



WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

February, March, April and May 2018

This Environmental Monitoring Report covers the period 1st February 2018 to 31st May 2018 for the Werris Creek Coal Mine Community Consultative Committee.

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

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

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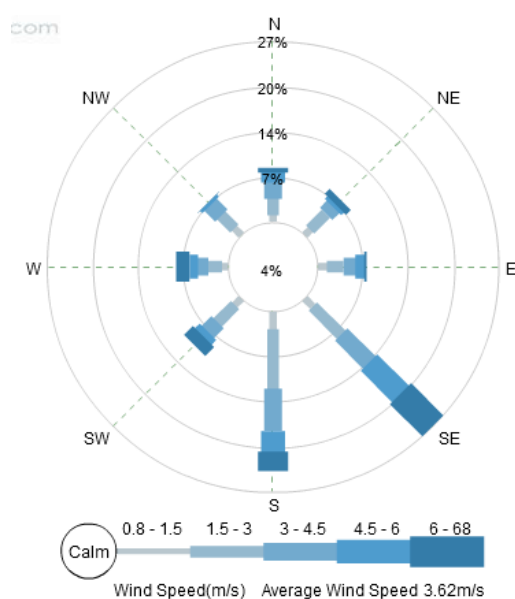
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1.0 METEOROLOGY

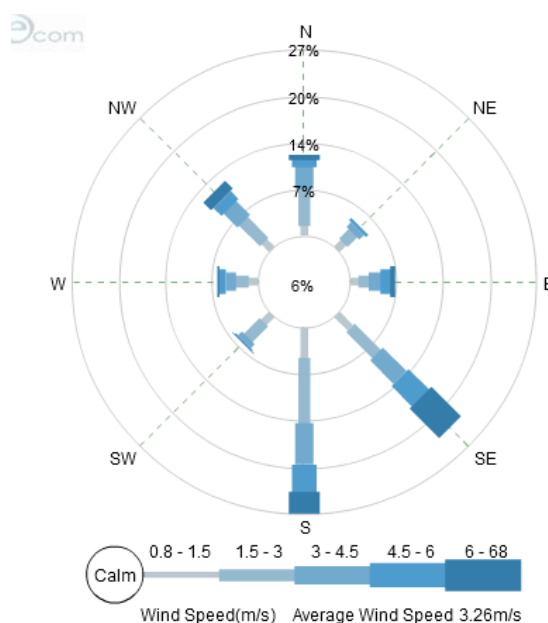
1.1 WEATHER STATION

Werris Creek Coal (WCC) collects meteorological data from the onsite weather station located on the top level of the overburden emplacement. The following table summarises rainfall data for the last four months. Monthly totals over the four months were lower than the historical average. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the south in May and the south to southeast during February, March and April 2018.

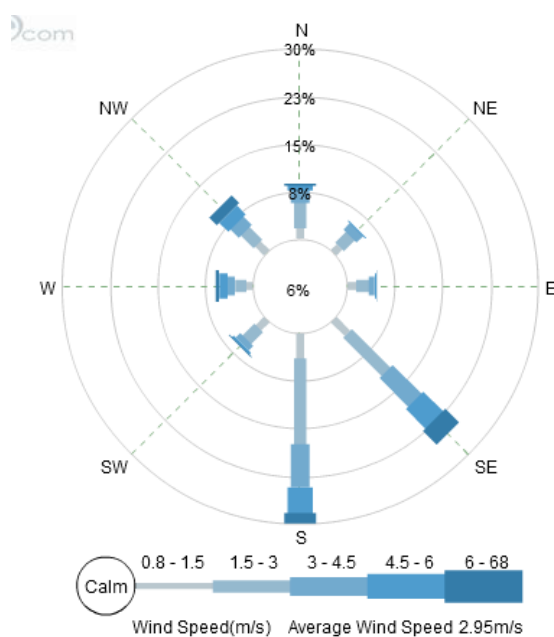
Month	Rainfall (mm)		
	Onsite	Historical Average	2018 Total
February 2018	45.2	69.0	73.0
March 2018	50.8	52.7	123.8
April 2018	14.4	30.8	138.2
May 2018	3.4	31.9	141.6



