

**WERRIS CREEK COAL COMMUNITY CONSULTATIVE COMMITTEE**  
**50th Meeting of the Committee held on site at the Werris Creek Coal Mine**  
**Wednesday, 10 July 2019 at 9:30am**

The normal four monthly meeting will begin at 9:30am - NO site tour today due to weather conditions

Meeting opened at 9:40am due to traffic delays for a few attendees

**Record of attendance**

Michael Silver	OAM	Independent Alternate Chairperson
Jane Bradford	OAM	Independent Minute Taker
Rod Hicks		Werris Creek Coal (WCC) Operations Manager
Jessica Hannigan		WCC Environmental Officer
Lindsay Bridge		Community Representative – Phone No. 0431 319 302
Noel Taylor		Community Representative
James O'Brien		Community Representative
Col Stewart	OAM	Community Representative
Mike Lomax		Community Representative

**Apologies**

Gae Swain (Chair)

Donna Ausling – Director of Environment – Liverpool Plains Shire Council

**Moved** Lindsay Bridge, **seconded** James O'Brien, THAT the apologies be accepted.

CARRIED

**2 Declaration of Pecuniary or Other Interests - Nil**

**3 New Matters for Discussion under General Business today**

- a) Letter from NSW Mining in response to letter from Gae Swain (Chair)
- b) Letter to Dept of Planning and Environment (no response received at this stage)
- c) Lindsay Bridge – letter to Committee outlining who Lindsay has been in contact with since last meeting.

**4 Minutes of the Previous Meeting**

**Moved** Col Stewart, **seconded** Noel Taylor, THAT the Minutes of the previous meeting be accepted as a true and accurate record.

CARRIED

**5 Matters Arising - Nil**

**6 Environment Monitoring Report from 1 February 2019 – to 31 May 2019**

Jessica Hannigan provided commentary on each section of the above report

- 1.1 Meteorology – Weather Station – March and May rainfall heavier than average with no rainfall recorded for February and April; conditions still very dry
- 2.1.1 Air quality– Elevated maximum monitoring results during the period were associated with regional dust storm in February, elevated monitoring results also recorded in March
- 2.2.1 Very slight variation
- 2.3.1 Train dust minimal over the period
- 3.1 Noise levels – no issues for the period
- 4.1 Blasting – within guidelines and blasted today at 9:30am – 74 blasts for the year to date
- 5.1 Ground Water –Committee members requested bore ID details for the four new monitoring bores in Wadwells Lane and Paynes Lane – 2 alluvial (MW40 and MW42) and 2 basalt (MW41 and MW43) Groundwater levels measured during the period indicated generally stable levels.

2..

5.2 Surface Water -as could be expected without further drought relieving rains.

6.0 Very few complaints - blasting complaints resulted from one event and was within compliance guidelines

**Moved** Mike Lomax, **seconded** Col Stewart, **THAT** the Environmental Monitoring Report be accepted. **CARRIED**

## **7 General Business**

- a) Letter from NSW Mining in response to letter from Gae Swain (Chair) - noted
- b) Letter to Dept of Planning and Environment (no response received at this stage) - noted
- c) Lindsay Bridge – letter to Committee outlining who Lindsay has been in contact with since last meeting - noted

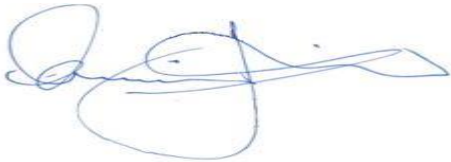
7.2 General discussion on safety performance, it was agreed updates of site Total Recordable Injury Frequency Rate (TRIFR) trends against industry indicators at the four monthly meetings would be beneficial for committee members

**Next meeting** Wednesday, 13 November 2019 at 9:30am – same venue and to include a mine tour of Werris Creek Coal (weather permitting).

**Meeting closed at 10:15AM**

Copy to all Committee Members

The Minutes will also be posted on the Whitehaven Coal Website



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Michael J Silver OAM –  
Independent Alternate Chairperson

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18 May 2019



## **WERRIS CREEK COAL PTY LTD**

### **QUARTERLY ENVIRONMENTAL MONITORING REPORT**

**February, March, April and May 2019**

This Environmental Monitoring Report covers the period 1<sup>st</sup> February 2019 to 31<sup>st</sup> May 2019 for the Werris Creek Coal Mine Community Consultative Committee.

The report includes environmental monitoring results from the on-site Weather Station, Air Quality, Noise, Blasting, Surface Water, Groundwater and Discharge Water Quality together with any community complaints received and general details on site environmental matters.

**Note:** Elevated monitoring results above the relevant monitoring criteria are highlighted in **yellow**.

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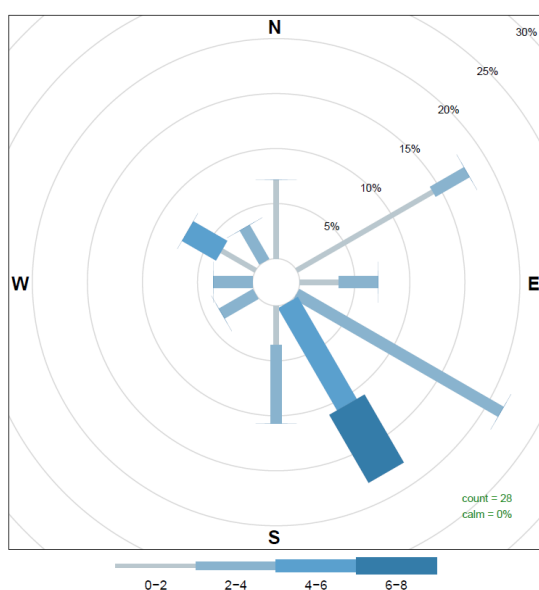
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## 1.0 METEOROLOGY

