Short term impact assessment criterion for particulate matter</i>			
<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>	<i>Basis</i>
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	Total <sup>1</sup>

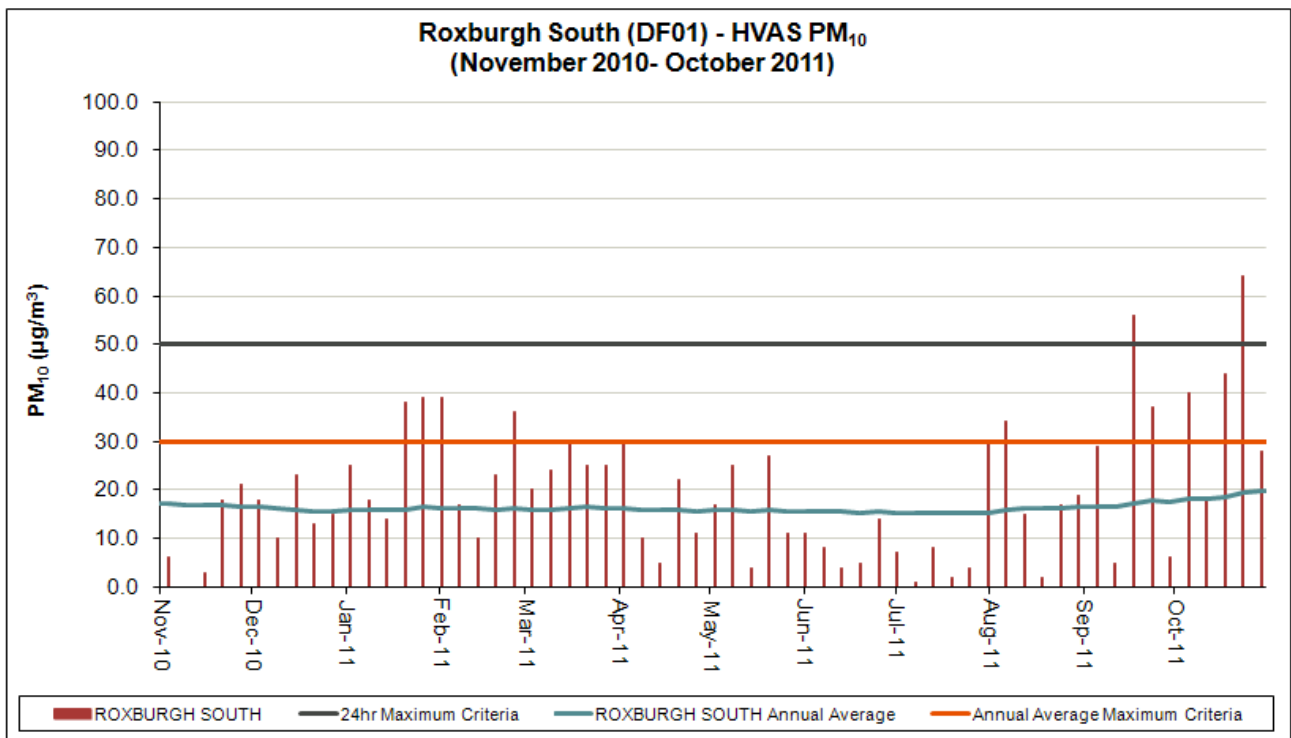
### HVAS Summary:

- There were no elevated results in the September to October 2011 monitoring period with the exception of:
  - **Sheppard Avenue (DF06), 17 September 2011** - This monitor is located to the north of the operation. The predominant wind direction on this day was from the north west. During approximately 8% of the day this monitor was located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.
  - **Roxburgh South (DF02), 17 September 2011** - This monitor is located to the west of the operation. The predominant wind direction on this day was from the north west. At no time during the day was this monitor located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.
  - **Roxburgh South (DF02), 23 October 2011** - This monitor is located to the west of the operation. The predominant wind direction on this day was from the north west. During approximately 7% of the day was this monitor located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.
- All HVAS monitoring locations currently have annual averages below relevant regulatory criteria. Please refer to the blue line in the HVAS figures below.

- Data capture rates were 100% at all monitors except Windmill (DF02). Two HVAS results were not obtained at the Windmill HVAS monitor in October due to an issue with the program timer which has now been resolved.

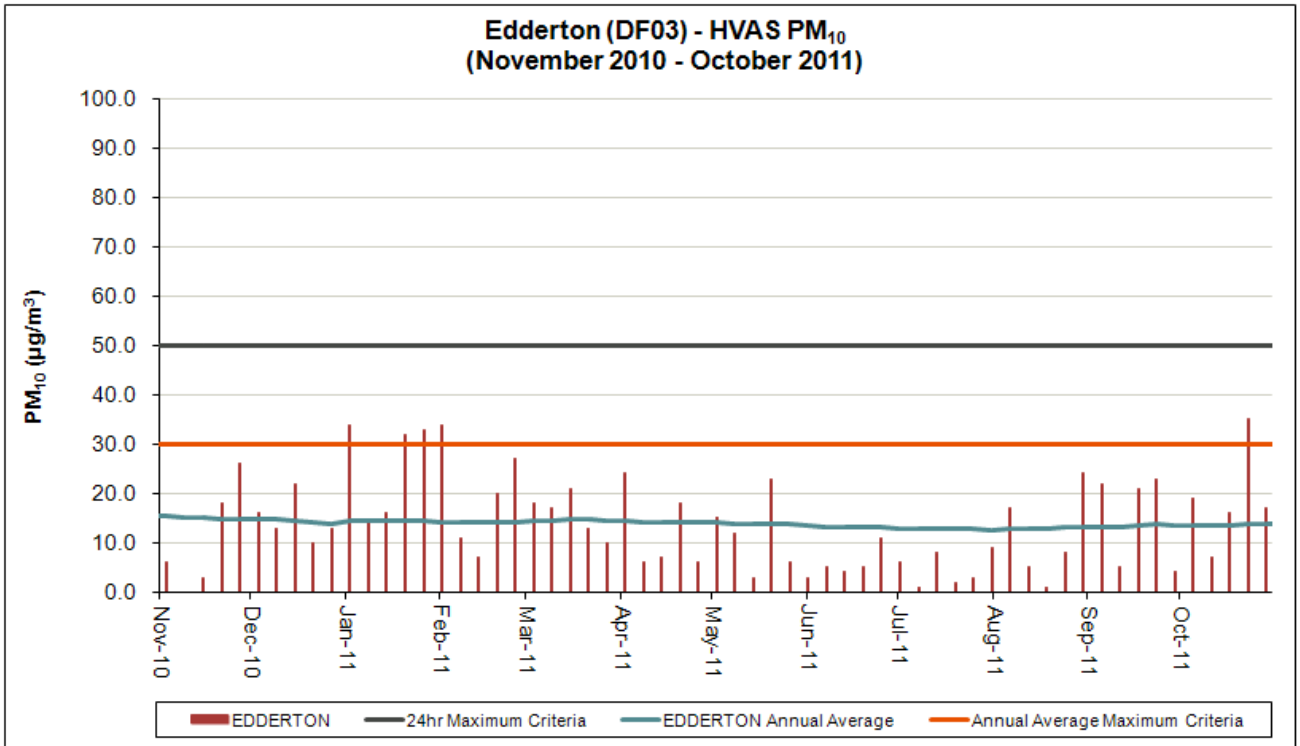
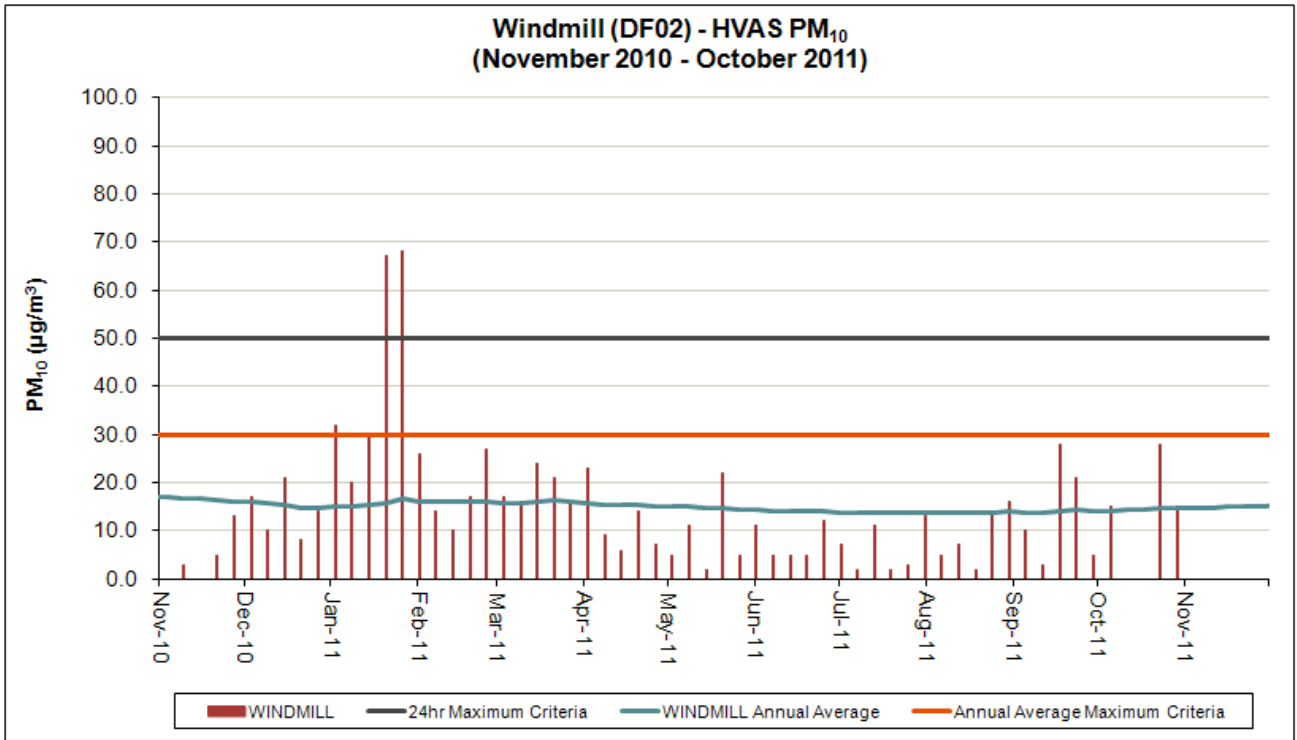
### HVAS Data Capture Rates:

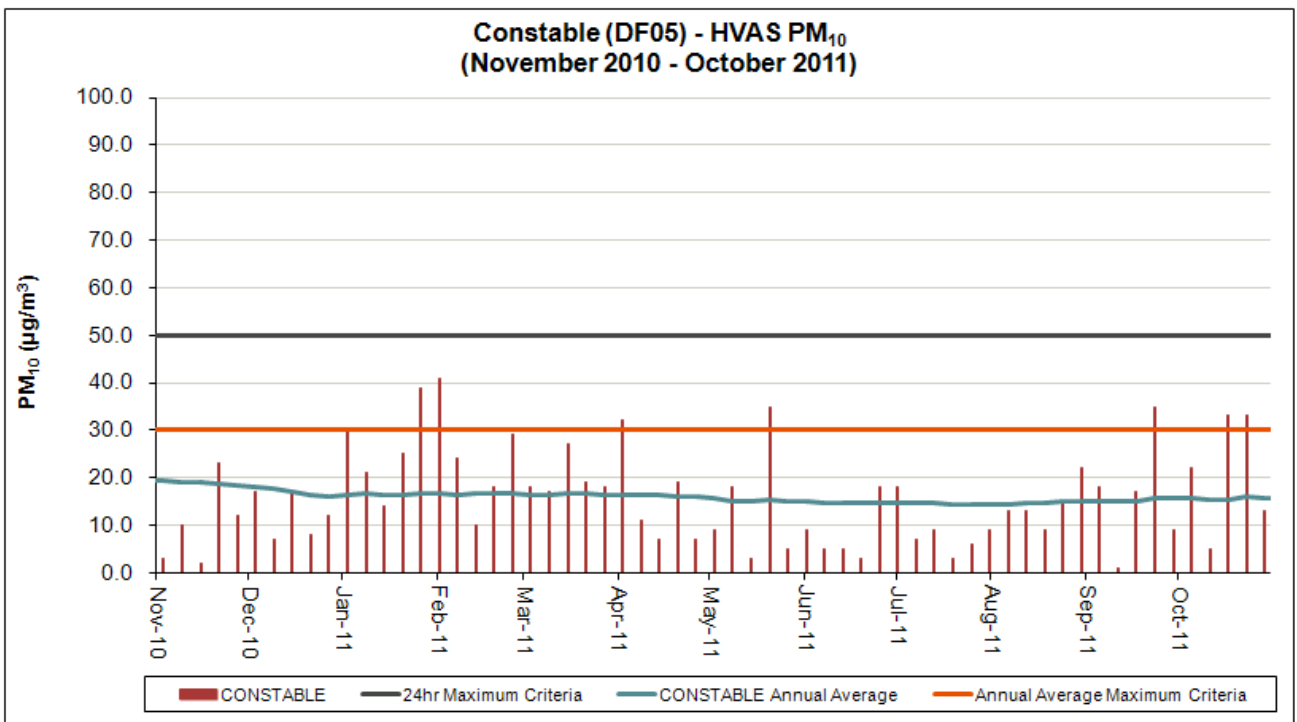
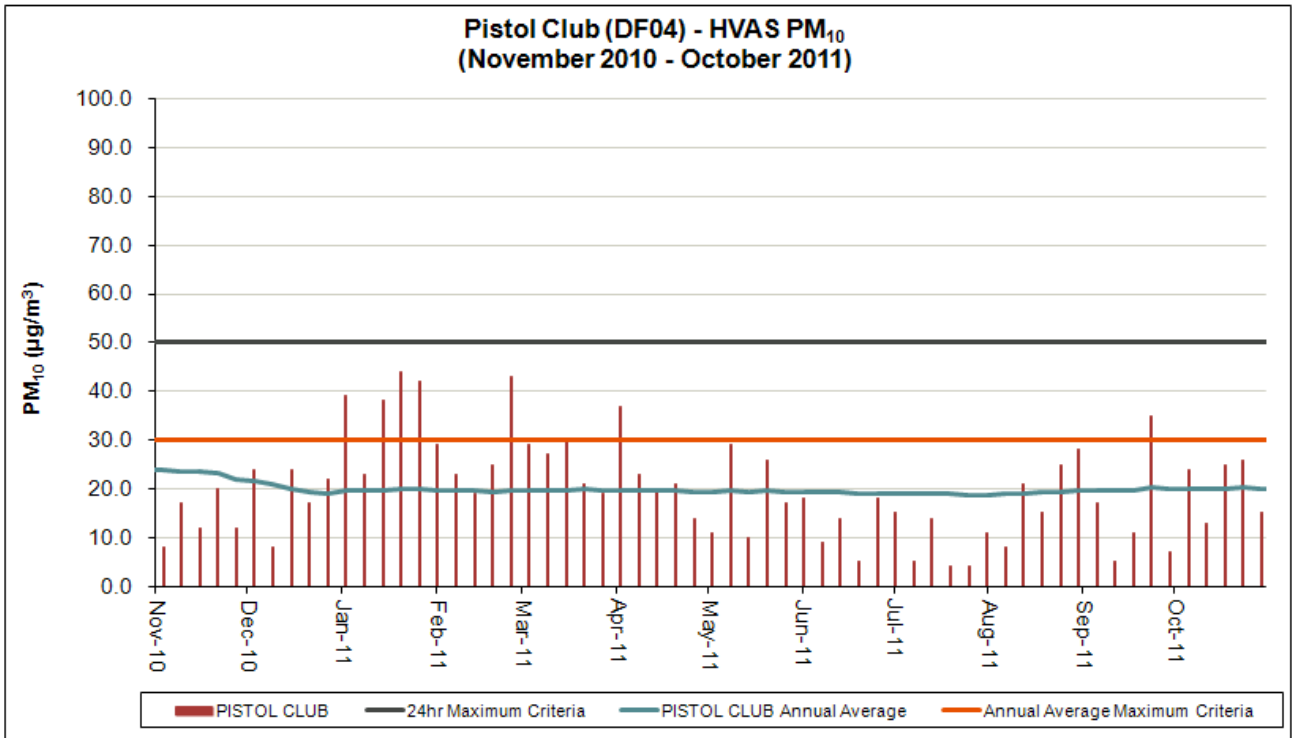
	Roxburgh South	Windmill	Edderton	Pistol Club	Constable	Sheppard Avenue	South Muswellbrook	Denman Road West
Sep-11	100%	100%	100%	100%	100%	100%	100%	100%
Oct-11	100%	80%	100%	100%	100%	100%	100%	100%

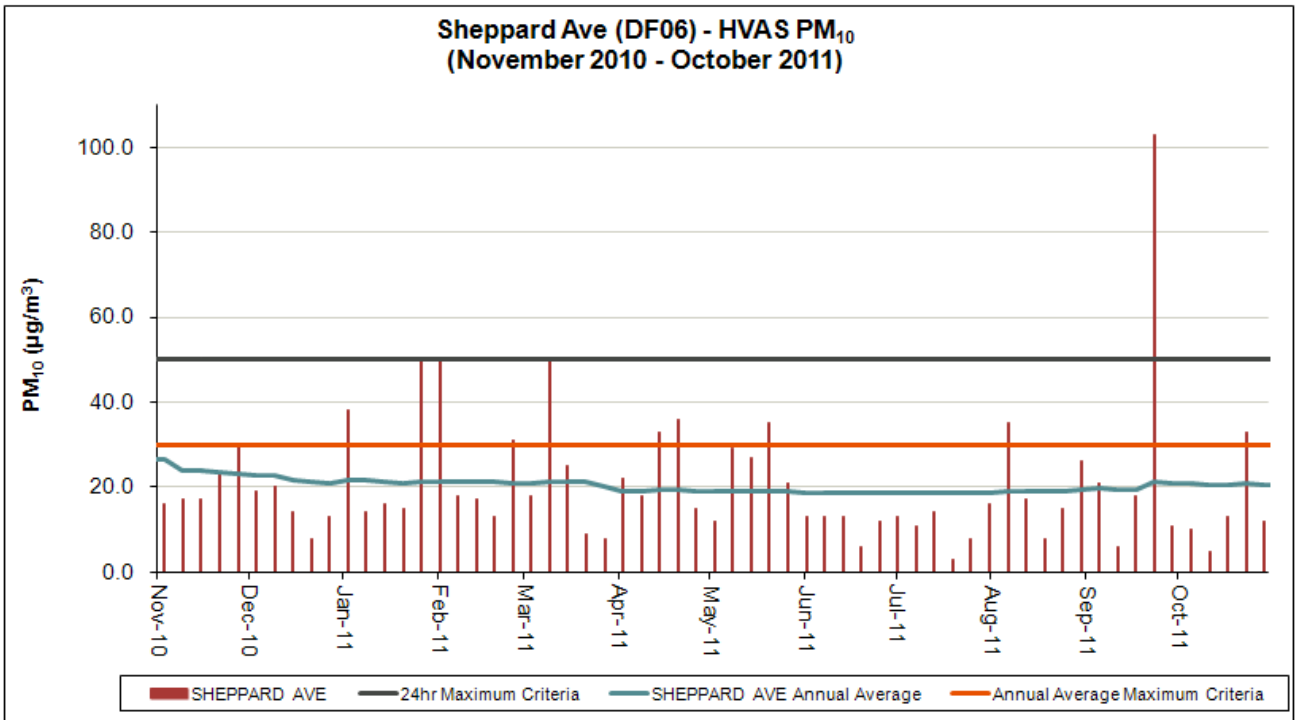


**17 September 2011** - This monitor is located to the west of the operation. The predominant wind direction on this day was from the north west. At no recorded time during the day was this monitor located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.

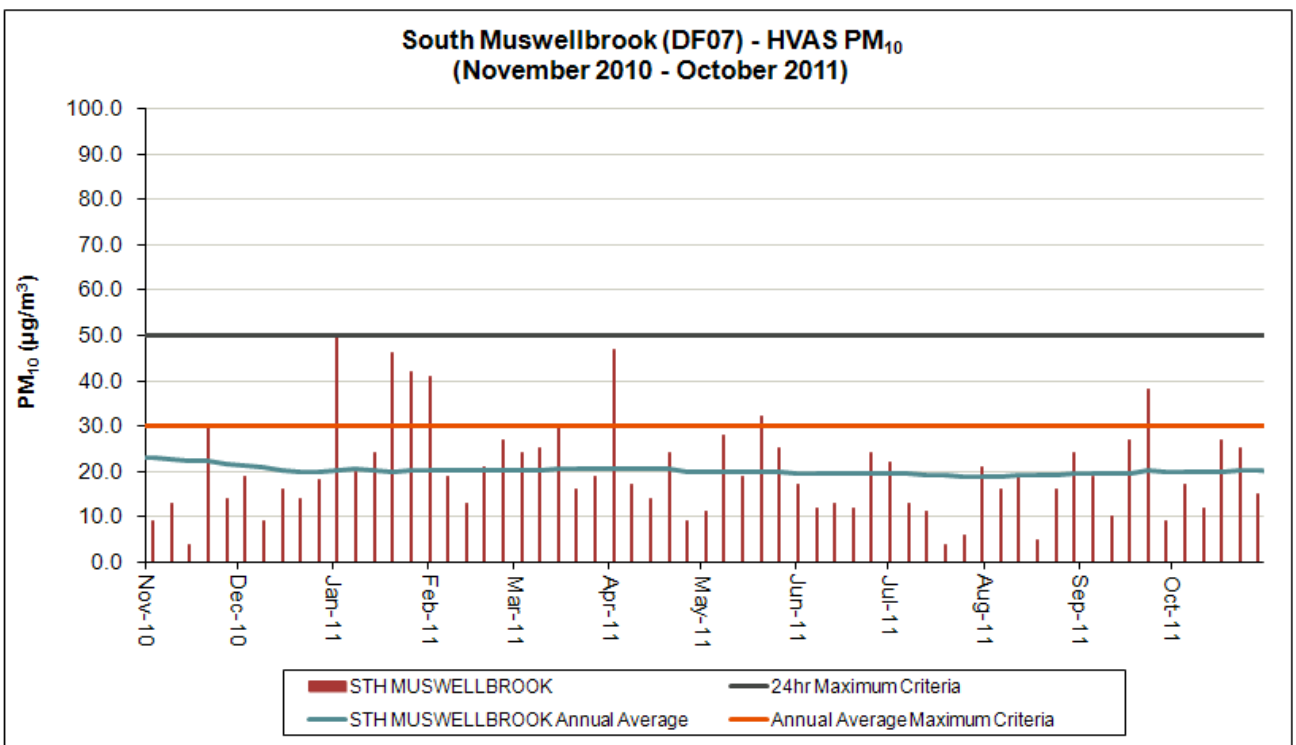
**23 October 2011** - This monitor is located to the west of the operation. The predominant wind direction on this day was from the north west. During approximately 7% of the day was this monitor located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.

