Werris Creek Coal Community Consultative Committee

MINUTES

42nd Meeting of the Committee, 22nd February 2017.

Werris Creek Coal (WCC) Community Consultative Committee (CCC) met on site at Werris Creek Coal Mine from 9:30am for the quarterly meeting followed by a pit tour of the mine site, inspecting operations.

Meeting Opened at 10.00am.

1. Record of Attendance:

Present

Lindsay Bridge	Community Representative
Mike Lomax	Community Representative
James O'Brian	Community Representative
Rod Hicks	WCC Operations Manager
Shannon Reid	WCC Site Clerk and Minute Taker
Lynden Cini	WCC Environmental Officer
Col Stewart	Community Member – Temporary Chairperson given the current Chairperson was absent for the meeting.

Apologies

Cr Virginia Black	LPSC Councillor
Dave Goldman	Community Representative
Noel Taylor	Community Representative
Donna Ausling	LPSC Director Environmental & Economic Development Services
Gae Swain	Independent Chairperson

Note: The Committee waited 30 minutes prior to starting the meeting to give absent members time to attend, upon conformation the Chairperson could not attend the meeting, the Committee undertook a vote to determine if the meeting should proceed and to elect Col Stewart as a temporary Chairperson for the 42nd meeting. Majority agreed to proceed with the scheduled meeting and Col to manage the proceedings as a temporary Chairperson.

Moved: James. Seconded: Lindsay. Motion Carried.

1. Declaration of Pecuniary or Other Interests

None.

2. Minutes of Previous Meeting

Minutes of the previous meeting were reviewed by the committee. Motion moved to accept the meeting minutes as a true and accurate representation of business conducted on that day.

Moved: Lindsay. Seconded: Noel. Motion carried.

3. Matters Arising

a) Actions from Previous Meeting

As Donna was absent from the meeting, previous action to provide further information to the Committee on the volume of water released from Quipolly Dam during the localised flooding in September 2016, carried over.

b) Other Matters Arising

None

4. New Matters for Discussion under General Business

James – Correspondence from Bill Ryan to WHC, Bill requesting advice from WHC if a response will be forthcoming.

5. Environmental Monitoring Report

LC provided commentary on each aspect of the report.

Groundwater section of the document prompted discussion from various parties:

ML – General discussion regarding the Quipolly Alluvium. Specifically interested in groundwater monitoring result for MW29.
LC - Speaking specifically to MW29, it appears this bores rapped decline in November, then 53% recharge during December is a direct result of pumping activity during November from this domestic bore. This occurs occasionally and follow up monitoring confirms actual levels after recharge.
ML – What is the water level in the mine like currently?
LC – It is high in pit and low out of pit. Water from some out of pit storages has been pumped back to pit when the mining sequence is high within the pit.
JO – Do you test for salt levels?
LC – Yes
General discussion around salt levels being generally quite low at WCC and can salt levels increase through water movement around site.
ML – Can water be dumped outside of the aquatard to fill another aquifer if the quality is good?
RH – No we cannot do that currently.

Motion to accept the report. Moved: James. Seconded: Lindsay. Motion Carried.

6. General Business

a. New matters for Discussion

JO – Was there a blast the 3/2/2017? There was a big black cloud that went up. A community member from Werris Creek had contacted James in regards to this blast.
LC – Without the data in front of me I cannot say, however it is possible that we may have blasted on that day. I can say that from the blasts we have had there have been none out of compliance with blasting limits and none that are notably different from a typical blast at site.
JO – Can you review this blast and report back to the committee?
LC – absolutely.

Action: LC to review blast on the 3/2/2017 and discuss at the next meeting.

JO – Letter from Bill Ryan to WHC regarding their bore and its correlation to MW6 bore, among other items. Bill is waiting for a response and wanted it raised at this meeting, to confirm if WHC will respond.
LC – We will respond in due course.

Further general discussion around monitoring bores and the groundwater monitoring network.
Col calls the discussion to a close.

LB – Discussion on a dust cloud that was over the mine Tuesday 22nd, about 8.20am.
LC – No complaints were received at the mine relating to dust and I am not aware of any offsite impacts at this point.
LB – raising it as a general point, I noticed it.

Meeting Closed 11.14am.

Next Meeting scheduled for Wednesday 31st March 2017.

Site tour following the meeting was undertaken, focussing on water management and mining processes.

Copy to:

All Committee members

The minutes will also be posted on the Whitehaven Coal Website
http://www.whitehavencoal.com.au/environment/werris_creek_mine_environmental_management.cfm

WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

November, December 2016 and January 2017

This Environmental Monitoring Report covers the period 1st November to 31st January 2017 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**.

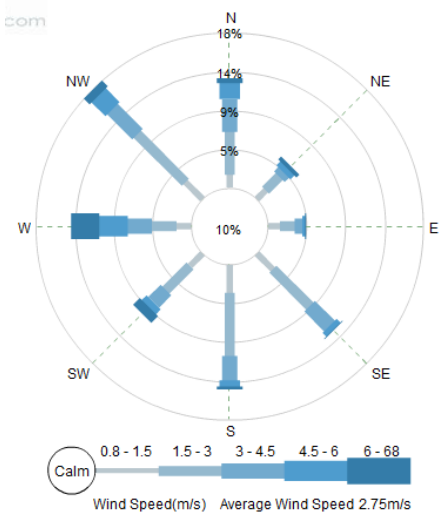
CONTENTS

1.0 METEOROLOGY

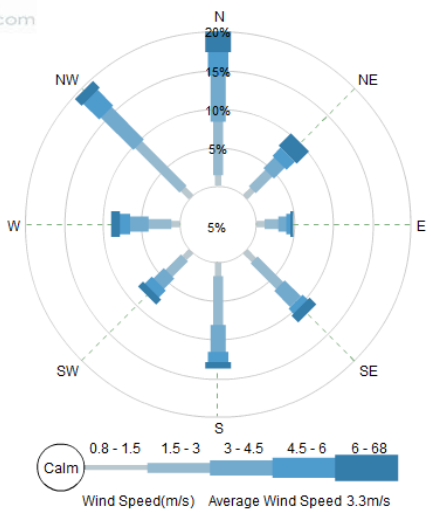
1.1 WEATHER STATION

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 three months. Monthly totals during the quarter were similar to the historical average in December and January however well below in November. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the north to northwest.

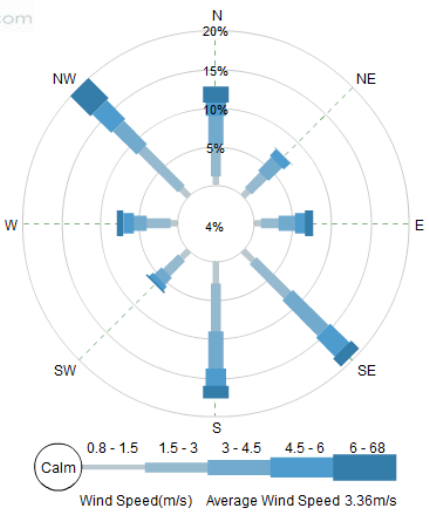
Month	Rainfall *(mm)*			
	Onsite	***Historical Average***	***Apr- Dec 2016 Total***	***2017 Total***
November 2016	27.2	86.6	607.8	NA
December 2016	99.6	98.0	707.4	NA
January 2017	65.0	66.8	NA	65.0



November 2016



December 2016



January 2017

2.0 AIR QUALITY

2.1 HVAS (PM_{10}) and TEOM (PM_{10} & $PM_{2.5}$)

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM_{10}) 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 ($\mu g/m^3$) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM_{10} 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 three months are provided in the table below.

Monitor Location	Daily Maximum *($\mu g/m^3$)*	November 2016 *($\mu g/m^3$)*	December 2016 *($\mu g/m^3$)*	January 2017 *($\mu g/m^3$)*	Apr- Dec 2016 Average *(g/m^2/month)*	2017 Average *(g/m^2/month)*	Criteria *($\mu g/m^3$)*	
							Annual	Daily
$PM_{2.5}$ – TEOM92 "Werris Creek"	12.1	7.0	8.6	6.4	4.7	6.4	8	25
PM_{10} – TEOM92 "Werris Creek"	23.8	13.9	14.9	10.8	9.3	10.8	30	50
PM_{10} – HVP20 "Tonsley Park"	25.9	19.9	19.2	17.9	13.0	17.9	30	50
PM_{10} - HVP1 "Escott"	30.2	12.0	12.1	16.9	7.5	16.9	30	50
PM_{10} – HVP11 "Glenara"	41.1	22.8	20.5	25.1	16.4	25.1	30	50
PM_{10} – HVP98 "Kyooma"	18.1	12.7	11.6	12.2	7.9	12.2	30	50
TSP – HVT98 "Kyooma"	50.6	40.5	22.6	25.2	16.8	25.2	90	-

Yellow Bold – Elevated dust level.

2.1.2 Discussion - Compliance / Non Compliance

All TSP, PM_{10} and $PM_{2.5}$ dust results were within criteria during the period.

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^2/month). Dust monitoring locations are identified in **Figure 1**.

2.2.1 Monitoring Data Results

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

Monitor Location	November 2016 *(g/m^2/month)*	December 2016 *(g/m^2/month)*	January 2017 *(g/m^2/month)*	Apr- Dec 2016 Average *(g/m^2/month)*	2017 Average *(g/m^2/month)*	Annual Criteria *(g/m^2/month)*
DG1 "Escott"	1.2	0.7	0.7	0.7	0.7	4.0
DG2 "Cintra"	3.3	3.8	4.2*	2.5	NA	4.0
DG3 "Eurunderee"	1.3	1.4	2.2	1.4	2.2	4.0
DG5 "Railway View"	2.2	2.7	2.5	1.8	2.5	4.0
DG9 "Marengo"	0.9	1.0	0.9	1.4	0.9	4.0
DG11 "Glenara"	1.2	1.6	1.6	1.1	1.6	4.0
DG14 "Greenslopes"	1.9	2.1	1.9	1.1	1.9	4.0
DG15 "Plain View"	1.4	0.8	1.0	0.8	1.0	4.0
DG17 "Woodlands"	1.0	0.9	0.7	0.9	0.7	4.0
DG20 "Tonsley Park"	1.1	1.0	1.3	1.6	1.3	4.0
DG22 "Mountain View"	2.0	1.1	1.2	1.2	1.2	4.0
DG24 "Hazeldene"	1.2	0.7	1.8	0.7	1.8	4.0
DG34 8 Kurrara St	0.8	0.8	19.5#	1.4	19.5	4.0
DG62 Werris Creek South	1.9	0.5	0.6	1.7	0.6	4.0
DG92 Werris Creek Centre	0.7	0.6	0.5	0.6	0.5	4.0
DG96 "Talavera"	NS	NS	NS	NA	NA	4.0
DG98 "Kyooma"	0.8	0.8	1.1	0.5	1.1	4.0
DG101 "Westfall"	2.2	2.5	2.6	1.7	2.6	4.0
DG103 West Street	0.8	1.2	0.8	1.3	0.8	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.

2.2.2 Discussion - Compliance / Non Compliance

All monthly dust deposition gauge results were below the annual criteria of 4.0g/m^2/month throughout the period.

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	November 2016		December 2016		January 2017		Apr- Dec 2016 Average *(g/m^2/month)*	2017 Average *(g/m^2/month)*
	g/m^2/month	*% Coal*	*g/m^2/month*	*% Coal*	*g/m^2/month*	*% Coal*		
DDW30	1.6	<1%	1.8	5%	1.2	<5%	1.2	1.2
DDW20	1.2	10%	2.6	5%	1.0	<5%	1.1	1.0
DDW13	NS	NS	2.0	<1%	1.2	<5%	0.9	1.2
Train Line								
DDE13	1.3	10%	2.0	5%	1.1	<5%	1.1	1.1
DDE20	0.6	35%	1.0	5%	1.0	<5%	0.8	1.0
DDE30	1.5	15%	2.7	<1%	3.8*	<5%	1.9	NA

* - sample contaminated with excessive organic matter (>50%) from non-mining source (i.e. bird droppings and insects); NS – Not Sampled, bottle and funnel smashed. NA - DDE30 does not currently have a 2017 average as the gauge was deemed contaminated in January 2017.

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^2/month for all samples 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 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**.

Monday 21st November 2016

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	25	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	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) $L_{eq\ 15min}$

Monday 19th December 2016

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	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) $L_{eq\ 15min}$

Monday 30th January 2017

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*)	20#	40	21#	40
D	**"Hazeldene"** R24	Inaudible#	37	27#	37
E	**"Railway Cottage"** R12	Inaudible	38	26#	38
F	**"Talavera"** R96	Inaudible	38	36#	37
H	**"Kyooma"** R98	23#	40	33#	40
I	**Kurrara St, WC** R57	Inaudible#	35	Inaudible#	35
J	**Coronation Ave, WC**	Inaudible#	35	Inaudible#	35
K	**Alco Park** (R21*)	Inaudible	40	23#	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) $L_{eq\ 15min}$

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 was one noise complaint recorded during the period.

4.0 BLASTING

During the reporting period there was a total of thirty-four 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 115dBL (and up to 120dBL 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 three months are provided below.

November 2017		"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	101.0	0.59	103.1	0.25	100.5	0.22	98.5
Monthly Maximum		0.31	118.2	1.14	109.3	0.45	106.0	0.46	104.5
Annual Average		0.17	101.4	0.69	102.2	0.35	99.0	0.23	98.4
Criteria		**5**	**115**	**5**	**115**	**5**	**115**	**5**	**115**
% >115dB(L) or 5mm/s	**Rolling Ave**	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Reporting Year	0.0%	1.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

December 2016		"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		0.17	100.6	0.68	101.6	0.33	99.9	0.19	98.6
Monthly Maximum		0.34	110.3	1.39	109.6	0.67	108.4	0.37	106.4
Annual Average		0.17	101.3	0.69	102.1	0.35	99.1	0.22	98.4
Criteria		**5**	**115**	**5**	**115**	**5**	**115**	**5**	**115**
% >115dB(L) or 5mm/s	**Rolling Ave**	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Reporting Year	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

January 2017	"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	0.15	98.3	0.62	100.3	0.41	100.7	0.20	99.8
Monthly Maximum	0.32	103.9	1.05	107.2	1.01	110.0	0.29	113.8

January 2017		"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)*
Annual Average		0.15	98.30	0.62	100.31	0.41	100.68	0.20	99.81
Criteria		**5**	**115**	**5**	**115**	**5**	**115**	**5**	**115**
% >115dB(L) or 5mm/s	**Rolling Ave**	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Reporting Year	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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) one blast was above the 95th percentile limits of 115dB(L) at Glenera "R11" on the 8 November 2016.

4.2 BLAST COMPLAINTS

There were four 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. There were four dirty water discharge events during the period.