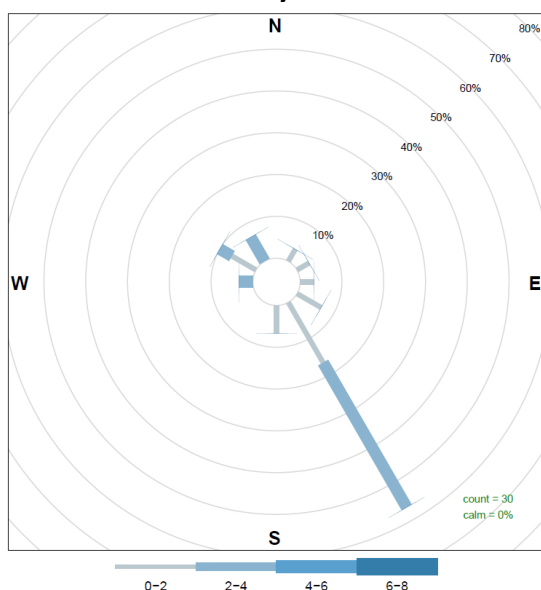
### 1.1 WEATHER STATION

Werris Creek Coal (WCC) collects meteorological data from the onsite weather station located on the top level of the overburden emplacement. The following table summarises rainfall data for the last four months. Monthly rainfall totals in March and May 2019 were higher than the historical average and lower in February 2019 and April 2019. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the south-south-east/ south east in February, north-north-west March, south-south-east in April and north-west in May 2019.

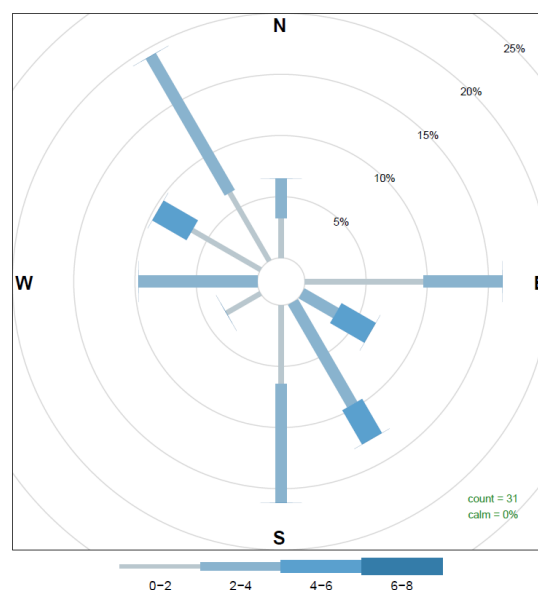
Month	Rainfall (mm)		
	Onsite	Historical Average	2019 Total
February 2019	0	64.1	34.0
March 2019	86.4	55.1	120.4
April 2019	0	28.7	120.4
May 2019	47.8	33.0	168.2



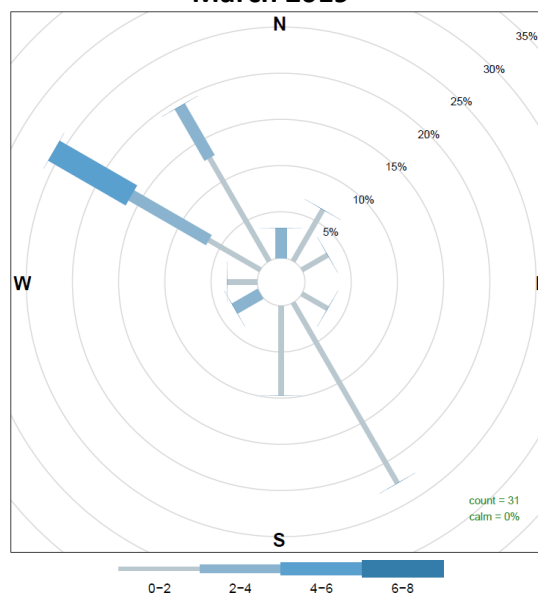
**February 2019**



**April 2019**



**March 2019**



**May 2019**

## 2.0 AIR QUALITY

### 2.1 HVAS (PM<sub>10</sub>) and TEOM (PM<sub>10</sub> & PM<sub>2.5</sub>)

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM<sub>10</sub>) and total suspended particulate (TSP) matter at four sites. HVAS sampling is scheduled every 6 days for a 24-hour run period in accordance with Environment Protection Authority (EPA) guidelines. Results are reported in micro grams per cubic metre (µg/m<sup>3</sup>) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM<sub>10</sub> and PM<sub>2.5</sub> (particulate matter less than 2.5 micron) dust levels. Dust monitoring locations are identified in **Figure 1**.

#### 2.1.1 Monitoring Data Results

The average results for the last four months are provided in the table below.