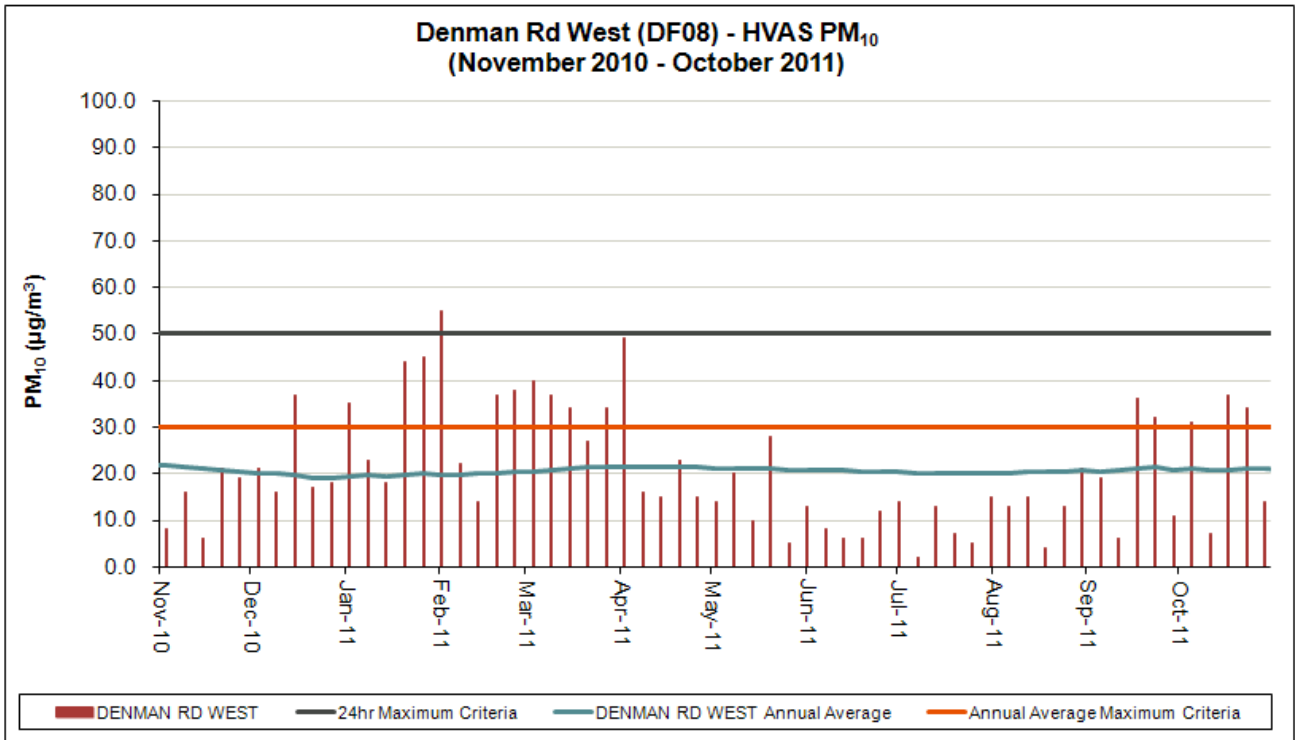






**29 September** - This monitor is located to the north of the operation. The predominant wind direction on this day was from the north west. During approximately 8% of the day this monitor was located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.





### 3. Real-time Air Quality Monitors

#### Real-time Air Quality Monitor Criteria:

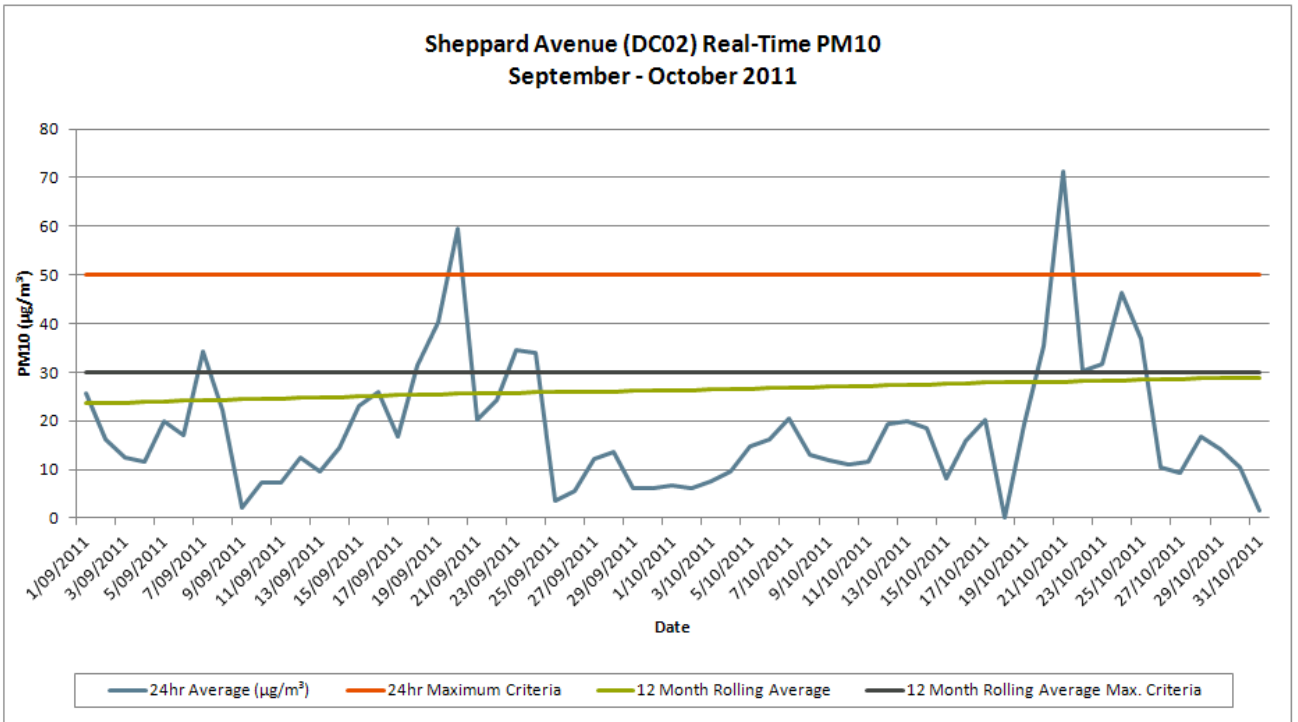
<b>Impact Assessment Criteria</b>			
20.	The Proponent shall ensure that the dust emissions generated by the Mt Arthur mine complex do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 9, 10 and 11 at any residence on privately owned land, or on more than 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.		
<i>Table 9: Long term impact assessment criteria for particulate matter</i>			
<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>	<i>Basis</i>
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<i>Table 10: Short term impact assessment criterion for particulate matter</i>			
<i>Pollutant</i>	<i>Averaging period</i>	<i>Criterion</i>	<i>Basis</i>
Particulate matter < 10 µm (PM <sub>10</sub> )	24 hour	50 µg/m <sup>3</sup>	Total <sup>1</sup>

#### Real-time Air Quality Monitor Summary:

- All real-time air quality monitors currently have annual averages below relevant development consent criteria.
- All real-time air quality monitoring results were below the 24 hour average limit during the September to October 2011 monitoring period with the exception of Sheppard Avenue (DC02) on 20 September 2011 and 21 October 2011.
- Further investigation into the elevated result on 20 September 2011 revealed that predominant wind direction for this day was from the north west. As this monitor is located to the north of the operation, Mt Arthur Coal's operations did not significantly influence this elevated result.
- Further investigation into the elevated result on 21 October 2011 revealed that predominant wind direction for this day was from the north west. As this monitor is located to the north of the operation, Mt Arthur Coal's operations did not significantly influence this elevated result.

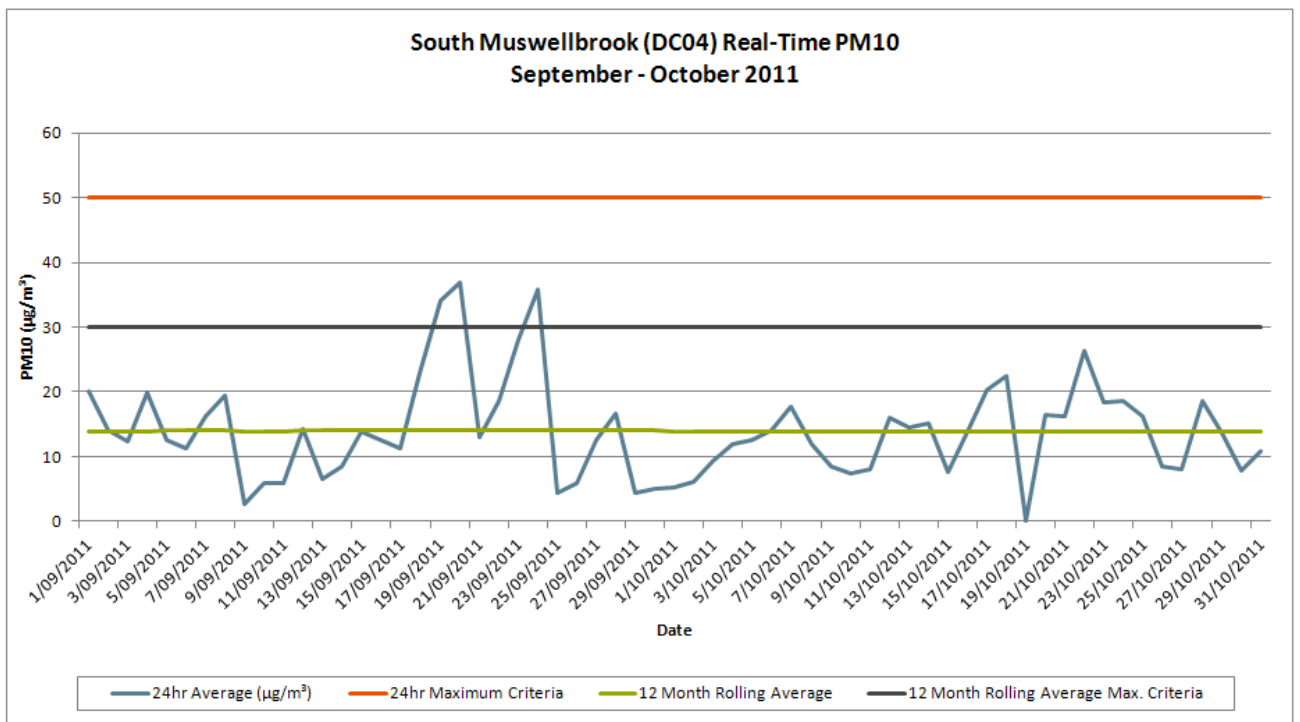
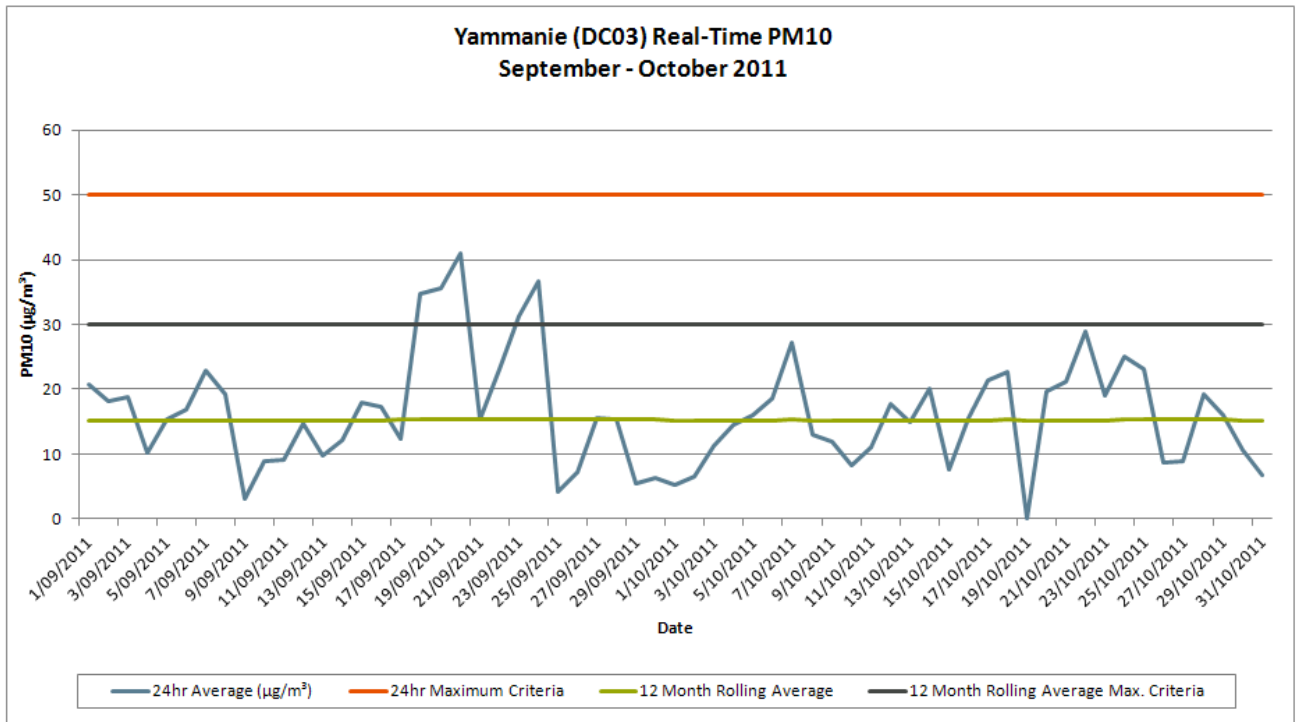
#### Real-time Air Quality Monitor Data Capture Rates:

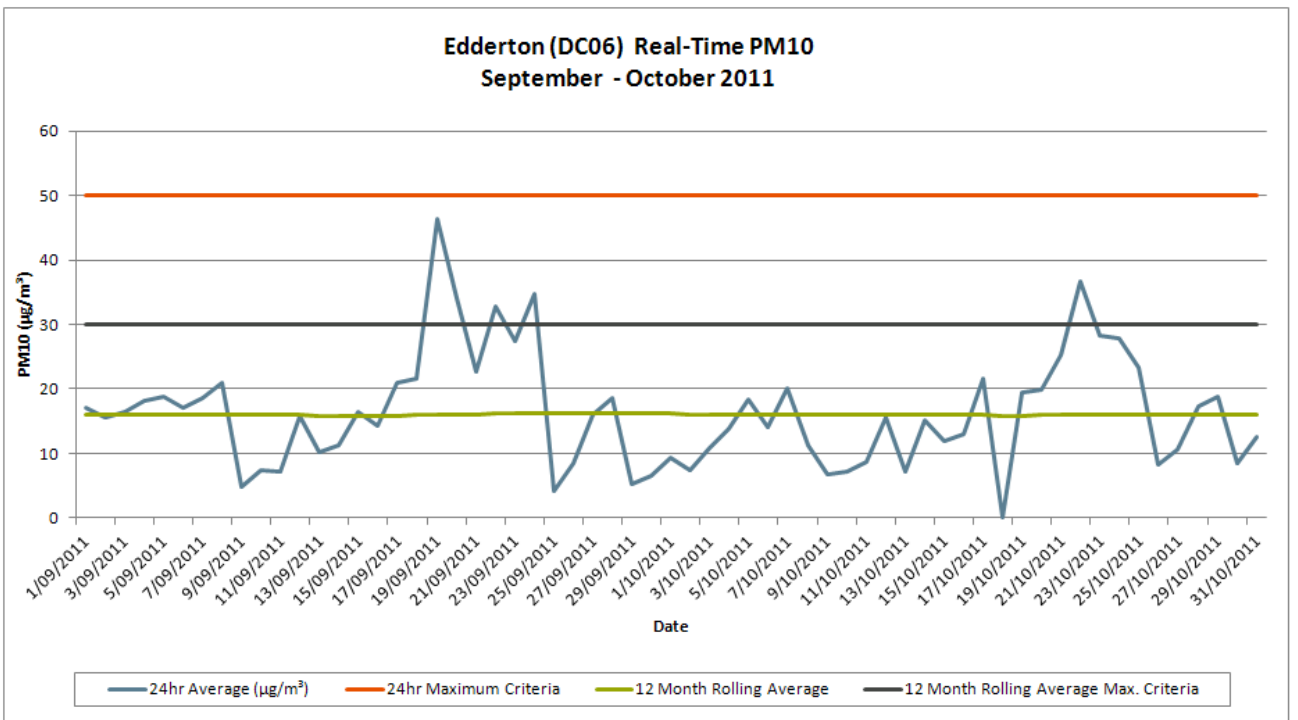
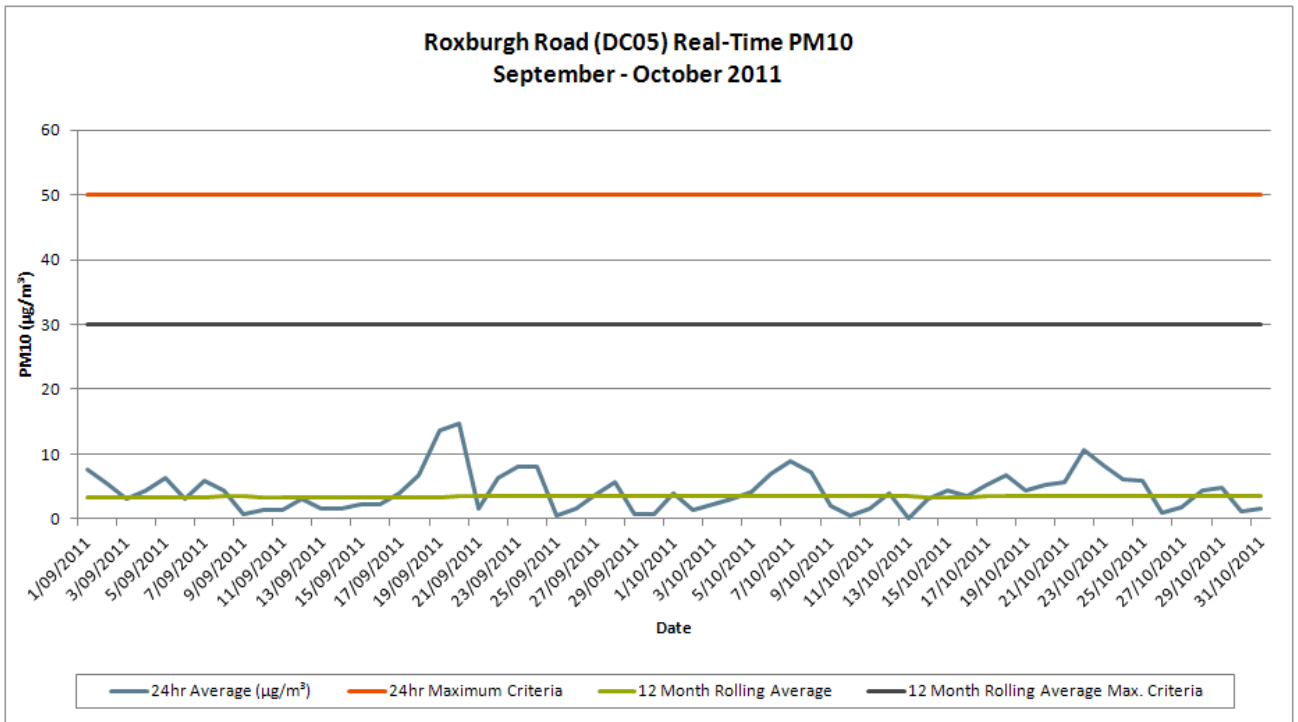
	Denman Road West	Sheppard Avenue	Yammanie	South Muswellbrook	Roxburgh Road	Edderton
Sep-11	100%	100%	100%	100%	100%	100%
Oct-11	100%	100%	100%	100%	100%	100%



**27 September 2011** - This monitor is located to the north of the operation. The predominant wind direction on this day was from the north west. During approximately 5% of the day this monitor was located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.

**21 October 2011** - This monitor is located to the north of the operation. The predominant wind direction on this day was from the north west. During approximately 8% of the day this monitor was located downwind of Mt Arthur Coal's operation. Subsequently, this monitor was not significantly impacted by operations at Mt Arthur Coal on this day.





