



WERRIS CREEK COAL PTY LTD

**ENVIRONMENTAL MONITORING
REPORT**

March & April 2010

This Environmental Monitoring Report covers the period 1st March 2010 to 30th April 2010 for the Werris Creek No.2 Coal Mine Community Consultative Committee.

The report includes environmental monitoring results from the on-site Weather Station, Air Quality, Noise (operational and blasting), Surface and Ground Water together with complaints received and general detail covering site environmental matters.

Note: Monitoring results with any non compliance of monitoring criteria are highlighted in yellow.

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1.0 METEOROLOGY

1.1 WEATHER STATION AVAILABILITY

Weather data was available for 100% of March 2010.

Weather data was available for 100% of April 2010.

2.0 AIR QUALITY

2.1 HVAS (PM10) Monitoring

High Volume Air Sample (HVAS) monitoring for particulate matter less than 10 micron in size (PM10) and total suspended particulate (TSP) matter is conducted at five sites listed below.

- WCHV1 – "Cintra" PM10
- WCHV2 – "Tonsley Park" PM10
- WCHV3 – "Railway View" PM10
- WCHV4 – "Eurunderee" PM10
- WCHV5 – "Railway View" TSP

Sample data is scheduled for 24 hours every 6 days in accordance with DECCW (formerly EPA) guidelines and results are reported as micro grams per cubic meter ($\mu\text{g}/\text{m}^3$) of air sampled.

2.1.1 Monitoring Data Results

A Table of the monthly average results are provided below, however see HVAS monitoring data under Appendix 1 for individual results.

Monitor Location	March ($\mu\text{g}/\text{m}^3$)	April ($\mu\text{g}/\text{m}^3$)
Cintra PM10	21	16
Tonsley Park PM10	16	7
Railway View PM10	21	8
Eurunderee PM10	19	9
Railway View TSP	51	23

2.1.2 Discussion - Compliance / Non Compliance

All 6 day PM10 24 hour average results were below the short term 24 hour impact criteria of $50\mu\text{g}/\text{m}^3$.

All PM10 sites are below the long term impact and land acquisition annual impact criteria of $30\mu\text{g}/\text{m}^3$.

The TSP site is below the long term impact and land acquisition annual impact criteria of $90\mu\text{g}/\text{m}^3$.

2.2 DEPOSITED DUST

2.2.1 Monitoring Data Results

A Table of the monthly average results are provided below; however see Appendix 2 – Deposited Dust Monitoring Results for more information.

Monitor Location	March ($\text{g}/\text{m}^2/\text{month}$)	April ($\text{g}/\text{m}^2/\text{month}$)
WC2 - Cintra	1.7	2.0
WC5 – Railway View	1.2	1.6
WC7 – Tongsley Park	50.0 – contaminated result excluded	0.9
WC8 – Plain View	3.1	0.7
WC9 - Marengo	1.1	0.4

All dust deposition gauges were below the monthly amenity criteria of $3.6\text{g}/\text{m}^2/\text{month}$. However there was one sample for Tonsley Park during March that has been excluded due to a likely result of contamination during laboratory analysis.

2.3 AIR QUALITY COMPLAINTS

No complaints received regarding excessive dust for the period.

3.0 NOISE

3.1 OPERATIONAL NOISE

Monthly attended noise monitoring undertaken at the following locations:

- o "Almawillee"
- o "Glenara"
- o "Marengo" (project related)
- o "Tonsley Park"
- o "Cintra" (project related)
- o "Fletcher"

Three sets of measurements are made at each location; one during the day time period (before 6pm); one during the evening period (from 6pm – 10pm) and one at night (after 10pm).

The noise emission criterion for WCC is 35dB(A) unless otherwise subject to a current, legally binding agreement between WCC and the occupant of the affected residential property.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where wind speeds are higher than 3m/s and/or there is temperature inversion of greater than +3°C/100m.

3.1.1 Monitoring Data Results

Two Tables of the monthly results are provided below; however see Monthly Noise Reports under Appendix 3 for more detail.

MARCH 2010									
Location	Day			Evening			Night		
	dB(A) Leq	Inversion °C/ 100m	Wind m/s/ direction	dB(A) Leq	Inversion °C/ 100m	Wind m/s/ direction	dB(A) Leq	Inversion °C/ 100m	Wind m/s/ direction
Almawillee	33	n/a	3.1/WNW	40#	>+3	2.7/SE	34	>+3	Calm
Glenara	35	n/a	3.6/WNW	37#	>+3	2.2/SE	36#	>+3	0.4/NW
Cintra	44*	n/a	3.6/W	38*	>+3	3.1/SW	34	>+3	Calm
Marengo	35	n/a	4.0/WNW	37#	>+3	2.2/SW	32	>+3	Calm
Tonsley Park	36#	n/a	3.6/NW	47#	>+3	2.7/SW	32	>+3	Calm
Fletcher	43#	n/a	3.6/W	44#	>+3	3.1/SW	34	>+3	Calm

* Elevated level due to mining operations but at a property that is Project Related or Private Agreement;

Elevated level not due to mining operations;

@ Elevated level due to meteorological conditions;

