Warkworth Continuation

Noise

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Page 1 – Not Meeting Secretary's Requirements:

This noise and vibration assessment has been prepared with reference to the NSW Department of Planning and Environment's (DP&E) State Significant Development Secretary's requirements Warkworth Continuation Project (SSD 6464) and in general accordance with the NSW EPA's *Industrial Noise Policy* (*INP*), published in January 2000.

The Secretary's Requirements - Page 2

The EIS must address the following specific issues:

- **Noise & Blasting** – including:
  - an assessment of the likely operational noise impacts of the development (including construction noise) under the *NSW Industrial Noise Policy*, paying particular attention to establishing accurate background noise levels in the surrounding area, the effect of removing Saddleback Ridge and the obligations in chapters 8 and 9 of the policy;

The Secretary's requirements state "Assessment….under the NSW Industrial Noise Policy"

Not "in general accordance with"… should be in complete accordance with.

Page 5 – key noise parameter not defined:

2 Glossary

A number of technical terms are required for the discussion of noise and vibration. These are explained in Table 2.1.

Table 2.1 Glossary of acoustic terms

dbC is not in this table, even though later in the EIS, there is a great discussion on dbC, it is not defined or explained.

Page 7 – Non-compliant, non-adherence to Noise Management Plan

The effectiveness of the MTW Noise Management System has been tested on a number of occasions in recent years, including formal compliance audits, requests for Independent Review, ad hoc supplementary monitoring programs, and departmental requests for information. MTW continues to demonstrate a position of predominant compliance with noise criteria, and a high level of adherence to the measures outlined in the NMP.

Compliance should be complete, not "predominantly"
The NMP should be adhered to completely, not just a "high level"

What is the point in having a NMP if it's not adhered to?

Page 7 – Non-compliant

MTW continues to work with the Department to improve the NMP, demonstrating commitment to continuous improvement and driving industry best practice noise management. It is expected that the continued implementation and refinement of measures outlined in the NMP (as updated from time to time) will enable MTW to effectively manage any noise impacts associated with this proposal, and to ensure a high level of compliance is maintained throughout the life of the Project.

"to ensure a high level of compliance" – subjective – what is this high level? 60%, 90%. Compliance means complying – it should be 100% compliance.

Page 8 – Trigger Action Response Process – doesn't work in practice

3.2.1 Trigger Action Response Process

The TARP is the key reactive noise control implemented at MTW, and involves the effective and timely response to elevated noise (trigger), irrespective of meteorological conditions.

Triggers are enacted in a number of ways, prompting commencement of reactive processes to validate, quantify and appropriately respond to noise conditions, including:

- receipt of a noise alarm from the real time, directional noise monitoring network;
- identification of elevated noise through routine supplementary surveillance noise monitoring, undertaken by MTW personnel each night;
- notification of elevated noise through the routine (monthly) attended compliance monitoring regime undertaken by experienced and independent experts; and
- receipt of community complaint in relation to noise.

When a trigger is confirmed (noise levels which are approaching or exceeding the noise criteria in the vicinity of nearby private residences), an appropriate response is implemented to ensure the noise event is resolved within 75 minutes of identification. The response may include substitution or elimination measures, commensurate with the nature and severity of the noise event.

The trigger on at least one of the real time directional noise monitors is set at the compliance limit – 35dbA. When this alarm is triggered, the noise impact already exceeds the consent limit. The consent conditions state that the proponent "SHALL ENSURE that the noise level does not exceed…."

"Noise levels which are approaching or exceeding the noise criteria…."
Again, the consent conditions state that the proponent "SHALL ENSURE that the noise level does not exceed…."

This TARP idea does not ensure that the mine is compliant with its consent conditions.

Page 9 – Validation of monitoring not done in accordance with NSW INP or Consent Conditions

3.2.4 Validation surveys of the real-time monitoring network

To ensure that the real time monitoring network adequately assesses and represents all receivers, validation surveys are undertaken on an as needs basis, involving supplementary noise monitoring in the vicinity of the private residence concerned, and comparison with measured levels from the nearest real time monitor. Where a survey indicates a change may be required this is reviewed and actioned as appropriate to ensure monitoring systems and reactive triggers remain representative.

The Consent conditions state “at the residence”, not “in the vicinity”.

To validate the real time monitor, noise monitoring must be done at the site of the monitor, otherwise it has no validity.

Page 9 – slowness to attenuate truck fleet

3.3 Engineering measures

In conjunction with their suppliers, MTW have progressed with the attenuation of its fleet of haul trucks and other mining equipment. All new trucks purchased for use on the Site will be commissioned as noise suppressed (or attenuated) units. MTW currently operates a mixture of sound attenuated and non sound attenuated machines and the existing fleet of trucks are being progressively fitted with suitable noise attenuation packages. Baseline testing has been completed and acoustic engineering is being applied to understand what sound power levels are achievable across the fleet. The attenuation program is being undertaken in a targeted manner, addressing the noisier pieces of equipment as a priority for the operations given the remaining development consent life.

Identification and rectification of defects to sound attenuation equipment is undertaken as required through the normal maintenance process where reasonable and feasible. MTW have also completed works to replace all in pit reverse alarms with ‘quacker’ style reverse alarms on its mining fleet.

MTW’s neighbour Bulga Coal has succeeded in attenuating 100% of their fleet.
MTW should make an effort and do the same. Clearly this is not best practice emanating from MTW.

Rectification of defects to sound attenuation should be mandatory – attenuated vehicles that are defective should not be used. Reasonable and feasible is a subjective view that allows great variation and would allow defective equipment to continue in use.

Page 15 – Supplementary attended noise monitoring not in compliance with NSW INP.

4.3 Supplementary attended noise monitoring

A programme of targeted supplementary attended noise monitoring is operated at MTW to support the real time directional monitoring network and ensure the highest level of noise management is maintained. The supplementary programme is undertaken by MTW personnel and involves:

- undertaking routine inspections from both inside and outside the mine boundary;
- routine and as required handheld noise assessments (undertaken in response to noise alarm and/or community complaint), comparing noise levels against consent noise limits; and
- validation monitoring following operational modifications to assess the adequacy of the modifications.

The personnel that do the "attended" monitoring have been instructed by MTW management to only measure dbA, even though their handheld instruments are capable of measuring dbA and dbC simultaneously.

"handheld noise assessments, comparing noise levels against consent limits" …. BUT, the consent conditions state that the noise shall be:

1. Measured at the residence – but they refuse to do that
2. Measured in accordance with NSW INP and the modifying factors applied where applicable i.e. That in the presence of Low Frequency Noise (LFN), dbC and dbA shall be measured and if the dbC-dbA difference is 15 or greater, 5 shall be added to the dbA

So, given that they don't follow either of these requirements, their "attended" monitoring results are meaningless.

Page 15 – MTW can't comply with noise limits

Supplementary noise monitoring undertaken in 2014 has, to date, resulted in operational modifications (including equipment stoppage and, in some cases complete site shutdown) on numerous nights, resulting in over 8,000 hours of equipment stoppage.

By their own admission they cannot comply with their consent conditions…..numerous nights of equipment stoppages and complete shutdowns (which happens when they exceed the noise limits), over 8,000 hours of equipment stoppage.

If their touted noise management plan was working, the mine would be working, not stopped or shutdown.

Page 15 – MTW can't comply with noise limits (2)

A complete site shutdown (with the exception of dragline operations and some ancillary equipment activity) has been called on several occasions in 2014, in response to elevated noise measurements in the Bulga area. This significant level of operational disruption demonstrates MTW's clear commitment to minimising impacts and maintaining compliant operations.

If they were maintaining compliant operations, there would be no need for a "significant level of operational disruption" or "complete shutdown….on several occasions in 2014".

This statement sets out to prove how good they are, whereas in fact it states exactly the opposite – they have great difficulty complying with their noise limits!

This confirms Judge Prestons judgement in the Land & Environment Court in which he stated that they could not comply with the noise limits :

Conclusion on noise impacts

At the noise levels proposed in the approval conditions, the noise impacts of the Project on the residents of Bulga, including the impact of the noise source on receivers, taking account of annoying noise characteristics and the effect of meteorological conditions, are likely to be significant, intrusive and reduce amenity. The noise mitigation strategies proposed in the approval conditions are not likely to reduce noise levels to the project-specific noise levels recommended by the INP or to levels that have acceptable impacts on the residents. The significant residual impacts are unacceptable, taking into account social and economic factors. Further, the extensive noise control at receivers, being mitigation treatment and acquisition of properties in Bulga, is likely to cause social impacts.

Pages 16- 22 – MTW cannot proactively manage the noise.

Pages of data attempting to show how good they are by shutting down equipment and seeking pity for having lost so many hours of equipment usage.

But again, this demonstrates that they are incapable of managing the noise proactively. If they were able to do it these "triggers" and equipment stand downs would not occur….but they do.
Why?
Because they are exceeding their consent conditions, and if they actually followed the INP, the equipment stand downs would be even more frequent – which of course, is why they don't follow the INP, even though they are required to.

Page 23 – Slow to implement improved technology.

5 Continuous improvement - acoustic management

Warkworth Mine is committed to reasonable and feasible continuous improvement and is currently working towards implementing a predictive modelling interface (PMI) and alternative real time noise monitoring technology as described below.

This has been talked about for years, but progress is at a snail's pace.

Rio Tinto can be active quickly when they want to, viz., the driverless trucks and trains in WA; remotely controlled from a high tech control room in Perth – of course this was in the interests of enhancing profits not protecting the community.
MTW's neighbours, Bulga Coal, have a central control room manned 24/7 with live noise and dust monitors, CCTV etc. to proactively manage all the impacts of their mining operation.

MTW on the other hand have one bloke running around in a 4WD with a handheld monitor.

No comparison – so to talk of "continuous improvement" is stretching the truth a bit - it might be continuous but it's very slow!

Page 25 – Non-compliant Compliance Monitoring

6 Compliance history

6.1 Noise

Compliance assessment monitoring for the Warkworth Mine has been undertaken in a number of forms during the period 2004 to 2014 including:

- routine compliance assessment (Global Acoustics) – 2004 to present and in more recent years, monitoring has included low frequency noise assessment;
- Long Point supplementary monitoring program (EMM) – June to October 2011; and
- independent review of noise impacts – Bulga (Sinclair Knight Merz) – December 2011 and January 2012.

MTW have been required to produce an Annual report detailing among other things the noise compliance monitoring data.

Warkworth mine operates under a Consent from 2003.

For eight years the data presented in this report and accepted by The Department of Planning, was non-compliant – the noise was not measured in compliance with NSW INP, as required by their consent conditions.

It was only when it was pointed out by the community that the Consultants employed by the mine to do the compliance monitoring, admitted that they weren't doing it and committed to do it in the future.

So it is only since 2011 that the low frequency assessment has been undertaken – but only in so called "compliance" monitoring.

An assessment of monitoring data (publically available via the Rio Tinto Coal Australia website www.riotintocoalaustralia.com.au) demonstrates predominant compliance with noise criteria has been achieved throughout the life of the mine. Non compliant noise measurements account for a small percentage of the monitoring dataset at 0.37% (10 non compliances measured from 2,689 individual assessments undertaken). These are shown in Table 6.1 and Table 6.2. These tables also demonstrate that there are no sustained exceedances.

They cannot state "predominant compliance with noise criteria…. throughout the life of the mine", when for 8 years the compliance measurements were made using a non-compliant methodology. The so-called "compliance" data for the life of the mine shows 8 years of non-complaint measurements out of 10 years of data reporting….that's not predominant!

8 out of 10 is 80% - 80% non-compliant measurements!

Figure 6.1 spatially presents the non compliances measured throughout the life of Warkworth Mine, further demonstrating that there are no sustained or recurring noise compliance risks associated with the continued operation of the Warkworth Mine.

Table 6.1 Summary of noise measurements for Warkworth Mine

Total assessments (2004-2014 YTD)	2,689
Total number of exceedances (2004-2013 YTD)	24
Total number of non-compliances (2004-2013 YTD)	10
Percentage of non-compliant assessment (2004-2013 YTD)	0.37.

Note: 1. Exceedance refers to a measured result greater than the relevant consent limit, but within the 2 dB allowable tolerance listed in Chapter 11 of the INP.

Again, not true.

It is impossible to know if 80% of these measurements were compliant or not since they were carried out using a non-compliant methodology.

As Judge Preston stated in his judgement :

366 The evidence of attended monitoring in the past is insufficient to allow the Court to draw any inference that attended monitoring in the future is likely to evaluate adequately compliance with the noise criteria. Past attended monitoring has been at too few locations on too few occasions.

Page 25- Variable data depending on who you talk to

Table 6.2 Yearly breakdown of noise measurements for Warkworth Mine

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total number of assessments	230	276	280	279	292	275	269	290	261	201	36
Total number of exceedances[1]	1	0	1	1	1	8	1	4	4	3	0
Total number of non-compliances	1	0	0	0	0	4	1	2	1	1	0
Non-compliant assessments [%]	0.43	0.00	0.00	0.00	0.00	1.45	0.37	0.69	0.38	1.14	0.00

Note: 1. Exceedance refers to a measured result greater than the relevant consent limit, but within the 2 dB allowable tolerance listed in Chapter 11 of the INP.

This table shows the total number of noise measurements

Specifically 2010 269
2011 290
2012 261

These numbers appear to be inflated when compared to data received by email in 2013 from Robert Carter, Environmental Co-ordinator MTW, (email attached) where he states:

A summary of attended noise monitoring measurements undertaken at Mount Thorley Warkworth from 2010 until 2013 year to date is shown below in association with the number of occasions when the conditions at the time of measurement were acceptable in accordance with the NSW EPA Industrial Noise Policy (2000).

The assessment of the applicability of conditions is undertaken by an acoustic consultant subsequent to the monitoring event by analysis of meteorological conditions at the time of monitoring as measured at the site meteorological station on Charlton Ridge.

Year	Total Measurements Undertaken	Measurements when criterion applicable	Measurements when criterion not-applicable
2010	116	37	79
2011	111	46	65
2012	102	44	58
YTD2013	31	25	6

Specifically 2010 116
2011 111
2012 102

BUT, more specifically Mr Carter also demonstrates that of these measurements, approximately 42% (152/360) of them were done in in-applicable conditions, so the actual numbers of measurements that produced credible results were:

Specifically	2010	79
	2011	65
	2012	58

One would have to assume that only when the measurements were done under good conditions was it possible to determine whether or not there were exceedences.

So, comparing the number of exceedences with the number of measurements under good conditions, we find quite a different set of statistics:

	Year	Credible Measurements Undertaken	Exceedences	Actual %	EIS %
Specifically	2010	79	1	1.27%	0.37%
	2011	65	4	6.15%	0.69%
	2012	58	4	6.9%	0.38%

Quite a different story to that told in the Warkworth Continuation EIS!

Page 27 – Suspect data

When considering the impact of the Warkworth Mine on the area of Bulga village, the level of non compliant measurements is relatively lower and accounts for 0.12% of the monitoring dataset (two non compliances measured from 1,643 individual assessments undertaken). This is shown in Table 6.3 and Table 6.4. These tables also demonstrate that there are no sustained exceedances from Warkworth Mine.

Table 6.3 Summary of noise measurements at Bulga village for Warkworth Mine

Total assessments (2004-2013 YTD)	1,643
Total number of exceedances (2004-2013 YTD)[1]	8
Total number of non-compliances (2004-2013 YTD)	2
Percentage of non-compliant assessment (2004-2013 YTD)	0.12

Note: 1. Exceedance refers to a measured result greater than the relevant consent limit, but within the 2 dB allowable tolerance listed in Chapter 11 of the INP.

Table 6.4 Yearly breakdown of noise measurements at Bulga village for Warkworth Mine

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Total number of assessments	136	160	160	160	168	160	160	166	211	140	22
Total number of exceedances[1]	0	0	0	0	0	2	0	1	2	3	0
Total number of non-compliances	0	0	0	0	0	1	0	0	0	1	0
Non-compliance assessments (%)	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00	0.71	0.00

Note: 1. Exceedance refers to a measured result greater than the relevant consent limit, but within the 2 dB allowable tolerance listed in Chapter 11 of the INP.

For the reasons given on the previous pages, this data is suspect and likely designed to down play the actual impact.

Page 29 – Mine owned properties tenanted by second class citizens

7 Properties surrounding the mine

A total of 221 privately owned assessment locations were identified within proximity of the mine and potentially exposed to noise from the proposal. These assessment locations are listed in Appendix A and illustrated in Figure 7.1 and Figure 7.2. The locations are numbered in accordance with the numbering system adopted in the EIS which is consistent with all supporting technical studies of the proposal. It should be noted that mine owned properties are not included in this list. The INP (page 58) defines a receiver as:

> *"The noise sensitive land use at which noise from a development can be heard."*

Such mine owned properties can be vacant or tenanted with mine staff or persons that have agreements with the mines relating to noise amenity or other emissions. Mine owned residential properties therefore are not considered 'noise sensitive' as defined in the INP. Further, the INP states:

> *"It will be used as a guide by Environment Protection Authority (EPA) officers for setting statutory limits in licences...."*

Such statutory limits have not in the past been set on non private dwellings/properties by the EPA or NSW DP&E.

As stated by Judge Preston in the Land& Environment Court, "mine owned properties tenanted with mine staff or persons that have agreements with the mines relating to noise amenity or other emissions", creates an under-class of people for whom the accepted environmental community protections do not apply – effectively these people are second class citizens – disgusting !

Page 33 – Background Noise data exceeds other recent data

Table 8.1 Representative background noise levels for Bulga (RBL as per INP)

Location	Period (Duration)	RBL, dB(A)		
		Day	Evening	Night
A. Wollemi Peak Rd	20/06/13 - 14/08/13 (3 months)	33	33	34
B. 367 Wambo Rd[1]	01/12/11 - 29/11/12 (11 months)	30	33	33
C. 128 Wambo Rd	29/11/12 - 31/07/13 (8 months)	33	37	33
D. 193 Inlet Rd[1]	01/12/11 - 28/05/12 (6 months)	30	32	30
E. 339 Inlet Rd[1]	18/03/13 - 30/06/13 (3.5 months)	30	30	30
F. Scout Hall (Putty Rd)	01/12/11 - 04/09/12 (10 months)	33	36	35

Notes: *1. Locations B, D and E data show RBL's at or below the INP minimum of 30 dB(A) for some assessment periods, and hence 30 dB(A) was adopted as per the INP across all three assessment periods.*

2. The RBL is as defined in the INP, ie the median value of all ABL's. The ABL is also as per the INP, ie the lower 10th percentile of L_{90} values.

Near neighbours Bulga Coal have also studied background noise in Bulga (attached):

Global Acoustics undertook background noise monitoring in the Bulga area on behalf of BCM during 2009 and 2010. Assessment findings for Bulga Police Station, and 2305 Putty Road were reported to BCM; both reports are included in Appendix E. Background levels (RBL) determined during those surveys are summarised in Table 2.1.

Table 2.1 BACKGROUND NOISE LEVELS RBL SUMMARY - L_{A90} dB

Monitoring Location	Day	Evening	Night
Bulga Police Station, Putty Road, Bulga	30	32	29
2305 Putty Road, Bulga	29	31	29

MTW's Scout Hall location is on the other side of the Putty Road from Bulga Police station, so one would expect that the background noise levels from these two very close locations would be more or less the same.

But it seems not, the comparison is

Location	Day	Evening	Night
Scout Hall	33	36	35
Police Station	30	32	29
Difference	3	4	6

This is particularly concerning as it would appear that MTW are endeavouring to assess the background levels highly so that the corresponding PSNL values will be high.
PSNL is set at 5dbA above background.
MTW would give a PSNL for the Scout Hall / Police station of 40dbA,
Whereas Bulga PSNL for the same location would be 35dbA (min background = 30 – INP)

This is a staggering difference, and given MTW's difficulty in complying with their current noise consent criteria, this is clearly designed to artificially increase the PSNL to achieve consent conditions that they believe they might be able to comply with rather than conditions that would protect the community from unreasonable impact.

Page 34 – How can they comply?

However in order to convince us that they are really good guys, on Page 34, they revise the Scout Hall background down to 33, day, evening, night.

Notwithstanding higher background noise levels during the evening and night as compared to the daytime, the INP's application notes have been conservatively adopted to determine the final RBL for the six locations as follows:

- A. Wollemi Peak Rd –33 dB(A) day, evening and night;
- B. 367 Wambo Rd – 30 dB(A) day, evening and night;
- C. 128 Wambo Rd – 33 dB(A) day, evening and night;
- D. 193 Inlet Rd – 30 dB(A) day, evening and night;
- E. 339 Inlet Rd – 30 dB(A) day, evening and night; and
- F. Scout Hall (Putty Rd) – 33 dB(A) day, evening and night.

That would make the PSNL for the Scout Hall 38dbA, still significantly higher than Bulga's PSNL and one would have to wonder that if MTW seriously believe that the night background at this location is 35, how on earth are they going to be able to comply with a PSNL of 38 at this location.

The simple answer is that they won't be able to do it.