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 7th to 9th November 2016, 6th to 8th December 2016 and 4th to 6th January 2017. 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		November-16	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	33.84	10%
	MW3	19.27	1%
	MW4B	15.33	2%
	MW5	11.96	2%
	MW6	16.16	0%
	MW27*	55.59	1%
	MW36A	20.26	-1%
	MW36B	20.21	0%
Werrie Basalt	**MW8***	14.38	18%
	MW10	13.64	4%
	MW14	16.7	1%
	MW17B*	12.03	5%
	MW19A*	9.07	-8%
	MW20*	21.52	1%
	MW38A	11.54	-5%
	MW38B*	9.25	-1%
	MW38C*	21.72	1%
	MW38E*	No access	
#[1]	**MW24A***	14.02	8%
	MW29*	17.82	-34%
Quipolly Alluvium	**MW12***	8.59	3%
	MW13*	5.21	-10%
	MW13B*	3.42	-2%
	MW13D*	4.38	2%
	MW15*	5.05	-3%
	MW16*	5.88	7%
	MW17A*	5.13	10%
	MW18A*	4.92	11%
	MW21A*	8.72	10%
	MW22A*	6.01	8%
	MW22B*	6.10	8%
	MW23A*	3.58	-1%
	MW23B*	3.89	-1%
	MW26B*	7.53	13%
	MW28A*	7.94	16%
	MW32*	3.74	0%
#[2]	**MW34***	8.89	2%

Site		December-16	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	32.36	5%
	MW3	19.21	0%
	MW4B	14.80	4%
	MW5	11.91	0%
	MW6	16.19	0%
	MW27*	55.04	1%
	MW36A	20.76	-2%
	MW36B	20.73	-3%
Werrie Basalt	**MW8***	13.90	3%
	MW10	13.45	1%
	MW14	16.7	1%
	MW17B*	11.76	2%
	MW19A*	8.56	6%
	MW20*	21.23	1%
	MW38A	12.06	-4%
	MW38B*	9.36	-1%
	MW38C*	21.81	0%
	MW38E*	9.13	
#[1]	**MW24A***	14.12	-1%
	MW29*	11.63	53%
Quipolly Alluvium	**MW12***	9.21	-7%
	MW13*	5.55	-6%
	MW13B*	3.73	-8%
	MW13D*	4.47	-2%
	MW15*	5.18	-3%
	MW16*	5.95	-1%
	MW17A*	5.07	1%
	MW18A*	4.94	0%
	MW21A*	8.49	3%
	MW22A*	6.06	-1%
	MW22B*	6.22	-2%
	MW23A*	3.72	-4%
	MW23B*	3.99	-3%
	MW26B*	7.34	3%
	MW28A*	8.96	-11%
	MW32*	No access	
#[2]	**MW34***	9.27	-4%

Site		January-17	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	31.91	1%
	MW3	19.18	0%
	MW4B	14.67	1%
	MW5	11.89	0%
	MW6	16.2	0%
	MW27*	54.79	0%
	MW36A	21.14	-2%
	MW36B	21.12	-2%
Werrie Basalt	**MW8***	14.22	-2%
	MW10	13.35	1%
	MW14	16.88	-1%
	MW17B*	11.70	1%
	MW19A*	9.07	-6%
	MW20*	21.33	0%
	MW38A	12.43	-3%
	MW38B*	9.38	0%
	MW38C*	22.14	-1%
	MW38E*	9.15	0%
#[1]	**MW24A***	14.32	-1%
	MW29*	11.13	4%
Quipolly Alluvium	**MW12***	9.7	-5%
	MW13*	5.73	-3%
	MW13B*	3.95	-6%
	MW13D*	4.63	-3%
	MW15*	5.26	-2%
	MW16*	6.04	-1%
	MW17A*	5.34	-5%
	MW18A*	5.01	-1%
	MW21A*	8.6	-1%
	MW22A*	6.15	-1%
	MW22B*	6.32	-2%
	MW23A*	3.93	-5%
	MW23B*	4.02	-1%
	MW26B*	7.38	-1%
	MW28A*	9.97	-10%
	MW32*	3.92	-5%
#[2]	**MW34***	9.74	-5%

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 increased water levels during November, with levels falling slightly during January.

Monitoring bore MW29 recorded a deficit of -34% from October to November 2016 and a surplus of 53% from November to December 2016. Field notes indicated the windmill was pumping during November and was not running in December.

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 2nd November 2016. 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.

Site	pH	EC	TSS	O&G	Change from Previous Quarter
ONSITE					
SB2	8.5	656	<5	7	pH slightly increased, EC decreased, TSS was unchanged and Oil & Grease increased.
SB9	TLTS	TLTS	TLTS	TLTS	Too low to sample. Mud and puddles at bottom
SB10	Dry	Dry	Dry	Dry	Dry
OFFSITE					
QCU	7.7	365	11	<5	Previous quarter this location was Dry. Field sheet water pools.
QCD	7.7	786	13	<5	pH and EC slightly decreased, TSS was stable and O&G unchanged.
WCU	8.3	817	<5	<5	pH and EC slightly increased, TSS decreased and O&G unchanged.
WCD	8.1	1094	20	<5	pH and EC slightly decreased, TSS decreased from 25 to 20 and O&G was unchanged. Field sheet notes water 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 2nd November 2016 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 November, December 2016 and January 2017.

5.3 WATER COMPLAINTS

There were no water release complaints during the period.

6.0 COMPLAINTS SUMMARY

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

#	Date	Issue	Complaint	Investigation	Action Taken
538	8/11/2016	Blast	Complainant advised the blast had vibrated their lounge roo floor and was very loud	WCC blast 117 fired at 1.04pm on the 8th November. Monitoring results were within compliance limits at all locations.	OM returned phone call to discuss the details of the blast and confirmed blast was within compliance limits.
539	19/12/2016	Blast	Complainant advised they felt the blast at their residence.	WCC blast 136 fired at 1.13pm on the 19th December. Monitoring results were within compliance limits at all locations.	EO advised blast was in compliance.
540	19/12/2016	Blast	Complainant advised they felt the blast at their residence.	WCC blast 136 fired at 1.13pm on the 19th December. Monitoring results were within compliance limits at all locations.	EO advised blast was in compliance.
541	29/12/2016	Dust	Complainant advised they had viewed dust lifting off operations on the eastern side of the WCC pit.	EO called OCE and advised complaint had been made. OCE ceased operations on the Eastern side of the pit until the water cart could make its way back to the area. Operations continued with ongoing cycling of water cart usage as normal.	EO advised the complainant of the steps undertaken to manage the dust lift off in the area.
542	12/1/2017	Dust	Complainant left a voice mail message on the EO phone advising they had viewed dust lifting off operations.	Due to service provider complications, the voice mail was not received until after the potential event. Dust levels were reviewed as was video images during the shift. Operations were undertaken with ongoing cycling of water cart usage as normal.	EO advised the complainant of the operational processes in place to manage the dust lift off in the area.
543	25/1/2017	Noise	Complainant advised that they could hear mining machinery through the night.	EO called the Noise Control Officer (NCO) at 9.46pm NCO indicated real-time noise levels were in compliance. EO called OCE 9.48pm, confirmed all operations within pit. Shutdown southern dam pump and ROM dozer as a precautionary measure.	Follow up call to complainant 26/1/2017. Voice mail left to advise measure taken to address.
544	27/1/2017	Blast	Complainant advised they felt the blast at their residence.	WCC blast 011 fired at 1.07pm on the 27th January. Monitoring results were within compliance limits at all locations.	EO advised blast was in compliance.
544	30/1/2017	Dust	Complainant spoke to the EO on the phone about other matters and advised he wished to make an additional complaint about dust.	EO advised that normal dust suppression techniques were in place and review of data and further visual monitoring would be undertaken as required.	None required.

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.

