WERRIS CREEK COAL COMMUNITY CONSULTATIVE COMMITTEE
53rd Meeting of the Committee held on site at the Werris Creek Coal Mine
Wednesday, 8 July 2020 at 9:30am

This normal four monthly meeting **could not be held on site** due to the COVID-19 Crisis.

Instead – The Notice of Meeting together with a proposed Agenda and the Minutes of the previous meeting (which had been approved) and the current Environment Report covering March, April, May and June 2020 were emailed or posted to the Werris Creek Coal Community Consultative Committee members as usual.

The Members of this Committee were asked to forward any questions / suggestions in relation to the Environment Report either by email or letter to the Chairperson – Gae Swain by close of business on Thursday, 9 July 2020.

On Friday, 10 July 2020 – Chairperson Gae Swain – instructed Jane Bradford – the Independent Minute Taker to create a Note about this Non-Meeting on Wednesday, 8 July 2020 and confirm that no questions / suggestions were received within the time frame.

These Notes will act as the record for this Non-Meeting on Wednesday, 8 July 2020.

Next Meeting Finally, this is also to remind Members of the Community Consultative Committee that the next meeting will be held on Wednesday, 11 November 2020 at 9:30AM
Venue to be confirmed (Werris Creek or Quirindi) closer to the time.

Copy to all Committee Members
These Notes will also be posted on the Whitehaven Coal Website

_____ _____
Gae Swain 14 July 2020
Independent Chairperson

WERRIS CREEK COAL PTY LTD

QUARTERLY ENVIRONMENTAL MONITORING REPORT

February, March, April and May 2020

This Environmental Monitoring Report covers the period 1st February 2020 to 31st May 2020 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

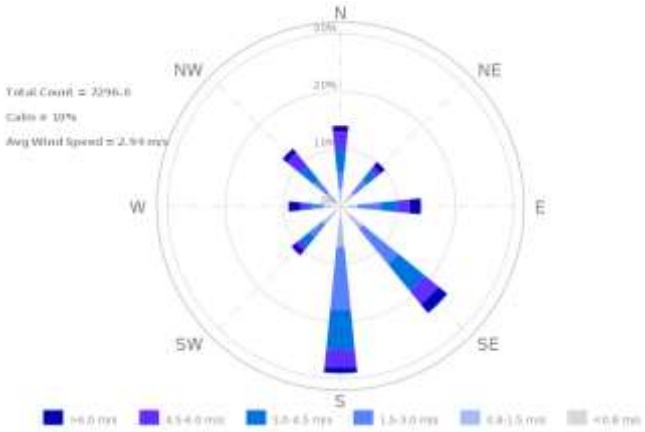
1.0 METEOROLOGY

1.1 WEATHER STATION

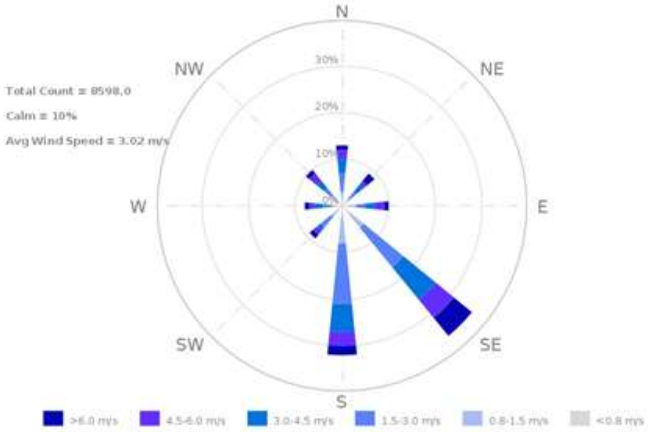
Werris Creek Coal (WCC) collects meteorological data from the onsite weather station located on the top level of the overburden emplacement. The following table summarises rainfall data for the last four months. The monthly rainfall total in February 2020 was lower than the historical average, but higher in March, April and May 2020. Directional wind data, presented in the wind-rose figures below, indicate the prevailing wind direction was predominantly from the S in in February and May, SE in March and N in April 2020.