Monitor Location	Daily Maximum (µg/m <sup>3</sup> )	February 2019 (µg/m <sup>3</sup> )	March 2019 (µg/m <sup>3</sup> )	April 2019 (µg/m <sup>3</sup> )	May 2019 (µg/m <sup>3</sup> )	2019 Average (g/m <sup>2</sup> /month)	Criteria (µg/m <sup>3</sup> )	
							Annual	Daily
PM <sub>2.5</sub> – TEOM92 “Werris Creek”	15.7	5.4	5.3	4.9	4.0	6.3	8	25
PM <sub>10</sub> – TEOM92 “Werris Creek”	<b>159.2</b>	24.2	17.2	15.1	11.2	19.4	30	50
PM <sub>10</sub> – HVP20 “Tonsley Park”	<b>207.0</b>	65.7	26.6	23.9	20.7	<b>33.0</b>	30	50
PM <sub>10</sub> – HVP1 “Escott”	<b>185.0</b>	63.5	17.7	15.2	8.3	23.2	30	50
PM <sub>10</sub> – HVP11 “Glenara”	<b>213.0</b>	78.7	25.7	27.5	19.7	<b>33.9</b>	30	50
PM <sub>10</sub> – HVP98 “Kyooma”	<b>192.0</b>	52.2	16.1	12.9	8.7	22.5	30	50
TSP – HVT98 “Kyooma”	<b>410.0</b>	110.3	35.9	31.1	18.8	49.6	90	-

**Yellow Bold** – Elevated dust level.

#### 2.1.2 Discussion - Compliance / Non Compliance

All TSP, PM<sub>10</sub> and PM<sub>2.5</sub> dust results were within criteria during the period with the exception of nine PM<sub>10</sub> results measured at “TEOM92 “Werris Creek””, on the 13<sup>th</sup> February 2019 and 31<sup>st</sup> March 2019, “HVP20 “Tonsley Park” on the 13 and 19 February 2019 and 15 March 2019, “HVP98 “Kyooma” on the 13 February 2019, “HVP1 “Escott” on the 13 February 2019 and “HVP11 “Glenara” on the 13 and 19 February 2019. On all occasions the exceedances were reported with the elevated results were affected high regional elevated dust levels. Based on the 2019 annual averages “HVP20 “Tonsley Park” and “HVP98 “Kyooma” are currently exceeding the PM<sub>10</sub> criteria.

### 2.2 WERRIS CREEK MINE DEPOSITED DUST

Deposited dust monitoring measures particulate matter greater than 30 microns in size that readily settles out of the air related to visual impact. Dust deposition is monitored at 20 locations around WCC. Sampling is scheduled monthly in accordance with EPA guidelines and results are reported as grams per square metre per month (g/m<sup>2</sup>/month). Dust monitoring locations are identified in **Figure 1**.

### 2.2.1 Monitoring Data Results

The results for the last four months are provided in the table below.

Monitor Location	February 2019 (g/m <sup>2</sup> /month)	March 2019 (g/m <sup>2</sup> /month)	April 2019 (g/m <sup>2</sup> /month)	May 2019 (g/m <sup>2</sup> /month)	2019 Average (g/m <sup>2</sup> /month)	Annual Criteria (g/m <sup>2</sup> /month)
DG1 "Escott"	1.0	0.4	0.4	0.5	0.8	4.0
DG2 "Cintra"	3.3	5.0	4.5	5.4	4.4	4.0
DG3 "Eurunderee"	2.1	2.0	2.7	2.2	2.8	4.0
DG5 "Railway View"	2.5	3.1	3.0	4.1*	2.7	4.0
DG9 "Marengo"	1.5	1.5	0.9	0.8	1.4	4.0
DG11 "Glenara"	1.3	1.6	1.2	0.8	1.5	4.0
DG14 "Greenslopes"	2.1	2.1	0.7	0.9	1.5	4.0
DG15 "Plain View"	0.7	1.5	1.1	0.9	1.3	4.0
DG17 "Woodlands"	0.6	1.8	0.8	0.8	1.3	4.0
DG20 "Tonsley Park"	2.9	1.5	1.0	2.0	2.1	4.0
DG22 "Mountain View"	0.6	2.3	1.3	1.6	2.0	4.0
DG24 "Hazeldene"	0.8	1.9	1.4	0.8	1.5	4.0
DG34 8 Kurrara St	10.7	33.9	1.0	25.1	14.6	4.0
DG62 Werris Creek South	1.6	1.4	0.8	0.6	1.2	4.0
DG92 Werris Creek Centre	1.4	1.4	0.8	0.4	1.2	4.0
DG96 "Talavera"	NS	NS	NS	NS	NA	NA
DG98 "Kyooma"	1.6	8.5*	0.8	0.5	1.1	4.0
DG101 "Westfall"	2.6	2.2	1.3	1.9	2.3	4.0
DG103 West Street	1.8	1.7	1.0	1.6	1.6	4.0

\* - sample contaminated with excessive organic matter (>50%) from non-mining source (i.e. bird droppings and insects); # - indicates sample is contaminated from a Non-Werris Creek Coal dust source; **Yellow Bold** – Elevated dust level; NS – Not Sampled; Broken- Dust bottle broken in transit

### 2.2.2 Discussion - Compliance / Non Compliance

All monthly dust deposition gauge results were below the annual criteria of 4.0g/m<sup>2</sup>/month throughout the period with the exception of DG2 (Cintra) which had high results in March, April and May 2019 and a rolling average above criteria.

DG34 (8 Kurrara St) had high dust levels in February, March and May 2019 and a current rolling 2019 average above criteria. Consistently high dust levels at this gauge and low deposited dust levels at nearby gauges indicate a localised source of dust generation, unrelated to activities at Werris Creek Coal Mine.

## 2.3 QUIRINDI TRAIN DUST DEPOSITION

### 2.3.1 Monitoring Data Results

The results for the last three months are provided in the table below.

