

**WERRIS CREEK COAL  
AEMR 2010-2011**

# **APPENDIX 7**

---

**MONTHLY OPERATIONAL NOISE  
MONITORING**

---

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<sub>eq</sub> (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 were 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.

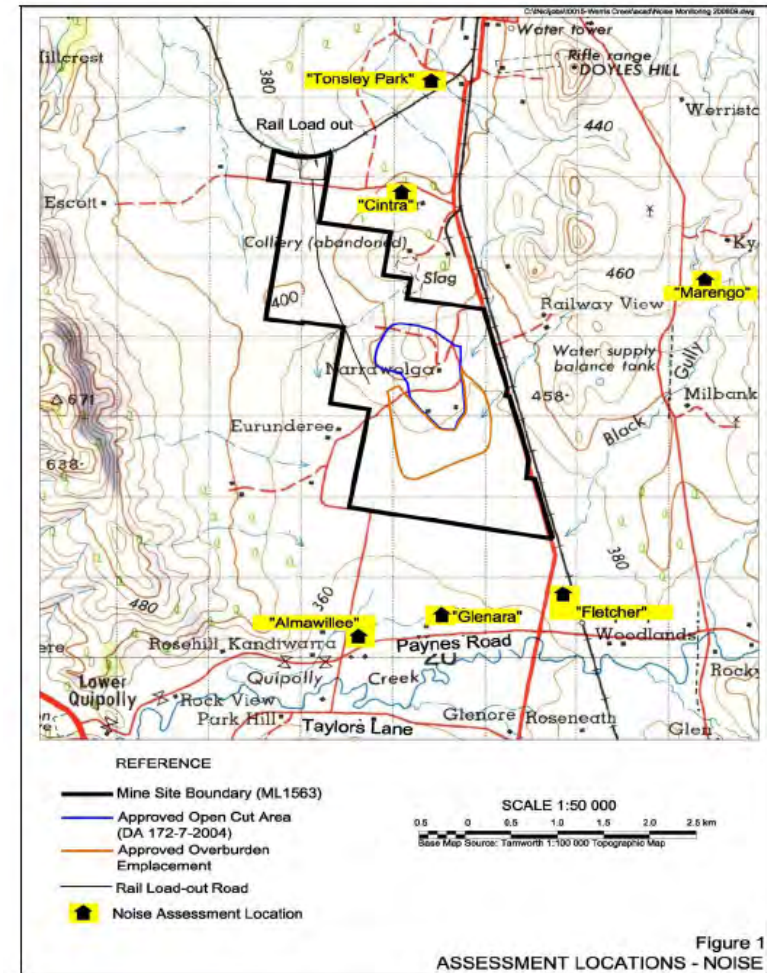
Yours faithfully,  
SPECTRUM ACOUSTICS PTY LIMITED

Author:

Ross Hodge  
Acoustical Consultant

Review:

Neil Pennington  
Acoustical Consultant





21 June 2010

Ref: 04035/3586

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

RE: MAY 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Tuesday 15 June 2010.

The survey was due to be conducted in May 2010 but high winds in the last week or so of May made the conditions unsuitable for monitoring. A noise monitoring survey was commenced on Monday 31 May but rain during the day forced mining to stop for the evening and night. Periods of high winds and, other logistical reasons, meant that the noise monitoring could not be scheduled again prior to 15 June. This survey, therefore, represents the May 2010 compliance monitor.

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 for most of the survey periods picking up slightly from the north to north west towards the end of the night monitoring.



Temperature data from the mine operated weather station indicated that there was a strong temperature inversion throughout the all of the evening and night monitoring periods. The temperature inversion 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<sub>eq</sub> (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	4:07 pm	44	n/a	Calm	Traffic (41), birds & insects (39), train (36), WCC inaudible
Glenara	3:50 pm	40	n/a	Calm	Birds & insects (37), traffic (37), WCC inaudible
Cintra	2:20 pm	38	n/a	1.3/SSW	WCC (38), birds & insects (30)
Marengo	4:40 pm	22	n/a	Calm	Birds & insects (22), WCC inaudible
Tonsley Park	5:30 pm	42	n/a	Calm	Traffic (41), train (34), insects (25), WCC inaudible
Fletcher	5:10 pm	45	n/a	Calm	Traffic (45), insects (35), WCC inaudible

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	7:45 pm	37	>3	Calm	WCC (36), traffic (30)
Glenara	8:02 pm	35	>3	Calm	WCC (34), traffic (29)
Cintra	8:24 pm	41	>3	0.2/NE	WCC (40), traffic (33)
Marengo	9:09 pm	24	>3	Calm	WCC (24)
Tonsley Park	8:44 pm	42	>3	Calm	Train (40), traffic (38), WCC inaudible
Fletcher	9:30 pm	46	>3	Calm	Train (46), WCC inaudible



Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:02 pm	37	>3	0.4/N	WCC (37), traffic (30)
Glenara	11:19 pm	35	>3	0.4/N	Traffic (32), WCC (32)
Cintra	10:40 pm	39	>3	Calm	WCC (39), insects (22)
Marengo	10:00 pm	33	>3	0.4/NNE	WCC (30), plane (30)
Tonsley Park	10:21 pm	41	>3	Calm	Train on loop(40), traffic (35), WCC inaudible
Fletcher	11:37 pm	42	>3	2.2/NNW	Traffic (42), WCC (31)

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, evening and night monitoring periods and at Almawillee during the evening and night.

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

The elevated noise at Almawillee was a result of noise emissions mainly from haul trucks.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m. Data from the mine operated weather station indicated that all of the elevated noise levels were measured whilst there was a strong temperature inversion in place.

Data from those times where WCC operations were audible were 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 53 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. The Lmax noise did not exceed the criterion at any other monitoring location.

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:

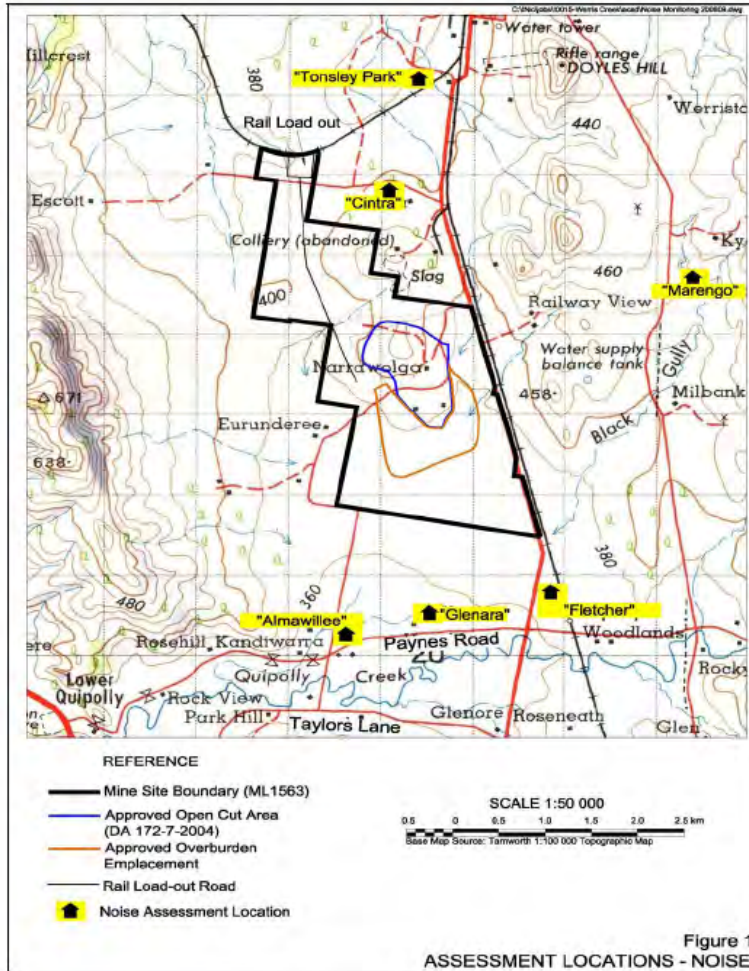


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



21 June 2010

Ref: 04035/3601

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

**RE: JUNE 2010 NOISE MONITORING RESULTS**

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Thursday 24 June 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 light from the south west or calm for most of the day and evening survey periods picking up slightly from the north to north east during the night monitoring.