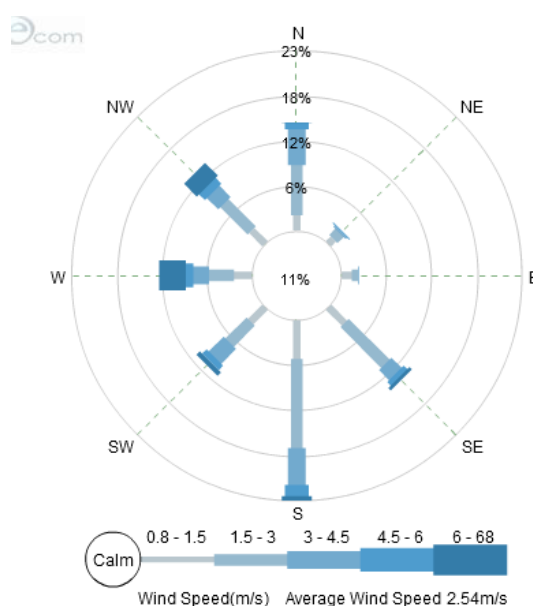
February 2018



March 2018



April 2018



May 2018

2.0 AIR QUALITY

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

WCC operates five High Volume Air Samplers (HVAS) measuring particulate matter less than 10 micron (PM₁₀) and total suspended particulate (TSP) matter at four sites. HVAS sampling is scheduled every 6 days for a 24-hour run period in accordance with Environment Protection Authority (EPA) guidelines. Results are reported in micro grams per cubic metre (µg/m³) of air sampled. In addition, WCC operates a Tapered Element Oscillating Microbalance (TEOM) monitor in Werris Creek measuring real time PM₁₀ and PM_{2.5} (particulate matter less than 2.5 micron) dust levels. Dust monitoring locations are identified in **Figure 1**.

2.1.1 Monitoring Data Results

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

Monitor Location	Daily Maximum (µg/m ³)	February 2018 (µg/m ³)	March 2018 (µg/m ³)	April 2018 (µg/m ³)	May 2018 (µg/m ³)	2018 Average (g/m ² /month)	Criteria (µg/m ³)	
							Annual	Daily
PM _{2.5} – TEOM92 “Werris Creek”		3.4	4.3	5.3	9.2	6.1	8	25
PM ₁₀ – TEOM92 “Werris Creek”		12.1	11.9	15.2	19.3	14.8	30	50
PM ₁₀ – HVP20 “Tonsley Park”		20.9	18.6	18.0	20.0	18.6	30	50
PM ₁₀ – HVP1 “Escott”		17.0	15.0	12.3	9.9	13.7	30	50
PM ₁₀ – HVP11 “Glenara”		31.4	23.6	23.8	22.8	24.0	30	50
PM ₁₀ – HVP98 “Kyooma”		20.5	12.5	12.2	11.8	13.7	30	50
TSP – HVT98 “Kyooma”		70.9	23.9	30.8	33.2	36.3	90	-

Yellow Bold – Elevated dust level.

2.1.2 Discussion - Compliance / Non Compliance

All TSP, PM₁₀ and PM_{2.5} dust results were within criteria during the period with the exception of two PM₁₀ results measured at “HVP11 “Glenara””, on the 18th February 2018 and “TEOM92 “Werris Creek””, on the 15 April 2018.

2.2 WERRIS CREEK MINE DEPOSITED DUST

Deposited dust monitoring measures particulate matter greater than 30 microns in size that readily settles out of the air related to visual impact. Dust deposition is monitored at 20 locations around WCC. Sampling is scheduled monthly in accordance with EPA guidelines and results are reported as grams per square metre per month (g/m²/month). Dust monitoring locations are identified in **Figure 1**.

2.2.1 Monitoring Data Results

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

Monitor Location	February 2018 (g/m ² /month)	March 2018 (g/m ² /month)	April 2018 (g/m ² /month)	May 2018 (g/m ² /month)	2018 Average (g/m ² /month)	Annual Criteria (g/m ² /month)
DG1 “Escott”	0.8	1.6	1.2	0.2	1.2	4.0
DG2 “Cintra”	2.6	3.2	6.7	4.3	4.1	4.0
DG3 “Eurunderee”	1.2	1.2	2.0	0.9	1.3	4.0
DG5 “Railway View”	1.8	1.8	3.1	1.9	2.4	4.0
DG9 “Marengo”	4.3	2.1	1.3	0.4	1.9	4.0
DG11 “Glenara”	1.3	1.6	1.6	0.7	1.3	4.0
DG14 “Greenslopes”	1.3	1.3	1.0	0.6	1.0	4.0
DG15 “Plain View”	0.9	2.3	1.0	0.5	1.1	4.0
DG17 “Woodlands”	1.3	1.0	1.5	0.3	1.1	4.0
DG20 “Tonsley Park”	0.6	1.2	1.8	0.1	1.2	4.0
DG22 “Mountain View”	1.5	1.1	2.3	0.5	1.4	4.0
DG24 “Hazeldene”	0.7	0.7	2.8	0.9	1.2	4.0
DG34 8 Kurrara St	0.5	0.4	11.1	0.4	2.9	4.0
DG62 Werris Creek South	0.3	0.4	0.5	0.4	0.4	4.0
DG92 Werris Creek Centre	0.3	0.5	0.5	0.4	0.4	4.0
DG96 “Talavera”	NS	NS	NS	NS	NA	4.0
DG98 “Kyooma”	0.5	0.5	0.5	0.4	0.5	4.0
DG101 “Westfall”	0.3	1.0	0.1	0.4	0.6	4.0
DG103 West Street	0.8	1.1	1.1	0.5	1.1	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/m²/month throughout the period with the exception of DG2 (Cintra) which had high results in April and May 2018 and a rolling average above criteria.

DG9 in February 2018 and DG34 in April had one anomalous high dust deposition measurement, deposited dust levels remained low at nearby gauges, also indicating a localised source of dust, unrelated to activities at Werris Creek Coal Mine.