## 4. Depositional Dust (September – October 2011)

### Depositional Dust Criteria:

Table 11: Long term impact assessment criteria for deposited dust

Pollutant	Averaging period	Maximum increase <sup>2</sup> in deposited dust level	Maximum total <sup>1</sup> deposited dust level
Deposited dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

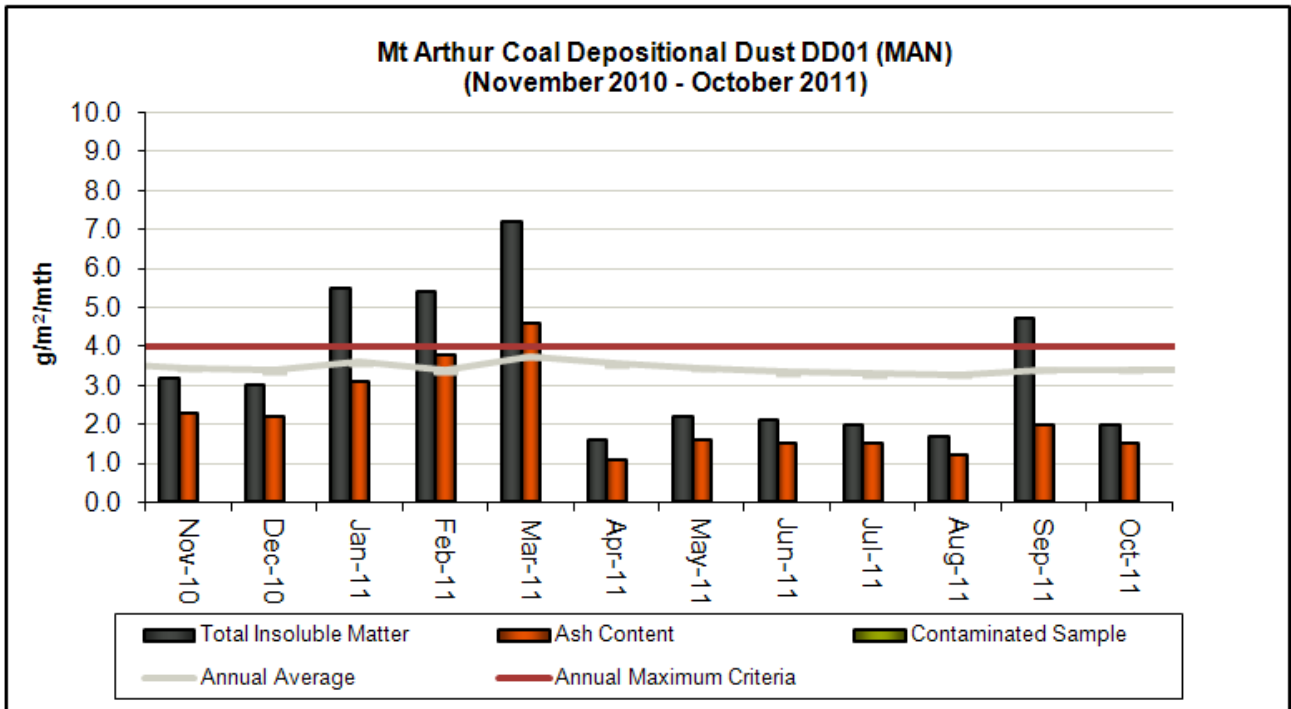
<sup>1</sup> Background concentrations due to all other sources plus the incremental increase in concentrations due to the mine complex alone.

<sup>2</sup> Incremental increase in concentrations due to the mine complex alone.

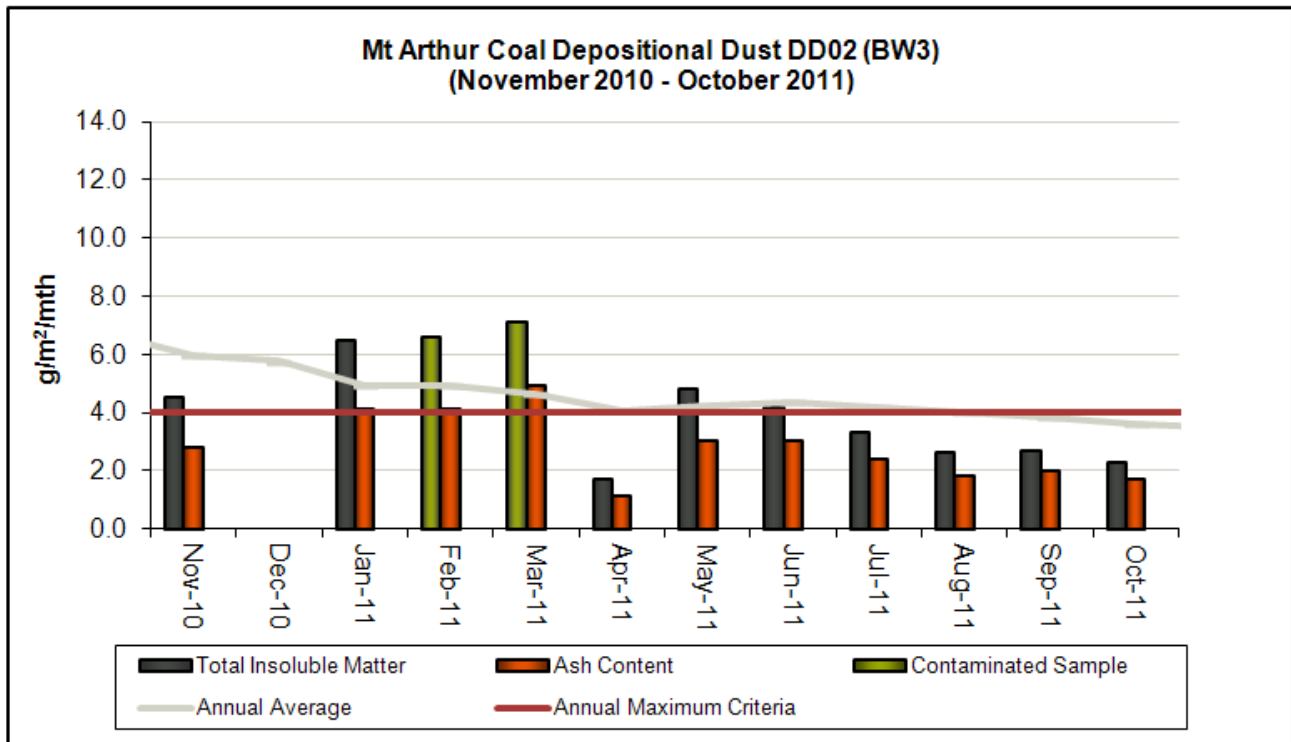
Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.

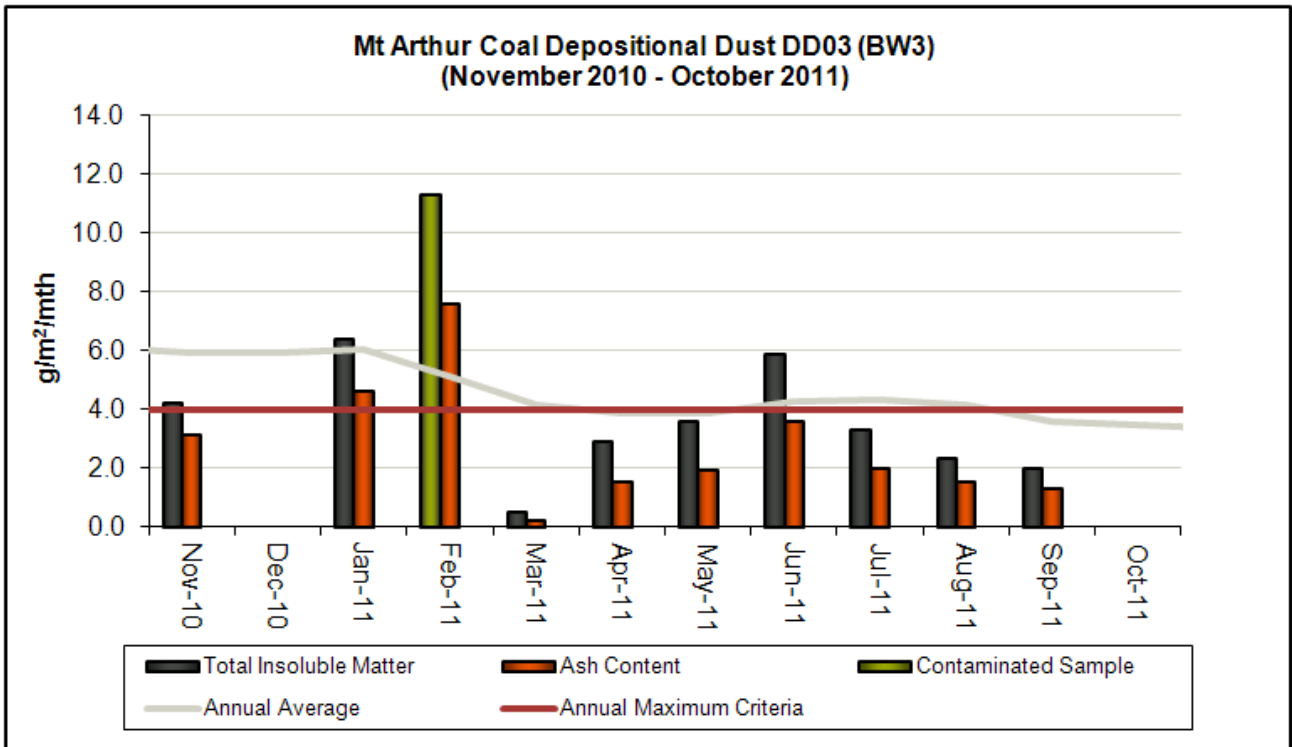
### Depositional Dust Summary:

- No depositional dust gauge results recorded in the September to October 2011 monitoring period were above regulatory criteria with the exception of DD01 and DD16 in October 2011.
- The predominant wind direction for the month of October was from the west north west as shown on the October windrose (page 39). Using DD16 as an upwind monitor, Mt Arthur Coal's contribution to the DD01 result was determined to be below relevant consent criteria.
- DD16 is located on Mt Arthur Coal owned land and is used for management purposes only; it is not representative of nearby privately-owned residences.
- All rolling annual averages were below relevant regulatory criteria, with the exception of DD16. DD16 is located on Mt Arthur Coal owned land and is used for management purposes only; it is not representative of nearby privately-owned residences.
- There was a 98 per cent data capture rate for depositional dust gauges during the September to October 2011 monitoring period. No result was obtained at DD03 in October. The independent monitoring contractor reported that the DD03 sample bottle broke during transport.
- Contaminated depositional dust results for the September to October 2011 monitoring period were at:
  - DD11 September (excessive bird droppings)
  - DD13 September (excessive bird droppings)
  - DD05 October (excessive bird droppings and insects)

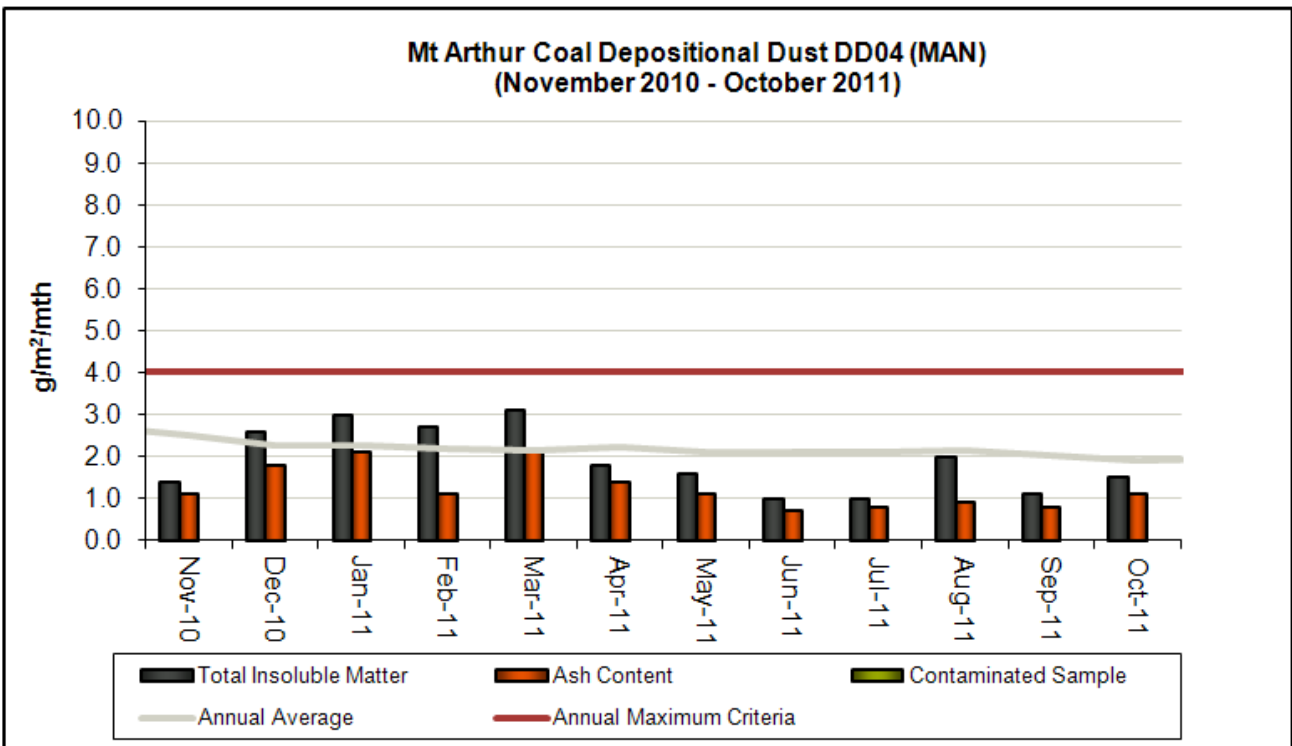


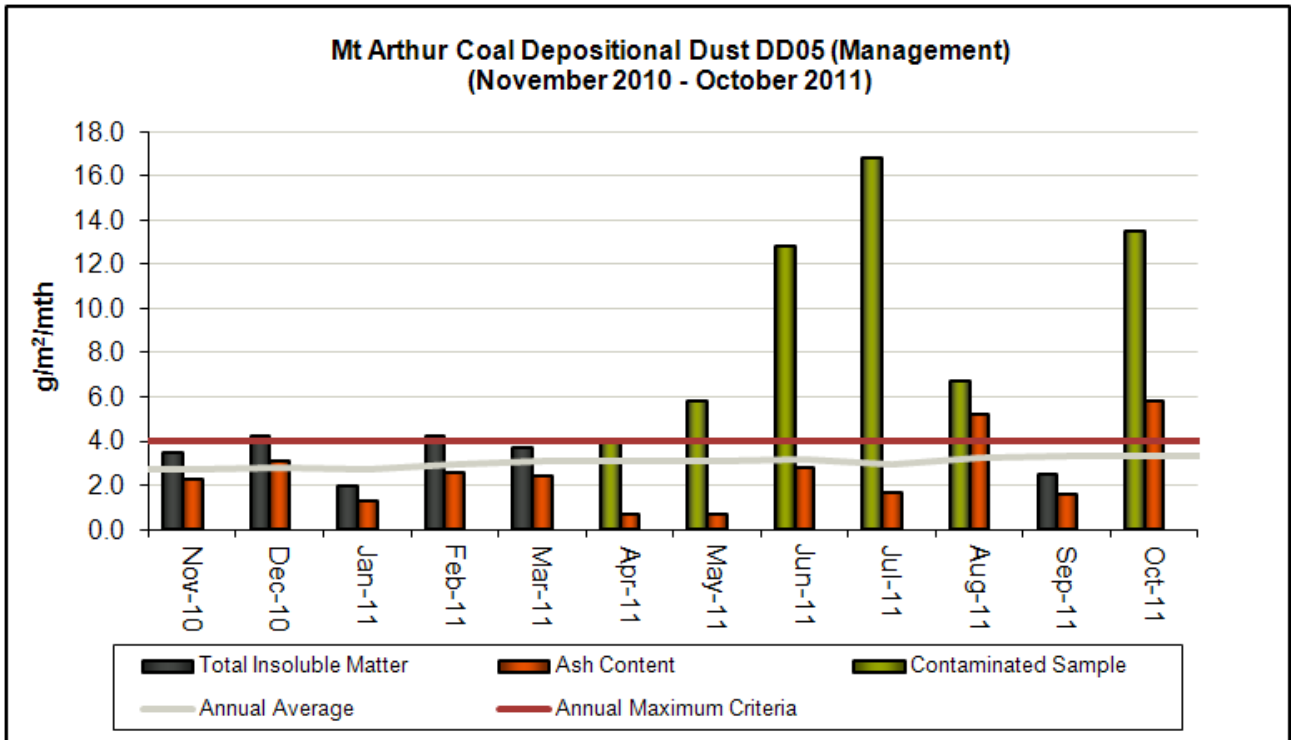
**September** – This monitor is located to the east of the mine. The predominant wind direction for September was west north west. Using DD16 as an upwind monitor, Mt Arthur Coal’s contribution was determined to be below relevant consent criteria.



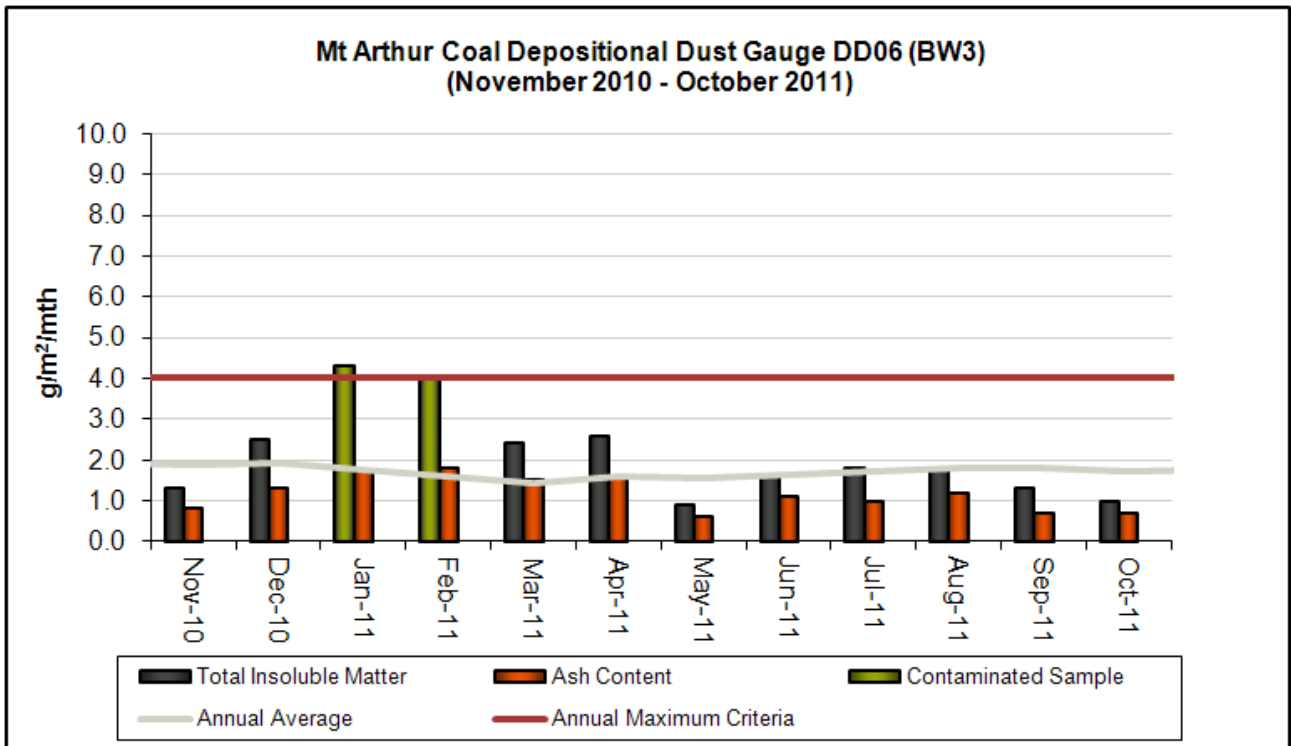


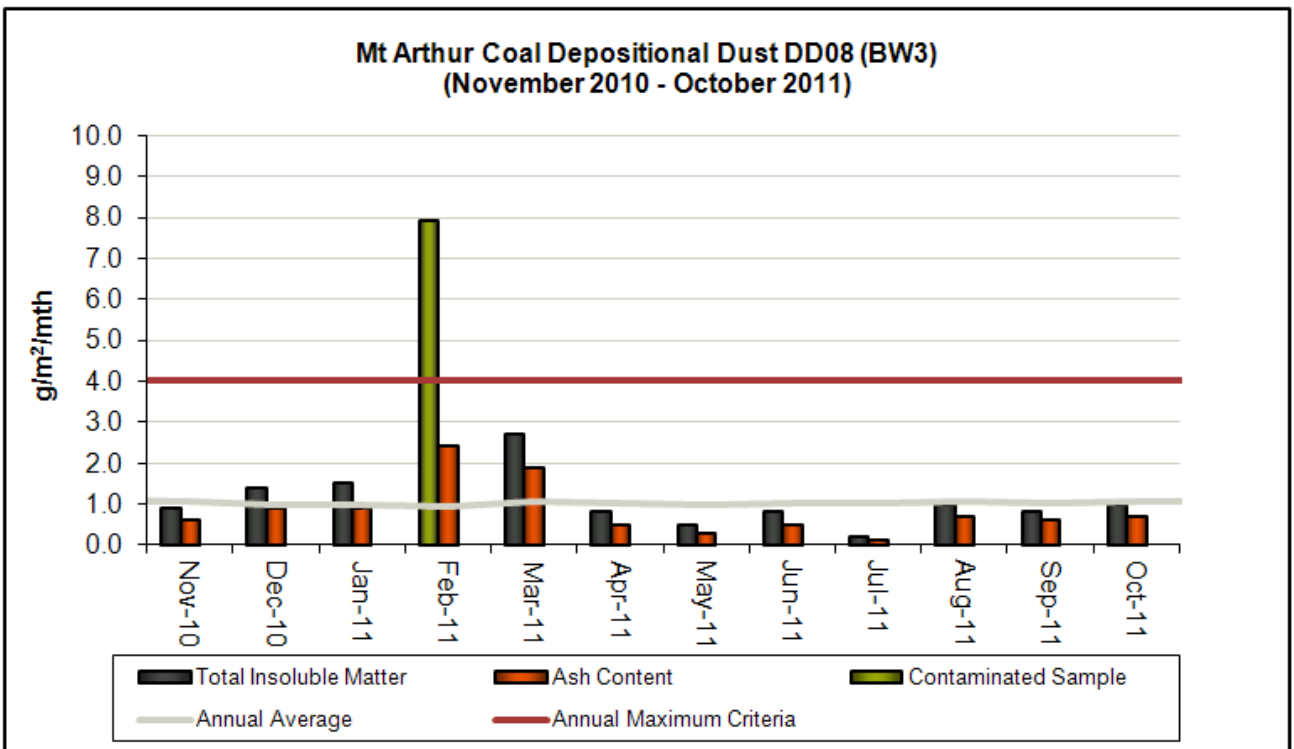
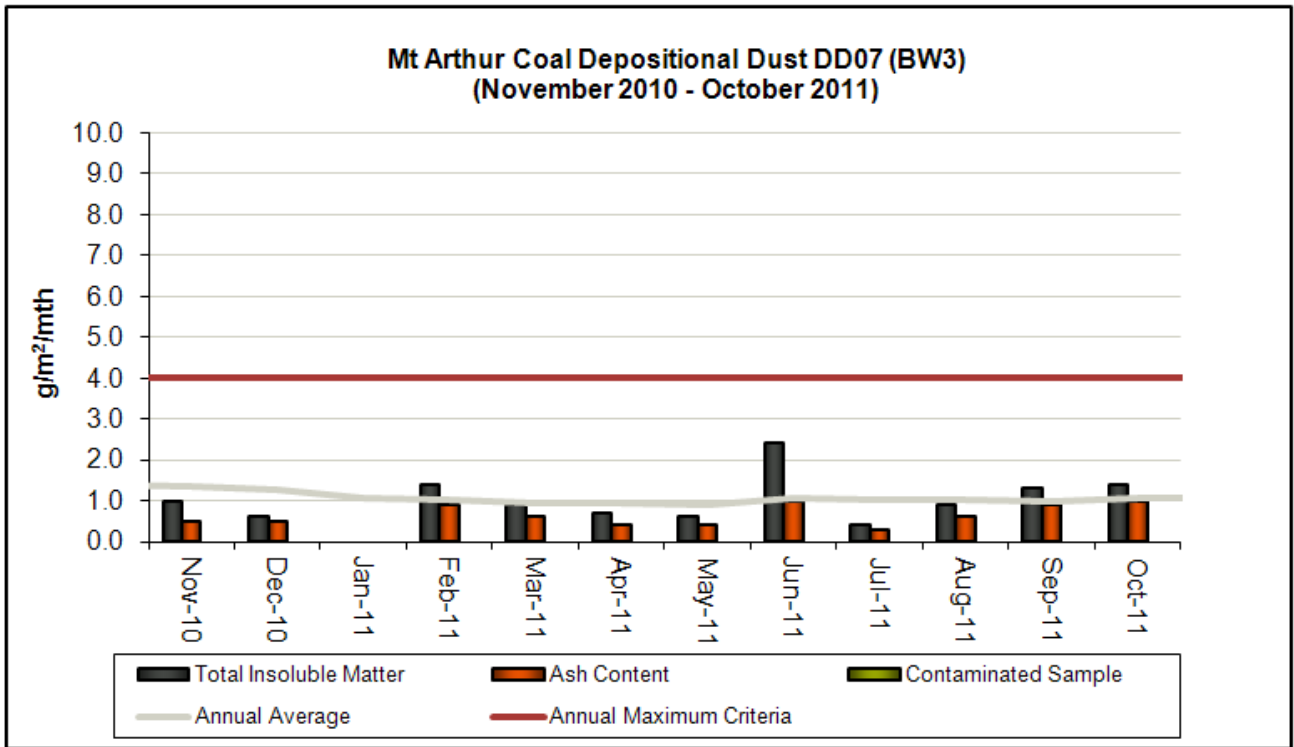
**October** – No result. Independent monitoring contractor reported that sample bottle broke during transport.

