

WERRIS CREEK COAL COMMUNITY CONSULTATIVE COMMITTEE
48th Meeting of the Committee to be held on site at the Werris Creek Coal Mine
Tuesday, 13 November 2018 at 9:30am

The normal quarterly meeting will begin at 9:30am, with a site tour following the meeting (weather conditions permitting)

Meeting opened at 9:40am

1 Record of attendance

Gae Swain	Independent Chairperson
Jane Bradford	Independent Minute Taker
Rod Hicks	Werris Creek Coal (WCC) Operations Manager
Lynden Cini	WCC Environmental Officer
Heidi Watters	NSW Planning & Environment
Lindsay Bridge	Community Representative
Mike Lomax	Community Representative
Noel Taylor	Community Representative
Donna Ausling	Director of Environment – Liverpool Plains Shire Council
Ian Lobsey	Councillor – Liverpool Plains Shire Council

Apologies

Clr Virginia Black	Representing Liverpool Shire Council
Col Stewart	Community Representative
James O'Brien	

Moved Lindsay Bridge, **seconded** Mike Lomax, THAT the apologies be accepted.

CARRIED

2 Declaration of Pecuniary or Other Interests

- a) Form received from Gae Swain – has a son-in-law working for Whitehaven Coal and the Narrabri Underground Mine and a son working at the Maule's Creek Mine – tabled

Note If "Confidential" – not to be discussed outside.

Note Mike Silver is the alternate Chairperson – not required as yet.

- b) Heidi Watters confirmed that changes had been made last year and some items would / could be considered Confidential hence not being discussed outside. Two Committee members do not agree so to speak with Steve O'Donoghue at the Department of Planning and report back to the Chairperson before the next meeting In March 2019 – possibly if items of a confidential nature – that person/s may be required to leave the meeting for this discussion to take place.

3 New Matters for Discussion under General Business today

- a) Lindsay Bridge – Peter Stenz gravesite on Biodiversity offset
b) Lindsay Bridge – Peter Willis

4 Minutes of the Previous Meeting

Moved Lindsay Bridge, **seconded** Donna Ausling, 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 June to 30 September 2018

Lynden Cini provided commentary on each section of the above report

Page 11 – 6.0 – Complaints – Noel Taylor requester further information about a blast on the 21 August

This particular blast was a hot shot – a small blast near edge of high wall – heated underground workings material once blasted landed in the water within the pit – creating steam. Most blasting occurs between 12:00 and 1:00pm – can blast any time between 9:00am and 5:00pm. This particular blast was at 4:30pm which rarely occurs.

Note If Lynden Cini is not available – contact the Department of Planning – provide a reference no and they can respond.

Moved Donna Ausling, **seconded** Mike Lomax, **THAT** the Environmental Monitoring Report be accepted. **CARRIED**

7 General Business

a) **Peter Wills** – Mr Wills had requested to use a former crown road which is now owned by Werris Creek Coal (WCC) to access to his property. Access to the Wills property via this road was through a locked gate on the mine lease. Lynden Cini advised, after internal review by WCC, access was granted and the Wills have a lock on the access point.

b) **Peter Stenz** - Lindsay queried if the grave site was still there – Rod Hicks responded that it was.

Note 1 Post Meeting Lindsay Bridge and Heidi Watters visited the grave location on the Biodiversity Offset.

c) **Confidentiality** – A request has been received asking for the Community Consultative Committee (CCC) personal details be listed on the WCC website. After discussion – the concern clearly expressed by the majority was that once personal details are freely available on the website, then they could never be retrieved. The representative from the Department of Planning also confirmed that changes had been made – it was no longer necessary for names and addresses to be added under the CCC Guidelines. Names of members are listed so a member of the general public wishing to contact a member could easily do so by contacting the mine directly.

Note Only one member - Lindsay Bridge – was agreeable for his mobile number to be placed on the website and these details will be added shortly or contact Lynden Cini direct.