2.3 QUIRINDI TRAIN DUST DEPOSITION

2.3.1 Monitoring Data Results

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

Monitor Location	February 2018		March 2018		April 2018		May 2018		2018 Average (g/m ² /month)
	g/m ² /month	% Coal	g/m ² /month	% Coal	g/m ² /month	% Coal	g/m ² /month	% Coal	
DDW30	1.0	10%	0.8	10%	1.1	5%	0.9	15%	1.0
DDW20	2.5	20%	1.0	25%	1.8	20%	0.8	30%	1.4
DDW13	1.2	10%	1.8	15%	1.2	10%	0.8	25%	1.2
Train Line									
DDE13	3.7*	10%	2.1	5%	0.9	10%	0.6	15%	1.2
DDE20	1.6	10%	1.2	10%	5.4	5%	0.8	10%	2.1
DDE30	5.1*	10%	5.3*	10%	2.4	5%	0.4	10%	1.4

* - 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/m²/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 February 2018

Location		Day dB(A) L _{eq} 15min	Criteria dB(A) L _{eq} 15min	Evening/Night dB(A) L _{eq} 15min	Criteria dB(A) L _{eq} 15min
A	"Rosehill" R5	Inaudible#	35	Inaudible#	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible#	40	NM#	40
C	Central Quipolly (R10*, R11*)	Inaudible#	40	<25#	40
D	"Hazeldene" R24	Inaudible	37	NM#	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible	38
F	"Talavera" R96	Inaudible#	38	<30	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*)	NM	40	31#	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.

Monday 19th and Tuesday 20th March 2018

Location		Day dB(A) L_{eq} 15min	Criteria dB(A) L_{eq} 15min	^Evening/Night dB(A) $L_{eq\ 15min}$	Criteria dB(A) L_{eq} 15min
A	"Rosehill" R5	Inaudible	35	Inaudible	35
B	West Quipolly (R7*, R8*, R9* & R22*)	26	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	<25	38
F	"Talavera" R96	Inaudible	38	<25	37
H	"Kyooma" R98	<20	40	<30	40
I	Kurrara St, WC R57	Inaudible	35	<30	35
J	Coronation Ave, WC	Inaudible	35	<25	35
K	Alco Park (R21*)	<25	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 26th and Friday 27th April 2018

Location		Day dB(A) L_{eq} 15min	Criteria dB(A) L_{eq} 15min	^Evening/Night dB(A) $L_{eq\ 15min}$	Criteria dB(A) L_{eq} 15min
A	"Rosehill" R5	Inaudible	35	Inaudible	35
B	West Quipolly (R7*, R8*, R9* & R22*)	Inaudible	40	Inaudible	40
C	Central Quipolly (R10*, R11*)	Inaudible	40	Inaudible	40
D	"Hazeldene" R24	Inaudible	37	Inaudible	37
E	"Railway Cottage" R12	Inaudible	38	Inaudible	38
F	"Talavera" R96	Inaudible	38	Inaudible	37
H	"Kyooma" R98	Inaudible	40	20	40
I	Kurrara St, WC R57	Inaudible	35	<20	35
J	Coronation Ave, WC	Inaudible	35	<20	35
K	Alco Park (R21*)	<20	40	28	40
L	West St, WC (R103)	<20	35	<20	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 28th May 2018

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

3.2 Noise complaints

There were no noise complaints recorded during the period.

4.0 BLASTING

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

4.1 BLAST MONITORING

4.1.1 Monitoring Data Results

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

February 2018		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.10	98.4	0.82	101.2	0.26	101.5	0.19	103.4
Monthly Maximum		0.19	114.5	1.45	112.3	0.48	106.4	0.40	117.2
Annual Average		0.13	98.00	0.91	99.87	0.34	100.53	0.25	100.68
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	1.54%	0.00%	0.00%	0.00%	0.00%	0.00%	2.31%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	5.56%

March 2018		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.10	99.75	0.56	98.96	0.26	99.92	0.20	98.53
Monthly Maximum		0.22	109.00	1.04	106.10	0.53	104.40	0.37	103.00
Annual Average		0.12	98.58	0.79	99.57	0.31	100.33	0.24	99.96
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	1.57%	0.00%	0.00%	0.00%	0.00%	0.00%	1.57%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.45%

April 2018		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.09	101.52	0.58	99.61	0.24	98.31	0.16	98.73
Monthly Maximum		0.18	110.40	1.50	105.80	0.42	103.50	0.30	102.50
Annual Average		0.11	99.32	0.74	99.58	0.29	99.82	0.22	99.66
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	1.56%	0.00%	0.00%	0.00%	0.00%	0.00%	1.56%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.63%

May 2018		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Monthly Average		0.09	99.32	0.61	100.98	0.29	98.38	0.20	95.23
Monthly Maximum		0.24	120.40	1.95	120.20	0.78	110.10	0.53	114.10

May 2018		"Glenara" R11		"Kyooma" R98		Werris Creek South R62		Werris Creek Mid R92	
		mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)	mm/s	dB(L)
Annual Average		0.11	99.32	0.71	99.86	0.29	99.53	0.21	98.77
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	Rolling Ave	0.00%	3.23%	0.00%	0.81%	0.00%	0.00%	0.00%	1.61%
	Reporting Year	0.00%	3.92%	0.00%	1.96%	0.00%	0.00%	0.00%	1.96%

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

4.1.2 Discussion - Compliance / Non Compliance

All blasts over the period complied with maximum licence limits of 10mm/s) as well as the 95th percentile limits 5mm/s. However one blast was above the maximum licence limits for overpressure (120dB(L) at Glenara R11 and Kyooma R98 on the 4 May 2018. This over pressure exceedance was reported to the departments and the landholders. The blast was internally investigated and appropriate remedial actions implemented.