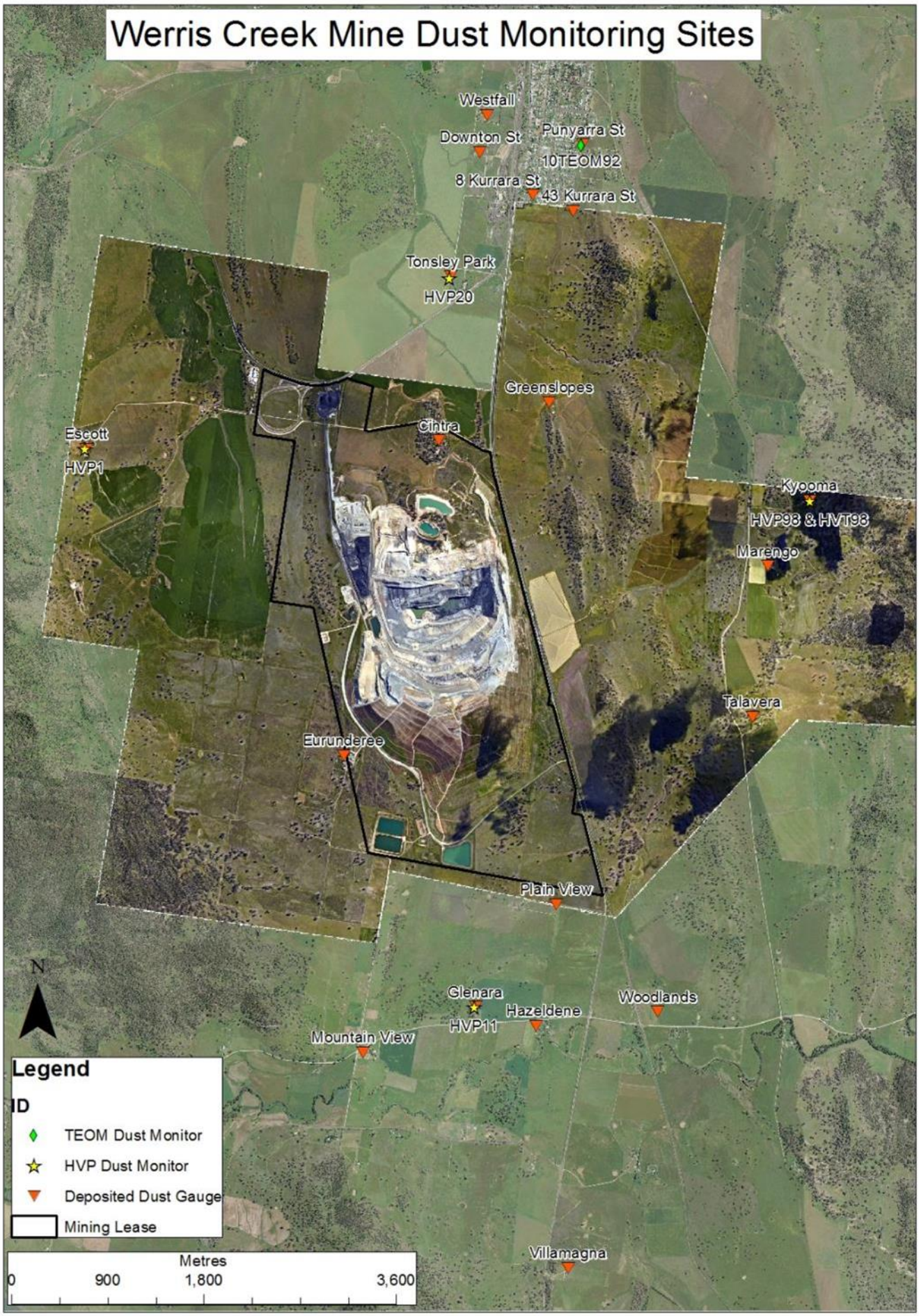


Figure 1 – WCC Dust Monitoring Locations

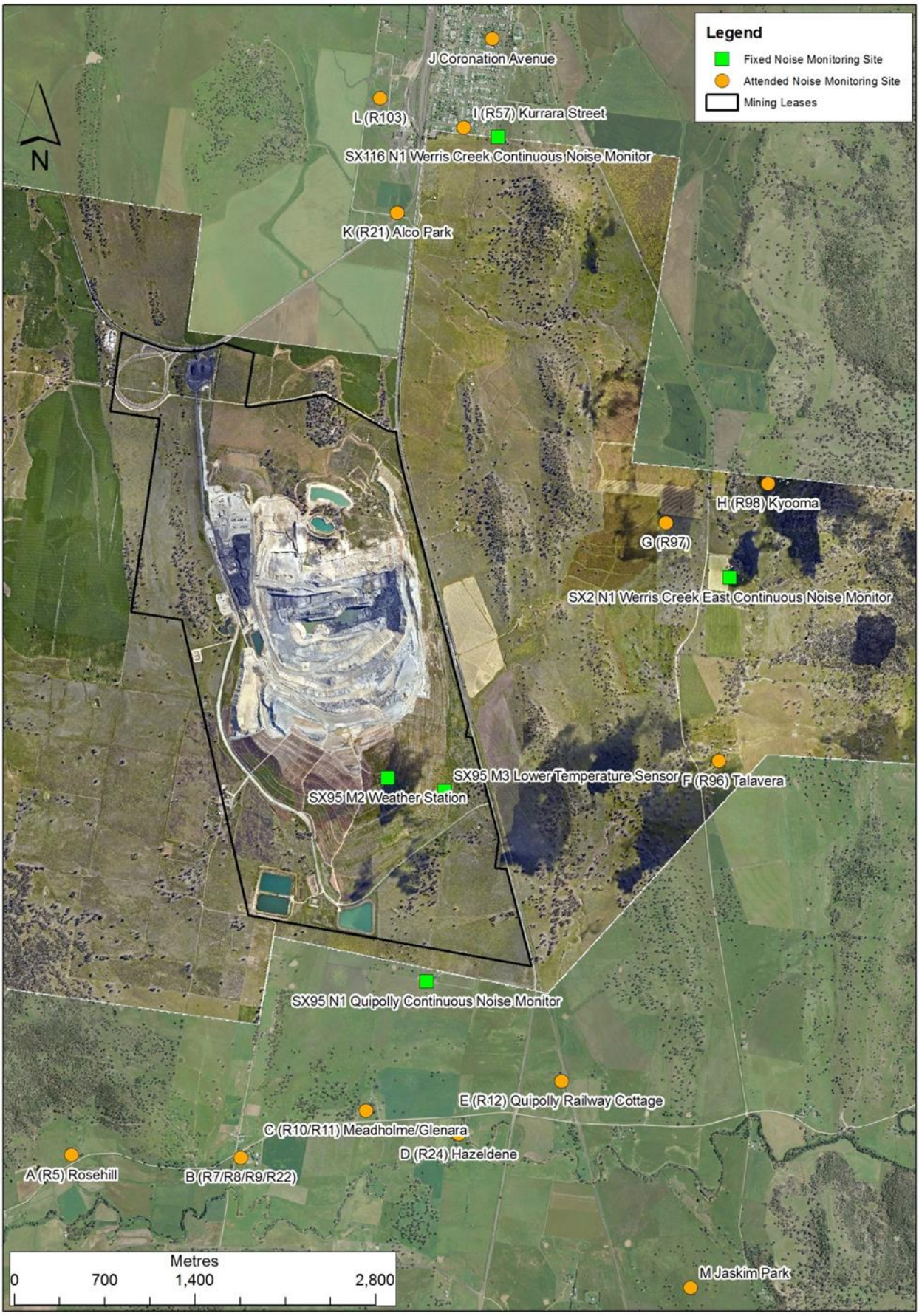


Figure 2 – WCC Noise Monitoring Locations

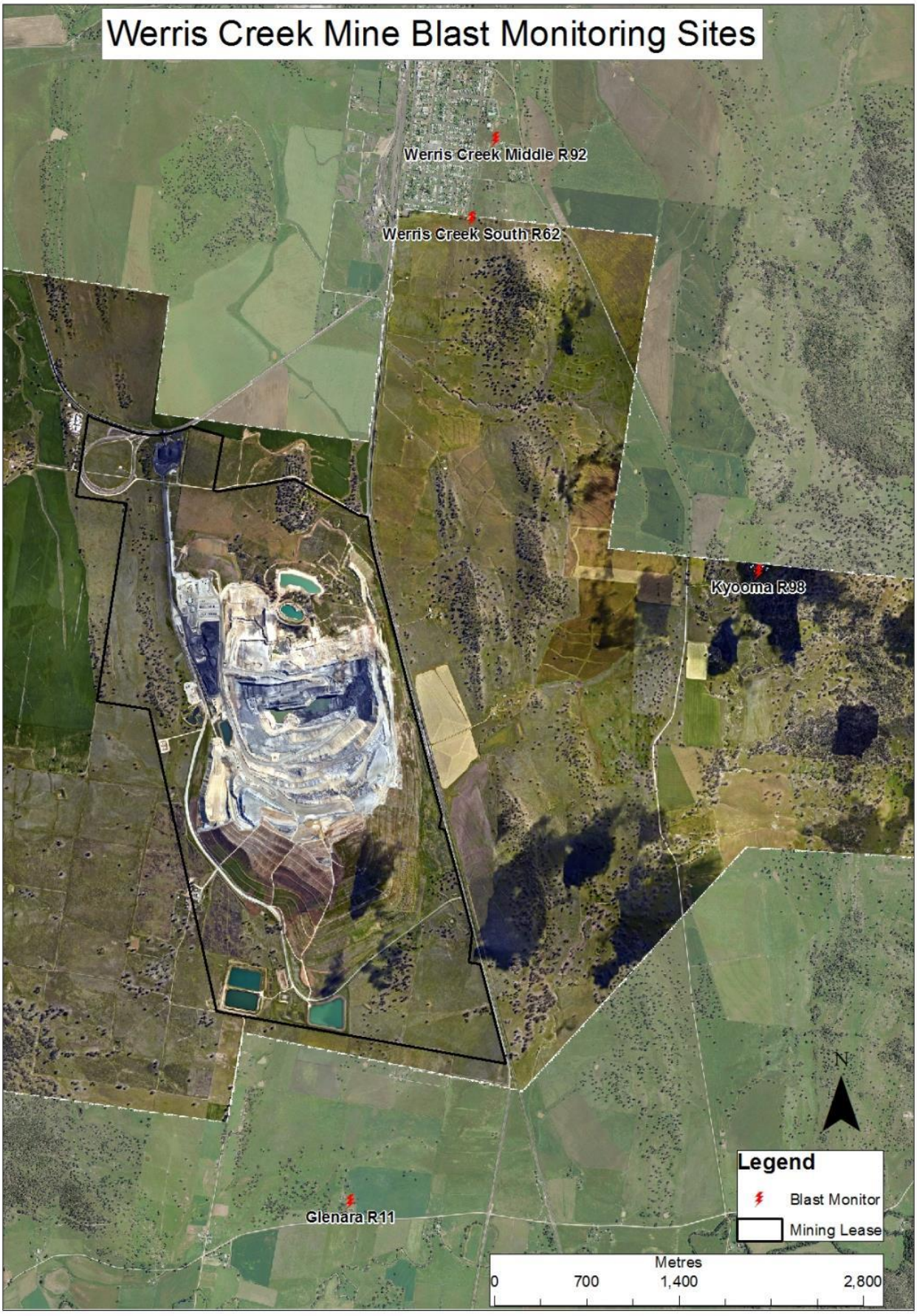


Figure 3 – WCC Blast Monitoring Locations

Figure 4 – WCC Groundwater Monitoring Locations

Figure 5 – WCC Surface Water Monitoring Locations

Werris Creek Coal Community Consultative Committee

MINUTES

43rd Meeting of the Committee, 31st May 2017.

Werris Creek Coal (WCC) Community Consultative Committee (CCC) met on site at Werris Creek Coal Mine from 9:30am for the quarterly meeting followed by a pit tour of the mine site, inspecting operations.

Meeting Opened at 9.45am.

1. Record of Attendance:

Present

Lindsay Bridge	Community Representative
Mike Lomax	Community Representative
James O'Brian	Community Representative
Rod Hicks	WCC Operations Manager
Shannon Reid	WCC Site Clerk and Minute Taker
Lynden Cini	WCC Environmental Officer
Col Stewart	Community Member
Cr Virginia Black	LPSC Councillor
Noel Taylor	Community Representative
Donna Ausling	LPSC Director Environmental & Economic Development Services
Gae Swain	Independent Chairperson

Apologies

Dave Goldman	Community Representative

Note: Previous minutes had a typo error where Noel Taylor who was not present at the meeting seconded the minutes. This should have been Moved: Lindsay Seconded: James

Moved: James. Seconded: Lindsay. Motion Carried.

2. Declaration of Pecuniary or Other Interests

None.

3. New Matters for Discussion under General Business

None

4. Minutes of Previous Meeting

Minutes of the previous meeting were reviewed by the committee. Motion moved to accept the meeting minutes as a true and accurate representation of business conducted on that day.

Moved: Lindsay. Seconded: Mike. Motion carried.

5. Matters Arising

a) Actions from Previous Meeting

Donna – Regarding the volume of water released overflowing from Quipolly Dam. Donna contacted the water service manager. The only data available is the environmental flow. Volume of water that overflows from the dam wall it's not currently monitored.

James – Regarding Blast on 3/2/2017.

LC. Yes there was a blast on the 3/2/2017. Have been through the data (data and blast pictures issued to the committee members).

No complaints were made and the blast was in compliance.

James – content with the response.

b) Other Matters Arising
None

6. Environmental Monitoring Report

LC provided commentary on each aspect of the report.

Motion to accept the report. Moved: Col. Seconded: Noel. Motion Carried.

7. General Business

NT- How are you going with the monitoring bore down near Blackwells?
LC - Agreement and approval is sitting with council. Access plan is in place. DPI have advised where they would like the bore.

ML - Any update on the offsite water?
LC – Water management planning waiting to be approved.

Meeting Closed 10.20am.

Next Meeting scheduled for Wednesday 30th August 2017

No site tour undertaken.

Copy to:

All Committee members

The minutes will also be posted on the Whitehaven Coal Website
http://www.whitehavencoal.com.au/environment/werris_creek_mine_environmental_management.cfm

WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

February, March and April 2017

This Environmental Monitoring Report covers the period 1st February to 30th April 2017 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**.

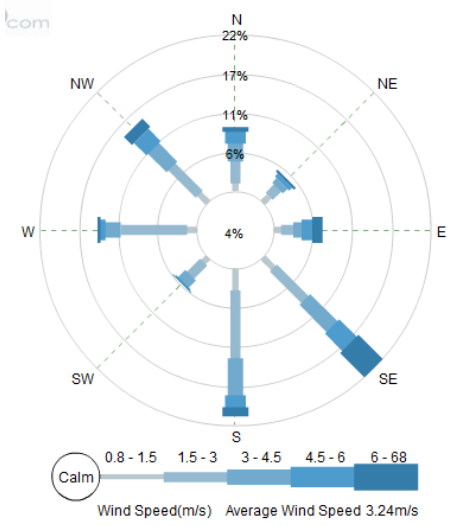
CONTENTS

1.0 METEOROLOGY

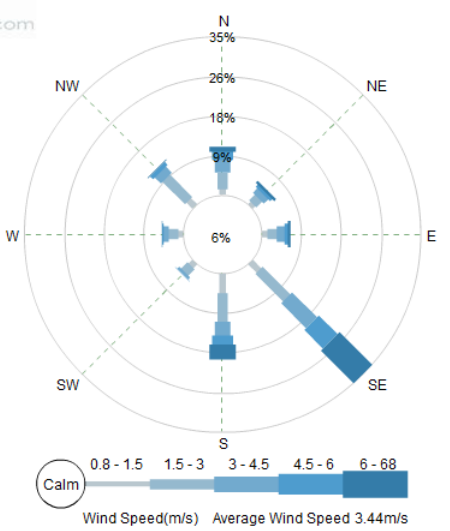
1.1 WEATHER STATION

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 three months. Monthly totals during the quarter were similar to the historical average in April, below in February and well above in March. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the south to southeast.

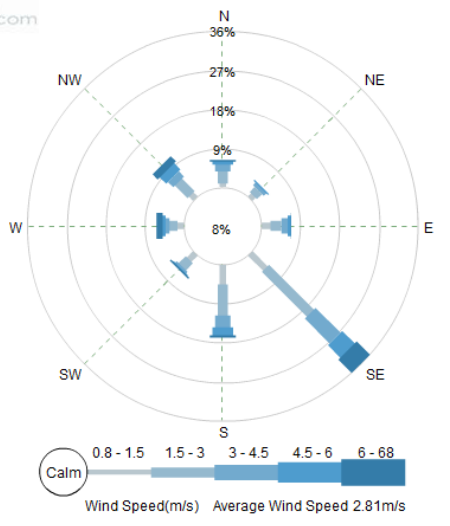
Month	Rainfall *(mm)*		
	Onsite	***Historical Average***	***2017 Total***
February 2017	28.0	71.0	93.0
March 2017	132.4	52.9	225.4
April 2017	24.8	32.6	250.2



February 2017



March 2017



April 2017

2.0 AIR QUALITY

2.1 HVAS (PM_{10}) and TEOM (PM_{10} & $PM_{2.5}$)

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM_{10}) 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 ($\mu g/m^3$) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM_{10} 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 three months are provided in the table below.

Monitor Location	Daily Maximum *($\mu g/m^3$)*	February 2017 *($\mu g/m^3$)*	March 2017 *($\mu g/m^3$)*	April 2017 *($\mu g/m^3$)*	2017 Average *(g/m^2/month)*	Criteria *($\mu g/m^3$)*	
						Annual	Daily
$PM_{2.5}$ – TEOM92 "Werris Creek"	**35.5**	9.8	2.5	5.3	6.0	8	25
PM_{10} – TEOM92 "Werris Creek"	45.8	17.1	5.9	8.9	10.7	30	50
PM_{10} – HVP20 "Tonsley Park"	27.8	18.1	6.7	8.3	12.8	30	50
PM_{10} - HVP1 "Escott"	20.4	15.3	8.0	13.3	18.9	30	50
PM_{10} – HVP11 "Glenara"	37.6	29.8	8.0	13.3	18.9	30	50
PM_{10} – HVP98 "Kyooma"	21.8	14.8	4.8	4.6	9.1	30	50
TSP – HVT98 "Kyooma"	33.8	26.3	10.3	11.6	18.4	90	-

Yellow Bold – Elevated dust level.

2.1.2 Discussion - Compliance / Non Compliance

All TSP and PM10 and PM2.5 dust results were within criteria during the period with the exception of two PM2.5 results measured at "TEOM92 "Werris Creek"", on the 12th and 13th February 2017. On both occasions the elevated results were affected by localised bushfires and regional elevated dust levels.

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^2/month). Dust monitoring locations are identified in **Figure 1**.

2.2.1 Monitoring Data Results

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

Monitor Location	February 2017 *(g/m^2/month)*	March 2017 *(g/m^2/month)*	April 2017 *(g/m^2/month)*	2017 Average *(g/m^2/month)*	Annual Criteria *(g/m^2/month)*
DG1 "Escott"	0.3	0.4	0.5	0.5	4.0
DG2 "Cintra"	3.1	**5.0**	2.7	3.6	4.0
DG3 "Eurunderee"	2.7	0.4	2.4	1.9	4.0
DG5 "Railway View"	2.2	1.3	1.2	1.8	4.0
DG9 "Marengo"	0.9	0.2	0.1	0.5	4.0
DG11 "Glenara"	1.4	0.3	0.5	1.0	4.0
DG14 "Greenslopes"	0.7	0.4	0.4	0.9	4.0
DG15 "Plain View"	1.0	0.4	0.2	0.7	4.0
DG17 "Woodlands"	1.4	1.4	0.3	1.0	4.0
DG20 "Tonsley Park"	0.8	1.0	0.2	0.8	4.0
DG22 "Mountain View"	0.8	1.0	0.3	0.8	4.0
DG24 "Hazeldene"	1.0	3.3	1.0	1.8	4.0
DG34 8 Kurrara St	**17.8**	**7.5**	0.3	**11.3**	4.0
DG62 Werris Creek South	2.1	1.1	0.4	1.1	4.0
DG92 Werris Creek Centre	1.0	0.4	0.4	0.6	4.0
DG96 "Talavera"	NS	NS	NS	NA	4.0
DG98 "Kyooma"	0.7	0.5	0.3	0.7	4.0
DG101 "Westfall"	2.0	1.3	0.5	1.6	4.0
DG103 West Street	1.1	0.5	0.6	0.8	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.

2.2.2 Discussion - Compliance / Non Compliance

All monthly dust deposition gauge results were below the annual criteria of 4.0g/m^2/month throughout the period with the exception of DG34 (8 Kurrara St) which had elevated dust levels in February and March 2017 and a rolling 2017 average above criteria. Consistently high dust levels at this gauge and low deposited dust levels at nearby gauges indicate a localized source of dust generation, unrelated to activities at Werris Creek Coal Mine. DG2 had one anomalous high dust deposition measurement during March 2017 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	February 2017		March 2017		April 2017		2017 Average *(g/m^2/month)*
	g/m^2/month	*% Coal*	*g/m^2/month*	*% Coal*	*g/m^2/month*	*% Coal*	
DDW30	1.0	<5%	1.5	<5%	0.4	5%	1.0
DDW20	1.2	10%	0.7	<5%	0.4	5%	0.8
DDW13	2.5	<5%	0.7	<5%	0.5	5%	1.2
Train Line							
DDE13	1.2	<5%	2.2	<5%	0.6	5%	1.3

DDE20	1.2	<5%	1.2	<5%	0.5	5%	1.0
DDE30	4.6*	<5%	3.4*	<5%	0.4	10%	0.4

* - 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^2/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 was one dust complaint 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 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**.

Thursday 16st February 2017

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	21	40
D	**"Hazeldene"** R24	Inaudible	37	23	37
E	**"Railway Cottage"** R12	Inaudible#	38	28	38
F	**"Talavera"** R96	Inaudible#	38	31#	37
H	**"Kyooma"** R98	22	40	27	40
I	**Kurrara St, WC** R57	Inaudible	35	Inaudible	35
J	**Coronation Ave, WC**	Inaudible	35	Inaudible	35
K	**Alco Park** (R21*)	Inaudible	40	23	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) $L_{eq\ 15min}$

Wednesday 22nd and Thursday 23rd March 2017

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*)	<20	40	31	40
C	**Central Quipolly**(R10*,R11*)	<30#	40	Inaudible#	40
D	**"Hazeldene"** R24	NM	37	30#	37
E	**"Railway Cottage"** R12	Inaudible#	38	NM#	38
F	**"Talavera"** R96	NM#	38	Inaudible#	37
H	**"Kyooma"** R98	Inaudible#	40	<20#	40
I	**Kurrara St, WC** R57	Inaudible#	35	<30	35
J	**Coronation Ave, WC**	Inaudible#	35	Inaudible#	35
K	**Alco Park** (R21*)	Inaudible	40	<30#	40
L	**West St, WC** (R103)	Inaudible	35	<30#	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

^Multiple evening and night measurement was taken, for reporting purposes the highest reading of the period was used.