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

Meeting closed at 10:50AM

Copy to all Committee Members

The Minutes will also be posted on the Whitehaven Coal Website

Gae Swain – Independent Chairperson

Date



WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

June, July, August and September 2018

This Environmental Monitoring Report covers the period 1st June 2018 to 30th September 2018 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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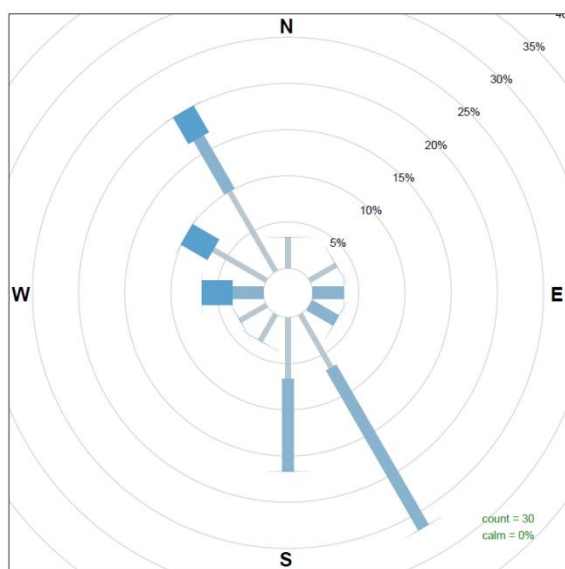
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1.0 METEOROLOGY

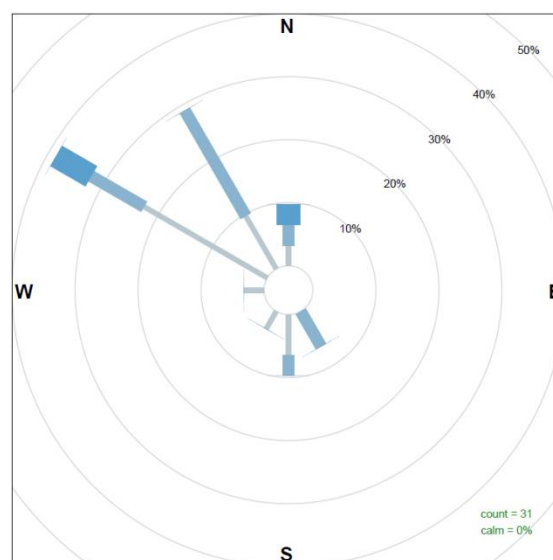
1.1 WEATHER STATION

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 totals over the four months were lower than the historical average with exception of August 2018. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the south/ south-east and north-west in June, north-west in July, north-west and south-west in August and north-west and south/ south-east in September 2018.

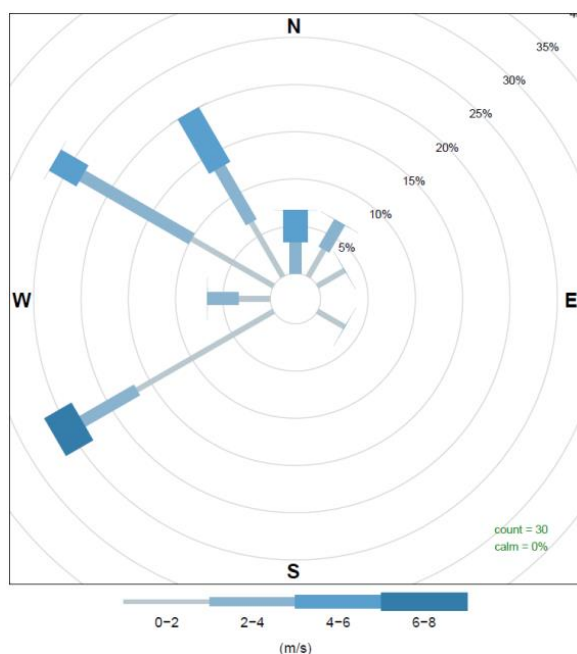
Month	Rainfall (mm)		
	Onsite	Historical Average	2018 Total
June 2018	8.4	64.5	150.0
July 2018	4.6	39.0	154.6
August 2018	34	35.8	188.6
September 2018	17	45.4	205.6