APRIL 2010									
Location	Day			Evening			Night		
	dB(A) Leq	Inversion °C/ 100m	Wind m/s/ direction	dB(A) Leq	Inversion °C/ 100m	Wind m/s/ direction	dB(A) Leq	Inversion °C/ 100m	Wind m/s/ direction
Almawillee	35#	n/a	Calm	40#	Lapse	1.5/Wsw	37#	Lapse	0.9/NW
Glenara	39#	n/a	Calm	42#	Lapse	2.2/NW	36#	Lapse	2.2/W
Cintra	35	n/a	Calm	36#	Lapse	2.2/W	42*	Lapse	0.9/SW
Marengo	34	n/a	Calm	29	Lapse	2.6/W	26	Lapse	1.8/SW
Tonsley Park	35	n/a	Calm	42#	Lapse	1.3/Wsw	36#	Lapse	2.0/SW
Fletcher	46#	n/a	Calm	46#	Lapse	2.2/Wsw	38#	Lapse	2.0/W

* Elevated level due to mining operations but at a property that is Project Related or Private Agreement;

Elevated level not due to mining operations;

@ Elevated level due to meteorological conditions;

3.1.2 Discussion - Compliance / Non Compliance

There was no noise exceedance recorded for March and April as a result of Werris Creek Coal's operations.

There were a number of elevated noise results from non-mining related sources (traffic, trains and environmental sources) were recorded at properties with private agreements or are project related (owned).

3.2 NOISE COMPLAINTS

There was one complaint related to noise from Werris Creek Coal from the former Marengo property owner received on 9th March 2010. Complaint was lodged during night shift operations and a prompt response was achieved with OCE and EO present at 2.30am and modifications were made to operations. Werris Creek Coal has subsequently purchased the property.

4.0 BLAST

Blast monitoring is undertaken at Glenala, Marengo, Thornsley Park and Cintra. Werris Creek Coal compliance limits for 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). During the period a total of 21 blasts were fired by the blasting contractor, Orica Mining Services.

March 2010	13 blasts
April 2010	8 blasts

4.1 BLAST MONITORING

4.1.1 Monitoring Data Results

Please see noise monitoring data under Appendix 4.

4.1.2 Discussion - Compliance / Non Compliance

All blasts complied with license limits with no blast overpressure above 115dB(L) or vibration greater than 5mm/s. A number of blast monitors did not trigger during the period due to the vibration for the blast being below the trigger level of the monitor. No blasts were missed.

4.1.3 Action Taken

Following the first of two blasting complaints being received from the Kurrara Street property in Werris Creek, WCC arranged for a structural inspection and assessment to be completed for the house. During the interview with the complainant on 17th March 2010, an accusation was made that another blast in January 2010 resulted in cracking of the arc above their garage door. An independent engineering firm, Kelly Covey completed the structural assessment determined that WCC blasting was unlikely to have caused the cracks because:

- WCC blasting overpressure and vibration levels are too low to cause damage as measured at nearby Tonsley Park. Overpressure and vibration studies have shown that damage starts at >140dBA and >50mm/s respectively;
- A concrete path along the western wall of the garage drains rainfall runoff towards the wall. This is likely to result in saturation of the foundation of the garage and given the black soil shrink/swell behavior is the likely cause of the cracking in the garage brickwork.

4.2 BLAST COMPLAINTS

There were two complaints received regarding blasting at WCC, both from the Kurrara Street resident:

- 17th March – blast results were in compliance, however there was a louder than normal overpressure due to a couple of blast holes riffling and this loud sound would of cause a “whack” against her windows;
- 23rd April - blast results were in compliance. The blast was on the eastern side of the pit which could have made her house slightly more exposed.

5.0 WATER

No groundwater or surface water monitoring was undertaken during the period due to the shorter period between CCC meetings and timing of the quarterly monitoring.

4.1 GROUND WATER

4.1.1 Monitoring Data Results

None.

4.1.2 Discussion - Compliance / Non Compliance

None.

4.2 SURFACE WATER

4.2.1 Monitoring Data Results

None.

4.2.2 Discussion - Compliance / Non Compliance

None.

6.0 COMPLAINTS SUMMARY

There were five complaints received during the reporting period and are summarized and discussed below.

Date	#	Complaint
09/03/2010	52	Former Marengo property owner complaint was lodged during night shift operations and a prompt response was achieved with OCE and EO present at 2.30am and modifications were made to operations. Werris Creek Coal has subsequently purchased the property.
17/03/2010	53	A resident from Kurrara St in Werris Creek made a complaint about blasting overpressure that was within compliance limits. A structural engineer is assessing claims that a crack in the brickwork is caused by Werris Creek Coal.
08/04/2010	54	DECCW forwarded through a complaint that they had received regarding illegal clearing at Werris Creek Coal, however the clearing had been undertaken in late 2009 and was approved as part of the last DA modification.
16/04/2010	55	A resident from Kurrara St in Werris Creek made a complaint regarding a bright beaming light at night shining directly into her lounge room from the Mine. All OCEs were made aware of the complaint and be aware not to shine lights from the top of the dump directly at Werris Creek.
23/04/2010	56	A resident from Kurrara St in Werris Creek made a complaint regarding another light at night shining into her lounge room and that another blast had shaken her house badly. A structural inspection had been undertaken following the complaint in March, and OCEs again were made aware of the potential for lighting complaints.

