



29 April 2009

Ref: 04035/3077

Mr. Lynden Cini  
Werris Creek Coal  
1435 Werris Creek – Quirindi Road  
Werris Creek NSW 2341

### RE: APRIL 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the afternoon of Monday 27th April and finishing in the morning of Tuesday 28th April 2009. Noise measurement locations for the attended noise survey are listed below:

Location R2: Zeolite Australia  
Location R3: Cintra  
Location R4: Old Colliery\*  
Location R5: Mountain View  
Location R6: Hillview\*  
Location R7: Railway View\*  
Location R8: Hazeldene  
Location R10: Escott

\* Hillview, Railway View and Old Colliery are mine owned residences.

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 afternoon of March 11 was cool and clear with a gusty breeze from the west north west. The wind continued gusty from the west north west throughout the evening. Wind speeds dropped off during the night and were more from the north north west.

Meteorological data used in this report was 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. Data from the weather station showed strong winds during the day and evening. Observations (and measurements with a hand held anemometer) made at the time of the monitoring indicated wind speeds at ground level were lower than this. The data showed strong temperature inversion conditions were present from early evening and persisted throughout the survey.

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. 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) Leq (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 maximum 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 April 2009 (day)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	3:52 pm	39	n/a	4.9 m/s NNW	Insects/birds (37), wind (32), <b>WCC inaudible</b>
Cintra	4:10 pm	38	n/a	4.9 m/s W	Insects/birds (37), wind (32), traffic (28), <b>WCC inaudible</b>
Old Colliery	3:15 pm	39	n/a	4.0 m/s W	Wind (35), insects/birds (34), traffic (33), <b>WCC inaudible</b>
Mountain View	5:28 pm	43	n/a	2.2 m/s WNW	Birds/insects (43), wind (31), <b>WCC (&lt;30)</b>
Hillview	4:27 pm	55	n/a	4.9 m/s WNW	Traffic (55), <b>WCC (37)</b> , birds (37), wind (30)
Railway View	4:40 pm	46	n/a	3.1 m/s WNW	Traffic (44), <b>WCC (42)</b> , birds (30)
Hazeldene	5:10 pm	37	n/a	3.1 m/s WNW	Traffic (34), wind (30), birds/insects (27), <b>WCC inaudible</b>
Escott	3:24 am	35	n/a	3.1 m/s WSW	Insects/birds (33), wind (30), train (28), <b>WCC inaudible</b>

Table 2 WCC Noise Monitoring Results – 27 April 2009 (evening)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	8:20 pm	30	n/a	3.6 m/s WNW	Wind (28), insects (25), <b>WCC inaudible</b>
Cintra	8:37 pm	29	n/a	3.1 m/s WNW	Wind (27), insects (22), traffic (22), <b>WCC inaudible</b>
Old Colliery	7:40 pm	35	n/a	4.5 m/s WNW	Traffic (35), <b>WCC barely audible</b>
Mountain View	9:42 pm	30	n/a	3.1 m/s WNW	Insects (28), <b>WCC (25)</b>
Hillview	8:45 pm	50	n/a	2.7 m/s WNW	Traffic (50), <b>WCC (34)</b> , insects (30)
Railway View	9:03 pm	51	n/a	2.7 m/s NW	Train (49), <b>WCC (46)</b>
Hazeldene	9:25 pm	31	n/a	2.7 m/s WNW	Traffic (30), <b>WCC (24)</b>
Escott	8:02 pm	32	n/a	4.0 m/s WNW	Plane (32), insects (25), <b>WCC inaudible</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	10:35 pm	26	>+3	2.2 m/s WNW	Bats (23), wind (23), WCC inaudible
Cintra	10:52 pm	33	>+3	1.7 m/s NW	Dogs (32), traffic (25), WCC inaudible
Old Colliery	10:00 pm	35	>+3	2.7 m/s NW	Traffic (34), birds (28), WCC (27)
Mountain View	12:33 am	28	>+3	3.1 m/s WNW	WCC (27), traffic (21)
Hillview	11:10 pm	42	>+3	2.2 m/s WNW	Traffic (42), WCC (32)
Railway View	12:10 am	44	>+3	2.2 m/s WNW	Train (43), WCC (37)
Hazeldene	12:50 am	38	>+3	2.9 m/s NW	Traffic (38), WCC (30), insects (27)
Escott	10:18 pm	26	>+3	2.7 m/s WNW	Birds (24), dogs (20), WCC inaudible

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Railway View during each of the day, evening and night monitoring periods and at Hillview during the day. Railway View and Hillview are mine owned properties.

The mine noise at each of these receivers was from general mine emissions including haul truck engine revs, dozer tracks, noise from the shovel and general mine hum.

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. At the time of the day measurements at Railway View and Hillview wind speeds were in excess of 3m/s. Throughout the entire night time period the average inversion strength was >+3° C/100m (as extrapolated from data recorded by the mine operated weather station).

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.

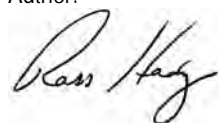
In addition to the operational noise, the noise from WCC must not exceed 45 dB(A) Lmax between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. During the night time measurement circuit Lmax noise from WCC did not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

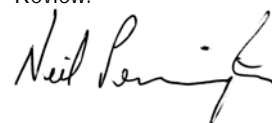
**SPECTRUM ACOUSTICS PTY LIMITED**

Author:



Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



1 June 2009

Ref: 04035/3118

**Mr. Lynden Cini**

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### RE: MAY 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the afternoon of Thursday 28th May and finishing in the morning of Friday 29th May 2009. Noise measurement locations for the attended noise survey are listed below:

Location R2: Zeolite Australia  
Location R3: Cintra  
Location R4: Old Colliery\*  
Location R5: Mountain View  
Location R6: Hillview\*  
Location R7: Railway View\*  
Location R8: Hazeldene  
Location R10: Escott

\* Hillview, Railway View and Old Colliery are mine owned residences.

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 afternoon of May 28 was mild and cloudy with a light to moderate breeze from the west to west north west. The wind shifted to the south and south easts during the evening and night. Wind speeds dropped off during the night.

Meteorological data used in this report was 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 showed strong temperature inversion conditions were present from mid evening and persisted throughout the survey.

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. 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) Leq (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 maximum 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 – 28 May 2009 (day)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	3:13 pm	39	n/a	1.3 m/s NW	Zeolite Australia (38), <b>WCC (34)</b>
Cintra	3:30 pm	38	n/a	0.4 m/s W	<b>WCC (36)</b> , insects/birds (34)
Old Colliery	2:35 pm	35	n/a	2.2 m/s W	Insects/birds (31), traffic (30), <b>WCC (30)</b>
Mountain View	5:00 pm	35	n/a	2.2 m/s SSW	Birds/insects (35), traffic (21), <b>WCC inaudible</b>
Hillview	3:48 pm	57	n/a	0.9 m/s WNW	Train (57), birds (42), traffic (40), <b>WCC (36)</b>
Railway View	4:17 pm	46	n/a	0.4 m/s WNW	Traffic (44), <b>WCC (42)</b> , birds (30)
Hazeldene	4:41 pm	42	n/a	1.8 m/s SSW	Traffic (40), birds/insects (37), <b>WCC inaudible</b>
Escott	2:55 am	35	n/a	1.3 m/s WNW	Plane (34), <b>WCC (27)</b> , insects/birds (25)

Table 2 WCC Noise Monitoring Results – 28 May 2009 (evening)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	8:17 pm	33	n/a	1.8 m/s SE	<b>WCC (32)</b> , birds & insects (25),
Cintra	8:35 pm	34	n/a	2.2 m/s SSE	<b>WCC (33)</b> , birds & insects (26)
Old Colliery	7:40 pm	40	n/a	1.3 m/s S	Insects (38), <b>WCC (32)</b> , traffic (31)
Mountain View	9:44 pm	30	n/a	0.9 m/s SSE	<b>WCC (30)</b> , insects (20),
Hillview	8:53 pm	56	n/a	2.2 m/s SSE	Traffic (56), <b>WCC (31)</b> , birds & insects (30)
Railway View	9:10 pm	47	n/a	2.2 m/s SE	<b>WCC (47)</b> , insects (25)
Hazeldene	9:29 pm	30	n/a	1.8 m/s SE	<b>WCC (29)</b> , farm animals (22)
Escott	8:00 pm	32	n/a	1.8 m/s SSE	Plane (30), <b>WCC (28)</b> , insects (20)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	10:38 pm	35	>+3	0.9 m/s S	WCC (34), traffic (28)
Cintra	10:55 pm	33	>+3	1.3 m/s S	WCC (31), traffic (29), insects (26)
Old Colliery	10:02 pm	44	>+3	Calm	WCC (41), birds & insects (39),
Mountain View	12:47 am	35	>+3	0.9 m/s SSE	WCC (34), insects (30)
Hillview	11:07 pm	43	>+3	1.5 m/s S	WCC (42), traffic (40),
Railway View	12:10 am	46	>+3	1.8 m/s SSE	WCC (46)
Hazeldene	12:30 am	47	>+3	0.9 m/s SE	Train (47), WCC (35), insects (27)
Escott	10:21 pm	35	>+3	0.4 m/s SE	WCC (34), train (25), insects (23)

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Railway View during each of the day, evening and night monitoring periods and at Cintra during the day and Old Colliery and Hillview at night.