Temperature data from the mine operated weather station indicated that there was a strong temperature inversion 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 Brüel & Kjær Type 2260 and Type 2250 Precision Sound Analysers. These instruments have Type 1 characteristics as defined in AS1259-1982 "Sound Level Meters". Calibration of the instruments 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<sub>eq</sub> (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	12:30 pm	40	n/a	0.2/SW	Birds & insects (39), traffic (32), WCC inaudible
Glenara	12:47 pm	41	n/a	0.2/SW	Tractor (38), birds & insects (36), traffic (32), WCC inaudible
Cintra	1:07 pm	35	n/a	0.3/SW	WCC (35), birds & insects (24)
Marengo	1:55 pm	35	n/a	0.4/SSW	Planes (35), birds & insects (25), WCC inaudible
Tonsley Park	1:30 pm	34	n/a	0.3/SSW	Plane (31), track works (31), WCC inaudible
Fletcher	2:20 pm	48	n/a	0.4/SSW	Traffic (48), WCC inaudible

Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:50 pm	36	>3	Calm	WCC (35), dog (30)
Glenara	9:07 pm	45	>3	Calm	Traffic (44), WCC (39)
Cintra	8:40 pm	43	>3	Calm	WCC (43)
Marengo	9:25 pm	29	>3	0.4/SSE	Birds & insects (29), WCC inaudible
Tonsley Park	9:00 pm	50	>3	Calm	Train (50), traffic (37), WCC (37)
Fletcher	9:30 pm	44	>3	0.4/SSE	Traffic (43), WCC (36), dog (32)

Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	10:15 pm	41	>3	0.4/NE	Train (40), traffic (32), WCC (30)
Glenara	10:33 pm	35	>3	1.8/NE	Traffic (32), WCC (32)
Cintra	10:03 pm	46	>3	0.2/NE	Train (46), traffic (35), WCC (32)
Marengo	10:53 pm	25	>3	2.7/NE	WCC (25)
Tonsley Park	10:28 pm	37	>3	1.8/NE	Traffic (36), WCC (30)
Fletcher	10:50 pm	34	>3	2.27/NE	WCC (33), traffic (27)

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, Glenara, Tonsley Park and Fletcher monitoring locations during the evening monitoring period.

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

The elevated noise at Glenara and Fletcher was a result of noise emissions mainly from haul trucks.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m. Data from the mine operated weather station indicated that all of the elevated noise levels were measured whilst there was a strong temperature inversion in place.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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.

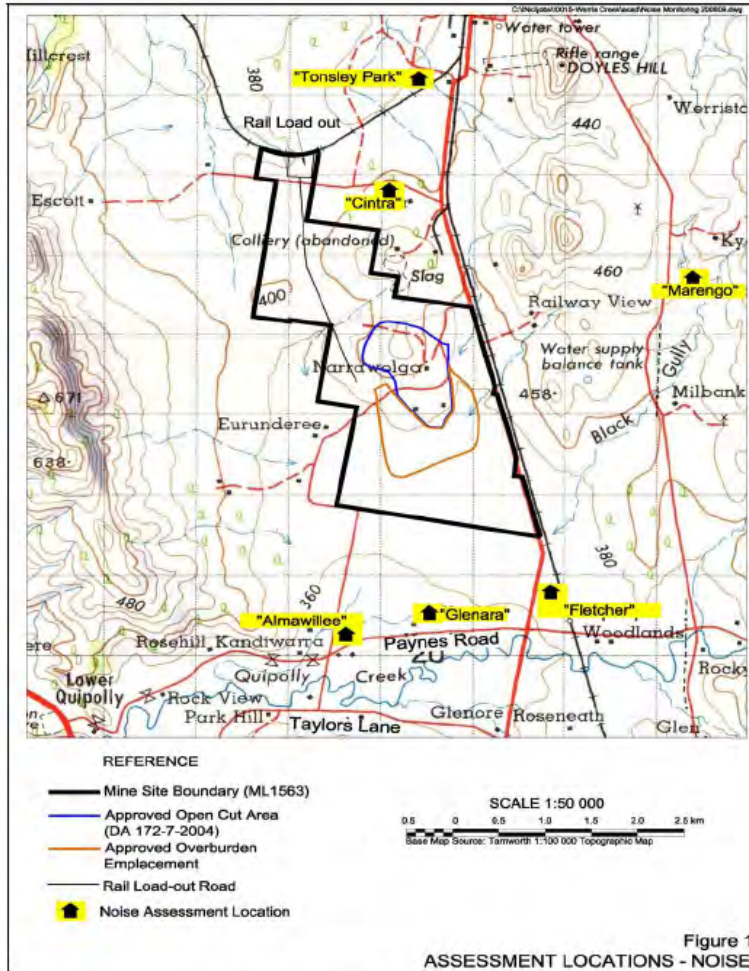
Yours faithfully,  
SPECTRUM ACOUSTICS PTY LIMITED

Author:

Ross Hodge  
Acoustical Consultant

Review:

Neil Pennington  
Acoustical Consultant



29 July 2010

Ref: 04035/3626

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

**RE: JULY 2010 NOISE MONITORING RESULTS**

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Monday 26 July 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 light to gentle from the south east during the day time monitoring period. During the evening and night the wind stayed from the south east but decreased in speed to be calm by the end of the survey.

Temperature data from the mine operated weather station indicated that there was a strong temperature inversion 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.

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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 26 July 2010 (Day)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	3:55 pm	44	n/a	5.4/SE	Traffic (42), wind (40), WCC inaudible
Glenara	4:13 pm	39	n/a	4.5/SSE	Traffic (38), birds (32), WCC inaudible
Cintra	4:50 pm	43	n/a	3.8/SE	Traffic (41), WCC (36), birds & insects (34)
Marengo	5:35 pm	32	n/a	3.5/SE	Birds & insects (32), WCC inaudible
Tonsley Park	5:09 pm	43	n/a	3.3/SE	Traffic (42), WCC (33), wind (30)
Fletcher	4:30 pm	46	n/a	4.5/SSE	Insects (42), track works (42), traffic (40), WCC inaudible

Table 2 WCC Noise Monitoring Results – 26 July 2010 (Evening)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:23 pm	32	>3	1.3/ESE	Traffic (30), WCC (28)
Glenara	8:40 pm	34	>3	2.2/ESE	Traffic (33), train (30), WCC ( 25)
Cintra	9:10 pm	37	>3	3.1/ESE	WCC (34), traffic (34)
Marengo	9:43 pm	26	>3	0.9/SE	Birds & cattle (26), WCC inaudible
Tonsley Park	9:18 pm	38	>3	1.5/SE	Traffic (36), trains (33), WCC ( 30)
Fletcher	8:05 pm	48	>3	1.5/SE	Trains & track work (48), traffic (35), WCC inaudible