Judge Preston in the Land & Environment Court was very detailed in his judgement on exactly these points:

That the limits have been set at what the mine thinks they can achieve rather than to protect the community

Even given that, the mine is unable to comply with the noise limits

Page 47 – Amenity Criteria Ceiling breached

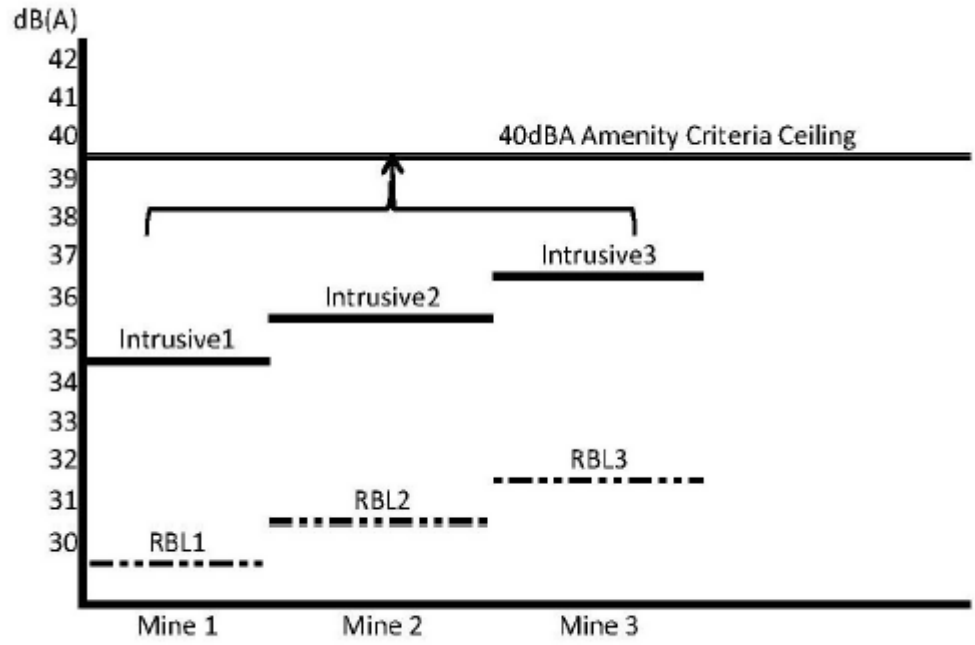


Figure 9.1 Amenity criteria to stop 'noise creep'

This figure purports to show how the Amenity criteria prevents "noise creep" i.e. the additive or cumulative effect of a number on mines operating in close proximity to each other.

But it doesn't...in fact it does the opposite!

The three intrusive levels shown here; 34.5 dbA, 35.5 dbA, 36.5 dBA, logarithmically add to 40.35dbA

So the Amenity Criteria is not met…i.e. these 3 Intrusives destroy Amenity.

We have this situation now with the current Consent limits on the three mines
Warkworth 35, Mt Thorley 38, Bulga 35….log addition = 41 dbA

So the Consent Conditions as they stand for the current operations do not meet the Amenity Criteria of 40 dbA

Page 47 Mining SEPP - Government against the people and on the side of King Coal.

1. Standards that are not standards

Clause 12AB(1):

> The object of this clause is to identify development standards on particular matters relating to mining that, if complied with, prevents the consent authority from requiring more onerous standards for those matters (but that does not prevent the consent authority granting consent even though any such standard is not complied with).

So there are standards, but if they're not complied with, it doesn't matter.

Is this a joke? If it is, it's a dirty, underhanded one.

2. Amenity Criteria not complied with

Clause 12AB(3) Cumulative noise level:

> The development does not result in a cumulative amenity noise level greater than the acceptable noise levels, as determined in accordance with Table 2.1 of the Industrial Noise Policy, for residences that are private dwellings.

As above, the current developments do not comply with the Amenity Criteria.

On that basis alone, according to the SEPP, this proposal should not go ahead.

3. Black is white

> The cumulative noise clause described in the Mining SEPP is fundamental to this study and is clear in its objective that the holistic approach to amenity is advocated as described earlier.

See 2. Above – they are over already

Page 48 Amenity Criteria not complied with

9.3 Operational noise assessment criteria

Operational noise assessment criteria for the proposal have been set considering the methods described in the NSW INP and the Bulga background noise monitoring review (prepared in accordance with the NSW INP as described in Section 8.1).

Table 9.3 provides the proposed assessment criteria or PSNL for the proposal.

Table 9.3 Noise assessment criteria, dB(A)

Locality	Assessment location	Rating Background Level (RBL)[1]	Intrusiveness criteria, PSNL (RBL+5dB), $L_{eq,15min}$[2]	Derivation of RBL
Bulga	13, 16, 17, 19, 21, 24, 30-32, 35, 37, 42, 52-58, 60-67, 70-75, 80, 82, 84, 89, 210, 211, 215, 234-238, 243, 252, 254, 255, 903, 917-920, 929	33	38	Proximity similar to logger at A,C and F

So now they are proposing that Warkworth limit for Bulga village be 38 dbA

This is worse than before.

Now we would have Warkworth 38, Mt Thorley 38, Bulga 35 log addition = 41.98

They keep telling us that the Amenity Criteria is most important and it's very important to avoid noise creep.

Well, Noise Creep is exactly what is going on here.

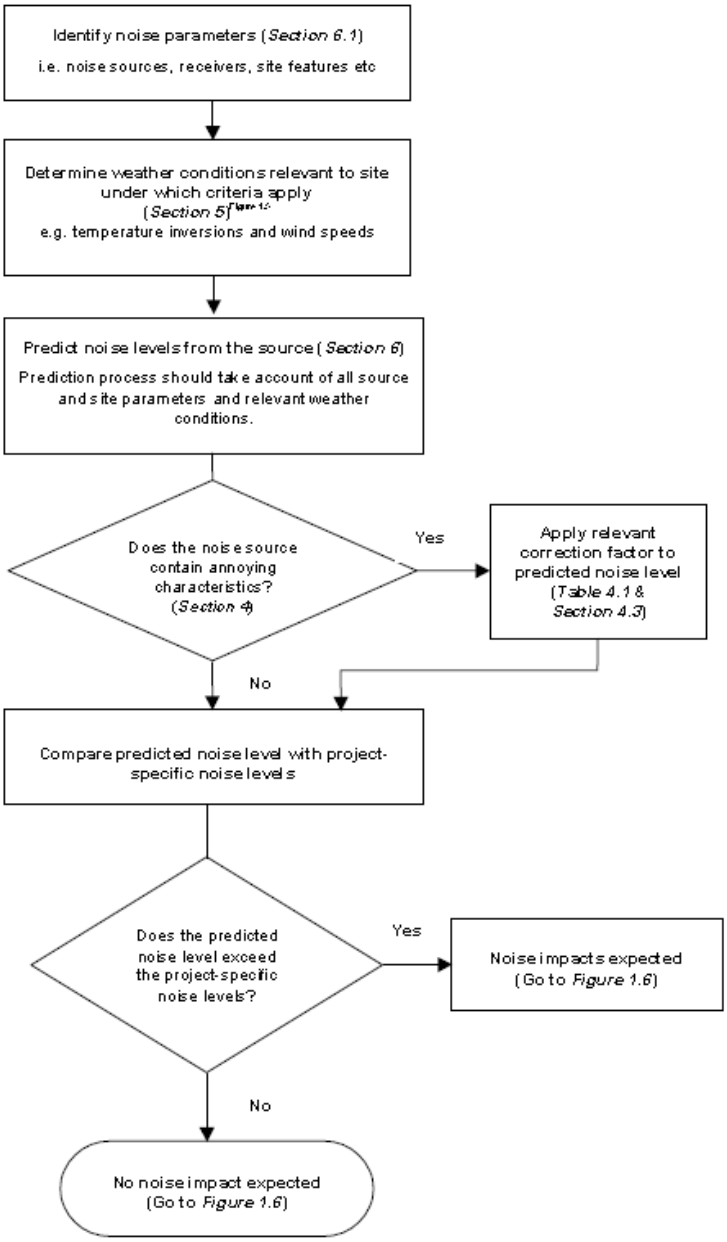
NSW INP states Amenity Criteria of 40 dbA and this proposal seeks to allow cumulative noise of nearly 42dbA

Page 48 NSW INP – flow chart for determining impact not followed

They have not followed NSW INP when assessing the operational noise.

Figure 4.1 of the NSW INP provides a flow chart to follow in making the assessment

Figure 1.4. Predicting source noise level and determining impact



Note the decision diamond in the middle
"Does the noise source contain annoying characteristics? *(Section4)*

The answer to this question is YES.

The evidence for this is contained in the SKM Noise study undertaken in 2011/ 2012 in which it was noted that a number of properties were impacted by LFN
Viz. an extract of the report for location 3 – 339 Inlet Rd

4.2. Low frequency noise

4.2.1. INP assessment

The INP considers low frequency noise to be a significant component of the noise source when the difference between the A weighted and C weighted noise levels exceeds 15dB. The results of the low frequency noise assessment at Location 3 are presented in **Table 3**.

The results show that low frequency noise impacts from all sources were classed as significant during night time periods (>30% results exceed the criteria). This level of low frequency noise may cause disturbance at the residential property during these times. A correction of 5 dB(A) to the attended monitoring results has been added where applicable.

Quote :

> " **The results show that low frequency noise impacts from all sources were classed as SIGNIFICANT during night time periods**"

SIGNIFICANT !

So, there are annoying characteristics and therefore the relevant correction factor should be applied.

In the case of LFN this is to add 5dbA to the Predicted Noise level.

So the predicted noise level would then be higher than the PSNL.

Which leads us to the second decision diamond where the answer is
YES, NOISE IMPACTS EXPECTED.

So again this EIS does NOT follow the INP as per the Secretary's requirements and seeks to minimise the reality of the impact of the mine noise.

They would tell us there will be no impact, but if they followed the rules, as they appear to be so keen to do in other areas, it would show significant impact – which is the reality of the situation

Judge Preston ha this to say regarding the noise assessment of the previous proposal and it is equally valid with regard to this EIS :

Insufficient accounting for annoying noise characteristics

362 The INP requires modifying factor corrections to be applied to the noise from the source measured or predicted at the receiver before comparison with the noise criteria (see Section 4 of INP). The particular modifying factor affecting noise from the Project is the low frequency content. The SKM report (Ishac report, Appendix C) concluded that two of the eight locations monitored (345 Wambo Road and 339 Inlet Road) were significantly impacted by low frequency noise, as over 30% of results exceeded the INP criteria; and a further two (129 Wambo Road and 5a Noses Peak Road) were moderately affected by low frequency noise (6.3.2, p 33).

363 The noise criteria in the proposed conditions of approval have not been set having regard to, and do not refer to, low frequency noise. Low frequency noise is taken into account in evaluating compliance with the noise criteria in the conditions of approval. Conditions 3 and 4 of Sch 3 provide that Appendix 12 sets out "the requirements for evaluating compliance with these criteria" specified in these conditions. Paragraph 4 of Appendix 12 requires compliance monitoring to be carried out in accordance with the relevant requirements for reviewing performance set out in the INP (in Section 11) relating to, amongst other matters, "modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration". One of the penalties for modifying factors would be to apply a correction of 5 dB to the source noise level at the receiver if the difference between the C-weighted and A-weighted levels over the same period is 15 dB or more (INP, Table 4.1, p 29). Making this correction may result in the corrected source noise level at the receiver exceeding the noise criteria in the proposed conditions of approval for that receiver.

Page 49 Noise Management Zone

9.4.1 Noise management zone

The noise management zone is where modelled noise levels are above the PSNL but below the acquisition criteria (described later in Section 9.4.2). Within the management zone, receptors may experience noise levels up to 5 dB(A) above the PSNL. Depending on the degree of potential impact above the PSNL (1 to 5 dB), noise impacts in the noise management zone could range from minor (1 to 2 dB) to moderate (3 to 5 dB). For contemporary planning approvals for mining projects in the NSW, DP&E have prescribed the following actions in the conditions of approval:

- prompt response where issues of concern are raised by community;
- noise monitoring onsite and within the community at representative locations;
- consideration of on site noise mitigation measures and plant maintenance procedures by the mine and where appropriate sound suppression components and preventative maintenance; and
- investigation of, and where practical and cost effective, acoustical treatment/mitigation at receptors where levels are 3 to5 dB above PSNL (typically referred to as the 'mitigation zone').

How can the modelled noise levels be allowed to be above the PSNL?

Is the PSNL just a calculation that's required by the INP, but the actual noise levels will be higher?

If the actual noise levels are higher than the PSNL then the Amenity Criteria has really gone west.

The Consent Conditions set down by the Department are based on the PSNL. The community should have every right to expect that these levels will not be exceeded, and yet here we are talking about them being exceeded before the project is approved.

On site noise mitigation measures and plant maintenance should be mandatory to minimise noise, not just "given consideration"

The Community does not want acoustical treatment (whatever that is) or mitigation at receptors. The Community wants the mine to operate within its Consent Conditions.

What is the point of Consent Conditions if they are not enforced?

Page 50 if we can't keep the noise down, just remember the money

The INP at Section 8.2 'Negotiation between proponent and regulator' states:

> Where proposed mitigation measures will not reduce noise levels to the project-specific noise levels, the proponent should seek to negotiate with the regulatory/consent authority to demonstrate that all feasible and reasonable mitigation measures have been applied. The regulatory/consent authority can choose to accept the level of impact proposed, or negotiate for a better level of control where this is considered achievable.
>
> Where, in the final analysis, the level of impact would still exceed the project-specific noise levels, the economic and social benefits flowing from the proposed development to the community should be evaluated against the undesirable noise impacts.
>
> Where it can be demonstrated by the proponent that the development offers net benefits, a regulatory consent authority may consider these as grounds for applying the achievable noise levels, rather than the project-specific noise levels, as the statutory compliance limit.

Again, the Consent Conditions become meaningless if bureaucrats can be convinced that the cash flow from the noisy mine is sufficient to keep them happy.

Economic and Social benefits are open to wide interpretation and these are discussed in other commentary on this EIS.

Suffice it to say that Judge Preston in his judgement in the Land & Environment Court did not finds the economic and social benefits to outweigh the social and environmental impacts of the expansion of the Warkworth mine and consequently disallowed it.

Page 50 if we can't keep the noise down, we'll put you in an air-conditioned cell or buy you out.

9.4.2 Noise affectation zone

The noise affectation zone applied by DP&E is where noise levels are more than 5 dB over the PSNL. Implementation of the following measures may be required:

- discussions with relevant property owners to assess concerns and provide solutions;
- implementation of acoustical mitigation at receptors; and
- negotiated agreements with property owners, or acquisition of the property by the proponent upon request by the property owner.

Again, the PSNL become the Consent Conditions, but in the event that the noisy mine can't keep it down to less than 5dB over the limit, the resident can forego the amenity of the rural lifestyle and be condemned to life in an air-conditioned cell – it will still be a noisy cell though as the double glazing does nothing to prevent the intrusion of low frequency noise.

Or, they'll offer you some money for your property, and if you don't like the offer, you'll just have to put up with it – tough!

Page 50 Cumulative noise less than the PSNL ??

9.5 Cumulative noise

In addition to considering the individual impact of the proposal on residences, the INP also requires an assessment of the Proposal's contribution to the total, or cumulative noise received by any particular residence from all industrial operations.

The cumulative noise impacts resulting from the proposal are most appropriately assessed in the context of the amenity criteria listed in Table 9.1. The assessment of cumulative impacts is presented in Section 11. This approach is consistent with the INP's approach to the assessment of cumulative noise.

Section 11 estimates the Cumulative noise to be less than the PSNL of every location in the table 11.1

How can this be?

Above they have been talking about exceeding the PSNL by between 1 and 5dbA in many locations. If only Warkworth was operating (all other mines shutdown) the Cumulative noise would be the level received from Warkworth.

Let's be generous and say they do operate at the PSNL, 38 dbA for Bulga village, or 35 dbA for more distant locations; how on earth can the Cumulative noise be less than that?

That's just not possible.

As above in describing the Amenity Criteria of 40 dbA which must not be breached, their own example of three intrusive mines operating at 34.5, 35.5, and 36.5 demonstrates Cumulative noise in excess of 40 dbA.

They must think we're all idiots!

Page 50 Nobody gets woken up by mining noise

9.6 Sleep disturbance

The operational criteria described in Sections 9.1, which consider the average noise emission of a source over 15 minutes, are appropriate for assessing noise from steady state sources, such as engine noise from mobile plant and other equipment. However, noise from sources such as reversing alarms or track plates is intermittent (rather than continuous) and, as such, needs to be assessed using the L_1 or L_{max} noise metrics. Such criteria is provided in the INP application notes which can be found on the EPA website.

The most important potential impact of intermittent noise to be considered is sleep disturbance of nearby residents. While the INP does not specify a criterion for assessing sleep disturbance, various studies including the EPA's *Road Noise Policy* (RNP) (DECCW 2011) indicate that levels below 50 to 55 dB(A) inside homes are unlikely to wake sleeping occupants. If bedroom windows are open, this corresponds to an external maximum noise level of approximately 60 to 65 dB(A) L_{max}. Similarly, the World Health Organisation (WHO 1999) suggest that levels below 45 dB(A) inside homes are unlikely to wake sleeping occupants. It is noted that the WHO criterion applies under the assumption that windows are closed.

However, the EPA's current position on sleep disturbance, is that maximum (L_{max}) noise from industrial sources should not exceed background (or RBL) plus 15 dB. Based on a night time RBL of between 30 dB(A) and 33 dB(A (refer to Section 8), this assessment has adopted an external sleep disturbance criterion of 45 dB(A) to 48 dB(A) L_{max} for residences, as applicable.

Where the sleep disturbance criterion is satisfied, sleep disturbance is unlikely. But where it is not met, a more detailed analysis is required. The detailed analysis should quantify the extent of impacts, including levels of exceedance above the criterion and the duration and the number of events that may occur.

All very well and good…but not representative of our situation.

People do get woken by mining noise. They complain of it frequently.
Is this saying that people that say they are woken by mining noise are making it up? That they want to be awake at 3 o'clock in the morning?

What is not taken into account here?

1. This is a rural environment; we don't have traffic noise of 50dbA at night. Without MTW's noise, it is profoundly quiet – as it always was until 2010 when MTW started building slag heaps higher and moving west.
2. It is the short loud clangs and bangs which wake people. Because these noises are so short and sharp, they have little effect on the LAeq15 measurement – just as a gunshot wouldn't – but it wakes you up. Once you are awake it is the low frequency drone and rumble that keeps you awake

Page 51 The elephant in the room – Low Frequency Noise

9.7 Low frequency noise

Low frequency noise (LFN) has been raised as an issue by surrounding residences of Warkworth Mine in previous consultation undertaken as part of normal noise management activities and also as a part of the social impact assessment consultation being undertaken for this EIS. Warkworth Mine has listened to this feedback and to consider this issue EMM have completed three different methods of assessment for LFN as detailed below. These include the INP, 'Broner' and The Department of Environment Food and Rural Affairs (DEFRA) (UK) methods.

Low Frequency Noise (LFN) is a constant issue and has been since 2010.

This EIS is required by Secretary's requirements to be assessed under NSW INP.

The Secretary makes no mention of Broner or DEFRA; they should be ignored.

9.7.1 NSW Industrial Noise Policy

Section 4 of the INP provides guidelines for applying 'modifying factor' adjustments to account for LFN emissions. The INP states that where there is a difference of 15 decibels or more between the measured 'C' weighted (dBC) and measured 'A' weighted (dBA) levels, then a correction factor of 5 dB is applicable to the measured noise at the assessment location.

The INP's LFN criteria are being reviewed in light of challenges in practice at large distances from sources. For example, sounds that do not pose low frequency dominated spectra at close range, would by virtue of enough distance loss factors, inappropriately attract the INP penalty for low frequency as higher frequencies in their spectra are considerably more abated than the lower frequencies. The INP LFN criteria were originally intended for testing sources at relatively close range.

The fact that the INP is being reviewed at the instigation of the Planning Dept and urging of the mining community does not detract from the fact the current NSW INP(2000) is current policy and is specified in the current mine consent conditions and the Secretary's requirements for this EIS.

Why are the LFN penalty inappropriate at large distances?
They say because the high frequencies are attenuated and the low frequencies not.

Well that is the problem we experience….not high frequency noise but low frequency noise.

This a convoluted argument to discredit the NSW INP because applying the Section 4 Modification factors would put the mine over its Consent limits more often than not, and this is why they refuse to do it and the Department of Planning refuse to enforce it, yet have been quite happy to include it in mine Consent conditions …but with no intention of ever enforcing it.

We believe this has been a strategy by the Dept and the mines to make it appear that they will have strict rules, but actually never abide by them.

There is no mention in the NSW INP that the low frequency penalty is for sources at close range…this is only anecdotal from acoustic consultants with vested interests.

