NSW EPA

Our reference: DOC13/18420
Contact: Mr Lindsay Fulloon (02) 6773 7000

Mr David Kitto
Director Mining and Industry Projects
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Dear Mr Kitto David

I refer to e-mail correspondence received by the Environment Protection Authority (EPA) on 21 February 2013, from the Department of Planning and Infrastructure inviting comment on the publicly exhibited Shenhua Watermark Coal Project Environmental Impact Statement (EIS). The EPA subsequently received a copy of the Environmental Assessment (EA) from the applicant on 25 February 2013.

I appreciate the additional time that you have provided for the EPA to provide its comments on the EIS.

The EPA has reviewed the EIS and identified issues that it considers should be addressed before the project is determined. The EPA's detailed comments in relation to these issues are provided in Attachment 1 to this letter. Attachment 2 provides indicative noise limits based on information provided in the EIS. Attachment 3 provides indicative air quality conditions.

It is noted that there has been significant revision of the EIS following the provision of EPA's adequacy review comments. In summary, the main concerns identified by the EPA relate to the following key elements of the EA:

1. Acoustic Impacts
2. Air Quality Impacts
3. Surface and Ground Water Impacts.

As noted above, at this point, the EPA has provided indicative noise conditions based on the information provided in the EIS. The EPA would consider reviewing these limits if the additional information being sought, as detailed in Issue 1 in Attachment 2, is provided by the proponent. At that point, the EPA may be in a position to provide advice on alternative noise conditions.

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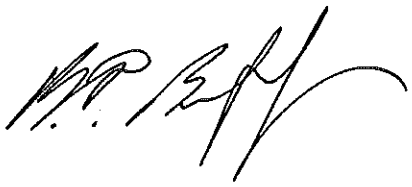
It should be noted that the EPA's advice on noise conditions is informed by the recent Land and Environment Court decision in relation to the Bulga-Warkworth coal mine extension approval appeal.

Yours sincerely



BARRY BUFFIER
Chair and CEO
Environment Protection Authority

Enclosure(s)

22 MAY 2013

ATTACHMENT 1 – Detailed comments on the publicly exhibited Environmental Impact Statement for the Shenhua Watermark Coal Project

A. ACOUSTICS IMPACT ASSESSMENT

The EPA has identified the following issues in its review of the Acoustics Impact Assessment (AIA) prepared for the project by Bridges Acoustics.

Issue 1: Predicted Operational Noise Impacts

Data provided in the AIA indicates that seven sensitive receivers (14, 32 west, 60, 62 east, 62 west, 103 and 125) will experience noise in excess of 5 dBA above the Project Specific Noise Level (PSNL) of $L_{eq(15minute)}$ 35 dBA.

Nineteen other sensitive receivers are predicted to be impacted by project residual noise impacts that exceed the PSNL of $L_{eq(15minute)}$ 35 dBA. Of these, fourteen are predicted to be impacted between 1 - 2 dB(A) above the PSNL.

Five of these receivers are predicted to be impacted between 3-5 dBA above the PSNL. It should be noted, however, that these impacts are not predicted to come into affect until year 5 and, in some cases, year 10 and year 15 of mining activities. These predicted exceedances are also primarily night time, during winter and due to inversion conditions.

The inference in the EIS is that the EPA should license the mining operation above the PSNL to allow the mine to operate. Considerable discussion is included that restricting operation at night would generally achieve compliance with the PSNL of $L_{eq(15minute)}$ 35 dBA. However, the EIS goes on to say that this would significantly affect the economics of the mine and, in the proponent's opinion, make the project unviable.

The Industrial Noise Policy (INP) does make provision to consider specific circumstances of a development that may make it appropriate to set noise limits above the PSNL (section 1.4.7, p 6). Section 9 of the INP states that determining an approval condition should take into account:

- the assessed noise impact (including additional impact caused by meteorological conditions);
- mitigation measures required to achieve project-specific noise levels;
- identification of a practical limit on noise control;
- consideration of trade offs; and
- whether the final noise proposed is acceptable (INP, 9.1, p 47).