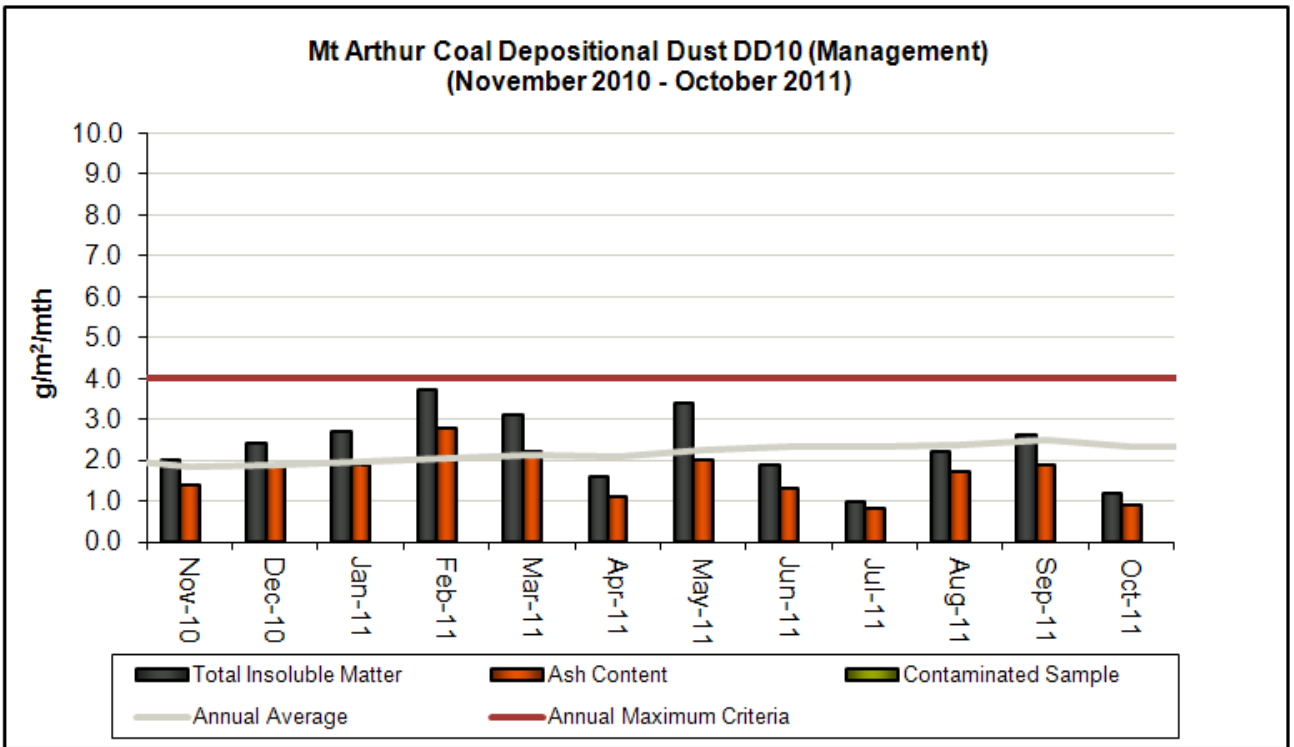
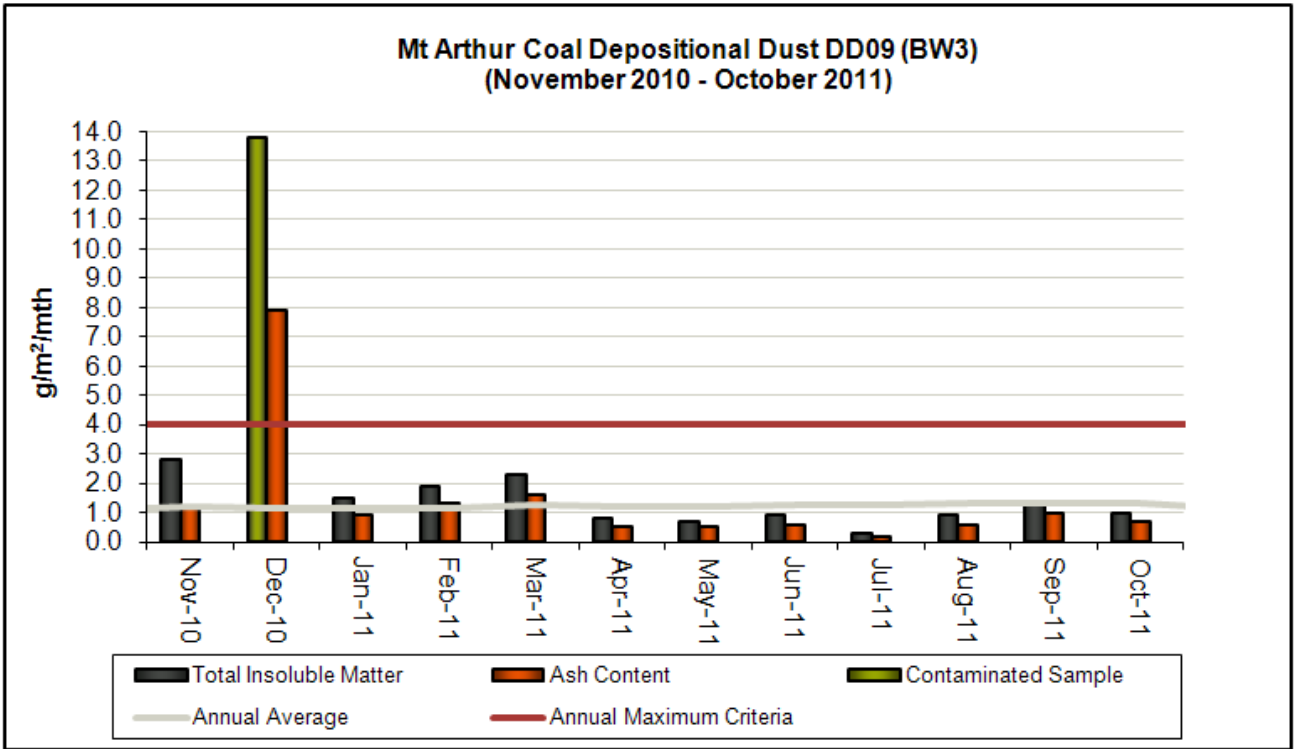


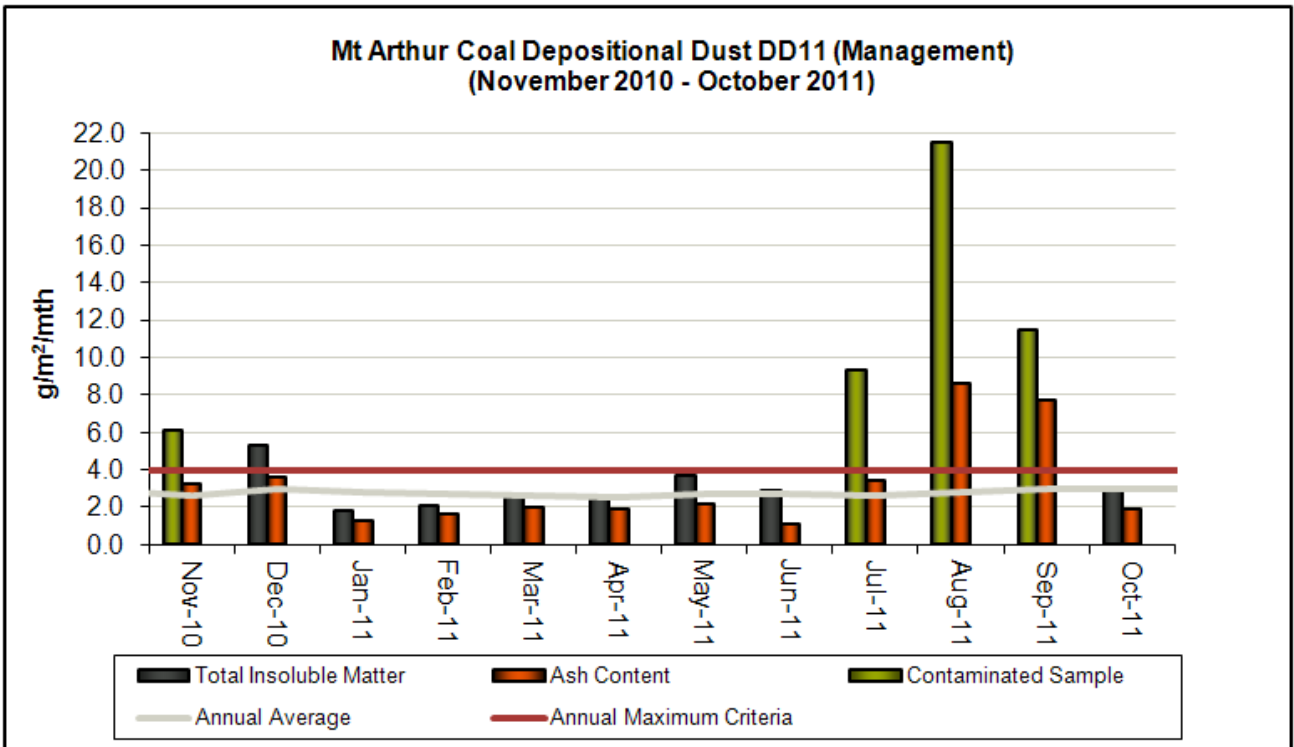


**October** - Independent contractor determined that the sample was contaminated with bird droppings and insects therefore excluded from results.