Ombudsman letter

A letter prepared by the NSW Ombudsman (dated 22 January 2014) to DP&E relating to the subject site and the INP's approach to LFN, is attached in part as Appendix G. This document notes that: the DP&E (formerly DPI) and EPA (formerly OEH) agrees on the technical merits on the difficulty in applying the LFN modifying factor in rural areas; EPA have commissioned a comprehensive study on LFN as part of the revision of the INP; that EPA would not include conditions about LFN in an Environmental Protection Licence (EPL); and a review of the INP will be conducted with LFN being a priority issue.

The letter shows that the Environment Defenders Office (EDO) forwarded a complaint on behalf of the Bulga Milbrodale Progress Association Inc. (BMPA), about the DP&E's decision to refuse to apply LFN data in accordance with the Industrial Noise Policy (INP) and condition of consent for Mount Thorley and Warkworth coal mines, to the NSW Ombudsman.

The original complaint to the Ombudsman was not concerning the pros and cons of different LFN measurement methodologies - why would anyone write to the Ombudsman about that?

Rather it was a complaint resulting from the facts that:

1. The Department refuses to apply the NSW INP to the mine noise measurements, even though they (The Dept) stipulate the NSW INP in the mine consent conditions.
2. That when this was discussed in the Land & Environment Court, the then acoustic specialist for the Dept, one Jeffrey Parnell, signed a sworn affidavit (attached) and presented it to the Court as evidence that they (The Department) would apply the modification factors of Section 4 of the NSW INP - but later outside the Court stated that he had no intention of doing that and hasn't. That amounts to perjury – or lying in Court if you prefer.

That was the substance of the complaint. It is ongoing.

Page 51 Confirmation that isn't confirmation at all – more untruths

The letter from the Ombudsman is shown, followed by this statement:

The above confirms that the applicant currently undertakes regular LFN monitoring as part of the noise management regime for the Warkworth Mine.

No it doesn't !! Total rubbish, or untrue if you prefer.

Nowhere in that letter does it confirm that the applicant undertakes regular LFN monitoring!

This statement is as untrue as Mr Parnell's affidavit which showed scant regard for a Court of Law.

Page 53 Mr Broner's opinion

9.7.2 'Broner' method

A paper by Dr Norm Broner, "*A Simple Outdoor Criterion for Assessment of Low Frequency Noise Emission*" published in Acoustics Australia Vol.39 April 2011, provides absolute level criteria for frequency noise. The paper presents the following targets external to a residence:

- for the daytime or when source operates intermittently (1 2 hours):
  - desirable 65 dBC L_{eq};
  - maximum 70 dBC L_{eq};
- for the night time or when the source operates continuously:
  - desirable 60 dBC L_{eq}; and
  - maximum 65 dBC L_{eq}.

This assessment will also review LFN against the Broner (2011) approach.

Mr Broner's opinion piece is not a basis for noise assessment of a mine seeking approval to operate as it is not government policy.

The Policy is NSW INP (2000).

NSW INP is currently under review by the EPA, and lo and behold, Mr Broner is doing a study on low frequency noise, which of doubt will reflect his opinion piece, for which he is becoming rather well known.
Like many "well known" individuals, Mr Broner is impossible to contact to discuss his approach, so it appears to be rather one sided, and as noted earlier, clearly to enable the mines to make more noise than they do now.

The EPA review has been ongoing for 3 years nearly and they expect, they say, to go to stakeholder and public consultation towards the end of this year.
However, it is claimed in this EIS that the EPA have given their go ahead to MTW to use the "Broner" method in lieu of the NSW INP.
This seems rather bad procedure when the review hasn't been completed and no consultation has taken place (except with MTW it seems).

We consider that until NSW INP is changed, it stands as the policy and it should be followed.

Page 53 Low frequency so low you can't hear it?

Table 9.4 DEFRA – proposed low frequency reference curve

Hz	10	12.5	16	20	25	31.5	40	50	63	80	100	125	160
dB, Leq	92	87	83	74	64	56	49	43	42	40	38	36	64

Notes: 1 The levels can be relaxed by 5 dB if: the source is present during the day only; or if the source is steady as demonstrated by: L10-L90 < 5 dB or the rate of change of sound pressure level (Fast time weighting) is less than 10 dB per second, where these parameters are evaluated in the third octave band which exceeds the reference curve values by the greatest margin.

Again NSW INP is the policy; this is irrelevant and indeed seems to only consider ultra-low frequency and infrasound.
At best human hearing cannot detect sound below 20Hz.

This should be disregarded.

Page 57 – Why nothing that was considered effective before is now.

10 Operational noise impact assessment

This section presents the results of modelled noise levels from the proposal inclusive of the effect of prevailing meteorological conditions recorded at the Site.

The mine plans that form the basis of the assessment were optimised over many iterations of noise modelling for different operating scenarios. In arriving at the mine plans, alternative noise minimisation techniques were identified and applied. Some potential options, however, were rejected for a number of reasons. For example, reducing the height of night time overburden emplacement activities and acoustically treating the CPP were considered but found to provide minimal acoustic benefit (less than 1 dB(A)).

It was in 2010 that the height of the slag heaps increased above the height of Saddle Ridge.
That coincided with the beginning of the noise complaints.
To say that reducing the height of the night time overburden emplacement activities (slag dumping) would have minimal acoustic benefit is nonsense.
Unless they are talking about the scenario when they have destroyed Saddle Ridge, in which case it wouldn't matter how high the slag heaps were, they would be noisy.

Page 59 – Bunds work for some but not for others?

> Noise mitigation along the transmission path such as a large noise bund was also considered and was found to be ineffective for the assessment locations in Bulga. The slope of the terrain between the mine and Wollemi Brook to the west would require a bund to be considerable in extent and height and would only provide minimal noise benefit to Bulga residences. Notwithstanding, if line of sight to residences could be obstructed, the benefit would be marginal during adverse weather conditions when it would be needed most. The impractical nature of such a bund includes the need for considerable land area to accommodate the bund's base and would need to be adjacent the Wollombi Brook in the proposed offset areas so as not to sterilise coal resources (see Chapter 23 of EIS).

MTW's neighbours Bulga Coal propose to build a noise bund to shield the community from mine noise.

If it works for Bulga why doesn't it work for MTW?

The real reason MTW don't want to build a bund as described above is because this proposed expansion is not the end – their intention is to carry on all the way to Wollombi Brook and if there was a bund there it would involve a lot of overburden removal to get at the coal beneath.

Noise mitigation along transmission paths does work – that's why Bulga Coal are building a bund, that's why the Hunter Expressway and most motorways have embankments and high structures along their length to shield residents from noise – they don't do it just for fun !

This another example of convoluted logic presented by MTW in a pseudo-scientific manner to endeavour to fool the public for their own benefit.

Page 59 No, we can't keep the noise down, sorry….it costs too much!

> Further plant relocation to in pit areas or plant shutdowns to achieve PSNL at all assessment locations in Bulga (ie beyond those described previously) were also considered in the modelling and assessment process. However, these were found not to be reasonable for the Site. For example, the scenario required to achieve PNSL at all assessment locations in Bulga village resulted in one excavator, one dragline, 12 haul trucks, 12 dozers and two drills being relocated or shut down during adverse meteorological conditions. The resultant loss in production from this quantity of plant being disengaged, for the frequency and duration required due to the presence of adverse meteorological conditions, exceeds $100million (real NPV) over the life of the proposal.

Again, they admit they can't keep the noise down to the PSNL.

As Judge Preston stated in his judgement, they cannot comply with the noise limits.

Page 61 No, we can't keep the noise down, "impractical from an operational perspective"

10.2.2 Mining equipment schedule for Warkworth Mine

The typical equipment schedules for the three modelled indicative mining scenarios are presented in Table 10.4 and the modelled location of mining equipment is detailed in Appendix C. The figures in parenthesis (Table 10.4) represent the reduced fleet quantities initiated during worst case prevailing meteorological conditions. This was only needed for specific items as shown and for indicative Years 3 and 9 when emissions required management during adverse weather. As shown the fleet changes are relatively modest. To that end, further iterations were completed to determine how many more plant shutdowns would be required to achieve PSNL at all Bulga assessment locations and this was found to be impractical from an operational perspective.

Again, they admit they can't keep the noise down to the PSNL.

As Judge Preston stated in his judgement, they cannot comply with the noise limits.

Page 62 Yet in spite of all that, Noise levels are predicted to comply with PSNLs

10.3 Predicted noise during calm weather

Operational noise levels to residences were determined for periods with no wind or temperature gradients, which are termed SI (Still Isothermal) or 'calm 'conditions. Values for air temperature and relative humidity used in the noise modelling were 20°C and 70 per cent for day, and 10°C and 90 per cent for evening and night periods.

The $L_{eq,15min}$ noise levels at assessment locations resulting from mining operations during calm conditions for day, evening and night periods are presented in Appendix D. Comparison of predicted noise levels for day, evening and night periods for any particular year of mining indicates little difference. This is not unexpected as the equipment fleet is identical for both day and night scenarios with the exception that the latter includes lighting plant.

Notably, operational noise levels were predicted to comply with the INP's PSNL's for all assessment locations during calm meteorological conditions for day, evening and night periods.

So, above they are saying that it's "not reasonable", impractical" and that to comply with the PSNL for all of Bulga village is too costly….

YET, here they say the modelling predicts operational noise levels to comply with PSNLs...

Seems that the modelling is not predicting their stated expected reality.

So which one is wrong ??

The modelling ?, or their expected reality ??

Page 64 More controversial data…

10.5 Predicted noise levels

The wind conditions in Table 10.6 were used in the modelled predictions of mining noise levels. The predictions of mining noise during periods of 'prevailing meteorology' are presented in Appendix D. The results presented in Appendix D are derived from considering the effect of only INP assessable meteorological conditions (Table 10.6) and not all possible wind conditions that may be experienced at site.

These results are also presented in the form of coloured markers for Years 3, 9 & 14 (Figure 10.1, Figure 10.2 and Figure 10.3 respectively) which categorically represent predicted noise levels at assessment locations with respect to PSNL's. Assessment locations which meet PSNL's are indicated with a black marker for the respective indicative mining year. Assessment locations with a green, blue or orange marker represent predicted minor (1 to 2 dB(A)), moderate (3 to 5 dB(A)) or significant (greater than 5 dB(A)) noise level exceedances (respectively) of the PSNL for the respective mining year. These data incorporate all 'prevailing' INP weather conditions (ie calm, INP winds and temperature inversions) for day, evening and night operations, as appropriate.

Operational noise levels during calm weather were predicted to comply with the PSNLs at all assessment locations. Noise during 'prevailing meteorological conditions' is below or at the EPA's PSNL's (refer to Table 9.3) at 118 assessment locations out of the 221 assessed. Conversely, noise during 'prevailing meteorological conditions' are predicted to exceed the PSNL at 103 assessment locations, and in four cases, the exceedance is in the significant range.

So under 'prevailing meteorological conditions', 47% of locations exceed the PSNL.

Again, they admit they can't keep the noise down to the PSNL.

As Judge Preston stated in his judgement, they cannot comply with the noise limits.

Page 66 Stating the obvious and a bit of disingenuousness

10.5.1 Existing versus proposal noise level comparison

To provide some illustration of the likely changes in noise levels due to the proposal, one east and one west assessment location have been selected. The comparison of existing and the proposal for similar weather conditions are shown below. Note that the proposal level is from the worst case year of that assessment location and accounts for attenuated plant as described herein. The 'existing' noise level is sourced from EMM's 2010 *Mount Thorley Warkworth Operations Modification Proposed Warkworth Extension Acoustic Assessment report* (April 2010). The Year 2 modelled unmitigated level is adopted from that study in each case.

- Assessment location 58 for example (west, in Bulga):
  - Existing = 37 dB(A)
  - Proposal = 38 dB(A)
- Assessment location 146 (east, in Mount Thorley):
  - Existing = 47 dB(A)
  - Proposal = 42 dB(A)

The above demonstrates that maximum benefit from attenuation of plant will be afforded to assessment locations to the east of the mine, with a predicted noise reduction of 5 dB. At the same time, the noise reduction at source from attenuation of plant almost completely negate any increases in noise due to the westward advancing nature of the proposal, including the removal of Saddleback Ridge, for Bulga residences to the west.

The removal of Saddleback Ridge is accounted for in modelled and predicted noise levels for the proposal in indicative Years 3 and 9. A review of predicted noise levels at assessment locations west of the proposed 2014 disturbance area for these mining years shows that noise levels generally increase by 1 to 2dB(A).

Pretty obvious that the mine moving westward will create more noise for properties to the west and less for those to the east.

The disingenuous bit is about the removal of Saddle Ridge.

Until the slag heaps were allowed to be higher than Saddle Ridge, mine noise was minimal, if not in audible.

The noise problem started when the slag heaps were raised higher then Saddle Ridge.

To say now there will be hardly any difference to the noise when Saddle Ridge is gone is disingenuous – the slag heaps are already higher than Saddle Ridge and that's where a lot of the noise comes from already – the noise we complain about.

Page 73 Confusion reigns – inflated economics justify noise and vibration?

Table 10.9 Residual level of impact

INP factors for consideration	Justification of the proposal
2. Characteristics of the proposal and its noise or vibrations —	Warkworth Mine is an existing and well established mine in the Hunter Valley. The proposal seeks a continuation of all aspects of Warkworth Mine as it presently operates together with an extension of the approved mining footprint by approximately 697.5 ha to the west of current operations. And in this same block The economic assessment for the proposal has identified that the direct economic benefit that can be attributed to Warkworth Mine is around $1,384 million in net present value (NPV) terms. The economic flow-on effects from WML amount to: • for NSW, around $346 million in additional income (in NPV terms), additional annual employment of 191 full-time equivalent workers, and a contribution to NSW gross state product (GSP) of around $407 million; • for the Mid and Upper Hunter region, around $204 million in additional income in NPV terms, and additional annual employment of 198 full-time equivalent workers; and • for the Singleton LGA, around $75 million in additional income in NPV terms, and additional annual employment of 57 full-time equivalent workers.

Sorry ???I thought we were talking about Noise and Vibration ?????

Page 75 Sleep disturbance – again

10.8 Assessment of potential sleep disturbance

As described in Chapter 9, sleep within residences may be disturbed by intermittent noises such as shovel gates banging, bulldozer track plates and heavy vehicle reversing alarms. Typical noise levels from the loudest of these events are presented in Table 10.10.

Table 10.10 Maximum noise from intermittent sources

Noise source	Measured L_{max} noise level, dB(A)
Haul truck pass-by at high revs	125
Shovel gate banging	120
Bulldozer with reversing alarm	115

Table 10.10 indicates that the highest maximum noise levels expected at residences would likely result from haul trucks. The maximum sound power level of unmitigated haul trucks has previously been measured to be typically 125dB(A) L_{max}. Maximum noise levels at each residence were calculated under assessable worst case weather for the three indicative years of operations.

Table 10.11 provides the maximum predicted L_{max} noise levels from the proposal under adverse meteorology at select representative assessment locations based on the typical equipment locations used for mining operations. Predictions were based on a single event, rather than the simultaneous operation of a number of plant items because of the low probability of more than one peak noise event occurring concurrently. The criteria used to assess sleep disturbance are based on the INP's requirement for the maximum L_{max} level of 'background noise level plus 15 dB'. This results in sleep disturbance criteria of 45 to 48 dB(A) L_{max} depending on the individual assessment location's background noise levels.

Table 10.11 indicates that predicted noise levels under prevailing weather conditions are within the EPA's conservative sleep disturbance criterion at all representative assessment locations.

Table 10.11 Predicted maximum noise levels from site under prevailing meteorology

Property no.	External L_{max} noise level from on-site plant, dB(A)			L_{max} criterion, dB(A)
	Year 3	Year 9	Year 14	
1	32[1]	34[1]	34[1]	45
34	41[1]	41[1]	41[1]	45
42	37[1]	36[1]	38[1]	48
58	37[1]	38[1]	38[1]	48
72	38[1]	39[1]	38[1]	48
75	38[1]	38[1]	39[1]	48
118	36[1]	37[1]	36[1]	45
126	42	42	44	45
144	43	43	43[1]	45
147	42[1]	41	42	45
148	39	39	39	45
237	35[1]	38[1]	38[1]	45

Notes: 1. The L_{eq} operational noise level prediction from Appendix D has been adopted where it is higher than the predicted L_{max} noise level. This is because it is theoretically impossible to measure an L_{eq} greater than the L_{max}. However, the prediction method adopts the maximum noise level from a single source which can result in an L_{max} prediction less than the overall L_{eq} result, which includes all noise sources.

But the reality of loud clangs and bangs that wake you is still not represented here.
The noise levels of the trucks and bulldozers of table 10.10 have no relevance to residents.

I know for a fact (because I live there) Property 1, today, frequently has LAeq15 from MTW that exceed the Lmax figures in Table 10.11 because of the data we get from the directional noise monitor just beside our house. (See attached Barnowl data).

So again these predictions are suspect -0 the maximum noise we will hear here is less than what we hear now and the mine is advancing towards us? I don't think so.

Page 77 Low Frequency Noise – again

10.9 Low frequency noise

10.9.1 Review of external noise monitoring data

The applicant currently undertakes regular LFN monitoring as part of the noise management regime for Warkworth Mine as outlined in Section 3 and 4. Monitoring data from the 2013 calendar year was reviewed in detail (total of 46 measurements) to provide a current representation of potential LFN impacts from the mine. This method is preferred and considered more comprehensive than an alternate theoretical noise modelling approach, as it provides a 'real world' representation of noise levels received in the surrounding communities.

Wow!! 46 measurements over a calendar year…and from table 10.12 from 6 locations!

That's around 7 to 8 measurements per location in a year…one very 6 to 7 weeks…and only 15 minutes at that.

Let's be generous and say it's 8 measurements per location per year…
That's 8 x 15 minutes = 2 hours.

Given that it's night time when the LFN is an issue….night is 1000 to 0700 – 9 hours per day.
365 days per year – 3285 hours per year and they spent 2 hours doing measurements – 0.06% of the available time…..

Do you think maybe they missed something???? Highly likely!

That is not a good data set!! No scientist would accept that as a representative sample.

This all the data in Table 10.12 is meaningless.

Judge Preston in his judgement stated that the monitoring data was nowhere near sufficient to draw any conclusions – this demonstrates that he was correct then, and still now.

The INP assessment criterion has been exceeded at Bulga Village (one measurement), Inlet Road West (one measurement) and Long Point (three measurements). However, the overall dB(C) value is below the 'Broner' criteria in each case. As described in Section 9.7.1 (and Appendix G), the INP LFN criteria in its current form is not suitable for rural areas and is under review.

The 'Broner' criteria is Mr Broner's opinion. It is not policy and it has not been validated.
His 60dbC in his paper was for suburban environments. He made no mention of rural.

Other authors, notably Hessler, have stated that “60dbC may be too high and in any case there is no margin for error at that level”.

Who says the INP LFN criteria is not suitable for rural areas?

MTW and the Department because they know that if they applied it, the mine would be in exceedence of its consent conditions, simple as that.

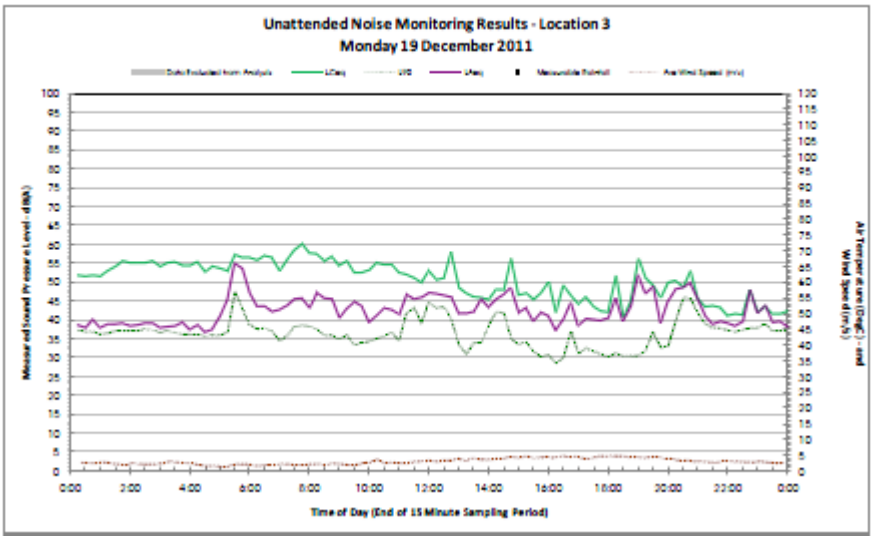
The Department and the mine love Broner as it sets the dbC level for LFN quite high.
We know from personal experience that 60 dbC in a rural environment is loud – no doubt about it!

Interestingly the SKM noise study carried out in Bulga in 2011 demonstrated exactly what we are saying.

The SKM real time monitors recorded both dbA and dbC. We kept a log of handheld noise measurements and notes of when the mine noise was loud and when not. We had no idea what the SKM monitors were reading.