4.2 BLAST COMPLAINTS

There were ten 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 43 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 8, 13, 14, 15, 19 and March 23 2018 and 3, 4 and 7 May 2018. Groundwater monitoring locations are identified in **Figure 4**.

5.1.1 Monitoring Data Results

A summary of groundwater monitoring results has been provided below.

Site		March-18	
		mbgl	%
Werrie Basalt near WCC	MW1	Dry	
	MW2	58.97	-24%
	MW3	19.57	-1%
	MW4B	17.08	-2%
	MW5	12.48	-2%
	MW6	15.82	0%
	MW27*	56.47	-10%
	MW36A	20.89	13%
	MW36B	20.75	13%
Werrie Basalt	MW8*	18.73	-2%
	MW10	13.93	-2%
	MW14	15.69	19%
	MW17B*	13.25	-6%
	MW19A*	0	
	MW20*	21.85	0%
	MW38A	14.26	2%
	MW38B*	10.09	-1%
	MW38C*	23.61	-2%
	MW38E*	10.75	-3%
	MW41	9.03	-3%
	MW43	7.84	-3%
#1	MW24A*	15.51	-1%
	MW29*	13.49	-2%
Quipolly Alluvium	MW12*	Dry	
	MW13*	7.27	-4%
	MW13B*	5.65	-5%
	MW13D*	5.67	-3%
	MW15*	6.81	-4%
	MW16*	Dry	
	MW17A*	7.02	-5%
	MW18A*	6.88	-5%
	MW21A*	10.8	-3%
	MW22A*	8.47	-8%
	MW22B*	Dry	
	MW23A*	4.31	-3%
	MW23B*	4.36	
	MW26B*	9.37	-3%
	MW28A*	15.17	-4%
	MW32*	4.2	-1%
	MW40	9.06	-3%
	MW42	7.72	-3%
#2	MW34*	11.67	-2%

Site		May-18	
		mbgl	%
Werrie Basalt near WCC	MW1	Dry	
	MW2	47.51	24%
	MW3	19.68	-1%
	MW4B	17.37	-2%
	MW5	12.68	-2%
	MW6	16.17	-2%
	MW27*	56.11	1%
	MW36A	19.77	6%
	MW36B	19.79	5%
Werrie Basalt	MW8*	19.17	-2%
	MW10	14.18	-2%
	MW14	14.8	6%
	MW17B*	14.06	-6%
	MW19A*	14.15	
	MW20*	22.06	-1%
	MW38A	13.44	6%
	MW38B*	10.22	-1%
	MW38C*	23.73	-1%
	MW38E*	10.84	-1%
	MW41	9.27	-3%
	MW43	8.06	-3%
#1	MW24A*	17.07	-9%
	MW29*	15.83	-15%
Quipolly Alluvium	MW12*	Dry	
	MW13*	7.79	-7%
	MW13B*	5.78	-2%
	MW13D*	5.68	0%
	MW15*	No access	
	MW16*	Dry	
	MW17A*	7.18	-2%
	MW18A*	7.03	-2%
	MW21A*	11.03	-2%
	MW22A*	Dry	
	MW22B*	Dry	
	MW23A*	4.39	-2%
	MW23B*	4.71	-7%
	MW26B*	9.59	-2%
	MW28A*	15.68	-3%
	MW32*	4.25	-1%
	MW40	9.30	-3%
	MW42	7.95	-3%
#2	MW34*	11.95	-2%

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 an overall general decreased in water levels across the majority of monitoring bores during March 2018 and May 2018.

5.2 SURFACE WATER

Surface water monitoring is undertaken in local creeks offsite as well as from discharge point dirty water dams to monitor for potential water quality issues. Quarterly surface water monitoring was undertaken on the 22nd January, 8th February 2018 and 14th May 2018. Surface water monitoring locations are identified in **Figure 5**.

5.2.1 Monitoring Data Results

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

22nd January 2018 and 8th February 2018

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	Dry	Dry	Dry	Dry	Dry.
SB9	Dry	Dry	Dry	Dry	Dry. Grass on bottom of dam.
SB10	Dry	Dry	Dry	Dry	Dry.
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry.
QCD	8.2	1240	14	<5	pH and EC slightly increased, TSS was stable and O&G unchanged. Pools.
WCU	Dry	Dry	Dry	Dry	Dry
WCD	8.3	1440	27	<5	pH and EC slightly increased, TSS increased from 22 to 27 and O&G unchanged. Pools.