Thursday 27th and Friday 28th April 2017

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	<20#	40
I	**Kurrara St, WC** R57	Inaudible#	35	Inaudible	35
J	**Coronation Ave, WC**	Inaudible	35	30	35
K	**Alco Park** (R21*)	Inaudible#	40	32	40
L	**West St, WC** (R103)	Inaudible#	35	34	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

^Multiple evening and night measurement was taken, for reporting purposes the highest reading of the period was used.

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 thirty-two 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 115dBL (and up to 120dBL 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 three months are provided below.

February 2017		"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		0.15	98.6	0.66	100.0	0.29	100.2	0.25	98.4
Monthly Maximum		0.29	100.5	1.28	105.4	0.55	110.6	0.61	108.5
Annual Average		0.15	98.44	0.64	100.17	0.35	100.43	0.22	99.08
Criteria		**5**	**115**	**5**	**115**	**5**	**115**	**5**	**115**
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

March 2017		"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		0.13	101.5	0.59	102.1	0.35	99.7	0.19	100.7
Monthly Maximum		0.23	108.7	1.25	111.2	0.85	114.4	0.35	116.6
Annual Average		0.15	99.46	0.62	100.82	0.35	100.20	0.21	99.61
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.81%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.86%

April 2017		"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		0.16	103.2	0.92	101.4	0.56	98.1	0.28	99.2
Monthly Maximum		0.20	109.1	1.52	107.0	0.90	107.6	0.43	107.0
Annual Average		0.15	100.40	0.70	100.97	0.40	99.68	0.23	99.52
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.77%	0.00%	0.00%	0.00%	0.00%	0.00%	0.77%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.38%

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) one blast was above the 95th percentile limits of 115dB(L) at Werris Creek Mid R92 on the 15 March 2017.

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/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 2nd, 3rd and 7th February 2017 and 7th to 9th and 13th March 2017. 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		February-17	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	32.08	-1%
	MW3	19.14	0%
	MW4B	14.94	-2%
	MW5	11.86	0%
	MW6	16.2	0%
	MW27*	54.55	0%
	MW36A	21.4	-1%
	MW36B	21.36	-1%
Werrie Basalt	**MW8***	14.61	-3%
	MW10	13.33	0%
	MW14	17.23	-2%
	MW17B*	11.72	0%
	MW19A*	10.44	-13%
	MW20*	21.62	-1%
	MW38A	12.71	-2%
	MW38B*	9.44	-1%
	MW38C*	22.21	0%
	MW38E*	9.27	-1%
#[1]	**MW24A***	14.48	-1%
	MW29*	11.26	-1%
Quipolly Alluvium	**MW12***	10.17	-5%
	MW13*	5.84	-2%
	MW13B*	4.13	-4%
	MW13D*	4.89	-5%
	MW15*	5.42	-3%
	MW16*	6.18	-2%
	MW17A*	5.31	1%
	MW18A*	5.07	-1%
	MW21A*	8.81	-2%
	MW22A*	6.30	-2%
	MW22B*	6.49	-3%
	MW23A*	3.92	0%
	MW23B*	4.68	-14%
	MW26B*	7.52	-2%
	MW28A*	10.61	-6%
	MW32*	3.97	-1%
#[2]	**MW34***	10.52	-7%

Site		March-17	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	32.82	-2%
	MW3	19.15	0%
	MW4B	14.45	3%
	MW5	11.89	0%
	MW6	16.37	-1%
	MW27*	54.46	0%
	MW36A	21.3	0%
	MW36B	21.15	1%
Werrie Basalt	**MW8***	15.08	-3%
	MW10	13.36	0%
	MW14	17.89	-2%
	MW17B*	11.79	-1%
	MW19A*	9.73	7%
	MW20*	21.54	0%
	MW38A	12.43	2%
	MW38B*	9.49	-1%
	MW38C*	22.46	-1%
	MW38E*	9.47	-2%
#[1]	**MW24A***	14.39	1%
	MW29*	11.59	-3%
Quipolly Alluvium	**MW12***	10.48	-3%
	MW13*	5.98	-2%
	MW13B*	4.47	-8%
	MW13D*	4.88	0%
	MW15*	5.56	-3%
	MW16*	6.33	-2%
	MW17A*	5.43	-2%
	MW18A*	5.27	-4%
	MW21A*	9.02	-2%
	MW22A*	6.49	-3%
	MW22B*	6.78	-4%
	MW23A*	3.92	0%
	MW23B*	4.35	8%
	MW26B*	7.71	-2%
	MW28A*	11.29	-6%
	MW32*	4.02	-1%
#[2]	**MW34***	10.6	-1%

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 February and March.

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 27th February 2017. 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.

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	Dry	Dry	Dry	Dry	Dry. Vegetation growing on bottom.
SB9	Dry	Dry	Dry	Dry	Dry. Just grass
SB10	Dry	Dry	Dry	Dry	Dry
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry
QCD	8.0	1065	14	<5	pH and EC slightly increased, TSS was stable and O&G unchanged. Flowing gently.
WCU	Dry	Dry	Dry	Dry	Dry
WCD	8.2	1345	35	7	pH and EC slightly increased, TSS increased from 20 to 35 and O&G also increased. Field sheet notes water pooled.

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 27th February 2017 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 February, March and April 2017.

5.3 WATER COMPLAINTS

There were no water release complaints during the period.

6.0 COMPLAINTS SUMMARY

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

#	Date	Issue	Complaint	Investigation	Action Taken
546	6/2/2017	Blast	Complainant advised they felt the blast at their residence.	WCC blast 015 fired at 1.02pm on the 6 February. Monitoring results were under compliance limits at all locations.	EO responded via email confirming blast was within limits and providing a copy of the blast data.
547	24/2/2017	Dust	Complainant advised they had viewed increased dust levels around the WCC pit.	EO discussed with operational team. Multiple areas of operations were shutdown prior to receiving complaint. Further areas shutdown post complaint. Increased water cart circuits to problematic areas.	EO advised the complainant of the operational processes in place to manage the dust lift off on site.
548	1/3/2017	Blast	Complainant advised they felt the blast at their residence.	WCC blast 024 fired at 1.29pm on the 1st March. Monitoring results were within compliance limits at all locations.	EO advised blast was in compliance and emailed a copy of the results to the complainant.
549	17/4/2017	Odour	Complainant advised they could detect an odour of burning coal and suspected it to be coming from WCC.	The underground workings at WCC do spontaneously combust from time to time. No obvious nuisance emissions could be detected upon inspection.	A follow up phone number was provided however, numerous calls were made by the EO to the complainant and voice message left. The complainant did not respond.

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.