Table 3 WCC Noise Monitoring Results – 26 July 2010 (Night)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:20 pm	26	>3	1.3/SE	Frogs & insects (26), WCC inaudible
Glenara	11:02 pm	31	>3	0.9/SE	Traffic (29), plane (25), WCC barely audible
Cintra	10:25 pm	37	>3	1.8/SE	WCC (36), traffic (30)
Marengo	12:30 am	26	>3	Calm	Frogs (26), WCC inaudible
Tonsley Park	10:05 pm	29	>3	2.0/SE	Trains (27), traffic (25), WCC ( 25)
Fletcher	10:45 pm	39	>3	0.4/SE	Trains (38), WCC (30)

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 day and night monitoring periods. Cintra is a project related residence.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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:

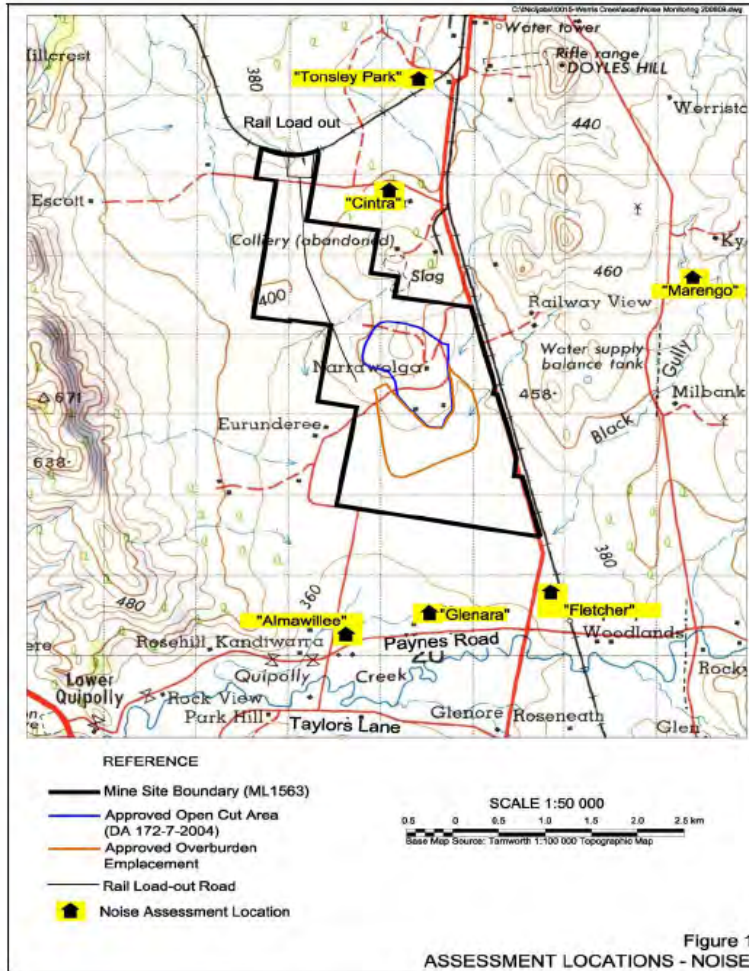


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



27 August 2010

Ref: 04035/3657

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

RE: AUGUST 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Friday 20 August 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 light to gentle from the west south west during the day and evening monitoring periods. During the night the wind stayed from the west south west but decreased in speed to be calm by the end of the survey.

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

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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 20 August 2010 (Day)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	5:43 pm	39	n/a	4.5/WSW	Traffic (37), birds (36), WCC barely audible
Glenara	5:25 pm	35	n/a	3.1/WSW	Traffic (34), birds & insects (25), WCC inaudible
Cintra	4:00 pm	37	n/a	4.9/WSW	Wind (33), traffic (32), birds & insects (30), WCC ( 30)
Marengo	4:42 pm	39	n/a	3.6/WSW	WCC (35), wind (34), cattle (31), traffic (30)
Tonsley Park	4:20 pm	43	n/a	3.6/WSW	Wind (33), traffic (38), train (37), WCC inaudible
Fletcher	5:07 pm	55	n/a	4.0/WSW	Traffic (54), track works (47), WCC inaudible

Table 2 WCC Noise Monitoring Results – 20 August 2010 (Evening)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	9:30 pm	35	>3	4.5/WSW	Frogs (34), WCC (29)
Glenara	9:22 pm	39	>3	4.9/WSW	Traffic (35), planes (33), insects (32), WCC ( 30)
Cintra	7:55 pm	44	>3	6.3/WSW	Wind (41), plane (36), traffic (35), WCC (30)
Marengo	8:40 pm	41	>3	4.9/WSW	WCC (40), wind (35), train (30)
Tonsley Park	8:17 pm	48	>3	5.8/WSW	Train (46), wind (43), traffic (40), WCC inaudible
Fletcher	9:01 pm	46	>3	5.8/WSW	Traffic (46), insects (34), WCC (33)

Table 3 WCC Noise Monitoring Results – 20 August 2010 (Night)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:27 pm	32	>3	2.7/WSW	Frogs (32), WCC inaudible
Glenara	12:48 am	33	>3	Calm	Traffic (31), frogs (29), WCC barely audible
Cintra	10:04 pm	35	>3	3.1/WSW	WCC (33), wind (29), frogs (28)
Marengo	10:40 am	39	>3	3.1/WSW	WCC (38), wind (32)
Tonsley Park	10:18 pm	35	>3	4.0/WSW	Traffic (32), WCC (32)
Fletcher	10:58 pm	58	>3	2.7/WSW	Trains (58), traffic (47), WCC inaudible

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 Marengo monitoring location during the evening and night monitoring periods. Marengo is a project related residence.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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:

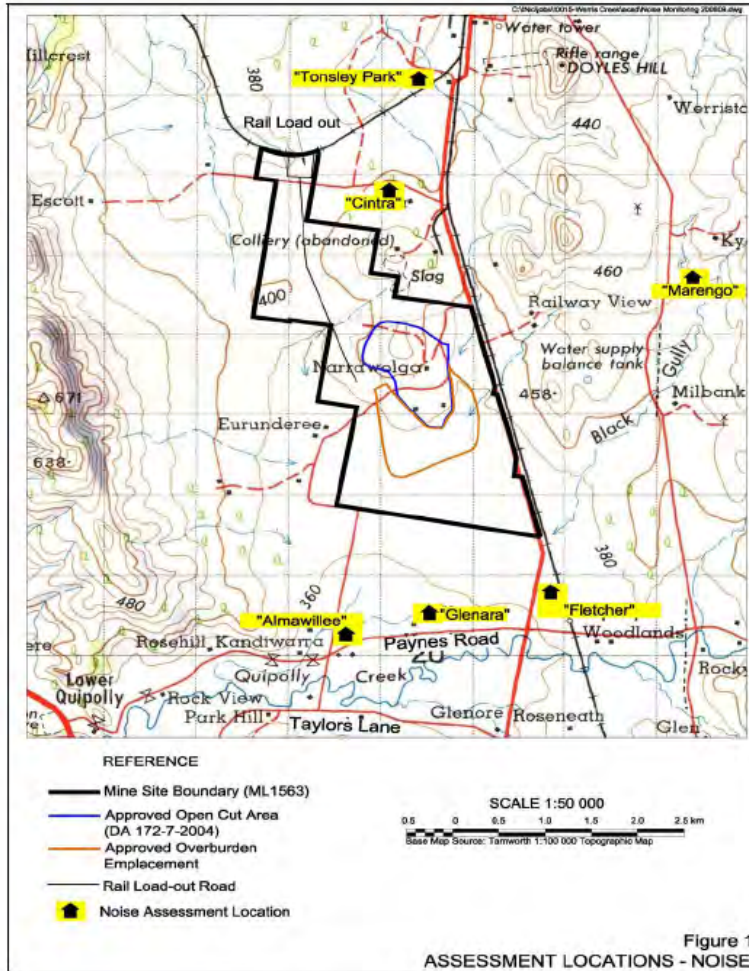


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



28 September 2010

Ref: 04035/3696

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

RE: SEPTEMBER 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Friday 17 September 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.