Railway View, Old Colliery and Hillview are mine owned properties. The residence at Cintra is the subject of an agreement with the mine in respect to noise.

The mine noise at Railway View, Hillview and Old Colliery was from general mine emissions including haul truck engine revs, dozer tracks, noise from the shovel and general mine hum. At Cintra the noise was from a dozer working on the stockpile at the rail loading facility.

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. Throughout the entire night time period the average inversion strength was >+3° C/100m (as extrapolated from data recorded by the mine operated weather station).

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 exceeded the sleep disturbance criterion at Old Colliery, Hillview and Railway View. The Lmax noise levels were attributable to impact noises and loud engine revs. All of these three residences are mine owned.

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



18 June 2009

Ref: 04035/3121

**Mr. Lynden Cini**

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### RE: JUNE 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the afternoon of Tuesday 9th June and finishing in the morning of Wednesday 10th June 2009. Noise measurement locations for the attended noise survey are listed below:

Location R2: Zeolite Australia  
Location R3: Cintra  
Location R4: Old Colliery\*  
Location R5: Mountain View  
Location R6: Hillview\*  
Location R7: Railway View\*  
Location R8: Hazeldene  
Location R10: Escott

\* Hillview, Railway View and Old Colliery are mine owned residences.

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 afternoon of June 9 was cool and clear with winds from the west to west north west. Meteorological data used in this report was 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 showed strong temperature inversion conditions were present throughout the night section of the survey.

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 maximum 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
Zeolite Australia	5:12 pm	42	n/a	6.3 m/s W	Wind (40), birds (36), <b>WCC (30)</b>
Cintra	5:30 pm	45	n/a	5.8 m/s W	Wind (44), insects/birds (38), <b>WCC inaudible</b>
Old Colliery	4:35 pm	45	n/a	6.3 m/s W	Insects/birds (44), wind (35), <b>WCC (35)</b>
Mountain View	8:40 am	42	n/a	2.2 m/s SSW	Insects/birds (39), wind (38), traffic (30), <b>WCC inaudible</b>
Hillview	8:22 am	65	n/a	4.5 m/s WNW	Train (65), traffic (45), insects/birds (35), <b>WCC (30)</b>
Railway View	8:03 am	52	n/a	4.9 m/s WNW	<b>WCC (51)</b> , birds (44)
Hazeldene	8:22 am	40	n/a	4.9 m/s WNW	Traffic (38), insects/birds (34), <b>WCC inaudible</b>
Escott	4:55 pm	38	n/a	4.0 m/s WNW	Wind (35), insects/birds (32) plane (30), <b>WCC inaudible</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	8:18 pm	38	n/a	5.4 m/s WNW	Wind (35), birds & insects (32), plane (30), <b>WCC faintly audible</b>
Cintra	8:35 pm	41	n/a	4.9 m/s WNW	Wind (40), birds & insects (36), <b>WCC inaudible</b>
Old Colliery	7:40 pm	40	n/a	3.6 m/s WNW	Insects (35), wind (35), <b>WCC (33)</b>
Mountain View	9:44 pm	40	n/a	5.4 m/s W	Wind (39), <b>WCC (35)</b>
Hillview	8:54 pm	43	n/a	6.3 m/s W	Wind (39), <b>WCC (39)</b> , traffic (35)
Railway View	9:11 pm	52	n/a	7.2 m/s WNW	<b>WCC (51)</b> , wind (42)
Hazeldene	9:28 pm	43	n/a	5.8 m/s W	Wind (39), <b>WCC (38)</b> , insects (32)
Escott	8:01 pm	33	n/a	4.5 m/s WNW	<b>WCC (30)</b> , planes (28), wind (25)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	10:37 pm	38	>+3	4.2 m/s WNW	Wind (37), insects (31), <b>WCC inaudible</b>
Cintra	10:55 pm	35	<+3	4.2 m/s WNW	Wind (35), <b>WCC inaudible</b>
Old Colliery	10:01 pm	38	<+3	4.5 m/s WNW	Wind (36), <b>WCC (32)</b> , insects (32), traffic (25)
Mountain View	12:50 am	38	<+3	4.9 m/s WNW	Wind (38), <b>WCC (32)</b>
Hillview	11:12 pm	46	>+3	4.0 m/s WNW	Traffic (46), <b>WCC (35)</b>
Railway View	12:15 am	50	>+3	4.9 m/s WNW	<b>WCC (49)</b> , wind (40)
Hazeldene	12:33 am	41	>+3	5.4 m/s WNW	Wind (39), <b>WCC (37)</b>
Escott	10:20 pm	33	>+3	4.5 m/s WNW	Wind (32), <b>WCC (27)</b>

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Railway View during each of the day, evening and night monitoring periods, at Hillview during the evening and Hazeldene during the evening and night.

Railway View and Hillview are mine owned properties.

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. Throughout the entire night time period the average inversion strength was generally >+3° C/100m (as extrapolated from data recorded by the mine operated weather station) and wind speeds measured at the 10m tower were greater than 3m/s.

Each of the elevated noise levels recorded at Hazeldene were when wind speeds were greater than 3m/s. The night time measurement also occurred at a time when the met station data showed there was a >+3° C/100m temperature gradient.

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.

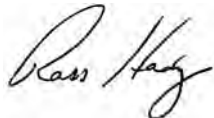
During the night time measurement circuit Lmax noise from WCC exceeded the sleep disturbance criterion at Railway View. The Lmax noise levels were attributable to loud engine revs. This residence is mine owned and unoccupied.

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:



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Review:



Neil Pennington  
Acoustical Consultant



3 August 2009

Ref: 04035/3205

**Mr. Lynden Cini**

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### RE: JULY 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the morning of Wednesday 29th July and finishing in the morning of Thursday 30th July 2009. Noise measurement locations for the attended noise survey are listed below:

Location R2: Zeolite Australia  
Location R3: Cintra  
Location R4: Old Colliery\*  
Location R5: Mountain View  
Location R6: Hillview\*  
Location R7: Railway View\*  
Location R8: Hazeldene  
Location R10: Escott

\* Hillview, Railway View and Old Colliery are mine owned residences.

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 was 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 afternoon of July 29 was mild with light winds from the south east. Wind speeds dropped off significantly during the evening and night to be calm. Temperature data from the mine operated weather station indicated a strong temperature inversion active from early afternoon.