Month	**Rainfall** *(mm)*		
	Onsite	***Historical Average***	***2020 Total***
February 2020	35.8*	62.2	179.2
March 2020	77.6	56.6	256.8
April 2020	77.0	31.7	333.8
May 2020	52.4	34.2	386.2

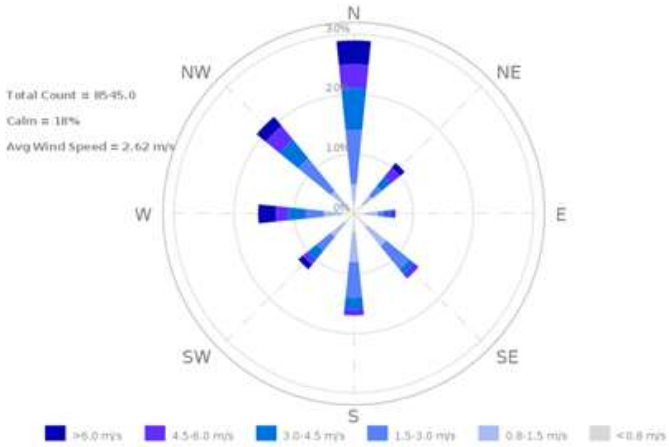
**Missing 7 days of data - no data received by monitor*



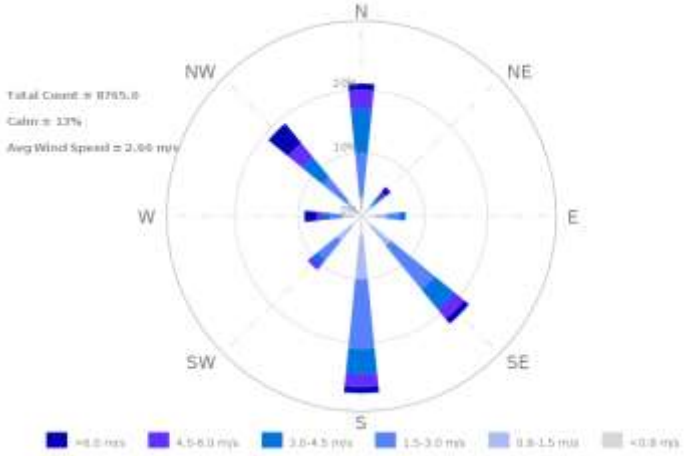
February 2020



March 2020



April 2019



May 2020

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 (µg/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 four months are provided in the table below.

Monitor Location	Daily Maximum *(µg/m³)*	Feb 2020 *(µg/m³)*	Mar 2020 *(µg/m³)*	Apr 2020 *(µg/m³)*	May 2020 *(µg/m³)*	2020 Average *(g/m²/month)*	Criteria *(µg/m³)*	
							Annual	Daily
$PM_{2.5}$ – TEOM92 "Werris Creek"	24.4	13.1	7.9	11.1	8.8	12.4	8	25
PM_{10} – TEOM92 "Werris Creek"	66.0	22.4	12.2	15.5	12.5	21.5	30	50
PM_{10} – HVP20 "Tonsley Park"	46.0	22.9	14.1	14.1	11.6	24.1	30	50
PM_{10} - HVP1 "Escott"	19.3	9.8	8.8	9.8	2.8	13.6	30	50
PM_{10} – HVP11 "Glenara"	41.5	13.4	15.4	17.4	8.3	19.9	30	50
PM_{10} – HVP98 "Kyooma"	32.7	14.2	7.9	10.2	4.0	16.1	30	50
TSP – HVT98 "Kyooma"	78.2	33.0	19.5	21.6	11.4	36.6	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 with the exception of the following;

Date	Site
▪ 19 February 2020	▪ PM_{10} – TEOM92 "Werris Creek"

The recorded exceedance on 19 February 2020 had been affected by high regional dust levels reported by OEH during this 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 four months are provided in the table below.