The EPA has also considered the Bulga-Warkworth appeal decision *(Bulga Milbrodale Progress Association Inc v Minister for Planning and Infrastructure and Warkworth Mining Limited [2013] NSWLEC 48)*. The decision highlights the obligation on the EPA to consider all the matters outlined in Chapter 8.2.1 of the INP to evaluate the acceptability of residual noise impacts above the PSNL prior to forming an opinion.

The EPA is of the view that further evidence is required to clearly demonstrate that all of these factors in chapter 8 and 9 of the INP have been effectively addressed or considered before seeking noise limits above the PSNL. In particular, there needs to be an evaluation of the acceptability of setting noise limits above the PSNL in the approval conditions. The EIS does provide some discussion on the acceptability of noise mitigation from the proponent's view point but does not provide *evaluation of the acceptability of the residual noise impacts* on the surrounding community.

The EPA understands anecdotally that negotiations have occurred between the proponent and surrounding landholders and a significant number of residences predicted to be impacted by the mine project have been purchased.

The EPA notes, however, that unlike other recent mining developments in the Gunnedah Basin, the EIS does not provide evidence that the proponent has initiated any negotiations with the remaining impacted receivers prior to its public exhibition of the EIS. This may indicate that the proponent has not undertaken all measures that are feasible and reasonable to address the project's potential noise impacts.

The EPA may consider setting noise limits above the PSNL where the procedures set out in the INP (chapter 8 and 9) have been followed and documented. This will allow a transparent understanding of why the higher limits are the only option available to permit the development to proceed.

The Negotiated Agreement provisions of the INP are available to the proponent and the EPA recommends that the most appropriate way to deal with all impacts that exceed the PSNL is by negotiation between the proponent and the affected receivers. A 'Private Negotiated Agreement' may be one outcome.

Private Negotiated Agreements may be reached between a proponent and the owners of non-associated sensitive receivers to accept a higher level of noise impact from a proposal. Noise impacts at Private Negotiated Agreement locations should be managed, or agreements administered, through the relevant development consent rather than the premises' Environment Protection Licence (EPL) but should not result in adverse health impacts. General guidance on Private Negotiated Agreements is provided in the INP.

While not a complete list of additional information requirements, the following information would assist the EPA to make a recommendation concerning the request by the proponent for noise limits to be set above the PSNL to address the residual noise impacts.

- Evidence is provided of community consultation but no discussion on individual consultation / negotiations and the success / failure or views of the impacted residents on the acceptability of the higher limits.
- No discussion is included on proposed mitigation to residences to address residual noise impacts.
- There is no predicted impact until year 5 and for some residents 10 and 15 years meaning that there is significant lead time for the proponent to undertake additional negotiation, mitigation or management practices to address the residual noise impacts above the PSNL.
- Only 45% of winter nights predicted to be affected by inversions conditions; that is, 41 nights of the year. No assessment has been included for remaining seasons and how often inversions occur during those seasons.
- An evaluation has been made of the costs / benefits for not operating at night rather than just the nights that are affected by adverse weather conditions. This additional information is critical for the EPA to *evaluate the acceptability*, or otherwise reducing operations for just those nights and how this would impact on the proponent's ability to comply with PSNL and still remain economically viable.
- There is a proposal in EIS (7.8.4) to install "… a noise predictive system, linked with a weather station system to provide advanced warning of potential exceedances of relevant noise criteria and provide advice regarding available equipment relocation options…". A more detailed description is necessary of how this system works and what undertakings will be delivered by the proponent to manage noise at source.
- The Coal Handling and Preparation Plant (CHPP) is only proposed to be clad to 4 metres from the ground. Additional cladding to the ground may provide additional noise attenuation.
- Acoustic shielding options including earth bunds up to 6 metres high adjacent to mining areas and along major haul road has been discussed in the AIA (5.3.3) but discounted due to only delivering 1 dB(A) noise reduction. It is noted that active equipment management is considered to deliver the same outcome. However, given that twelve of the nineteen properties identified to be impacted by noise are predicted to be impacted by 1 dB(A) over the PSNL, bunds should be considered in addition to active equipment management.