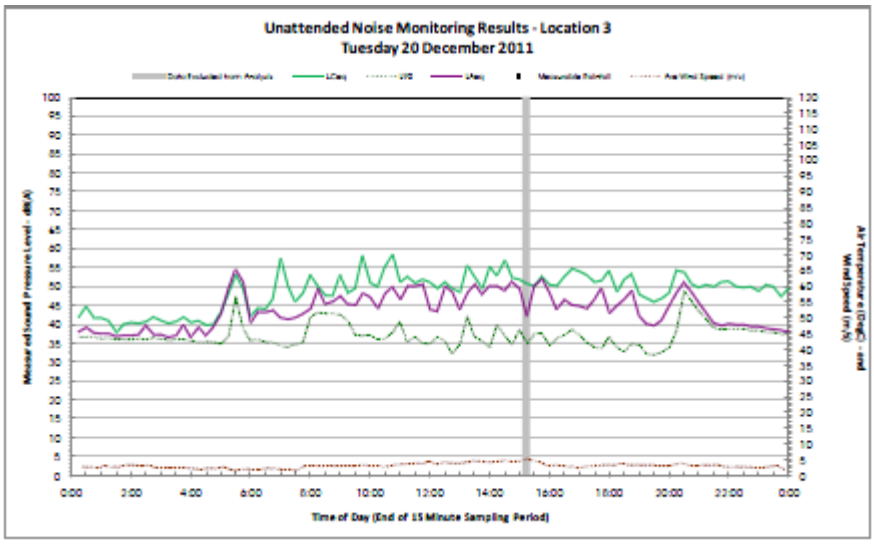
When the data was finally produced, the graphic data from the SKM monitors tallied with our notes.

When we noted the noise was loud and low frequency, the SKM data showed a large gap between dbA and dbC (as per the INP Sec 4) and conversely if it was quiet, the difference between the dbA and dbC was minimal.



					NSW Noise Policy			Wind		Cloud		
4	Date	Time	dB A	dB C		*Add 5*	dBA	Dir.	Speed	Cover	Temp	
33	*19-Dec-11*	7:40:00	42	61	19	5	***47***	still		100%		loud rumbling and truck movement noises
34		12:00:00										Raining - noise stopped
35	20-Dec-11	8:00:00						still			22.0	Clear morning, no mine noise last night, quiet this morning

19 December 2011 – Noisy…large gap between dbA (purple) and dbC (green)



					NSW Noise Policy			Wind		Cloud		
4	Date	Time	dB A	dB C		*Add 5*	dBA	Dir.	Speed	Cover	Temp	
33	*19-Dec-11*	7:40:00	42	61	19	5	***47***	still		100%		loud rumbling and truck movement noises
34		12:00:00										Raining - noise stopped
35	20-Dec-11	8:00:00						still			22.0	Clear morning, no mine noise last night, quiet this morning

20 December 2011 – No mine noise … no gap between dbA (purple) and dbC (green)

So, we think the NSW INP works just fine…the dbC-dbA difference is an accurate predictor of low frequency noise.

Page 79 Another un-validated LFN proposition

10.9.2 Review of representative internal noise levels – DEFRA curve assessment

External and internal noise monitoring was undertaken at a mine owned residence on Putty Road during the night time on 17 April 2014 to quantify representative internal mine levels and to apply the DEFRA reference curve to highlight any potential for internal LFN impacts.

As previously stated this is irrelevant and should be disregarded.

Page 84 Cumulative noise that is less than one mine's noise??

This has been discussed earlier….

Particularly for Property 1, how can the cumulative noise be less than the PSNL?

Patently ridiculous….there is something seriously wrong with the model – or the person running it!

Page 88 Blasting doesn't worry animals – did you ask them?

12.3 Effects on animals

Very little evidence is available in literature on the direct impacts that blast noise has on livestock or animals in general. Blast noise is not a new or newly introduce source for the area and, therefore, it is expected that livestock and other animals are accustomed to such sources of noise. For the proposal, it is clear that the current level of noise from blasting is not going to increase significantly at locations assessed. A similar level of minimal change is therefore expected for locations where livestock or animals inhabit. These include the national parkland areas west of Bulga and surrounding grazing land. Impacts to animals are therefore expected to be minimal.

I doubt that animals "are accustomed to such sources of noise".
Mine blasting and army bombs used to frighten the hell out of our dog.
She lived with us here for 13 years and never got used to it.
What a stupid thing to say.

Page 93 – Repeat of what's already been said – disingenuous again

14 Other noise management and mitigation considerations

Consideration was given to restricting overburden emplacement heights during night time.

Current operational controls at the mine include management of day to day activities to real time and predictive monitoring of prevailing meteorological conditions. Where prevailing conditions are unsuitable, emplacement at specific locations, regardless of height, is suspended.

The applicant considered a range of different design scenarios for night time overburden emplacement with permutations of emplacement height and equipment used. The noise modelling results demonstrated that restricting the height of emplacement activities would not result in material benefit to assessment locations.

No, that's right, since they built the slag heaps higher then Saddle Ridge and their model no doubt includes the removal of Saddle Ridge, it won't make any difference.
It did before, but it doesn't now.

Page 95 Only one page on the L & E Court decision!

15 NSW Land and Environment Court judgement

The NSW Land and Environment Court handed down its findings on the Warkworth Extension Project in a judgement in April 2013 following an appeal from the Bulga Milbrodale Progress Association Inc. One of the key matters raised in the L&E Court was noise. The broad areas relating to noise the judgement focussed on are as follows:

1. combining Warkworth mine and Mount Thorley Operations into one assessment;
2. representative background noise for Bulga;
3. sleep disturbance impacts;
4. low frequency noise (LFN);
5. cumulative noise (amenity); and
6. existing mining noise levels already unacceptable (suggesting, therefore, any new mining proposals should not be allowed).

This new proposal does nothing to change Judge Preston's judgement.
The land is the same land, the coal is the same coal, and this new proposal is in all respects almost indistinguishable from the proposal that was rejected.

This project should not be allowed to go ahead for the very cogent reasons expressed in Judge Preston's landmark judgement in the Land and Environment Court and subsequently upheld by the full bench of the Supreme Court.

Each of the above matters has been addressed in more detail in this report. A summary for each is provided below and further detail can be found in the references provided:

1. The current approach does not combine Warkworth Mine and MTO. The two mines are assessed separately in this EIS;

2. An extensive background noise analysis has been completed for Bulga residences and is documented in Section 8. Six long term monitoring sites across Bulga were used capturing, in some cases, several months of data. The data reflects consistency with historic (2002) data showing background levels of 30 dB(A) to 33 dB(A);

3. Sleep disturbance is addressed in Sections 9.6 and 10.8;

4. LFN is addressed in Sections 9.7 and 10.9;

5. Cumulative noise is addressed in Sections 9.5 and 11. It is demonstrated that the non discretionary Mining SEPP is satisfied for Bulga residences and means the area's amenity is not compromised as it meets the INP's ANL. Further, the amenity, which relates to cumulative noise from all industry, cannot worsen for this area because it is highly unlikely that no new large scale industry will be able to physically exist in a position that could push amenity levels any higher for Bulga residences; and

6. A comprehensive data set of Warkworth Mine's performance with respect to compliance is provided in Section 6. Further the mine's current and on going management is described in Sections 3 to 5. It should also be noted that the attenuation to plant is currently at 50 per cent of trucks, and partly commenced on other items, and a commitment to have all major plant attenuated by the end of 2016 will mean an improvement to off site noise levels on the current situation. As per Item 4, it is demonstrated that the ANL would be satisfied with the proposal.

1. The EIS for the Warkworth mine is identical to the EIS for the Mt Thorley mine. One approval depends on the other. If one is approved and the other not, the approved mine cannot operate as it needs the other. In effect this is one proposal, and is indistinguishable from the proposal rejected by the L & E Court and upheld by the Supreme Court.
2. The noise analysis is at odds with the noise analysis provided in the Bulga Coal application.
3. Sleep disturbance is discussed, but not addressed.
4. LFN is discussed but not addressed. The proponent seeks to divert the attention from the policy document NSW INP because they know they can't comply with the INP – a major point in the L&E judgement.
5. Cumulative noise is confused – modelling predicts it to be less than the PSNL from one mine. Addition of the PSNLs for three neighbouring mines results in a breach of the Amenity criteria.
6. The noise monitoring data for reasons expressed elsewhere cannot be relied upon. 80% of the so-called "compliance" monitoring was done is a non-complaint manner – disregard of the INP – and is therefore worthless.

Page 97 INP checklist – but still not complying with INP

16 INP Checklist

The INP provides nine steps for noise management at Section 1.4 'Applying the policy'. For reference, these steps are provided in Table 16.1 with references within this report as to where these steps have been addressed.

Table 16.1 INP Checklist

INP step	Reference section in this document
7. Negotiation between the regulatory/consent authority and the proponent and between the community and the proponent to evaluate the economic, social and environmental costs and benefits from the proposed development against the noise impacts (Section 8).	Refer EIS Chapters 7 'Stakeholder engagement', and Chapter 24 'Justification and conclusion'. Several meetings have been held between the applicant and the regulator in relation to noise, social and economic implications of the proposal.

The INP checklist says:

Negotiation between the regulatory/consent authority and the proponent and between the community and the proponent……

But the proponent says:

Several meetings have been held between the applicant and the regulator ……..

No mention of the community…why?

Because they haven't talked to the community at all!

Again … non-complaint with INP.

9. Monitoring of environmental noise levels from the development to determine compliance with the consent/licence conditions (Section 11).	To be completed post approval for the proposal. Monitoring data for the current operations is provided in Section 6.

Monitoring data may be provided, but 80% of it is worthless because it is non-compliant with INP.

Page 99 Conclusion – restating again – mostly disputed

17 Conclusion

This study considers the potential for noise impacts to residences from the proposal, including:

- background noise level analysis in accordance with the INP;
- establishing PSNLs in accordance with the INP;
- detailed three dimensional noise modelling and predictions;
- assessment against PSNLs;
- assessment of potential sleep disturbance;
- assessment of LFN (external and internal);
- assessment of blasting;
- assessment of road traffic noise;
- best practice sound suppression on all major plant at an estimated capital cost exceeding $50M across MTW;
- operational controls to manage off site noise to PSNL where reasonable and feasible to do so; and
- description of comprehensive management procedures adopted by the Site.

All these points have been covered in the body of our submission as they arose.

All of them are disputable and many of them downright incorrect.

Judge Preston in his landmark Land & Environment Court decision found their previous proposal to be lacking for the very same reasons and rejected it unilaterally.
This decision was supported by the full bench of the Supreme Court.

To approve this new proposal, which is indistinguishable from the declined proposal, would be contempt of court and a miscarriage of justice.

Attachments snapshots of documents to be attached

Secretary's Environmental Assessment Requirements

State Significant Development

Section 78A(8A) of the *Environmental Planning and Assessment Act 1979*

Application Number	SSD 6464
Proposal	The Warkworth Continuation Project, which includes: • the continuation of existing and approved development on site; • extending approved open cut mining operations further west; • developing a range of associated infrastructure to support this extension; • maintaining maximum coal extraction rates at 18 million tonnes of run of mine coal a year; • exporting coal, tailings and overburden to the Mt Thorley mine; • water sharing with other mines; • exporting sand and gravel from the site; and • progressively rehabilitating the site.
Location	Approximately 15 km southwest of Singleton
Applicant	Warkworth Mining Limited
Date of Issue	22 May 2014

Land & Environment Court Judgement – Noise Section

Land and Environment Court
New South Wales

Medium Neutral Citation	Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited [2013] NSWLEC 48
Hearing Dates	20-24 August 2012, 10-12 September 2012, 14 September 2012, 17 October 2012, 6-8 November 2012 and 15 November 2012
Decision Date	15/04/2013
Jurisdiction	Class 1
Before	Preston CJ
Decision	1. The appeal is upheld. 2. Project application no 09_0202 for the carrying out of the Warkworth Extension Project is disapproved. 3. The exhibits, other than Exhibit W3, are returned.
Catchwords	APPEAL - objector appeal against Minister's decision to approve extension of open cut coal mine - impacts on endangered ecological communities - significant impacts not avoided or mitigated materially - reliance on offsets to compensate for impacts - offsets package inadequate - significant noise impacts on nearby residents - noise criteria for project inappropriate - noise control measures inadequate - social impacts - on balance negative social impacts on local community - economic analyses of project - input-output analysis and benefit cost analysis - economic analyses inadequate - balancing of environmental, social and economic factors - project disapproved
Legislation Cited	Environmental Planning and Assessment Act 1979 Pts 3A, 4, ss 5, 75E, 75F, 75H, 75J, 75L, 75R Environmental Planning and Assessment Amendment (Part 3A Repeal) Act 2011, Sch 1, 1.7 [2] Environment Protection and Biodiversity Conservation Act 1999 (Cth) Land and Environment Court Act 1979 ss 37(1), 39 National Parks and Wildlife Act 1974 ss 56, 69B, 69F Protection of the Environment Administration Act 1991 s 6(2)(d) Threatened Species Conservation Act 1995
Cases Cited	Associated Provincial Picture Houses, Limited v Wednesbury Corporation [1948] 1 KB 223 Australians for Sustainable Development Inc v Minister for Planning [2011] NSWLEC 33; (2011) 182 LGERA 370 Barrington-Gloucester-Stroud Preservation Alliance Inc v Minister for Planning and Infrastructure [2012] NSWLEC 197 Botany Bay City Council v Saab Corp Pty Ltd [2011] NSWCA 308 Drake v Minister for Immigration and Ethnic Affairs (No 1) (1979) 46 FLR 409; 24 ALR 577 Drake-Brockman v Minister for Planning [2007] NSWLEC 490; (2007) 158 LGERA 349 Foley v Waverley Municipal Council (1963) 8 LGRA 26 Foster v Minister for Customs (2000) 200 CLR 442 Hunter Environmental Lobby Inc v Minister for Planning [2011] NSWLEC 221

Bulga Coal Background assessment

2 CRITERIA

2.1 Existing Environment

The BCC is primarily surrounded by rural land containing scattered farm residences, and three relatively small villages. Broke Village is located south of the BCC, Milbrodale is located southwest of the BCC, and Bulga Village is located west-northwest of the BCC. Background noise levels, in the absence of mining, are generally low in all areas, which is typical of a rural environment.

Global Acoustics undertook background noise monitoring in the Bulga area on behalf of BCM during 2009 and 2010. Assessment findings for Bulga Police Station, and 2305 Putty Road were reported to BCM; both reports are included in Appendix E. Background levels (RBL) determined during those surveys are summarised in Table 2.1.

Table 2.1 BACKGROUND NOISE LEVELS RBL SUMMARY - L_{A90} dB

Monitoring Location	Day	Evening	Night
Bulga Police Station, Putty Road, Bulga	30	32	29
2305 Putty Road, Bulga	29	31	29

Background noise levels at other locations around the BCC are likely to be less than for the Bulga area, as they are located further from existing mining operations. The exception is the area around the Mount Thorley Industrial Estate (MTIE) where road traffic noise on the Golden Highway, MTIE and MTW influence the background noise environment.

Conservatively, background levels less than or equal to L_{A90} 30 dB have been adopted at all locations around the BCC, for all time periods. The INP states that where the RBL is less than L_{A90} 30 dB, a value of L_{A90} 30 dB can be adopted for the purpose of deriving noise criteria.

2.2 Receptor Locations

All private residence locations in the area, shown on Figure 2, were considered in the assessment. Additionally, vacant lots located within the predicted noise management zone (within the maximum extent 35 dB noise contour) were assessed to determine whether 25 percent or more of the lot area is predicted to exceed either $L_{Aeq,15minute}$ 35 or 40 dB.

Umwelt (Australia) Pty Ltd provided details of receptors and vacant lots to be assessed, including coordinates and ownership details.

Carter email

Stewart Mitchell

From: Carter, Robert (RTCA) [Robert.Carter@riotinto.com]
Sent: Friday, 19 July 2013 5:29 PM
To: Stewart Mitchell (stewart.mitchell1@bigpond.com)
Subject: Met conditions during attended noise monitoring (Action Item 5 from April CCC meeting)

Hi Stewart

At the CCC meeting in April you enquired as to the number of days when meteorological conditions have had an impact upon attended noise monitoring.

A summary of attended noise monitoring measurements undertaken at Mount Thorley Warkworth from 2010 until 2013 year to date is shown below in association with the number of occasions when the conditions at the time of measurement were acceptable in accordance with the NSW EPA Industrial Noise Policy (2000).

The assessment of the applicability of conditions is undertaken by an acoustic consultant subsequent to the monitoring event by analysis of meteorological conditions at the time of monitoring as measured at the site meteorological station on Charlton Ridge.

Year	Total Measurements Undertaken	Measurements when criterion applicable	Measurements when criterion not-applicable	
2010	116	37	79	
2011	111	46	65	
2012	102	44	58	
YTD2013	31	25	6	

More detailed information can be found in the noise section of the 2010 and 2011 Annual Environmental Monitoring Report (AEMR) and the 2012 Annual Review documents which you have received previously. These documents are also available on the Rio Tinto Coal Australia website at http://www.riotintocoalaustralia.com.au/ouroperations/3453_mount_thorley_warkworth_3592.asp .

Please call if you have any queries. See you Monday afternoon.

Kind regards
Rob

Robert Carter
Environmental Coordinator – Mount Thorley Warkworth

Rio Tinto
PO Box 315, Singleton NSW 2330

T: +61 (0) 2 6570 1534 M: +61 (0) 429 700 370 F: +61 (0) 2 6570 1576
robert.carter@riotinto.com http://www.riotintocoalaustralia.com.au

Parnell affidavit

48 The INP nominates a difference between the C weighted noise level and the A weighted noise level of 15 dB as being an indicator of LFN. It is my understanding that this method was a "rule of thumb" check for the presence of LFN from locomotives measured at 10m and was not intended to be extrapolated out to several kilometres, due to the differential degradation of the noise spectrum.

49 As a result of concerns about LFN impacts from gas fired power stations, the Department commissioned a review of the methods of assessment of LFN by Dr Norm Broner, an international expert in this field.

50 The Broner methodology, which is based on absolute levels of dB(C) as a trigger for detailed internal noise investigation, has been applied to several projects by the Department and is the screening tool for assessing LFN generated by wind farms in the draft *NSW Planning Guidelines: Wind Farms*.

51 It is my understanding that the independent noise assessment report prepared by SKM for Bulga village in 2012 reported LFN using both the C – A weighting method and the Broner method.

52 It is my understanding that the EPA has engaged Dr Broner to undertake further studies as part of a commitment to revise the LFN component of the INP to a contemporary standard. In the interim, the Department will, in accordance with the INP assess the need to apply a LFN penalty when assessing complaints, with regard to:

- noise from all sources, individually and in combination, that contribute to the total noise at a site; and
- the nature of the noise source and its characteristics.