Monitor Location	February 2019		March 2019		April 2019		May 2019		2019 Average (g/m <sup>2</sup> /month)
	g/m <sup>2</sup> /month	% Coal	g/m <sup>2</sup> /month	% Coal	g/m <sup>2</sup> /month	% Coal	g/m <sup>2</sup> /month	% Coal	
DDW30	1.6	25%	2.5	<5%	1.2	5%	1.3	25%	2.0
DDW20	0.8	15%	1.9	5%	1.6	5%	1.9	10%	1.7
DDW13	2.6	25%	2.9	5%	1.4	5%	1.7	20%	2.3
<b>Train Line</b>									
DDE13	11.2*	5%	2.8	5%	1.0	<5%	6.5*	5%	2.1
DDE20	1.7	25%	5.4*	<5%	1.0	5%	0.8	20%	1.7
DDE30	2.5	10%	9.3*	<5%	3.9*	<5%	3.4*	5%	3.3

\* - sample contaminated with excessive organic matter (>50%) from non-mining source (i.e. bird droppings and insects); NS – Not Sampled, bottle and funnel smashed.

### 2.3.2 Discussion - Compliance / Non Compliance

Overall, the dust fallout levels adjacent to the train line are low, well below the impact assessment criteria nominated by the EPA of 4.0 g/m<sup>2</sup>/month and comparable to the levels monitored around Werris Creek Coal Mine. Coal contributions to the dust fraction remain generally low.

## 2.4 AIR QUALITY COMPLAINTS

There were two dust complaints recorded during the period.

## 3.0 NOISE

### 3.1 OPERATIONAL NOISE

Monthly attended noise monitoring is undertaken representative of the following 16 properties from 13 monitoring points below. Attended noise monitoring was undertaken twice for either 60 minutes at privately owned properties or 15 minutes at properties with private agreements; representative of the day period and the evening/night period.

#### 3.1.1 Monitoring Data Results

The WCC operations only noise level (not ambient noise) results for the last three months are outlined in the table below. Noise monitoring locations are identified in **Figure 2**.

#### Monday 11 and Tuesday 12<sup>th</sup> February 2019

Location		Day dB(A) L <sub>eq</sub> 15min	Criteria dB(A) L <sub>eq</sub> 15min	Evening/Night dB(A) L <sub>eq</sub> 15min	Criteria dB(A) L <sub>eq</sub> 15min
A	"Rosehill" R5	Inaudible#	35	Inaudible#	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible#	40	Inaudible#	40
C	Central Quipolly (R10*, R11*)	Inaudible#	40	Inaudible#	40
D	"Hazeldene" R24	Inaudible#	37	Inaudible#	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible#	38
F	"Talavera" R96	23#	38	22#	37
H	"Kyooma" R98	22#	38	24#	38
I	Kurrara St, WC R57	Inaudible	35	24#	35
J	Coronation Ave, WC	Inaudible#	35	Inaudible#	35
K	Alco Park (R21*)	Inaudible#	40	Inaudible#	40
L	West St, WC (R103)	Inaudible#	35	Inaudible#	35

WC – Werris Creek; \* - Private agreement in place with resident; **Yellow Bold** – Elevated noise; # Adverse weather with wind >3m/s, temperature inversions >+12°C/100m or >2m/s and >0°C/100m; 1 – R22 criteria is 36 dB(A) L<sub>eq</sub> 15min while R9 is 37 dB(A) L<sub>eq</sub> 15min

NM- Denotes Not Measurable. If site only noise is noted as NM, this means some noise from the source of interest was audible at low-levels, but could not be quantified

#### Wednesday 27<sup>th</sup> and Thursday 28<sup>th</sup> March 2019

Location		Day dB(A) L <sub>eq</sub> 15min	Criteria dB(A) L <sub>eq</sub> 15min	Evening/Night dB(A) L <sub>eq</sub> 15min	Criteria dB(A) L <sub>eq</sub> 15min
A	"Rosehill" R5	Inaudible#	35	Inaudible	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible	40	Inaudible	40
C	Central Quipolly (R10*, R11*)	Inaudible	40	Inaudible	40
D	"Hazeldene" R24	Inaudible#	37	Inaudible#	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible	38
F	"Talavera" R96	Inaudible#	38	Inaudible#	37
H	"Kyooma" R98	Inaudible	40	24#	40
I	Kurrara St, WC R57	Inaudible	35	Inaudible#	35
J	Coronation Ave, WC	Inaudible	35	Inaudible	35
K	Alco Park (R21*)	Inaudible#	40	Inaudible#	40
L	West St, WC (R103)	Inaudible#	35	Inaudible#	35

WC – Werris Creek; \* - Private agreement in place with resident; **Yellow Bold** – Elevated noise; # Adverse weather with wind >3m/s, temperature inversions >+12°C/100m or >2m/s and >0°C/100m; 1 – R22 criteria is 36 dB(A) L<sub>eq</sub> 15min while R9 is 37 dB(A) L<sub>eq</sub> 15min

NM- Denotes Not Measurable. If site only noise is noted as NM, this means some noise from the source of interest was audible at low-levels, but could not be quantified