Recommendation:

- *That additional information is sought from the proponent to address the outstanding matters as set out in the INP. These matters should details the measures undertaken and justify why noise levels above the PSNL should be considered.*
- *That the recommended noise and blasting conditions provided at Attachment 2 are incorporated within any project approval issued for the project.*
- *That should the proponent seek to further investigate the option of high noise limits above the PSNL to address residual noise limits, that they provide the additional information outlined above including a prediction of the additional noise attenuation / mitigation achieved through full cladding of the CHPP and acoustic attenuation bunds adjacent to mining areas and major haul roads.*

Issue 2: Low Frequency Noise Impacts
In its assessment of the 2012 version of the AIA provided for adequacy review, the EPA raised concern that the method of applying modifying factor adjustments at the source rather than the received A-weighted sound pressure levels may under-predict the impact of the proposal on sensitive receivers by up to 5 dBA. In addition, the Coal Handling and Preparation Plant may require the application of a modifying factor adjustment for low frequency noise.

The AIA has not provided any further detail to justify the approach taken, and has instead stated that:

> "Any modifying factors that are relevant to the assessment, including low frequency penalties, have been applied to the adopted sound power levels for affected mining and transportation equipment and no separate assessment of low frequency noise levels is therefore required. Relevant factors have been applied to the source sound power levels, rather than to received noise levels, to simplify the assessment of a large number of sources that do not require the same modifying factors."

The approach used in this case may be more conservative than the approach in the INP, depending on how modifying factors were applied and to which source sound power levels (SWL). EPA has discussed this matter with the author of the AIA and is willing accept this approach in this case, noting that compliance assessment will need to be undertaken in accordance with the INP.

Recommendation:

- *That the recommended noise monitoring conditions provided at Attachment 2 are incorporated within any project approval issued for the project to ensure that operations comply with the noise limits.*

Issue 3: Predicted Rail Noise Impacts
ARTC is responsible for addressing the cumulative rail noise impact on the public rail network from this and the other approved rail traffic generating developments on the Werris Creek to Moree line. The AIA model suggested that a number of receivers already experienced rail noise in excess of criteria and that the Watermark proposal would be responsible for an increase of only 0.6dBA.

However, on inspection, this 0.6dBA quoted increase is relative to future impact levels associated with existing rail traffic plus future traffic from "other known coal mining projects" ("known" includes approved but not yet commenced projects, but appears to also include projects for which an application has been lodged, but not yet determined). If the influence of the other known coal projects is removed (because they have not yet commenced operation), it appears that this proposal will be responsible for an increase in rail noise of 1.3dBA which is still below the 2dB increase threshold for significance.

However, in EPA's opinion it is significant enough to warrant a condition requiring the use of best practice rolling stock.

Recommendation:

- *That the proponent should be required through a condition of consent to only use best practice rolling stock for rail transport resulting from the proposal (including only locomotives which have obtained EPA approval to operate on the NSW rail network under Condition L2 of EPL No. 3142, 12208 or 13421, or in accordance with the former Noise Control Act 1975).*

B. AIR QUALITY IMPACT ASSESSMENT

The EPA has reviewed the revised AQIA and considers that it has been adequately conducted in accordance with the requirements of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*. The assessment has sourced appropriate available input data to describe the site, including surrounding terrain, existing air quality and meteorology. The assessment has adopted generally accepted emission estimation techniques from Australia and the US EPA.

A high level of particulate control is assumed in the assessment and, as such, the predicted potential for impact relies heavily on whether emissions are controlled as effectively as assumed in the assessment. Key Performance Indicators to verify the effectiveness of emission controls have been identified but need to be further evaluated using site specific data as part of an air quality management plan for the project.

Key issues identified during the AQIA review are identified below.

Issue 4: Risk of exceedances of the EPA's 24 hour average PM_{10} impact assessment

Exceedances of the EPA's PM_{10} 24 hour average impact assessment criterion are predicted for up to eighteen private residences in close vicinity of the eastern, western and southern boundaries of the project, with six private receptors predicted to experience impacts above the criterion due to the project alone. No exceedances of EPA criteria are predicted at sensitive receptors for both project only and cumulative annual average PM_{10} and TSP. The proponent proposes day to day management of emissions using real time dust and meteorological monitoring.