Monitor Location	Feb 2020 *(g/m²/month)*	Mar 2020 *(g/m²/month)*	April 2020 *(g/m²/month)*	May 2020 *(g/m²/month)*	2020 Average *(g/m²/month)*	Annual Criteria *(g/m²/month)*
DG1 "Escott"	2.2	1.4	1.1	0.7	1.3	4.0
DG2 "Cintra"	11.4	8.1	5.5	7.6c	7.9	4.0
DG3 "Eurunderee"	4.0	1.4	1.5	2.1	2.5	4.0
DG5 "Railway View"	4.4	0.8	1.7	2.0	2.2	4.0
DG9 "Marengo"	6.4	0.9	0.6	0.8	18.3	4.0
DG11 "Glenara"	2.8	1.1	0.5	0.8	1.6	4.0
DG14 "Greenslopes"	0.9	0.6	0.7	0.6	1.0	4.0

Monitor Location	Feb 2020 (g/m²/month)	Mar 2020 (g/m²/month)	April 2020 (g/m²/month)	May 2020 (g/m²/month)	2020 Average (g/m²/month)	Annual Criteria (g/m²/month)
DG15 "Plain View"	4.1	1.3	1.1	0.8	1.9	4.0
DG17 "Woodlands"	4.4	1.4	1.0	1.1	2.1	4.0
DG20 "Tonsley Park"	3.1	1.8	1.3	2.8	2.2	4.0
DG22 "Mountain View"	3.3	1.5	1.0	1.4	2.2	4.0
DG24 "Hazeldene"	3.5	0.9	0.8	1.1	1.6	4.0
DG34 8 Kurrara St	3.4	1.2	0.8	0.8	1.6	4.0
DG62 Werris Creek South	5.2	1.0	0.6	0.6	1.9	4.0
DG92 Werris Creek Centre	2.1	0.7	0.6	0.4	1.1	4.0
DG96 "Talavera"	NS	NS	NS	NS	NS	NA
DG98 "Kyooma"	3.8	1.0	0.8	0.4	1.6	4.0
DG101 "Westfall"	3.5	1.0	1.1	1.0	1.9	4.0
DG103 West Street	3.0	1.0	1.2	3.1	2.0	4.0

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

2.2.2 Discussion - Compliance / Non Compliance

All monthly dust deposition gauge results were below the annual criteria of 4.0 g/m²/month throughout the period with the exception of:

- DG2 (Cintra) had high results in February, March and April 2020 and a rolling 2020 average above criteria.
- DG5 (Railway View), DG15 (Plain View), DG17 (Woodlands) and DG62 (Werris Creek South) had a high result in February 2020
- DG9 (Marengo) had a high result in February 2020 and a rolling 2020 average above criteria due to an anomalous high dust level measurement in January 2020 that was unrelated to Werris Creek Coal Mine activities.

Elevated depositional dust levels in February 2020 were affected by high regional dust levels during the exposure period. DG2 (Cintra) has consistently high dust levels at this gauge and low deposited dust levels at other nearby isolated gauges indicate a localised source of dust generation, unrelated to activities at Werris Creek Coal Mine.

2.3 QUIRINDI TRAIN DUST DEPOSITION

2.3.1 Monitoring Data Results

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

Monitor Location	Feb 2020		Mar 2020		Apr 2020		May 2020		2020 Average (g/m²/month)
	g/m²/month	% Coal	g/m²/month	% Coal	g/m²/month	% Coal	g/m²/month	% Coal	
DDW30	3.9	<10%	1.3	20%	1.1	10%	1.2	20%	2.1
DDW20	4.4	<10%	0.9	30%	0.5	10%	0.9	<30%	1.9
DDW13	4.3	<10%	1.4	40%	1.4	10%	0.9	30%	2.1
Train Line									
DDE13	3.6	<10%	1.8	30%	1.0	<10%	0.6	20%	2.0
DDE20	3.9	<10%	3.6	20%	2.2	<10%	1.0	<10%	2.7
DDE30	1.9	<10%	0.2	30%	1.0	<10%	0.2	10%	1.0

* - sample contaminated with excessive organic matter (>50%) from non-mining source (i.e. bird droppings and insects); NS – Not Sampled, bottle and funnel smashed. NR- change in service provider microscopic analysis not conducted as result <4

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 was no 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 four months are outlined in the tables below. Noise monitoring locations are identified in **Figure 2**.