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

14 May 2018

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	Dry	Dry	Dry	Dry	Dry.
SB9	Dry	Dry	Dry	Dry	Dry.
SB10	Dry	Dry	Dry	Dry	Dry.
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry. Gravel bed.
QCD	8.1	1137	<5	<5	pH, TSS and O&G generally unchanged. EC decreased slightly. Flowing gently.
WCU	Dry	Dry	Dry	Dry	Dry
WCD	8.6	1310	12	<5	pH, TSS and O&G generally unchanged. EC decreased slightly. Pools.

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

5.2.2 Discussion - Compliance / Non Compliance

Quarterly surface water monitoring was undertaken on 22nd January and 5th February and the 14th May 2018 with all onsite and offsite sampling undertaken in dry conditions represented by low or dry pools, which reflected on water quality. All water quality results were within long-term averages and the Site Water Management Plan trigger values.

5.3 SURFACE WATER DISCHARGES

There were no sediment dam discharge events in February, March, April and May 2018.

5.3 WATER COMPLAINTS

There was one water complaint 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
567	6/02/2018	Vibration	Complainant advised that he could feel vibration from blast.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.
568	6/02/2018	Blast	Complainant advised the EPA that they could feel vibration from the blast.	WCC provided an Event Report to the EPA detailing the risk assessment for the blast and the results of environmental monitoring conducted during the blast.	None required.
569	8/02/2018	Blast	Complainant advised that they felt the blast at their residence and that there was dust from the blast.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.
570	8/02/2018	Blast	Complainant wanted to know why there was a large, dense 'cloud' following the blast this morning and what it contained.	EO responded to complainant providing evidence of a complaint blast via email. The blast occurred at surface level making the resultant dust cloud more visible than normal. EO also advised that no fume was visually detected and the dust cloud was expected to only contain overburden material.	Complainant was content with EO response.
571	12/02/2018	Dust	Complainant left a voice mail message on the EO phone advising they had viewed a large dust haze over the operation.	EO returned the phone call and advised that normal dust suppression techniques were in place.	Follow-up call to complainant. Complainant was happy with EO response.
572	12/02/2018	Water	Complainant spoke to the EO on the phone about their previous complaint regarding dust and advised he wished to make an additional complaint about the water evaporators. Complainant wished to advise that they felt the evaporators were inappropriate while the surrounding area was experiencing drought conditions.	EO advised that approval had been granted to supply irrigation water offsite and that an irrigation trial was underway at the Plainview property.	Complainant was content with EO response.
573	18/03/2018	Dust	Complainant advised they could identify dust coming from the mine.	EO returned the phone call and advised that standard dust suppression techniques were in place. However, should dust issue be observed, the OCE will shutdown problematic operational areas as required.	Complainant was content with EO response.
574	22/03/2018	Blast	Complainant advised they felt the blast at their residence.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.
575	24/03/2018	Odour	Complainant advised they could detect an odour at their residence	EO provided a detailed verbal response on the current mining operations and odour / spon com management practices currently in place.	Complainant was content with EO response.
576	4/06/2018	Odour	Complainant advised they could detect an odour at their residence	EO followed up with complainant, requesting an opportunity to discuss management in place.	Complainant did not respond to follow up actions
577	27/04/2018	Blast	Complainant advised they felt the blast at their residence.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.
578	4/05/2018	Blast	Complainant advised they felt the blast at their residence.	EO advised blast had occurred and was currently under investigation.	EO followed up with the complainant to confirm the blast result had exceeded the overpressure limit and had been self reported to the relevant Departments. Advised the internal investigation to the cause was ongoing.

579	4/05/2018	Blast	Complainant advised they felt the blast at their residence.	EO advised blast had occurred and was currently under investigation.	EO followed up with the complainant to confirm the blast result had exceeded the overpressure limit and had been self reported to the relevant Departments. Advised the internal investigation to the cause was ongoing.
560	5/05/2018	Blast	Complainant advised they felt the blast at their residence.	EO advised blast had occurred and was currently under investigation.	EO followed up with the complainant to confirm the blast result had exceeded the overpressure limit and had been self reported to the relevant Departments. Advised the internal investigation to the cause was ongoing.
561	21/05/2018	Blast	Complainant advised they felt the blast at their residence.	EO explained that all monitors indicated the blast was within compliance limits.	EO advised blast was within compliance limits and emailed a copy of the results to the complainant.

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.