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 maximum 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
Zeolite Australia	3:52 pm	37	n/a	2.2 m/s SW	<b>WCC (34)</b> , Zeolite Aus (34), birds (28)
Cintra	4:10 pm	50	n/a	0.9 m/s SE	Birds (50), <b>WCC (33)</b>
Old Colliery	3:15 pm	44	n/a	1.3 m/s SE	<b>WCC (44)</b> , birds (30)
Mountain View	5:25 pm	35	n/a	0.4 m/s SE	Birds (35), <b>WCC barely audible (est. &lt;25)</b>
Hillview	4:28 pm	49	n/a	0.4 m/s SE	Traffic (46), <b>WCC (43)</b> , birds (35)
Railway View	4:45 pm	50	n/a	0.9 m/s SE	<b>WCC (49)</b> traffic (44)
Hazeldene	5:06 pm	38	n/a	0.4 m/s SE	Traffic (34), birds (34), <b>WCC (33)</b>
Escott	3:35 pm	35	n/a	1.3 m/s SE	Birds & dogs (33), <b>WCC (31)</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	8:29 pm	42	> +3	2.2 m/s SW	<b>WCC (42)</b>
Cintra	8:46 pm	42	> +3	1.3 m/s W	Train (33), insects (29), traffic (25), <b>WCC (&lt;25)</b>
Old Colliery	9:42 pm	53	> +3	0.9 m/s W	<b>WCC (53)</b>
Mountain View	7:30 pm	37	> +3	0.4 m/s SE	Distant traffic (36), train (28), <b>WCC inaudible</b>
Hillview	9:04 pm	60	> +3	2.2 m/s N	Train (60), <b>WCC (47)</b>
Railway View	9:23 pm	48	> +3	Calm	<b>WCC (45)</b> , traffic (45), insects (35)
Hazeldene	7:47 pm	43	> +3	Calm	Traffic (42), <b>WCC (32)</b> , sheep (30)
Escott	8:12 pm	43	> +3	1.3 m/s W	Horses (42), <b>WCC (35)</b> , insects (28)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	10:37 pm	42	> +3	Calm	<b>WCC (42)</b> , insects (25)
Cintra	10:55 pm	41	> +3	Calm	<b>WCC (41)</b>
Old Colliery	10:00 pm	47	> +3	Calm	<b>WCC (47)</b>
Mountain View	12:15 am	34	> +3	Calm	<b>WCC (32)</b> , distant traffic (30)
Hillview	11:12 pm	50	> +3	0.4 m/s SE	Traffic (47), <b>WCC (46)</b>
Railway View	12:55 am	52	> +3	Calm	<b>WCC (52)</b> , traffic (40)
Hazeldene	12:32 am	45	> +3	Calm	Traffic (44), insects & animals (35), <b>WCC (33)</b>
Escott	10:20 pm	36	> +3	Calm	<b>WCC (36)</b>

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Old Colliery, Railway View and Hillview during each of the day, evening and night monitoring periods, at Zeolite Australia during the evening and night and at Cintra and Escott during the night. At Old Colliery, Railway View and Hillview the noise was attributable to all general open cut mine noise including engine revs, haul truck noise, dozer tracks etc. At Zeolite Australia, Cintra and Escott whilst noise from the open cut operation was a contributor to the overall measured levels, the most significant contributor was noise from the rail loading facility. This included noise from the loader, the train on the rail loop and from the dozers working on the coal stockpile.

Railway View, Hillview, Old Colliery and Escott are mine owned properties. The mine has an agreement with the landowners at Cintra and Zeolite Australia in regards to elevated noise levels. The agreement allows for an additional 5 dB(A) Leq (15 min) over the noise criterion.

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 showed a temperature inversion of greater than +3° C/100m active throughout the late afternoon of July 29 and continuing until the morning of July 30. The elevated noise levels at Zeolite Australia and Cintra were, therefore, measured under non compliant atmospheric conditions.

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.

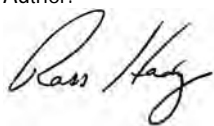
In addition to the operational noise, the noise from WCC must not exceed 45 dB(A) Lmax between the hours of 10 pm and 7 am. This is to minimise the potential for sleep disturbance as a result of individual loud noises from the mine. During the night time measurement circuit Lmax noise from WCC exceeded the sleep disturbance criterion at Old Colliery, Railway View and Hillview. The Lmax noise levels were attributable to loud engine revs and impacts. All of these residences are mine owned. At Mountain View the Lmax from impact noise was 45 dB(A) and at Hazeldene the Lmax from engine revs was 44 dB(A).

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,

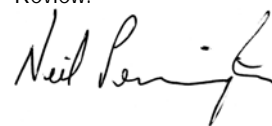
SPECTRUM ACOUSTICS PTY LIMITED

Author:



Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant



19 August 2009

Ref: 04035/3221

**Mr. Lynden Cini**

Werris Creek Coal

1435 Werris Creek – Quirindi Road

Werris Creek NSW 2341

### RE: AUGUST 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the morning of Monday 17th August and finishing in the morning of Tuesday 18th August 2009. Noise measurement locations for the attended noise survey are listed below:

Location R2: Zeolite Australia  
Location R3: Cintra  
Location R4: Old Colliery\*  
Location R5: Mountain View  
Location R6: Hillview\*  
Location R7: Railway View\*  
Location R8: Hazeldene  
Location R10: Escott\*

\* Hillview, Railway View, Old Colliery and Escott are mine owned residences.

Noise levels were also measured at “Marengo” to the west of Railway View. This location was not listed as a receiver in the EIS for the mine and, therefore, is not noted with an R prefix.

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 during the day time monitoring period winds were gusty from the south west. Wind speeds dropped off during the evening and night and turned from a southerly direction.

Temperature data from the mine operated weather station indicated a strong temperature inversion ( $>+3^{\circ}\text{C}/100\text{m}$ ) active from early evening. 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)  $L_{\text{eq}}$  (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
Zeolite Australia	3:55 pm	48	n/a	5.8 m/s SW	Wind (47), birds (40), Zeolite Australia (30), <b>WCC inaudible</b>
Cintra	4:12 pm	47	n/a	6.7 m/s SW	Wind (46), birds (40), <b>WCC (&lt;30)</b>
Old Colliery	4:50 pm	46	n/a	5.6 m/s SW	<b>WCC (46)</b> , birds (32)
Mountain View	5:44 pm	51	n/a	4.9 m/s SW	Birds (51), traffic (30), <b>WCC inaudible</b>
Hillview	4:30 pm	58	n/a	6.3 m/s SW	Traffic (58), <b>WCC (44)</b> , birds (40)
Railway View	5:07 pm	52	n/a	5.6 m/s SW	<b>WCC (50)</b> , traffic (49),
Hazeldene	5:27 pm	35	n/a	4.5 m/s SW	Birds & insects (32), traffic (32), <b>WCC inaudible</b>
Escott	3:37 pm	48	n/a	5.8 m/s SW	Dogs (48), wind (35), <b>WCC inaudible</b>
Marengo	3:06 pm	41	n/a	6.3 m/s SW	Birds & insects (39), wind (35), <b>WCC (est. &lt;30)</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	7:37 pm	38	> +3	6.5 m/s SW	Wind (36), insects (32), <b>WCC inaudible</b>
Cintra	7:55 pm	39	> +3	3.5 m/s SSW	<b>WCC (37)</b> , insects (32)
Old Colliery	9:40 pm	49	> +3	2.9 m/s S	<b>WCC (49)</b> , insects (34)
Mountain View	7:07 pm	32	> +3	7.0 m/s S	<b>WCC (31)</b> , insects (24)
Hillview	9:02 pm	74	> +3	2.7 m/s S	Train (74), traffic (50), <b>WCC (44)</b> , insects (35)
Railway View	9:20 pm	56	> +3	2.6 m/s S	<b>WCC (56)</b>
Hazeldene	6:50 pm	29	> +3	6.9 m/s S	<b>WCC (29)</b>
Escott	7:20 pm	30	> +3	7.0 m/s SW	Dogs & insects (30), <b>WCC barely audible (est. &lt;25)</b>
Marengo	8:25 pm	40	> +3	3.8 m/s SE	<b>WCC (39)</b> , insects (32)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	10:37 pm	41	> +3	2.0 m/s S	WCC (39), wind (37)
Cintra	10:55 pm	44	> +3	3.1 m/s S	Train (42), WCC (39), insects (34)
Old Colliery	10:01 pm	47	> +3	3.1 m/s SSW	WCC (47)
Mountain View	1:17 am	31	> +3	0.9 m/s SSE	Insects (30), WCC (25)
Hillview	11:12 pm	52	> +3	3.6 m/s S	Traffic (50), WCC (47)
Railway View	1:40 am	57	> +3	1.8 m/s SSE	Train (56), WCC (51)
Hazeldene	1:00 am	36	> +3	2.2 m/s S	Traffic (32), sheep (31), insects (30), WCC inaudible
Escott	10:20 pm	37	> +3	2.0 m/s S	WCC (34), dogs (34)
Marengo	12:35 am	40	> +3	2.6 m/s S	WCC (38), frogs & insects (34)

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Old Colliery, Hillview and Railway View during each of the day, evening and night monitoring periods, and at Cintra and Marengo during the evening and night.

Railway View and Hillview are mine owned properties. The mine has an agreement with the landowner at Cintra in regards to elevated noise (to a level 5 dB(A) above the operational noise criterion).

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 showed a temperature inversion of greater than +3° C/100m active throughout the evening and night of August 17 and continuing until the morning of August 18. The elevated noise levels at each of the locations detailed were, therefore, measured under non compliant atmospheric conditions.