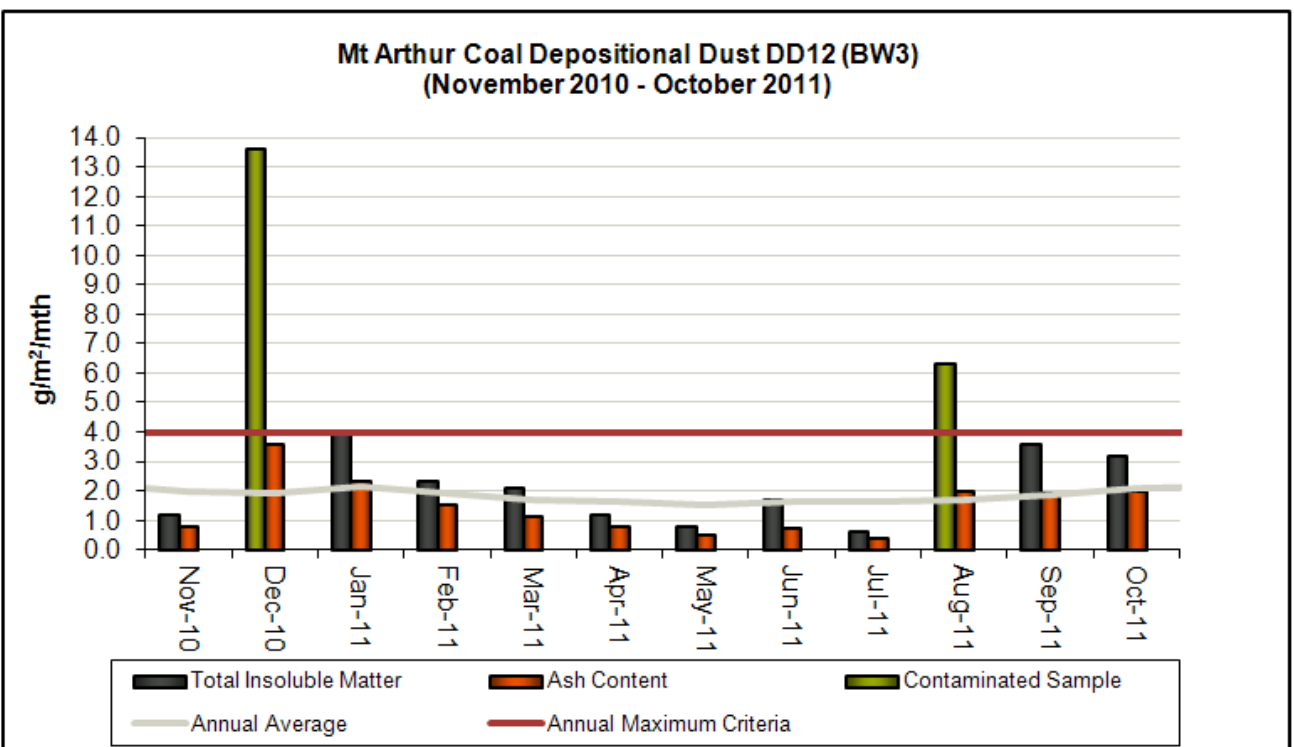


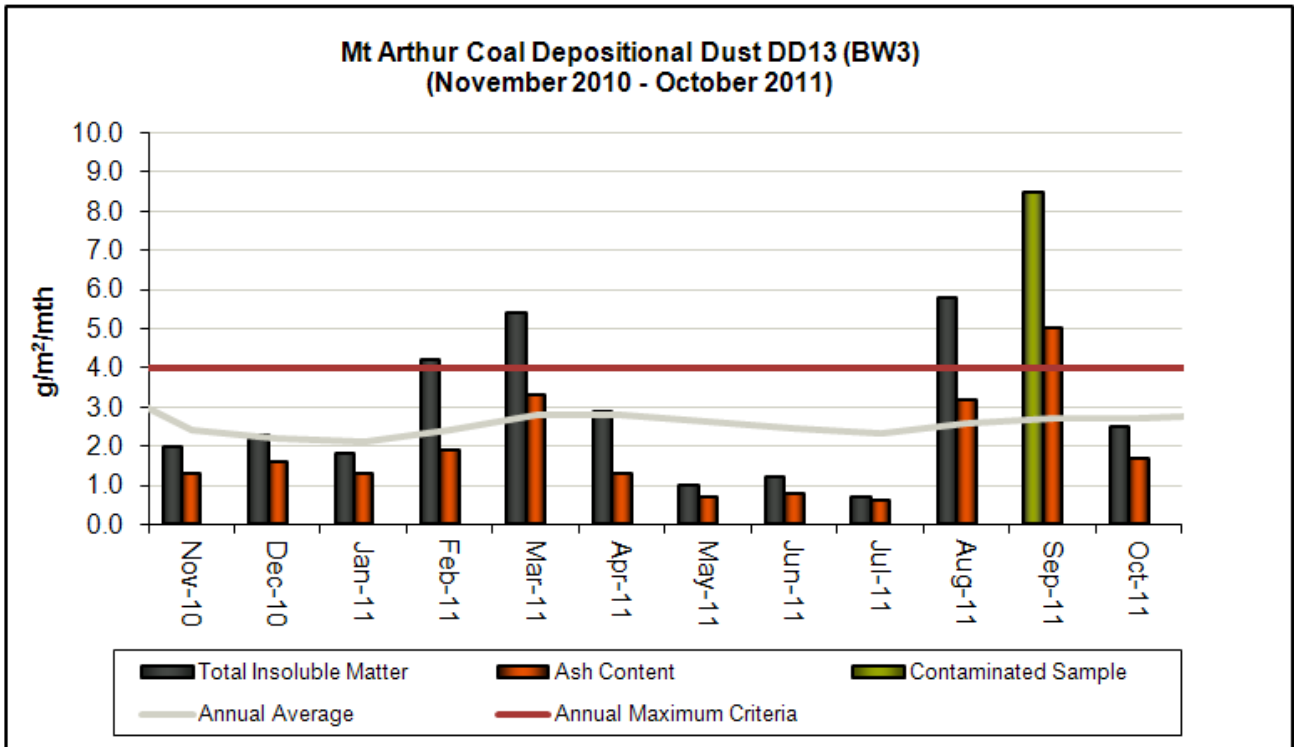




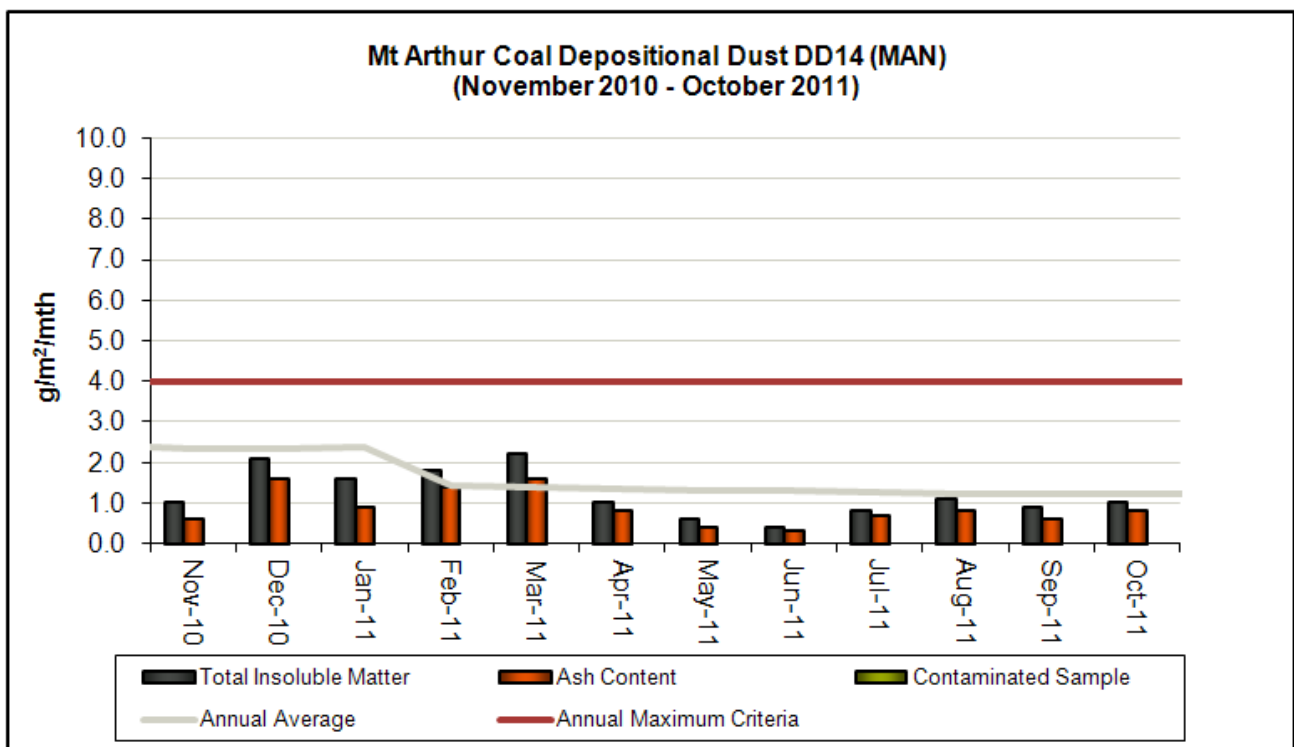


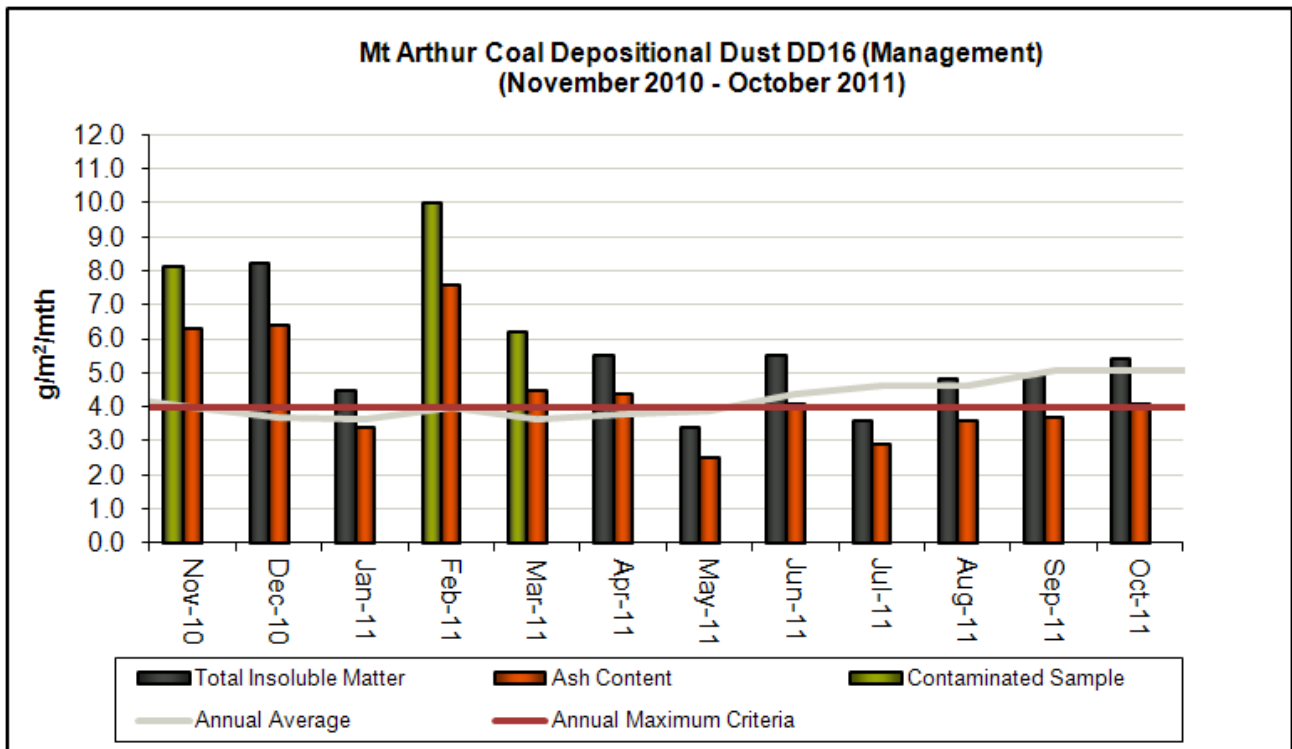
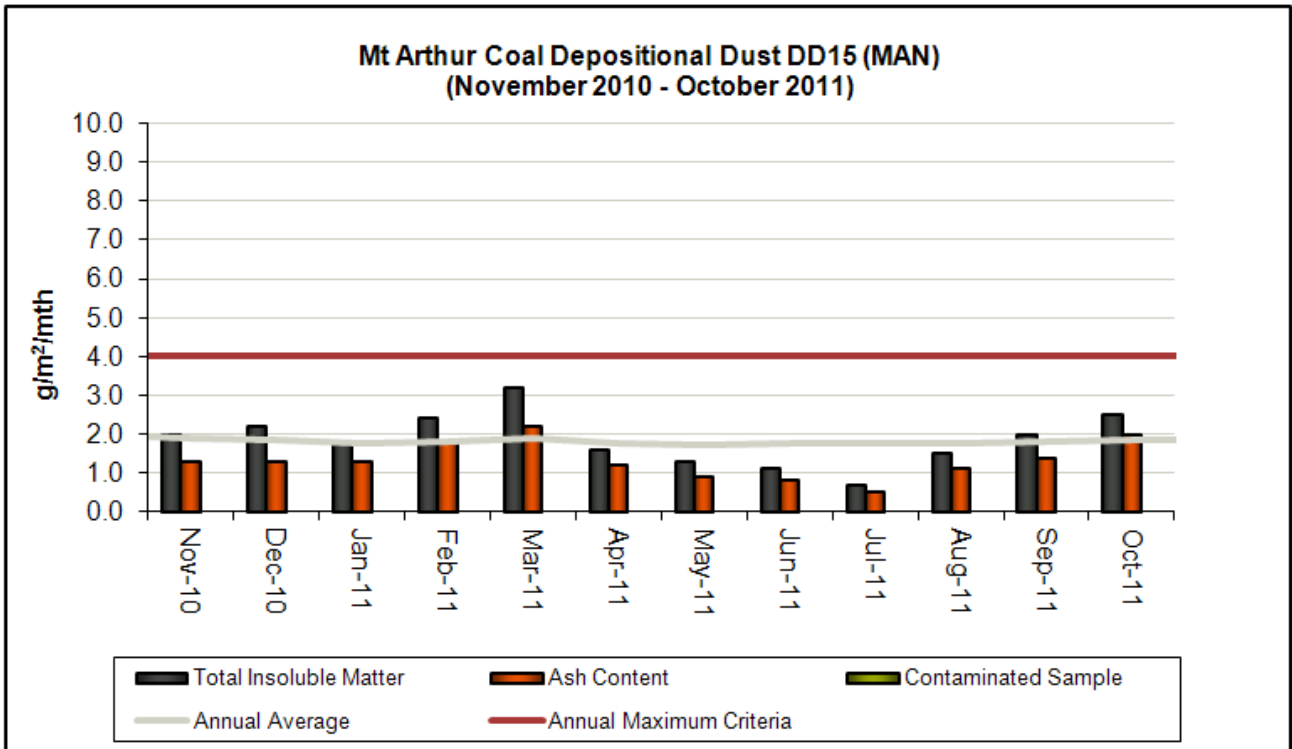
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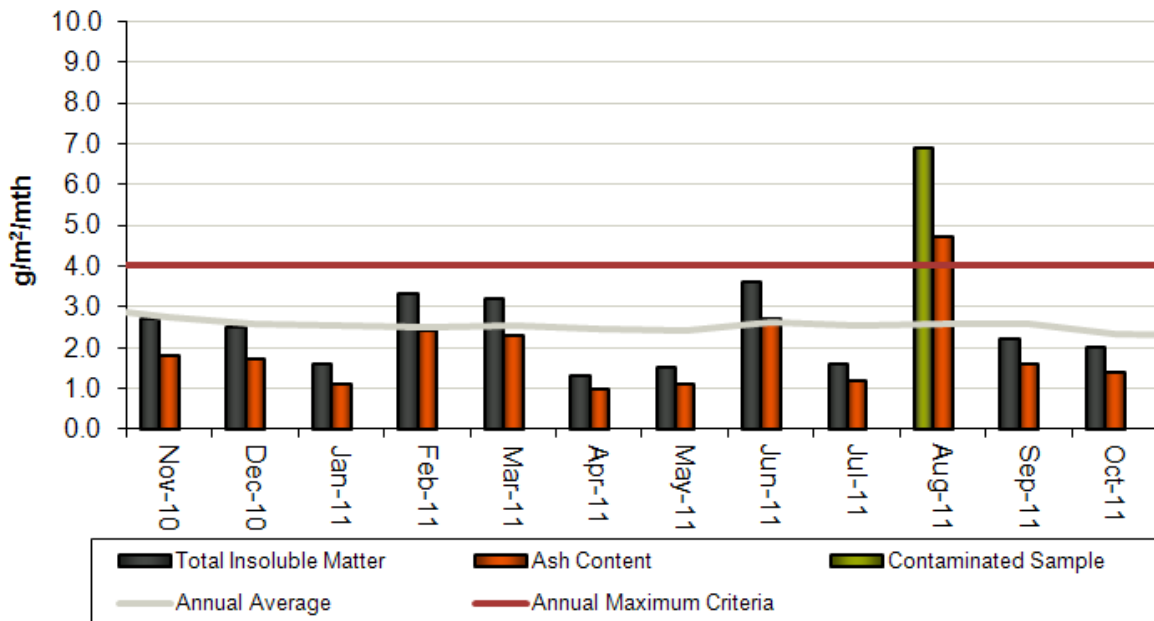


**September** – This monitor is located on Mt Arthur Coal owned land and is used for management purposes only; it is not representative of nearby privately-owned residences.

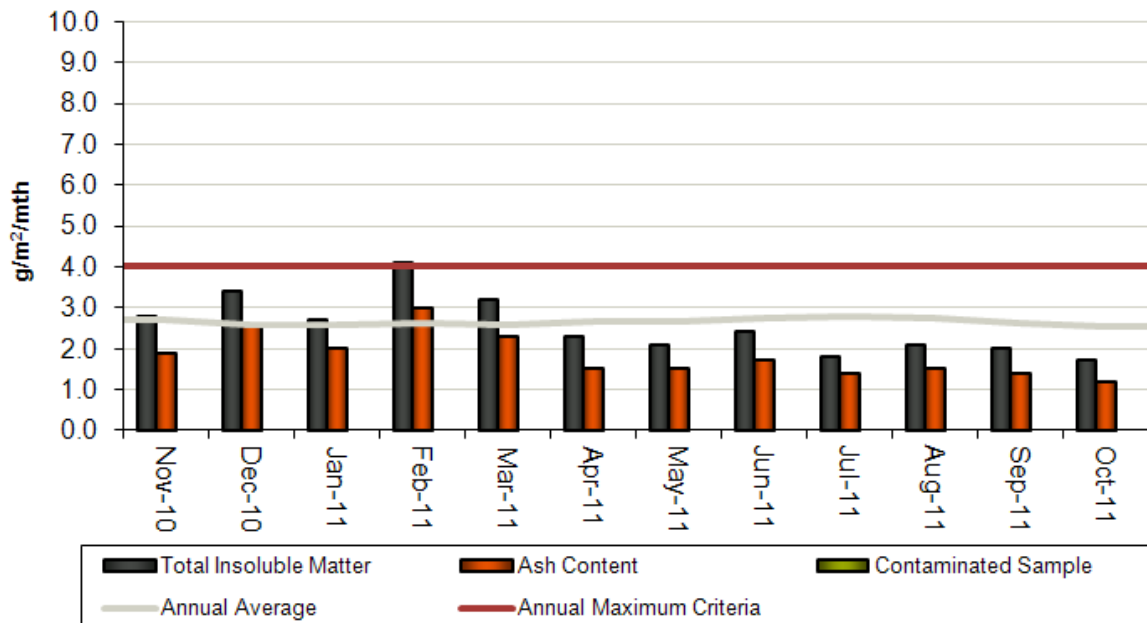
**October** – This monitor is located on Mt Arthur Coal owned land and is used for management purposes only; it is not representative of nearby privately-owned residences.

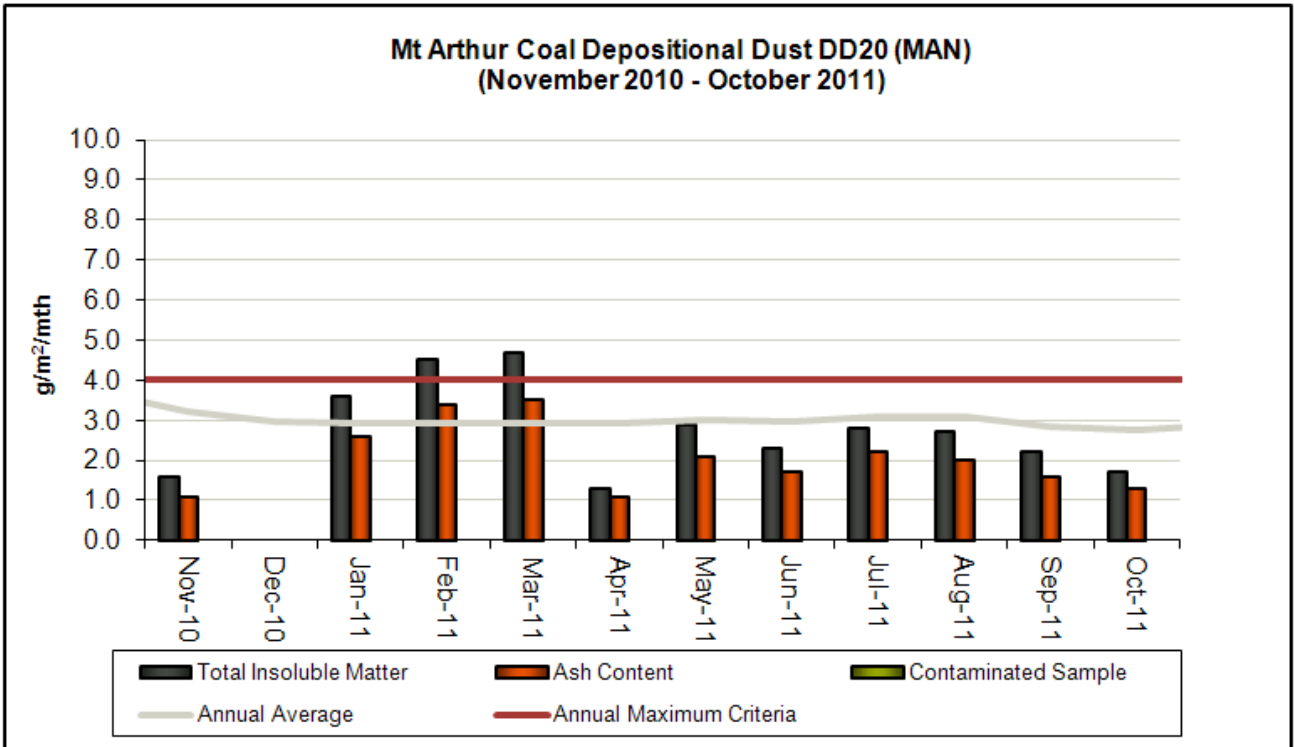
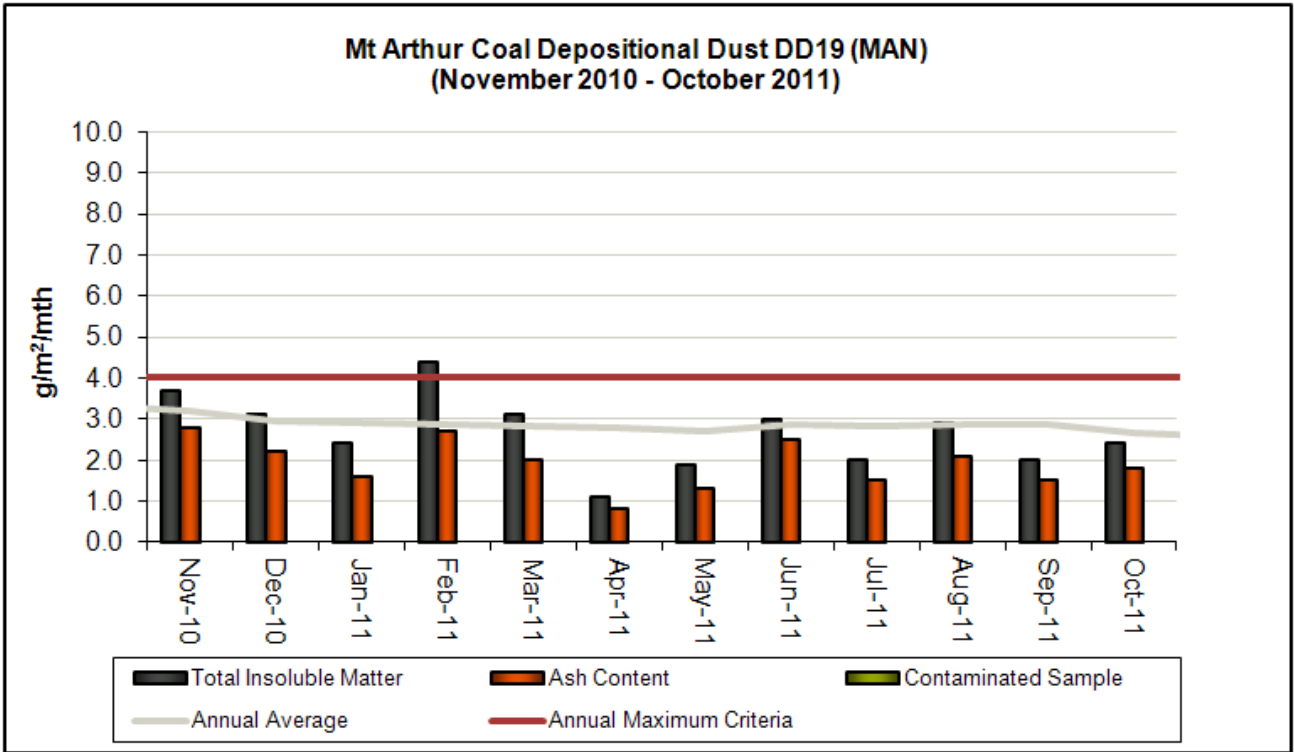
**Annual Average**– This monitor is located on Mt Arthur Coal owned land and is used for management purposes only, it is not representative of nearby privately-owned residences.

**Mt Arthur Coal Depositional Dust DD17 (Management)  
(November 2010 - October 2011)**

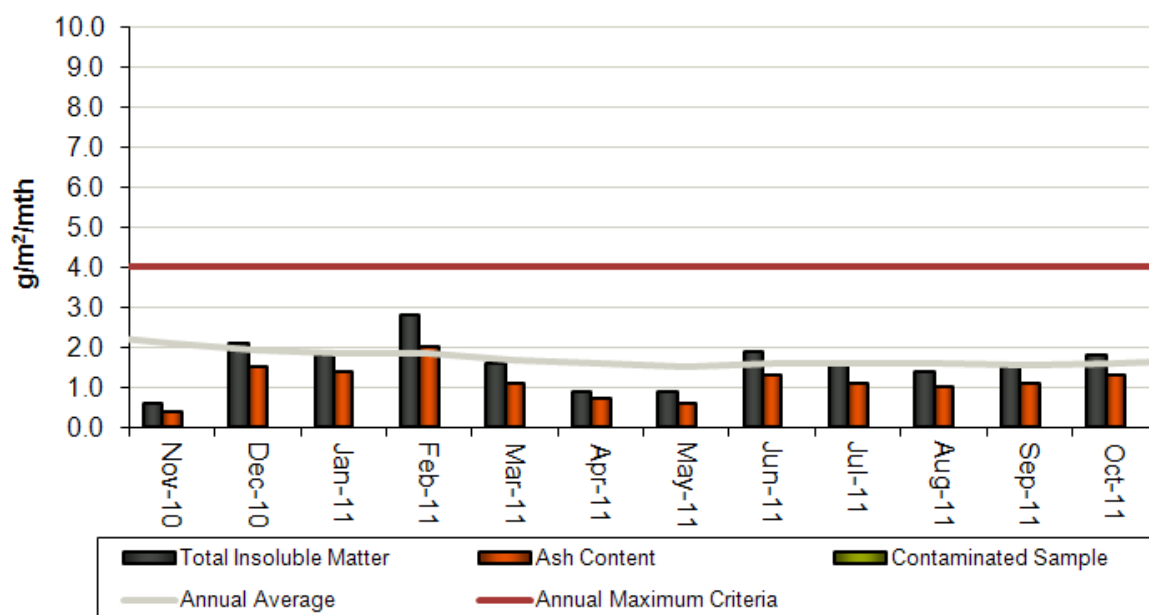


**Mt Arthur Coal Depositional Dust DD18 (MAN)  
(November 2010 - October 2011)**





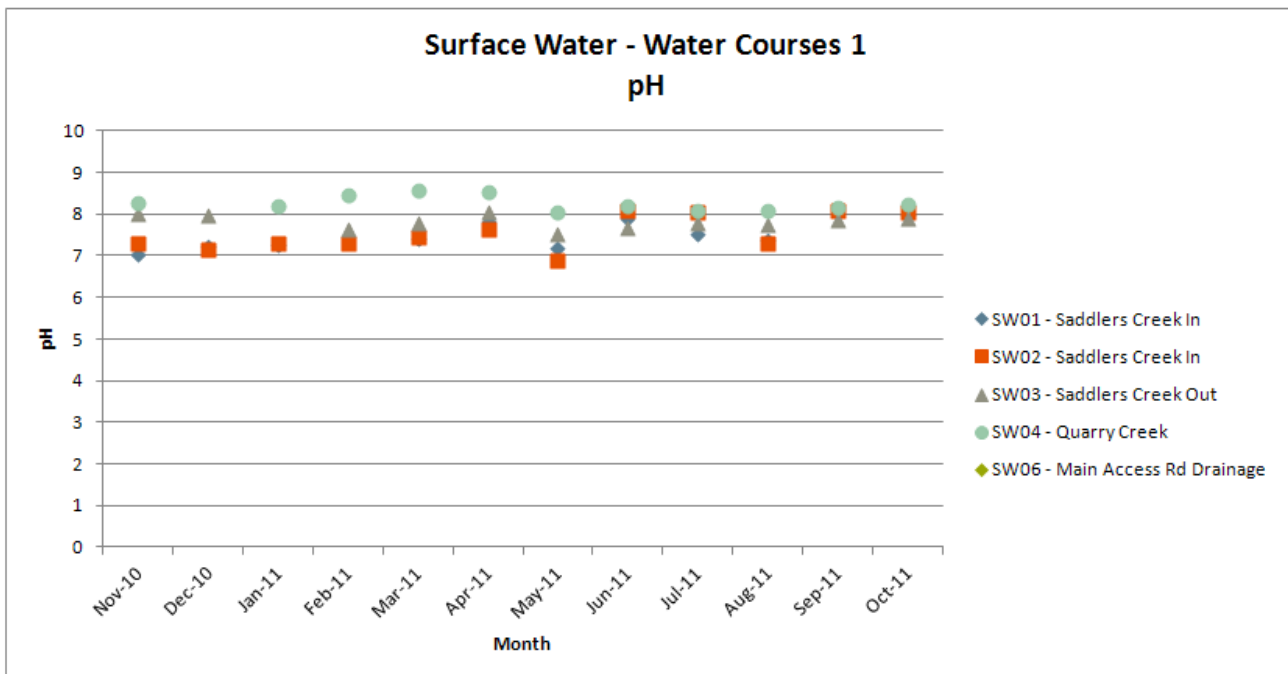
**Mt Arthur Coal Depositional Dust DD21 (MAN)  
(November 2010 - October 2011)**