Recommendation:

- *That the recommended air quality conditions provided in **Attachment 3**, including the Coal Mine Particulate Matter Control Best Practice Implementation Pollution Studies and Reduction Programs are incorporated in any project approval as consent conditions in conjunction with the meteorological monitoring conditions provided in **Attachment 2**. The recommended air quality conditions detailed in **Attachment 3** include:*
    - *Standard environment protection licence dust conditions.*
    - *Best practice management implementation for wheel generated dust.*
    - *Best practice implementation for disturbing and handling of overburden under adverse weather conditions.*
    - *Trial of best practice measures for disturbing and handling overburden.*
    - *Requirements for the development of a comprehensive air quality management plan to mitigate impacts at the affected residences identified in the AQIA.*

  EPA notes that additional quantifiable and auditable environment protection licence conditions may be required.

Issue 5: Risk of exceedances of the EPA's one hour average NO_2 criterion

A limited number of exceedances of the EPA's one hour average NO_2 criterion are predicted at sensitive receptors of between one and eight hours per year of operations. EPA notes that all modelled exceedances occur between 4pm and 5pm when there is a rapid drop in mixing height/increase in atmospheric stability, resulting in poor dispersion conditions. The proponent proposes using predictive meteorological forecasting to avoid blasting in poor dispersion conditions.

Recommendation:

- *EPA recommends development of a blast management plan utilising meteorological data and predictive forecasting for blast scheduling purposes as part of the air quality management plan for the project.*

Issue 6: Need for a comprehensive best practice Air Quality Management Plan
EPA notes that the assessment of potential particulates' impacts from the proposed project utilises percentage reductions in emission calculations based on proposed best practice control methods. Therefore the predicted potential for impact relies heavily on whether emissions are as effectively controlled as assumed in the assessment.

Potential key performance indicators to determine the effectiveness of control measures have been identified and should be included in the Air Quality Management Plan (AQMP) for the project. However, these will require further evaluation once operational data is available for input.

All proposed management practices must be consistent with best management practice and be quantifiable, measurable, auditable and enforceable. Methods for determining compliance must be clearly identified.

Recommendation:
- *That the conditions of approval include the development of a comprehensive air quality management plan for all dust generating activities at the site prior to application for an Environment Protection Licence.*
- *That the recommended conditions provided in* ***Attachment 3*** *are incorporated in any project approval to ensure that an AQMP is prepared and submitted to the EPA in conjunction with an Environment Protection Licence application prior to any dust generating activities commencing at the project site.*

C. SURFACE AND GROUND WATER IMPACT ASSESSMENTS

The EPA has identified a range of key issues within the surface and ground water impact assessment components of the EIS. These issues include the following matters.

Issue 7: Water Balance Calculations
There appears to be some discrepancy within the EIS and relevant appendices with respect to the proposed water application rates to haul roads for dust suppression. PAE Holmes Air Impact Assessment (AIA - Appendix G) appears to have assumed a control efficiency of 85% for dust suppression on haul roads. Lower levels of dust control efficiency (75 – 80%) in other comparable projects in the Gunnedah basin have been associated with commitments to apply some two litres/square metre/hour or more to haul road surfaces using water carts. The WRM Surface Water Impact Assessment (SWIA - Appendix S) water balance assumptions on the other hand have applied an extremely low haul road dust suppression water application rate of only 0.08 litres/square metre/hour (1.92 mm/day) along with the use of chemical dust suppressants.

This very low application rate has been justified via a reference to a report titled "*Understanding Leading Practice Water Management*" that was published by the Australian Coal Association Research Program (ACARP) in 2008. The SWIA asserts that this study of 11 open cut mine sites in the Bowen Basin and Hunter Valley found a median water application rate of 2.5 mm/day and that leading practice haul road dust suppression used a water application rate of approximately 1.26 mm/day. However, it must be noted that the ACARP, 2008 report did not examine the dust control efficiencies being achieved at each of its 11 study sites. Rather the report focussed solely on water use efficiencies and best practice. As such, the proponent has failed to demonstrate that they can achieve the dust control efficiencies assumed in the AIA by PAE Holmes.

If the water application rate of 1.92 mm/day in combination with the use of chemical dust suppressants proves an ineffective means of adequately controlling dust emissions from mine haul roads, this will potentially have very significant implications for the site water balance modelling. If application rates circa those used at other established mines in the Gunnedah basin (that is, 2 litres/square metre/hour) prove necessary for effective dust control, this will equate to a 25 fold increase in water demand for haul road dust suppression. The EPA is concerned that there may be insufficient water available at the site to address this important issue.