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 exceeded the sleep disturbance criterion at Old Colliery, Railway View and Hillview. The Lmax noise levels were attributable to loud engine revs. All three residences are mine owned and Old Colliery and Railway View are unoccupied.

At Marengo loud revs were measured at an Lmax level of 45 dB(A) which is equal to the sleep disturbance criterion. This occurred under the above detailed temperature inversion conditions. The

sleep disturbance criterion is applicable at the bedroom window of a residence. It is not known where the bedrooms are in the residence at Marengo.

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 September 2009

Ref: 04035/3269

Mr. Lynden Cini  
Werris Creek Coal  
1435 Werris Creek – Quirindi Road  
Werris Creek NSW 2341

### RE: SEPTEMBER 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the morning of Tuesday 1st September and finishing in the morning of Wednesday 2nd September 2009. Noise measurement locations for the attended noise survey are listed below:

Location R2: Zeolite Australia  
Location R3: Cintra  
Location R4: Old Colliery\*  
Location R5: Mountain View  
Location R6: Hillview\*  
Location R7: Railway View\*  
Location R8: Hazeldene  
Location R10: Escott\*

\* Hillview, Railway View, Old Colliery and Escott are mine owned residences.

Noise levels were also measured at “Marengo” to the west of Railway View. This location was not listed as a receiver in the EIS for the mine and, therefore, is not noted with an R prefix. The gates to Old Colliery were locked during the survey and, as this residence is mine owned, the monitoring was not carried out there.

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 during the day time monitoring period winds were light and from varying directions. During the evening the wind shifted to a general southerly direction before dropping to calm during the night.

Temperature data from the mine operated weather station indicated a strong temperature inversion ( $>+3^{\circ}\text{C}/100\text{m}$ ) active from early evening. 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)  $L_{\text{eq}}$  (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
Zeolite Australia	3:10 pm	41	n/a	1.8 m/s SW	Birds (40), Zeolite Australia (33), <b>WCC (30)</b>
Cintra	3:27 pm	42	n/a	1.8 m/s WNW	Birds (40), <b>WCC (38)</b>
Mountain View	5:06 pm	36	n/a	0.9 m/s SE	Cattle (34), birds (32), <b>WCC barely audible</b>
Hillview	3:45 pm	48	n/a	1.3 m/s WSW	Traffic (48), <b>WCC (35)</b> , birds (20)
Railway View	4:05 pm	47	n/a	1.3 m/s SSW	Traffic (44), <b>WCC (43)</b> , cattle (33)
Hazeldene	5:25 pm	42	n/a	1.8 m/s NW	Traffic (41), birds (34), <b>WCC barely audible (est. &lt;25)</b>
Escott	2:50 pm	29	n/a	2.7 m/s SW	Birds (26), <b>WCC (24)</b> , traffic (22)
Marengo	4:40 pm	32	n/a	0.4 m/s SE	Birds & insects (31), <b>WCC (25)</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	8:55 pm	29	> +3	1.3 m/s SSE	<b>WCC (29)</b>
Cintra	9:12 pm	39	> +3	0.9 m/s SSE	<b>WCC (39)</b>
Mountain View	7:25 pm	29	> +3	1.3 m/s N	Traffic (29), cattle (25), <b>WCC (&lt;20)</b>
Hillview	9:27 pm	50	> +3	1.3 m/s SE	<b>WCC (48)</b> , traffic (47)
Railway View	9:45 pm	50	> +3	1.3 m/s SE	Traffic (49), <b>WCC (44)</b>
Hazeldene	7:43 pm	35	> +3	0.9 m/s NW	Traffic (32), <b>WCC (32)</b>
Escott	8:37 pm	32	> +3	1.3 m/s S	<b>WCC (30)</b> , insects (28)
Marengo	8:07 pm	35	> +3	0.9 m/s SW	<b>WCC (32)</b> , train (31), frogs & insects (27)

Table 3 WCC Noise Monitoring Results – 1 and 2 September 2009 (night)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Zeolite Australia	10:25 pm	33	> +3	Calm	WCC (33)
Cintra	10:42 pm	35	> +3	0.9 m/s SSW	WCC (31), insects & dogs (30), traffic (30)
Mountain View	12:52 am	34	> +3	Calm	WCC (33), insects (26)
Hillview	11:00 pm	54	> +3	0.4 m/s SSW	Traffic (51), WCC (51)
Railway View	11:20 am	55	> +3	Calm	WCC (55)
Hazeldene	12:35 am	37	> +3	Calm	Traffic (35), WCC (33), insects (30)
Escott	10:07 pm	30	> +3	Calm	WCC (30)
Marengo	1:25 am	32	> +3	Calm	WCC (30), frogs & insects (27)

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Railway View during each of the day, evening and night monitoring periods, at Cintra during the day and evening and Hillview during the evening and night.

At Railway View and Hillview the noise was due to all emissions from the open cut operations including

Haul truck engine revs, shovel and dozer tracks etc. At Cintra the noise was attributable to the dozers working on the coal stockpile at the rail load out facility.

Railway View and Hillview are mine owned properties. The mine has an agreement with the landowner at Cintra in regards to elevated noise (to a level 5 dB(A) above the operational noise criterion).

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 showed a temperature inversion of greater than +3° C/100m active throughout the evening and night of September 1 and continuing until the morning of September 2. During the evening and night time periods the elevated noise levels at each of the locations detailed were, therefore, measured under non compliant atmospheric conditions.

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 exceeded the sleep disturbance criterion at Railway View and Hillview. The Lmax noise levels were attributable to loud engine revs and dozer tracks. Both residences are mine owned.

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 October 2009

Ref: 04035/3316

Mr. Lynden Cini  
Werris Creek Coal  
1435 Werris Creek – Quirindi Road  
Werris Creek NSW 2341

### RE: OCTOBER 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the evening of Wednesday 14th October and finishing in the morning of Thursday 15th October 2009. 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 throughout all monitoring period winds were moderate generally from the west to north.

Temperature data from the mine operated weather station indicated a mild to strong temperature inversion ( $>+3^{\circ}\text{C}/100\text{m}$ ) active from early evening. 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<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	8:43 pm	35	> +3	3.1 m/s WSW	Insects (34), traffic (30), <b>WCC inaudible</b>
Glenara	9:00 pm	30	< +3	2.7 m/s W	<b>WCC (26)</b> , traffic (25), plane (25), insects (22)
Cintra	8:20 pm	33	< +3	3.6 m/s WSW	Insects (32), traffic (30), <b>WCC (23)</b>
Marengo	9:43 pm	33	> +3	2.7 m/s W	<b>WCC (31)</b> , insects (25), traffic (25)
Tonsley Park	7:57 pm	31	> +3	2.7 m/s WSW	Traffic (28), insects (28), <b>WCC inaudible</b>
Fletcher	9:18 pm	30	> +3	2.7 m/s W	Insects (26), traffic (25), <b>WCC (24)</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	12:58 am	26	> +3	1.8 m/s WNW	<b>WCC (25)</b> , insects (20)
Glenara	12:40 am	26	> +3	2.2 m/s NW	<b>WCC (26)</b> , traffic (20)
Cintra	10:06 pm	32	> +3	2.2 m/s WNW	Wind in trees (30), dog (26), traffic (25), <b>WCC barely audible</b>
Marengo	11:03 pm	34	> +3	1.8 m/s WNW	<b>WCC (32)</b> , train (30), insects (20)
Tonsley Park	10:28 pm	30	> +3	2.2 m/s WNW	Train (26), traffic (22), <b>WCC (22)</b> , insects (20)
Fletcher	11:30 pm	56	> +3	2.2 m/s WNW	Train (56) traffic (40), <b>WCC inaudible</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	8:59 am	35	n/a	4 m/s WNW	Birds & insects (34), <b>WCC (28)</b>
Glenara	8:41 am	39	n/a	3.6 m/s WNW	Traffic (36), insects (35), <b>WCC (30)</b>
Cintra	7:23 am	43	n/a	3.6 m/s NW	<b>WCC (40)</b> , birds & insects (37), traffic (37)
Marengo	8:02 am	42	n/a	2.2 m/s NNW	<b>WCC (40)</b> , insects (35), cattle (30)
Tonsley Park	7:04 am	48	n/a	3.6 m/s N	Traffic (48), <b>WCC barely audible</b>
Fletcher	8:23 am	39	n/a	3.1 m/s WNW	Traffic (38), birds (30), <b>WCC barely audible</b>

The results in **Tables 1, 2 and 3** show received noise levels in excess of 35 dB(A) Leq (15 min) noise criterion were recorded at Marengo and Cintra during the day time monitoring period.