7.0 GENERAL

The increase in height of the dump at WCC has resulted in that it is possible for lighting to shine over the ridge line towards Werris Creek. OCE's have always been conscious of lighting impacts on Werris Creek Road and now will take into account the direction of the township when setting up lights on top of the dump.

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

Regards
Andrew Wright
Environmental Officer

Appendix 1 – PM10 Dust Monitoring Data



ALS ACIRL Pty Ltd



(ABN 66 003 451 876)
Units 1-4, Lot 6 Industrial Cl, Muswellbrook 2333
Ph: (02) 6542 2400 Fax (02) 6543 3234

Sample Origin:	Werris Creek Coal Pty Ltd	Report Number:	26001247 - 448
Project ID:	Werris Creek TSP and PM10	Date Reported:	9th April 2010
Sample Description:	High Volume Air Sampler Filters	Copy To:	File
Report To:	Mr. Danny Young		

Sampler ID	Location	Filter Number	Run Date	Run Time (Minutes)	Deposit (mg)	PM10 ($\mu\text{g}/\text{m}^3$)	TSP ($\mu\text{g}/\text{m}^3$)
WCHV1	Cintra	8213075	02-Mar-10	1440	24.0	16	-
WCHV1	Cintra	8213083	08-Mar-10	1439	35.6	24	-
WCHV1	Cintra	8213361	14-Mar-10	1441	11.7	8	-
WCHV1	Cintra	8213374	20-Mar-10	1441	39.8	26	-
WCHV1	Cintra	8213388	26-Mar-10	1439	44.3	29	-
WCHV2	Patterson	8213074	02-Mar-10	1440	18.7	12	-
WCHV2	Patterson	8213082	08-Mar-10	1439	19.0	13	-
WCHV2	Patterson	8213365	14-Mar-10	1441	8.1	5	-
WCHV2	Patterson	8213373	20-Mar-10	1442	38.8	26	-
WCHV2	Patterson	8213382	26-Mar-10	1441	37.0	25	-
WCHV3	Ryan	8213077	02-Mar-10	1440	12.2	8	-
WCHV3	Ryan	8213084	08-Mar-10	1439	18.1	12	-
WCHV3	Ryan	8213362	14-Mar-10	1440	8.1	5	-
WCHV3	Ryan	8213376	20-Mar-10	1441	42.9	28	-
WCHV3	Ryan	8213389	26-Mar-10	1439	75.6	50	-
WCHV4	Eurunderee	8213078	02-Mar-10	1441	23.2	15	-
WCHV4	Eurunderee	8213086	08-Mar-10	1439	28.7	19	-
WCHV4	Eurunderee	8213364	14-Mar-10	1445	12.7	8	-
WCHV4	Eurunderee	8213377	20-Mar-10	1441	39.8	25	-
WCHV4	Eurunderee	8213391	26-Mar-10	1439	42.3	27	-
WCTSP	Ryan	8213076	02-Mar-10	1440	25.0	-	16
WCTSP	Ryan	8213085	08-Mar-10	1439	58.5	-	38
WCTSP	Ryan	8213363	14-Mar-10	1442	18.3	-	12
WCTSP	Ryan	8213375	20-Mar-10	1440	91.2	-	59
WCTSP	Ryan	8213390	26-Mar-10	1439	202.4	-	131

Notes:

1. Samples collected by - ALS ACIRL Gunnedah
2. Determined in accordance with AS3580.9.6
3. Sampling times and flow rates as per field data
4. Weather data - ex Bureau of Meteorology - Gunnedah.
5. Samples analysed as received.

Reported By: _____

Gerard Gleeson - Laboratory Operations Manager
ALS ACIRL Gunnedah



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Accreditation #15784. Site #11423



ALS ACIRL Pty Ltd



(ABN 66 003 451 876)
Units 1-4, Lot 6 Industrial Ct, Muswellbrook 2333
Ph: (02) 6542 2400 Fax (02) 6543 3234

Sample Origin: Werris Creek Coal Pty Ltd **Report Number:** 26001260 - 526
Project ID: Werris Creek TSP and PM10
Sample Description: High Volume Air Sampler Filters **Date Reported:** 10th April 2010
Report To: Mr. Andrew Wright **Copy To:** File