**Wednesday 17<sup>th</sup> and Thursday 18<sup>th</sup> April 2019**

Location		Day dB(A) $L_{eq}$ 15min	Criteria dB(A) $L_{eq}$ 15min	Evening/Night dB(A) $L_{eq}$ 15min	Criteria dB(A) $L_{eq}$ 15min
A	"Rosehill" R5	Inaudible#	35	Inaudible#	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible#	40	Inaudible#	40
C	Central Quipolly (R10*, R11*)	Inaudible	40	Inaudible#	40
D	"Hazeldene" R24	Inaudible	37	Inaudible	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible	38
F	"Talavera" R96	Inaudible	38	Inaudible#	37
H	"Kyooma" R98	Inaudible	40	Inaudible	40
I	Kurrara St, WC R57	Inaudible	35	Inaudible	35
J	Coronation Ave, WC	Inaudible#	35	Inaudible	35
K	Alco Park (R21*)	Inaudible	40	26#	40
L	West St, WC (R103)	Inaudible	35	Inaudible#	35

WC – Werris Creek; \* - Private agreement in place with resident; **Yellow Bold** – Elevated noise; # Adverse weather with wind >3m/s, temperature inversions >+12°C/100m or >2m/s and >0°C/100m; 1 – R22 criteria is 36 dB(A)  $L_{eq}$  15min while R9 is 37 dB(A)  $L_{eq}$  15min

NM- Denotes Not Measurable. If site only noise is noted as NM, this means some noise from the source of interest was audible at low-levels, but could not be quantified

**Tuesday 21<sup>st</sup> and Wednesday 22<sup>nd</sup> May 2019**

Location		Day dB(A) $L_{eq}$ 15min	Criteria dB(A) $L_{eq}$ 15min	Evening/Night dB(A) $L_{eq}$ 15min	Criteria dB(A) $L_{eq}$ 15min
A	"Rosehill" R5	Inaudible	35	29	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible	40	27	40
C	Central Quipolly (R10*, R11*)	Inaudible	40	25	40
D	"Hazeldene" R24	Inaudible	37	23	37
E	"Railway Cottage" R12	25	38	Inaudible	38
F	"Talavera" R96	Inaudible	38	Inaudible	37
H	"Kyooma" R98	Inaudible	40	Inaudible	40
I	Kurrara St, WC R57	Inaudible	35	27	35
J	Coronation Ave, WC	Inaudible	35	Inaudible	35
K	Alco Park (R21*)	24	40	29	40
L	West St, WC (R103)	Inaudible	35	29	35

WC – Werris Creek; \* - Private agreement in place with resident; **Yellow Bold** – Elevated noise; # Adverse weather with wind >3m/s, temperature inversions >+12°C/100m or >2m/s and >0°C/100m; 1 – R22 criteria is 36 dB(A)  $L_{eq}$  15min while R9 is 37 dB(A)  $L_{eq}$  15min

NM- Denotes Not Measurable. If site only noise is noted as NM, this means some noise from the source of interest was audible at low-levels, but could not be quantified

**3.1.2 Discussion - Compliance / Non Compliance**

Noise from Werris Creek Coal Mine was inaudible at a high percentage of the monitoring sites during the quarter. Throughout the period, Werris Creek Coal Mine adjusted mining operations and shut down equipment at various times to reduce noise generation potential in response to noise levels measured at the real time noise monitors.

**3.2 Noise complaints**

There were no noise complaints recorded during the period.

**4.0 BLASTING**

During the reporting period there was a total of forty-five blasts fired by WCC with monitoring of each blast undertaken at "Glenara", "Kyooma", "Werris Creek South" and "Werris Creek Mid". Compliance limits for blasting overpressure is 115dB (and up to 120dB for only 5% of blasts) and vibration is 5mm/s (and up to 10mm/s for only 5% of blasts). Blast monitoring locations are identified in **Figure 3**.

## 4.1 BLAST MONITORING

### 4.1.1 Monitoring Data Results

The summary tables of blasting results over the last four months are provided below.

February 2019		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.14	102.0	0.75	99.6	0.41	102.5	0.25	100.8
Monthly Maximum		0.36	109.3	1.55	107.3	0.89	112.1	0.39	106.3
Annual Average		0.12	99.61	0.67	98.64	0.39	99.49	0.21	98.50
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	1.50%	0.00%	0.75%	0.00%	0.75%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

March 2019		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.11	99.3	0.69	101.5	0.40	103.2	0.23	100.4
Monthly Maximum		0.25	101.8	1.02	112.0	0.59	107.6	0.37	110.6
Annual Average		0.11	99.52	0.67	99.60	0.39	100.72	0.22	99.12
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	1.54%	0.00%	0.77%	0.00%	0.77%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

April 2019		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.09	98.9	0.51	100.2	0.30	102.3	0.19	101.3
Monthly Maximum		0.15	105.5	0.83	108.8	0.57	111.8	0.33	109.1
Annual Average		0.11	99.37	0.63	99.75	0.37	101.12	0.21	99.67
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	1.52%	0.00%	0.76%	0.00%	0.76%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

May 2019		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.12	99.7	0.63	100.5	0.34	101.3	0.24	99.3
Monthly Maximum		0.23	105.7	1.39	106.4	0.88	113.1	0.46	111.9
Annual Average		0.11	99.43	0.63	99.90	0.36	101.15	0.22	99.61
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	0.00%	0.00%	0.00%	0.00%	0.76%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

**Yellow** – overpressure >115dB(L) or Werris Creek vibration >5.0mm/s.

### 4.1.2 Discussion - Compliance / Non Compliance

All blasts over the period complied with maximum licence limits (120dB(L) and 10mm/s) as well as the 95<sup>th</sup> percentile limits (115dB(L) and 5mm/s).

## 4.2 BLAST COMPLAINTS

There were two blast complaints during the period.