AFFIRMED at	23-33 Bridge Street, Sydney NSW 2000
Signature of deponent	
Name of witness	Kirsty Thomas
Address of witness	23-33 Bridge Street, Sydney NSW 2000
Capacity of witness	Solicitor

And as a witness, I certify the following matters concerning the person who made this affidavit (the **deponent**):

1 I saw the face of the deponent.

2 I have confirmed the deponent's identity using the following identification document:

Drivers Licence

Identification document relied on (may be original or certified copy)

Signature of witness

Barnowl data

	A	B	C	D	E	F	G	H	I	J
1	Date	Time	L_{Aeq} Total - All Pass (dB(A))	L_{Aeq} Total - <1000Hz Low Pass (dB(A))	L_{Aeq} Sources Total - All pass (dB(A))	L_{Aeq} Sources Total - <1000Hz Low Pass	L_{Aeq} MTW Direction - All Pass	L_{Aeq} MTW Direction - <1000Hz Low Pass	L_{Aeq} Other Sources - All Pass	L_{Aeq} Other Sources - <1000Hz Low
100	21/04/2013	19:45	41.61	41.10	39.99	39.14	37.81	36.88	36.13	35.31
101	21/04/2013	20:00	43.56	42.50	41.50	40.26	39.45	38.56	37.45	35.60
102	21/04/2013	20:15	42.32	41.53	40.71	39.89	40.06	39.44	31.98	29.88
103	21/04/2013	20:30	42.11	41.18	39.87	38.52	38.08	36.71	35.07	33.76
104	21/04/2013	20:45	39.86	38.81	37.67	35.69	37.12	35.37	28.49	24.40
105	21/04/2013	21:00	40.26	39.54	37.72	36.66	37.07	36.22	30.29	27.82
106	21/04/2013	21:15	41.37	40.86	38.77	38.20	38.65	38.17	27.44	25.47
107	21/04/2013	21:30	41.89	41.06	39.06	37.98	37.63	36.72	33.95	32.71
108	21/04/2013	21:45	41.72	40.84	38.53	37.06	35.32	33.47	35.98	34.93
109	21/04/2013	22:00	38.80	38.16	35.84	33.80	35.20	33.52	27.43	21.83
110	21/04/2013	22:15	39.41	37.94	37.56	34.67	36.09	33.52	32.27	28.34
111	21/04/2013	22:30	39.43	38.29	37.08	34.99	35.25	34.33	32.43	26.35
112	21/04/2013	22:45	38.68	38.12	36.00	33.14	35.41	32.86	27.94	22.93
113	21/04/2013	23:00	40.36	39.65	36.87	34.20	35.51	32.83	31.99	29.32
114	21/04/2013	23:15	41.03	40.51	38.18	36.67	38.09	36.66	21.63	10.84
115	21/04/2013	23:30	41.15	40.65	38.67	37.81	38.09	37.45	29.74	27.12
116	21/04/2013	23:45	37.73	36.98	34.82	33.18	34.25	32.88	25.81	21.72
117	22/04/2013	0:00	37.52	37.00	34.32	32.85	32.97	31.63	28.68	26.81
118	22/04/2013	0:15	37.76	37.25	34.81	32.96	33.82	32.14	28.72	26.62
119	22/04/2013	0:30	42.29	42.08	40.51	40.37	40.41	40.30	24.74	22.86
120	22/04/2013	0:45	41.98	41.78	40.36	40.23	40.36	40.23	17.92	13.23
121	22/04/2013	1:00	42.36	42.09	39.86	39.32	39.66	39.23	27.74	23.91
122	22/04/2013	1:15	39.29	39.05	37.43	37.13	37.21	36.96	29.14	28.43
123	22/04/2013	1:30	36.56	36.18	34.27	33.28	33.21	32.40	28.43	26.97
124	22/04/2013	1:45	39.34	39.06	37.50	36.94	37.19	36.68	29.15	28.28
125	22/04/2013	2:00	42.65	42.47	41.15	40.96	41.14	40.96	16.63	6.63
126	22/04/2013	2:15	36.71	36.16	34.75	34.25	34.69	34.25	17.92	2.22
127	22/04/2013	2:30	34.40	34.05	32.38	32.11	32.32	32.11	13.46	0.00
128	22/04/2013	2:45	37.12	36.63	34.47	33.67	34.13	33.53	23.56	19.01
129	22/04/2013	3:00	40.77	40.37	38.51	38.22	37.79	37.66	30.35	29.10
130	22/04/2013	3:15	40.76	40.42	38.41	37.95	38.14	37.81	26.11	22.93

Secretary's Environmental Assessment Requirements

State Significant Development

Section 78A(8A) of the *Environmental Planning and Assessment Act 1979*

Application Number	SSD 6464
Proposal	The Warkworth Continuation Project, which includes: • the continuation of existing and approved development on site; • extending approved open cut mining operations further west; • developing a range of associated infrastructure to support this extension; • maintaining maximum coal extraction rates at 18 million tonnes of run of mine coal a year; • exporting coal, tailings and overburden to the Mt Thorley mine; • water sharing with other mines; • exporting sand and gravel from the site; and • progressively rehabilitating the site.
Location	Approximately 15 km southwest of Singleton
Applicant	Warkworth Mining Limited
Date of Issue	22 May 2014
General Requirements	The Environmental Impact Statement (EIS) for the development must comply with the requirements in Clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.* In particular, the EIS must include: • a full description of the development, including: – the resource to be extracted, demonstrating efficient resource recovery within environmental constraints; – the mine layout and scheduling; – minerals processing; – a waste (overburden, tailings, etc.) management strategy, dealing with the EPA's requirements (see Attachment 2); – a water management strategy, dealing with the EPA's and NSW Trade and Investment's requirements (see Attachment 2); – a rehabilitation strategy, dealing with NSW Trade and Investment's requirements (see Attachment 2); and – the likely interactions between the development and any other existing, approved or proposed mining development in the vicinity of the site; • a list of any approvals that must be obtained before the development may commence; • an assessment of the likely impacts of the development on the environment, focussing on the specific issues identified below, including: – a description of the existing environment likely to be affected by the development, using sufficient baseline data; – an assessment of the likely impacts of all stages of the development, including any cumulative impacts, taking into consideration any relevant laws, environmental planning instruments, guidelines, policies, plans and industry codes of practice; – a description of the measures that would be implemented to mitigate and/or offset the likely impacts of the development, and an assessment of: o whether these measures are consistent with industry best practice, and represent the full range of reasonable and feasible mitigation measures that could be implemented; o the likely effectiveness of these measures; and

	o whether contingency plans would be necessary to manage any residual risks; – a description of the measures that would be implemented to monitor and report on the environmental performance of the development if it is approved; • a consolidated summary of all the proposed environmental management and monitoring measures, identifying all the commitments in the EIS; • consideration of the development against all relevant environmental planning instruments (including Part 3 of the *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007);* and • the reasons why the development should be approved having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development. While not exhaustive, Attachment 1 contains a list of some of the environmental planning instruments, guidelines, policies, and plans that may be relevant to the environmental assessment of this development. In addition to the matters set out in Schedule 1 of the *Environmental Planning and Assessment Regulation 2000*, the development application must be accompanied by a signed report from a suitably qualified expert that includes an accurate estimate of the: • capital investment value (as defined in Clause 3 of the *Environmental Planning and Assessment Regulation 2000*) of the development, including details of all the assumptions and components from which the capital investment value calculation is derived; and • jobs that would be created during each stage of the development.
Specific Issues	The EIS must address the following specific issues: • **Noise & Blasting** – including: - an assessment of the likely operational noise impacts of the development (including construction noise) under the *NSW Industrial Noise Policy*, paying particular attention to establishing accurate background noise levels in the surrounding area, the effect of removing Saddleback Ridge and the obligations in chapters 8 and 9 of the policy; - if a claim is made for specific construction noise criteria for certain activities, then this claim must be justified and accompanied by an assessment of the likely construction noise impacts of these activities under the *Interim Construction Noise Guideline*; - an assessment of the likely road noise impacts of the development under the *NSW Road Noise Policy*; and - an assessment of the likely blasting impacts of the development on people, animals, buildings and infrastructure, and significant natural features, having regard to the relevant ANZEC guidelines; • **Air** – including: - an assessment of the likely air quality impacts of the development in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* and the EPA's additional requirements (see Attachment 2); and - an assessment of the likely greenhouse gas impacts of the development, dealing with the EPA's requirements (see Attachment 2); • **Biodiversity** – including: - an assessment of the likely biodiversity impacts of the new development, having regard to the principles and strategies in the draft *NSW Biodiversity Offsets Policy for Major Projects* and the *Upper Hunter Strategic Assessment – Interim Policy*, using the Biodiversity Certification Assessment Methodology as amended by the Upper Hunter Strategic Assessment for credit calculation, and the Biobanking Assessment Methodology as amended by the Upper Hunter Strategic Assessment for calculating the credits of any

offsets;
- specific assessment of the likely impacts of the new development on the Warkworth Sands Woodland endangered ecological community; and
- the provision of alternate offsets for the disturbance area approved under the 2003 development consent, using the Biodiversity Certification Assessment Methodology as amended by the Upper Hunter Strategic Assessment for credit calculation and the Biobanking Assessment Methodology as amended by the Upper Hunter Strategic Assessment for calculating the credits of any offsets;

- **Water** – including:
  - an assessment of the likely impacts of the development on the quantity and quality of the region's surface and groundwater resources, having regard to the EPA's and NSW Trade and Investment's requirements (see Attachment 2);
  - an assessment of the likely impacts of the development on aquifers, watercourses, riparian land, water-related infrastructure, and other water users; and
  - an assessment of the likely flooding impacts of the development;
- **Land** – including:
  - an assessment of the likely impacts of the development on the soils, land capability, and landforms (topography) of the site; and
  - an assessment of the compatibility of the development with other land uses in the vicinity of the development in accordance with the requirements in Clause 12 of *State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007*;
- **Heritage** – including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the development having regard to OEH's requirements (see Attachment 2), and paying particular attention to the likely impacts on the Bulga Bora Ground, Great North Road, and former air strip on the site;
- **Traffic** – including:
  - an assessment of the likely impacts of the closure of Wallaby Scrub Road, particularly on the provision of emergency services; and
  - an assessment of the likely traffic impacts of the development on the capacity, condition, safety and efficiency of the local and State road network, including the impacts associated with the potential tunnel under Putty Road and the haulage of sand and gravel from the site;
- **Visual** – including an assessment of the likely visual impacts of the development on private landowners in the vicinity of the development and key vantage points in the public domain, paying particular attention to the removal of Saddleback Ridge, the creation of new landforms (overburden dumps, bunds, etc.), and minimising the lighting impacts of the development;
- **Public Safety** – including an assessment of the likely risks to public safety off-site, paying particular attention to bushfire risks and the handling and use of any dangerous goods;
- **Social & Economic** – including:
  - an assessment of the likely social impacts of the development (including perceived impacts), paying particular attention to any impacts on Bulga village; and
  - an assessment of the likely economic impacts of the development, paying particular attention to:
    - the significance of the resource;
    - economic benefits of the project for the State and region; and
    - the demand for the provision of local infrastructure and services.

Consultation	During the preparation of the EIS, you must consult with relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. The EIS must describe the consultation that was carried out, identify the issues raised during this consultation, and explain how these issues have been addressed in the EIS.

ATTACHMENT 1

Environmental Planning Instruments, Policies, Guidelines & Plans

Noise & Blasting	
	NSW Industrial Noise Policy (EPA)
	NSW Road Noise Policy (EPA)
	Interim Construction Noise Guideline (EPA)
	Technical basis for guidelines to minimise annoyance due to blasting overpressure and ground vibration (ANZEC)
Air	
	Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA)
	Coal Mine Particulate Matter Control Best Practice – Site Specific Determination Guideline (EPA)
	Generic Guidance and Optimum Model Settings for the CALPUFF Modelling System for Inclusion in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)
	National Greenhouse Accounts Factors (Commonwealth)
Biodiversity	
	Draft NSW Biodiversity Offset Policy for Major Projects (OEH)
	BioBanking Assessment Methodology (OEH)
	Biodiversity Certification Assessment Methodology (OEH)
	Upper Hunter Strategic Assessment – Interim Policy (DP&E)
	NSW State Groundwater Dependent Ecosystem Policy (NOW)
	Risk Assessment Guidelines for Groundwater Dependent Ecosystems (NOW)
	State Environmental Planning Policy No. 44 – Koala Habitat Protection
Water	
Water Sharing Plans	Hunter Unregulated and Alluvial Water Sources 2009
	Hunter Regulated River Water Source 2003
Groundwater	NSW State Groundwater Policy Framework Document (NOW)
	NSW State Groundwater Quality Protection Policy (NOW)
	NSW State Groundwater Quantity Management Policy (NOW)
	NSW Aquifer Interference Policy 2012 (NOW)
	Australian Groundwater Modelling Guidelines 2012 (Commonwealth)
	National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia (ARMCANZ/ANZECC)
	Guidelines for the Assessment & Management of Groundwater Contamination (EPA)
Surface Water	NSW Government Water Quality and River Flow Objectives (EPA)
	Using the ANZECC Guideline and Water Quality Objectives in NSW (EPA)
	National Water Quality Management Strategy: Australian Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Australian Guidelines for Water Quality Monitoring and Reporting (ANZECC/ARMCANZ)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Effluent Management (ARMCANZ/ANZECC)
	National Water Quality Management Strategy: Guidelines for Sewerage Systems – Use of Reclaimed Water (ARMCANZ/ANZECC)
	Hunter River Salinity Trading Scheme (EPA)
	Approved Methods for the Sampling and Analysis of Water Pollutants in NSW (EPA)

	Managing Urban Stormwater: Soils & Construction (Landcom) and associated Volume 2E: Mines and Quarries (DECC)
	Managing Urban Stormwater: Treatment Techniques (EPA)
	Managing Urban Stormwater: Source Control (EPA)
	Technical Guidelines: Bunding & Spill Management (EPA)
	Environmental Guidelines: Use of Effluent by Irrigation (EPA)
	A Rehabilitation Manual for Australian Streams (LWRRDC and CRCCH)
	NSW Guidelines for Controlled Activities (NOW)
Flooding	Floodplain Development Manual (OEH)
	Floodplain Risk Management Guideline (OEH)
Land	
	Agfact AC25: Agricultural Land Classification (NSW Agriculture)
	State Environmental Planning Policy No. 55 – Remediation of Land
	Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites (ANZECC)
Heritage	
	The Burra Charter (The Australia ICOMOS charter for places of cultural significance)
	Draft Guidelines for Aboriginal Cultural Heritage Assessment and Community Consultation (DP&E)
	Aboriginal Cultural Heritage Consultation Requirements for Proponents (OEH)
	Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW (OEH)
	NSW Heritage Manual (OEH)
	Statements of Heritage Impact (OEH)
	Hunter Regional Environmental Plan 1989 (Heritage)
Traffic	
	Guide to Traffic Generating Development (RTA)
	Road Design Guide (RTA) & relevant Austroads Standards
Public Safety	
	State Environmental Planning Policy No. 33 – Hazardous and Offensive Development
	Hazardous and Offensive Development Application Guidelines – Applying SEPP 33
	Hazardous Industry Planning Advisory Paper No. 6 – Guidelines for Hazard Analysis
Resource	
	Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves 2012 (JORC)
Waste	
	Waste Classification Guidelines (DECC)
Rehabilitation	
	Mine Rehabilitation – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Mine Closure and Completion – Leading Practice Sustainable Development Program for the Mining Industry (Commonwealth)
	Strategic Framework for Mine Closure (ANZMEC-MCA)
Environmental Planning Instruments - General	
	State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007
	State Environmental Planning Policy (State and Regional Development) 2011
	State Environmental Planning Policy (Infrastructure) 2007
	Singleton LEP 2013

ATTACHMENT 2

Agency Correspondence

48 The INP nominates a difference between the C weighted noise level and the A weighted noise level of 15 dB as being an indicator of LFN. It is my understanding that this method was a "rule of thumb" check for the presence of LFN from locomotives measured at 10m and was not intended to be extrapolated out to several kilometres, due to the differential degradation of the noise spectrum.

49 As a result of concerns about LFN impacts from gas fired power stations, the Department commissioned a review of the methods of assessment of LFN by Dr Norm Broner, an international expert in this field.

50 The Broner methodology, which is based on absolute levels of dB(C) as a trigger for detailed internal noise investigation, has been applied to several projects by the Department and is the screening tool for assessing LFN generated by wind farms in the draft *NSW Planning Guidelines: Wind Farms*.

51 It is my understanding that the independent noise assessment report prepared by SKM for Bulga village in 2012 reported LFN using both the C – A weighting method and the Broner method.

52 It is my understanding that the EPA has engaged Dr Broner to undertake further studies as part of a commitment to revise the LFN component of the INP to a contemporary standard. In the interim, the Department will, in accordance with the INP assess the need to apply a LFN penalty when assessing complaints, with regard to:

- noise from all sources, individually and in combination, that contribute to the total noise at a site; and
- the nature of the noise source and its characteristics.

AFFIRMED at	23-33 Bridge Street, Sydney NSW 2000
Signature of deponent	
Name of witness	Kirsty Thomas
Address of witness	23-33 Bridge Street, Sydney NSW 2000
Capacity of witness	Solicitor

And as a witness, I certify the following matters concerning the person who made this affidavit (the **deponent**):

1 I saw the face of the deponent.

2 I have confirmed the deponent's identity using the following identification document:

Drivers Licence

Identification document relied on (may be original or certified copy)

Signature of witness

Date	Time	L_{Aeq} Total - All Pass (dB(A))	L_{Aeq} Total - <1000Hz Low Pass (dB(A))	L_{Aeq} Sources Total - All pass (dB(A))	L_{Aeq} Sources Total - <1000Hz Low Pass (dB(A))	L_{Aeq} MTW Direction - All Pass (dB(A))	L_{Aeq} MTW Direction - <1000Hz Low Pass (dB(A))	L_{Aeq} Other Sources - All Pass (dB(A))	L_{Aeq} Other Sources - <1000Hz Low Pass (dB(A))	Impact Assessment Criteria
11/06/2013	19:15	26.6	24.86	25.05	23.15	24.02	22.69	17.9	12.01	35
11/06/2013	19:30	28.38	26.85	26.5	24.69	25.44	23.99	19.04	14.21	35
11/06/2013	19:45	27.48	26.6	25.87	24.9	25.58	24.81	13.73	7.61	35
11/06/2013	20:00	29.38	28.89	26.9	26.22	26.75	26.15	12.19	7.81	35
11/06/2013	20:15	31.28	30.94	27.68	27.21	27.49	27.16	13.94	8.15	35
11/06/2013	20:30	31.45	31.02	30.13	29.74	29.97	29.69	15.63	10.04	35
11/06/2013	20:45	29.25	28.26	27.33	25.19	26.8	25.1	17.72	7.11	35
11/06/2013	21:00	36.51	29.05	28.66	27.42	28.37	27.2	15.02	7.96	35
11/06/2013	21:15	32.95	32.51	28.89	28.27	28.8	28.26	11.59	2.82	35
11/06/2013	21:30	31.13	30.64	29.42	28.96	29.25	28.81	12.7	7.96	35
11/06/2013	21:45	30.74	30.1	28.48	27.4	27.97	27.19	18.87	14.14	35
11/06/2013	22:00	31.06	30.73	29.13	28.6	29.05	28.57	11.71	7.12	35
11/06/2013	22:15	30.51	30.16	28.87	28.75	28.78	28.71	11.81	8.64	35
11/06/2013	22:30	31.69	31.4	30.58	30.4	30.55	30.39	9	1.32	35
11/06/2013	22:45	32.04	31.73	30.66	30.43	30.57	30.41	13.32	8.14	35
11/06/2013	23:00	30.63	30.27	29.33	29.16	29.28	29.14	10.1	6.35	35
11/06/2013	23:15	30.98	30.68	29.12	28.9	29.08	28.89	8.83	2.27	35
11/06/2013	23:30	30.45	30.02	28.72	28.21	28.64	28.19	11.18	3.76	35
11/06/2013	23:45	30.83	30.43	28.7	27.82	28.54	27.74	14.18	10.28	35
12/06/2013	0:00	30.44	30.05	28.79	28.34	28.69	28.32	12.35	5.23	35
12/06/2013	0:15	31.85	31.56	30.29	29.85	30.17	29.75	9.75	6.46	35
12/06/2013	0:30	32.04	31.76	30.47	30.07	30.4	30.05	11.75	4.9	35
12/06/2013	0:45	31.61	31.31	30.15	29.5	30.08	29.47	11.87	6.77	35
12/06/2013	1:00	30.9	30.49	28.84	27.84	28.74	27.79	12.24	8.02	35
12/06/2013	1:15	31.12	30.73	28.99	28.8	28.89	28.75	12.5	9.63	35
12/06/2013	1:30	32.77	32.52	31.3	30.94	31.28	30.93	7.6	0	35
12/06/2013	1:45	32.96	32.76	31.23	31.13	31.22	31.13	3.88	0	35
12/06/2013	2:00	33.57	33.39	31.55	31.57	31.49	31.54	12.67	9.46	35
12/06/2013	2:15	33.51	33.32	31.88	31.89	31.83	31.86	12.63	10.99	35
12/06/2013	2:30	34.03	33.85	32.6	32.48	32.58	32.47	8.54	1.56	35
12/06/2013	2:45	36.52	36.39	35.09	34.5	35.06	34.48	13.42	12.1	35
12/06/2013	3:00	36.88	36.74	35.33	35.04	35.26	34.99	17.69	15.78	35
12/06/2013	3:15	38.58	38.5	36.55	36.43	36.54	36.43	11.77	0	35
12/06/2013	3:30	37.66	37.58	36.42	36.41	36.36	36.37	17.46	16.47	35
12/06/2013	3:45	37.96	37.91	36.31	36.2	36.31	36.19	0	6.09	35
12/06/2013	4:00	36.73	36.67	35.29	35.13	35.29	35.13	0	0	35
12/06/2013	4:15	38.06	38	36.49	36.35	36.49	36.35	5.88	0	35
12/06/2013	4:30	37.16	36.92	35.63	35.19	35.44	35.16	22.01	13	35
12/06/2013	4:45	37.65	37.59	36.51	36.46	36.51	36.46	0	0	35
12/06/2013	5:00	37.59	37.54	36.02	35.91	35.89	35.76	20.76	21.17	35
12/06/2013	5:15	38.28	38.01	36.9	36.61	36.83	36.6	18.62	6.3	35
12/06/2013	5:30	38.06	37.93	36.32	36.41	36.25	36.38	17.62	12.83	35
12/06/2013	5:45	39.4	39.2	37.91	37.63	37.81	37.63	21.36	0	35
12/06/2013	6:00	39.49	39.29	37.19	36.8	37.01	36.79	23.05	11.57	35
12/06/2013	6:15	38.73	38.67	36.78	36.64	36.73	36.61	17.48	15.43	35
12/06/2013	6:30	39.96	39.92	35.75	35.5	35.64	35.43	19.76	17.7	35
12/06/2013	6:45	37.73	37.2	34.89	34.17	33.78	33.83	28.3	22.48	35
12/06/2013	7:00	39.45	37.7	37.72	34.7	36.64	34.6	30.98	17.49	35
12/06/2013	19:15	30.99	30.41	22.88	17.45	19.95	15.38	19.66	13.15	35
12/06/2013	19:30	28.59	27.8	23.27	20.54	20.37	19	19.62	14.73	35
12/06/2013	19:45	32.27	31.97	28.48	27.85	25.91	25.33	24.95	24.29	35
12/06/2013	20:00	33.94	32.37	26.78	24.26	24.04	22.91	23.44	18.4	35
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12/06/2013	20:30	29.89	28.99	27.37	25.7	26.83	25.6	17.97	9.49	35
12/06/2013	20:45	31.29	30.97	29.82	29.59	29.75	29.57	11.89	5.85	35
12/06/2013	21:00	32.25	31.79	29.84	29.45	29.11	28.8	19.49	18.67	35
12/06/2013	21:15	26.68	25.46	23.16	20.28	18.6	16.17	21.28	18.15	35
12/06/2013	21:30	26.13	24.14	24.29	21.39	20.14	17.89	20.89	16.71	35
12/06/2013	21:45	26	24.47	22.57	18.85	15.57	9.54	21.6	18.31	35
12/06/2013	22:00	25.43	23.63	23.26	17.26	13.44	0	22.7	17.15	35
12/06/2013	22:15	25.99	23.39	24.41	20.39	20.18	16.79	21.66	15.78	35
12/06/2013	22:30	22.06	18.69	20.31	8.91	12.21	0	19.56	8.79	35
12/06/2013	22:45	23.51	20.44	22.14	14.99	12.44	0	20.64	12.19	35
12/06/2013	23:00	22.91	20.01	21.64	13.11	14.14	1.7	20.78	12.78	35
12/06/2013	23:15	25.16	22.87	23.38	19.57	18.31	13.39	21.41	17.77	35
12/06/2013	23:30	23.65	20.89	22.07	16.65	15.71	3.9	20.88	16.37	35
12/06/2013	23:45	24.41	22.19	23.05	15.64	18.19	0	21.3	15.57	35
13/06/2013	0:00	23.17	20.41	22.15	13.52	18.94	10.26	19.3	10.65	35
13/06/2013	0:15	23.33	20.39	22.39	15.92	18.41	12.76	20.14	13.04	35
13/06/2013	0:30	23.65	21.06	22.69	15.84	18.47	7.8	20.45	14.79	35
13/06/2013	0:45	24.25	21.31	23.19	15.07	18.92	7.63	21.13	14.2	35
13/06/2013	1:00	24	21.34	22.89	15.17	20.37	13.19	19.3	10.76	35
13/06/2013	1:15	24.72	23.17	23.36	17.03	22.35	16.72	16.43	5.39	35
13/06/2013	1:30	24.62	22.66	23.45	17.85	22.53	17.7	16.23	3.28	35
13/06/2013	1:45	24.28	22.69	23.12	20.58	22.1	20.45	16.34	5.24	35
13/06/2013	2:00	26.18	25.02	24.92	23.72	24.11	23.67	17.22	4.46	35
13/06/2013	2:15	27.43	25.47	26.11	23.82	23.7	23	22.36	16.2	35