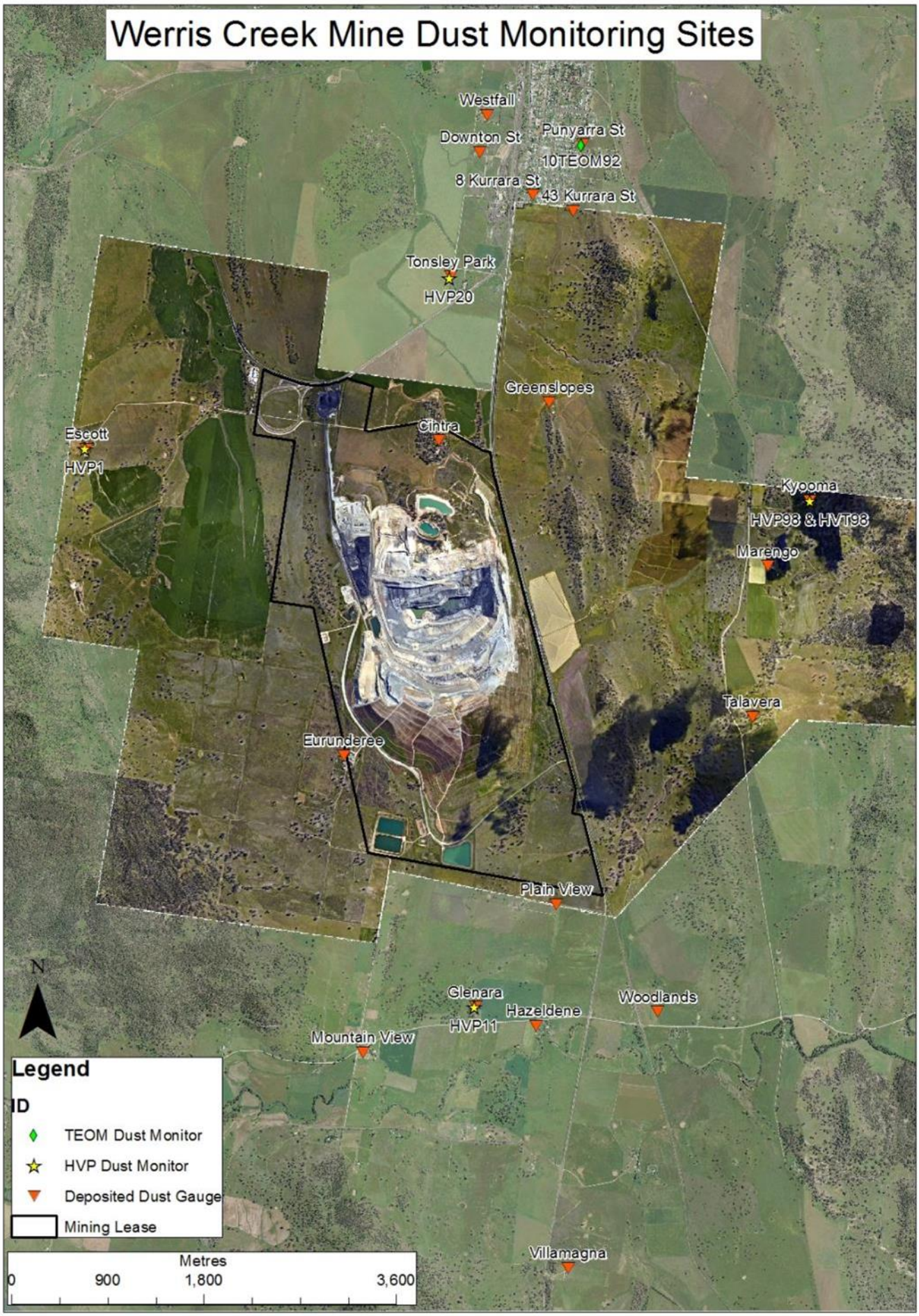


Figure 1 – WCC Dust Monitoring Locations

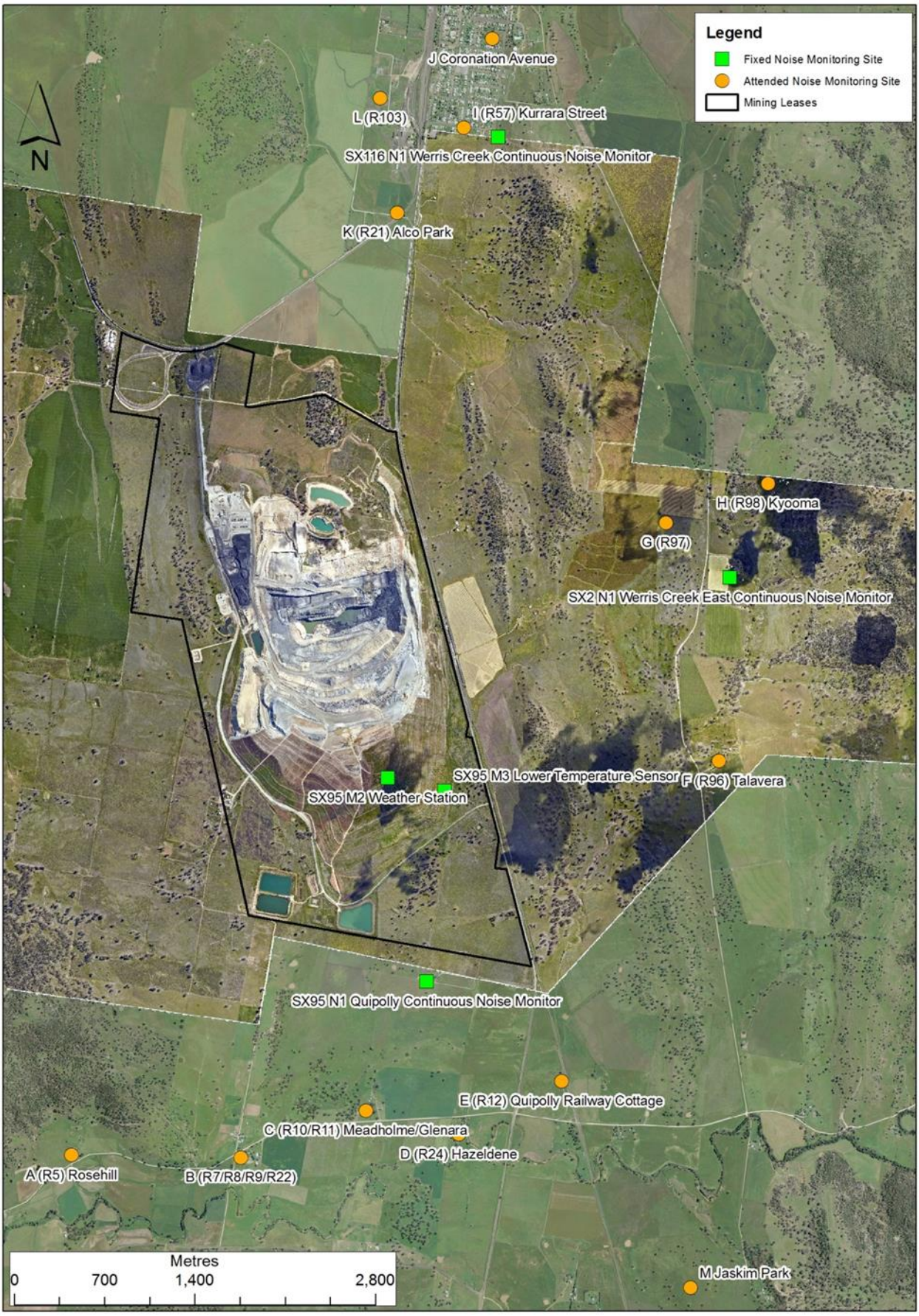


Figure 2 – WCC Noise Monitoring Locations

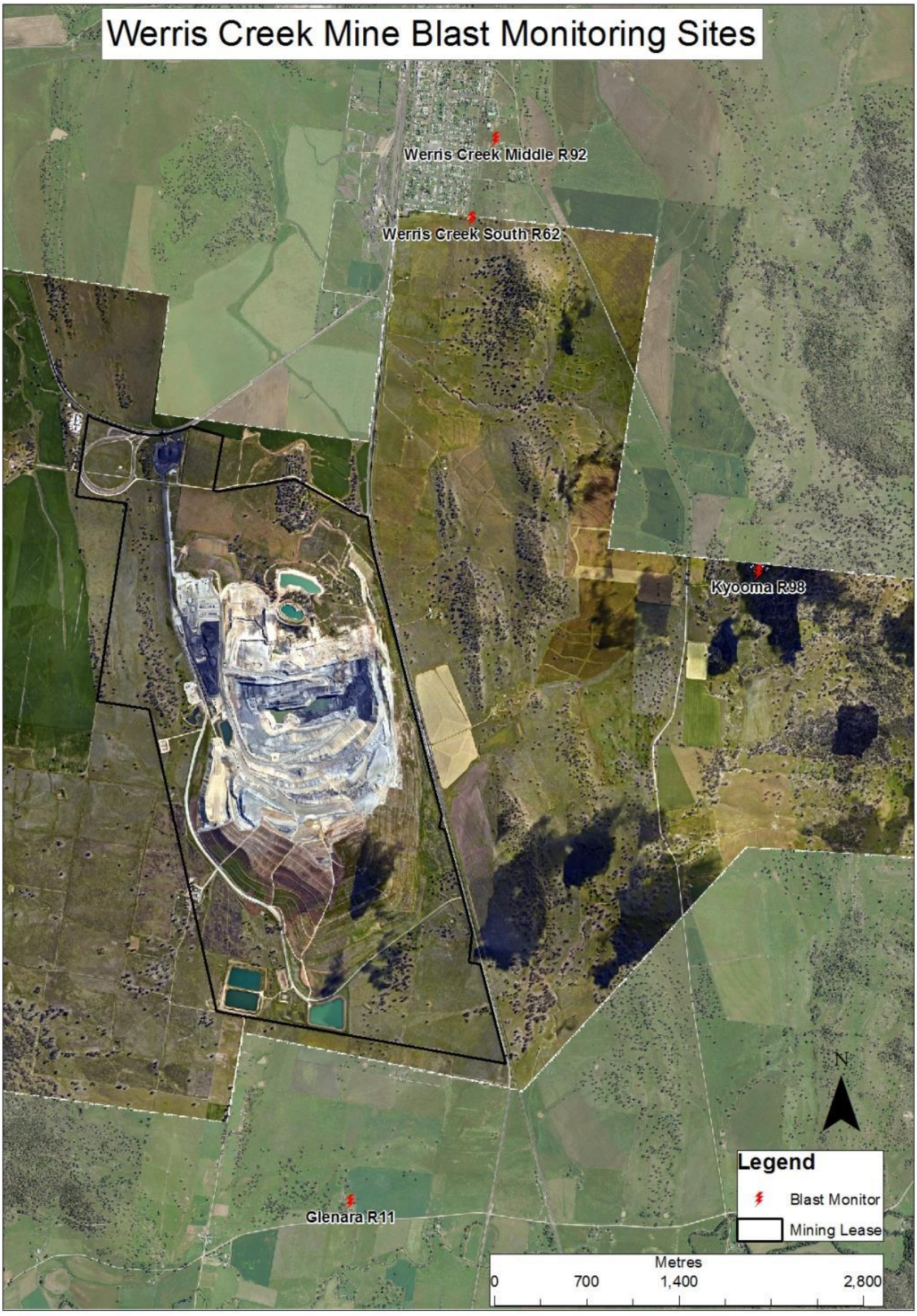


Figure 3 – WCC Blast Monitoring Locations

Figure 4 – WCC Groundwater Monitoring Locations

Figure 5 – WCC Surface Water Monitoring Locations

Werris Creek Coal Community Consultative Committee

MINUTES

44th Meeting of the Committee, 30th August 2017.

Werris Creek Coal (WCC) Community Consultative Committee (CCC) met on site at Werris Creek Coal Mine from 9:30am for the quarterly meeting followed by a pit tour of the mine site, inspecting operations.

Meeting Opened at 9.40am.

1. Record of Attendance:

Present

Lindsay Bridge	Community Representative
Mike Lomax	Community Representative
James O'Brian	Community Representative
Rod Hicks	WCC Operations Manager
Shannon Reid	WCC Site Clerk and Minute Taker
Lynden Cini	WCC Environmental Officer
Cr Virginia Black	LPSC Councillor
Noel Taylor	Community Representative
Gae Swain	Independent Chairperson

Apologies

Col Stewart
Donna Ausling

Dave Goldman has resigned.

2. Declaration of Pecuniary or Other Interests

Gae Swain declaration, has family members working for Whitehaven.

3. New Matters for Discussion under General Business

NT - Where are the new monitoring bores located?

LC – Offsite void water irrigation update

LC - Quipolly bore construction

LC - Water fact sheet

4. Minutes of Previous Meeting

Moved: Lindsay Bridge. Seconded: Noel Taylor. Motion carried.

5. Matters Arising

None.

6. Environmental Monitoring Report

LC provided commentary on each aspect of the report.

General discussion around some of the outcomes

Deposited dust gauge, DG34 – 8 Kurrara Street continues to be responding uncharacteristically high, all monitoring sites between DG34 and site within compliance. This monitor is accessible to the public.

JO'B – Blasting Notification to mobile – this was received but it was received ¾ hour after the blast had happened.

LC – There are 3 types of notifications we have regarding blast. We have text messaging, email and the website. Website is our main notification process, however we do also utilise email and text. I had not received any issues from others on the communications list, possibly an issue with phone reception I would assume. Messages are generally communicated an hour prior to the blast at the latest.

NT - One went off in the morning they usually go off at 1.15pm?

LC – Yes on occasions we need to blast in the morning if weather conditions are better than the afternoon.

Motion to accept the report. Moved: Virginia Black. Seconded: James O'Brien. Motion Carried.

7. General Business

LC – Update on water management and off site water. WCC have received the final approval for offsite water irrigation. Whilst approval has been granted, we have not pursued the implementation further at this point. The intention is to supply water to the approved parcel of land at some stage in the near future.

GS – On behalf of the committee I'd like to thank Lynden, Andrew, Rod and all other staff involved in getting this happening. This is no small task and a lot of time has gone into this and for a small committee and staff to get this happening is a great achievement.

ML – General discussion about irrigation and potential quantities or delivery to farm dams.
LC – At this point we are only approved to deliver water to the single parcel of land as outlined in the water management plan.

VB – A small step but a significant step to get it over the line.

LC – Quipolly bores – 4 new ground water bores have been constructed in the quarter. Strictly monitoring bores only. They have just been completed. Two shallow bores in the Quipolly aquifer and 2 deep monitoring bores within the Werrie aquafer. This has been undertaken in consultation and direction from the Department of Environment and Planning and the Department of Primary Industry – Water. The bores will have full time standing water level loggers deployed. An independent consultant was also engaged to oversee the construction of the project ensuring the wells were constructed correctly. They are producing a report to detail the project. The DPI – Water determined the bore locations.

LC – Water fact sheet has been produced for the wider public review. It is available on the website and hard copies can be found at Werris Creek library, the Werris Creek Pharmacy and Quirindi Council Chamber. The most significance information within the fact sheet is the response in bores where related to the cumulative rainfall over subsequent years. As the cumulative rainfall has fluctuated then the standing water levels in bores has also responded in line with the cumulative rainfall data.

Meeting Closed 10.35am.

Next Meeting Scheduled for Wednesday 29th November 2017

Site tour by Lynden.

Copy to:

All Committee members

The minutes will also be posted on the Whitehaven Coal Website
http://www.whitehavencoal.com.au/environment/werris_creek_mine_environmental_management.cfm

WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

May, June and July 2017

This Environmental Monitoring Report covers the period 1st May to 31st July 2017 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**.

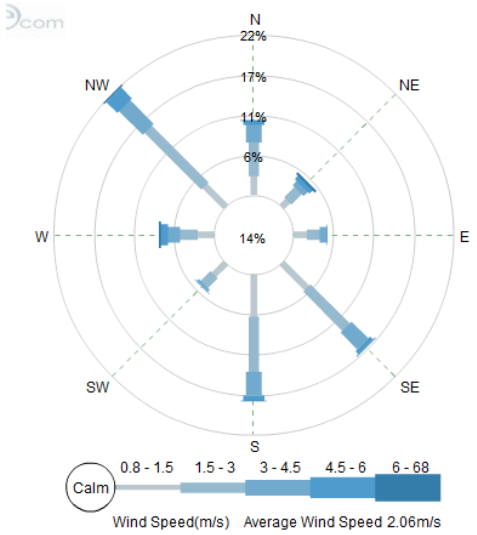
CONTENTS

1.0 METEOROLOGY

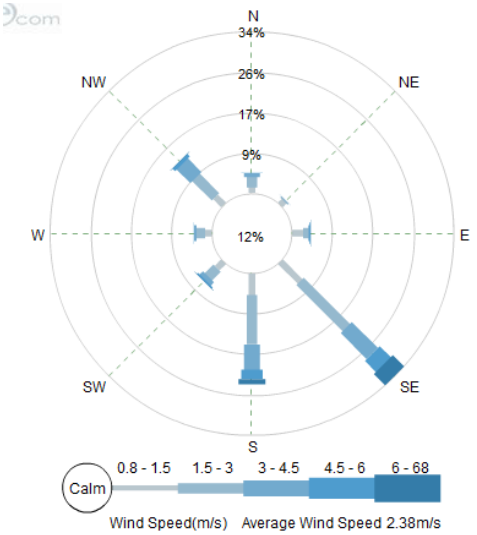
1.1 WEATHER STATION

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 three months. Monthly totals during the quarter were similar to the historical average in May and well below in June and July. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the south to southeast in May and June and northwest in July 2017.

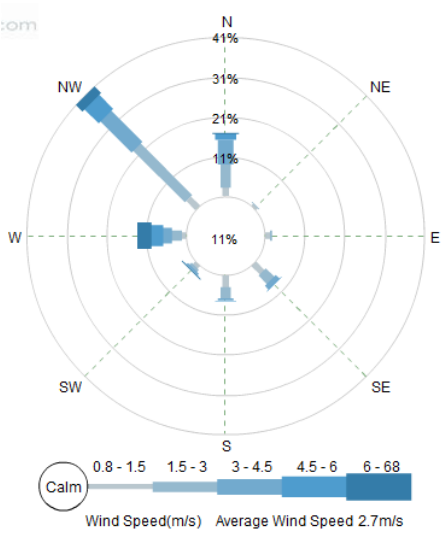
Month	Rainfall *(mm)*		
	Onsite	***Historical Average***	***2017 Total***
May 2017	37.6	34.1	287.8
June 2017	33.6	68.8	321.4
July 2017	10.2	41.6	331.6



May 2017



June 2017



July 2017

2.0 AIR QUALITY

2.1 HVAS (PM_{10}) and TEOM (PM_{10} & $PM_{2.5}$)

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM_{10}) 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 ($\mu g/m^3$) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM_{10} 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 three months are provided in the table below.

Monitor Location	Daily Maximum *($\mu g/m^3$)*	May 2017 *($\mu g/m^3$)*	June 2017 *($\mu g/m^3$)*	July 2017 *($\mu g/m^3$)*	2017 Average *(g/m^2/month)*	Criteria *($\mu g/m^3$)*	
						Annual	Daily
$PM_{2.5}$ – TEOM92 "Werris Creek"	13.9	6.6	8.7	6.1	6.5	8	25
PM_{10} – TEOM92 "Werris Creek"	20.5	9.7	12.5	9.6	10.6	30	50
PM_{10} – HVP20 "Tonsley Park"	35.8	15.9	16.1	11.8	13.5	30	50
PM_{10} - HVP1 "Escott"	14.8	4.9	7.1	5.1	8.3	30	50
PM_{10} – HVP11 "Glenara"	**52.4**	14.2	19.9	14.4	17.8	30	50
PM_{10} – HVP98 "Kyooma"	13.4	5.5	6.8	4.4	7.6	30	50
TSP – HVT98 "Kyooma"	22.1	12.0	13.3	7.7	15.2	90	-

Yellow Bold – Elevated dust level.

2.1.2 Discussion - Compliance / Non Compliance

All TSP and PM10 and PM2.5 dust results were within criteria during the period with the exception of one PM10 results measured at "HVP11 "Glenara"", on the 23rd June 2017. This monitoring location is located due south of the Werris Creek Coal Mine. Upon investigation, the wind rose displayed predominate S-SE winds, indicating the monitor's location being upwind. Notification was made to the Department of Planning and Environment along with the initial investigation. No regulatory action was undertaken and the matter closed.

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^2/month). Dust monitoring locations are identified in **Figure 1**.

2.2.1 Monitoring Data Results

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

Monitor Location	May 2017 *(g/m²/month)*	June 2017 *(g/m²/month)*	July 2017 *(g/m²/month)*	2017 Average *(g/m²/month)*	Annual Criteria *(g/m²/month)*
DG1 "Escott"	1.2	0.6	0.2	0.6	4.0
DG2 "Cintra"	3.8	2.5	4.1	3.5	4.0
DG3 "Eurunderee"	3.2	0.7	1.1	1.8	4.0
DG5 "Railway View"	2.5	2.2	3.6	2.2	4.0
DG9 "Marengo"	1.6	0.8	0.3	0.7	4.0
DG11 "Glenara"	1.1	1.4	1.0	1.0	4.0
DG14 "Greenslopes"	0.7	2.4	0.6	1.0	4.0
DG15 "Plain View"	1.2	1.4	12.2*	0.9	4.0
DG17 "Woodlands"	1.9	0.7	1.2	1.1	4.0
DG20 "Tonsley Park"	1.0	0.5	3.0	1.1	4.0
DG22 "Mountain View"	1.0	0.7	2.6	1.1	4.0
DG24 "Hazeldene"	1.0	1.0	1.2	1.5	4.0
DG34 8 Kurrara St	0.6	9.7	11.7	9.6	4.0
DG62 Werris Creek South	1.4	1.0	0.7	1.0	4.0
DG92 Werris Creek Centre	0.5	0.4	0.4	0.5	4.0
DG96 "Talavera"	NS	NS	NS	NA	4.0
DG98 "Kyooma"	0.5	0.3	0.3	0.5	4.0
DG101 "Westfall"	0.7	0.8	0.8	1.2	4.0
DG103 West Street	0.8	0.4	0.6	0.7	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.

2.2.2 Discussion - Compliance / Non Compliance

All monthly dust deposition gauge results were below the annual criteria of 4.0g/m^2/month throughout the period with the exception of DG34 (8 Kurrara St) which had elevated dust levels in June and July 2017 and a rolling 2017 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. DG2 had one anomalous high dust deposition measurement during July 2017 deposited dust levels remained low at nearby gauges, also indicating a localised source of dust.