It should also be noted that the EPA is recommending the application of its best practice dust stop pollution reduction programs to the project site, and that these require the proponent to demonstrate a minimum dust control efficiency of 80% for haul road emissions. Accordingly, it is clear that performance at levels below this widely applied best practice performance benchmark will not be considered appropriate at this site.

The SWIA claims that water collected on-site will meet all the proposed site's water demands ninety percent of the time. Despite this the water balance modelling shows that some water imports from off-site will be required even in 1 and 10 percentile wet years.

The SWIA also indicates that the project as proposed will require some 168 share components of the total 29,589.5 share units available for the Mooki River water source to meet site water demand. However, it has not provided any analysis of the security of Mooki River allocations, nor has it demonstrated that it will be able to secure and activate sufficient share component from the water market to reliably provide access to its off-site water needs under all climatic scenarios. It has also failed to provide any analysis of the water market's ability to supply any additional water to cover contingencies, such as the need to utilise more water to meet accepted dust control efficiency targets.

Recommendation:
That the project is not determined until the proponent has:

- *Made provision for and demonstrated that sufficient water will be available throughout the entire project life to supply the haul road water application rates conservatively required to achieve the proponent's commitment to high level particulate control. Alternatively the proponent must demonstrate that the proposed application rate detailed in the SWIA in combination with the use of chemical suppressants will deliver a minimum 80% dust control efficiency from haul roads.*
- *Demonstrated that the Mooki River Water Source can provide the supply security required to cater for the project's water demands under all climatic conditions.*
- *Identified appropriate contingency water supply/demand management measures that will be implemented to ensure the project continues to meet the required environmental and air quality performance benchmarks if the assumptions made in the water balance modelling prove inappropriate.*

Issue 8: Final Void
While the EPA notes that the GIA predicts that the single final void in the western mining area will act as a groundwater sink rather than a source of potentially contaminated recharge, it also notes that the Planning and Assessment Commission report into the Maules Creek Project states, "final voids should not be an ongoing feature of mining in NSW". The EPA would prefer that final voids were avoided completely, reduced to the absolute minimum or were free draining, in line with world best practice to minimise or eliminate any future potential site liabilities and performance uncertainties.

Recommendation:

- *In light of the Maules Creek PAC report, consideration may need to be given to conditioning any project approval to require amendment of the proposed dimensions of the final void or incorporating design features (for example, seals and/or drainage mechanisms) to avoid any potential interaction with surrounding aquifers.*
- *The EPA recommends that alternative mine designs that avoid or minimise final voids are examined. The costs and benefits of these alternatives should be evaluated and include an analysis of how any liability for the life of the impact from the voids will be managed or offset following closure.*

ATTACHMENT 2 - Shenhua Watermark Coal Project Proposed Noise and Blasting Conditions

L6.1 Noise generated at the premises must not exceed the noise limit of $L_{Aeq\ (15\ minute)}$ 35 dB(A) at all times at any sensitive receiver not subject to a private negotiated agreement.

Note: The EPA may consider setting noise limits above $L_{Aeq\ (15\ minute)}$ 35 dB(A) at individual sensitive receivers where it has sufficient information available as outlined in the Industrial Noise Policy (INP) chapters 8 and 9 to evaluate the acceptability of residual noise impacts.

L6.2 For the purpose of condition L6.1;

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.
- Evening is defined as the period 6pm to 10pm.
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.

L6.3 The noise limits set out in condition L6.1 apply under all meteorological conditions except for the following:

a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
c) Stability category G temperature inversion conditions.

L6.4 For the purposes of condition L6.3:

a) Data recorded by the meteorological station identified as EPA Identification Point W1 and /or W2 (the station closest to the receiver location in question) must be used to determine meteorological conditions; and
b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.

L6.5 Noise impacts during the meteorological conditions defined in L6.3 a), b) & c) must be addressed by:

a) Documenting noise complaints received to identify any higher level of impacts; and
b) Where noise complaints indicate a higher level of impact then actions to quantify and ameliorate any enhanced impacts during these meteorological conditions must be developed and implemented.