Sampler ID	Location	Filter Number	Run Date	Run Time (Minutes)	Deposit (mg)	PM10 ($\mu\text{g}/\text{m}^3$)	TSP ($\mu\text{g}/\text{m}^3$)
WCHV1	Cintra	8289139	01-Apr-10	1439	33.9	23	-
WCHV1	Cintra	8093651	07-Apr-10	1440	9.0	6	-
WCHV1	Cintra	8093666	13-Apr-10	1439	56.7	36	-
WCHV1	Cintra	8091003	19-Apr-10	1439	11.6	8	-
WCHV1	Cintra	8091011	25-Apr-10	1439	9.6	6	-
WCHV2	Patterson	8289136	01-Apr-10	1439	13.6	9	-
WCHV2	Patterson	8093654	07-Apr-10	1440	7.2	5	-
WCHV2	Patterson	8093667	13-Apr-10	1440	27.2	17	-
WCHV2	Patterson	8091004	19-Apr-10	1439	3.8	2	-
WCHV2	Patterson	8091010	25-Apr-10	1439	5.5	4	-
WCHV3	Ryan	8289137	01-Apr-10	1439	13.5	9	-
WCHV3	Ryan	8289150	07-Apr-10	1440	4.4	3	-
WCHV3	Ryan	8093664	13-Apr-10	1439	34.3	22	-
WCHV3	Ryan	8091001	19-Apr-10	1439	5.5	4	-
WCHV3	Ryan	8091012	25-Apr-10	1439	5.1	3	-
WCHV4	Eurunderee	8289140	01-Apr-10	1439	12.3	8	-
WCHV4	Eurunderee	8093652	07-Apr-10	1440	11.6	7	-
WCHV4	Eurunderee	8093660	13-Apr-10	1439	19.5	12	-
WCHV4	Eurunderee	8093653	19-Apr-10	1439	21.5	14	-
WCHV4	Eurunderee	8091014	25-Apr-10	1439	5.9	4	-
WCTSP	Ryan	8289138	01-Apr-10	1439	27.1	-	17
WCTSP	Ryan	8289149	07-Apr-10	1440	14.3	-	10
WCTSP	Ryan	8093665	13-Apr-10	1440	98.4	-	63
WCTSP	Ryan	8091002	19-Apr-10	1439	21.2	-	14
WCTSP	Ryan	8091013	25-Apr-10	1439	19.3	-	12

Notes:

1. Samples collected by ALS ACIRL Gunnedah
3. Determined in accordance with AS3580.9.6
4. Sampling times and flow rates as per field data
5. Weather data - ex Bureau of Meteorology - Gunnedah.
6. Samples analysed as received.

Reported By: _____

Gerard Gleeson - Environmental Coordinator



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Appendix 2 – Deposited Dust Monitoring Data

Certificate of Analysis

Origin: Werris Creek Coal Pty Ltd

Project: Werris Creek Mine

Description: Dust Deposition Samples

Report To: Mr. Danny Young - Group Environmental Manager

Report Number: 26001260 - 474

Date Issued: 8th April 2010

Copy To: File

ALS ACIRL Pty Ltd
Units 1-4, Lot 6 Industrial Ct
Muswellbrook NSW 2333
Ph: (02) 6542 2400
Fax: (02) 6541 5342



Sample ID	Date Installed	Date Removed	Sampling Time	Days Exposed	Volume Collected (mL approx.)	Appearance	Colour	Observations	Insoluble Matter (g/m ² /month)	Insoluble Matter (g)	Ash Residue (g/m ² /month)	Ash Residue (g)	Combustible Matter (g)
WC2 - Cintra	2-Mar-10	30-Mar-10	15:40	28	200	Clear	Clear	Insects	1.7	0.0274	1.1	0.0174	0.0100
WC5 - Railway View	2-Mar-10	30-Mar-10	16:15	28	200	Clear	Clear	Insects, Plant Material	1.2	0.0194	0.6	0.0107	0.0087
WC7 - Patterson	2-Mar-10	30-Mar-10	15:59	28	250	Clear	Clear	Insects	50.0	0.8240	48.9	0.8067	0.0173
WC8 - Plain View	2-Mar-10	30-Mar-10	16:40	28	250	Clear	Clear	Insects	3.1	0.0515	2.6	0.0421	0.0094
Marengo	2-Mar-10	30-Mar-10	16:50	28	280	Clear	Clear	Insects	1.1	0.0178	0.6	0.0094	0.0084

Notes:

- * Dust gauges installed and removed by ALS ACIRL
- * Samples analysed in accordance with AS3580.10.1 Parts 8.2 and 8.3
- * Samples analysed as received
- * This report replaces any previous report bearing the same report number

gph

Reported By: Gerard Gleason - Laboratory Operations Manager
ALS ACIRL Gunendah



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Site #11423

Certificate of Analysis

Origin: Werris Creek Coal Pty Ltd

Project: Werris Creek Mine

Description: Dust Deposition Samples

Report To: Mr. Danny Young - Group Environmental Manager

Report Number: 26001268 - 561

Date Issued: 8th February 2010

Copy To: File

ALS ACIRL Pty Ltd
Units 1-4, Lot 6 Industrial Ct
Muswellbrook NSW 2333
Ph: (02) 6542 2400
Fax: (02) 6541 5342



Sample ID	Date Installed	Date Removed	Sampling Time	Days Exposed	Volume Collected (mL approx.)	Appearance	Colour	Observations	Insoluble Matter (g/m ² /month)	Insoluble Matter (g)	Ash Residue (g/m ² /month)	Ash Residue (g)	Combustible Matter (g)
WC2 - Cintra	30-Mar-10	27-Apr-10	10:15	28	150	Clear	Clear	Insects, Plant Material	2.0	0.0327	1.2	0.0198	0.0129
WC5 - Railway View	30-Mar-10	27-Apr-10	10:30	28	150	Clear	Clear	Insects, Plant Material	1.6	0.0257	1.2	0.0202	0.0055
WC7 - Patterson	30-Mar-10	27-Apr-10	10:00	28	150	Clear	Clear	Insects, Bird Droppings	0.9	0.0149	0.6	0.0098	0.0051
WC8 - Plain View	30-Mar-10	27-Apr-10	11:15	28	200	Clear	Clear	Insects, Plant Material	0.7	0.0119	0.6	0.0092	0.0027
Marengo	30-Mar-10	27-Apr-10	11:40	28	200	Clear	Clear	Insects	0.4		0.2		