## 5.0 WATER

The groundwater monitoring program monitors groundwater levels bi-monthly and groundwater quality six monthly. Surface water monitoring is undertaken quarterly.

### 5.1 GROUND WATER

Groundwater monitoring is undertaken to identify if there are any impacts on groundwater quality and water levels as a result of the mining operations. WCC monitors approximately 38 groundwater wells/bore and piezometers in the key aquifers surrounding WCC including Werrie Basalt (next to WCC and further afield) and Quipolly Creek Alluvium. Groundwater level surveys were completed on the 5, 6, 7, 11 and 13 March 2019 and 1, 6 and 8 May 2019. Groundwater monitoring locations are identified in **Figure 4**.

#### 5.1.1 Monitoring Data Results

A summary of groundwater monitoring results has been provided below.

Site		March-19		Site		May-19	
		mbgl	%			mbgl	%
Werrie Basalt near WCC	MW1	Dry		Werrie Basalt near WCC	MW1	Dry	
	MW2	53.28	-2%		MW2	Dry	
	MW3	20.42	-1%		MW3	20.57	-1%
	MW4B	18.54	-1%		MW4B	18.78	-1%
	MW5	13.54	-2%		MW5	13.56	0%
	MW6	16.26	0%		MW6	16.25	0%
	MW27*	53.45	0%		MW27*	54.60	0%
	MW36A	19.17	-2%		MW36A	21.08	-3%
Werrie Basalt	MW36B	19.98	-6%		MW36B	21.09	-3%
	MW8*	20.53	-1%		MW8*	20.69	-1%
	MW10	14.35	1%		MW10	14.22	0%
	MW14	14.78	-1%		MW14	16.42	-3%
	MW17B*	14.47	-1%		MW17B*	14.54	0%
	MW19A*	No access			MW19A*	No access	
	MW20*	22.73	2%		MW20*	22.71	0%
	MW38A	12.05	0%		MW38A	12.20	-1%
	MW38B*	10.07	1%		MW38B*	10.40	-3%
	MW38C*	24.38	0%		MW38C*	24.11	1%
#1	MW38E*	11.57	1%		MW38E*	11.76	-2%
	MW41	10.20	-1%		MW41	10.34	-1%
	MW43	8.96	-2%		MW43	9.12	-2%
	MW24A*	17.67	-4%		MW24A*	17.65	0%
	MW29*	14.54	10%		MW29*	14.63	-1%
Quipolly Alluvium	MW12*	Dry		Quipolly Alluvium	MW12*	Dry	
	MW13*	Dry			MW13*	Dry	
	MW13B*	6.53	-2%		MW13B*	6.55	0%
	MW13D*	6.6	-1%		MW13D*	6.62	0%
	MW15*	No access			MW15*	No access	
	MW16*	Dry			MW16*	Dry	
	MW17A*	8.15	10%		MW17A*	8.25	-1%
	MW18A*	Dry			MW18A*	Dry	
	MW21A*	Dry			MW21A*	Dry	
	MW22A*	Dry			MW22A*	Dry	
	MW22B*	Dry			MW22B*	Dry	
	MW23A*	4.84	-2%		MW23A*	4.79	1%
	MW23B*	4.70	-1%		MW23B*	4.75	-1%
	MW26B*	10.52	0%		MW26B*	10.65	-1%
	MW28A*	17.55	-2%		MW28A*	Dry	
	MW32*	Pump over bore			MW32*	Pump over bore	
	MW40	10.22	-1%		MW40	10.38	-2%
	MW42	8.84	-2%		MW42	9.01	-2%
#2	MW34*	12.13	-4%	#2	MW34*	No access	

mbgl – meters below ground level is the distance in meters from top of bore to groundwater surface; **Orange** – Change decrease; **Green** – change increase or no change; \* - Indicates bore is used for water extraction unrelated to WCC (i.e. stock and domestic or irrigation). #1 – Werrie Basalt in the Black Soil Gully valley to east of Werris Creek Mine. #2 - Werris Creek Alluvium.

### 5.1.2 Discussion - Compliance / Non Compliance

Measured groundwater levels in the Werrie Basalt and Quipolly Alluvium aquifer indicate general sustained or decreased water levels during March and May 2019.

## 5.2 SURFACE WATER

Surface water monitoring is undertaken in local creeks offsite as well as from discharge point dirty water dams to monitor for potential water quality issues. Quarterly surface water monitoring was undertaken on the 11<sup>th</sup> February 2019 and 21<sup>st</sup> May 2019. Surface water monitoring locations are identified in **Figure 5**.

### 5.2.1 Monitoring Data Results

Summary of surface water quality monitoring results has been provided below.

#### 11<sup>th</sup> February 2019

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
<b>ONSITE</b>					
SB2	Dry	Dry	Dry	Dry	Dry- grassy in bottom of dam
SB9	Dry	Dry	Dry	Dry	Dry- just grass at bottom
SB10	Dry	Dry	Dry	Dry	Dry. Low water level last quarter.
<b>OFFSITE</b>					
QCU	Dry	Dry	Dry	Dry	Dry. Creek bed.
QCD	7.9	1420	90	<5	pH slightly decreased and EC increased, TSS increased and O&G unchanged. Very low/ small pools
WCU	Dry	Dry	Dry	Dry	Dry creek bed. Pooled last quarter.
WCD	7.96	664	35	<5	pH increased and EC decreased, TSS slightly increased and O&G unchanged. Pools

pH – measure of acidity/alkalinity; EC – Electrical Conductivity measures salinity; TSS – Total Suspended Solids is a measure of suspended sediment in water (i.e. similar to turbidity); O&G – Oil and Grease measures amount of hydrocarbons (oils and fuels) in water