The mine operated automatic weather station was not functioning during the period of the survey. Meteorological data used in this report was, therefore, obtained from a hand held weather station with measurements made at approximately 2m above ground level.

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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 17 September 2010 (Day)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	4:45 pm	36	n/a	1/N	Traffic (33), WCC (30), birds (29)
Glenara	4:27 pm	39	n/a	1/N	Traffic (35), WCC (34), birds (33)
Cintra	3:05 pm	35	n/a	0.5/NW	WCC (34), birds & insects (28)
Marengo	3:47 pm	32	n/a	0.5/NW	Birds & insects (29), WCC (27), cattle (25)
Tonsley Park	3:25 pm	34	n/a	0.5/NW	Train noise (34), birds & insects (25), WCC inaudible
Fletcher	4:09 pm	46	n/a	1/N	Traffic (46), WCC inaudible

Table 2 WCC Noise Monitoring Results – 17 September 2010 (Evening)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:47 pm	30		<0.5/NW	Frogs (26), WCC (25), insects (23)
Glenara	8:31 pm	34		<0.5/NW	Traffic (32), WCC (28), insects (24)
Cintra	9:10 pm	30		<0.5/NW	Traffic (28), WCC (25), insects (20)
Marengo	7:53 pm	38		<0.5/NW	WCC (37), insects (30)
Tonsley Park	7:20 pm	39		Calm	Traffic (37), WCC (32), domestic noise (31)
Fletcher	8:14 pm	45		<0.5/NW	Traffic (45), WCC (27)

Table 3 WCC Noise Monitoring Results – 17 September 2010 (Night)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:32 pm	33		Calm	Birds (33), WCC ( 20)
Glenara	11:15 pm	36		Calm	Traffic (35), WCC (30), insects (20)
Cintra	10:00 pm	31		<0.5/NW	WCC (27), traffic (27), insects (24)
Marengo	10:37 pm	38		Calm	WCC (38), insects (23)
Tonsley Park	10:17 pm	38		Calm	Traffic (36), WCC (32)
Fletcher	10:58 pm	48		Calm	Traffic (48), birds (35), WCC (31)

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 Marengo monitoring location during the evening and night monitoring periods. Marengo is a project related residence.

Data from those times where WCC operations were audible were 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 Lmax criterion at any monitoring location.

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:

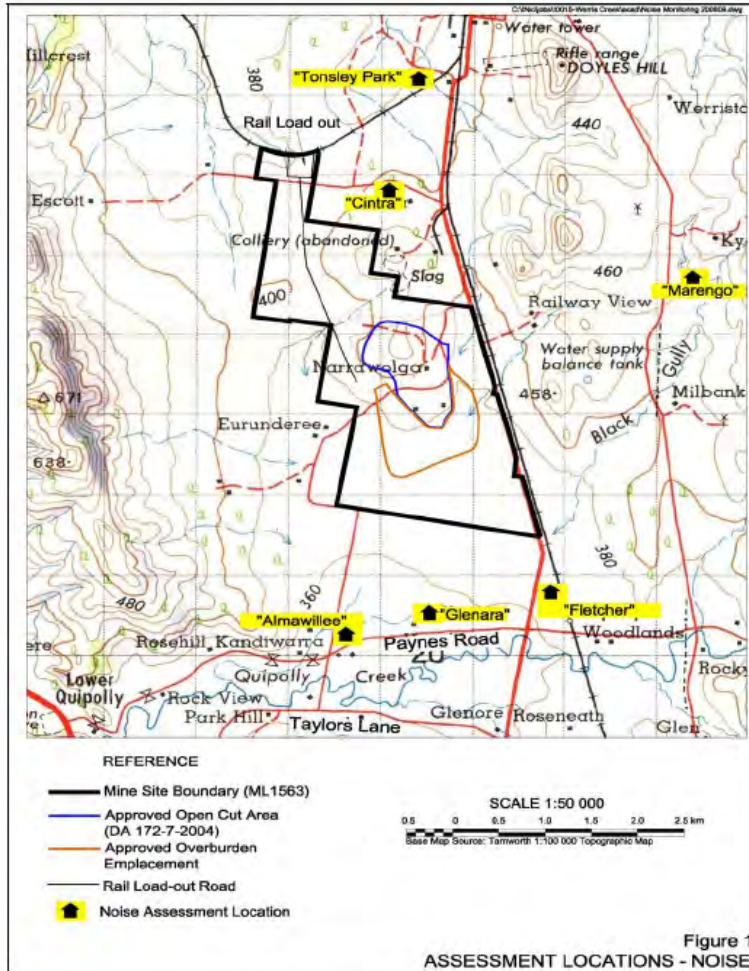


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



2 November 2010

Ref: 04035/3756

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

RE: OCTOBER 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Wednesday 27 October 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 data shows that winds were light to moderate from the north to north west during the day, dropping to calm in the evening before a southerly change came through at the start of the night time monitoring period. The data showed a mild temperature inversion for most of the evening and night.

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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 27 October 2010 (Day)					
Location	Time	dB(A) <sub>Leq</sub>	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	3:30 pm	41	n/a	3.6/N	Birds & insects (40), WCC (32), plane (30)
Glenara	3:48 pm	30	n/a	3.6/NW	Traffic (27), WCC (25), birds & insects (22)
Cintra	5:18 pm	41	n/a	4.0/NW	WCC (40), birds & insects (34), traffic (30)
Marengo	4:35 pm	39	n/a	4.0/WNW	Birds & insects (38), WCC (30), traffic (28)
Tonsley Park	4:58 pm	38	n/a	4.5/NNW	Frogs & insects (37), traffic (28), WCC (28)
Fletcher	4:05 pm	48	n/a	3.1/NNW	Traffic (46), train (42), birds & insects (38), WCC inaudible

Table 2 WCC Noise Monitoring Results – 27 October 2010 (Evening)					
Location	Time	dB(A) <sub>Leq</sub>	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	7:50 pm	37	>3	Calm	Traffic (34), birds & insects (32), frogs (31), WCC barely audible
Glenara	8:08 pm	40	<3	Calm	Traffic (36), WCC (36), insects (32)
Cintra	9:44 pm	38	>3	0.4/NW	WCC (38), insects (28)
Marengo	8:58 pm	40	>3	Calm	Frogs & insects (39), WCC (32)
Tonsley Park	9:25 pm	44	>3	Calm	Frogs & insects (41), WCC (40), traffic (35)
Fletcher	9:44 pm	49	>3	Calm	Traffic (49), WCC (33)

Table 3 WCC Noise Monitoring Results – 27 October 2010 (Night)					
Location	Time	dB(A) <sub>Leq</sub>	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:30 pm	32	>3	6.3/SSW	Traffic (31), insects (26), WCC inaudible
Glenara	12:38 am	30	>3	7.2/S	Traffic (30), WCC inaudible
Cintra	11:03 pm	42	>3	4.0/SSW	WCC (41), traffic (36), insects (30)
Marengo	10:15 am	41	0	3.1/SW	WCC (40), frogs & insects (35)
Tonsley Park	10:43 pm	43	>3	2.7/S	Traffic (40), frogs & insects (39), WCC (36)
Fletcher	12:55 pm	34	<3	5.4/S	Traffic (34), insects (23), WCC barely audible

The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emission from WCC was higher than the criterion of 35 dB(A) at the Cintra monitoring locations during the day, evening and night monitoring periods and at Tonsley Park during the evening and night, at Glenara during the evening and Marengo at night.