Notes:

- * Dust gauges installed and removed by ALS ACIRL
- * Samples analysed in accordance with AS3580.10.1 Parts 8.2 and 8.3
- * Samples analysed as received
- * This report replaces any previous report bearing the same report number

Reported By:

Gerard Gleeson - Laboratory Operations Manager
ALS ACIRL Gunnedah



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Appendix 3 – Noise Monitoring Results



29 March 2010

Ref: 04035/3480

Werris Creek Coal
1435 Werris Creek – Quirindi Road
Werris Creek NSW 2341

RE: MARCH 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) during the afternoon and evening of Tuesday 9th March 2010 and the evening and early morning of Tuesday 23rd and Wednesday 24th March 2010. The monitoring commenced on March 9 but instrument failure caused the survey to be curtailed. The remainder of the monitoring was completed at the next available opportunity on March 23.

Noise measurement locations for the attended noise survey are as defined in the Werris Creek Coal Pty Ltd "Noise Management Protocol". The locations are listed below and attached in **Figure 1**:

"Almawillee"
"Glenara"
"Marengo"
"Tonsley Park"
"Cintra"
"Fletcher"

Three sets of measurements were made over the "circuit", one during the day time period (before 6 pm), one during the evening period (from 6 pm – 10 pm) and one at night (after 10 pm). WCC activities were audible at some monitoring locations throughout the survey.

Meteorological data used in this report were supplied by the mine from their automatic weather station. Wind speeds and direction have been determined as the arithmetic average of the measurements over the monitoring period. The weather station showed that winds were gentle to moderate from the west to north west on March 9. During the evening of March 23 the winds were light from the south east to south west. At night conditions were calm.

Temperature data from the mine operated weather station indicated a temperature inversion of $<+3^{\circ}\text{C}/100\text{m}$ throughout the all of the evening and night monitoring periods. Temperature inversion strength is extrapolated from the 2m and 10m temperature gauges on the weather station tower.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements.

The total measured Leq is shown in the tables below. Where the noise from WCC was audible the Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of the mine and other significant noise sources to the overall.

The noise criterion for the operational phase of the WCC project is **35 dB(A) L_{eq} (15 min)** for all operating times. Mine noise from WCC is shown in bold type. Where noise from WCC is listed as inaudible, this means the noise levels from the mine were at least 10 dB below the minimum level during the measurement and not measurable.

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	4:43 pm	33	n/a	3.1/WNW	Birds & insects (31), farm noise (26), WCC (<25)
Glenara	4:59 pm	35	n/a	3.6/WNW	Wind (31), birds & insects (30), traffic (30), WCC (<25)
Cintra	4:18 pm	44	n/a	3.6/W	WCC (40) , wind (40), insects & birds (35)
Marengo	5:43 pm	35	n/a	4.0/WNW	Birds & insects (31), WCC (30) , farm noise (30), wind (28)
Tonsley Park	3:55 pm	36	n/a	3.6/NW	Wind (36), WCC barely audible (<28)
Fletcher	5:20 pm	43	n/a	3.6/W	Traffic (43), WCC inaudible

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:39 pm*	40	>+3	2.7/SE	Insects (40), WCC barely audible
Glenara	8:22 pm*	37	>+3	2.2/SE	Insects (37), WCC inaudible
Cintra	7:35 pm	38	>+3	3.1/SW	WCC (37) , birds & insects (31)
Marengo	8:30 pm	37	>+3	2.2/SW	Birds & insects (36), WCC (30) , traffic (25)
Tonsley Park	7:55 pm	47	>+3	2.7/SW	Birds & insects (47), traffic (33), WCC (32)
Fletcher	7:15 pm	44	>+3	3.1/SW	Traffic (44), birds & insects (34), WCC inaudible

* March 23

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	12:30 am	34	>+3	Calm	WCC (33) , insects (26)
Glenara	12:47 am	36	>+3	0.4/NW	WCC (34) , dogs (30), insects (26)
Cintra	2:47 am	34	>+3	Calm	WCC (33) , insects (26)
Marengo	1:47 am	32	>+3	Calm	WCC (29) , insects (28)
Tonsley Park	2:16 am	32	>+3	Calm	Railway works (30), insects (28), WCC inaudible
Fletcher	1:09 am	34	>+3	Calm	WCC (34) , insects (23)

The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emission from WCC were higher than the criterion of 35 dB(A) at the Cintra monitoring location during the day and evening of March 9.

The elevated noise at Cintra during was mainly as a result of emissions from dozers working on the coal stockpile and trucks arriving and departing the rail loading facility. Cintra is now a project related residence.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where wind speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m.