13/06/2013	2:30	26.39	23.97	24.63	20.17	22.89	19.82	19.82	8.98	35
13/06/2013	2:45	26.34	25.05	24.45	19.19	23.67	19.02	16.54	5.09	35
13/06/2013	3:00	28.89	28.09	26.35	23.66	25.63	23.39	17.9	11.48	35
13/06/2013	3:15	25.78	24.19	24.12	19.57	23.21	19.32	16.88	6.93	35
13/06/2013	3:30	25.11	22.85	23.87	16.43	21.91	15.23	19.4	10.27	35
13/06/2013	3:45	25.11	22.85	23.87	16.43	0	0	0	0	35
13/06/2013	4:00	22.84	18.66	21.85	12.99	18.72	11.09	18.91	8.47	35
13/06/2013	4:15	21.7	18.11	20.79	11.24	13.72	0	19.83	11.2	35
13/06/2013	4:30	22.59	20.16	20.62	13.48	15.65	9.07	18.92	11.52	35
13/06/2013	4:45	24.47	23.39	22.11	20.76	21.71	20.69	11.22	2.61	35
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13/06/2013	5:15	26.58	22.07	25.63	19.57	16.07	8.83	25.09	19.18	35
13/06/2013	5:30	23.3	20.1	22.31	18.64	16.14	11.4	21.09	17.73	35
13/06/2013	5:45	22.11	18.28	21.17	14.34	17.2	11.9	18.91	10.66	35
13/06/2013	6:00	28.86	26.21	26.31	20.59	16.88	12.41	25.76	19.84	35
13/06/2013	6:15	26.88	22.81	25.06	18.54	16.25	12.58	24.41	17.26	35
13/06/2013	6:30	30.1	27.68	27.3	21.59	19.66	15.98	26.35	19.93	35
13/06/2013	6:45	30.55	25.98	28.79	21.21	19.17	13.85	28.22	20.25	35
13/06/2013	7:00	37.16	28.37	36.17	25.89	27.62	10.64	34.8	25.72	35
13/06/2013	19:15	38.09	35.18	32.89	28.81	23.02	16.75	32.21	28.38	35
13/06/2013	19:30	30.95	25.27	25.87	19.89	18.04	10.87	24.78	19.05	35
13/06/2013	19:45	28.26	23.61	23.93	17.83	14.28	5.3	23.2	17.52	35
13/06/2013	20:00	36.09	35.4	27.31	25.1	20.81	18.68	24.87	21.86	35
13/06/2013	20:15	37.32	31.41	30.57	24.96	24.45	18.1	28.68	22.66	35
13/06/2013	20:30	25.5	21.01	23.02	16.89	15.69	9.72	21.85	15.47	35
13/06/2013	20:45	29.98	28.37	26.83	23.58	15.32	0	26.44	23.55	35
13/06/2013	21:00	32.92	31.01	29.18	26.63	13.08	0	28.96	26.57	35
13/06/2013	21:15	32.05	30.37	30	28.09	13.03	0	29.89	28.09	35
13/06/2013	21:30	31.53	29.9	29.39	27.43	13.76	0	29.22	27.43	35
13/06/2013	21:45	28.17	24.78	25.95	22	12.9	0	25.6	22	35
13/06/2013	22:00	27.34	24.24	22.16	15.39	14.36	0	21.23	15.37	35
13/06/2013	22:15	27.05	24.89	23.34	14.81	16.37	0	22.23	14.8	35
13/06/2013	22:30	25.93	22.39	23.45	13.7	15.78	0	22.54	13.57	35
13/06/2013	22:45	31.63	29.62	29.79	27.29	17.45	5.35	29.47	27.27	35
13/06/2013	23:00	24.71	19.54	23.15	14.37	17.11	0	21.76	14.26	35
13/06/2013	23:15	24.9	20.33	23.62	15.05	17.68	0.03	22.18	14.9	35
13/06/2013	23:30	25.36	20.42	23.95	15.83	17.55	0	22.49	15.82	35
13/06/2013	23:45	26.39	22.22	24.27	17.57	16.88	0	23.03	17.57	35
14/06/2013	0:00	27.95	24.68	23.76	18.92	13.57	0	23.13	18.88	35
14/06/2013	0:15	30.38	26.63	25.19	21.32	14.47	6.95	24.65	21.12	35
14/06/2013	0:30	28.71	24.96	24.14	19.51	13.66	4.04	23.62	19.37	35
14/06/2013	0:45	29.86	25.46	25.94	19.99	15.83	7.19	25.38	19.72	35
14/06/2013	1:00	26.86	22.89	23.59	17.92	12.57	0	23.13	17.85	35
14/06/2013	1:15	28.27	22.92	23.25	18.05	13.71	0	22.66	18.03	35
14/06/2013	1:30	25.66	21.66	21.51	16.24	11.57	0	20.96	16.14	35
14/06/2013	1:45	32.5	25.95	26.21	20.88	16.68	7.21	25.22	20.34	35
14/06/2013	2:00	28.4	22.41	22.69	16.16	15.14	7.82	21.63	15.4	35
14/06/2013	2:15	31.01	24.61	24.94	19.1	18.23	12.52	23.63	17.85	35
14/06/2013	2:30	27.29	22.96	22.09	17.44	14.05	6.16	21.17	16.98	35
14/06/2013	2:45	25.6	21.24	21.85	16.44	13.32	5.67	21.05	16.02	35
14/06/2013	3:00	24.65	20.8	21.73	15.49	13.34	0	20.95	15.44	35
14/06/2013	3:15	22.6	19.29	20.23	13.36	11.48	0	19.54	13.35	35
14/06/2013	3:30	23.88	19.92	20.71	14.85	9.52	0	19.89	14.54	35
14/06/2013	3:45	25.94	22	21.57	16.35	9.94	0	21.15	16.3	35
14/06/2013	4:00	26.17	22.3	21.48	16.59	12.07	3.02	20.78	16.36	35
14/06/2013	4:15	27.91	24.12	22.87	19.23	9.93	0.56	22.42	19.07	35
14/06/2013	4:30	25.63	22.72	21.16	17.5	9.02	0	20.85	17.44	35
14/06/2013	4:45	28.21	23.77	22.64	17.97	14.68	7.86	21.81	17.52	35
14/06/2013	5:00	31.35	26.25	25.56	21.09	16.81	9.76	24.74	20.73	35
14/06/2013	5:15	34.51	28.31	28.33	23.09	20.36	14.95	27.3	22.31	35
14/06/2013	5:30	31.56	26.04	27.51	22.56	19.62	13.86	26.62	21.85	35
14/06/2013	5:45	22.33	18.44	18.96	9.58	8.81	0	18.51	9.46	35
14/06/2013	6:00	25.77	21.17	23.49	17.46	8.41	0	23.35	17.44	35
14/06/2013	6:15	28.17	26.46	21.29	16.41	11.38	1.92	20.72	16.25	35
14/06/2013	6:30	29.15	26.14	24.91	19.97	14.75	5	24.39	19.8	35
14/06/2013	6:45	32	26.92	30.13	23.05	21.79	9.1	29.4	22.09	35
14/06/2013	7:00	36.19	28.42	35.15	24.82	24.87	9.13	34.19	24.55	35
14/06/2013	19:15	30.07	28.65	24.61	20.67	13.85	5.55	24.18	20.53	35
14/06/2013	19:30	29.94	26.96	25.35	20.55	17.53	7.74	24.43	20.25	35
14/06/2013	19:45	29.67	27.53	24.69	20.83	15.65	7.18	23.95	20.59	35
14/06/2013	20:00	31.3	29.85	23.46	18.53	15.75	9.83	22.39	17.75	35
14/06/2013	20:15	25.84	22.51	22.74	17.99	14.18	5.83	21.82	17.29	35
14/06/2013	20:30	31.74	30.48	23.97	19.79	13.35	7.21	23.43	19.41	35
14/06/2013	20:45	29.64	26.68	25.14	21.86	12.08	3.26	24.87	21.8	35
14/06/2013	21:00	36.2	32.46	30.05	25.49	20.51	11.55	29.28	25.2	35
14/06/2013	21:15	37.58	33.39	31.27	27.34	20.06	8.02	30.73	27.21	35
14/06/2013	21:30	41.53	36.31	39.49	34.09	20.91	11.88	39.39	33.99	35
14/06/2013	21:45	32.38	30.2	25.48	21.04	15.04	5.41	24.93	20.9	35
14/06/2013	22:00	37.48	31.52	36.2	29.82	21.33	16.1	36.04	29.59	35

14/06/2013	22:15	27.72	25.37	23.79	16.48	15.56	0	22.98	16.42	35
14/06/2013	22:30	25.63	22.6	22.16	14.92	13.63	0	21.41	14.81	35
14/06/2013	22:45	28.15	26.27	22.86	15.2	14.31	0	22.04	15.18	35
14/06/2013	23:00	26.25	21.39	23.78	16.5	16.52	6.21	22.54	15.7	35
14/06/2013	23:15	25.72	20.01	23.98	14.7	18.15	0	22.44	14.68	35
14/06/2013	23:30	25.58	19.41	24.11	14.36	17.88	1.77	22.47	14.03	35
14/06/2013	23:45	24.52	16.82	23.43	12.01	18.65	5.44	21.36	10.92	35
15/06/2013	0:00	24.64	16.5	23.59	11.36	19.1	4.16	21.42	10.41	35
15/06/2013	0:15	24.82	18.88	23.57	14.76	18.08	0	22.01	14.7	35
15/06/2013	0:30	25.55	19.86	24.31	16.27	18.68	2.26	22.77	16.09	35
15/06/2013	0:45	26.13	20.71	24.92	18.11	21.46	15.7	22.01	13.72	35
15/06/2013	1:00	23.68	15.83	22.59	10.08	18.35	8.07	20.43	5.75	35
15/06/2013	1:15	26.17	22.54	25.08	21.03	22.9	20.32	20.36	8.06	35
15/06/2013	1:30	22.96	15.26	21.82	7.19	17.37	0	19.77	6.37	35
15/06/2013	1:45	23.58	16.62	22.29	12.7	18.27	11.18	20	7.38	35
15/06/2013	2:00	23.27	14.46	22.08	9.01	17.26	0.97	20.15	8.24	35
15/06/2013	2:15	23.49	15.25	22.34	10.06	17.15	5.16	20.68	8.29	35
15/06/2013	2:30	24.51	15.88	23.8	11.42	19.06	4.65	21.82	10.4	35
15/06/2013	2:45	23.08	16.44	22.3	11.89	18.31	10.37	20.07	6.56	35
15/06/2013	3:00	24.25	16.97	22.66	13.03	17.5	9.16	21.04	10.71	35
15/06/2013	3:15	23.12	17.01	21.7	11.35	15.87	0	20.34	11.1	35
15/06/2013	3:30	24.57	20.16	22.61	16.28	14.82	0	21.74	16.27	35
15/06/2013	3:45	24.15	17.99	22.7	11.24	17.26	1.92	21.14	10.55	35
15/06/2013	4:00	25.1	20.31	23.45	18.1	17.24	9.56	22.17	17.41	35
15/06/2013	4:15	23.6	17.85	21.58	11.2	16.23	1.91	19.99	10.4	35
15/06/2013	4:30	23.82	17.1	22.07	11.55	16.54	6.2	20.47	9.96	35
15/06/2013	4:45	25.99	20.4	23.8	16.85	14.06	1.39	23.22	16.71	35
15/06/2013	5:00	21.89	16.84	20.1	10.64	12.74	5.2	19.05	9.1	35
15/06/2013	5:15	22.75	19.33	20.64	14.19	12.04	1.22	19.84	13.92	35
15/06/2013	5:30	26.2	22.63	24.98	20.98	20.76	17.75	22.63	17.67	35
15/06/2013	5:45	21.74	15.57	20.11	12	13.04	5.66	19.05	10.68	35
15/06/2013	6:00	25.61	19.88	23.74	17.39	13.75	6.78	23.23	16.95	35
15/06/2013	6:15	30.95	30.08	23.33	14.74	15.6	0	22.09	14.47	35
15/06/2013	6:30	32.57	30.82	27.9	20.58	17.48	2.05	27.43	20.47	35
15/06/2013	6:45	39.25	38.43	33.89	30.91	21.86	5.35	33.47	30.88	35
15/06/2013	7:00	41.38	31.61	40.53	19.54	36.55	11.58	38.03	18.6	35
15/06/2013	19:15	29.92	28.61	23.17	14.66	17.21	8.53	21.75	13.36	35
15/06/2013	19:30	28.26	26.33	23.22	13.67	16.08	6.59	21.92	12.31	35
15/06/2013	19:45	29.59	27.14	27.05	23.25	23.63	20.93	23.13	15.12	35
15/06/2013	20:00	26.08	21.36	23.82	17.29	16.44	0	22.85	17.25	35
15/06/2013	20:15	30.49	29.24	23.56	17.76	14.55	0	22.9	17.75	35
15/06/2013	20:30	29.38	26.86	25.6	20.96	17.34	0	24.8	20.85	35
15/06/2013	20:45	29.38	27.13	26.23	21.66	19.73	11.8	25.03	21.14	35
15/06/2013	21:00	28.07	26.08	23.48	18.81	15.54	8.13	22.65	18.42	35
15/06/2013	21:15	25.35	21.69	22.73	18.3	14.12	0	21.91	18.16	35
15/06/2013	21:30	28.29	29.63	23.55	19.44	17.75	13.58	21.77	17.32	35
15/06/2013	21:45	28.14	26.59	22.09	16.43	13.83	0	21.21	16.32	35
15/06/2013	22:00	27.24	24.58	23.06	18.74	15.53	9.59	22.13	18.16	35
15/06/2013	22:15	30.32	27.98	27.04	25.19	22.39	21.52	25.11	22.62	35
15/06/2013	22:30	29.17	26.73	25.42	23.05	11.56	0	25.17	23.04	35
15/06/2013	22:45	25.66	21.44	23.3	16.88	16.25	0	22.03	16.76	35
15/06/2013	23:00	24.18	16.48	23.09	11.79	18.38	8.09	21.08	8.7	35
15/06/2013	23:15	22.29	16.15	21.02	11.8	16.67	9.2	18.87	7.8	35
15/06/2013	23:30	23.77	19.36	22.68	17.45	19.95	16.56	18.98	8.61	35
15/06/2013	23:45	21.63	15.97	20.37	12.35	16.48	10.45	17.85	6.56	35
16/06/2013	0:00	23.21	20.03	21.95	18.33	19.93	18.03	17.62	6.41	35
16/06/2013	0:15	25.29	22.36	24.18	21.09	22.14	20.26	18.89	9.99	35
16/06/2013	0:30	23.08	19.58	22.5	18.3	20.38	18.14	18.35	3.8	35
16/06/2013	0:45	23.28	20.14	22.58	18.79	20.72	18.6	18	5.29	35
16/06/2013	1:00	23.51	21.03	22.72	19.97	21.28	19.79	17.18	6.02	35
16/06/2013	1:15	23.34	19.48	22.58	18.11	19.38	17.17	19.71	11.02	35
16/06/2013	1:30	22.94	19.14	22.22	17.9	20.32	17.62	17.62	5.88	35
16/06/2013	1:45	22.52	18.23	21.89	16.89	19.44	16.58	18.21	5.29	35
16/06/2013	2:00	23.02	19.62	22.15	18.32	19.51	17.71	18.62	9.44	35
16/06/2013	2:15	21.92	19.17	21.07	17.92	19.04	17.74	16.8	3.91	35
16/06/2013	2:30	22.79	20.24	21.83	18.68	20.02	18.45	17.01	5.85	35
16/06/2013	2:45	22.9	20.6	21.84	19.2	20.33	19.02	16.5	5.24	35
16/06/2013	3:00	23.35	21.68	22.1	20.05	21.07	19.91	15.04	4.92	35
16/06/2013	3:15	24.24	22.74	22.86	21.43	21.66	21.05	16.47	10.66	35
16/06/2013	3:30	23.35	21.23	22.48	20.08	21.13	19.94	16.29	5.14	35
16/06/2013	3:45	23.2	20.88	22.16	19.58	20.69	19.47	16.64	3.23	35
16/06/2013	4:00	25.68	22.23	24.06	20.57	19.88	18.68	21.87	16.04	35
16/06/2013	4:15	23.38	21.69	22.17	20.1	20.79	19.91	16.37	6.5	35
16/06/2013	4:30	23.8	22.43	22.17	20.77	21.11	20.56	15.17	7.45	35
16/06/2013	4:45	23.12	21.62	21.71	20.34	20.59	20.2	15.24	5.52	35
16/06/2013	5:00	26.15	23.15	24.25	20.66	20.25	19.14	21.97	15.37	35
16/06/2013	5:15	22.86	21.27	21.17	18.57	19.84	18.33	15.21	5.61	35
16/06/2013	5:30	26.85	24.89	25.92	23.29	23.39	22.37	21.84	14.55	35
16/06/2013	5:45	28.02	24.88	26.53	23.39	23.41	22.06	23.33	16.09	35