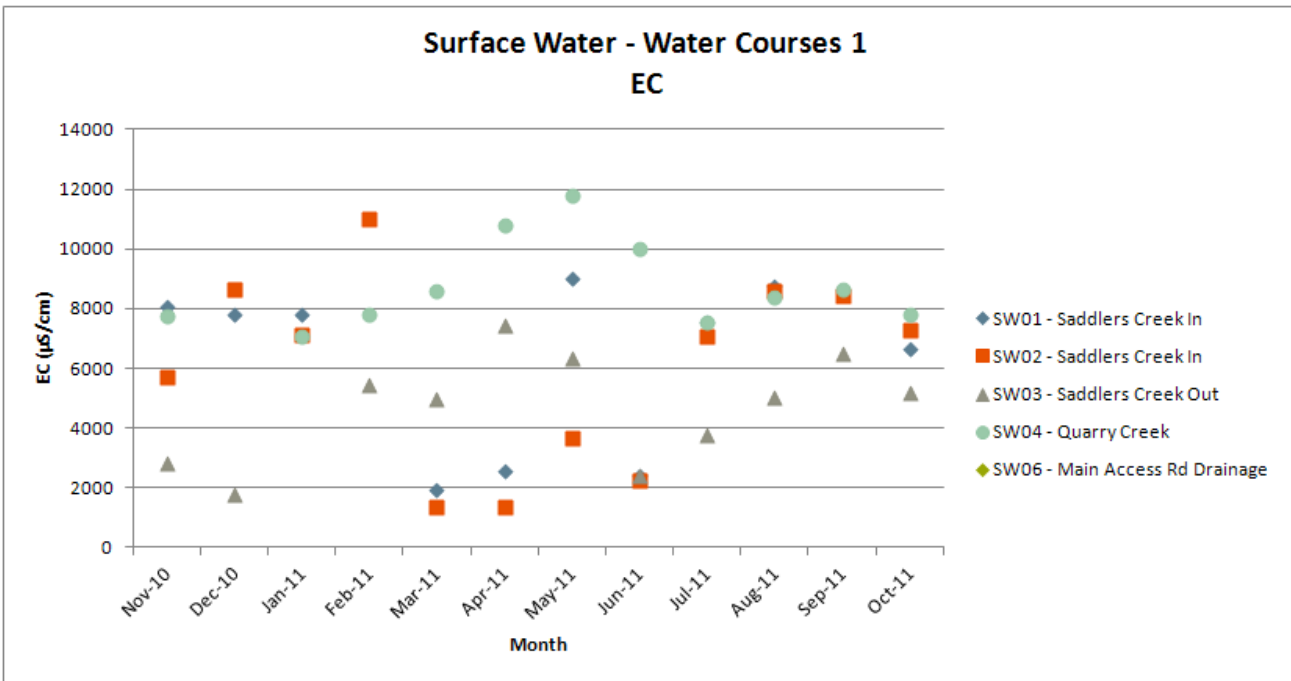
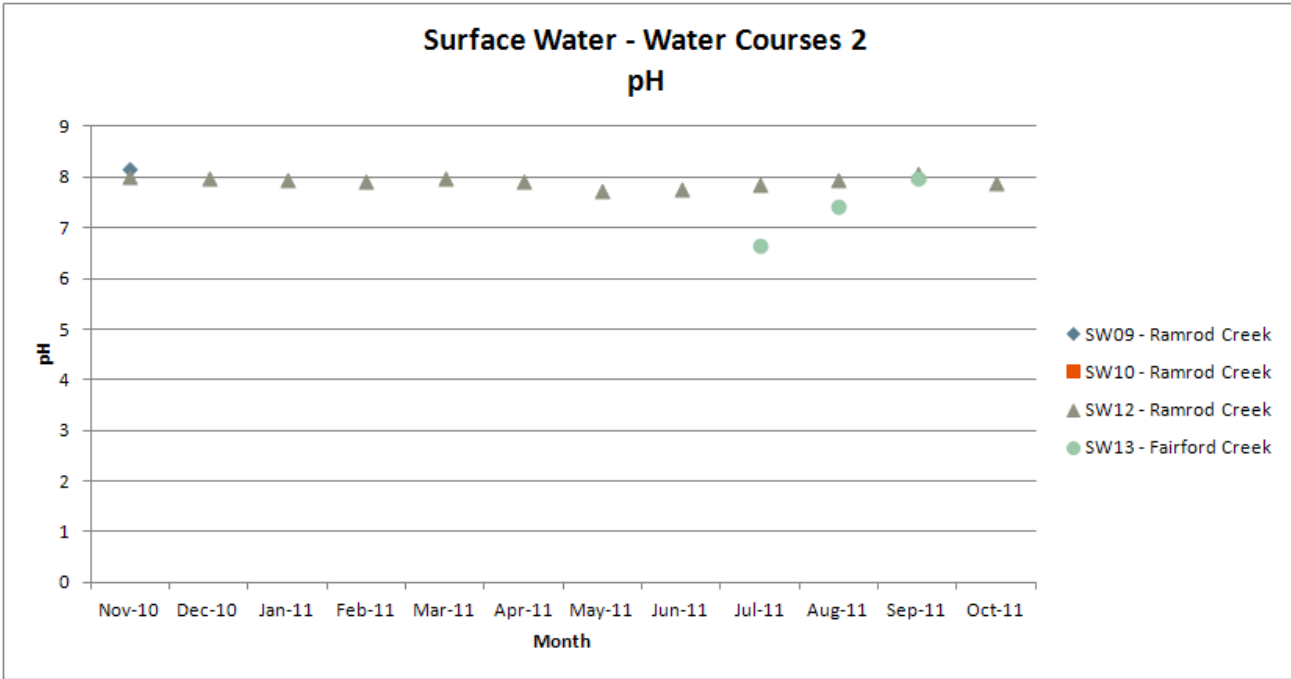


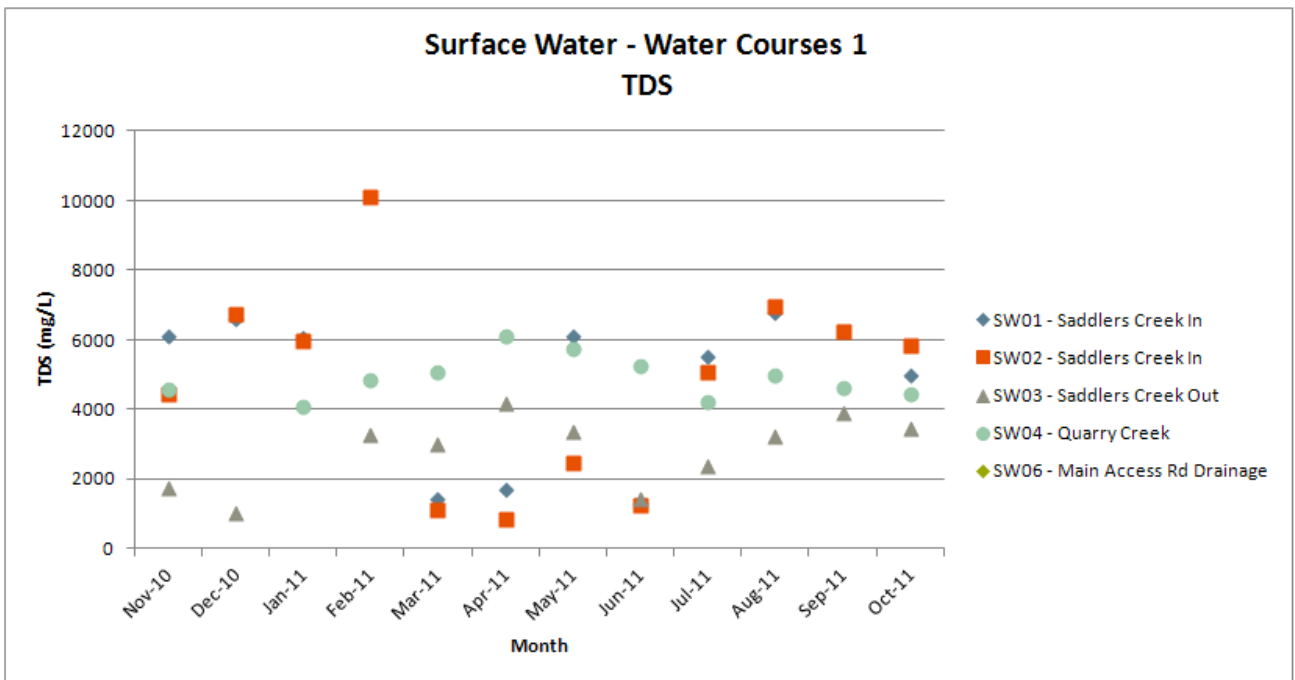
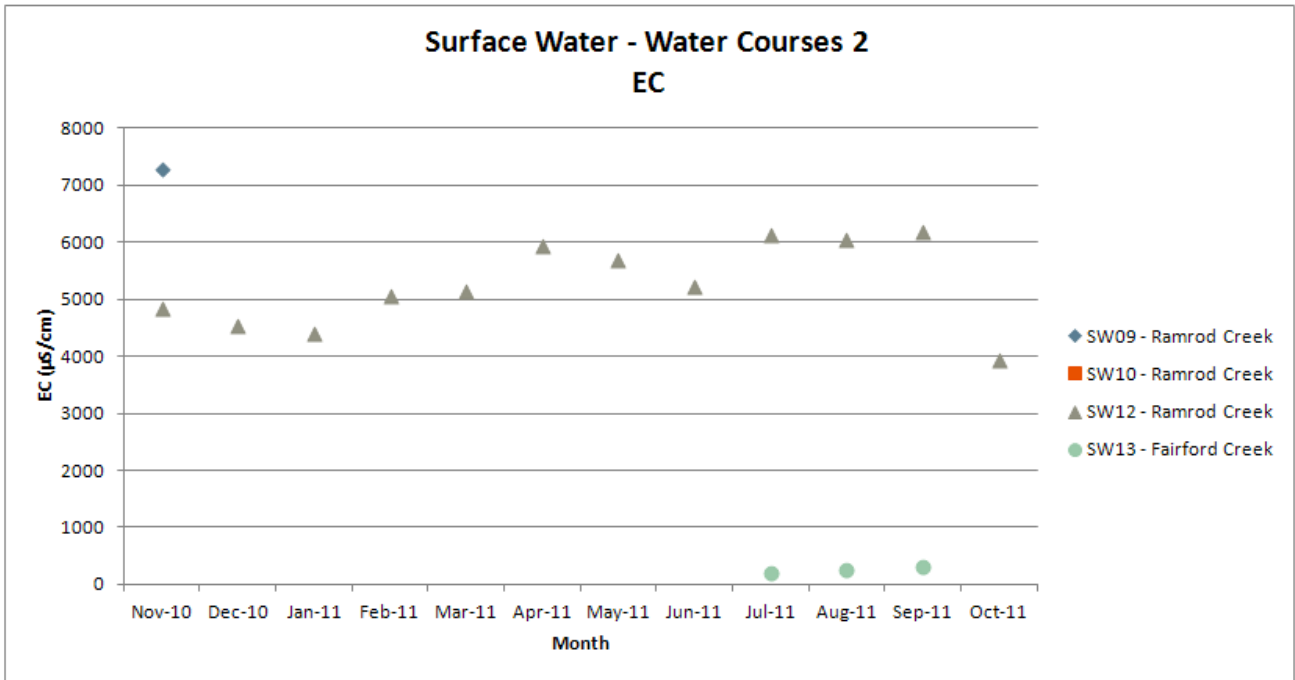
## 5. Surface Water Data (September – October 2011)

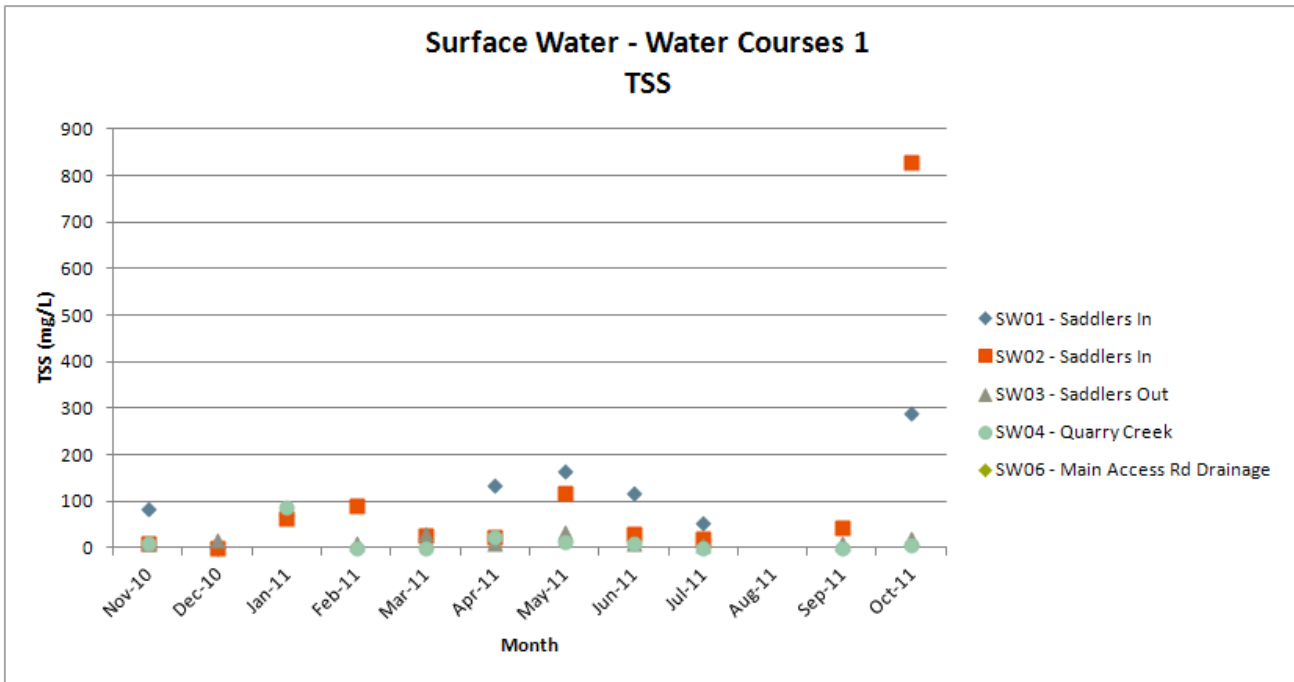
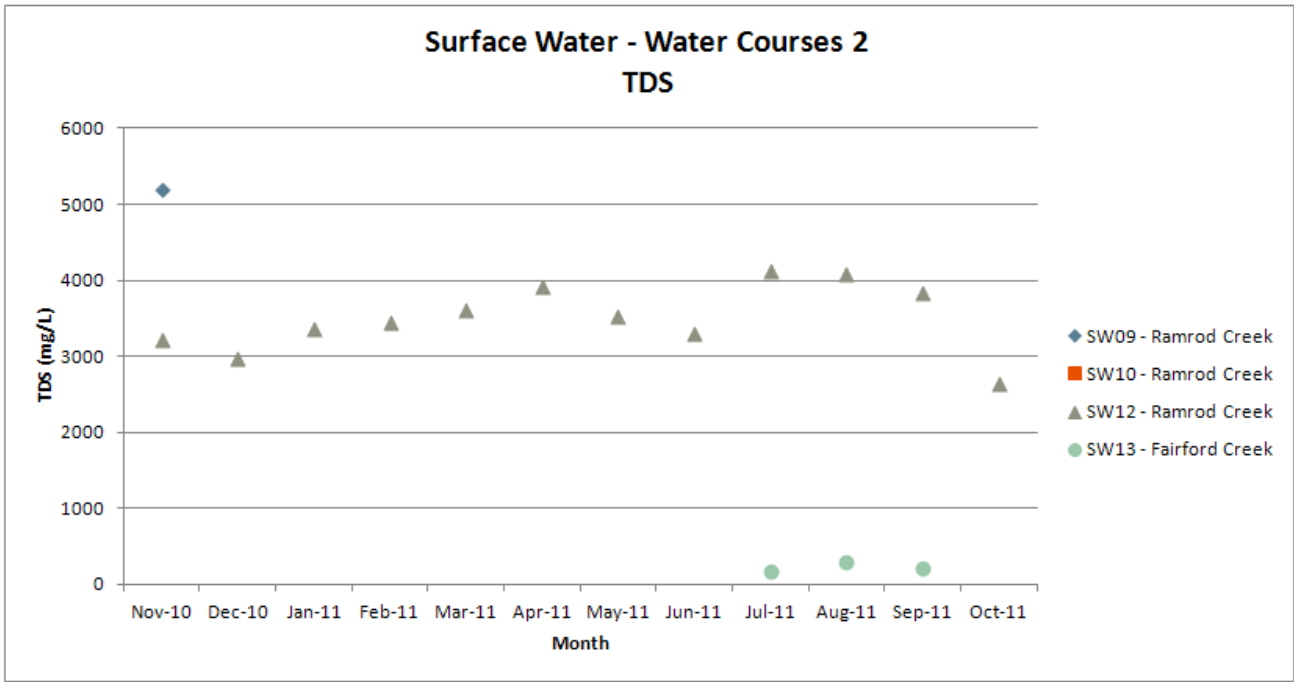
### Surface Water Summary:

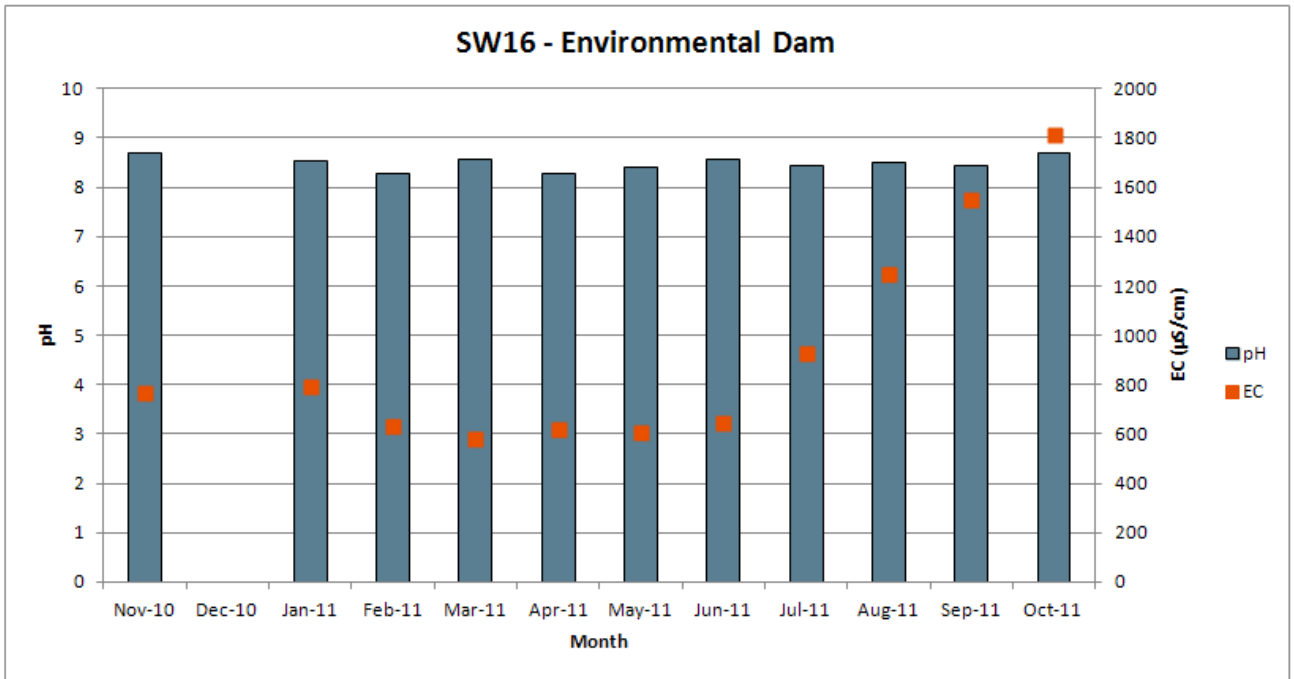
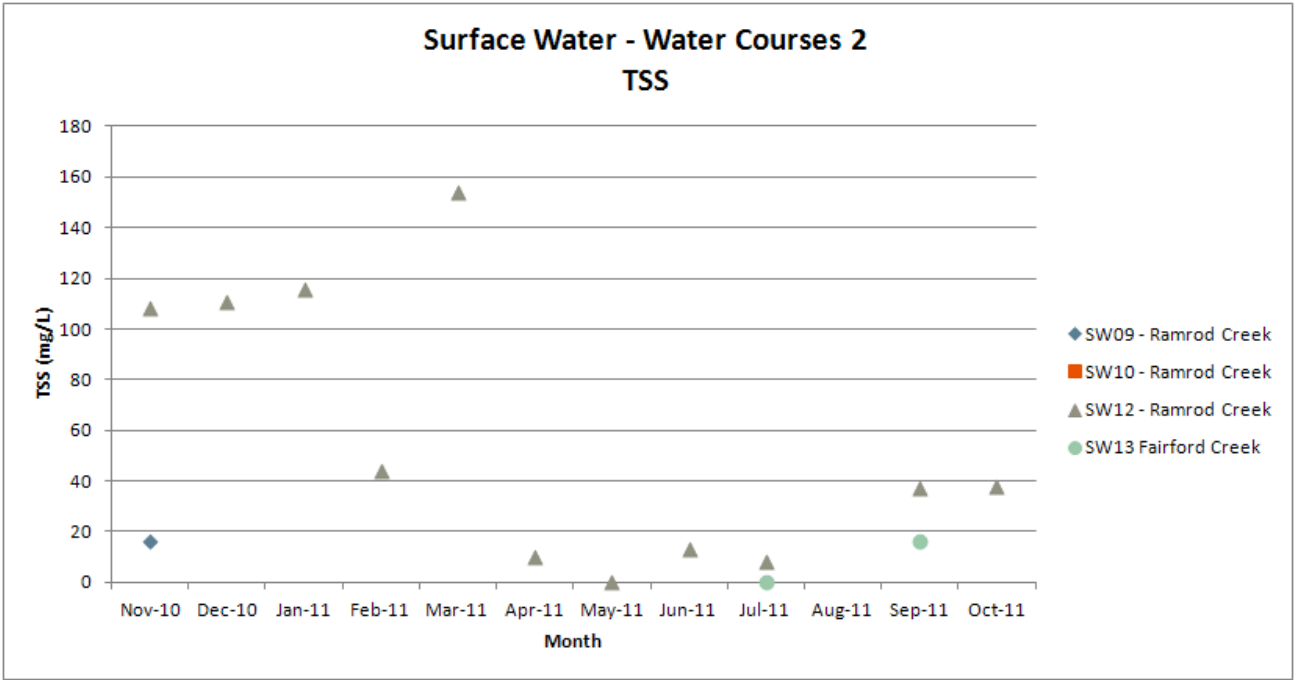
- There were no significant variations in the sampling period with the exception of a gradual increase in EC at SW16 and a sharp increase in TSS at SW02 in October.
- The sharp increase in TSS at SW02 (Saddlers Creek In) was recorded following a rain event and reflects the initial spike in TSS commonly seen after a change from dry to wet conditions.
- The gradual increase in EC at SW16 (the Environmental Dam) is due to increased pumping of water from the active mining area into the Environmental Dam. In conjunction with this there has been a deliberate decrease in water volume at the Environmental Dam to allow for more storage capacity.