Data from those times where WCC operations were audible was analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from WCC must not exceed **45 dB(A) Lmax** between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit Lmax noise from WCC did not exceed the sleep disturbance criterion at any receivers.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

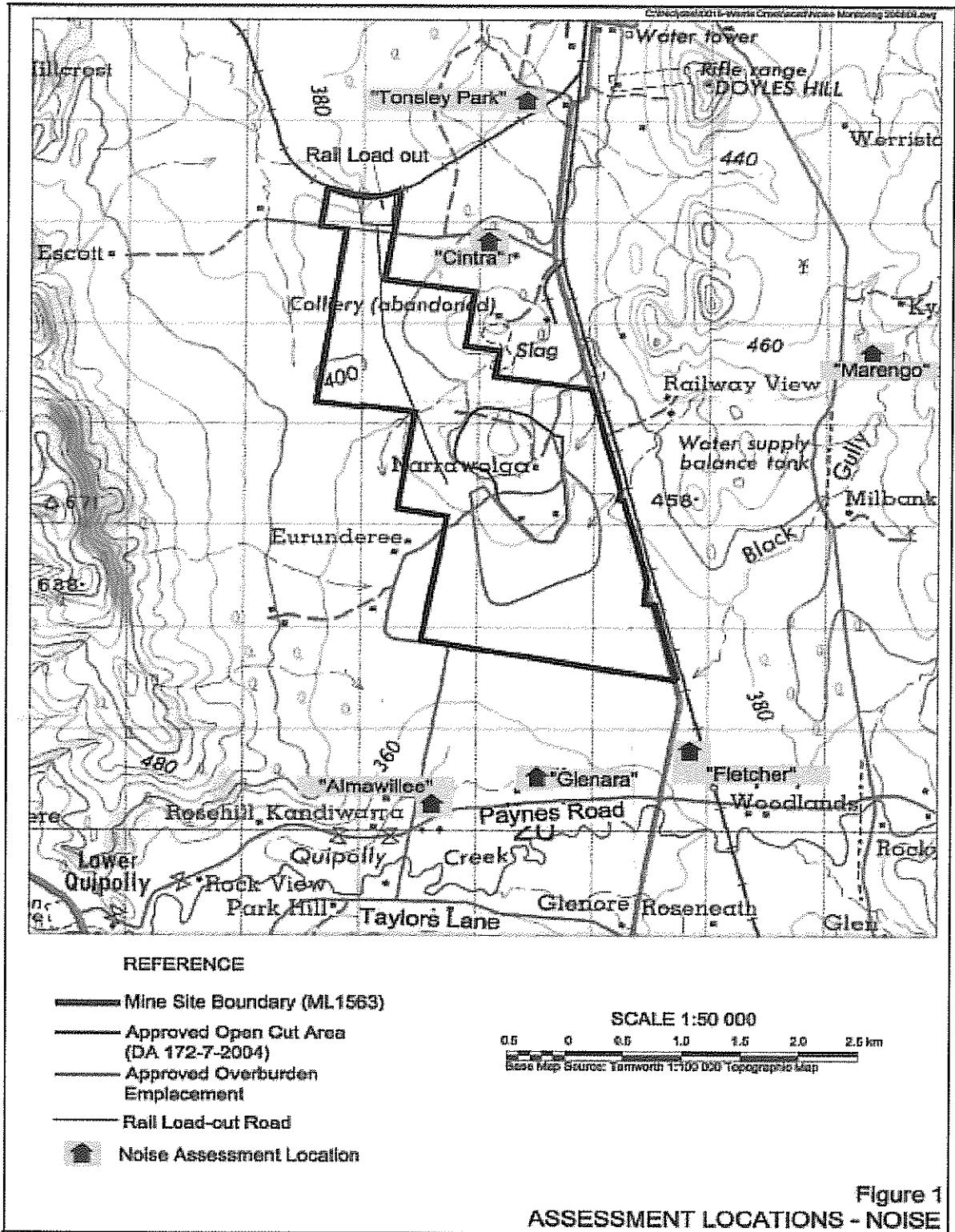


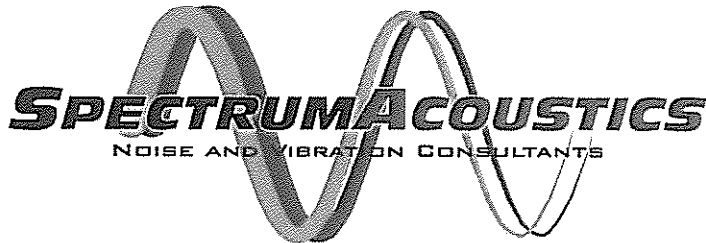
Ross Hodge
Acoustical Consultant

Review:



Neil Pennington
Acoustical Consultant





29 April 2010

Ref: 04035/3523

Werris Creek Coal
1435 Werris Creek – Quirindi Road
Werris Creek NSW 2341

RE: APRIL 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Thursday 22nd April 2010.

Noise measurement locations for the attended noise survey are as defined in the Werris Creek Coal Pty Ltd "Noise Management Protocol". The locations are listed below and attached in **Figure 1**:

- "Almawillee"
- "Glenara"
- "Marengo"
- "Tonsley Park"
- "Cintra"
- "Fletcher"

Three sets of measurements were made over the "circuit", one during the day time period (before 6 pm), one during the evening period (from 6 pm – 10 pm) and one at night (after 10 pm). WCC activities were audible at some monitoring locations throughout the survey.