At Marengo the noise was due to all emissions from the open cut operations including haul truck engine revs, shovel and dozer tracks etc. At Cintra the noise was attributable to the dozers working on the coal stockpile at the rail load out facility.

The mine has an agreement with the landowner at Cintra in regards to elevated noise (to a level 5 dB(A) above the operational noise criterion).

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 showed that at the time of the monitoring at Cintra the wind speed was greater than 3m/s and, therefore, the elevated noise levels at this time was measured under non compliant atmospheric conditions.

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.

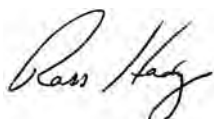
During the night time measurement circuit Lmax noise from WCC did not exceed the sleep disturbance criterion at any receivers.

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:

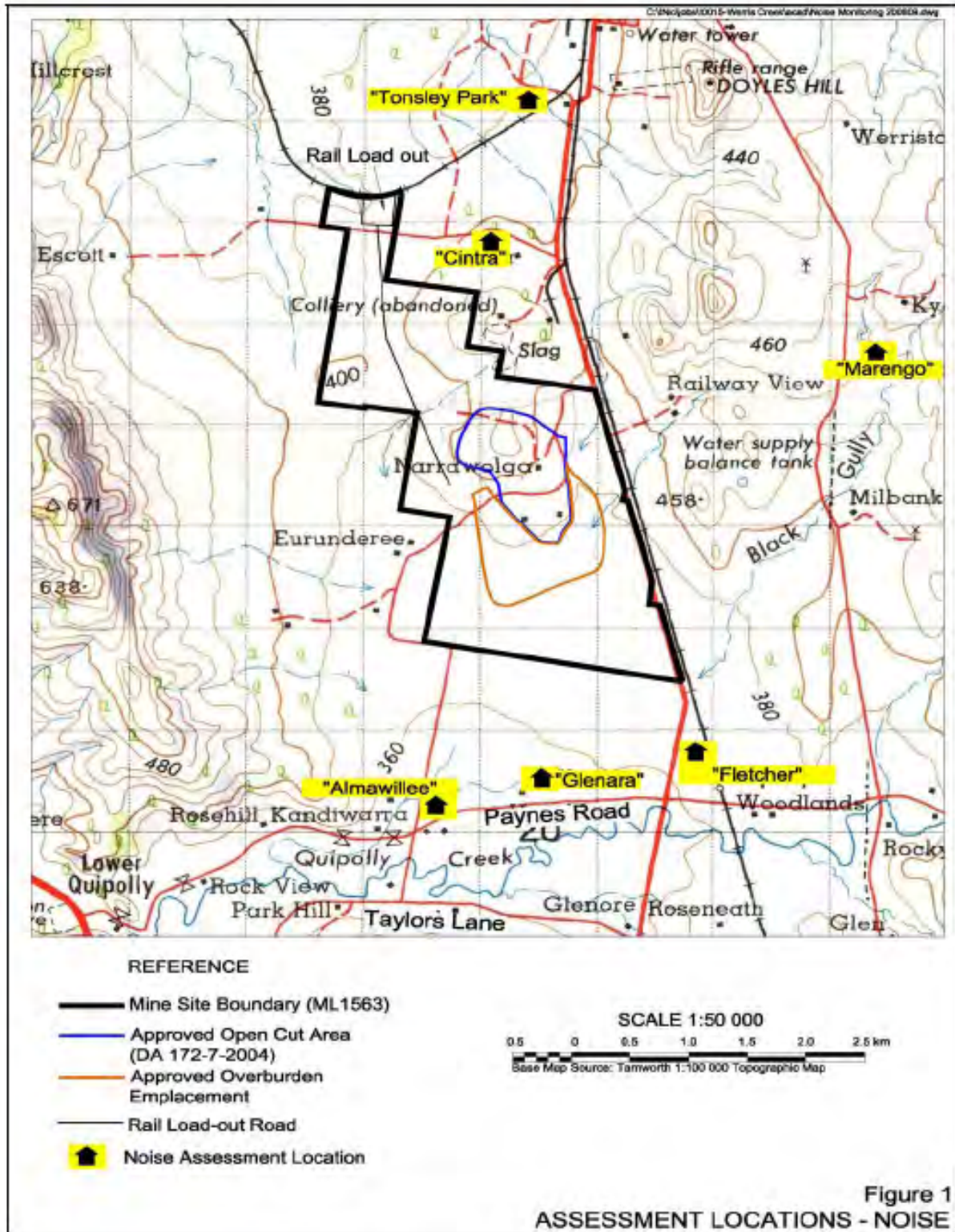


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant





1 December 2009

Ref: 04035/3316

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

## RE: NOVEMBER 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the evening of Wednesday 25th November and finishing in the morning of Thursday 26th November 2009. 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 throughout all monitoring period winds were light to gentle and varying in direction from West north west to the east.

Temperature data from the mine operated weather station indicated a mild to strong temperature inversion ( $>+3^{\circ}\text{C}/100\text{m}$ ) active throughout parts of the evening and night time 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<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	5:45 pm	42	n/a	2.2/SSW	Birds & insects (42), traffic (30), WCC barely audible
Glenara	5:28 pm	41	n/a	1.8/WNW	Birds (41), traffic (26), WCC inaudible
Cintra	4:51 pm	35	n/a	1.3/SSE	Insects & birds (35), traffic (29), WCC (25)
Marengo	4:00 pm	31	n/a	2.7/WSW	Insects (28), WCC (26), plane (22)
Tonsley Park	4:31 pm	38	n/a	4.0/SE	Traffic (36), insects (33), WCC inaudible
Fletcher	5:10 pm	32	n/a	2.2/WNW	Birds & insects (30), traffic (28), WCC inaudible

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	9:42 pm	38	>+3	4.0/SE	Insects (34), domestic noise (34), WCC (30)
Glenara	9:25 pm	40	+2	4.2/SE	Traffic (40), insects (30), WCC inaudible
Cintra	8:50 pm	39	>+3	4.9/SE	Traffic (34), WCC (33), cattle (33)
Marengo	7:55 pm	35	>+3	3.1/SE	Insects & frogs (35), WCC barely audible
Tonsley Park	8:30 pm	49	+1	5.4/SE	Insects (49), traffic (35), WCC (30)
Fletcher	9:08 pm	32	>+3	4.2/SE	Birds & insects (32), WCC inaudible

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:42 pm	37	>+3	0.9/NE	Insects (31), traffic (31), irrigators (30), WCC (30)
Glenara	11:23 pm	35	>+3	1.3/E	Insects (31), traffic (30), WCC (29)
Cintra	11:08 pm	33	>+3	2.6/E	WCC (30), insects (28), traffic (26)
Marengo	10:26 pm	40	>+3	3.1/ENE	Wind (38), insects (35), WCC inaudible
Tonsley Park	10:47 pm	44	>+3	4.0/ENE	Insects (44), traffic (35), WCC inaudible
Fletcher	10:05 pm	36	+2	2.7/ESE	Traffic (34), insects (32), 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) at any monitoring location during any monitoring period.