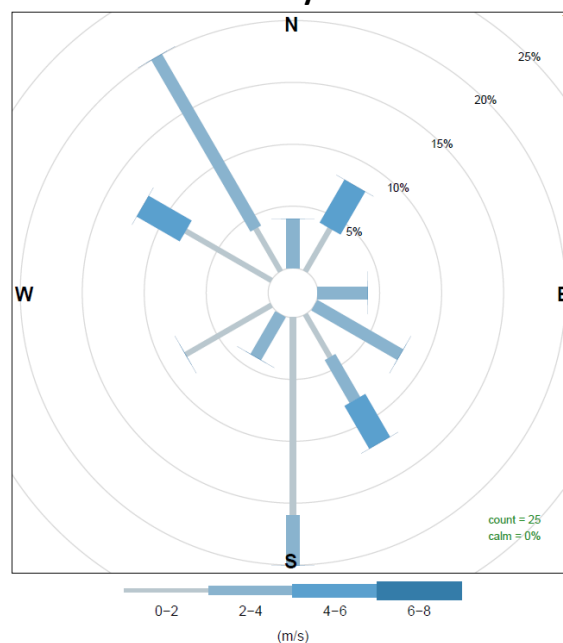
June 2018



July 2018



August 2018



September 2018

2.0 AIR QUALITY

2.1 HVAS (PM₁₀) and TEOM (PM₁₀ & PM_{2.5})

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM₁₀) 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/m³) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM₁₀ and PM_{2.5} (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 ³)	June 2018 (µg/m ³)	July 2018 (µg/m ³)	August 2018 (µg/m ³)	September 2018 (µg/m ³)	2018 Average (g/m ² /month)	Criteria (µg/m ³)	
							Annual	Daily
PM _{2.5} – TEOM92 “Werris Creek”	23.1	10.1	10.2	8.3	6.2	7.2	8	25
PM ₁₀ – TEOM92 “Werris Creek”	73.5	14.7	18.6	17.7	15.8	15.6	30	50
PM ₁₀ – HVP20 “Tonsley Park”	36.4	13.7	17.3	24.0	16.6	18.2	30	50
PM ₁₀ – HVP1 “Escott”	21.9	3.2	9.1	12.4	10.4	11.3	30	50
PM ₁₀ – HVP11 “Glenara”	47.7	14.7	25.9	26.3	18.9	22.7	30	50
PM ₁₀ – HVP98 “Kyooma”	35.5	4.4	16.2	20.9	11.1	13.2	30	50
TSP – HVT98 “Kyooma”	79.1	19.7	40.1	51.1	24.6	34.9	90	-

Yellow Bold – Elevated dust level.

2.1.2 Discussion - Compliance / Non Compliance

All TSP, PM₁₀ and PM_{2.5} dust results were within criteria during the period with the exception of two PM₁₀ results measured at “TEOM92 “Werris Creek””, on the 4th August and 1st September 2018. On both occasions the elevated results were reported to the DP&E, investigations identified the elevated results were affected by high regional dust levels within the North West on both occasions.

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/m²/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	June 2018 (g/m ² /month)	July 2018 (g/m ² /month)	August 2018 (g/m ² /month)	September 2018 (g/m ² /month)	2018 Average (g/m ² /month)	Annual Criteria (g/m ² /month)
DG1 “Escott”	0.3	0.2	0.7	1.3	0.9	4.0
DG2 “Cintra”	4.8	5.1	2.7	5.0	4.2	4.0
DG3 “Eurunderee”	2.9	4.3*	1.1	2.3	1.7	4.0
DG5 “Railway View”	2.8	3.7	3.2	Broken	2.7	4.0
DG9 “Marengo”	0.5	6.6	1.2	5.2	2.6	4.0
DG11 “Glenara”	0.6	0.8	1.3	2.3	1.3	4.0
DG14 “Greenslopes”	1.2	0.7	0.9	2.5	1.1	4.0
DG15 “Plain View”	0.7	0.3	1.0	3.1	1.2	4.0
DG17 “Woodlands”	0.9	14*	1.0	2.4	1.2	4.0
DG20 “Tonsley Park”	1.4	1.0	0.8	3.7	1.4	4.0
DG22 “Mountain View”	1.4	3.0	1.3	2.5	1.7	4.0
DG24 “Hazeldene”	2.5	1.3	1.1	2.2	1.4	4.0
DG34 8 Kurrara St	61.4	0.4	0.8	1.9	8.8	4.0
DG62 Werris Creek South	0.4	22.2	1.4	1.9	3.1	4.0
DG92 Werris Creek Centre	1.8	1.7	0.8	1.7	0.9	4.0
DG96 “Talavera”	NS	NS	NS	NS	NA	4.0
DG98 “Kyooma”	0.5	4.3*	1.0	2.5	0.8	4.0