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	May 2017		June 2017		July 2017		2017 Average *(g/m²/month)*
	g/m²/month	*% Coal*	*g/m²/month*	*% Coal*	*g/m²/month*	*% Coal*	
DDW30	1.2	5%	1.6	<5%	1.2	<5%	1.2
DDW20	0.9	5%	0.3	10%	0.8	<5%	0.8
DDW13	0.9	20%	0.3	<5%	0.7	5%	1.0

Train Line							
DDE13	1.6	10%	0.2	20%	2.1	<5%	1.3
DDE20	0.7	5%	0.2	<5%	1.0	<5%	0.8
DDE30	1.0	5%	0.3	<5%	2.5	<5%	1.1

* - 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^2/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**.

Wednesday 23rd and Thursday 24th May 2017

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	30	35
B	**West Quipolly** (R7*, R8*,R9* & R22*)	Inaudible#	40	28	40
C	**Central Quipolly**(R10*,R11*)	NM#	40	28	40
D	**"Hazeldene"** R24	Inaudible#	37	30	37
E	**"Railway Cottage"** R12	Inaudible	38	26	38
F	**"Talavera"** R96	Inaudible	38	<25	37
H	**"Kyooma"** R98	<20	38	37	38
I	**Kurrara St, WC** R57	Inaudible#	35	Inaudible	35
J	**Coronation Ave, WC**	Inaudible#	35	<25	35
K	**Alco Park** (R21*)	<25	40	33	40
L	**West St, WC** (R103)	28#	35	<30	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) $L_{eq\ 15min}$

Tuesday 27th June 2017

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	<20	35	22	35
B	**West Quipolly** (R7*, R8*,R9* & R22*)	<30	40	26	40
C	**Central Quipolly**(R10*,R11*)	NM	40	<30	40
D	**"Hazeldene"** R24	Inaudible	37	22	37
E	**"Railway Cottage"** R12	Inaudible	38	31	38
F	**"Talavera"** R96	Inaudible	38	21	37
H	**"Kyooma"** R98	<20	40	<25	40
I	**Kurrara St, WC** R57	Inaudible	35	Inaudible	35
J	**Coronation Ave, WC**	Inaudible	35	NM	35
K	**Alco Park** (R21*)	Inaudible	40	34	40
L	**West St, WC** (R103)	Inaudible	35	<25	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
^Multiple evening and night measurement was taken, for reporting purposes the highest reading of the period was used.

Monday 17th and Tuesday 18th July 2017

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	NM	35	NM	35
B	**West Quipolly** (R7*, R8*,R9* & R22*)	NM	40	29	40
C	**Central Quipolly**(R10*,R11*)	Inaudible	40	27	40
D	**"Hazeldene"** R24	Inaudible	37	NM	37
E	**"Railway Cottage"** R12	25#	38	23	38
F	**"Talavera"** R96	Inaudible#	38	24	37
H	**"Kyooma"** R98	Inaudible#	40	<25	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
^Multiple evening and night measurement was taken, for reporting purposes the highest reading of the period was used.

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.

There was one exceedance identified at the "Kyooma" R98 monitoring location during attended noise monitoring in May. This 15 minute attended noise monitoring event, of a total 60 minute total sample, identified the application of a low-frequency (dB(C)) noise penalty. The event has been internally investigated and self-reported to the appropriate Departments.

3.2 Noise complaints

There were no noise complaints during the period.

4.0 BLASTING

During the reporting period there was a total of thirty-two 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 115dBL (and up to 120dBL 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 three months are provided below.

May 2017		"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	101.2	0.59	102.1	0.26	98.1	0.17	99.7
Monthly Maximum		0.15	113.6	1.17	111.3	0.56	109.4	0.37	109.2
Annual Average		0.13	100.15	0.65	100.90	0.36	99.07	0.21	99.53
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.68%	0.00%	0.00%	0.00%	0.00%	0.00%	0.68%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.67%

June 2017		"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	98.9	0.55	97.2	0.23	95.3	0.15	96.7
Monthly Maximum		0.56	105.7	2.35	103.4	0.60	106.2	0.45	106.0
Annual Average		0.13	99.94	0.64	100.29	0.34	98.45	0.20	99.05
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.61%	0.00%	0.00%	0.00%	0.00%	0.00%	0.61%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.33%

July 2017		"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		0.13	99.4	0.85	101.6	0.44	96.9	0.26	97.8
Monthly Maximum		0.30	105.4	1.92	109.1	0.83	109.1	0.50	106.2
Annual Average		0.13	99.86	0.67	100.48	0.35	98.23	0.21	98.87
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.58%	0.00%	0.00%	0.00%	0.00%	0.00%	0.58%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.20%

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 95th 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/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 3rd, 4th and 5th May 2017 and 5th, 6th and 11th July 2017. 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		May-17	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	35.18	-7%
	MW3	19.16	0%
	MW4B	15.87	-9%
	MW5	11.96	-1%
	MW6	15.43	6%
	MW27*	52.09	5%
	MW36A	21.62	-1%
	MW36B	21.6	-2%
Werrie Basalt	**MW8***	15.89	-5%
	MW10	13.25	1%
	MW14	18.04	-1%
	MW17B*	11.98	-2%
	MW19A*	10.48	-7%
	MW20*	21.54	0%
	MW38A	12.96	-4%
	MW38B*	9.58	-1%
	MW38C*	22.45	0%
	MW38E*	9.67	-2%
#[1]	**MW24A***	14.49	-1%
	MW29*	12.16	-5%
Quipolly Alluvium	**MW12***	11.2	-6%
	MW13*	6.13	-2%
	MW13B*	4.53	-1%
	MW13D*	4.8	2%
	MW15*	5.69	-2%
	MW16*	6.59	-4%
	MW17A*	5.68	-4%
	MW18A*	5.46	-3%
	MW21A*	9.35	-4%
	MW22A*	6.75	-4%
	MW22B*	6.98	-3%
	MW23A*	3.84	2%
	MW23B*	5.05	-14%
	MW26B*	8.56	-10%
	MW28A*	12.28	-8%
	MW32*	3.98	1%
#[2]	**MW34***	10.77	-2%

Site		July-17	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	37.89	-7%
	MW3	19.21	0%
	MW4B	16.07	-1%
	MW5	12.00	0%
	MW6	15.37	0%
	MW27*	49.95	4%
	MW36A	22.39	-3%
	MW36B	22.37	-3%
Werrie Basalt	**MW8***	16.42	-3%
	MW10	13	2%
	MW14	18.51	-3%
	MW17B*	12.29	-3%
	MW19A*	10.63	-1%
	MW20*	21.57	0%
	MW38A	13.49	-4%
	MW38B*	9.72	-1%
	MW38C*	22.66	-1%
	MW38E*	9.84	-2%
#[1]	**MW24A***	14.61	-1%
	MW29*	12.50	-3%
Quipolly Alluvium	**MW12***	11.61	-4%
	MW13*	6.3	-3%
	MW13B*	4.69	-3%
	MW13D*	4.85	-1%
	MW15*	5.89	-3%
	MW16*	6.8	-3%
	MW17A*	5.97	-5%
	MW18A*	5.84	-7%
	MW21A*	9.64	-3%
	MW22A*	7.01	-4%
	MW22B*	7.29	-4%
	MW23A*	3.82	1%
	MW23B*	No access	
	MW26B*	8.3	3%
	MW28A*	12.57	-2%
	MW32*	3.86	3%
#[2]	**MW34***	10.7	1%

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 May and July.

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 25th May 2017. 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.

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	Dry	Dry	Dry	Dry	Dry. Grass on bottom of dam.
SB9	Dry	Dry	Dry	Dry	Dry. Grass on bottom of dam.
SB10	Dry	Dry	Dry	Dry	Dry. Just puddle.
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry. Just Gravel
QCD	8.0	992	10	<5	pH unchanged and EC slightly decreased, TSS was stable and O&G unchanged. Flowing.
WCU	8.0	481	5	<5	Previous quarter this location was Dry. Field sheet water pools.
WCD	8.3	1332	10	<5	pH slightly increased and EC slightly decreased, TSS decreased from 35 to 10 and O&G also decreased. 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 25th May 2017 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 May, June and July 2017.

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
550	18/5/2017	Blast	Complainant advised they felt the blast at their residence.	WCC blast 064 fired at 1.08pm on the 18 May. Monitoring results were within compliance limits at all locations.	EO advised blast was in compliance.
551	9/6/2017	Odour	Complainant advised the EPA they could detect an odour of burning coal at their property.	WCC undertook an investigation into odour emissions and provided an Event Report to the EPA.	The EPA reviewed the investigation findings and provided feed back to the complainant.
552	30/6/2017	Odour / Dust	Complainant advised they could detect an odour of burning coal at their property. They noted dust over the project area.	EO advised the measures in place to manage odour and dust impacts, describing the findings of the recent odour investigation provided to the EPA.	Complainant was content with EO response.
553	3/7/2017	Odour / Dust	Complainant advised they could detect an odour of burning coal at their property. They noted dust over the project area.	EO advised the measures in place to manage odour and dust impacts. EO raised dust concerns with OCE, ensuring additional water cart cycles in dust prone operations. EO visited the complainant's property, no odour was evident by EO or complainant upon inspection.	None required.
554	7/7/2017	Odour	Complainant advised they could detect an odour of burning coal at their property early in the morning however had cleared prior to making the complaint.	EO advised the measures in place to manage odour.	Complainant was content with EO response.

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.