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) 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 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:

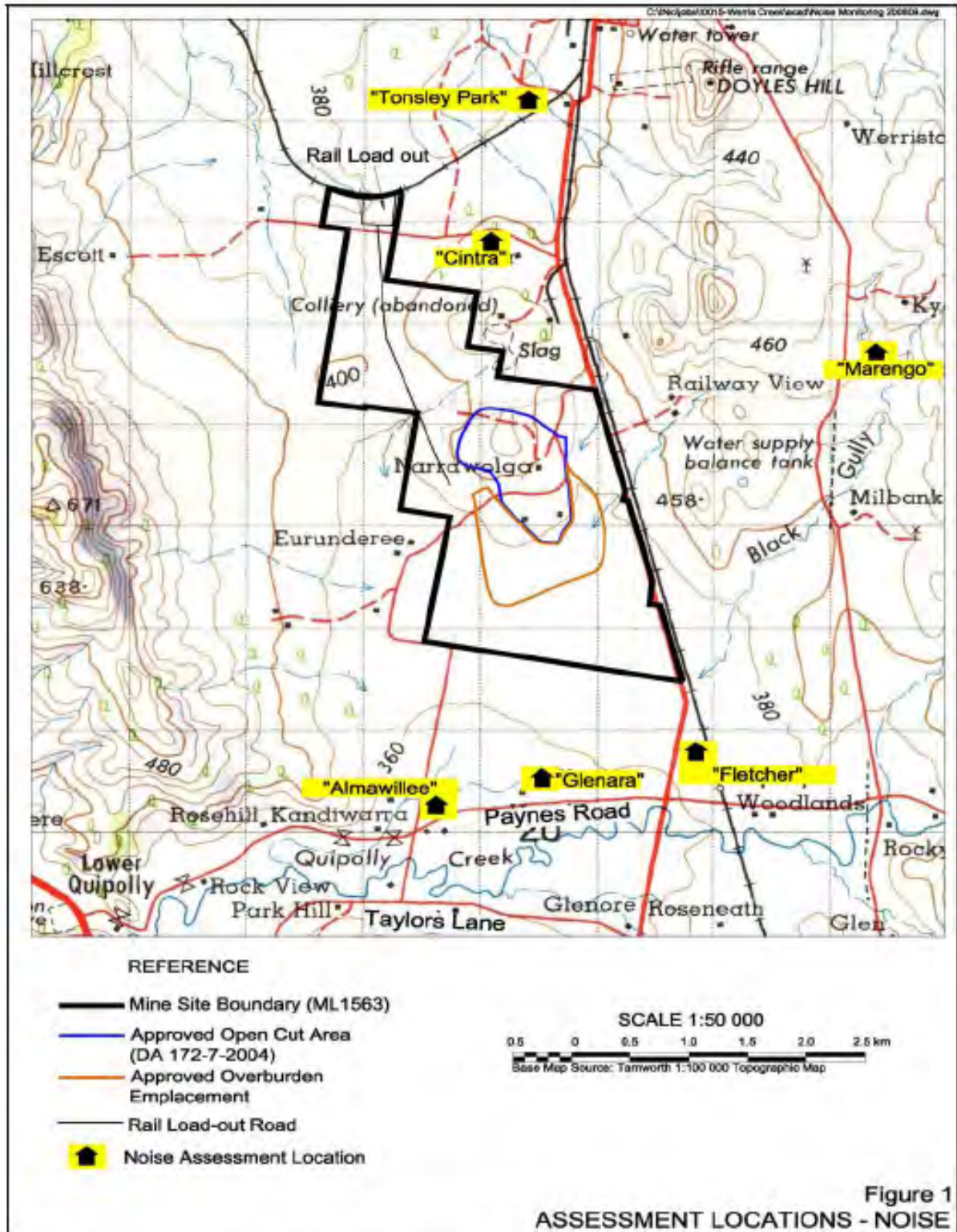


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant





16 December 2009

Ref: 04035/3364

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

## RE: DECEMBER 2009 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the evening of Thursday 10th December and finishing in the morning of Friday 11th December 2009. 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 north to north west during the evening and night of December 10 and variable from the north to the south during the morning of December 11.

Temperature data from the mine operated weather station indicated a mild to strong temperature inversion ( $>+3^{\circ}\text{C}/100\text{m}$ ) active during all of the evening and night time 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<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	9:02 am	37	n/a	3.1/S	Insects (37), traffic (30), WCC barely audible (<25)
Glenara	8:44 am	45	n/a	2.7/S	Birds (45), WCC (<25)
Cintra	7:12 am	41	n/a	0.9/NNE	<b>WCC (40)</b> , insects & birds (33)
Marengo	8:06 am	33	n/a	0.9/NE	Birds & insects (31), <b>WCC (27)</b> , plane (26)
Tonsley Park	7:35 am	39	n/a	1.8/NW	Insects (35), train (35), <b>WCC (32)</b>
Fletcher	8:26 am	45	n/a	2.2/SSE	Birds (44), traffic (39), WCC inaudible

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	9:00 pm	38	>+3	1.8/N	Domestic noise (35), insects (33), WCC (30)
Glenara	8:42 pm	35	>+3	2.2/N	Traffic (32), insects (29), <b>WCC (29)</b>
Cintra	7:25 pm	41	>+3	1.8/N	Traffic (39), Insects (34), WCC inaudible
Marengo	8:04 pm	35	>+3	2.7/N	Insects & frogs (35), WCC barely audible
Tonsley Park	7:40 pm	32	>+3	0.9/N	Traffic (31), insects (25), WCC inaudible
Fletcher	8:25 pm	43	>+3	3.6/N	Traffic (43), insects (33), WCC (<25)

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	11:45 pm	38	>+3	2.2/N	Frogs & insects (37), traffic (28), WCC inaudible
Glenara	11:29 pm	35	>+3	2.7/NNW	Traffic (32), insects (31), <b>WCC (25)</b>
Cintra	11:09 pm	34	>+3	2.9/NW	Traffic (32) insects (27), WCC inaudible
Marengo	10:27 pm	39	>+3	4.0/NW	Traffic (35), insects (34), <b>WCC (32)</b>
Tonsley Park	10:50 pm	39	>+3	2.6/NW	Insects (39), traffic (29), WCC inaudible
Fletcher	10:05 pm	37	>+3	3.6/NW	Traffic (36), <b>WCC (28)</b> , insects (25)

The results shown in Tables 1-3 indicate that, under the operational and atmospheric conditions at the time, noise emission from WCC only exceeded the criterion of 35 dB(A) at the monitoring location at Cintra during the day time monitoring period. A train was being loaded at the time and the noise at Cintra was due to emissions from the dozer working on the coal stockpile, trucks arriving and departing the rail loading facility and the train being loaded. WCC has an agreement in place with the owner of Cintra in regards to elevated noise levels.

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) 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 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:

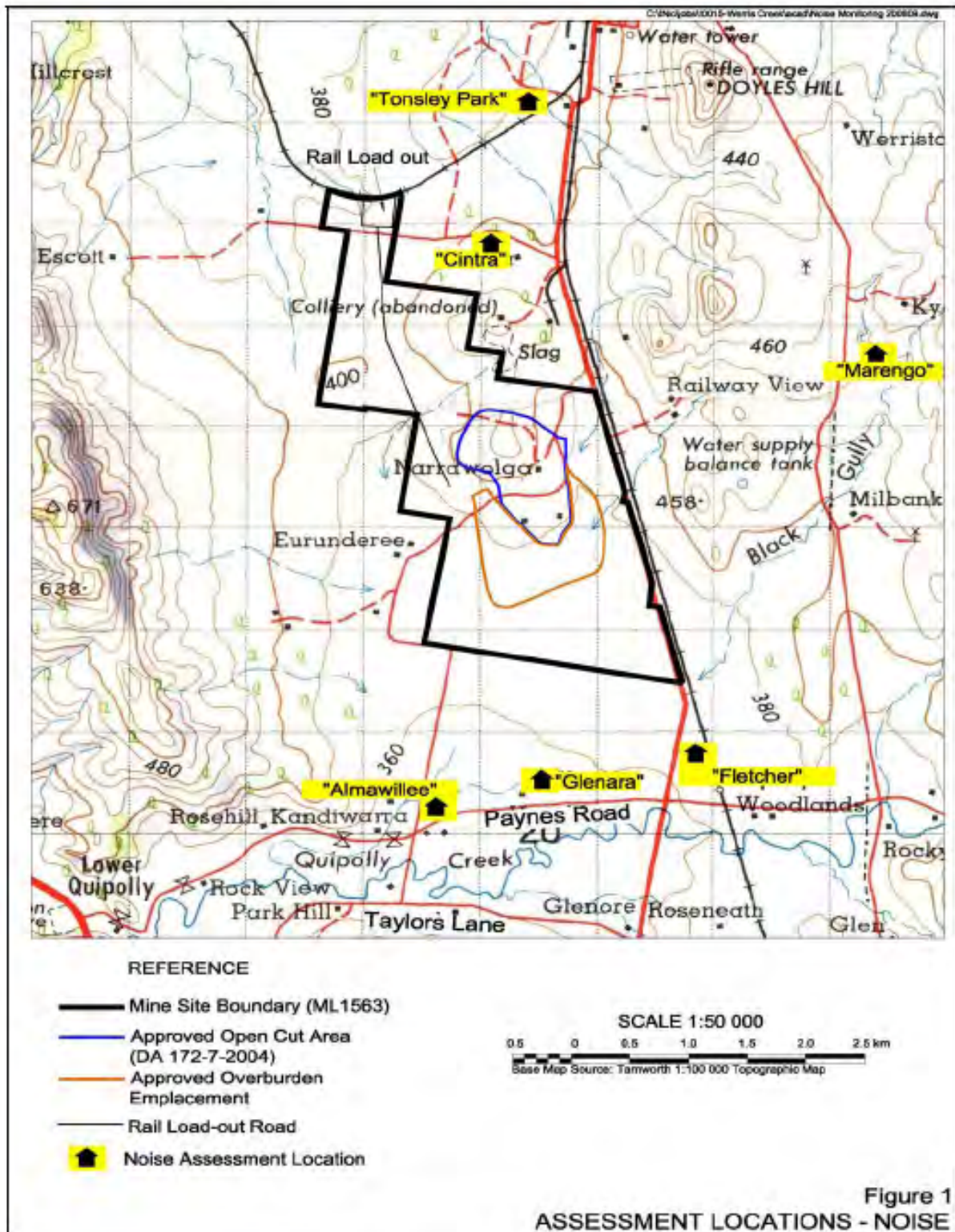


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant





25 January 2010

Ref: 04035/3408

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

## RE: JANUARY 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the evening of Tuesday 19<sup>th</sup> January 2010 and finishing in the morning of Wednesday 20<sup>th</sup> January 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 west during the day dropping off during the evening of January 19. At night the conditions were calm.

Temperature data from the mine operated weather station indicated a mild to strong temperature inversion ( $>+3^{\circ}\text{C}/100\text{m}$ ) active during all of the evening and night time 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<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 – 19 January 2010 (Day)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	2:36 pm	42	n/a	2.7/WSW	Insects (40), wind (38), WCC barely audible (<25)
Glenara	2:53 pm	45	n/a	3.6/WSW	Birds (43), wind (39), WCC (31)
Cintra	4:23 pm	45	n/a	4.5/SW	Insects & birds (43), WCC (38), wind (36)
Marengo	3:38 pm	46	n/a	4.9/WSW	Insects (45), wind (40), WCC barely audible (<25)
Tonsley Park	4:03 pm	43	n/a	4.5/SW	Insects (43), WCC (32)
Fletcher	3:14 pm	43	n/a	6.3/SW	Traffic (43), birds & insects (40), WCC inaudible

Table 2 WCC Noise Monitoring Results – 19 January 2010 (Evening)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	7:20 pm	44	Lapse	3.1/SW	Insects & birds (43), traffic (36), WCC inaudible
Glenara	7:38 pm	36	>+3	1.3/SW	Insects (35), traffic (30), WCC barely audible
Cintra	9:11 pm	37	>+3	1.3/SW	<b>WCC (35)</b> , insects (32)
Marengo	8:22 pm	36	>+3	0.9/SW	Insects (33), <b>WCC (33)</b>
Tonsley Park	8:50 pm	49	>+3	Calm	Insects (49), <b>WCC (30)</b>
Fletcher	7:57 pm	44	>+3	1.3/SW	Traffic (42), insects (38), WCC (est. <25)

Table 3 WCC Noise Monitoring Results – 20 January 2010 (Night)					
Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	1:16 am	31	>+3	Calm	<b>WCC (30)</b> , insects (25)
Glenara	12:55 am	33	>+3	Calm	<b>WCC (30)</b> , traffic (29), insects (25)
Cintra	1:47 am	31	>+3	Calm	<b>WCC (30)</b> , insects (25)
Marengo	2:30 am	40	>+3	Calm	<b>WCC (39)</b> , traffic (30), insects (20)
Tonsley Park	2:09 am	35	>+3	Calm	<b>WCC (32)</b> , train (30), insects (27)
Fletcher	2:54 am	32	>+3	Calm	<b>WCC (30)</b> , traffic (26)

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 at the Marengo monitoring location during the night.

The elevated noise at Cintra during was mainly as a result of emissions from the dozer working on the coal stockpile and trucks arriving and departing the rail loading facility. WCC has an agreement in place with the owner of Cintra in regards to elevated noise levels.

The elevated noise at Marengo was as a result of a number of noises from the mine including mine hum, revving and dumping noise from haul trucks and engine noise.

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 showed a temperature inversion of greater than +3° C/100m active throughout the evening and night of January 19 and continuing until the morning of January 20. The elevated noise level when the monitoring was carried out at Marengo was, therefore, measured under non compliant atmospheric conditions.

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. The maximum noise from the mine at Marengo during the night time measurement was 45 dB(A) Lmax.

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:

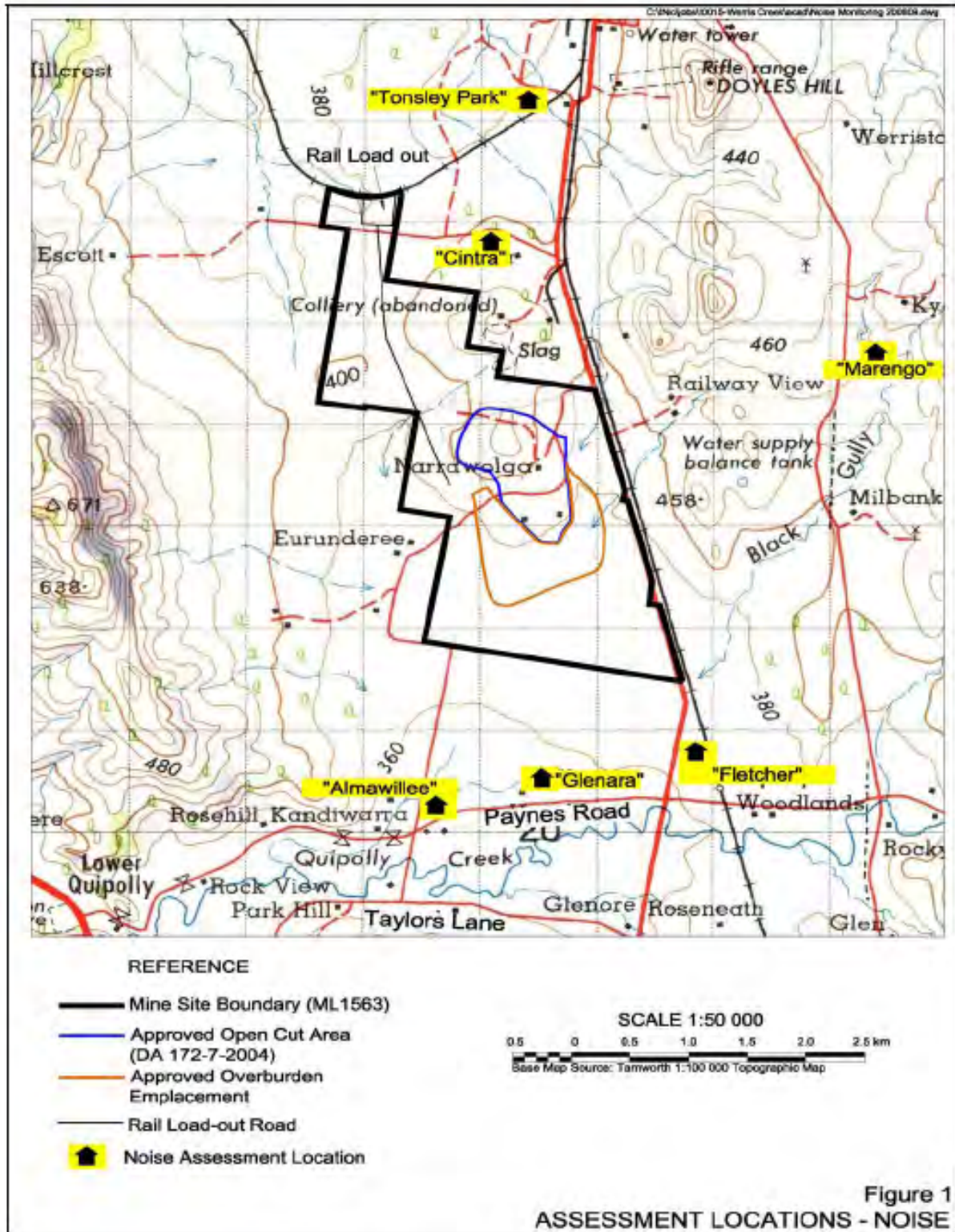


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant





1 March 2010

Ref: 04035/3456

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

## RE: FEBRUARY 2010 NOISE MONITORING RESULTS

This letter report presents the results of noise compliance monitoring conducted for the Werris Creek Coal Mine (WCC) commencing in the afternoon of Tuesday 23<sup>rd</sup> February 2010 and finishing in the early morning of Wednesday 24<sup>th</sup> February 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 west to north west during the day. Wind speeds and direction were variable in the evening before turning to be from the south at night.