## 6. Noise Data (September – October 2011)

### Noise Criteria:

Monitor Location	Day (LAeq(15min)) Limit	Evening (LAeq(15min)) Limit	Night (LAeq(15min)) Limit
Yammanie (NC03)	39	38	37
Sheppard Avenue (NC02)	41	40	39
South Muswellbrook (NC04)	39	39	39
Denman Road West (NC01)	37	36	35

### Noise Summary:

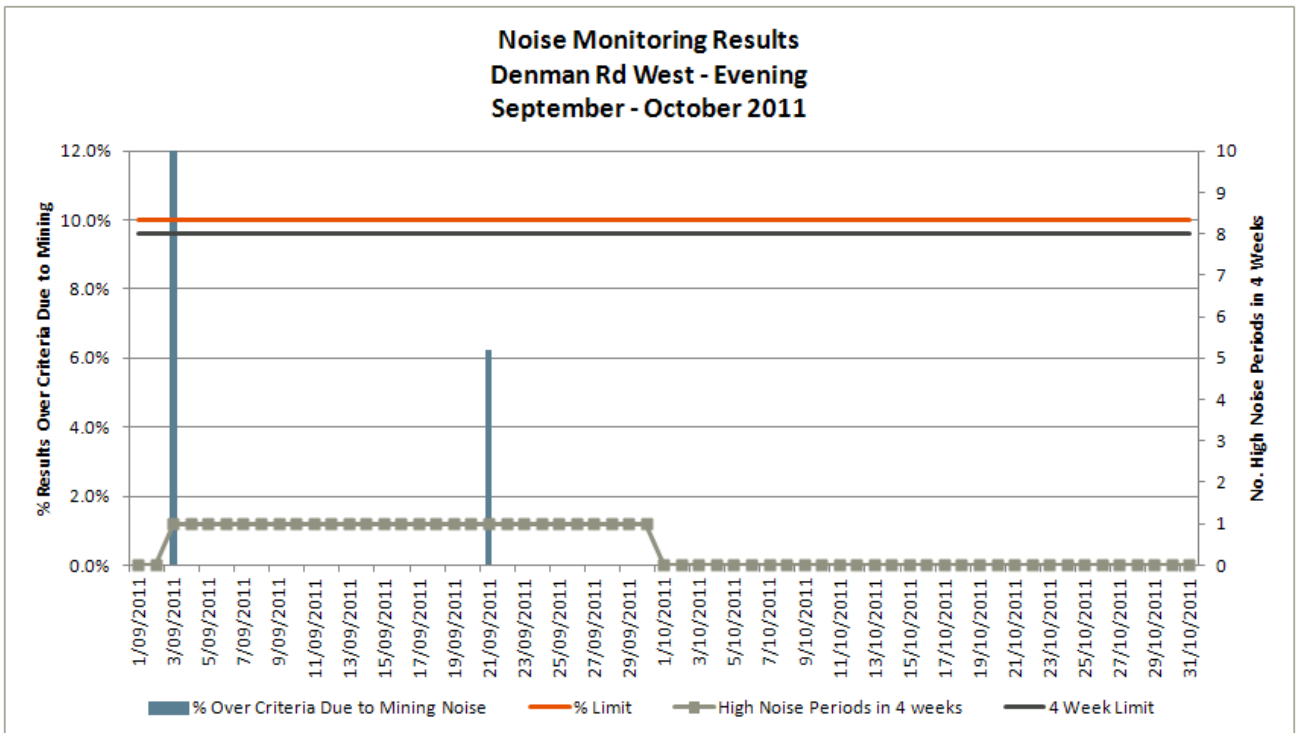
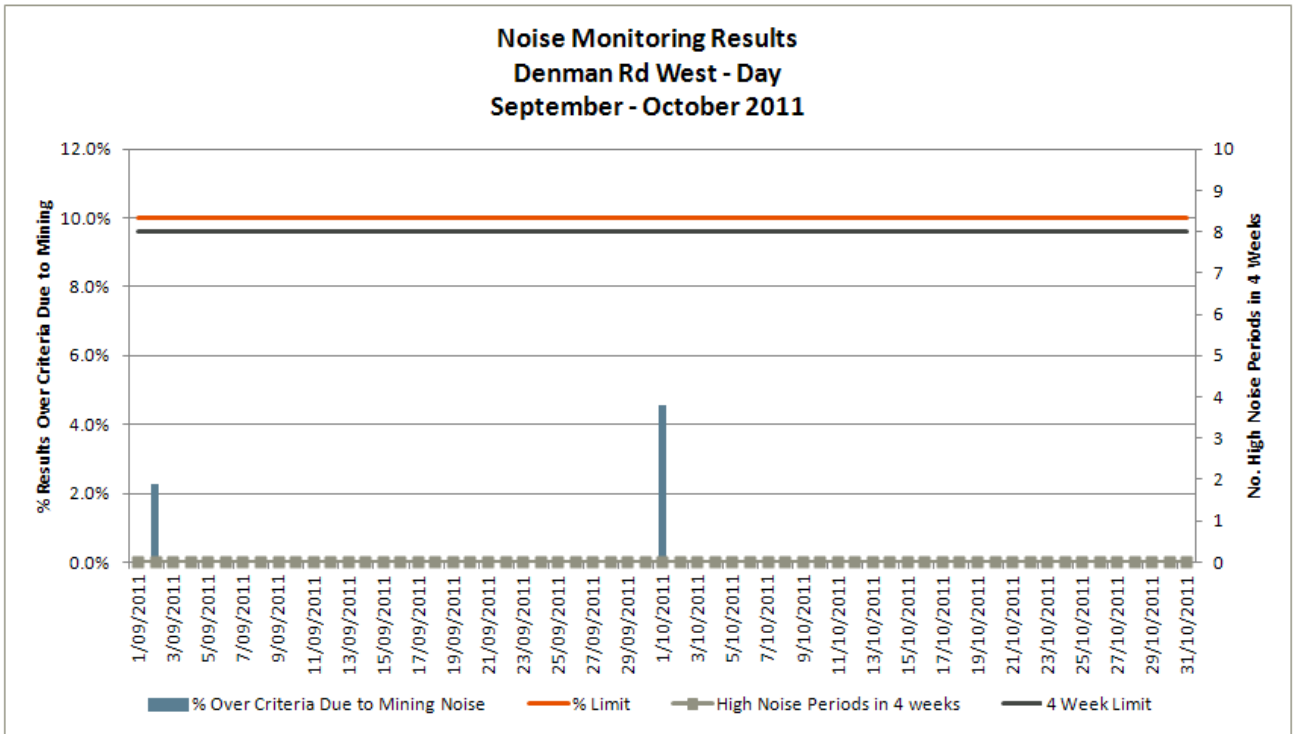
An exceedance is deemed to have occurred when eight high noise periods or more are identified for an assessment time period (day/evening/night) at a single unattended monitoring location during a rolling four week period. A high noise period is when more than 10% of LP directional noise  $L_{Aeq, 15 \text{ minute}}$  samples in the time period exceeds the limit by more than 2dB in suitable meteorological conditions.

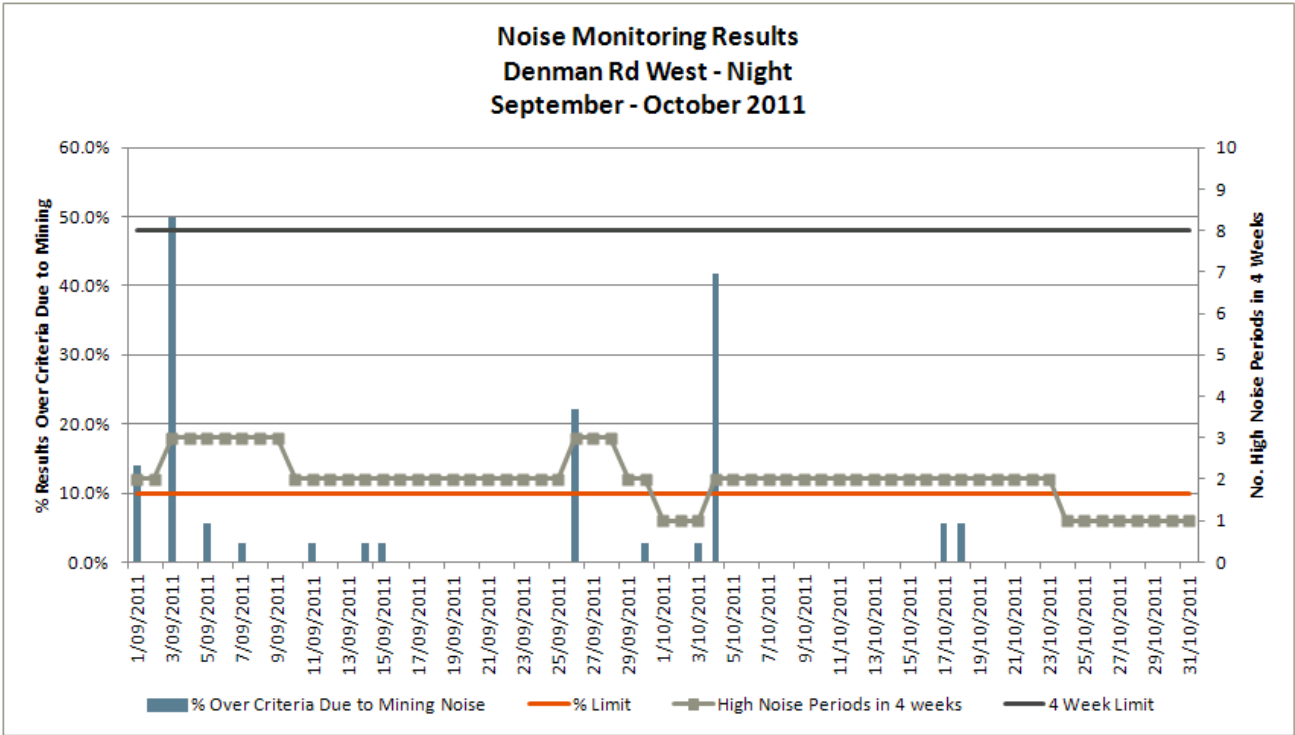
High noise periods were not recorded at any monitor with the exception of Denman Rd West where one high noise evening and one high noise night were recorded and South Muswellbrook where one high noise evening was recorded. The number of high noise periods in 4 weeks remained under the limit of 8 for all monitors during all noise periods (day, evening and night).

### Noise Monitor Data Capture Rates:

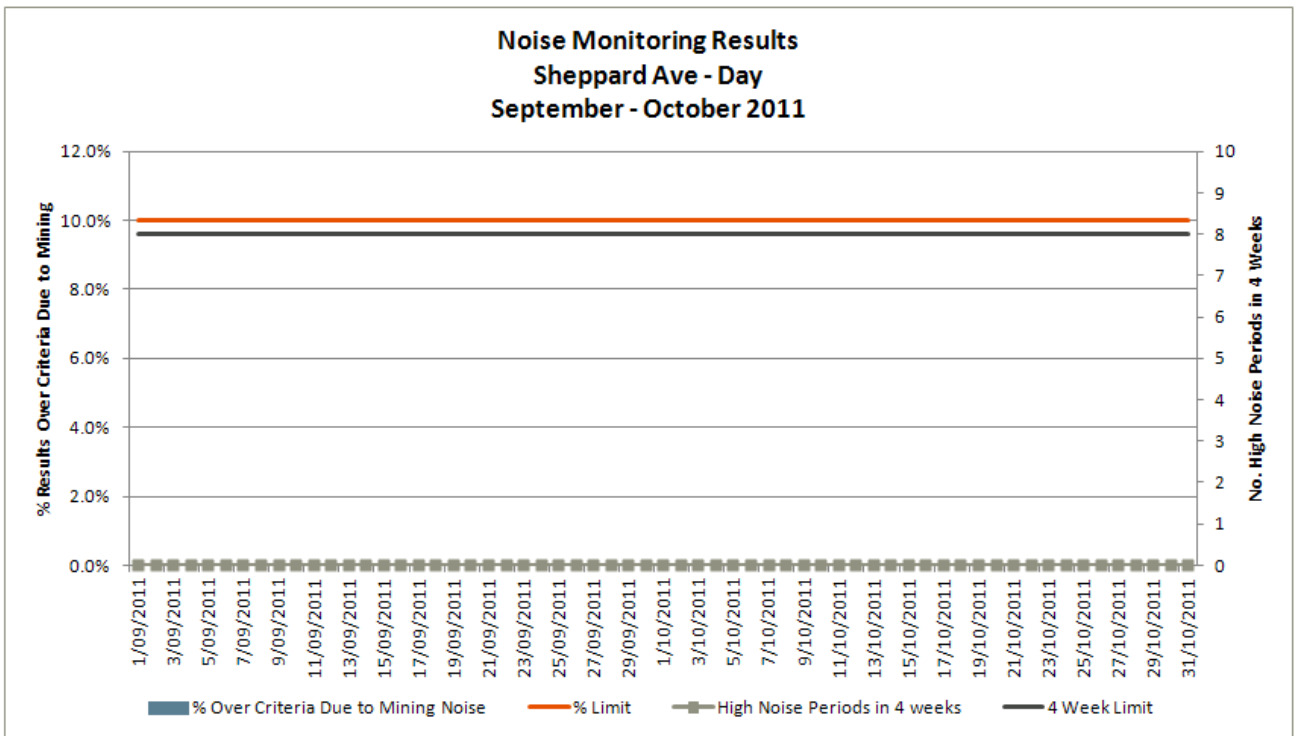
	Denman Road West	Sheppard Avenue	Yammanie	South Muswellbrook
<b>Sep-11</b>	100%	100%	100%	100%
<b>Oct-11</b>	100%	100%	100%	100%

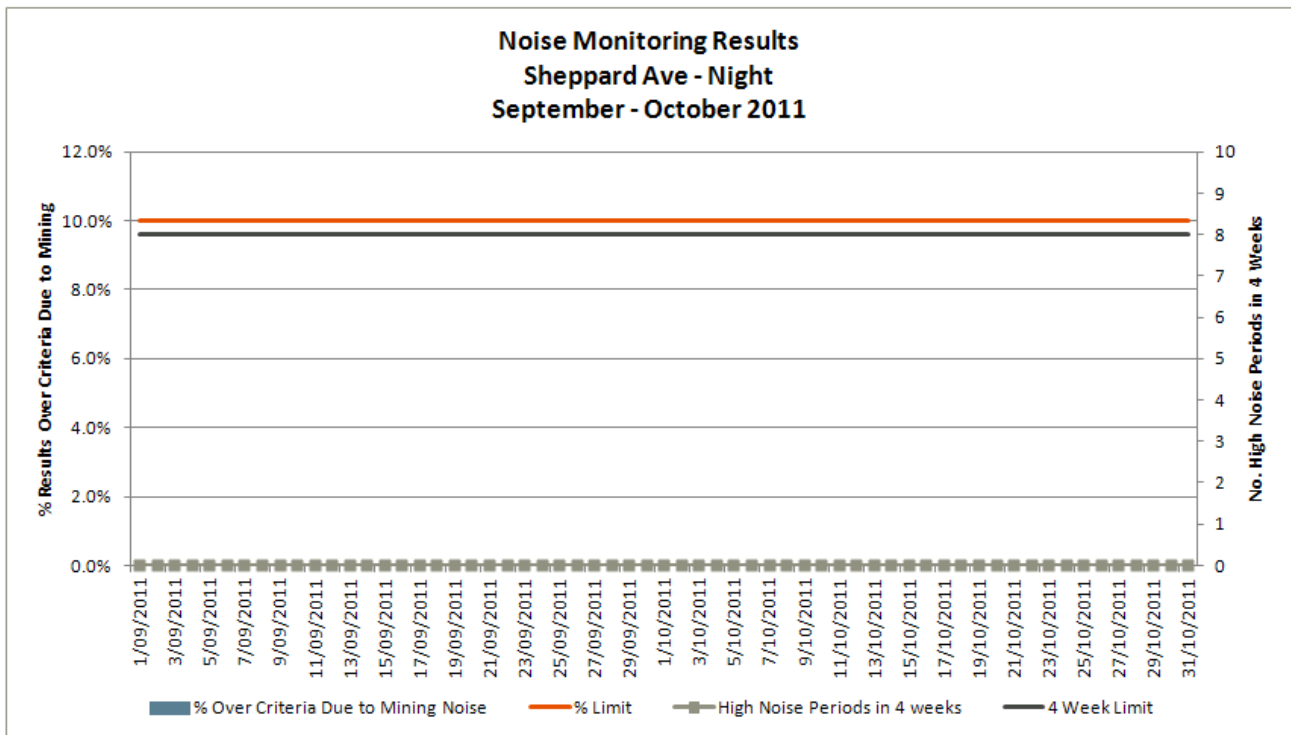
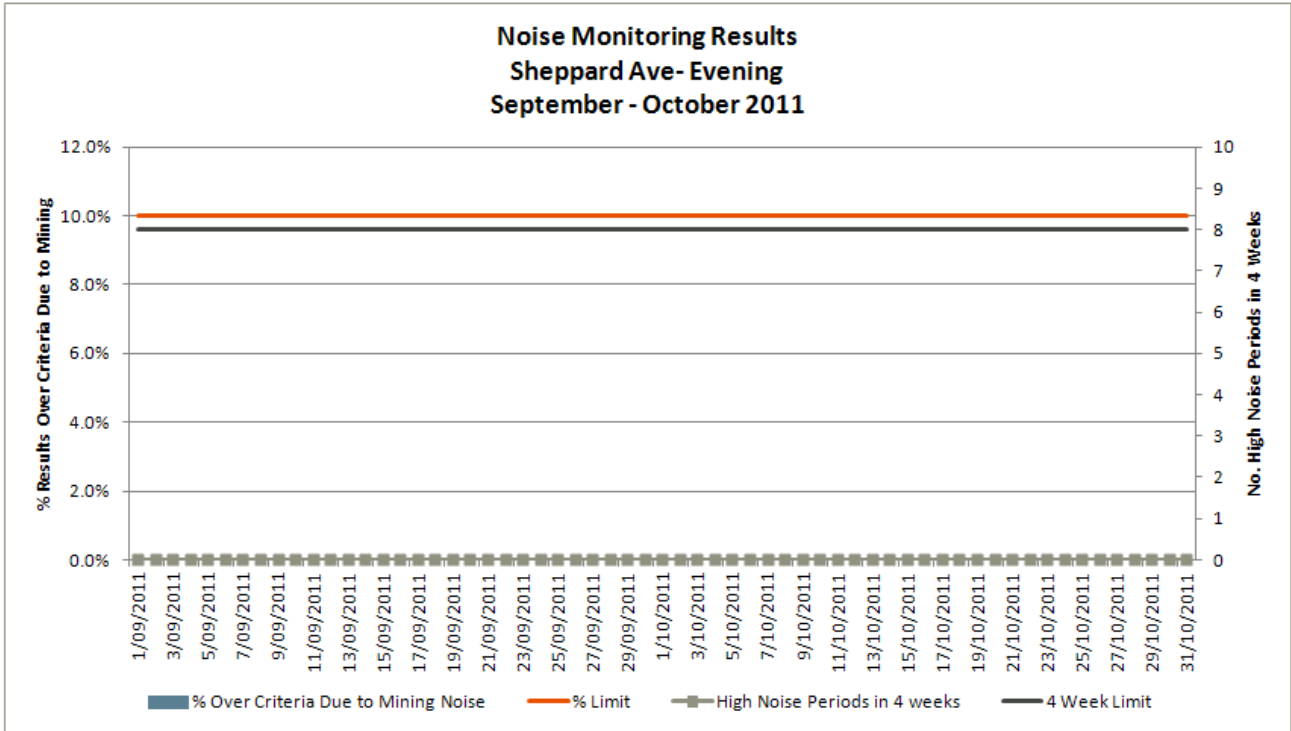
## Denman Rd West (NC01)