20th Thursday and 21st Friday February 2020

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*)	28#	40	Inaudible#	40
C	**Central Quipolly**(R10*,R11*)	20#	40	Inaudible#	40
D	**"Hazeldene"** R24	Inaudible#	37	Inaudible	37
E	**"Railway Cottage"** R12	Inaudible	38	22	38
F	**"Talavera"** R96	Inaudible	38	25	37
H	**"Kyooma"** R98	Inaudible	38	Inaudible#	38
I	**Kurrara St, WC** R57	Inaudible	35	Inaudible#	35
J	**Coronation Ave, WC**	Inaudible	35	Inaudible	35
K	**Alco Park** (R21*)	Inaudible#	40	Inaudible	40
L	**West St, WC** (R103)	Inaudible#	35	Inaudible#	35

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

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

19th Tuesday March 2020

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	22	37
E	**"Railway Cottage"** R12	Inaudible	38	Inaudible	38
F	**"Talavera"** R96	24	38	22	37
H	**"Kyooma"** R98	Inaudible	40	28#	40
I	**Kurrara St, WC** R57	Inaudible	35	Inaudible#	35
J	**Coronation Ave, WC**	Inaudible	35	Inaudible	35
K	**Alco Park** (R21*)	Inaudible	40	33	40
L	**West St, WC** (R103)	Inaudible	35	27	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

8th Wednesday and 9th Thursday April 2020

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	25	35
B	**West Quipolly** (R7*, R8*,R9* & R22*)	Inaudible#	40	29	40
C	**Central Quipolly**(R10*,R11*)	Inaudible	40	27	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*)	30#	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

Monday 11th and Tuesday 12th May 2020

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	29	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	Inaudible#	38
F	**"Talavera"** R96	Inaudible	38	Inaudible	37
H	**"Kyooma"** R98	21	40	Inaudible#	40
I	**Kurrara St, WC** R57	Inaudible#	35	Inaudible	35
J	**Coronation Ave, WC**	Inaudible#	35	Inaudible	35
K	**Alco Park** (R21*)	29	40	26	40
L	**West St, WC** (R103)	Inaudible#	35	Inaudible	35

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

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

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 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 four months are provided below.

Feb 2020		"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	99.3	0.70	99.9	0.36	100.2	0.31	99.5
Monthly Maximum		0.24	102.8	1.39	106.1	0.65	106.8	0.57	104.7
Annual Average		0.11	98.42	0.65	100.72	0.39	99.40	0.27	98.73
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.00%	0.00%	0.00%	0.00%	0.83%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.95%	0.00%	0.00%

Mar 2020		"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		0.08	100.2	0.56	97.4	0.32	98.4	0.25	98.9
Monthly Maximum		0.17	106.4	1.25	103.3	0.63	106.0	0.52	106.3
Annual Average		0.10	99.02	0.62	99.62	0.37	99.06	0.26	98.77
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.00%	0.00%	0.00%	0.00%	0.80%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.85%	0.00%	0.00%

Apr 2020		"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	98.8	0.65	101.8	0.37	98.8	0.26	98.4
Monthly Maximum		0.21	104.0	1.14	108.3	0.63	104.4	0.38	106.8
Annual Average		0.11	98.96	0.62	100.16	0.37	98.99	0.26	98.69
Criteria		5	115	5	115	5	115	5	115
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.00%	0.00%	0.00%	0.00%	0.39%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.78%	0.00%	0.00%

May 2020		"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	100.0	0.91	100.0	0.42	102.3	0.29	100.6
Monthly Maximum		0.33	104.8	1.90	102.5	0.62	109.6	0.52	103.3
Annual Average		0.11	99.17	0.68	100.12	0.38	99.65	0.27	99.07
Criteria		5	5	115	5	115	5	115	5
% >115dB(L) or 5mm/s	**Rolling Ave**	0.00%	0.00%	0.00%	0.00%	0.00%	0.79%	0.00%	0.00%
	Reporting Year	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

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

4.1.2 Discussion - Compliance / Non Compliance

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

4.2 BLAST COMPLAINTS

There were two blast complaints (March 2020) during the period regarding vibration.