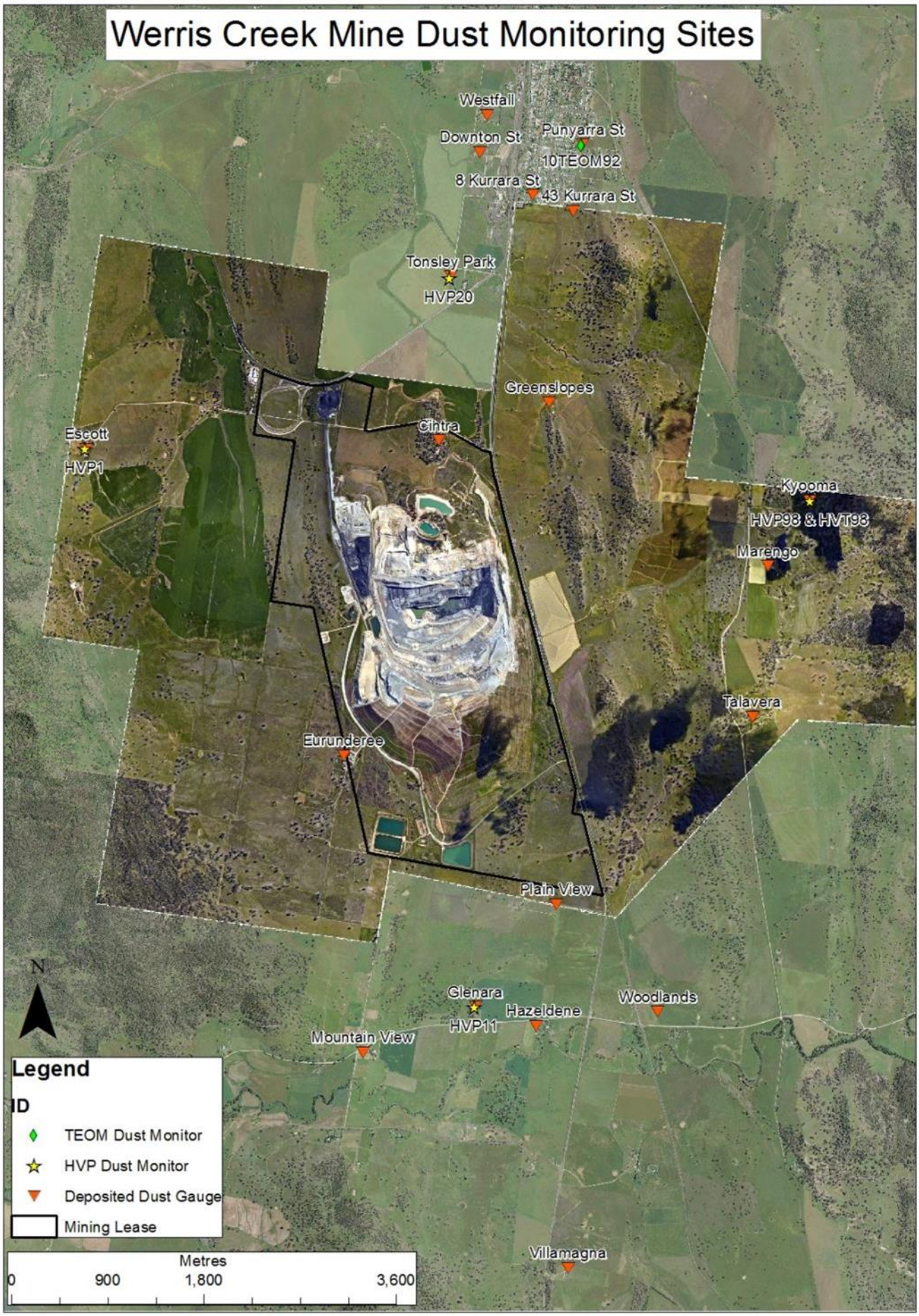


Figure 1 – WCC Dust Monitoring Locations

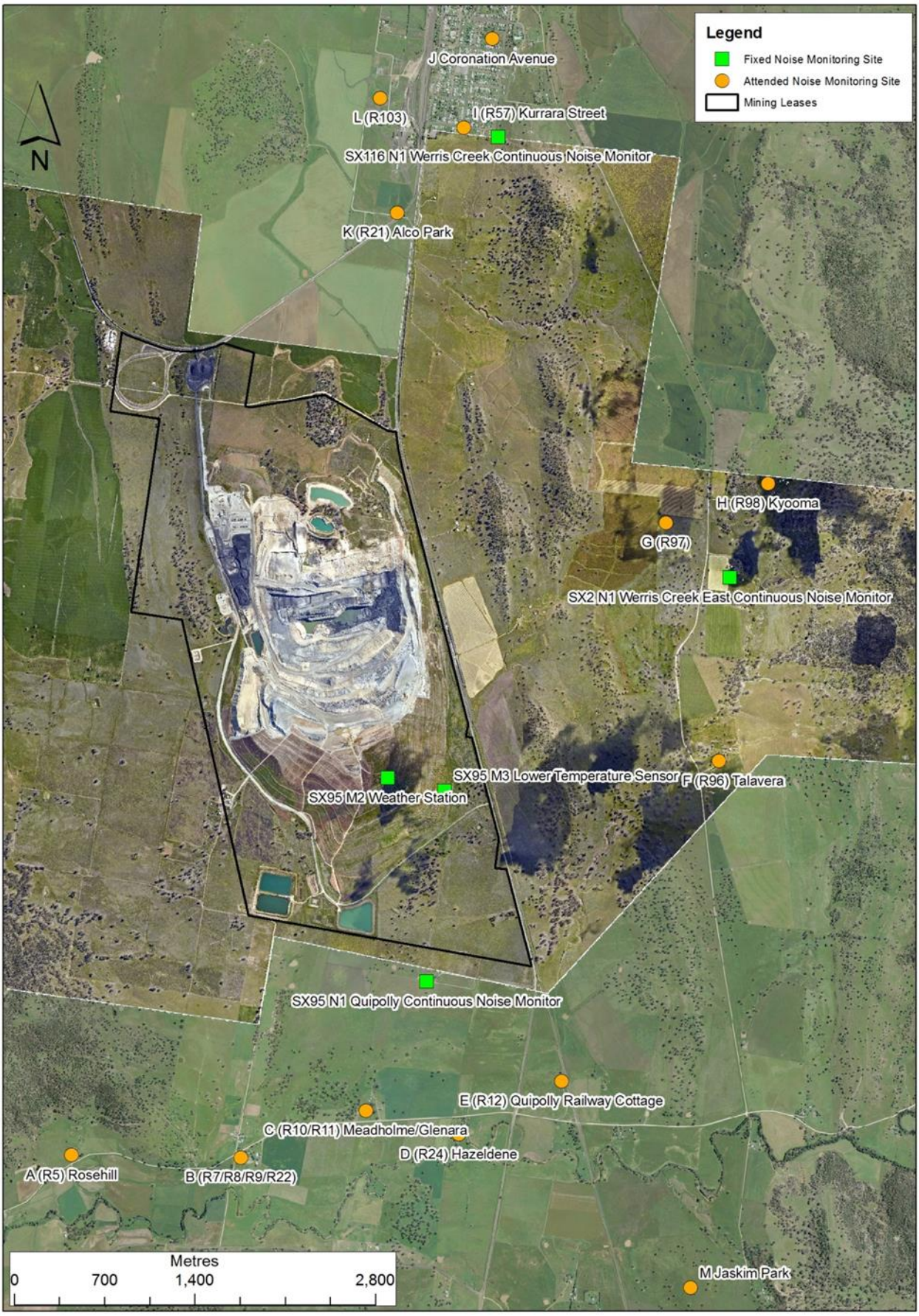


Figure 2 – WCC Noise Monitoring Locations

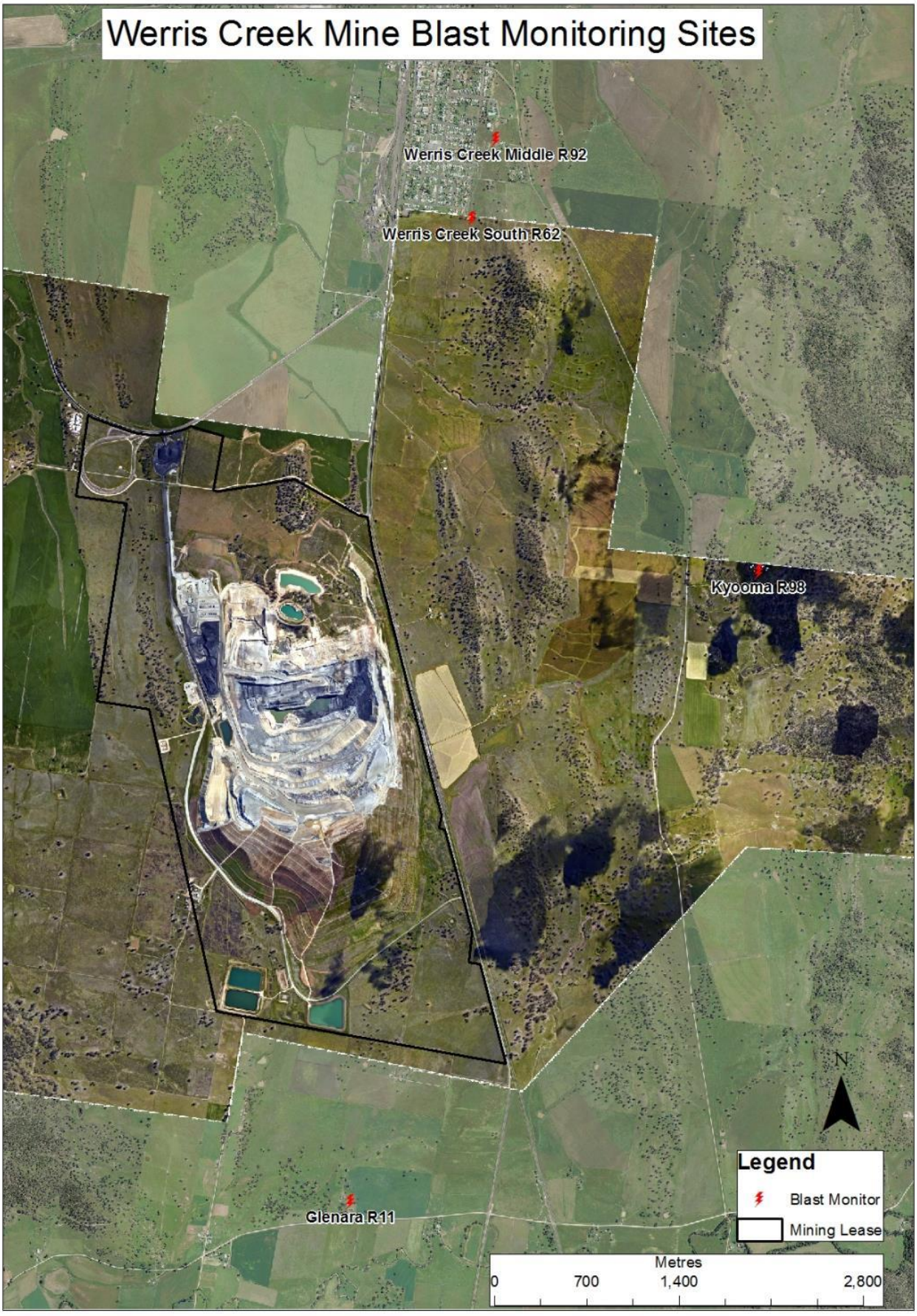


Figure 3 – WCC Blast Monitoring Locations

Figure 4 – WCC Groundwater Monitoring Locations

Figure 5 – WCC Surface Water Monitoring Locations

Werris Creek Coal Community Consultative Committee

MINUTES

45th Meeting of the Committee, 29th November 2017.

Werris Creek Coal (WCC) Community Consultative Committee (CCC) met on site at Werris Creek Coal Mine from 9:30am for the quarterly meeting followed by a pit tour of the mine site, inspecting operations.

Meeting Opened at 9.32am.

1. **Record of Attendance:**

Present

Lindsay Bridge	Community Representative
James O'Brian	Community Representative
Rod Hicks	WCC Operations Manager
Shannon Reid	WCC Site Clerk and Minute Taker
Lynden Cini	WCC Environmental Officer
Cr Virginia Black	LPSC Councillor
Noel Taylor	Community Representative
Gae Swain	Independent Chairperson

Apologies

Mike Lomax

2. **Declaration of Pecuniary or Other Interests.**

   Gae Swain has a Son in law working for Whitehaven Coal at Narrabri Underground Mine and Maules Creek Mine

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

   LC – Document to table - Subsidence Advisory NSW
   DA - Update on the Spring Ridge Playground

4. **Minutes of Previous Meeting**

Moved: Virginia Black Seconded Noel Taylor. Motion carried.

5. **Matters Arising**

   None

6. **Environmental Monitoring Report**

   Lynden provided commentary on the report.

Motion to accept the report. Moved: Virginia Black. Seconded: Lindsay Bridge. Motion Carried.

7. General Business.

LC – Subsidency Advisory document, this is a blanket document that has gone to all mines just for information. The document has been tabled

DA –Spring Ridge Playground is now complete, we are organising an opening for the Playground on the 16th December 2017. Everyone in the community is very excited to be able to use this playground.

GS – The rehab looks fantastic, the ground cover is great the trees are great and the dead trees standing look good and part of the landscape. Its came together well. Fantastic job.

LC – Another 850 plants have been planted. We have had about 50-60% success in previous planting. We lost more of the plants on the flat.

LC – We are in the process of irrigation development project. We are hoping to start irrigating on Plain View property prior to the next meeting.

Meeting Closed. 10.01am

Next MeetingScheduled for Wednesday 7th March 2018

Site tour by Lynden.

Copy to:

All Committee members

The minutes will also be posted on the Whitehaven Coal Website
http://www.whitehavencoal.com.au/environment/werris_creek_mine_environmental_management.cfm

WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

August, September and October 2017

This Environmental Monitoring Report covers the period 1st August to 31st October 2017 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**.

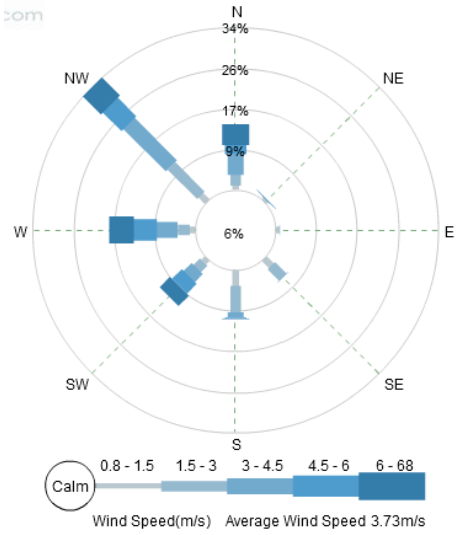
CONTENTS

1.0 METEOROLOGY

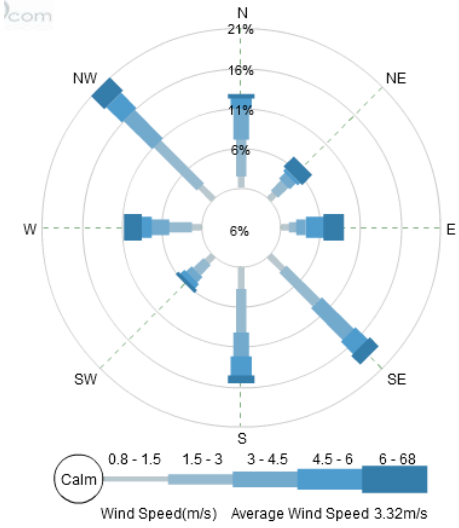
1.1 WEATHER STATION

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 three months. Monthly totals during the quarter were lower than the historical average in August and September and slightly above in October. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the north west, south and southeast.

Month	Rainfall *(mm)*		
	Onsite	***Historical Average***	***2017 Total***
August 2017	19.0	36.0	350.6
September 2017	15.2	47.6	365.8
October 2017	71.4	50.3	437.2



September 2017



October 2017

2.0 AIR QUALITY

2.1 HVAS (PM_{10}) and TEOM (PM_{10} & $PM_{2.5}$)

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM_{10}) 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 ($\mu g/m^3$) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM_{10} 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 three months are provided in the table below.

Monitor Location	Daily Maximum *($\mu g/m^3$)*	August 2017 *($\mu g/m^3$)*	September 2017 *($\mu g/m^3$)*	October 2017 *($\mu g/m^3$)*	2017 Average *(g/m^2/month)*	Criteria *($\mu g/m^3$)*	
						Annual	Daily
$PM_{2.5}$ – TEOM92 "Werris Creek"	16.4	7.0	6.3	6.0	6.5	8	25
PM_{10} – TEOM92 "Werris Creek"	33.7	12.0	15.0	11.8	11.3	30	50
PM_{10} – HVP20 "Tonsley Park"	40.6	18.8	21.1	14.0	14.9	30	50
PM_{10} - HVP1 "Escott"	28.0	10.1	10.9	10.8	8.9	30	50

PM_{10} – HVP11 "Glenara"	67.6	22.1	23.8	22.4	19.2	30	50
PM_{10} – HVP98 "Kyooma"	23.3	10.0	9.9	10.9	8.4	30	50
TSP – HVT98 "Kyooma"	45.3	20.5	22.1	18.5	16.7	90	-

Yellow Bold – Elevated dust level.

2.1.2 Discussion - Compliance / Non Compliance

All TSP and PM10 and PM2.5 dust results were within criteria during the period with the exception of one PM10 results
measured at "HVP11 "Glenara"", on the 27th September 2017. Upon investigation and reporting to the Department of Environment and Planning, it was identified that the dust source was from non-mining events due to the wind direction during monitoring. No further investigations were required from the Department.

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^2/month). Dust monitoring locations are identified in **Figure 1**.

2.2.1 Monitoring Data Results

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

Monitor Location	August 2017 *(g/m^2/month)*	September 2017 *(g/m^2/month)*	October 2017 *(g/m^2/month)*	2017 Average *(g/m^2/month)*	Annual Criteria *(g/m^2/month)*
DG1 "Escott"	0.2	0.6	1.2	0.6	4.0
DG2 "Cintra"	1.5	3.1	3.6	3.3	4.0
DG3 "Eurunderee"	1.2	0.7	2.4	1.7	4.0
DG5 "Railway View"	2.1	1.8	3.3	2.3	4.0
DG9 "Marengo"	0.5	0.9	2.5	0.9	4.0
DG11 "Glenara"	0.6	1.5	1.5	1.1	4.0
DG14 "Greenslopes"	0.3	0.6	1.4	0.9	4.0
DG15 "Plain View"	3.7*	1.4	6.0	1.6	4.0
DG17 "Woodlands"	0.5	1.2	2.1	1.1	4.0
DG20 "Tonsley Park"	0.5	1.3	1.0	1.1	4.0
DG22 "Mountain View"	1.9	1.8	8.8	2.0	4.0
DG24 "Hazeldene"	1.8*	1.1	1.2	1.4	4.0
DG34 8 Kurrara St	0.3	0.7	1.5	7.0	4.0
DG62 Werris Creek South	0.3	0.7	1.9	1.0	4.0
DG92 Werris Creek Centre	0.2	1.0	1.5	0.6	4.0
DG96 "Talavera"	NS	NS	NS	NA	4.0
DG98 "Kyooma"	0.2	0.8	1.8	0.7	4.0
DG101 "Westfall"	0.2	0.4	0.7	1.0	4.0
DG103 West Street	0.3	1.0	1.5	0.8	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.

2.2.2 Discussion - Compliance / Non Compliance

All monthly dust deposition gauge results were below the annual criteria of 4.0g/m^2/month throughout the period with the exception of DG34 (8 Kurrara St) which had a rolling 2017 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. DG15 and DG22 had one anomalous high dust deposition measurement during October 2017 deposited dust levels remained low at nearby gauges, also indicating a localised source of dust, unrelated to activities at Werris Creek Coal Mine. Annual averages at these locations remain in compliance.