Temperature data from the mine operated weather station indicated a weak temperature inversion ( $<+3^{\circ}\text{C}/100\text{m}$ ) at times during the evening and night time 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<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	9:43 am	36	n/a	0.9/NNW	Birds & insects (34), <b>WCC (30)</b> , farm noise (28)
Glenara	10:00 am	43	n/a	0.9/N	Birds & insects (43), <b>WCC (32)</b>
Cintra	11:10 am	43	n/a	3.3/WNW	Insects & birds (40), <b>WCC (40)</b>
Marengo	11:35 am	33	n/a	2.9/WNW	Birds & insects (32), horse (25), <b>WCC (22)</b>
Tonsley Park	10:49 am	45	n/a	2.2/WNW	Birds & insects (42), wind (40), train (37), <b>WCC (&lt;30)</b>
Fletcher	10:26 am	38	n/a	3.1/W	Traffic (37), birds & insects (30), <b>WCC (28)</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	6:05 pm	49	Lapse	0.4/S	Birds & insects (49), <b>WCC inaudible</b>
Glenara	6:21 pm	37	+2	0.9/S	Birds & insects (37), <b>WCC barely audible (est. &lt;20)</b>
Cintra	7:30 pm	40	+1	4.0/NW	Birds & insects (38), <b>WCC (37)</b>
Marengo	7:55 pm	35	Lapse	3.5/N	Birds & insects (33), <b>WCC (30)</b>
Tonsley Park	7:05 pm	39	Lapse	4.9/WNW	Birds & insects (38), <b>WCC (30)</b>
Fletcher	6:40 pm	48	Lapse	1.1/SW	Train (46), traffic (41), birds & insects (35), <b>WCC (30)</b>

Location	Time	dB(A),Leq	Inversion °C/ 100m	Wind speed/ direction	Identified Noise Sources
Almawillee	2:45 am	37	>+3	3.6/S	Insects & frogs (37), <b>WCC inaudible</b>
Glenara	2:28 am	38	+1	2.7/S	Insects (32), traffic (31), <b>WCC inaudible</b>
Cintra	12:55 am	38	+1	2.7/S	<b>WCC (37)</b> , insects (32)
Marengo	1:47 am	31	Lapse	2.7/S	Insects (31), <b>WCC barely audible (est. &lt;20)</b>
Tonsley Park	1:19 am	40	Lapse	2.7/S	Insects (38), <b>WCC (30)</b> , traffic (33)
Fletcher	2:10 am	32	Lapse	2.7/S	<b>WCC (30)</b> , traffic (26)

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.

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) 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 sleep disturbance criterion at any receivers. The maximum noise from the mine at Marengo during the night time measurement was 45 dB(A) L<sub>max</sub>.

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:

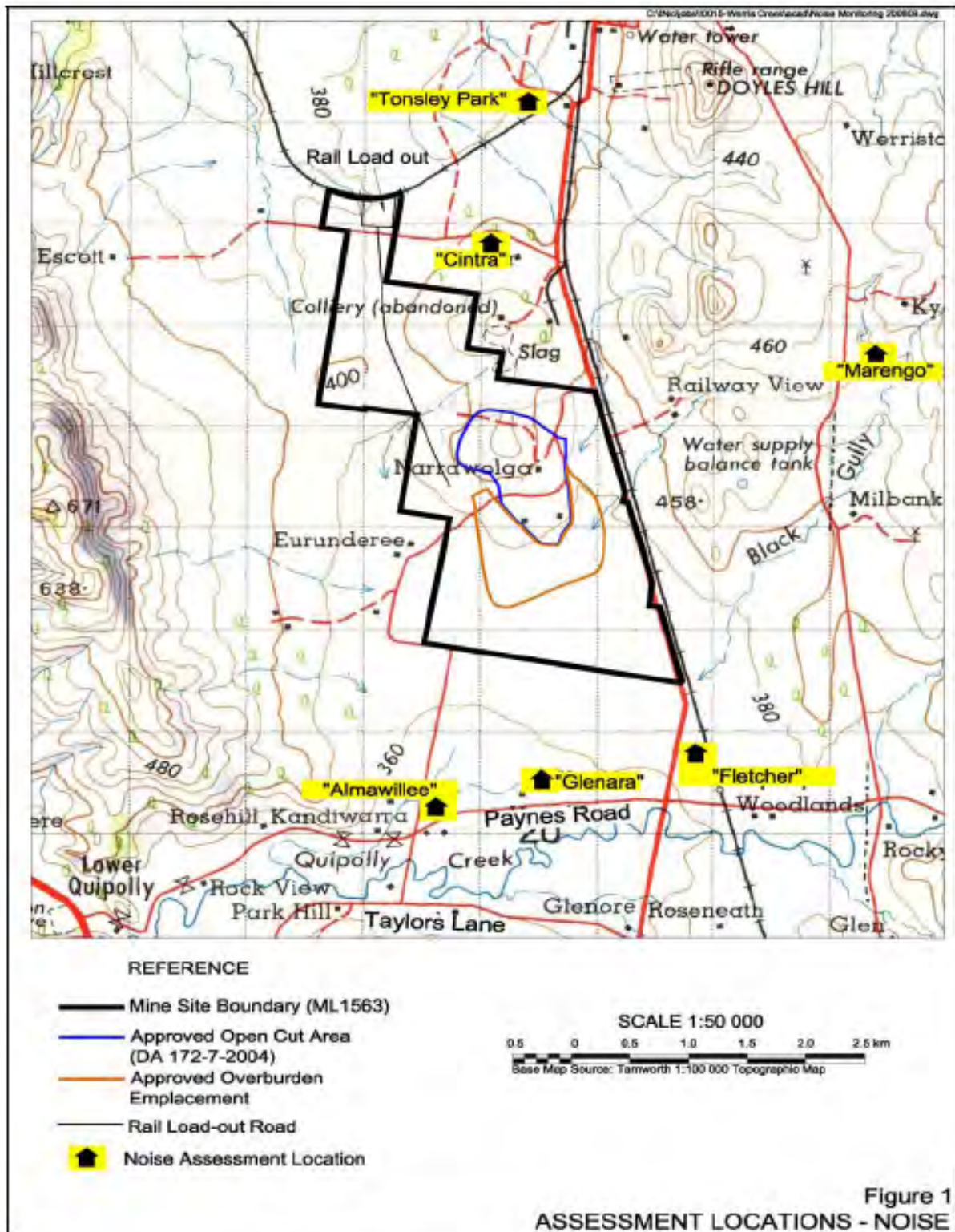


Ross Hodge  
Acoustical Consultant

Review:



Neil Pennington  
Acoustical Consultant





29 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<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	4:43 pm	33	n/a	3.1/WNW	Birds & insects (31), farm noise (26), <b>WCC (&lt;25)</b>
Glenara	4:59 pm	35	n/a	3.6/WNW	Wind (31), birds & insects (30), traffic (30), <b>WCC (&lt;25)</b>
Cintra	4:18 pm	44	n/a	3.6/W	<b>WCC (40)</b> , wind (40), insects & birds (35)
Marengo	5:43 pm	35	n/a	4.0/WNW	Birds & insects (31), <b>WCC (30)</b> , farm noise (30), wind (28)
Tonsley Park	3:55 pm	36	n/a	3.6/NW	Wind (36), <b>WCC barely audible (&lt;28)</b>
Fletcher	5:20 pm	43	n/a	3.6/W	Traffic (43), <b>WCC inaudible</b>

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), <b>WCC barely audible</b>
Glenara	8:22 pm*	37	>+3	2.2/SE	Insects (37), <b>WCC inaudible</b>
Cintra	7:35 pm	38	>+3	3.1/SW	<b>WCC (37)</b> , birds & insects (31)
Marengo	8:30 pm	37	>+3	2.2/SW	Birds & insects (36), <b>WCC (30)</b> , traffic (25)
Tonsley Park	7:55 pm	47	>+3	2.7/SW	Birds & insects (47), traffic (33), <b>WCC (32)</b>
Fletcher	7:15 pm	44	>+3	3.1/SW	Traffic (44), birds & insects (34), <b>WCC inaudible</b>

\* March 23

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

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