#### 21<sup>st</sup> May 2019

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
<b>ONSITE</b>					
SB2	Dry	Dry	Dry	Dry	Dry- grassy basin
SB9	Dry	Dry	Dry	Dry	Dry- grassy basin
SB10	Dry	Dry	Dry	Dry	Dry
<b>OFFSITE</b>					
QCU	Dry	Dry	Dry	Dry	Dry. Gravel bed.
QCD	Dry	Dry	Dry	Dry	Dry. Gravel bed. Pooled last quarter.
WCU	Dry	Dry	Dry	Dry	Dry. Gravel bed.
WCD	8.1	1330	17	<5	pH and EC increased, TSS decreased and O&G unchanged. Just flowing.

pH – measure of acidity/alkalinity; EC – Electrical Conductivity measures salinity; TSS – Total Suspended Solids is a measure of suspended sediment in water (i.e. similar to turbidity); O&G – Oil and Grease measures amount of hydrocarbons (oils and fuels) in water

### 5.2.2 Discussion - Compliance / Non Compliance

Quarterly surface water monitoring was undertaken on 11 February and 21 May 2019 with all onsite and offsite sampling undertaken in dry conditions represented by low or dry pools, which reflected on water quality. All water quality results were within long-term averages and the Site Water Management Plan trigger values with the exception of an increased TSS level at QCD in February 2019.

## 5.3 SURFACE WATER DISCHARGES

There were no discharge events in February, March, April and May 2019.

## 5.3 WATER COMPLAINTS

There were no water release complaints during the period.

**6.0 COMPLAINTS SUMMARY**

There were five complaints received during the period, which are summarised below.

#	Date	Issue	Complaint	Investigation	Action Taken
604	9/3/2019	Dust	Complainant noted dust lift off from the mine site	EO called the complainant and explained operations had ceased two hours prior to the time of the issue.	No further follow-up actions
605	9/5/2019	Blast	Complainant left a voice mail message on the EO phone advised they felt the blast at their residence. Requested results via email no call back required	EO confirmed blast was within compliance limits	EO emailed a copy of the results to the complainant.
606	15/5/2019	Odour	Complainant advised they could detect an odour (smell of burning) at their residence	EO provided a verbal response on the current mining operations and odour / spon com management practices currently in place. Advised of additional ecological burn program on southern side of site	No further follow-up actions
607	15/5/2019	Dust	Complainant noted dust from the mine site	EO advised dust suppression techniques were in place and actions taken to limit dust.	No further follow-up actions
608	17/5/2019	Blast	Complainant advised they felt the blast at their residence on the 9/05/2019	EO confirmed blast was within compliance limits	No further follow-up actions

**7.0 GENERAL**

Please feel free to ask any questions in relation to the information contained within this document during Item 7 of the meeting agenda.