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	August 2017		September 2017		October 2017		2017 Average *(g/m²/month)*
	g/m²/month	*% Coal*	*g/m²/month*	*% Coal*	*g/m²/month*	*% Coal*	
DDW30	2.5	5%	1.5	5%	1.8	5%	1.2
DDW20	0.6	<5%	1.4	5%	1.8	10%	0.8
DDW13	0.6	<5%	1.0	5%	1.2	<5%	1.0
Train Line							
DDE13	0.3	5%	NS	NS	1.2	15%	1.3
DDE20	0.9	5%	0.9	15%	0.9	5%	0.8
DDE30	1.4	<5%	5.6*	5%	1.0	<5%	1.1

* - 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^2/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 14th and Tuesday 15th August 2017

	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	NM	35	<30	35
B	**West Quipolly** (R7*, R8*,R9* & R22*)	26#	40	27	40
C	**Central Quipolly**(R10*,R11*)	26#	40	<30#	40
D	**"Hazeldene"** R24	NM#	37	27#	37
E	**"Railway Cottage"** R12	<30	38	27#	38
F	**"Talavera"** R96	30	38	32#	37
H	**"Kyooma"** R98	Inaudible	38	32#	38
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	<30	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) $L_{eq\ 15min}$

Tuesday 26th and 27th September 2017

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	30	35	<25	35
B	**West Quipolly** (R7*, R8*,R9* & R22*)	<30	40	<30	40
C	**Central Quipolly**(R10*,R11*)	<25	40	<30	40
D	**"Hazeldene"** R24	<20	37	Inaudible	37
E	**"Railway Cottage"** R12	Inaudible	38	Inaudible	38
F	**"Talavera"** R96	<30	38	30	37
H	**"Kyooma"** R98	<30#	40	<20#	40
I	**Kurrara St, WC** R57	Inaudible	35	<30	35
J	**Coronation Ave, WC**	Inaudible	35	30	35
K	**Alco Park** (R21*)	Inaudible	40	34	40
L	**West St, WC** (R103)	Inaudible	35	<30	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) $L_{eq\ 15min}$

NMet monitored- 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

^Multiple evening and night measurement was taken, for reporting purposes the highest reading of the period was used.

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.

At the time of writing this report, noise monitoring results for October remained outstanding. Whilst the monitoring was undertaken the finalised report had not been issued to WCC by the consultant.

3.2 Noise complaints

There were two noise complaints recorded during the period.

4.0 BLASTING

During the reporting period there was a total of thirty-two 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 115dBL (and up to 120dBL 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 three months are provided below.

August 2017		**"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	101.8	0.88	102.3	0.38	97.3	0.23	101.7
Monthly Maximum		0.26	108.2	2.02	107.8	0.85	107.9	0.41	117.3
Annual Average		0.13	100.11	0.69	100.70	0.36	98.11	0.21	99.23
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.55%	0.00%	0.00%	0.00%	0.00%	0.00%	1.10%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.13%

September 2017		**"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	100.8	0.72	102.6	0.34	101.6	0.24	99.7
Monthly Maximum		0.15	117.2	1.48	108.4	0.64	113.5	0.58	110.8
Annual Average		0.13	100.19	0.70	100.91	0.36	98.49	0.21	99.28
Criteria		5	115	5	115	5	115	5	115
% >115dB(L)	**Rolling Ave**	0.00%	1.04%	0.00%	0.00%	0.00%	0.00%	0.00%	1.04%

September 2017		"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)*
or 5mm/s	**Reporting Year**	0.00%	0.95%	0.00%	0.00%	0.00%	0.00%	0.00%	1.90%

October 2017		"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	104.0	0.71	102.1	0.37	99.8	0.25	100.1
Monthly Maximum		0.24	118.0	1.53	109.4	0.72	110.9	0.51	109.1
Annual Average		0.12	100.56	0.70	101.04	0.36	98.62	0.22	99.36
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	1.48%	0.00%	0.00%	0.00%	0.00%	0.00%	0.99%
	Reporting Year	0.00%	1.74%	0.00%	0.00%	0.00%	0.00%	0.00%	1.74%

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 95th percentile limits (115dB(L) and 5mm/s).

4.2 BLAST COMPLAINTS

There were three 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 6^{th,} 8th and 12th September 2017. 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		September-17	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	40.84	-7%
	MW3	19.29	0%
	MW4B	16.27	-1%
	MW5	12.09	-1%
	MW6	15.46	-1%
	MW27*	49.43	1%
	MW36A	23.18	-3%
	MW36B	23.15	-3%
Werrie Basalt	**MW8***	17.28	-5%
	MW10	13.12	-1%
	MW14	19.09	-3%
	MW17B*	12.45	-1%
	MW19A*	12.45	-15%
	MW20*	21.61	0%
	MW38A	13.94	-3%
	MW38B*	9.80	-1%
	MW38C*	22.40	1%
	MW38E*	9.97	-1%
#[1]	**MW24A***	10.77	36%
	MW29*	12.77	-2%
Quipolly Alluvium	**MW12***	11.96	-3%
	MW13*	6.53	-4%
	MW13B*	4.87	-4%
	MW13D*	4.89	-1%
	MW15*	6.06	-3%
	MW16*	7.11	-4%
	MW17A*	6.21	-4%
	MW18A*	6.05	-3%
	MW21A*	9.91	-3%
	MW22A*	7.20	-3%
	MW22B*	7.52	-3%
	MW23A*	3.92	-3%
	MW23B*	4.09	23%
	MW26B*	8.68	-4%
	MW28A*	13.23	-5%
	MW32*	4.01	-4%
#[2]	**MW34***	10.8	-1%

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 September with the exception of increases in depth at MW24A and MW23B.

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 15th August 2017. 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.

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	Dry	Dry	Dry	Dry	Dry. Grass on bottom of dam.
SB9	Dry	Dry	Dry	Dry	Dry. Grass on bottom of dam.
SB10	Dry	Dry	Dry	Dry	Dry.
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry. Just Gravel
QCD	8.3	985	9	<5	pH slightly increased and EC slightly decreased, TSS was stable and O&G unchanged. Flowing.
WCU	Dry	Dry	Dry	Dry	Previous quarter this location was pools.
WCD	8.7	1390	14	<5	pH slightly increased and EC slightly decreased, TSS decreased from 35 to 10 and O&G also decreased. 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 15th August 2017 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 August, September and October 2017.

5.3 WATER COMPLAINTS

There were no water release complaints during the period.

6.0 COMPLAINTS SUMMARY

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

#	Date	Issue	Complaint	Investigation	Action Taken
555	14/8/017	Blast	Complainant advised they could feel the ground shake. Complainant also noted the dust caused can be detrimental for asthmatics. Complainant requested results of blast.	EO disclosed the results of the blast, noting vibration and overpressure were within compliance limits.	None required.
556	15/8/2017	Dust / Odour	EO returned call to EPA and discussed complaint.	WCC had water carts operational with targeted cycles, and EX551 shut down as precautionary measures adage	EPA was content with procedures in place.
557	20/8/2017	Noise	EO received voice mail stating noise levels were bad.	EO returned called to complainant and left a voice message requesting further details. Complainant did not return EO's call.	None required.
558	21/8/2017	Noise	EO received phone call from EPA to discuss previous noise complaint. Complainant had advised EPA noise of concern were operations from 7-8 am on 20.8.17.	EO explained to EPA the communication trail, with no forthcoming return call from complainant. EO advised EPA that since communications could not be established, no operational changes were made. EO identified a temperature inversion at the times EPA identified, which potentially amplified noise, concurrent with a Southerly wind.	EPA advised no further comment or action was necessary.
559	28/8/2017	Blast	Complainant advised they felt the blast vibration at their residence.	EO explained the details of the blast and that all monitors indicated the blast was within compliance limits.	Complainant was content with EO response.
560	13/9/2017	Blast / Dust	Complainant advised there was dust from the blast.	EO explained the details of the blast and compliance with blasting limits. EO discussed the dust levels of the blast and more generally the dust levels from blasts undertaken at natural surface level.	Complainant was content with the response.
561	21/9/2017	Blast	Complainant advised they felt the blast vibration at their residence.	EO explained the details of the blast and that all monitors indicated the blast was within compliance limits.	Complainant was content with the response.

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.

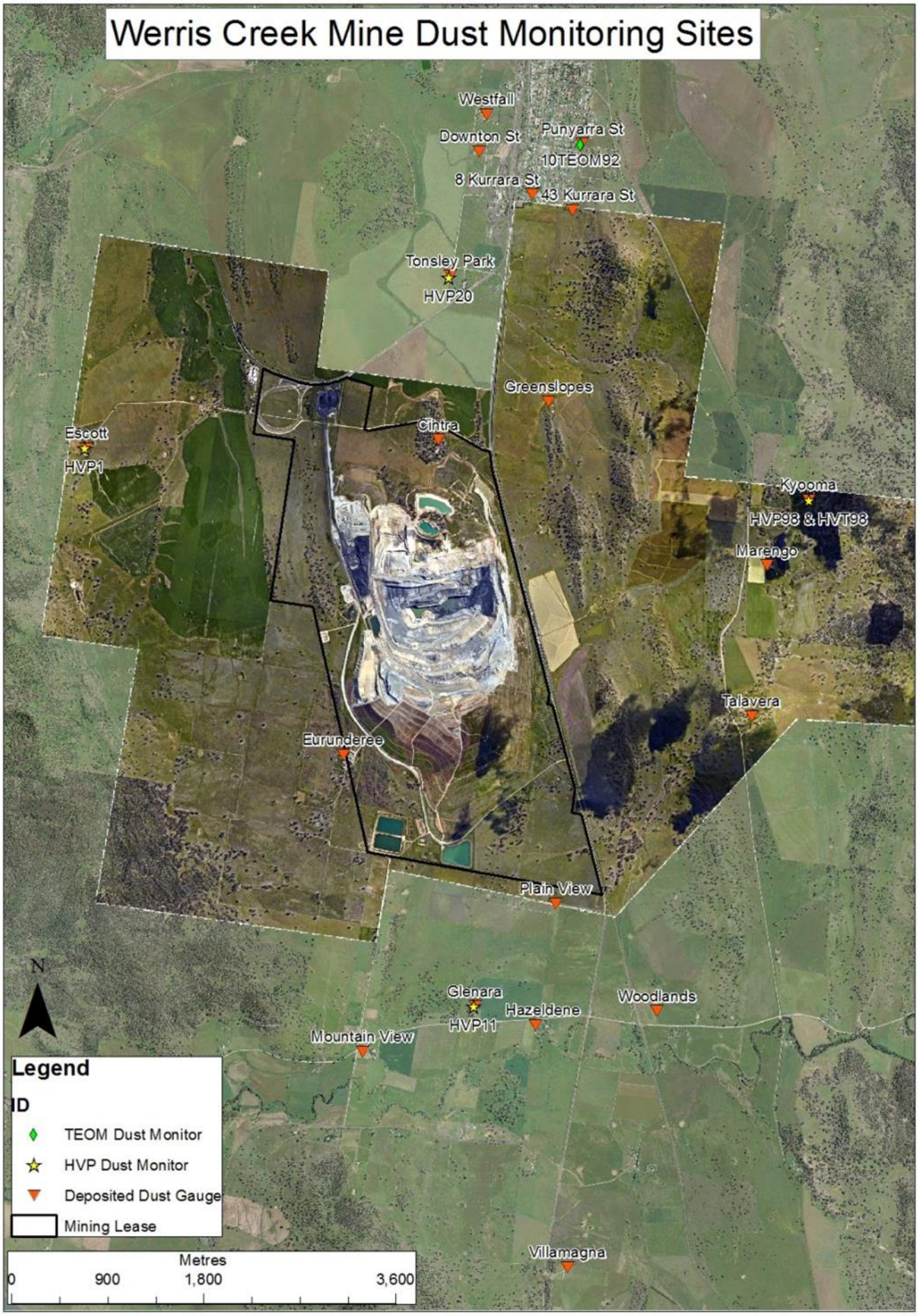


Figure 1 – WCC Dust Monitoring Locations

Figure 2 – WCC Noise Monitoring Locations

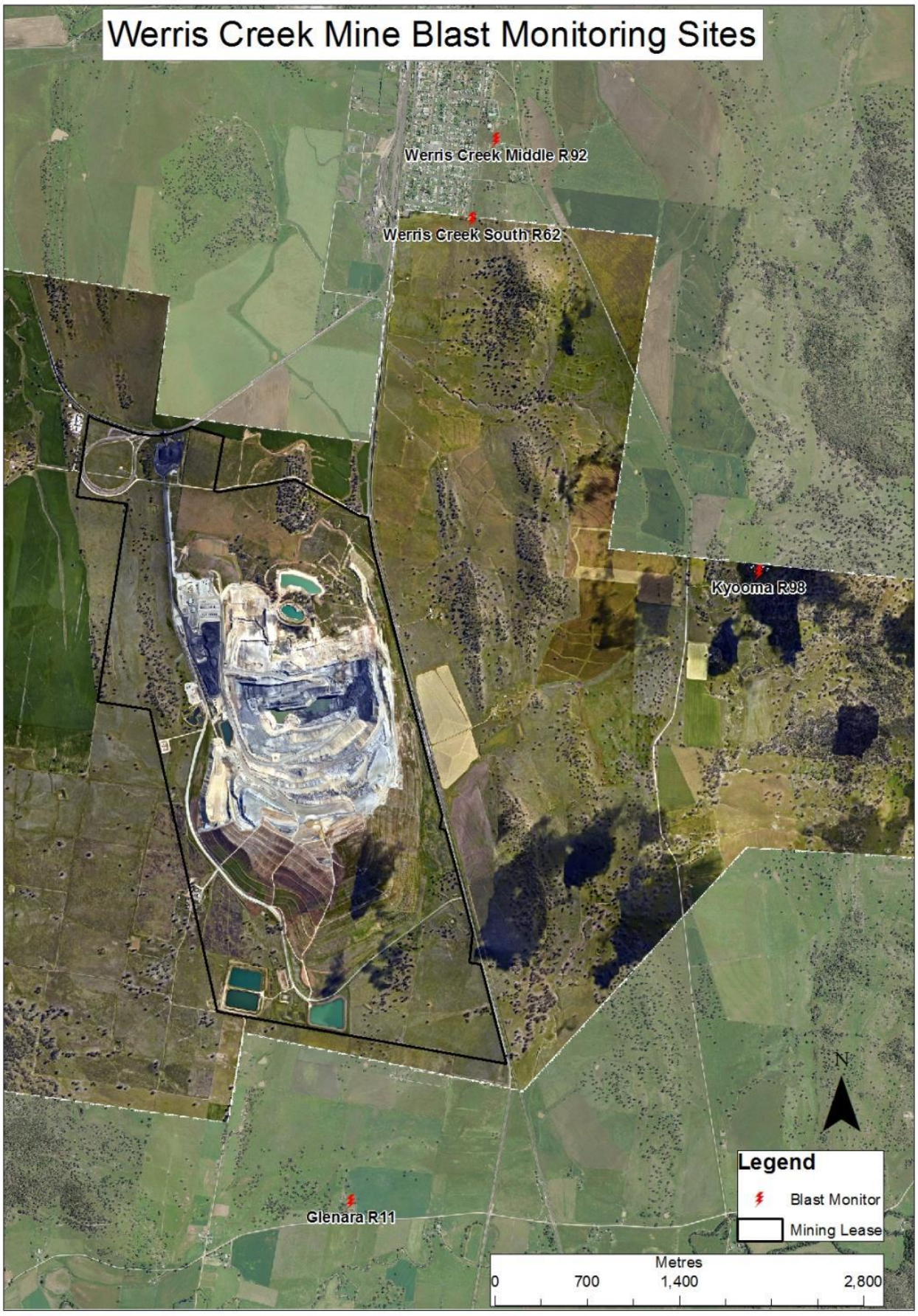


Figure 3 – WCC Blast Monitoring Locations

Figure 4 – WCC Groundwater Monitoring Locations

Figure 5 – WCC Surface Water Monitoring Locations