Cintra and Marengo are project related residences.

The noise at Cintra and Tonsley Park was related to emissions from the train loading facility including train noise, dozer tracks and trucks hauling coal. At Marengo and Glenara the noise was attributed to general mining hum with occasional individual noise sources discernable from haul trucks and excavators.

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 the mine operated weather station indicated that all of the elevated noise levels at Tonsley Park were measured whilst there was a temperature inversion of greater than +3° C/100m in place.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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:

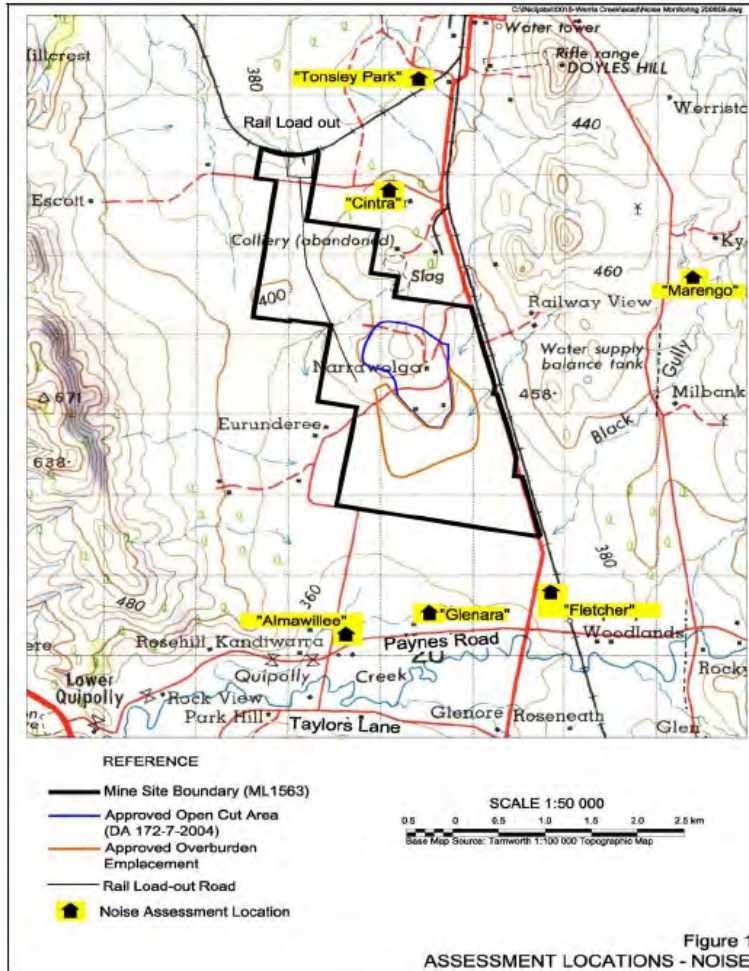


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



16 December 2010

Ref: 04035/3808

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

RE: DECEMBER 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Thursday 9 and Tuesday 14 December 2010. Rain during the night of 9 December caused the survey to be abandoned and recommenced, at the nearest opportunity, on 14 December.

Noise measurement locations for the attended noise survey are as defined in the Werris Creek Coal Mine's Noise Management Plan (revised November 2010). The locations are listed below and attached in **Figure 1**:

- "Almawillee"
- "Glenara"
- "Railway Cottage" (previously denoted as "Fletcher")
- "Tonsley Park"
- "Greenslopes/Banool"
- "Kyooma"

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 speed and direction have been determined as the arithmetic average of the measurements over the monitoring period. The data shows that on December 9 winds were moderate from the north to north west. The data from the met station shows wind speeds were generally higher than 5m/s. Observations at ground level were that winds at this height were at lower speeds than this (range 2 to 4m/s).

On December 14 the wind was light from the north east to north west. The data showed a mild to strong temperature inversion for the duration of the night survey.

The total measured Leq noise level 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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results - 9 December 2010 (Day)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	4:31 pm	44	n/a	7.6/NW	Birds & insects (43), wind (36), WCC (30)
Glenara	4:51 pm	46	n/a	7.0/NW	Birds & insects (45), tractor (35), WCC (33)
Railway Cottage	4:37 pm	46	n/a	7.6/NW	Traffic (44), insects (43), WCC inaudible
Tonsley Park	3:25 pm	41	n/a	7.2/NNW	Insects (38), train on loop (36), traffic (32), WCC inaudible
Greenslopes	3:54 pm	44	n/a	5.8/NW	Wind (41) traffic (40), train (30), WCC inaudible
Kyooma	4:15 pm	38	n/a	7.6/NW	Birds & insects (35), wind in trees (35), WCC inaudible

Table 2 WCC Noise Monitoring Results - 9 December 2010 (Evening)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	7:34 pm	43	Lapse	5.4/N	Birds & insects (39), horse (39), WCC (38)
Glenara	7:52 pm	50	Lapse	5.4/N	Birds & insects (50), WCC (38)
Railway Cottage	8:10 pm	47	Lapse	4.9/N	Birds & insects (44), traffic (43), WCC (39)
Tonsley Park	8:58 pm	41	Lapse	5.8/N	Birds & insects (39), railway works (37), WCC inaudible
Greenslopes	9:20 pm	42	Lapse	7.1/N	Insects (39), traffic (37), railway works (35), WCC inaudible
Kyooma	8:35 pm	36	Lapse	5.6/N	Insects (36), WCC inaudible

Table 3 WCC Noise Monitoring Results - 9 14 December 2010 (Night)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee*	10:36 pm	38	>3	2.2/NE	Insects (38), WCC (34)
Glenara*	10:19 pm	38	<3	0.9/NW	Insects (37), WCC (33), traffic (30)
Railway Cottage*	10:01 pm	40	>3	0.4/NNW	Insects & dogs (39), WCC (33)
Tonsley Park	10:25 pm	44	Lapse	7.6/N	Insects (42), railway works (40), traffic (30), WCC inaudible
Greenslopes	10:47 pm	40	Lapse	8.0/N	Insects (39), traffic (35), WCC inaudible
Kyooma	10:02 pm	37	Lapse	7.2/N	Insects (37), WCC inaudible

\*14 December

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 Almawillee, Glenara and Railway Cottage monitoring locations during the evening monitoring period on 9 December.