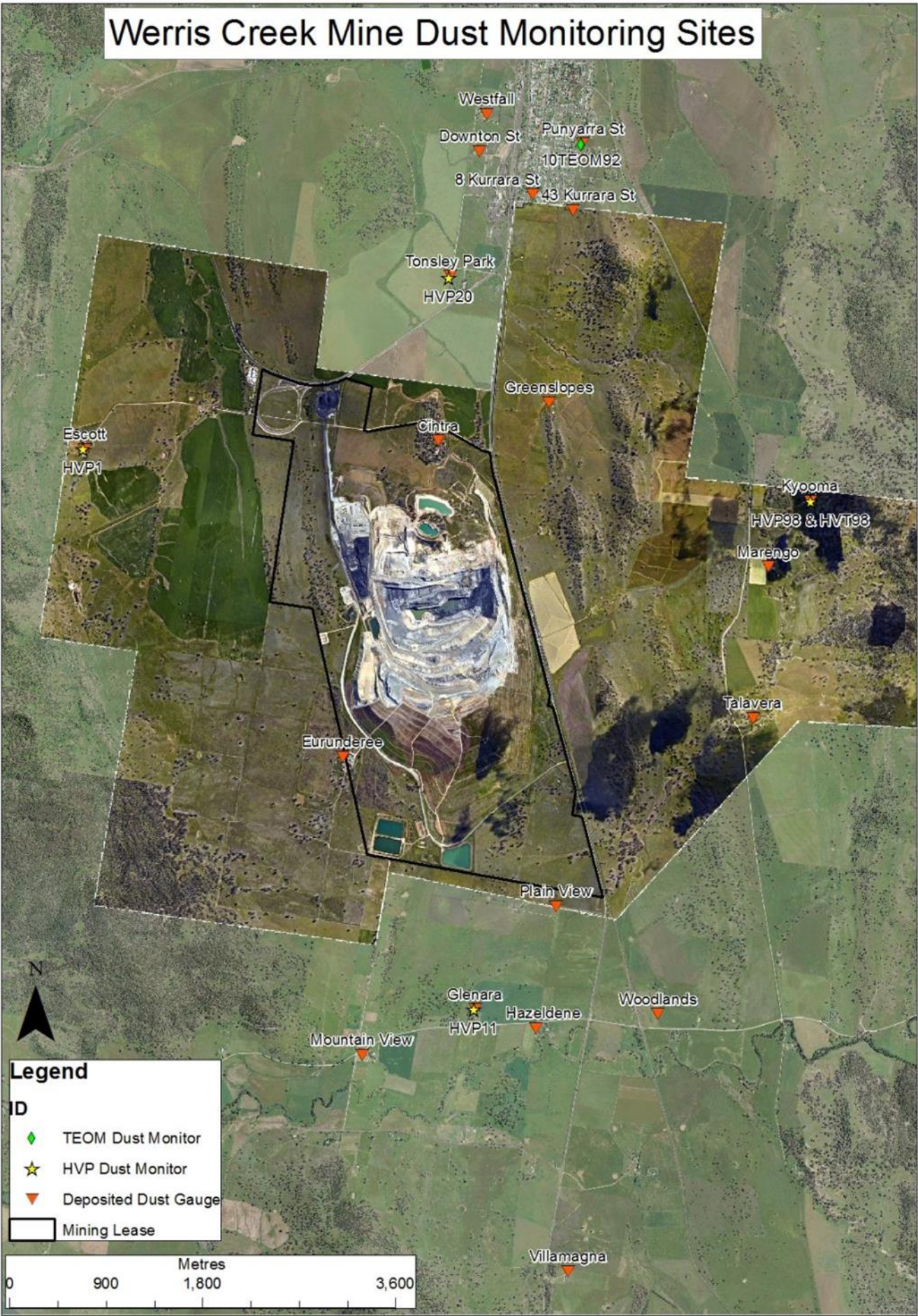


Figure 1 – WCC Dust Monitoring Locations



Figure 2 – WCC Noise Monitoring Locations

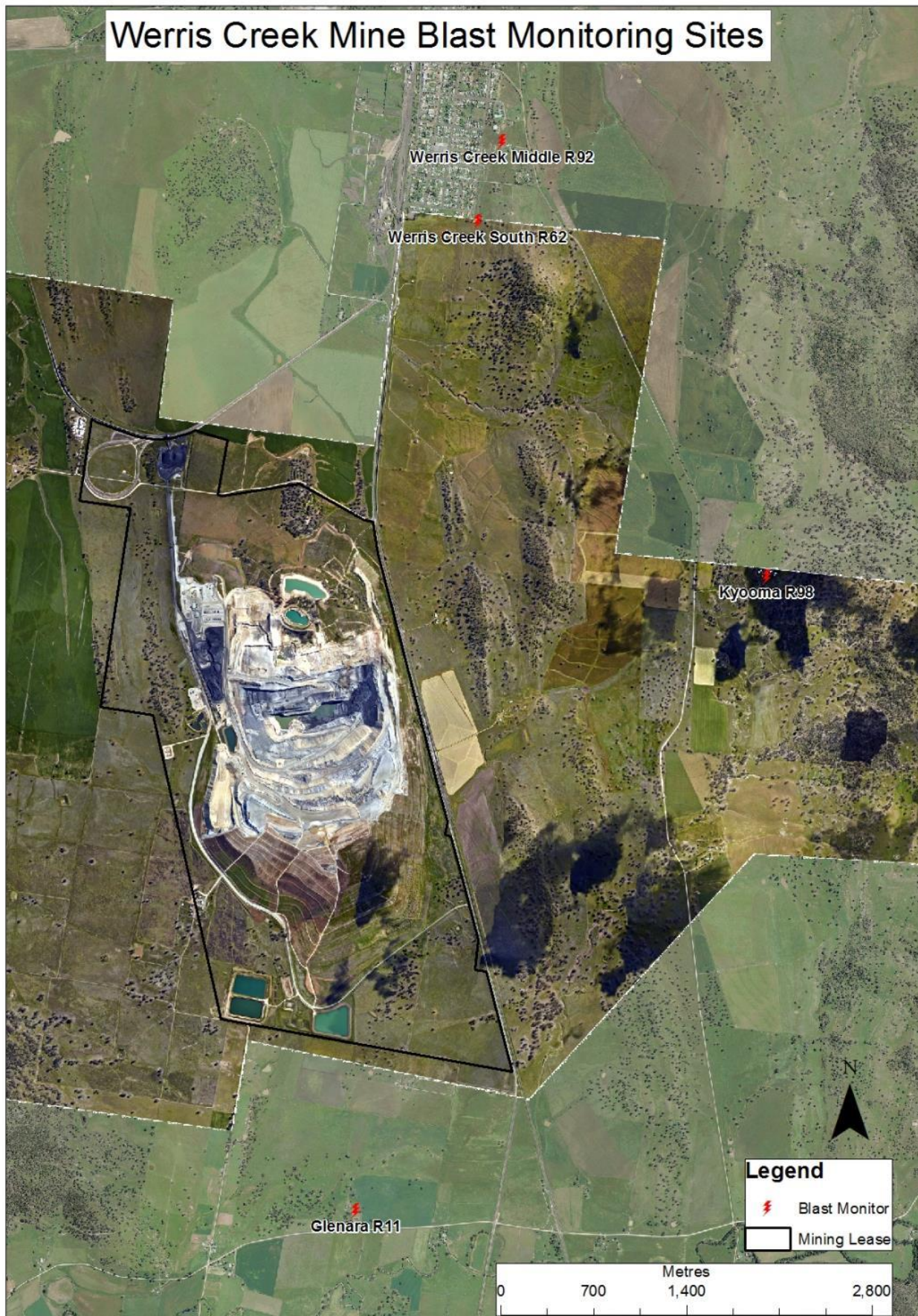


Figure 3 – WCC Blast Monitoring Locations

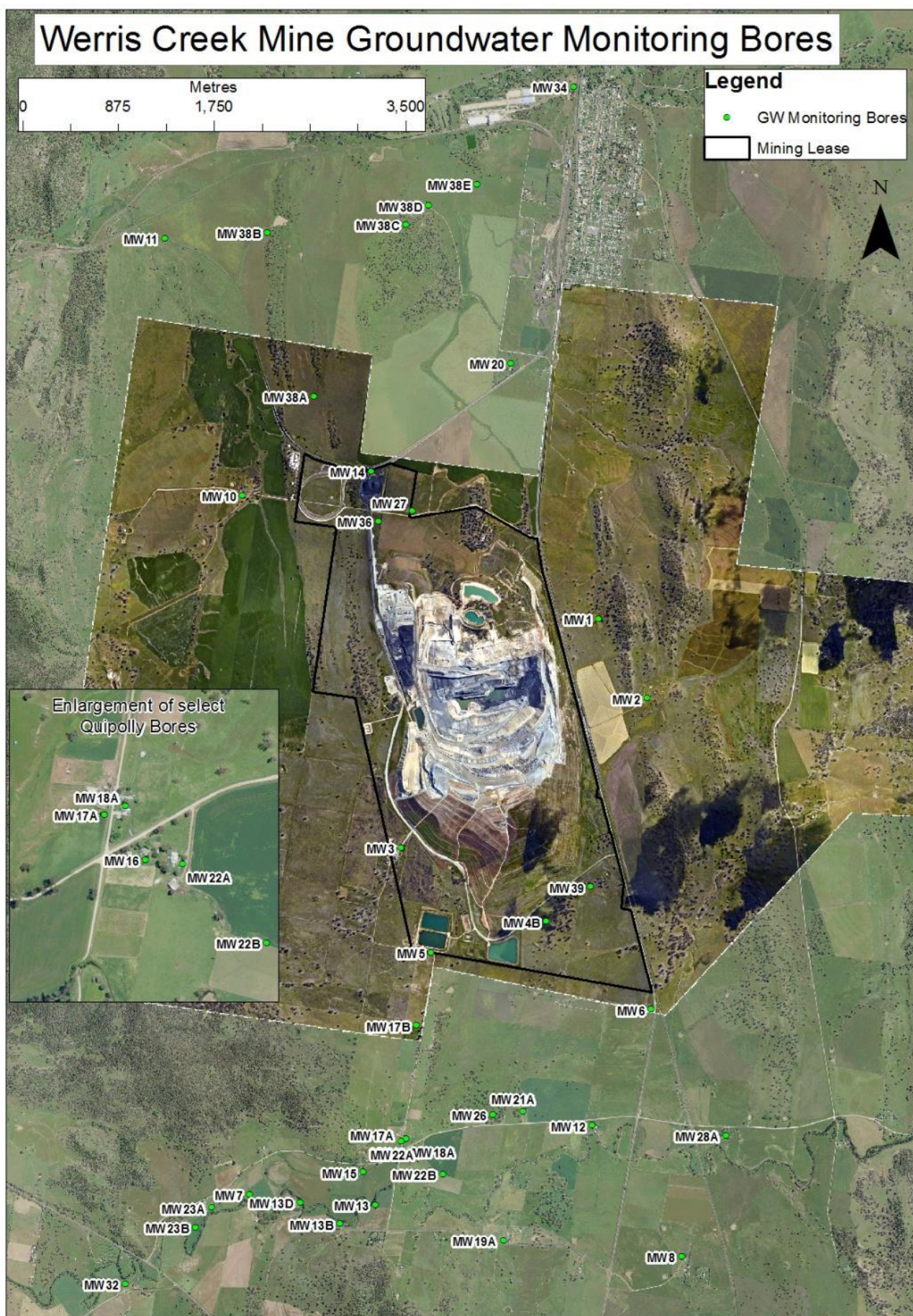


Figure 4 – WCC Groundwater Monitoring Locations



Figure 5 – WCC Surface Water Monitoring Locations

WERRIS CREEK COAL COMMUNITY CONSULTATIVE COMMITTEE
47th Meeting of the Committee to be held on site at the Werris Creek Coal Mine
Wednesday, 11 July 2018 at 9:30am

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

Meeting opened at 9:10am

1 Record of attendance

Gae Swain	Independent Chairperson
Jane Bradford	Independent Minute Taker
Rod Hicks	Werris Creek Coal (WCC) Operations Manager
Lynden Cini	WCC Environmental Officer
Lindsay Bridge	Community Representative
Mike Lomas	Community Representative
James O'Brien	Community Representative
Noel Taylor	Community Representative
Donna Ausling	Director of Environment – Liverpool Plains Shire Council

Apologies

Clr Virginia Black	Community Representative (<i>or representing above Council?</i>)
Col Stewart	Community Representative (<i>is this correct?</i>)

Moved Noel Taylor, **seconded** Lindsay Bridge, THAT the apologies be accepted.
CARRIED

2 Declaration of Pecuniary or Other Interests

(new form to be included in Notice of Meeting in future)

- a) Form received from Gae Swain – has a son-in-law working for Whitehaven Coal and the Narrabri Underground Mine and a son working at the Maule's Creek Mine
- b) Lindsay Bridge – continues working with government and industry on application of coal dust technology