Monitor Location	June 2018 (g/m ² /month)	July 2018 (g/m ² /month)	August 2018 (g/m ² /month)	September 2018 (g/m ² /month)	2018 Average (g/m ² /month)	Annual Criteria (g/m ² /month)
DG101 "Westfall"	0.5	0.4	2.8	3.1	1.1	4.0
DG103 West Street	1.1	2.0	1.9	2.0	1.4	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/m²/month throughout the period with the exception of DG2 (Cintra) which had high results in June, July and September 2018 and a rolling 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. DG9 (Marengo) had high results in July and September 2018 however the rolling average remains below criteria.

DG34 (8 Kurrara St) in June 2018 and DG62 (Werris Creek South) in July 2018 had one anomalous high dust deposition measurement, deposited dust levels remained low at nearby gauges, also indicating a localised source of dust, 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	June 2018		July 2018		August 2018		September 2018		2018 Average (g/m ² /month)
	g/m ² /month	% Coal	g/m ² /month	% Coal	g/m ² /month	% Coal	g/m ² /month	% Coal	
DDW30	1.1	20%	1.4	20%	1.4	15%	3.7	10%	1.4
DDW20	0.8	25%	1.9	20%	1.2	20%	3.4	5%	1.6
DDW13	1.0	25%	1.4	30%	1.5	15%	3.4	5%	1.5
Train Line									
DDE13	0.7	30%	2.2	30%	1.8	30%	4.0	10%	1.8
DDE20	0.6	15%	1.5	40%	1.2	25%	2.0	5%	1.7
DDE30	1.6	10%	1.5	10%	1.2	10%	4.8	5%	2.0

* - 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/m²/month and comparable to the levels monitored around Werris Creek Coal Mine. Levels were slightly elevated at all sites in September 2018. Coal contributions to the dust fraction remain generally low.

2.4 AIR QUALITY COMPLAINTS

There were three 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**.

Wednesday 27th and Thursday 28th June 2018

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	28	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible	40	Inaudible#	40
C	Central Quipolly (R10*, R11*)	Inaudible	40	32#	40
D	"Hazeldene" R24	Inaudible#	37	33	37
E	"Railway Cottage" R12	Inaudible#	38	Inaudible	38
F	"Talavera" R96	28	38	Inaudible	37
H	"Kyooma" R98	Inaudible#	38	28	38
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_{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

Thursday 26th July 2018

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	26	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible	38
F	"Talavera" R96	Inaudible	38	<20	37
H	"Kyooma" R98	30#	40	<20	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_{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

Thursday 9th and Friday 10th August 2018

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	30	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	30	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 11 September 2018

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	NM##	40
C	Central Quipolly (R10*, R11*)	Inaudible#	40	27#	40
D	"Hazeldene" R24	Inaudible#	37	25#	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible	38
F	"Talavera" R96	Inaudible#	38	Inaudible#	37
H	"Kyooma" R98	NM#	40	27#	40
I	Kurrara St, WC R57	Inaudible	35	26	35
J	Coronation Ave, WC	Inaudible	35	Inaudible	35
K	Alco Park (R21*)	Inaudible	40	32	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

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-one 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(L) (and up to 120dB(L) 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.