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 5, 9, 10, 11, 12 March 2020 and 7, 8 and 13 May 2020. 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-20	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	57.69	0%
	MW3	21.05	0%
	MW4B	19.97	8%
	MW5	13.93	1%
	MW6	16.27	0%
	MW27*	54.39	3%
	MW36A	19.00	30%
	MW36B	19.05	29%
Werrie Basalt	**MW8***	20.68	3%
	MW10	14.38	1%
	MW14	18.54	16%
	MW17B*	14.77	15%
	MW19A*	Pump over bore	
	MW20*	23.22	0%
	MW38A	12.45	27%
	MW38B*	10.49	1%
	MW38C*	23.85	4%
	MW38E*	No access	
	MW41	10.46	4%
	MW43	8.99	7%
#1	**MW24A***	17.20	7%
	MW29*	12.24	23%
Quipolly Alluvium	**MW12***	Dry	
	MW13*	Dry	
	MW13B*	5.90	24%
	MW13D*	5.52	20%
	MW15*	No access	
	MW16*	Dry	
	MW17A*	8.20	8%
	MW18A*	Dry	
	MW21A*	Dry	
	MW22A*	Dry	
	MW22B*	Dry	
	MW23A*	4.39	19%
	MW23B*	4.36	16%
	MW26B*	10.98	3%
	MW28A*	Dry	
	MW32*	Pump over bore	
	MW40	10.49	4%
	MW42	8.88	8%
#2	**MW34***	10.67	20%

Site		May-20	
		mbgl	%
Werrie Basalt near WCC	**MW1**	Dry	
	MW2	53.20	8%
	MW3	21.16	-1%
	MW4B	20.05	8%
	MW5	14.11	-1%
	MW6	16.29	0%
	MW27*	53.20	2%
	MW36A	17.71	7%
	MW36B	17.70	8%
Werrie Basalt	**MW8***	20.82	-1%
	MW10	12.78	13%
	MW14	13.80	34%
	MW17B*	14.75	0%
	MW19A*	Pump over bore	
	MW20*	23.48	-1%
	MW38A	11.48	8%
	MW38B*	10.17	3%
	MW38C*	23.46	2%
	MW38E*	No access	
	MW41	10.40	1%
	MW43	8.99	7%
#1	**MW24A***	16.64	3%
	MW29*	11.63	5%
Quipolly Alluvium	**MW12***	Dry	
	MW13*	Dry	
	MW13B*	6.00	-2%
	MW13D*	6.06	-9%
	MW15*	No access	
	MW16*	Dry	
	MW17A*	8.27	-1%
	MW18A*	Dry	
	MW21A*	Dry	
	MW22A*	Dry	
	MW22B*	Dry	
	MW23A*	4.56	-4%
	MW23B*	4.35	0%
	MW26B*	10.76	2%
	MW28A*	Dry	
	MW32*	Pump over bore	
	MW40	10.48	0%
	MW42	8.96	-1%
#2	**MW34***	10.57	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 a general increase in water levels during February 2020 and May 2020.

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 24 February and 27 May 2020. 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.

20th and 24th February 2020

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	8.03	254	102	<5	Previously dry now full
SB9	7.75	450	84	29	Previously dry now full
SB10	Dry	Dry	Dry	Dry	Low dam level (pumped out recently)
OFFSITE					
QCU	7.26	180	319	<5	Previously dry, now flowing *(sampled 20 Feb 2020)*
QCD	7.25	212	574	20	Previously dry, now flowing *(sampled 20 Feb 2020)*
WCU	7.94	421	9	<5	Previously dry, now flowing
WCD	7.92	573	36	<5	Not previously flowing, quality results lower