16/06/2013	6:00	28.87	26.74	25.2	20.3	20.12	18.29	23.52	15.97	35
16/06/2013	6:15	35.7	35.55	18.09	13.57	14.55	9.58	15.09	10.91	35
16/06/2013	6:30	26.99	26.44	20.08	17.78	18.65	17.33	13.26	5.5	35
16/06/2013	6:45	31.31	28.71	28.44	22.12	24.48	21.65	26.06	12.17	35
16/06/2013	7:00	36.72	28.79	35.68	25.98	29.46	23.83	34.07	21.33	35
16/06/2013	19:15	24.09	19.85	22.88	17.51	20.07	16.4	19.57	10.96	35
16/06/2013	19:30	28.52	27.19	26.02	23.74	24.82	23.39	19.63	11.68	35
16/06/2013	19:45	27.89	26.68	25.16	23.17	24.01	22.86	18.44	9.67	35
16/06/2013	20:00	28.52	27.6	25.34	23.4	23.73	23.15	20.22	10.87	35
16/06/2013	20:15	27.87	26.43	26.53	24.77	25.37	24.57	20.08	10.55	35
16/06/2013	20:30	29.11	26.99	27.86	25.49	25.35	24.27	23.94	18.28	35
16/06/2013	20:45	27.04	25.58	25.66	23.9	24.38	23.64	19.42	9.52	35
16/06/2013	21:00	26.41	25.39	22.5	19.64	20.58	19.33	17.88	7.98	35
16/06/2013	21:15	24.96	22.75	23.85	21.3	22.48	20.88	18	10.92	35
16/06/2013	21:30	23.62	23.04	22.11	19.77	20.25	19.09	16.94	8.87	35
16/06/2013	21:45	22.76	20.53	19.45	14.32	15.77	12.4	16.81	9.64	35
16/06/2013	22:00	23.42	21.72	22.57	20.56	16.42	12.69	21.34	19.79	35
16/06/2013	22:15	24.81	23.76	23.19	21.9	22.27	21.61	15.91	9.37	35
16/06/2013	22:30	23.83	22.54	18.59	13.87	15.82	13.19	15.25	5.5	35
16/06/2013	22:45	19.98	16.51	18.49	13.78	15.73	13.02	15.11	5.67	35
16/06/2013	23:00	21.76	19.45	20.25	17.35	18.65	16.81	14.89	7.96	35
16/06/2013	23:15	22.44	20.38	21.11	18.85	19.74	18.55	15.1	7.13	35
16/06/2013	23:30	23.31	21.39	21.81	19.98	20.37	19.69	16.02	8.09	35
16/06/2013	23:45	24.08	22.02	22.56	20.51	20.3	19.76	18.61	12.55	35
17/06/2013	0:00	23.11	21.55	21.36	20	20.51	19.83	13.62	5.62	35
17/06/2013	0:15	27.44	26.31	26.08	24.9	24.38	23.29	16.21	11.61	35
17/06/2013	0:30	25.35	24.09	23.65	22.6	22.81	21.97	13.08	9.25	35
17/06/2013	0:45	22.83	21.39	20.79	19.43	20.2	19.33	11.63	3.01	35
17/06/2013	1:00	24.94	24.07	22.56	21.93	22.12	21.87	12.27	3.41	35
17/06/2013	1:15	25.38	24.65	23.67	23.35	23.38	23.28	11.63	5.07	35
17/06/2013	1:30	24.27	23.35	22.43	22.03	22.01	21.97	12.08	3.74	35
17/06/2013	1:45	28.81	27.35	27.55	26.32	27.35	26.25	14.14	8.28	35
17/06/2013	2:00	24.22	23.19	22.17	21.61	21.75	21.53	11.63	4.18	35
17/06/2013	2:15	28.79	27.38	27.77	26.55	27.57	26.5	13.87	6.47	35
17/06/2013	2:30	29.24	27.05	28.17	26.12	27.94	26.01	15.21	10.17	35
17/06/2013	2:45	24.21	23.09	22.07	21.42	21.27	21.1	14.2	9.82	35
17/06/2013	3:00	23.65	22.21	21.82	20.72	20.49	20.37	15.9	9.66	35
17/06/2013	3:15	22.82	21.28	20.72	19.57	19.77	19.29	13.64	7.56	35
17/06/2013	3:30	22.47	20.68	20.01	17.81	18.71	17.5	14.11	6.14	35
17/06/2013	3:45	31.31	28.42	30.25	26.47	22.86	21.06	29.38	25	35
17/06/2013	4:00	24.38	22.87	22.62	20.31	21.78	20	14.94	7.82	35
17/06/2013	4:15	23.64	21.45	21.27	17.97	18.96	17.05	17.32	10.79	35
17/06/2013	4:30	25.11	21.09	23.21	16.9	17.95	14.52	21.63	13.13	35
17/06/2013	4:45	23.28	20.28	19.63	17.74	18.34	17.4	13.68	6.4	35
17/06/2013	5:00	23.22	21.39	20.84	18.36	17.78	16.67	17.79	13.37	35
17/06/2013	5:15	27.34	24.72	25.43	22.47	22.48	21.63	22.24	14.45	35
17/06/2013	5:30	26.71	24.55	25.14	19.85	21.24	18.17	22.66	14.35	35
17/06/2013	5:45	27.89	26.01	25.67	23.01	23.24	22.45	21.95	13.73	35
17/06/2013	6:00	28.55	25	26.87	22.59	22.54	21.25	24.83	16.77	35
17/06/2013	6:15	29.87	29.03	24.81	22.61	22.34	21.35	20.59	15.03	35
17/06/2013	6:30	30.89	30.65	22.25	21.09	21.2	20.87	15.59	7.71	35
17/06/2013	6:45	31.68	28.97	28.63	22.84	25.43	22.06	25.56	13.64	35
17/06/2013	7:00	37.68	28.38	36.69	25.19	31.1	24.22	34.92	18.09	35
17/06/2013	19:15	25.47	22.48	21.69	15.75	16.75	12.39	19.76	12.03	35
17/06/2013	19:30	29.03	28.03	21.36	16.66	12.42	5.11	20.67	16.32	35
17/06/2013	19:45	25.64	23.66	21.29	16.17	16.31	13.27	19.55	12.86	35
17/06/2013	20:00	26.69	25.45	20.4	14.53	16.29	12.19	18.14	10.57	35
17/06/2013	20:15	33.36	32.99	22.91	20.05	17.19	15.93	20.86	16.47	35
17/06/2013	20:30	26.37	24.33	23.39	20.84	19.07	17.03	20.32	16.69	35
17/06/2013	20:45	25.5	23.79	20.34	17.46	11.41	8.66	19.14	15.89	35
17/06/2013	21:00	25.25	23.65	19.44	16.52	8.37	0	19.01	16.34	35
17/06/2013	21:15	28.22	27.3	20.44	16.67	11.9	0	19.7	16.07	35
17/06/2013	21:30	26.11	24.71	19.72	16.35	10.5	4.6	18.95	15.69	35
17/06/2013	21:45	26.11	24.71	19.72	16.35	0	0	0	0	35
17/06/2013	22:00	28.95	28.3	19.53	14.57	11.23	0	18.69	14.46	35
17/06/2013	22:15	23.02	20.62	18.82	14.3	10.89	4.8	17.94	13.73	35
17/06/2013	22:30	28.02	27.4	18.62	15.93	9.24	3.63	17.88	15.44	35
17/06/2013	22:45	24.28	22.52	19.15	16	9.85	2.94	18.46	15.68	35
17/06/2013	23:00	22.83	20.25	20.49	16.72	13.05	5.55	19.36	16.01	35
17/06/2013	23:15	24.05	21.92	22.12	18.55	15.74	11.37	20.62	17.14	35
17/06/2013	23:30	26.65	24.45	24.05	21.77	14.21	6.87	23.2	21.28	35
17/06/2013	23:45	26.89	23.53	23.94	19.96	16.66	11.44	22.73	19.04	35
18/06/2013	0:00	27.94	24.55	25.73	20.3	19.64	17.52	23.91	16.18	35
18/06/2013	0:15	27.13	23.75	24.25	19.38	18.9	15.83	22.17	15.82	35
18/06/2013	0:30	29.03	23.76	23.99	18.66	16.6	11.27	22.71	17.39	35
18/06/2013	0:45	22.79	18.83	19.04	13.9	11.09	1.71	17.87	13.11	35
18/06/2013	1:00	20.72	16.35	19.1	11.88	11.94	3.88	18.01	10.87	35
18/06/2013	1:15	19.53	15.89	17.83	11.18	11.69	5.42	16.34	9.3	35
18/06/2013	1:30	19.38	15.33	16.91	10.89	10.33	3.86	15.72	9.89	35

18/06/2013	1:45	18.94	14.29	16.51	10.01	11.1	5.43	14.97	8.11	35
18/06/2013	2:00	18.97	14.67	17.24	8.25	12.91	4.41	15.03	5.79	35
18/06/2013	2:15	20.32	17.69	18.18	12.92	14.78	10.52	15.08	7.44	35
18/06/2013	2:30	22.19	20.67	19.98	18.79	18.93	18.02	12.59	5.7	35
18/06/2013	2:45	23.99	23.19	22.15	21.89	21.57	21.24	9.88	4.59	35
18/06/2013	3:00	25.23	24.62	23.5	23.37	23.01	22.98	9.7	2.59	35
18/06/2013	3:15	24.92	24.21	23.13	22.71	22.79	22.37	10.21	4.19	35
18/06/2013	3:30	24.84	23.93	22.85	22.04	22.4	21.72	11.33	5.78	35
18/06/2013	3:45	23.77	23.9	21.35	20.56	20.9	20.22	10.12	7.22	35
18/06/2013	4:00	23.85	22.64	20.33	18.6	19.25	17.5	13.18	10.83	35
18/06/2013	4:15	24.22	23.47	22.26	21.83	21.99	21.69	8.69	3.71	35
18/06/2013	4:30	23.24	22.23	21.32	20.88	20.88	20.76	10.99	5.18	35
18/06/2013	4:45	22.07	20.56	19.97	19.1	19.34	18.99	11.04	3.2	35
18/06/2013	5:00	23.06	21.57	20.78	20.06	19.57	19.38	14.59	11.68	35
18/06/2013	5:15	26.79	24.41	24.71	22.82	21.53	20.91	21.68	17.96	35
18/06/2013	5:30	26.36	24.69	25.58	22.9	23.15	22.29	21.37	14.06	35
18/06/2013	5:45	26.24	25.66	23.79	23.2	23.48	23.07	11.43	6.1	35
18/06/2013	6:00	27.46	25.75	25.75	24.16	23.66	23.24	21.56	16.95	35
18/06/2013	6:15	28.4	27.03	26.13	24.66	23.15	22.64	23.02	20.29	35
18/06/2013	6:30	30.21	28.66	27.66	25.49	25.17	24.64	24.01	18.01	35
18/06/2013	6:45	30.76	26.66	29.2	23.79	25.94	23.04	26.11	14.25	35
18/06/2013	7:00	34.6	27.38	33.76	23.43	30.58	23.17	30.79	11.01	35
18/06/2013	19:15	27.46	25.3	24.68	22.05	22.02	20.62	20.44	14.66	35
18/06/2013	19:30	30	29.08	24.13	20.59	20.94	19.34	21.15	14.11	35
18/06/2013	19:45	33.82	30.9	28.88	26	17.52	11.48	28.24	25.68	35
18/06/2013	20:00	36.88	34.34	31.84	29.19	24.86	23.73	30.49	27.32	35
18/06/2013	20:15	36.13	34.01	31.94	28.73	27.1	25.71	29.87	25.14	35
18/06/2013	20:30	38.27	34.95	33.19	29.39	26.96	25.29	31.65	26.83	35
18/06/2013	20:45	35.97	32.92	31.38	28.03	24.81	22.14	30.07	26.58	35
18/06/2013	21:00	36.23	33.45	31.99	28.96	26.93	25.67	30.17	26.08	35
18/06/2013	21:15	39.17	35.76	34.51	31.63	31.14	30.42	31.79	25.38	35
18/06/2013	21:30	42.24	37.8	37.33	34.82	32.49	31.01	35.24	31.86	35
18/06/2013	21:45	33.07	31.27	27.96	25.96	15.72	0	27.59	25.9	35
18/06/2013	22:00	32	30.68	26.77	24.38	16.01	3.05	26.29	24.25	35
18/06/2013	22:15	29.93	28.86	24.85	20.25	19.39	13.24	23.1	18.68	35
18/06/2013	22:30	29.13	28.18	23.58	18.17	17.84	11.56	22.17	16.98	35
18/06/2013	22:45	30.93	30.12	22.97	20.57	11.25	0.41	22.47	20.35	35
18/06/2013	23:00	27.78	24.64	24.58	21.07	12.83	0	24.18	20.98	35
18/06/2013	23:15	27.83	25.31	23.97	21.75	12.48	0	23.53	21.65	35
18/06/2013	23:30	24.39	21.6	22.1	17.72	15.32	5.16	20.91	17.21	35
18/06/2013	23:45	21.33	17.7	18.9	11.68	12.39	0.09	17.7	10.99	35
19/06/2013	0:00	22.22	20.46	18.35	13.93	8.81	0	17.8	13.86	35
19/06/2013	0:15	24.29	22.21	22.02	18.05	14.23	4.5	21.02	17.76	35
19/06/2013	0:30	26.15	23.53	23.06	18.94	14.5	4.5	22.27	18.75	35
19/06/2013	0:45	26.16	23.82	23.28	20.07	15.29	9.06	22.4	19.69	35
19/06/2013	1:00	26.51	24.27	23.89	21.06	20	17.6	21.51	18.43	35
19/06/2013	1:15	26.32	23.69	22.42	19.98	10.44	0	21.94	19.87	35
19/06/2013	1:30	29.91	26.21	25.32	21.9	17.13	8.44	24.43	21.65	35
19/06/2013	1:45	27.23	25.09	23.4	20.18	15.12	7.44	22.57	19.9	35
19/06/2013	2:00	28.31	25.5	23.98	20.43	16.45	11.8	22.99	19.75	35
19/06/2013	2:15	25.63	23.35	22.07	18.63	19.12	17.77	18.78	10.86	35
19/06/2013	2:30	28.51	25.73	24.24	20.68	18.15	15.18	22.8	19.11	35
19/06/2013	2:45	24.63	22.06	22.29	18.53	19.14	17.61	18.99	9.44	35
19/06/2013	3:00	25.94	22.82	22.38	16.81	15.54	8.9	21.2	15.97	35
19/06/2013	3:15	29.65	26.56	25.49	21.83	17.59	12.2	24.36	21.16	35
19/06/2013	3:30	27.87	24.95	24.35	19.7	20.29	17.58	21.58	14.65	35
19/06/2013	3:45	23.72	21.49	20.73	16.17	14.16	13.83	19.05	12.07	35
19/06/2013	4:00	23.74	21.73	21.71	18.76	14.26	16.44	20.54	14.81	35
19/06/2013	4:15	24.02	21.94	21.11	16.68	16.51	14.53	19.06	12.36	35
19/06/2013	4:30	24.75	22.62	21.28	17.91	14.08	9.45	20.19	17.14	35
19/06/2013	4:45	26.24	22.98	23.91	19.4	15.39	11.67	23.12	18.35	35
19/06/2013	5:00	26.91	23.42	23.48	19.27	14.74	11.45	22.71	18.4	35
19/06/2013	5:15	26.62	23.73	23.83	19.73	18.37	15.61	22.26	17.5	35
19/06/2013	5:30	26.25	23.48	24.82	20.96	18.72	14.06	23.55	19.71	35
19/06/2013	5:45	30.24	25.25	25.37	20.32	21.38	17.59	22.89	16.73	35
19/06/2013	6:00	27.65	25.35	24.63	20.07	17.5	12.48	23.49	18.99	35
19/06/2013	6:15	34.51	32.27	28.91	24.55	18.71	12.54	28.27	24.07	35
19/06/2013	6:30	35.15	31.55	30.25	25.34	24.35	20.92	28.79	23.11	35
19/06/2013	6:45	35.15	31.55	30.25	25.34	0	0	0	0	35
19/06/2013	7:00	36.38	30.87	34.83	23.72	28.03	19.2	33.62	20.99	35
19/06/2013	19:15	28.57	26.8	23.44	20.75	12.02	2.87	23.02	20.65	35
19/06/2013	19:30	32.76	29.84	27.54	24.72	17.07	8.35	27.01	24.59	35
19/06/2013	19:45	33.05	29.76	28.31	25.55	19.85	14.14	27.46	25.14	35
19/06/2013	20:00	34.51	31.81	32.79	30	19.76	16.16	32.55	29.79	35
19/06/2013	20:15	26.14	24.43	23.71	20.31	18.94	16.62	21.82	17.65	35
19/06/2013	20:30	58.67	57.21	58.31	56.87	25.35	15.95	58.3	56.87	35
19/06/2013	20:45	38.09	35.76	37.21	35.02	20.27	16.79	37.12	34.95	35
19/06/2013	21:00	27.09	25.73	24.45	22	22.88	21.32	19.07	13.12	35
19/06/2013	21:15	25.09	23.05	22.67	20.62	21.34	20.45	16.68	5.73	35

19/06/2013	21:30	29.22	27.79	26.24	23.76	24.85	23.41	20.44	12.47	35
19/06/2013	21:45	29.56	27.64	26.2	23.79	23.85	22.89	22.1	16.02	35
19/06/2013	22:00	28.47	26.6	25.69	23.98	23.77	23.2	21.17	16.1	35
19/06/2013	22:15	30.66	29.02	28.59	27.16	27.5	26.44	21.95	18.94	35
19/06/2013	22:30	33.48	30.47	31.72	28.43	24.92	24.12	30.7	26.41	35
19/06/2013	22:45	32.02	29.51	28.16	25.4	25.7	24.58	23.98	16.82	35
19/06/2013	23:00	29.47	28.15	26.54	25.54	25.75	25.38	18.64	10.85	35
19/06/2013	23:15	30.32	28.67	27.98	26.35	27.05	26.24	20.8	10.28	35
19/06/2013	23:30	31.74	30.01	28.4	26.36	24.44	23.43	25.92	23.06	35
19/06/2013	23:45	34.2	32.33	30.29	28.24	23.73	23.55	28.95	26.32	35
20/06/2013	0:00	35.21	32.93	31.2	29.05	23.82	23.26	29.98	27.49	35
20/06/2013	0:15	36.07	33.52	31.55	29.08	25.49	25.03	29.88	26.63	35
20/06/2013	0:30	38.19	35	33.57	31.23	25.32	23.15	32.6	30.32	35
20/06/2013	0:45	36.79	33.64	32.25	29.99	23.36	20.59	31.32	29.22	35
20/06/2013	1:00	34.44	32.26	30.09	28.05	23.17	22.92	28.89	26.42	35
20/06/2013	1:15	35.65	32.75	30.94	28.43	26.24	25.87	28.9	24.76	35
20/06/2013	1:30	35.67	32.84	30.9	28.47	27.98	27.47	27.5	21.26	35
20/06/2013	1:45	32.69	31.11	28.3	26.9	26.08	26.27	24.26	18.2	35
20/06/2013	2:00	33.68	31.8	29.4	27.74	27.54	27.18	24.77	18.53	35
20/06/2013	2:15	34.51	33.16	30.38	29.79	28.77	29.36	25.02	19.53	35
20/06/2013	2:30	35.28	33.53	30.9	29.94	29.12	29.58	26.05	19.02	35
20/06/2013	2:45	35.26	33.55	31.38	30.52	30.35	30.38	24.59	15.59	35
20/06/2013	3:00	34.06	32.77	30.03	29.57	29.31	29.37	21.89	16.04	35
20/06/2013	3:15	36.17	34.48	31.69	30.4	28.8	29.23	28.42	24.09	35
20/06/2013	3:30	38.32	35.69	33.79	31.57	29.87	29.34	31.3	27.35	35
20/06/2013	3:45	36.47	34.33	31.98	30.18	29.23	29.19	28.56	23.18	35
20/06/2013	4:00	37.12	34.62	32.72	30.46	28.43	28.49	30.48	25.98	35
20/06/2013	4:15	38.83	35.46	33.57	30.34	27.33	25.91	32.15	28.3	35
20/06/2013	4:30	35.57	33.55	30.91	28.76	26.01	25.95	29.03	25.5	35
20/06/2013	4:45	35.72	33.46	31.55	29.18	26.87	26.53	29.62	25.72	35
20/06/2013	5:00	36.3	33.59	31.82	29.38	28.32	27.78	29.14	24.22	35
20/06/2013	5:15	34.79	32.99	30.92	28.93	27.83	27.91	27.8	21.93	35
20/06/2013	5:30	35.12	33.31	31.68	29.27	29.07	28.5	28.17	21.4	35
20/06/2013	5:45	34.21	33.16	30.35	30.14	29.99	30.08	18.98	11.84	35
20/06/2013	6:00	35	33.43	31.03	29.83	28.91	29.3	26.66	20.27	35
20/06/2013	6:15	35.7	33.95	31.74	30.27	29.56	29.73	27.5	20.9	35
20/06/2013	6:30	35.48	33.62	32.07	30.36	29.89	29.72	27.56	21.25	35
20/06/2013	6:45	36.78	34.05	32.8	29.91	29.76	28.98	29.57	22.55	35
20/06/2013	7:00	40	35.38	38.31	32.73	32.18	27.81	36.95	30.91	35
20/06/2013	19:15	0	0	0	0	0	0	0	0	35
20/06/2013	19:30	23.75	19.8	21.61	17.35	16.76	15.23	19.87	13.2	35
20/06/2013	19:45	25.71	23.64	23.52	20.14	20.55	18.76	20.41	14.3	35
20/06/2013	20:00	29.88	29.18	24.78	22.26	21.89	20.91	21.45	16.06	35
20/06/2013	20:15	30.24	29.51	28.66	28.01	28.06	27.71	18.92	14.48	35
20/06/2013	20:30	30.74	30	29.17	28.56	28.73	28.47	18.96	11.64	35
20/06/2013	20:45	30.21	29.68	28.7	28.38	28.48	28.31	15.49	10.23	35
20/06/2013	21:00	30.36	29.91	28.35	28.05	28.01	27.95	17.07	11.64	35
20/06/2013	21:15	31.37	31.07	29.14	28.99	28.87	28.85	16.85	14	35
20/06/2013	21:30	30.18	29.81	28.01	27.88	27.84	27.82	13.86	8.86	35
20/06/2013	21:45	38.97	38.9	35.04	34.86	27.56	27.31	34.15	34.02	35
20/06/2013	22:00	32.62	31.19	30.91	29.06	27.84	27.15	27.94	24.52	35
20/06/2013	22:15	27.73	27.04	26.11	25.85	25.69	25.78	15.75	7.95	35
20/06/2013	22:30	29.37	28.97	26.7	26.47	26.43	26.42	14.46	7.28	35
20/06/2013	22:45	29.26	28.76	27.19	26.92	26.9	26.88	15.31	6.81	35
20/06/2013	23:00	28.36	27.64	26.93	26.49	26.38	26.26	16.1	9.5	35
20/06/2013	23:15	26.78	25.56	25.4	24.32	24.52	24.25	17.98	6.26	35
20/06/2013	23:30	29.23	28.26	27.96	27.25	27.18	26.86	18.76	14.43	35
20/06/2013	23:45	27.74	26.81	26.5	25.83	25.96	25.81	17.14	1.08	35
21/06/2013	0:00	26.27	28.64	25.12	23.46	24.03	23.37	18.4	5.77	35
21/06/2013	0:15	26.31	24.44	25.2	23.17	24.02	23.11	18.86	4.59	35
21/06/2013	0:30	25.64	23.67	24.38	22.4	23.35	22.31	17.4	4.84	35
21/06/2013	0:45	25.58	24.16	24.23	23.13	23.1	23.02	17.64	7.12	35
21/06/2013	1:00	26.95	26.02	25.47	25	24.81	24.95	16.54	5.28	35
21/06/2013	1:15	27.27	25.55	25.8	24.42	24.63	24.37	19.27	4.17	35
21/06/2013	1:30	27	25.87	25.55	24.67	24.9	24.61	16.68	5.37	35
21/06/2013	1:45	28.51	27.53	26.97	26.21	26.52	26.18	16.99	3.16	35
21/06/2013	2:00	34.74	32.41	33.39	31.27	27.48	26.8	32.09	29.35	35
21/06/2013	2:15	28.41	27.32	26.84	25.55	26.39	25.51	16.72	2.69	35
21/06/2013	2:30	28.76	27.75	26.85	25.88	26.35	25.86	17.19	2.91	35
21/06/2013	2:45	28.63	27.52	26.98	25.6	26.28	25.57	18.65	4.28	35
21/06/2013	3:00	30.79	30.16	29.04	28.69	28.77	28.68	16.81	2.74	35
21/06/2013	3:15	29.68	28.91	27.29	26.58	26.88	26.55	16.8	4.39	35
21/06/2013	3:30	26.92	25.51	25.68	22.83	24.01	22.26	20.65	13.23	35
21/06/2013	3:45	27.39	26.25	26.07	24.22	25.09	24.06	19.09	9.84	35
21/06/2013	4:00	26.46	25.15	25.36	23.05	23.99	22.87	19.68	8.63	35
21/06/2013	4:15	27.04	26.09	25.5	24.79	24.83	24.63	17.02	10.4	35
21/06/2013	4:30	28.98	26.49	27.53	24.88	22.24	21.54	25.96	22.1	35
21/06/2013	4:45	31.64	29.28	30.36	27.73	22.28	20.28	29.6	26.77	35
21/06/2013	5:00	28.64	26.52	27.75	24.94	21.27	19.4	26.46	23.47	35