June 2018		"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		0.10	98.88	0.68	101.27	0.34	98.38	0.20	97.68
Monthly Maximum		0.26	105.10	2.28	109.40	0.86	104.40	0.40	109.40
Annual Average		0.11	99.24	0.71	100.09	0.30	99.34	0.21	98.59
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	3.67%	0.00%	0.92%	0.00%	0.00%	0.00%	1.83%
	Reporting Year	0.00%	3.17%	0.00%	1.59%	0.00%	0.00%	0.00%	1.59%

July 2018		"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	101.26	0.81	103.10	0.37	103.02	0.21	98.32
Monthly Maximum		0.30	109.40	1.62	110.80	0.69	116.70	0.35	109.30
Annual Average		0.11	99.53	0.72	100.52	0.31	99.87	0.21	98.55
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	3.28%	0.00%	0.82%	0.00%	0.82%	0.00%	1.64%
	Reporting Year	0.00%	2.78%	0.00%	1.39%	0.00%	1.39%	0.00%	1.39%

August 2018		"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		0.07	97.97	0.43	101.09	0.26	99.98	0.13	94.73
Monthly Maximum		0.14	113.10	0.98	112.30	0.56	114.10	0.26	101.80
Annual Average		0.10	99.34	0.68	100.59	0.31	99.88	0.20	98.07
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	3.17%	0.00%	0.79%	0.00%	0.79%	0.00%	0.79%
	Reporting Year	0.00%	2.30%	0.00%	1.15%	0.00%	1.15%	0.00%	1.15%

September 2018		"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	100.61	0.51	101.98	0.30	98.90	0.18	96.95
Monthly Maximum		0.22	108.90	0.93	108.30	0.68	107.40	0.54	106.20
Annual Average		0.10	99.48	0.67	100.75	0.30	99.77	0.20	97.95
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	2.27%	0.00%	0.76%	0.00%	0.76%	0.00%	0.76%
	Reporting Year	0.00%	1.92%	0.00%	0.96%	0.00%	0.96%	0.00%	0.96%

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 of 10mm/s) as well as the 95th percentile limits 5mm/s. However one blast was above the 95th percentile limits of 115dB(L) at Werris Creek South R62 on the 26 July 2018.

4.2 BLAST COMPLAINTS

There were six 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/bores 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 11 and 12 July 2018 and 6, 10, 11 and 23 September 2018. 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		July-18		Site		September-18	
		mbgl	%			mbgl	%
Werrie Basalt near WCC	MW1	Dry		Werrie Basalt near WCC	MW1	Dry	
	MW2	56.64	-16%		MW2	50.1	13%
	MW3	19.91	-1%		MW3	19.9	0%
	MW4B	17.59	-1%		MW4B	17.78	-1%
	MW5	12.91	-2%		MW5	12.92	0%
	MW6	16.17	0%		MW6	16.17	0%
	MW27*	54.31	3%		MW27*	54.16	0%
	MW36A	20.65	-4%		MW36A	20.78	-1%
	MW36B	20.68	-4%		MW36B	20.81	-1%
Werrie Basalt	MW8*	19.56	-2%	Werrie Basalt	MW8*	19.60	0%
	MW10	14.48	-2%		MW10	14.52	0%
	MW14	15.46	-4%		MW14	15.6	-1%
	MW17B*	14.17	-1%		MW17B*	13.85	2%
	MW19A*	14.39	-2%		MW19A*	14.75	-2%
	MW20*	22.16	0%		MW20*	22.25	0%
	MW38A	13.09	3%		MW38A	13.12	0%
	MW38B*	10.27	0%		MW38B*	10.26	0%
	MW38C*	23.91	-1%		MW38C*	23.44	2%
	MW38E*	11.14	-3%		MW38E*	11.26	-1%
	MW41	9.52	-3%		MW41	9.71	-2%
	MW43	8.28	-3%		MW43	8.47	-2%
#1	MW24A*	16.7	2%	#1	MW24A*	16.61	1%
	MW29*	13.96	13%		MW29*	14.39	-3%
Quipolly Alluvium	MW12*	Dry		Quipolly Alluvium	MW12*	Dry	
	MW13*	Dry			MW13*	Dry	
	MW13B*	6.02	-4%		MW13B*	6.13	-2%
	MW13D*	5.82	-2%		MW13D*	6.18	-6%
	MW15*	No access			MW15*	No access	
	MW16*	Dry			MW16*	Dry	
	MW17A*	7.43	-3%		MW17A*	8.42	-12%
	MW18A*	Dry			MW18A*	Dry	
	MW21A*	11.34	-2%		MW21A*	11.55	-2%
	MW22A*	Dry			MW22A*	Dry	
	MW22B*	Dry			MW22B*	Dry	
	MW23A*	4.42	-1%		MW23A*	4.43	0%
	MW23B*	No access			MW23B*	4.25	11%
	MW26B*	9.85	-3%		MW26B*	10.06	-2%
	MW28A*	16.17	-3%		MW28A*	16.64	-3%
	MW32*	4.19	1%		MW32*	4.22	-1%
	MW40	9.56	-3%		MW40	9.74	-2%
	MW42	8.17	-3%		MW42	8.36	-2%
#2	MW34*	11.55	3%	#2	MW34*	11.52	0%