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

25th May 2020

Site	pH	EC	TSS	O&G	Change from Previous Quarter or General Comments
ONSITE					
SB2	7.54	462	<5	<5	EC slightly higher, pH and TSS lower
SB9	7.87	482	26	<5	TSS lower
SB10	Dry	Dry	Dry	Dry	Remained dry, basin empty
OFFSITE					
QCU	Dry	Dry	Dry	Dry	Dry creek bed
QCD	7.62	291	44	<5	Previously flowing now only pools. TSS lower
WCU	8.18	667	12	<5	Previously flowing now only pools. pH and EC slightly higher
WCD	8.15	1200	12	<5	EC higher and TSS lower

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 20th & 25th of February and also 25th May 2020. All water quality results were within long-term averages and the Site Water Management Plan trigger values except for QCU and QCD (20/2/2020) with TSS over 50mg/L and Oil & Grease over 10 mg/L (QCD only).

5.3 SURFACE WATER DISCHARGES

5.3.1 Monitoring Data Results

There were several discharge events during February 2020 following above average rainfall during the month. Two control discharges occurred during May 2020.
Sampling conducted within the Quipolly and Werris Creek systems was also during the discharge in accordance with licence conditions.

Sample Date	Dam	pH	EC	TSS	O&G	Compliance	Type	5 Day Rain
3/2/2020	**SB10** (EPA14)	7.7	150	47	<5	Yes	Controlled	
9/2/2020	**SB2** (EPA10)	8.00	230	**117**	<5	Yes- TSS Ok because rainfall >39.2mm	Wet Weather - Uncontrolled	54.0
9/2/2020	**SB10** (EPA14)	7.20	140	**117**	<5	Yes- TSS Ok because rainfall >39.2mm	Wet Weather - Uncontrolled	54.0

18/2/2020	**SB2** (EPA10)	7.9	270	**53**	<5	Yes- TSS Ok because rainfall >39.2mm	Wet Weather – Uncontrolled (continued flow from 9/2/2020)	21.2
18/2/2020	**SB10** (EPA14)	5.5	430	32	<5	pH below 6.5 limit	Wet Weather – Uncontrolled	21.2
15/5/2020	**SB11** (EPA12)	8.4	590	2	<5	Yes	Controlled	
18/5/2020	**SB3** (EPA10)	8.1	420	5	<5	Yes	Controlled	
Criteria		6.5 - 8.5	N/A	50	10			

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; **Bold** – indicates results outside criteria due to 5 day rain trigger >39.2mm.

5.3.2 Discussion - Compliance / Non Compliance

Total Suspended Solids (sediment) levels were slightly increased however sampling results were in compliance with WCC's Environmental Protection Licence due to the rainfall trigger of 39.2mm.

An uncontrolled discharge on the 18th February had a recorded pH lower than the license limit of 6.5 (highlighted yellow). The discharge was reported to the EPA at the time of the event and WCC subsequently enacted the Pollution Incident Response Management Plan (PIRMP) as a precaution. Subsequent investigations have not identified a cause for the low pH discharge and the matter is still being investigated by the NSW EPA. The discharge location was the ephemeral drainage system to the North of the Werris Creek Mine site towards Werris Creek.

There were no impacts observed or monitored in Quipolly and Werris Creek systems as a result of the water discharge events.

5.4 WATER COMPLAINTS

There were no water release complaints during the period.

6.0 COMPLAINTS SUMMARY

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

#	Date	Issue	Complaint	Investigation	Action Taken
618	12/03/2020	Vibration	Complainant left a voice mail message on the EO Phone advised they felt the blast at their residence and woke from sleep. Requested results via email.	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.
619	12/03/2020	Vibration	Complainant left a voice mail message on the complaint hotline. Advised they felt the blast at their residence in Kurrara St Werris Creek.	EO explained that all monitors indicated the blast was within compliance limits.	No further follow - up actions
620	17/05/2020	Lighting	Complainant left a Voicemail on the EO phone advising that a light was shining on their property and a bedroom window.	EO called back and spoke with the complainant. Light source was identified and relocated to an alternative location prior to the next night shift.	EO followed up with complainant following relocation of lighting plant to confirm that issue has been resolved and again a few days later to confirm no further lighting issues were apparent

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.