The noise at each of these monitoring locations was mainly related to engine noise from haul trucks.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m. Data from the mine operated weather station indicated that all of the elevated noise levels during the evening on December 9 were measured whilst there was a wind speed of greater than 3m/s and, therefore, under non-compliant atmospheric conditions.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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

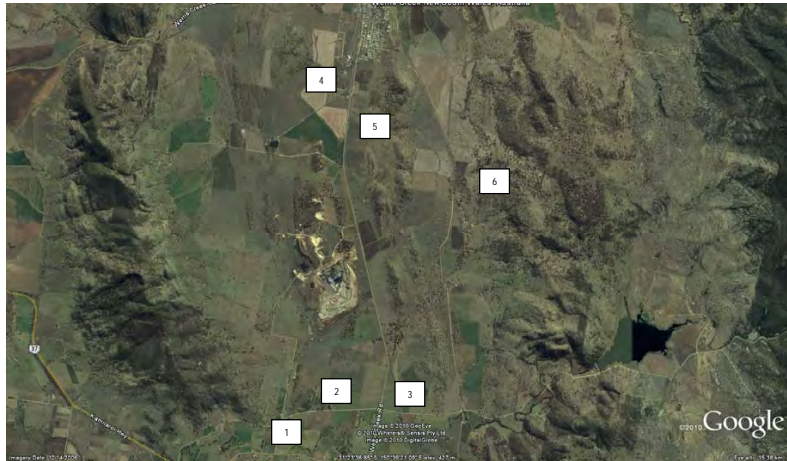


Figure 1 – Noise Monitoring Locations

Key

- 1 Almawillee
- 2 Glenara
- 3 Railway Cottage
- 4 Tonsley Park
- 5 Greenslopes/Banool
- 6 Kyooma



23 November 2010

Ref: 04035/3770

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

RE: NO EMBER 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Thursday 18 November 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"
- "Railway Cottage" (previously denoted as "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 data shows that winds were light to moderate generally from the south during the day, dropping to calm in the evening before turning to the north north west during the night. The data showed a mild to strong temperature inversion for most of the evening and night.

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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 18 November 2010 (Day)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	2:28 pm	36	n/a	1.8/S	Birds & insects (36), traffic (20), WCC inaudible
Glenara	2:45 pm	40	n/a	4.0/SSW	Birds & insects (38), traffic (36), WCC (25) inaudible
Cintra	2:05 pm	42	n/a	3.6/S	WCC (40), birds & insects (37)
Marengo	3:30 pm	33	n/a	4.9/S	Birds & insects (33), WCC barely audible
Tonsley Park	3:55 pm	41	n/a	5.8/S	Traffic (39), birds & insects (35), WCC (34)
Railway Cottage	3:03 pm	44	n/a	5.4/S	Traffic (44), birds & insects (25), WCC inaudible

Table 2 WCC Noise Monitoring Results – 18 November 2010 (Evening)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:02 pm	46	>3	0.4/S	Frogs & insects (46), WCC inaudible
Glenara	8:20 pm	40	>3	Calm	Frogs & insects (40), WCC inaudible
Cintra	9:42 pm	38	>3	1.3/S	WCC (38), insects (28)
Marengo	8:59 pm	40	>3	Calm	Frogs & insects (40), WCC (30)
Tonsley Park	9:25 pm	42	>3	Calm	Frogs & insects (41), traffic (33), WCC (31)
Railway Cottage	8:38 pm	50	>3	Calm	Frogs & insects (50), traffic (35), WCC inaudible

Table 3 WCC Noise Monitoring Results – 18 November 2010 (Night)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	10:43 pm	41	<3	2.7/NNW	Frogs & insects (41), WCC (30)
Glenara	11:00 am	38	<3	3.1/NNW	Frogs & insects (36), traffic (32), WCC ( 30)
Cintra	11:25 pm	42	<3	2.7/NNW	Frogs & insects (38), traffic (36), WCC (36)
Marengo	10:05 am	39	<3	0.9/S	Frogs & insects (39), WCC ( 25)
Tonsley Park	11:43 pm	41	<3	2.2/NNW	Frogs & insects (41), WCC ( 24)
Railway Cottage	10:25 pm	41	<3	2.2/NNW	Frogs & insects (40), traffic (35), WCC ( 30)

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 locations during the day, evening and night monitoring periods.

Cintra is a project related residence.

The noise at Cintra was related to emissions from the train loading facility including, dozer engine and track noise and trucks hauling coal.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m. Data from the mine operated weather station indicated that all of the elevated noise levels at Cintra during the evening were measured whilst there was a temperature inversion of greater than +3° C/100m in place.

Data from those times where WCC operations were audible were 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 Lmax criterion at any monitoring location.

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:

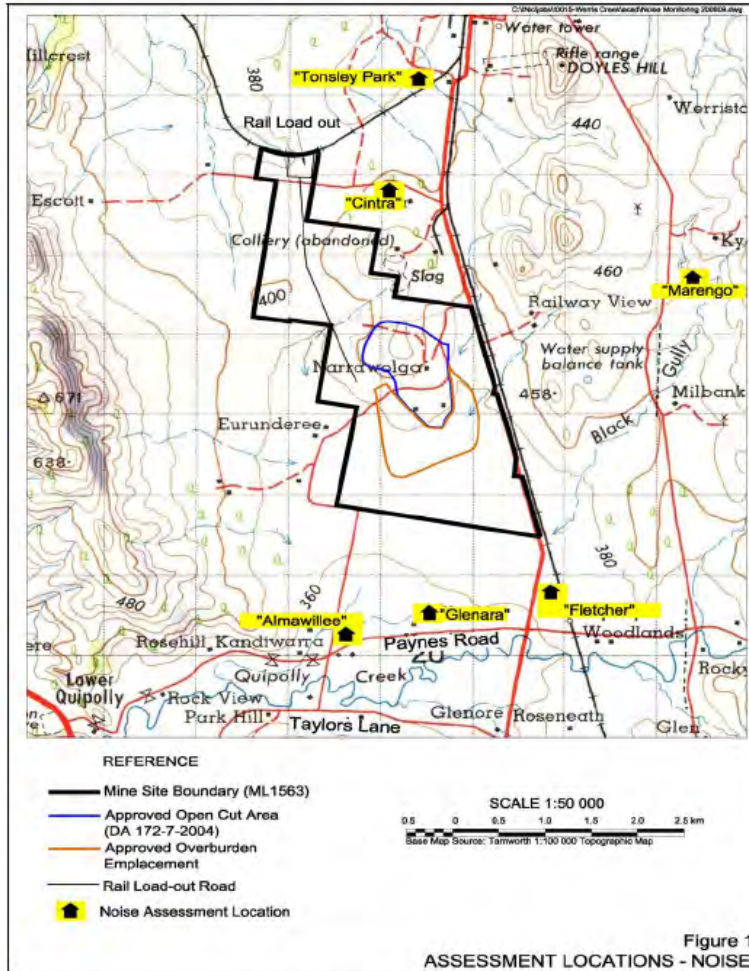


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



25 January 2011

Ref: 04035/3851

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

RE: JANUARY 2011 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Thursday 20 and Wednesday 21 January 2011.

Noise measurement locations for the attended noise survey are as defined in the Werris Creek Coal Mine's Noise Management Plan (revised November 2010). The locations are listed below and attached in **Figure 1**:

- "Almawillee"
- "Glenara"
- "Railway Cottage" (previously denoted as "Fletcher")
- "Tonsley Park"
- "Greenslopes/Banool"
- "Kyooma"

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 only barely audible at the Kyooma monitoring location throughout the night survey.

Meteorological data used in this report were supplied by the mine from their automatic weather station. Wind speed and direction have been determined as the arithmetic average of the measurements over the monitoring period. The data shows that on January 20 winds were moderate from the east to south east. The data from the met station shows wind speeds were generally higher than 5m/s. Observations at ground level were that winds at this height were at lower speeds than this (range 1 to 3m/s).

On January 21 the wind was light from the south south west. The data showed that there was no temperature inversion during the night survey.