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 July 2018 and September 2018 with the exception of an increase in depth at MW29 and an decrease in depth at MW2 in July 2018 and an increase in depth at MW2 and a decrease at MW17A in September 2018.

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 23 August 2018. 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.

23rd August 2018

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	Dry	Dry	Dry	Dry	Dry
SB9	Dry	Dry	Dry	Dry	Dry
SB10	Dry	Dry	Dry	Dry	Dry
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry. Gravel bed.
QCD	8.0	1070	<5	<5	pH and EC slightly decreased, TSS and O&G unchanged. Just flowing.
WCU	Dry	Dry	Dry	Dry	Dry
WCD	8.1	1345	12	<5	pH slightly decreased and EC slightly increased, TSS 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

5.2.2 Discussion - Compliance / Non Compliance

Quarterly surface water monitoring was undertaken on 23 August 2018 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.

5.3 SURFACE WATER DISCHARGES

There were no discharge events in June, July, August and September 2018.

5.3 WATER COMPLAINTS

There were no water release complaints during the period.

6.0 COMPLAINTS SUMMARY

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

#	Date	Issue	Complaint	Investigation	Action Taken
583	4/06/2018	Odour	Complainant advised they could detect an odour at their residence	EO followed up with complainant, requesting an opportunity to discuss management in place.	Complainant did not respond to follow up actions
584	6/06/2018	Blast	Complainant advised they felt the blast at their residence.	EO explained that all monitors indicated the blast was within compliance limits.	None required or requested
585	6/06/2018	Blast	Complainant advised the EPA that they could feel vibration from the blast.	WCC provided an Event Report to the EPA detailing the risk assessment for the blast and the results of environmental monitoring conducted during the blast.	None required or requested
586	21/06/2018	Blast	Complainant advised they felt the blast at their residence.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.
587	9/07/2018	Blast	Complainant advised they felt the blast at their residence.	Complainant left message on EO phone lodging the complaint stating no need to return call.	None required or requested
588	10/07/2018	Odour	Complainant advised they could detect an odour at their residence	EO provided a detailed verbal response on the current mining operations and odour / spon com management practices currently in place.	Complainant was content with EO response.
589	25/07/2018	Odour	Complainant advised they could detect an odour at their residence	EO provided a detailed verbal response on the current mining operations and odour / spon com management practices currently in place. In addition to the above an engineer was dispatched to the boundary of the complainant's residence with gas detection monitors. None identified during monitoring.	No further follow-up actions
590	25/07/2018	Odour	Complainant advised they could detect an odour at their residence	EO provided a detailed verbal response on the current mining operations and odour / spon com management practices currently in place.	Complainant was content with EO response.
591	21/08/2018	Blast	Complainant advised they felt the blast at their residence.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.
592	12/09/2018	Dust	Complainant advised they could identify dust coming from the mine post blasting.	EO advised data would be reviewed and will respond advising if compliant.	EO advised at the time of review all data was with compliance limits.
593	12/09/2018	Dust	Complainant advised they could identify dust coming from the mine post blasting.	EO advised at the time of review all data was with compliance limits.	No further follow-up actions
594	12/09/2018	Blast	Complainant left a message with the Workshop supervisor advising they felt the blast at their residence.	EO called complainant back multiple times, with no response.	No further follow-up actions
595	12/09/2018	Dust	Complainant advised they could identify dust coming from the mine post blasting.	EO advised at the time of review all data was with 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.