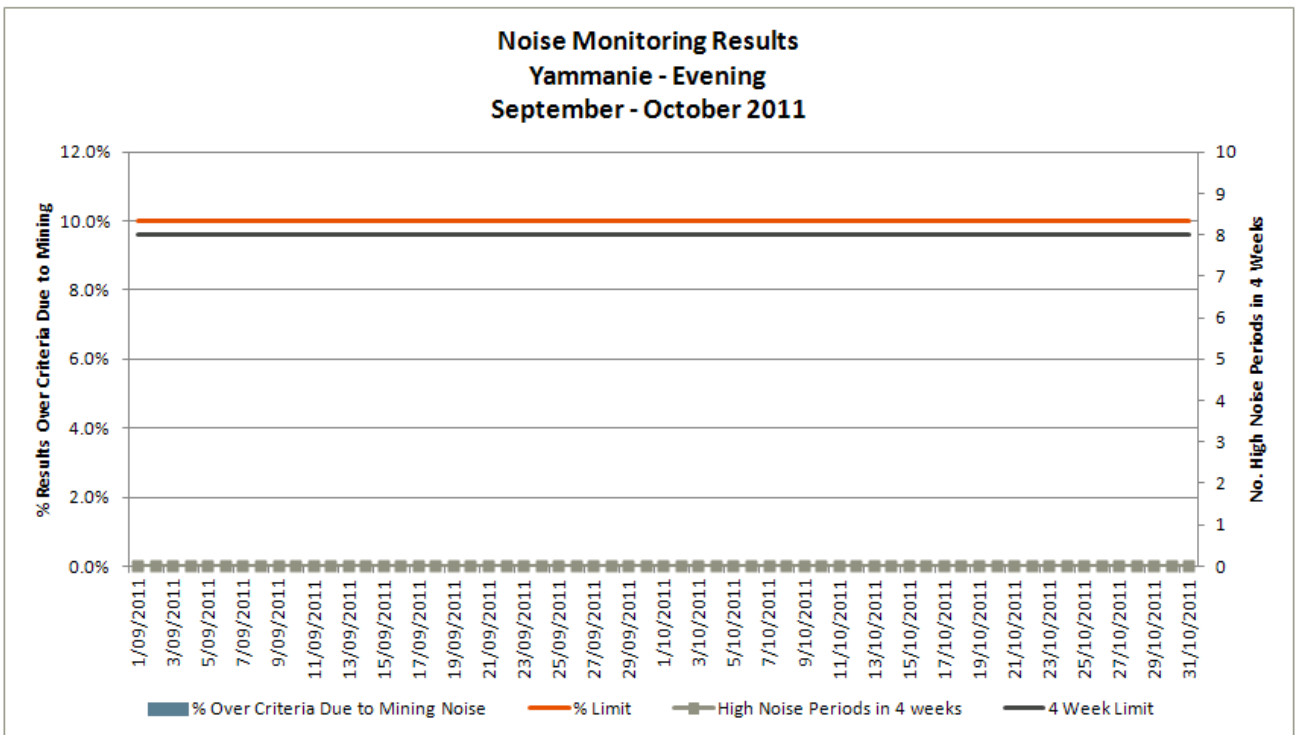
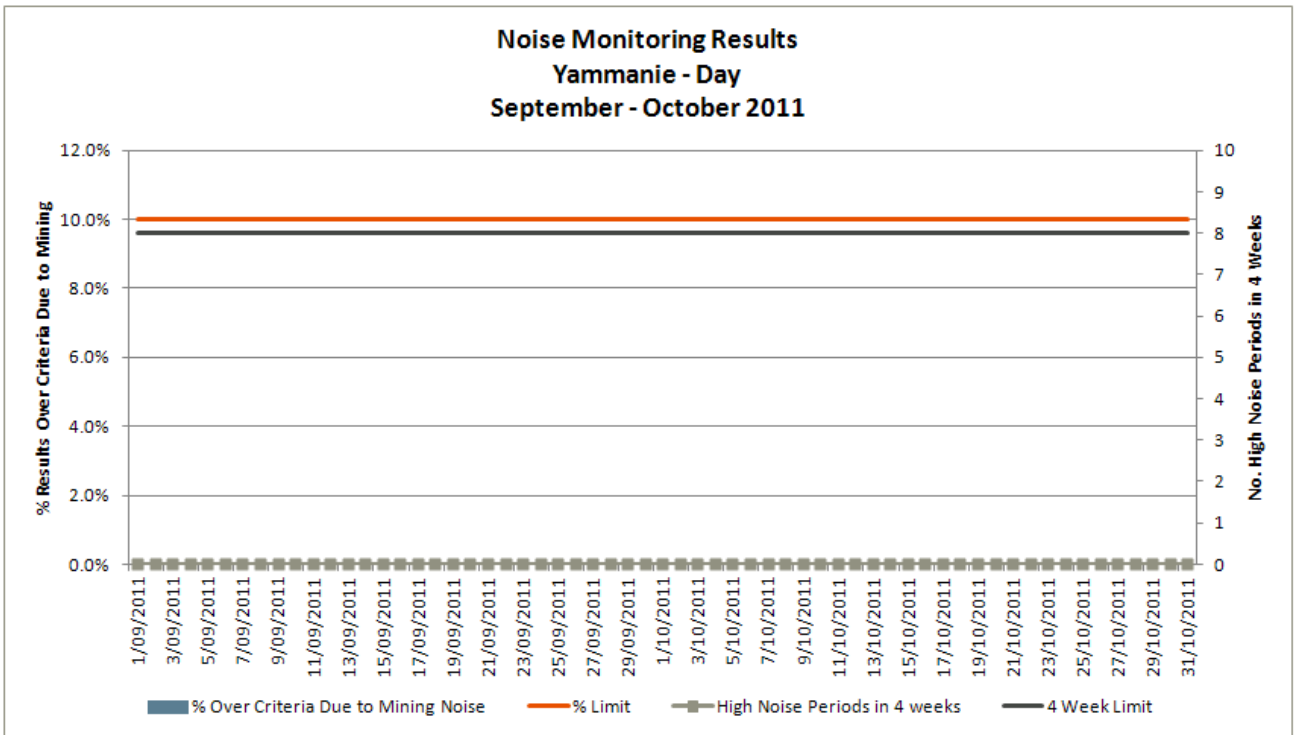


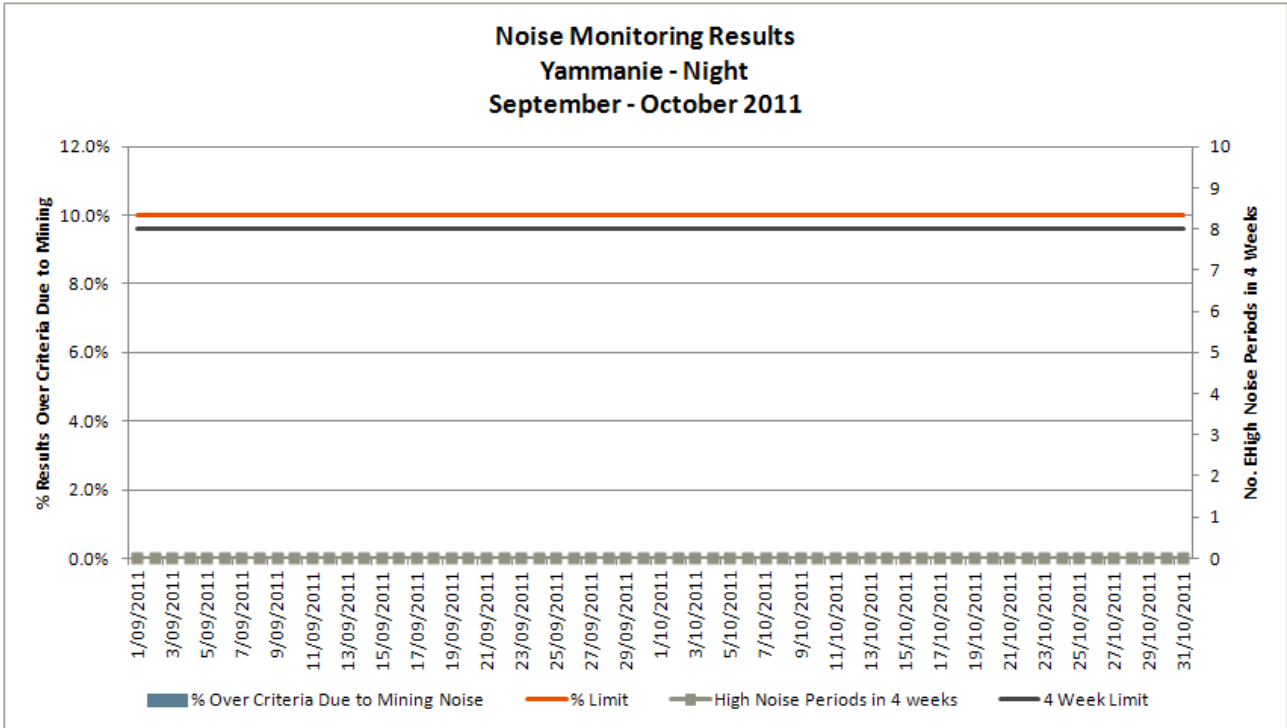
### Sheppard Avenue (NC02)



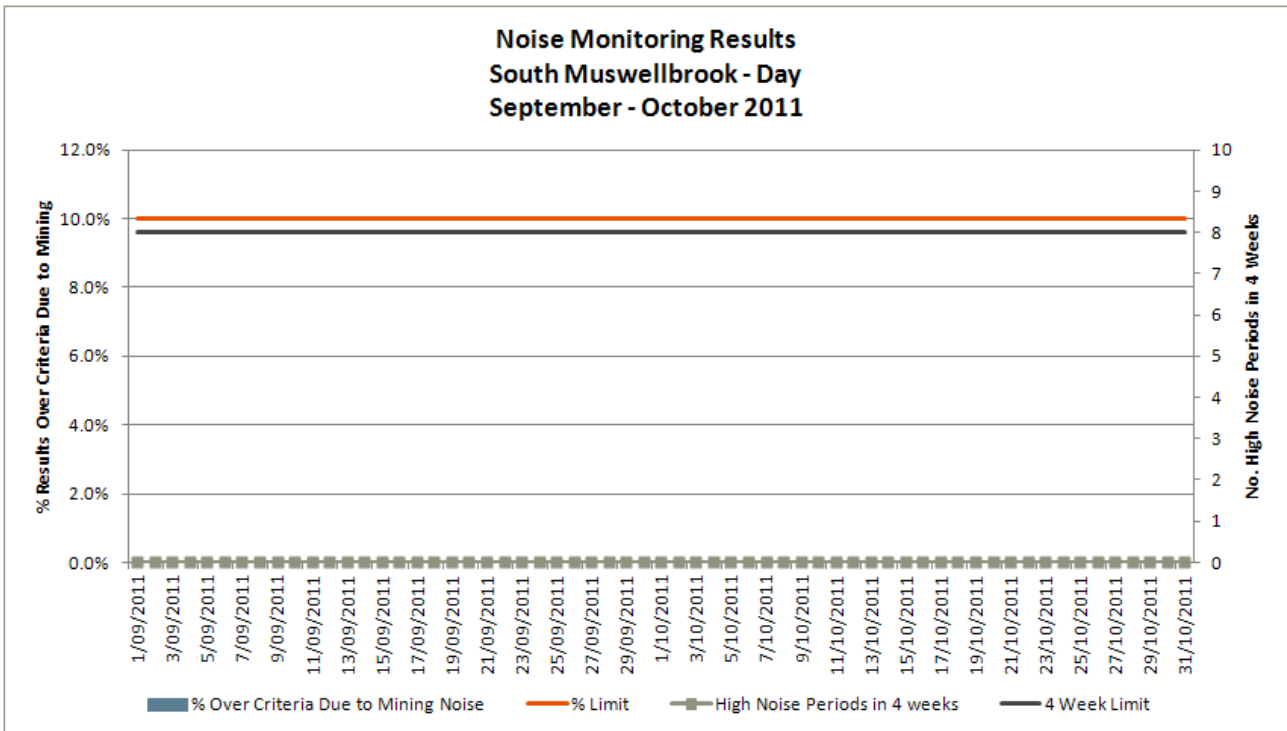


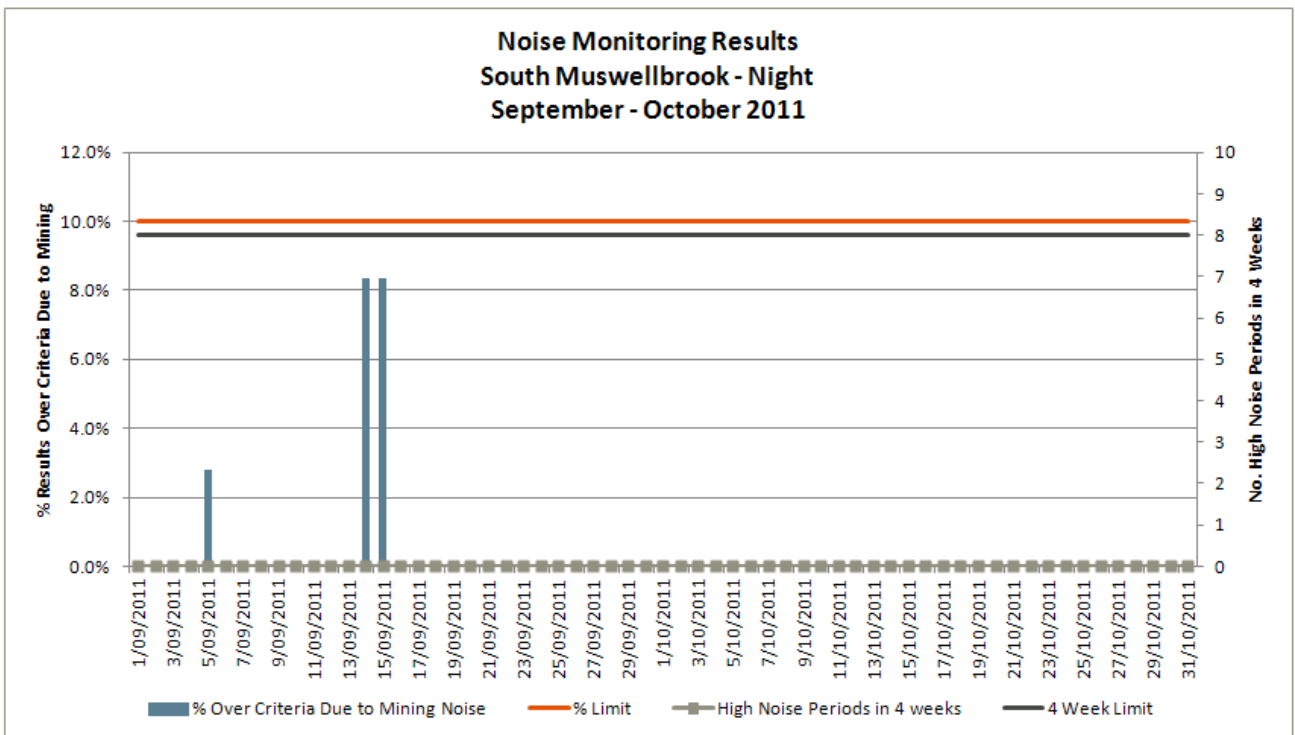
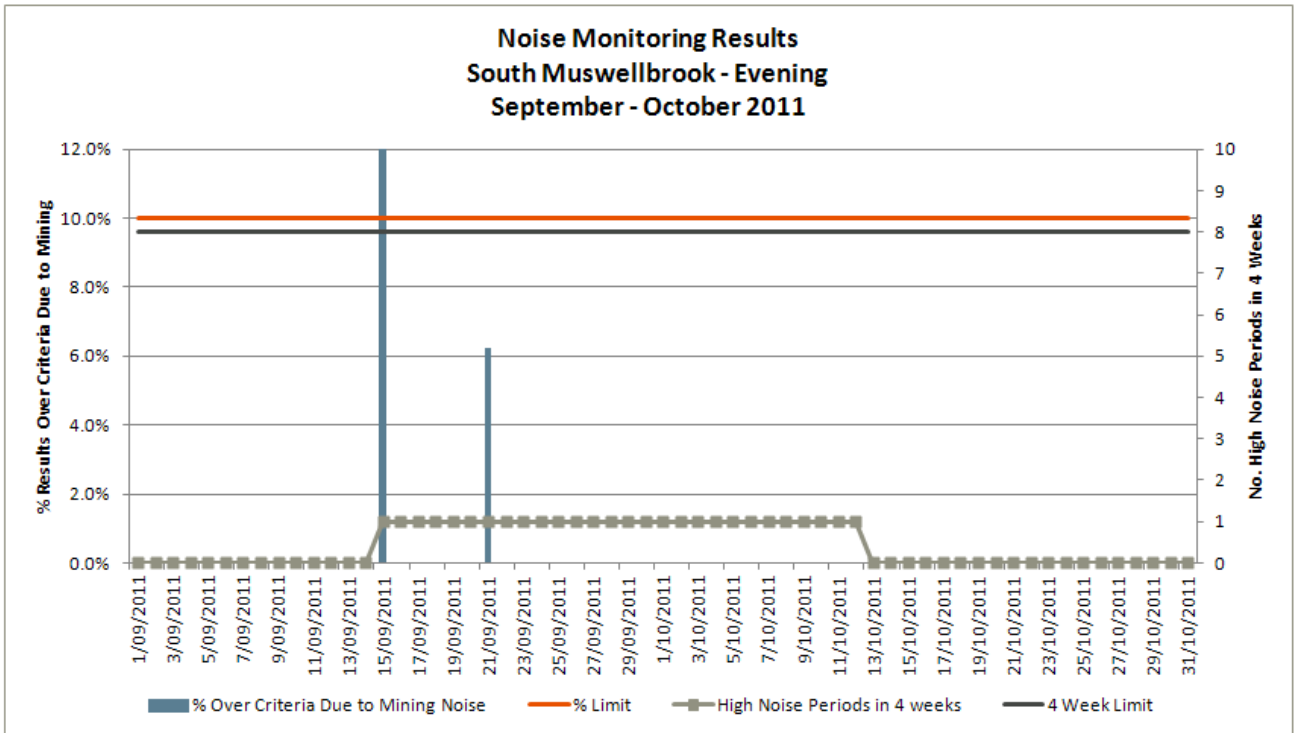
# Yammanie (NC03)





### South Muswellbrook (NC04)

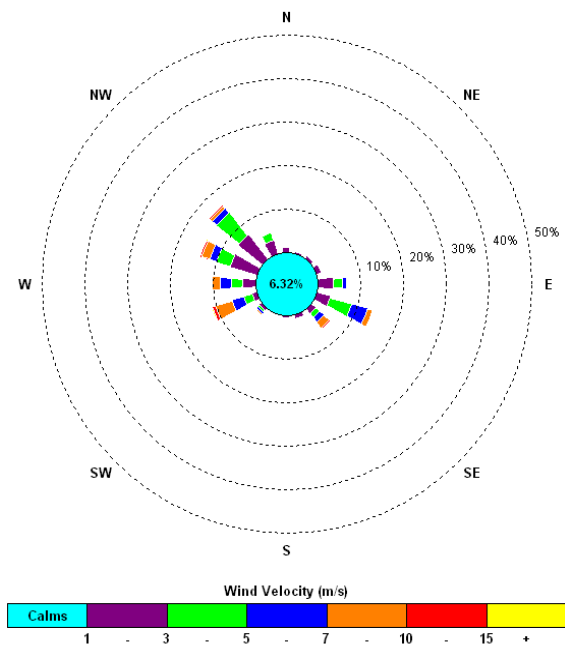




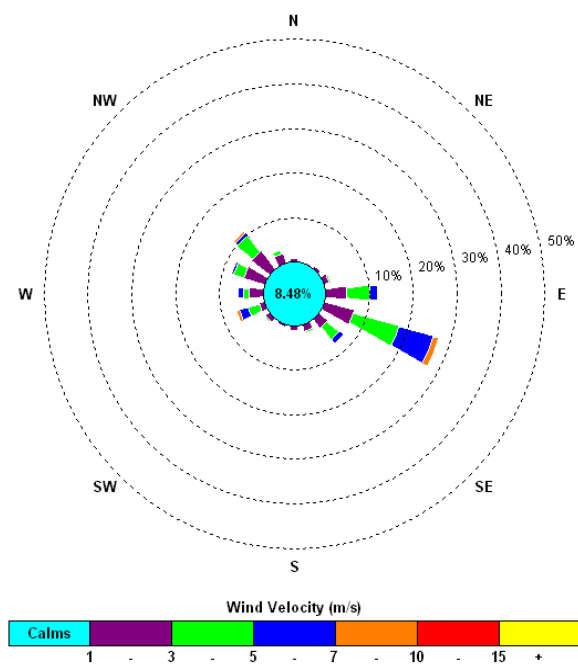
# Weather Data (September – October 2011)

Monthly windroses for Mt Arthur Coal Industrial Area meteorological station

## September



## October



	Temperature 2m (°C)			Windspeed (m/s)			Sigma Theta			Solar Radiation (W/m <sup>2</sup> )			Rainfall (mm)	No. of days rain >1mm
	Min	Average	Max	Min	Average	Max	Min	Average	Max	Min	Average	Max		
January <sup>a</sup>	12.7	23.7	41.5	0.1	4.3	11.4	1.8	14.7	99.5	0.0	414.1	1844.8	37.8	15
February	12.5	23.7	38.9	0.0	4.2	11.1	2.5	15.4	97.1	0.0	341.5	1740.4	49.8	8
March	13.5	21.2	34.0	0.1	3.6	10.7	2.8	15.8	98.1	0.0	296.5	1568.0	46.8	7
April	8.5	17.0	26.9	0.1	3.4	14.9	2.6	14.4	96.5	0.0	248.3	1373.3	54.4	7
May	-0.4	11.6	24.0	0.1	3.1	11.2	2.3	15.5	99.3	0.0	192.1	1123.0	80.8	6
June	1.7	10.4	19.9	0.1	4.7	13.1	2.3	11.0	93.2	0.0	177.1	1041.7	126.8	11
July	0.9	9.3	18.8	0.1	4.3	16.2	2.5	12.8	91.5	0.1	182.8	1055.2	10.8	2
August	1.4	10.5	23.6	0.1	3.2	11.7	2.3	14.9	102.7	0.0	210.0	1206.6	54.6	6
September	2.9	13.5	28.9	0.1	4.0	16.8	1.9	15.5	101.1	0.0	320.7	1513.5	89.0	6
October	4.1	15.0	27.7	0.0	3.4	11.3	1.9	16.7	99.4	0.0	332.5	1650.2	77.4	9
November														
December														

<sup>a</sup> Rainfall data sourced from Denman Road West meteorological station due to problem with the rainfall sensor at the Industrial Area meteorological station. The Denman Rd West meteorological station is not operated in accordance with Australian Standards