L6.6 To determine compliance:

a) With the $L_{eq(15\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located:

- approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
- within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable

- within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

b) With the $L_{A1(1\ minute)}$ noise limits in condition L6.1, the noise measurement equipment must be located within 1 metre of a dwelling façade.

c) With the noise limits in condition L6.1, the noise measurement equipment must be located:

- at the most affected point at a location where there is no dwelling at the location; or
- at the most affected point within an area at a location prescribed by conditions L6.5(a) or L6.5(b).

L6.7 A non-compliance of condition L6.1 will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by conditions L6.5(a) and L6.5(b); and/or
- at a point other than the most affected point at a location.

L6.8 For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

Blasting Conditions

Airblast overpressure level

L7.1 The airblast overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.2 The airblast overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

Ground vibration level

L7.3 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

L7.4 Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

Blasting hours

L7.5 Blasting at the premises may only take place between 9:00am-5:00pm Monday to Friday. Blasting is not permitted on public holidays.

L7.6 Blasting outside of the hours specified in L7.5 can only take place with the written approval of the EPA.

Blast monitoring

L7.7 To determine compliance with condition(s) L7.1 to L7.4:

a) Airblast overpressure and ground vibration levels experienced at the following noise sensitive locations must be measured and recorded for all blasts carried out on the premises;

- <enter exact location - consider ANZEC guidelines. Lot & DP, street address identifiers should be used >.

b) Instrumentation used to measure and record the airblast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006.

NOTE: A breach of the licence will still occur where airblast overpressure or ground vibration levels from the blasting operations at the premises exceeds the limit specified in conditions L7.1 to L7.4 at any “noise sensitive locations” other than the locations identified in the above condition.

L7.8 The airblast overpressure and ground vibration levels in conditions L7.1 to L7.4 do not apply at noise sensitive locations that are owned by the licensee or subject to a private agreement, relating to airblast overpressure and ground vibration levels, between the licensee and land owner.

Monitoring Conditions

M7.1 The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in condition M7.2.

M7.2 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Points W1 and W2

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature at 2 metres	degrees Celsius	Continuous	10 minute	AM-4
Air temperature at 10 metres	degrees Celsius	Continuous	10 minute	AM-4
Wind direction at 10 metres	degrees clockwise from True North	Continuous	10 minute	AM-2 & AM-4
Wind speed at 10 metres	metres per second	Continuous	10 minute	AM-2 & AM-4
Sigma theta	degrees clockwise from True North	Continuous	10 minute	AM-2 & AM-4
Rainfall	millimetres	Continuous	10 minute	AM-4
Relative humidity	percent	Continuous	1 hour	AM-4
Total solar radiation	watts per square metre	Continuous	10 minutes	AM-4
Siting				AM-1

Note: The location of Point W1 and W2 must be approved by the EPA prior to the installation of the monitoring equipment. Two points have been included as EPA is aware that two meteorological stations are already location on the project site.

b) Monitoring of all parameters listed in Condition 1 Column 1 must commence prior to earth moving activities being undertaken at the site.

M8 Requirement to Monitor Noise

M8.1 To assess compliance with Condition L6.1, attended noise monitoring must be undertaken in accordance with Conditions L6.5 and:

a) at each one of the locations listed in Condition L6.1;
b) occur quarterly in a reporting period;
c) occur during each day, evening and night period as defined in the NSW Industrial Noise Policy for a minimum of:

- 1.5 hours during the day;
- 30 minutes during the evening; and
- 1 hour during the night.

d) occur for three consecutive operating days.

Reporting Conditions

R4 Noise Monitoring Report

A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the quarterly monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include:

a) an assessment of compliance with noise limits presented in Condition L6.1; and
b) an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in Condition L6.1.

Additions to Definition of Terms of the licence

- NSW Industrial Noise Policy - the document entitled “New South Wales Industrial Noise Policy published by the Environment Protection Authority in January 2000.”

- Noise - sound pressure levels’ for the purposes of conditions L6.1 to L6.7.

- “Noise sensitive locations” includes buildings used as a residence, hospital, school, child care centre, places of public worship and nursing homes. A noise sensitive location includes the land within 30 metres of the building.

ATTACHMENT 3 – Shenhua Watermark Coal Project Proposed Air Quality Conditions

Operating Conditions

O1.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

O1.2 Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission of dust from the premises.