21/06/2013	5:15	26.95	24.03	25.43	21.53	20.13	18.26	23.89	18.63	35
21/06/2013	5:30	27.6	25.22	26.62	22.51	22.63	20.48	24	17.93	35
21/06/2013	5:45	25.55	24.39	23.74	22.42	22.65	22	16.97	8.58	35
21/06/2013	6:00	31.03	30.28	26.37	24.5	24.33	23.23	21.98	17.75	35
21/06/2013	6:15	32.14	31.69	25.84	23.82	24.29	23.35	20.36	13.4	35
21/06/2013	6:30	30.54	29.54	28.8	27.64	27.44	26.68	21.68	18.3	35
21/06/2013	6:45	30.07	28.11	28.77	26.86	27.16	26.46	23.32	16.02	35
21/06/2013	7:00	37.12	31	36.01	26.84	31.7	25.82	33.5	19.89	35

Add 5

36.54
36.86
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Date	Time	L_{Aeq} Total - All Pass (dB(A))	L_{Aeq} Total - <1000Hz Low Pass (dB(A))	L_{Aeq} Sources Total - All pass (dB(A))	L_{Aeq} Sources Total - <1000Hz Low Pass (dB(A))	L_{Aeq} MTW Direction - All Pass (dB(A))	L_{Aeq} MTW Direction - <1000Hz Low Pass (dB(A))	L_{Aeq} Other Sources - All Pass (dB(A))
19/04/2013	19:15	39.58	38.19	38.34	37.01	35.47	33.95	34.39
19/04/2013	19:30	42.23	40.92	40.45	38.95	37.47	35.76	36.94
19/04/2013	19:45	38.81	36.79	37.19	35.22	34.30	32.11	33.83
19/04/2013	20:00	40.16	38.72	37.84	36.07	34.34	32.53	35.19
19/04/2013	20:15	38.31	36.58	36.53	34.70	32.64	30.58	33.82
19/04/2013	20:30	41.69	40.16	40.04	38.57	36.83	35.17	36.37
19/04/2013	20:45	37.52	35.62	35.96	33.87	31.28	28.78	33.56
19/04/2013	21:00	38.10	36.32	33.59	30.96	28.75	26.17	31.33
19/04/2013	21:15	38.54	36.43	33.15	29.97	27.43	24.33	31.47
19/04/2013	21:30	36.49	34.31	31.50	27.62	26.38	23.01	29.53
19/04/2013	21:45	40.11	36.90	38.25	34.65	27.86	24.93	37.03
19/04/2013	22:00	39.03	37.23	33.63	30.69	27.03	23.81	32.36
19/04/2013	22:15	36.47	35.16	35.27	33.93	24.76	21.20	34.82
19/04/2013	22:30	35.04	33.22	30.21	27.38	23.83	20.40	28.89
19/04/2013	22:45	34.30	32.05	30.90	28.17	26.01	23.88	28.84
19/04/2013	23:00	34.23	32.85	31.69	30.22	27.44	25.78	29.14
19/04/2013	23:15	29.32	26.24	27.60	24.14	24.36	19.80	24.01
19/04/2013	23:30	29.89	27.00	28.65	25.86	23.35	18.62	26.90
19/04/2013	23:45	33.27	31.13	29.80	26.50	22.12	18.14	28.53
20/04/2013	0:00	29.09	26.36	27.50	24.34	23.58	19.82	25.01
20/04/2013	0:15	32.57	29.91	31.47	28.71	29.68	26.62	24.74
20/04/2013	0:30	29.49	26.20	28.09	24.49	25.84	21.70	23.92
20/04/2013	0:45	30.35	26.13	29.01	24.36	26.00	19.01	25.40
20/04/2013	1:00	26.24	20.90	25.04	18.37	23.38	16.53	20.01
20/04/2013	1:15	35.69	34.32	34.35	33.25	30.62	28.56	31.73
20/04/2013	1:30	30.68	27.03	29.08	24.57	26.29	19.69	24.18
20/04/2013	1:45	26.68	21.86	25.38	19.26	23.93	17.38	19.47
20/04/2013	2:00	25.59	22.41	24.11	19.72	21.78	18.41	20.25
20/04/2013	2:15	30.10	27.68	27.66	24.43	23.26	20.22	25.44
20/04/2013	2:30	36.26	34.39	29.41	25.14	22.60	18.40	27.96
20/04/2013	2:45	35.30	33.17	30.27	27.16	23.37	20.52	29.16
20/04/2013	3:00	28.13	26.15	24.07	20.38	19.88	16.89	22.00
20/04/2013	3:15	27.11	25.08	25.15	22.30	22.31	19.72	21.93
20/04/2013	3:30	31.60	28.89	28.12	25.10	24.54	22.36	25.37
20/04/2013	3:45	29.67	27.94	24.74	21.70	22.42	20.83	20.60
20/04/2013	4:00	26.68	25.04	23.19	21.48	21.86	21.19	17.37
20/04/2013	4:15	31.11	28.51	26.90	23.38	23.12	21.61	24.52
20/04/2013	4:30	33.24	31.45	26.87	22.26	22.26	19.39	24.90
20/04/2013	4:45	35.51	33.55	28.77	23.96	21.69	16.69	27.44
20/04/2013	5:00	33.18	30.98	27.82	23.93	21.39	17.29	26.48
20/04/2013	5:15	40.12	38.18	32.80	28.14	24.87	20.38	31.62
20/04/2013	5:30	38.06	36.23	32.13	29.06	26.37	24.07	30.38
20/04/2013	5:45	41.40	39.62	33.85	30.22	28.23	26.87	32.11
20/04/2013	6:00	43.32	41.96	35.12	31.38	27.01	22.27	34.09
20/04/2013	6:15	39.86	38.01	34.69	30.69	26.87	22.21	33.65
20/04/2013	6:30	40.31	38.34	36.90	33.45	31.67	26.62	35.15
20/04/2013	6:45	43.29	36.49	42.23	33.38	30.32	25.71	41.80
20/04/2013	7:00	39.09	36.96	36.15	32.85	29.34	27.34	35.03
20/04/2013	19:15	35.91	32.91	33.21	28.07	28.41	23.77	31.27
20/04/2013	19:30	38.43	35.68	34.84	30.96	27.96	23.96	33.76
20/04/2013	19:45	41.58	38.80	37.64	33.00	29.67	24.67	36.79
20/04/2013	20:00	41.39	38.26	37.15	31.83	33.05	24.63	34.44
20/04/2013	20:15	42.08	39.71	37.44	33.59	30.16	26.53	36.40
20/04/2013	20:30	40.44	38.41	36.49	34.06	29.40	25.83	35.14
20/04/2013	20:45	41.00	38.88	34.69	29.79	28.55	23.34	33.29
20/04/2013	21:00	40.51	38.17	35.35	31.92	29.22	25.80	33.90
20/04/2013	21:15	39.68	36.65	35.72	31.11	29.25	24.98	34.44
20/04/2013	21:30	39.41	37.27	34.11	30.06	28.96	24.72	32.17
20/04/2013	21:45	37.18	34.43	33.50	29.55	29.03	25.09	31.47
20/04/2013	22:00	37.52	35.21	34.36	31.79	28.95	25.78	32.30
20/04/2013	22:15	39.68	37.43	34.42	30.69	29.35	25.38	32.20
20/04/2013	22:30	40.20	38.13	35.58	32.33	30.42	27.07	33.61
20/04/2013	22:45	35.96	33.34	33.32	29.81	30.43	27.50	29.92
20/04/2013	23:00	43.15	40.97	38.95	36.42	32.72	30.28	37.09
20/04/2013	23:15	43.92	41.38	38.13	34.42	31.46	28.23	36.27
20/04/2013	23:30	46.60	44.37	39.87	35.23	31.02	26.24	39.03
20/04/2013	23:45	45.77	43.33	39.76	34.48	33.27	27.60	38.20
21/04/2013	0:00	42.86	40.06	37.72	33.43	31.57	25.92	35.84
21/04/2013	0:15	40.03	37.58	34.57	29.98	29.17	24.84	32.51
21/04/2013	0:30	37.43	34.73	33.61	30.48	30.12	27.34	30.78
21/04/2013	0:45	43.40	41.05	36.85	32.36	31.26	27.72	34.89

21/04/2013	1:00	40.81	38.40	34.86	30.74	29.09	25.60	33.14
21/04/2013	1:15	38.73	36.49	33.05	28.28	29.46	26.06	30.12
21/04/2013	1:30	36.38	33.64	31.99	28.06	29.19	26.62	27.96
21/04/2013	1:45	34.07	32.13	30.98	29.06	30.27	28.97	22.33
21/04/2013	2:00	35.29	33.05	32.47	29.80	29.97	27.99	28.52
21/04/2013	2:15	35.42	33.38	32.46	30.26	30.79	29.55	27.14
21/04/2013	2:30	38.08	36.19	34.59	32.02	31.30	29.62	31.41
21/04/2013	2:45	36.31	34.13	32.29	29.17	30.27	28.87	27.78
21/04/2013	3:00	36.33	34.30	31.79	29.13	30.18	28.82	26.18
21/04/2013	3:15	35.02	32.92	30.79	27.39	28.60	26.72	25.78
21/04/2013	3:30	36.80	34.77	31.85	27.82	28.35	25.72	28.61
21/04/2013	3:45	35.37	32.86	32.48	29.33	28.60	25.75	29.73
21/04/2013	4:00	33.41	31.06	29.97	26.74	26.56	24.34	27.08
21/04/2013	4:15	32.60	30.81	30.64	28.64	27.79	25.96	27.26
21/04/2013	4:30	32.31	30.61	30.69	28.92	26.25	25.10	28.66
21/04/2013	4:45	31.09	29.11	29.40	27.35	25.48	24.33	27.02
21/04/2013	5:00	33.19	31.36	31.25	29.52	27.27	25.68	28.94
21/04/2013	5:15	30.58	28.99	28.36	27.01	24.97	24.31	25.57
21/04/2013	5:30	34.14	31.85	32.82	30.48	29.80	27.99	29.45
21/04/2013	5:45	33.92	32.32	32.48	31.00	30.55	29.69	27.59
21/04/2013	6:00	32.33	30.21	30.81	28.93	28.19	27.54	27.27
21/04/2013	6:15	35.82	34.34	33.57	31.72	29.73	28.47	30.72
21/04/2013	6:30	40.41	38.55	38.45	36.75	35.28	34.04	35.23
21/04/2013	6:45	36.71	32.72	35.21	30.96	32.04	29.70	31.60
21/04/2013	7:00	41.37	36.06	40.33	34.85	32.15	29.46	38.75
21/04/2013	19:15	39.63	38.21	37.50	36.38	34.77	34.10	34.10
21/04/2013	19:30	39.73	38.79	37.66	35.84	36.85	35.24	30.33
21/04/2013	19:45	41.61	41.10	39.99	39.14	37.81	36.88	36.13
21/04/2013	20:00	43.56	42.50	41.50	40.26	39.45	38.56	37.45
21/04/2013	20:15	42.32	41.53	40.71	39.89	40.06	39.44	31.98
21/04/2013	20:30	42.11	41.18	39.87	38.52	38.08	36.71	35.07
21/04/2013	20:45	39.86	38.81	37.67	35.69	37.12	35.37	28.49
21/04/2013	21:00	40.26	39.54	37.72	36.66	37.07	36.22	30.29
21/04/2013	21:15	41.37	40.86	38.77	38.20	38.65	38.17	27.44
21/04/2013	21:30	41.89	41.06	39.06	37.98	37.63	36.72	33.95
21/04/2013	21:45	41.72	40.84	38.53	37.06	35.32	33.47	35.98
21/04/2013	22:00	38.80	38.16	35.84	33.80	35.20	33.52	27.43
21/04/2013	22:15	39.41	37.94	37.56	34.67	36.09	33.52	32.27
21/04/2013	22:30	39.43	38.29	37.08	34.99	35.25	34.33	32.43
21/04/2013	22:45	38.68	38.12	36.00	33.14	35.41	32.86	27.94
21/04/2013	23:00	40.36	39.65	36.87	34.20	35.51	32.83	31.99
21/04/2013	23:15	41.03	40.51	38.18	36.67	38.09	36.66	21.63
21/04/2013	23:30	41.15	40.65	38.67	37.81	38.09	37.45	29.74
21/04/2013	23:45	37.73	36.98	34.82	33.18	34.25	32.88	25.81
22/04/2013	0:00	37.52	37.00	34.32	32.85	32.97	31.63	28.68
22/04/2013	0:15	37.76	37.25	34.81	32.96	33.82	32.14	28.72
22/04/2013	0:30	42.29	42.08	40.51	40.37	40.41	40.30	24.74
22/04/2013	0:45	41.98	41.78	40.36	40.23	40.36	40.23	17.92
22/04/2013	1:00	42.36	42.09	39.86	39.32	39.66	39.23	27.74
22/04/2013	1:15	39.29	39.05	37.43	37.13	37.21	36.96	29.14
22/04/2013	1:30	36.56	36.18	34.27	33.28	33.21	32.40	28.43
22/04/2013	1:45	39.34	39.06	37.50	36.94	37.19	36.68	29.15
22/04/2013	2:00	42.65	42.47	41.15	40.96	41.14	40.96	16.63
22/04/2013	2:15	36.71	36.16	34.75	34.25	34.69	34.25	17.92
22/04/2013	2:30	34.40	34.05	32.38	32.11	32.32	32.11	13.46
22/04/2013	2:45	37.12	36.63	34.47	33.67	34.13	33.53	23.56
22/04/2013	3:00	40.77	40.37	38.51	38.22	37.79	37.66	30.35
22/04/2013	3:15	40.76	40.42	38.41	37.95	38.14	37.81	26.11
22/04/2013	3:30	41.36	40.89	39.34	38.63	38.86	38.32	29.30
22/04/2013	3:45	40.64	40.46	38.51	38.19	38.44	38.16	20.75
22/04/2013	4:00	40.22	39.76	37.95	37.08	37.23	36.61	29.70
22/04/2013	4:15	37.07	36.84	33.00	31.69	32.93	31.66	18.84
22/04/2013	4:30	35.08	34.59	32.12	31.72	31.97	31.65	18.43
22/04/2013	4:45	36.13	35.81	33.85	33.60	32.46	32.35	28.86
22/04/2013	5:00	35.17	34.56	33.14	32.80	31.48	31.62	29.13
22/04/2013	5:15	34.29	33.46	31.95	31.26	30.51	30.35	27.32
22/04/2013	5:30	33.72	32.76	31.56	30.39	29.36	28.80	27.34
22/04/2013	5:45	33.07	31.88	30.60	28.54	28.18	27.33	27.08
22/04/2013	6:00	31.70	30.27	30.06	27.07	26.35	24.68	27.63
22/04/2013	6:15	36.97	35.10	35.46	33.41	27.88	25.39	34.74
22/04/2013	6:30	41.88	38.99	40.66	37.67	37.21	34.41	37.80
22/04/2013	6:45	44.23	39.73	43.28	38.81	40.36	36.85	40.04
22/04/2013	7:00	44.31	40.56	42.86	38.40	39.02	37.16	40.55

L_{Aeq} Other Sources - <1000Hz Low Pass (dB(A))
33.25
35.81
32.17
33.45
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20.99
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13.93
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26.07
17.80
18.80
21.65
14.32
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18.61
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29.75
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30.51
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27.16
23.59
26.59
24.83
23.07
28.40
33.19
24.43
32.53
32.40
27.03
35.31
35.60
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33.76
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27.82
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10.84
27.12
21.72
26.81
26.62
22.86
13.23
23.91
28.43
26.97
28.28
6.63
2.22
0.00
19.01
29.10
22.93
26.93
17.82
27.16
15.78
15.80
28.45
27.88
25.59
25.10
22.71
23.38
32.68
34.83
34.37
32.77

ALAN

Stewart Mitchell

From: Carter, Robert (RTCA) [Robert.Carter@riotinto.com]
Sent: Friday, 19 July 2013 5:29 PM
To: Stewart Mitchell (stewart.mitchell1@bigpond.com)
Subject: Met conditions during attended noise monitoring (Action Item 5 from April CCC meeting)

Hi Stewart

At the CCC meeting in April you enquired as to the number of days when meteorological conditions have had an impact upon attended noise monitoring.

A summary of attended noise monitoring measurements undertaken at Mount Thorley Warkworth from 2010 until 2013 year to date is shown below in association with the number of occasions when the conditions at the time of measurement were acceptable in accordance with the NSW EPA Industrial Noise Policy (2000).

The assessment of the applicability of conditions is undertaken by an acoustic consultant subsequent to the monitoring event by analysis of meteorological conditions at the time of monitoring as measured at the site meteorological station on Charlton Ridge.

Year	Total Measurements Undertaken	Measurements when criterion applicable	Measurements when criterion not–applicable	
2010	116	37	79	
2011	111	46	65	
2012	102	44	58	
YTD2013	31	25	6	

More detailed information can be found in the noise section of the 2010 and 2011 Annual Environmental Monitoring Report (AEMR) and the 2012 Annual Review documents which you have received previously. These documents are also available on the Rio Tinto Coal Australia website at http://www.riotintocoalaustralia.com.au/ouroperations/3453_mount_thorley_warkworth_3592.asp .

Please call if you have any queries. See you Monday afternoon.

Kind regards
Rob

Robert Carter
Environmental Coordinator – Mount Thorley Warkworth

Rio Tinto
PO Box 315, Singleton NSW 2330

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robert.carter@riotinto.com http://www.riotintocoalaustralia.com.au

$\frac{152}{360} = 42\%$