3 New Matters for Discussion under General Business today

- a) Letter from Quipolly Water Action Group Inc (QWAG) to Werris Creek Coal dated 7 May 2018 – CUSUM analysis
- b) Presentation and CUSUM handout from WCC Technical Water Consultant, Fiona Robinson, Division Director for Australia and New Zealand, (Ramboll)

4 Minutes of the Previous Meeting

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

5 Matters Arising

- a) Welcome to Jane Bradford – independent Minute Taker for the Community Consultative Committee
 - b) Actions from previous meeting
- Gae Swain confirmed that she had contacted Mr Wills regarding his request to attend this Committee as an observer and noted that it would not be appropriate and stated that he could always raise an issue / point with a Committee member who could report back to this Committee. There has not been a response from Mr Wills since this conversation.

6 Environment Monitoring Report from 1 February to 31 May 2018

Note Elevated monitoring results above the relevant monitoring criteria are highlighted in **yellow** - Lynden provided commentary on the highlighted points in the Report

Note Noel Taylor reported his bore has been dry for three months and only ponding in the creek

Moved Noel Taylor, **seconded** Donna Ausling, THAT the Report be accepted.

CARRIED

7 General Business

a) Fiona Robinson provided a CUSUM handout to assist the members in potential discussions with community members. Fiona provided a commentary on how the CUSUM analysis with respect to groundwater levels is calculated. A PowerPoint presentation was also presented with Fiona answering various questions with explanations to the satisfaction of members present, specifically noted the following:

Base rate (say 5) – take difference above or below that figure (depending on other relevant data below) to provide a monthly rate – the checks are the same time each week / month. If triggered, a multiple line of evidence (MLE) evaluation is then used to assess if the change is due to mining. The MLE evaluation comprises:

1. Review of residual rainfall, that is the actual rainfall levels compared to the average rainfall
2. Interpreted groundwater flow directions in the basalt aquifer and if these show a change in groundwater flow direction toward the mine
3. Comparison to water level data at the background wells MW8 and MW28 for the basalt and alluvial aquifer respectively
4. Mine groundwater inflow modelling predictions verified using the mining void water balance model.

b) Letter from QWAG to WCC – Fiona will supply both Mike Lomax and Lindsay Bridge with an appropriate explanation for the QWAG meeting this afternoon

Note Due to information to be presented to QWAG – discussion will continue between members and Fiona after the close of this meeting.

Gae Swain thanked Fiona Robinson for travelling up to Werris Creek for this meeting and for the excellent presentation and as there is no further business for discussion the meeting closed at 10:55am.

Next meeting Wednesday, 14 November at 9:30am – same venue and to include a mine tour of Werris Creek Coal (weather permitting).

A mine tour was undertaken by Noel Taylor, Mike Lomax, Lindsay Bridge and Fiona Robinson.

Copy to all Committee Members

The Minutes will also be posted on the Whitehaven Coal Website