Pollution Studies and Reduction Programs- Coal Mine Particulate Matter Control Best Practice Implementation

U1 Wheel Generated Dust

U1.1 The Licensee must achieve and maintain a dust control efficiency of 80% or more on all active haul roads from *<date of commencement of dust generating activities at the site>.*

Control efficiency is calculated as:

$$CE = \frac{E\ (\text{uncontrolled}) - E\ (\text{controlled})}{E\ (\text{uncontrolled})} \times 100$$

Where E = the emission rate of the activity

U1.2 The Licensee must prepare a Monitoring Program to assess its compliance with Condition U1.1 under varying meteorological conditions. The Monitoring Program must detail the:

- parameters to be monitored;
- methods to be used to monitor each parameter;
- locations where each parameter will be monitored;
- frequency at which each parameter will be monitored;
- Key Performance Indicators that will be used to determine compliance with Condition U1.1; and
- A detailed justification for each Key Performance Indicator selected.

As a guide, the EPA anticipates that the following parameters will be monitored:

- moisture and silt contents of haul roads;
- frequency, duration, rate and quantity of water applied to haul roads;
- frequency, duration, rate and quantity of suppressant applied to haul roads in comparison to manufacturer's specifications;
- vehicle kilometres travelled;
- haul truck weight;
- haul truck speed; and
- dust levels on haul roads.

The Monitoring Program must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by *<insert date>.*

The EPA intends to require the licensee to implement the Monitoring Program once it is approved by the EPA.

U1.3 The Licensee must submit a written report to the EPA providing the results of the Monitoring Program. The report must include an assessment of the dust control

effectiveness, dust levels and the Licensee's compliance with Condition U1.1. The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by <*insert date*>.

U2 Disturbing and Handling Overburden Under Adverse Weather Conditions.

U2.1 The licensee must alter or cease the use of equipment on overburden and the loading and dumping of overburden during adverse weather conditions to minimise the generation of particulate matter <*date of commencement of dust generating activities at the site*>.

U2.2 The Licensee must prepare a Monitoring Program to assess its compliance with Condition U2.1. The Monitoring Program must detail the following:

- parameters to be monitored;
- methods to be used to monitor each parameter;
- locations where each parameter will be monitored;
- frequency at which each parameter will be monitored;
- way in which changes to operational activities will be documented;
- Key Performance Indicators that will be used to determine compliance with Condition U2.1; and
- detailed justification for each parameter and Key Performance Indicator selected.

As a guide, the EPA anticipates that the following parameters will be monitored:

- wind speed and direction;
- temperature;
- rainfall/humidity;
- evaporation rate;
- solar radiation;
- operational activities; and
- dust levels.

The Monitoring Program must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by <*insert date*>.

The EPA intends to require the licensee to implement the Monitoring Program once it is approved by the EPA.

U2.3 The Licensee must submit a written report to the EPA providing the results of the Monitoring Program. The report must detail the following:

- weather conditions during which activities were altered or ceased;
- changes made to operational activities as a result of adverse weather; and
- resultant dust levels when activities were altered or ceased.

The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by <*insert date*>.

U3 Trial of Best Practice Measures for Disturbing and Handling Overburden

U3.1 The Licensee must submit a report documenting an investigation and trial of best practice measures for the control of particulate matter from the use of equipment on overburden and the loading and dumping of overburden. Best practice measures may include, but should not be limited to, the following:

• use of foggers;
• use of water sprays; and
• reduction of drop heights.

The report must document the investigation and trial of each best practice measure. It must quantify the particulate matter control effectiveness and discuss the practicability of each best practice measure.

The report must be submitted by the Licensee to the Environment Protection Authority Regional Manager North West by *<insert date>.*

Air Quality Management Plan

1. For all emission sources at the site the proponent must prepare an air quality management plan that includes, but is not limited to:

- *Key performance indicator(s);*
- *Monitoring method(s);*
- *Location, frequency and duration of monitoring;*
- *Record keeping;*
- *Response mechanisms; and*
- *Compliance reporting.*

2. The air quality management plan must be submitted to the Environment Protection Authority (EPA) in conjunction with the application for an Environment Protection Licence under the *Protection of the Environment Operations Act 1997* for the project.

3. The air quality management plan must be implemented prior to the commencement of any dust generating activities at the site.