The total measured Leq noise level 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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 21 January 2011 (Day)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	9:40 am	39	n/a	1.3/203	Birds & insects (38), traffic (30), WCC inaudible
Glenara	9:22 am	42	n/a	2.2/196	Birds & insects (41), traffic (35), WCC inaudible
Railway Cottage	9:05 am	37	n/a	2.7/202	Traffic (36), insects (30), WCC inaudible
Tonsley Park	8:22 am	46	n/a	1.5/170	Birds & insects (44), traffic (41), WCC inaudible
Greenslopes	8:02 am	42	n/a	2.0/179	Birds & insects (41) traffic (35), wind (30), WCC inaudible
Kyooma	8:45 am	35	n/a	1.8/177	Birds & insects (35), WCC ( 20)

Table 2 WCC Noise Monitoring Results – 20 January 2011 (Evening)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:22 pm	41	Lapse	5.6/129	Birds & insects (38), wind (35), traffic (32), WCC inaudible
Glenara	8:05 pm	42	Lapse	6.8/137	Birds & insects (39), traffic (37), wind (35), WCC inaudible
Railway Cottage	8:40 pm	66	Lapse	5.0/122	Train (66), birds & insects (40), traffic (39), WCC inaudible
Tonsley Park	7:45 pm	46	Lapse	7.7/133	Wind (42), birds & insects (40), train (40) WCC inaudible
Greenslopes	7:25 pm	42	Lapse	7.1/144	Traffic (38), wind (36), insects (34), WCC inaudible
Kyooma	9:03 pm	43	Lapse	4.6/118	Birds & insects (43), WCC inaudible

Table 3 WCC Noise Monitoring Results – 20 January 2011 (Night)					
Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	10:36 pm	36	Lapse	3.9/97	Insects (35), traffic (31), WCC inaudible
Glenara	10:53 pm	39	Lapse	2.4/74	Birds & insects (38), traffic (34) WCC inaudible
Railway Cottage	11:10 pm	39	Lapse	1.9/51	Traffic (38), insects (30), WCC inaudible
Tonsley Park	10:18 pm	42	Lapse	2.7/115	Insects (42), traffic (32), WCC inaudible
Greenslopes	10:00 pm	44	Lapse	2.6/147	Insects (44), traffic (30), WCC inaudible
Kyooma	11:29 pm	35	Lapse	1.5/10	Insects (35), WCC inaudible

The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emission from WCC did not exceed the criterion of 35 dB(A) Leq at any monitoring location during any evening monitoring.

At Tonsley Park the noise from trains on the WCC rail loop was measured at 40 dB(A) Leq during the evening monitoring period. At this time a loaded train was initially at idle and then moved off from the

loop. WCC has an agreement in place with the landowner at Tonsley Park to allow for noise up to 45 dB(A) Leq (15 min).

Data from those times where WCC operations were audible were 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.

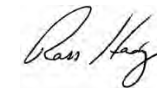
In addition to the operational noise, the noise from WCC must not exceed **45 dB(A) L<sub>max</sub>** between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine.

During the night time measurement circuit L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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

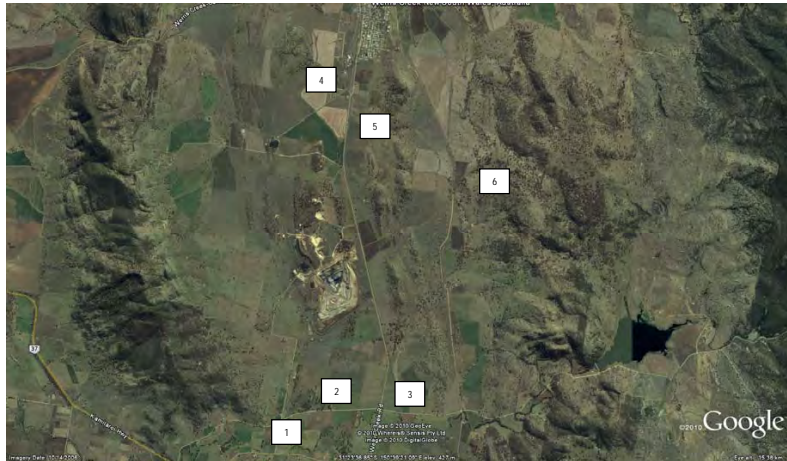


Figure 1 – Noise Monitoring Locations

Key

- 1 Almwillee
- 2 Glenara
- 3 Railway Cottage
- 4 Tonsley Park
- 5 Greenslopes/Banool
- 6 Kyooma



2 March 2011

Ref: 04035/3886

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

RE: FEBRUARY 2011 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Thursday 24 February 2011.

Noise measurement locations for the attended noise survey are as defined in the Werris Creek Coal Mine's Noise Management Plan (revised November 2010). The locations are listed below and attached in **Figure 1**:

- "Almwillee"
- "Glenara"
- "Railway Cottage" (previously denoted as "Fletcher")
- "Tonsley Park"
- "Greenslopes/Banool"
- "Kyooma"

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 low levels on occasion at various monitoring locations throughout the survey.

Meteorological data used in this report were supplied by the mine from their automatic weather station. Wind speed and direction have been determined as the arithmetic average of the measurements over the monitoring period. The data shows that on February 24 winds were moderate from the south to south west during the day turning to the south east during the evening and early night. After midnight the wind decreased in strength and blew from the north east.

The data showed that there was a mild temperature inversion during the evening and early parts of the night survey.

The total measured Leq noise level 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<sub>eq</sub> (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.

Table 1 WCC Noise Monitoring Results – 24 ebruary 2011 (Day)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	3:50 pm	43	n/a	1.1/208	Birds & insects (40), traffic (39), horse (30), WCC inaudible
Glenara	4:07 pm	37	n/a	1.8/191	Birds & insects (37), WCC (20)
Railway Cottage	3:33 pm	55	n/a	2.4/225	Traffic (55), insects (40), WCC inaudible
Tonsley Park	4:33 pm	34	n/a	2.1/217	Traffic (32), birds & insects (28), train (21), WCC inaudible
Greenslopes	4:55 pm	40	n/a	0.8/200	Insects (39), traffic (33), WCC inaudible
Kyooma	3:10 pm	38	n/a	2.4/179	Birds & insects (38), WCC (27)

Table 2 WCC Noise Monitoring Results – 24 ebruary 2011 (Evening)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:22 pm	42	<3	4.2/116	Insects (42), traffic (25), cattle (24), WCC inaudible
Glenara	8:40 pm	48	<3	3.4/125	Insects (48), traffic (32), WCC inaudible
Railway Cottage	9:00 pm	52	>3	3.1/145	Traffic (50), insects (48), WCC inaudible
Tonsley Park	8:00 pm	46	<3	4.7/114	Insects (46), traffic (35) WCC (25)
Greenslopes	7:38 pm	62	<3	4.0/129	Insects (62), WCC (26)
Kyooma	9:24 pm	41	>3	3.9/117	Birds & insects (41), WCC inaudible

Table 3 WCC Noise Monitoring Results – 24/25 ebruary 2011 (Night)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	10:01 pm	36	>3	3.9/125	Insects (35), traffic (28), WCC inaudible
Glenara	10:18 pm	47	<3	1.6/78	Insects (47), traffic (30) WCC ( 20)
Railway Cottage	10:37 pm	39	Lapse	2.1/81	Traffic (38), insects (30), WCC inaudible
Tonsley Park	12:29 am	43	Lapse	0.1/267	Insects (43), WCC inaudible
Greenslopes	12:10 am	44	Lapse	0.2/315	Insects (44), traffic (30), WCC inaudible
Kyooma	11:03 pm	50	Lapse	1.5/345	Insects (50), WCC inaudible

The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emission from WCC did not exceed the criterion of 35 dB(A) Leq at any monitoring location during any monitoring period.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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