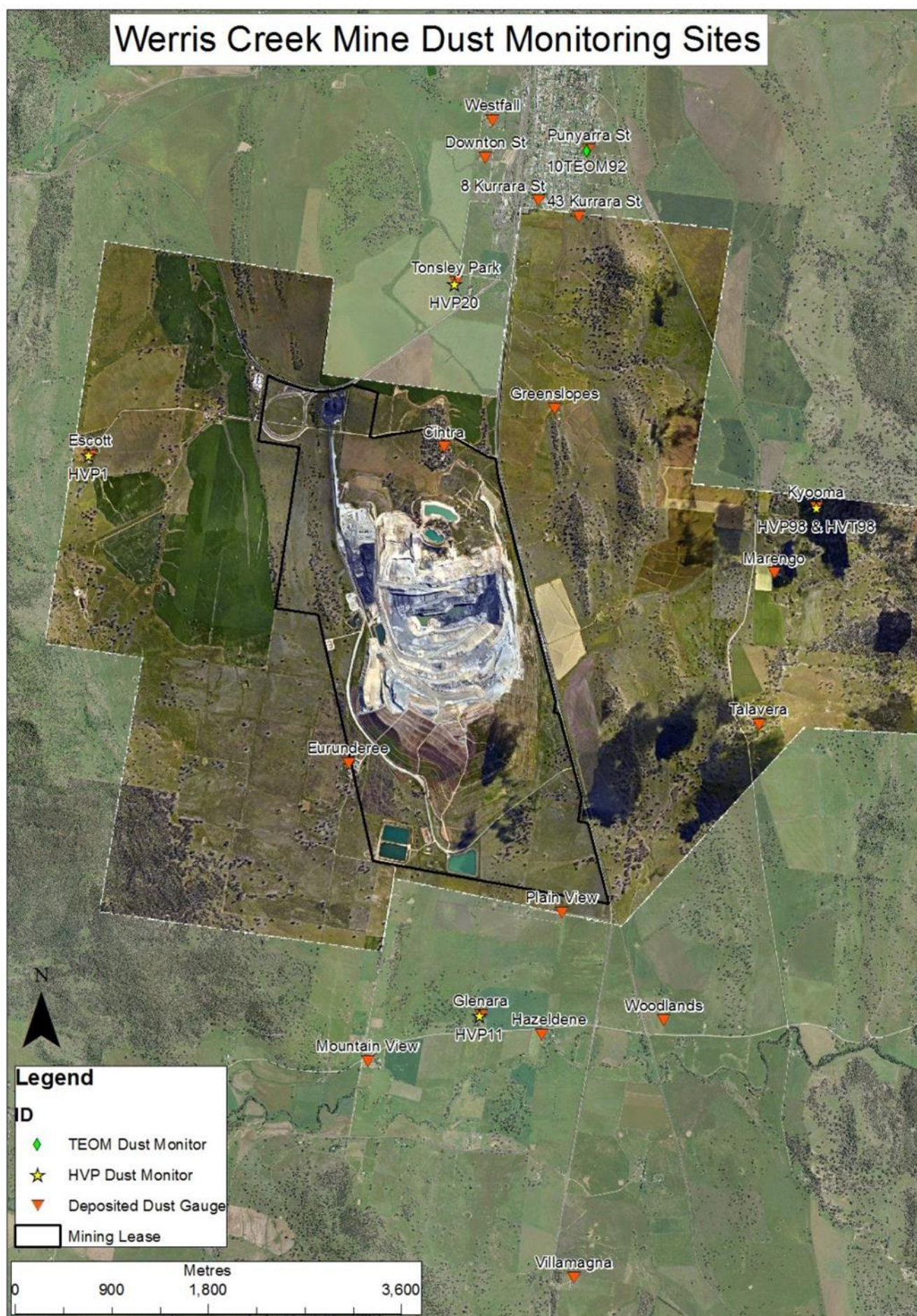


Figure 1 – WCC Dust Monitoring Locations



Figure 2 – WCC Noise Monitoring Locations

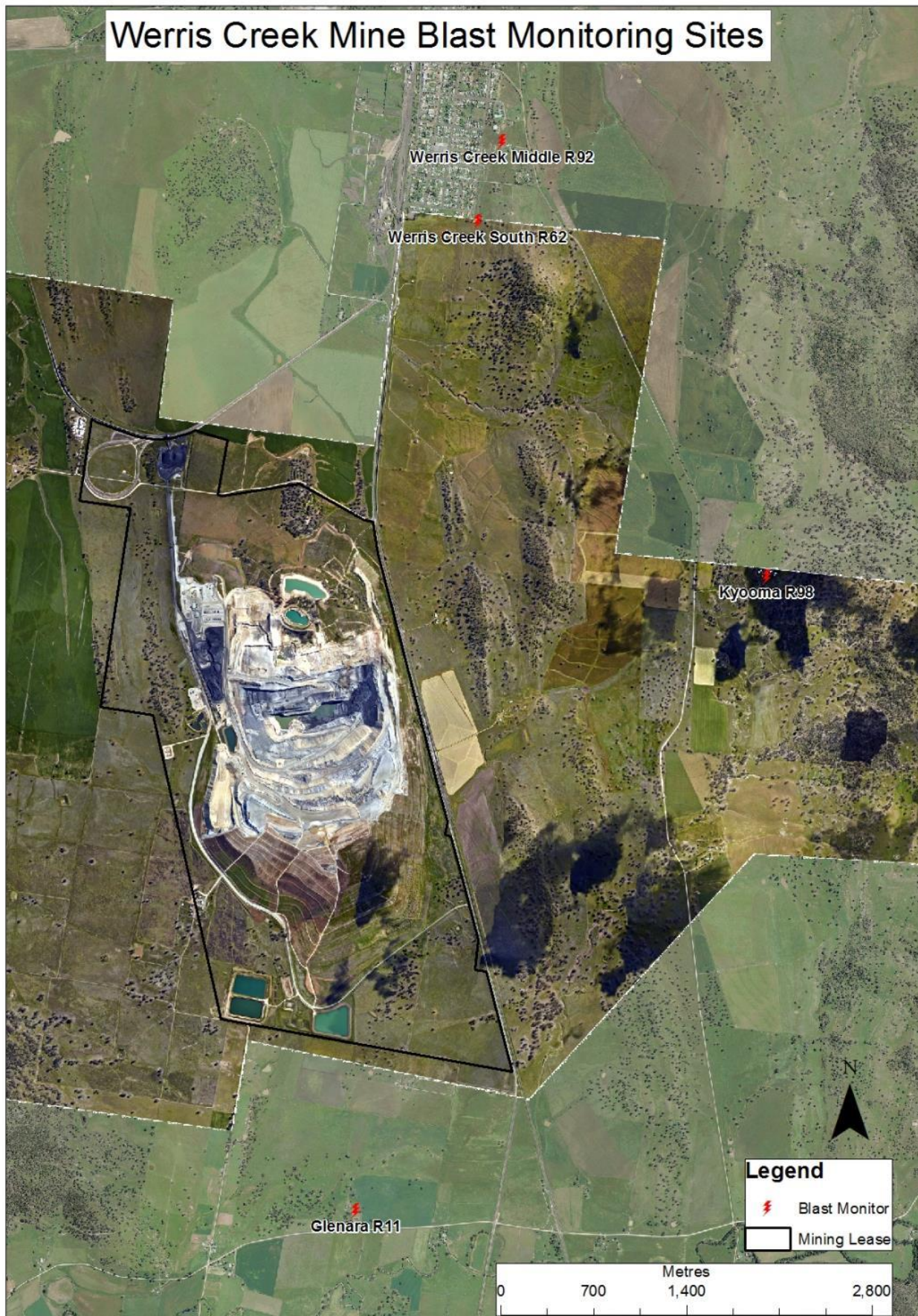


Figure 3 – WCC Blast Monitoring Locations



Figure 4 – WCC Groundwater Monitoring Locations



Figure 5 – WCC Surface Water Monitoring Locations