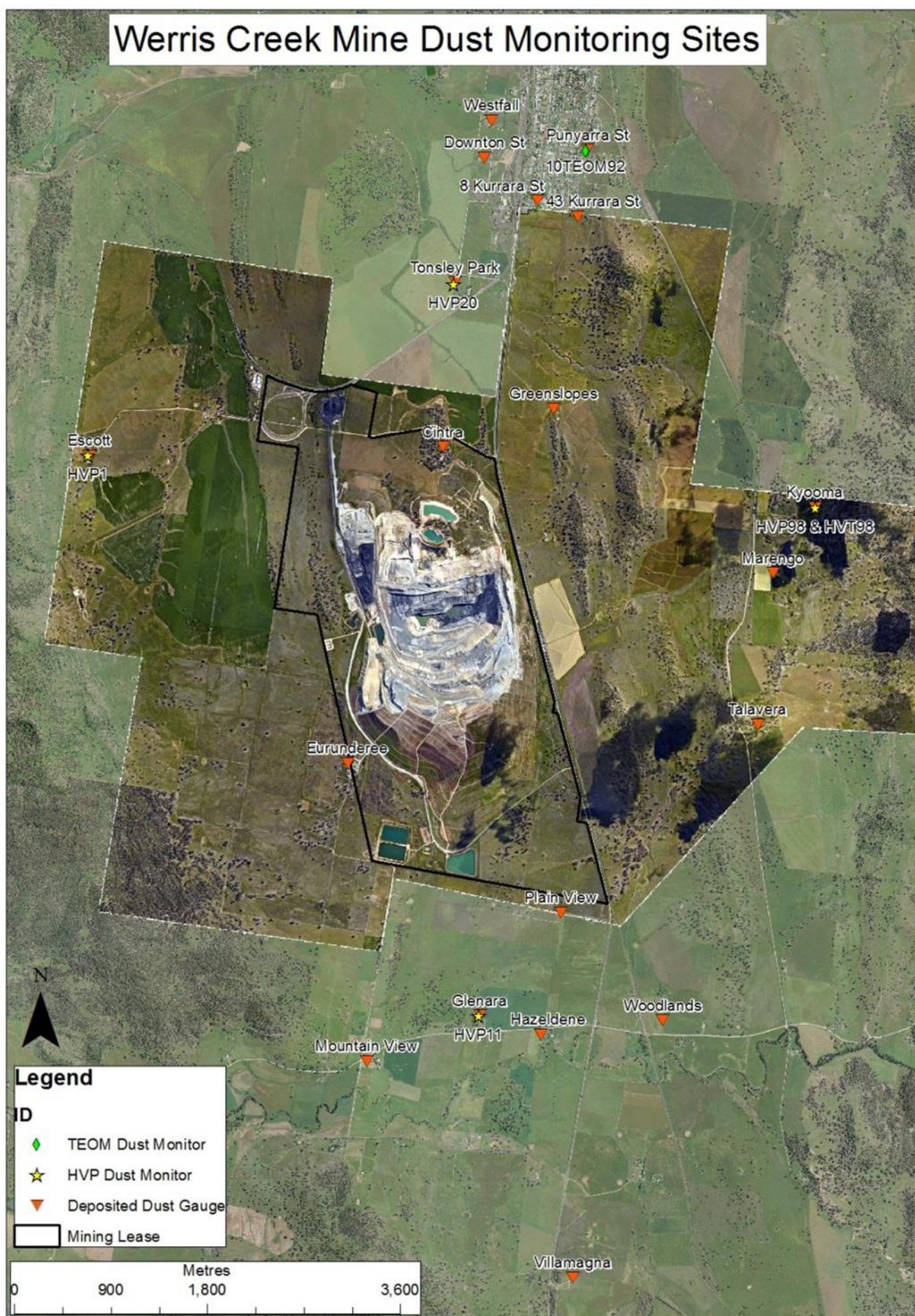


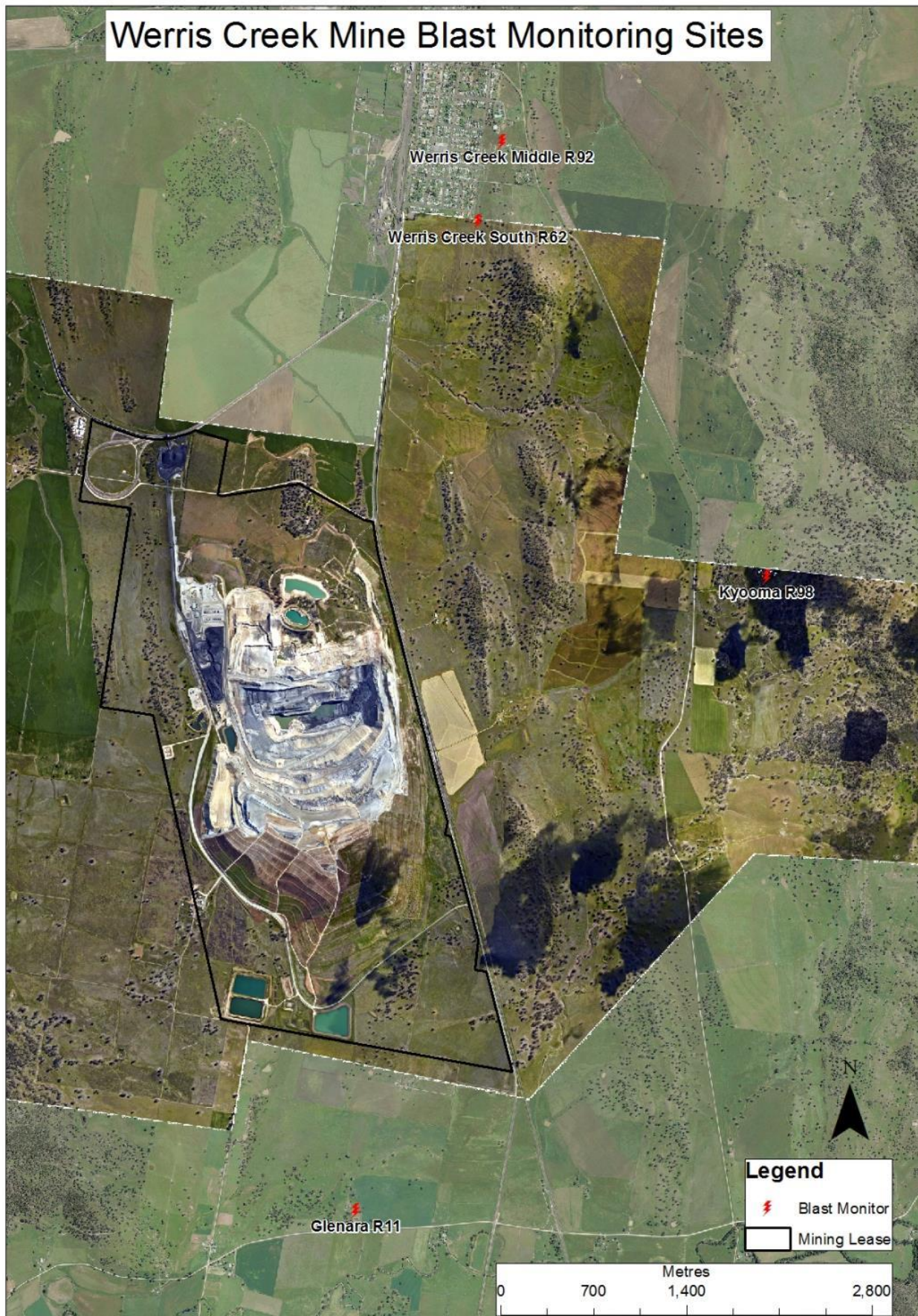
Figure 1 – WCC Dust Monitoring Locations





**Figure 2– WCC Noise Monitoring Locations**





**Figure 3 – WCC Blast Monitoring Locations**





**Figure 4 – WCC Groundwater Monitoring Locations**  
Werris Creek Coal





Figure 5 – WCC Surface Water Monitoring Locations