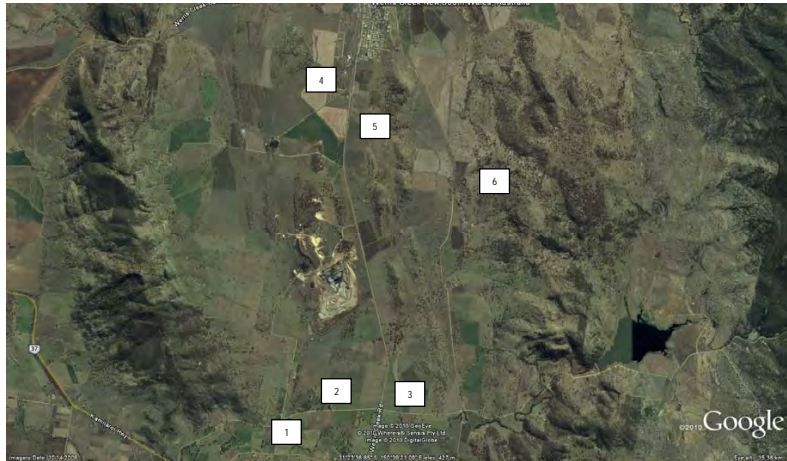


Figure 1 – Noise Monitoring Locations

Key

- 1 Almwillee
- 2 Glenara
- 3 Railway Cottage
- 4 Tonsley Park
- 5 Greenslopes/Banool
- 6 Kyooma

31 March 2011

Ref: 04035/3930

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

RE: MARCH 2011 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) on Friday 25 March 2011.

Noise measurement locations for the attended noise survey are as defined in the Werris Creek Coal Mine's Noise Management Plan (revised November 2010). The locations are listed below and attached in **Figure 1**:

- "Almwillee"
- "Glenara"
- "Railway Cottage" (previously denoted as "Fletcher")
- "Tonsley Park"
- "Greenslopes/Banool"
- "Kyooma"

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).

Meteorological data used in this report were supplied by the mine from their automatic weather stations. Wind speed and direction have been determined as the arithmetic average of the measurements, taken from the permanent weather station, over each monitoring period. The data show that on March 25 winds were light from the west during the day increasing in strength to come from the south during the evening before dropping in intensity from the south east at night.

Wind speed data is taken from the weather station at 10m above ground level as this relates to the noise propagation path.

The mine has a relocatable weather station which at the time of the survey was located at Tonsley Park (at r.l. 385.7m). The 2m temperature logger at the permanent weather station is at r.l. 445.5m. Temperature inversion information in this report has been calculated as an extrapolation as the difference between the temperature at these two stations.

The data showed that there was a mild to strong temperature inversion during the evening and night surveys.

The total measured Leq noise level 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<sub>eq</sub> (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 background level during the measurement and not measurable.

Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	4:37 pm	41	n/a	3.7/216	Birds & insects (40), wind (35), WCC inaudible
Glenara	4:20 pm	38	n/a	4.1/219	Birds & insects (38), WCC ( 25)
Railway Cottage	4:02 pm	45	n/a	3.8/255	Wind in grass (43), traffic (39), insects (30), WCC inaudible
Tonsley Park	2:45 pm	42	n/a	3.7/251	Traffic (38), birds & insects (38), wind (33), WCC ( 25)
Greenslopes	3:06 pm	46	n/a	3.8/250	Traffic (45), WCC (36), birds & insects (30)
Kyooma	3:38 pm	39	n/a	5.4/268	WCC (37), birds & insects (35)

Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	9:25 pm	34	+4.1	4.2/186	Insects (34), traffic (25), WCC inaudible
Glenara	9:06 pm	44	+2.9	4.6/189	Insects (44), WCC inaudible
Railway Cottage	8:45 pm	48	+3.9	4.6/194	Traffic (47), insects (40), WCC inaudible
Tonsley Park	7:30 pm	44	+4.2	7.4/188	Birds & insects (40), traffic (40) WCC (36)
Greenslopes	7:53 pm	47	+4.2	6.5/180	Insects (44), traffic (41), WCC (40)
Kyooma	8:18 pm	41	+3.4	4.8/179	Birds & insects (38), WCC (38)

Location	Time	dB(A) Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	12:10 am	32	+5.6	3.0/148	Traffic (29), insects (29), dogs (25), WCC inaudible
Glenara	11:19 pm	34	+6.1	2.2/143	Traffic (33), insects (30), WCC inaudible
Railway Cottage	11:03 pm	24	+6.3	3.0/160	Insects (24), WCC inaudible
Tonsley Park	10:18 pm	58	+9.4	2.4/163	Train (58), traffic (39), WCC (34), insects (33)
Greenslopes	10:00 pm	45	+9.5	2.5/168	WCC (42), traffic (41), insects (38)
Kyooma	10:42 pm	40	+9.4	3.0/159	WCC (38), insects (36)

The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emissions from WCC were higher than 35 dB(A) Leq at Kyooma and Greenslopes during each of the day, evening and night time monitoring periods and at Tonsley Park during the night. The elevated noise at each location was due to general mine hum and plant noise (haul trucks and dozers). Noise from dozers on the stockpile at the rail load out facility was also a contributor to the received noise at the Tonsley Park and Greenslopes monitoring locations during the day and evening.

WCC environmental licence conditions indicate that compliance with noise emission criteria is not applicable under atmospheric conditions where winds speeds are higher than 3m/s and/or there is a temperature inversion of greater than +3° C/100m. Data from the mine operated weather station indicated that all of the elevated noise levels at each location during the evening and night were measured whilst there was a strong temperature inversion in place.

The elevated noise levels during the day at Kyooma and Greenslopes were measured whilst there was a westerly wind blowing at greater than 3m/s.

WCC has private agreements in place with the landowners at Kyooma, Tonsley Park and Almawillee which allow for received noise levels between 35 and 40 dB(A) Leq (15 min) to be considered a noise management zone.

Data from those times where WCC operations were audible were 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) L<sub>max</sub>** 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 L<sub>max</sub> noise from WCC did not exceed the L<sub>max</sub> criterion at any monitoring location.

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

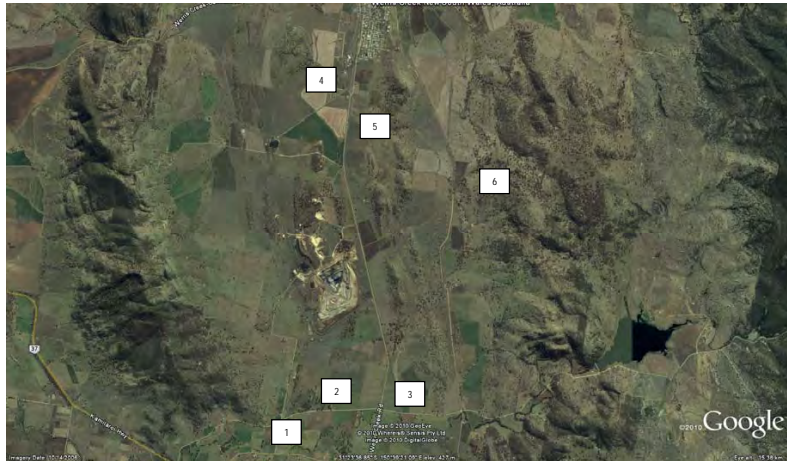


Figure 1 – Noise Monitoring Locations

Key

- 1 Alkawillee
- 2 Glenara
- 3 Railway Cottage
- 4 Tonsley Park
- 5 Greenslopes/Banool
- 6 Kyooma