Meteorological data used in this report were supplied by the mine from their automatic weather station. Wind speeds and direction have been determined as the arithmetic average of the measurements over the monitoring period. The weather station showed that winds were calm during the afternoon and gentle to moderate from the west to south west during the evening and night.

Temperature data from the mine operated weather station indicated that temperature lapse conditions occurred throughout the all of the evening and night monitoring periods. The temperature inversion or lapse data is extrapolated from the 2m and 10m temperature gauges on the weather station tower.

Noise emission levels were measured with a Brüel & Kjær Type 2260 Precision Sound Analyser. This instrument has Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instrument was confirmed with a Brüel & Kjær Type 4231 Sound Level Calibrator Prior to and at the completion of measurements.

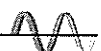
The total measured Leq is shown in the tables below. Where the noise from WCC was audible the Bruel & Kjaer "Evaluator" analysis software was used to quantify the contributions of the mine and other significant noise sources to the overall.

The noise criterion for the operational phase of the WCC project is **35 dB(A) L_{eq} (15 min)** for all operating times. Mine noise from WCC is shown in bold type. Where noise from WCC is listed as inaudible, this means the noise levels from the mine were at least 10 dB below the minimum level during the measurement and not measurable.

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	2:40 pm	35	n/a	Calm	Birds & insects (35), WCC (17)
Glenara	3:01 pm	39	n/a	Calm	Birds & insects (39), WCC inaudible
Cintra	4:30 pm	35	n/a	Calm	Birds & insects (35), WCC (20)
Marengo	3:40 pm	34	n/a	Calm	Birds & insects (34), WCC (<15)
Tonsley Park	4:10 pm	35	n/a	Calm	Birds & insects (35), WCC inaudible
Fletcher	3:19 pm	46	n/a	Calm	Traffic (46), insects (30), WCC (<15)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	7:40 pm	40	Lapse	1.5/WSW	Birds & insects (37), pump (36) WCC (30)
Glenara	7:57 pm	42	Lapse	2.2/NW	Insects (39), traffic (36) WCC (34)
Cintra	9:23 pm	36	Lapse	2.2/W	WCC (35) , traffic (30), insects (22)
Marengo	8:38 pm	29	Lapse	2.6/W	Birds & insects (27), train (25), WCC barely audible
Tonsley Park	9:03 pm	42	Lapse	1.3/WSW	Insects (39), traffic (37), WCC (35)
Fletcher	8:16 pm	46	Lapse	2.2/WSW	Train (45), traffic (40), WCC (31) , insects (28)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	10:02 pm	37	Lapse	0.9/NW	Pump (36), insects (27), WCC (20)
Glenara	10:19 pm	36	Lapse	2.2/W	Traffic (33), insects (32), WCC (26)
Cintra	11:40 pm	42	Lapse	0.9/SW	WCC (42) , insects (30)
Marengo	10:59 pm	26	Lapse	1.8/SW	Frogs & insects (26), WCC inaudible
Tonsley Park	11:22 pm	36	Lapse	2.0/SW	Insects (34), traffic (30), WCC (29)
Fletcher	10:37 pm	38	Lapse	2.0/W	Dogs (36), traffic (33), WCC (25)



The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emission from WCC where higher than the criterion of 35 dB(A) at the Cintra monitoring location during the night monitoring period.

The elevated noise at Cintra during was a result of emissions from dozers working on the coal stockpile and a train being loaded at the rail loading facility. Cintra is a project related residence.

Data from those times where WCC operations were audible was analysed using the "Evaluator" software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions in the NSW Industrial Noise Policy.

In addition to the operational noise, the noise from WCC must not exceed **45 dB(A) Lmax** between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit Lmax noise from WCC was 49 dB(A) at the Cintra monitoring location. The sleep disturbance criterion is applicable at a point 1m from the bedroom window of a residence. The monitoring location at Cintra is on the road near the house and not at the bedroom window. It is noted above that Cintra is project related.

We trust this report fulfils your requirements at this time, however, should you require additional information or assistance please contact the undersigned on 4954 2276.

Yours faithfully,

SPECTRUM ACOUSTICS PTY LIMITED

Author:

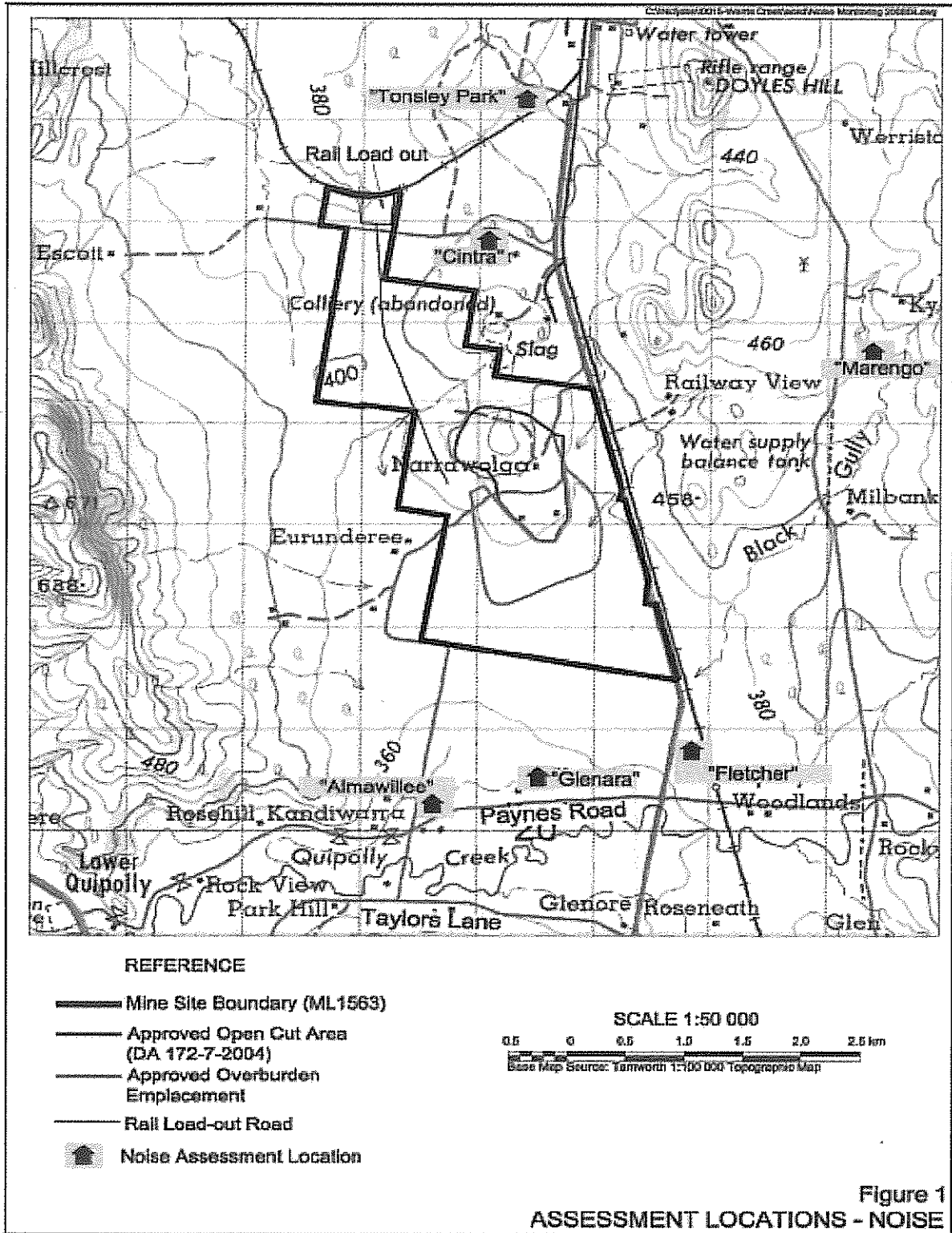


Ross Hodge
Acoustical Consultant

Review:



Neil Pennington
Acoustical Consultant



Appendix 4 – Blasting Monitoring Data.

Shot number	Date fired	Time Fired	Werris Creek Coal Blasting Results							
			Glenala		Marengo		Thonsley Park		Cintra	
			Vib (mm/s)	OP (dB)	Vib (mm/s)	OP (dB)	Vib (mm/s)	OP (dB)	Vib (mm/s)	OP (dB)
262	2/03/2010	13:16	-	-	-	-	-	-	-	-
263	4/03/2010	13:15	-	-	0.45	98.9	0.55	94.6	0.6	113
264	5/03/2010	13:05	-	-	-	-	-	-	0.63	112.3
265	9/03/2010	13:29	-	-	-	-	-	-	-	-
266	11/03/2010	13:14	-	-	0.62	109.5	0.4	112	0.16	114.3
267	12/03/2010	13:12	-	-	-	-	0.58	104.1	1	111.1
268	16/03/2010	13:20	-	-	0.82	97.1	0.48	97.7	0.66	100.8
269	17/03/2010	13:22	-	-	0.1	112.2	0.1	112.6	0.13	113.7
270	19/03/2010	13:11	-	-	1	105.9	0.7	100.6	0.84	108.4
271	23/03/2010	13:46	-	-	0.92	94.8	0.68	94.6	0.84	95.4
272	8/04/2010	12:52	-	-	0.08	113.5	-	-	0.69	104.6
273	26/03/2010	13:09	-	-	0.92	99.4	0.45	100	0.53	97.7
274	31/03/2010	13:27	-	-	0.5	105.4	-	-	0.47	107.2
275	1/04/2010	13:11	-	-	0.67	100.8	0.35	93.3	0.83	98.6
276	9/04/2010	13:07	-	-	1.32	108.8	0.55	100.6	0.85	106.9
277	13/04/2010	13:18	-	-	1.37	101.7	0.9	97.7	1.15	98.6
278	15/04/2010	13:51	-	-	-	-	-	-	-	-
279	19/04/2010	13:26	-	-	0.82	104.3	0.65	100.6	0.93	105.4
280	21/04/2010	13:18	-	-	0.45	99.9	-	-	-	-
281	22/04/2010	13:13	-	-	-	-	0.53	106.6	0.75	110.4
282	27/04/2010	14:50	-	-	1.45	109.5	0.7	101.2	1.25	106.5