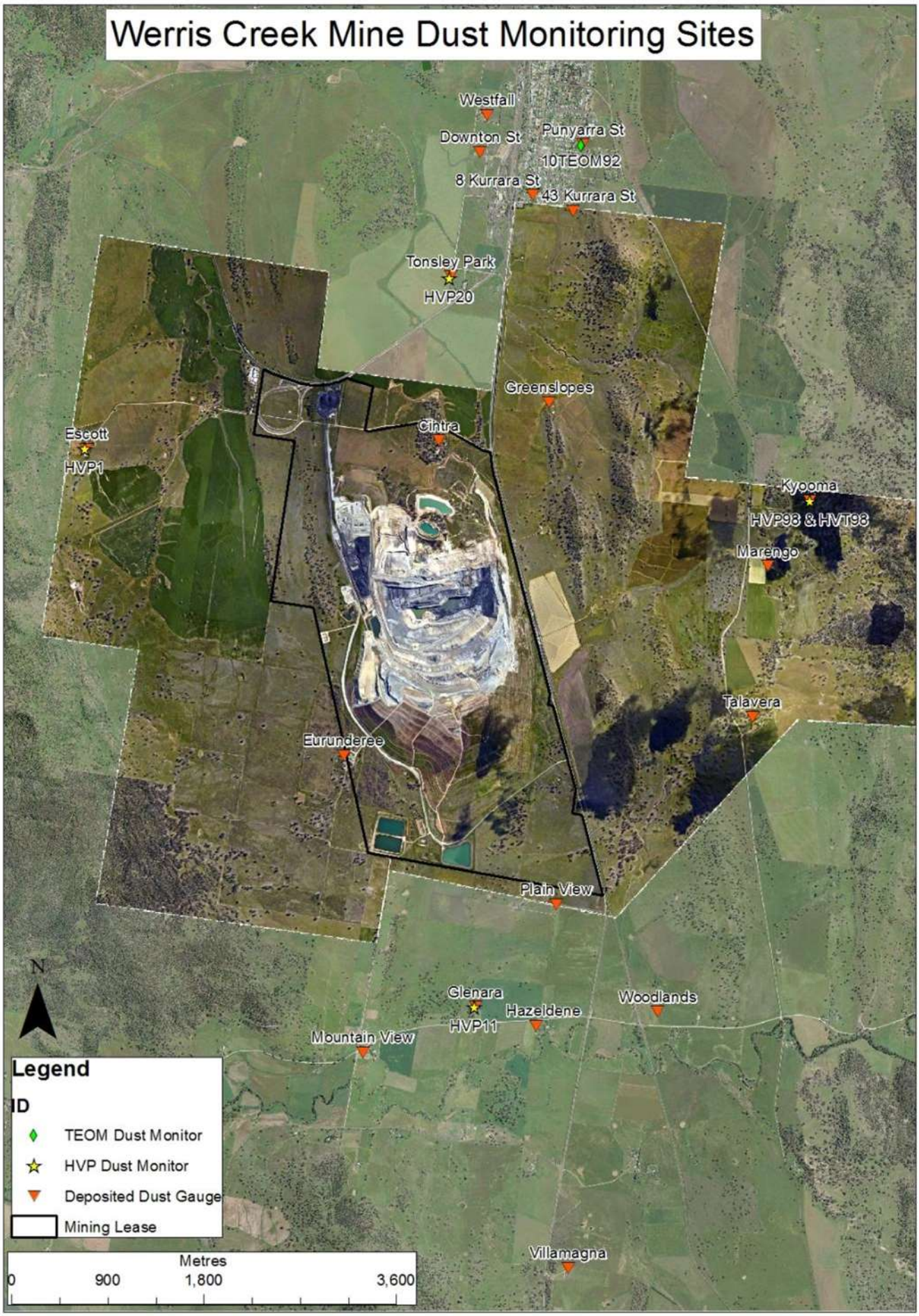


Figure 1 – WCC Dust Monitoring Locations

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