Our reference: DOC12/46398, LIC07/2409-04
Contact Sarah-Jane Oakroot; 0249086837

Paul Freeman
Mining Projects
Department of Planning and Infrastructure
PO Box 39
SYDNEY NSW 2001

Dear Mr Freeman

ENVIRONMENTAL IMPACT STATEMENT- STRATFORD EXTENSION PROJECT
THE BUCKETTS WAY, STRATFORD

Reference is made to your email, dated 6 November 2012, to the Environment Protection Authority (EPA) seeking EPA's comments and recommended conditions of consent on the Environmental Impact Statement prepared by Stratford Coal Pty Limited titled '*Stratford Extension Project: Environmental Impact Statement*' (EIS). On 13 December 2012 you advised the due date for submissions was 25 January 2013.

The proposal includes:

- Expanding the existing open cut mining operations at the Stratford Mining Complex, to extract up to 2.6 million tonnes of run-of-mine (ROM) coal per year for 11 years;
- Extension of the Roseville West Pit in a southerly and westerly direction, bringing the pit much closer to the existing Stratford residential village. The pit extension is about 1.45 km long and up to about 450 metres wide. It is proposed to mine this pit between 7 am and 6 pm seven days per week;
- Creation of a new pit called Avon North, along with a new waste emplacement. The new pit is proposed to be about 1 km long by about 400 metres wide. It is proposed to mine this pit 24 hours per day seven days per week, but with time restriction controls on overburden removal in the early years of operation;
- Creation of a new pit called Stratford East, along with an extension of the existing waste emplacement. The new pit is proposed to be about 2.7 km long by about 350 metres wide. It is proposed to mine this pit 24 hours per day seven days per week;
- Increasing the throughput of the coal preparation plant and processing a combined total of up to 4.8 million tonnes of ROM coal a year from the Stratford and Duralie coal mines;
- Direct employment increasing significantly from about 125 up to about 250 employees;
- Transporting all product coal from the Stratford Mining Complex to the Port of Newcastle by rail;
- Waste rock volumes needing to be dealt with will significantly increase, some of which has potential acid forming capabilities;
- Developing associated infrastructure, realigning two local roads and realigning a powerline; and
- Rehabilitating the site.

A review of the EIS has been completed and EPA provides comments and suggested conditions of approval as shown in Attachment 1 of this letter.

Please note that this response does not cover biodiversity or Aboriginal cultural heritage issues, which are the responsibility of the Office of Environment and Heritage.

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If you require any further information regarding this matter please contact Sarah-Jane Oakroot on telephone (02) 4908 6837.

Yours sincerely

25-1-13

PETER JAMIESON
Head Regional Operations Unit – Hunter
Environment Protection Authority

ATTACHMENT 1

ENVIRONMENT PROCTECTION AUTHORITY - COMMENTS AND RECOMMENDED CONDITIONS OF APPROVAL - STRATFORD EXTENSION PROJECT - THE BUCKETTS WAY, STRATFORD NSW

Below are EPA's detailed comments and suggested conditons on the project. Please note that these recommended conditions do not repeat a number of the current conditions of Environment Protection Licence 11745 which will apply to this development.

A. Noise

EPA has reviewed the EIS and the *Stratford Extension Project Environmental Impact Statement – Appendix C – Noise and Blasting Assessment* (the "NBA", SLR Consulting 2012) and provides the following comments and conditons. EPA also advises that in addition to the EIS and NBA the proponent also made a number of submissions of new and updated information to EPA since the exhibition of the EIS/NBA. This situation is not ideal, especially as the community does not have ready access to this information. The new information principally relates to additional private agreements and buy-outs of properties that have come into effect since the EIS was exhibited. The proponent provided additional technical details on the makeup and hours of operation of the fleet of trucks/dozers/excavators to be operated on-site as well as technical details on the proposed real-time noise monitoring equipment. EPA comments are based on the exhibited documents as well as the new information presented to EPA.

EPA generally agrees with the noise assessment that was undertaken and notes the significant number of noise ameliorative measures the proponent has proposed in order to achieve lower noise levels. With this suite of noise measures in place EPA notes from the noise modelling contours that the "line" of noise greater than the Project Specific Noise Level (above the criteria) just skirts the village of Stratford. If the noise modelling slightly underpredicts the noise impacts it is likely that many more residents (from Stratford village) would potentially be adversely affected by noise. Notwithstanding whether noise is considered "acceptable" in terms of decibel levels, it is important for the community to understand that residents of Stratford village (and in other locations) will be able to hear mining operations at night, even when noise levels are below relevant criteria.

The consultant's noise predictions are based on a range of noise ameliorative measures, some of which may be difficult to enforce. For example, from Table 27 of the NBA it is noted that it is proposed to: limit the CAT D10XQ dozer to second gear on the Avon North Waste Rock Emplacement; limit the CAT D11XQ Dozer to first gear on the product stockpile; limit the CAT D10XQ Dozer to first gear operation in Year 7 and second gear operation in Years 2 and 10 when operating on the Stratford Waste Emplacement. The NBA states on page 24 that *"the measures presented in Table 27 have had the effect of appreciably reducing noise levels at nearby receivers."* If some of the ameliorative measures are not enforced or not practical, noise levels could be substantially higher than predicted. Department of Planning and Infrastructure (DoP) needs to be aware of this when giving consideration to this proposal. EPA has provided conditons aimed at enforcing the abovementioned types of ameliorative measures that the proponent has committed to implementing.

Data provided in the NBA indicates that twelve sensitive receivers will experience noise in excess of 5 dBA above the Project Specific Noise Level of $L_{eq(15minute)}$ 35 dBA. New information provided by the proponent on additional private agreements and buy-outs of properties that have come into effect since the EIS was exhibited suggests that the number of properties in the abovementioned category has now been reduced to two. As DoP is aware, noise impacts for receivers in this category of exceedence are such that should consent be granted these noise issues need to be dealt with via the development consent and will not be licensed through the proponent's Environment Protection Licence. EPA recommends that the most appropriate way to deal with this impact is by negotiation between the proponent and the affected receivers – a 'Private Negotiated Agreement' or the provision of acquisition rights in any development consent, but should not result in adverse health impacts. Given the above points about the number/types of noise ameliorative measures that have needed to be employed to meet noise limits and the number of residents

in Stratford village and elsewhere who are predicted to 'just' meet the noise criteria EPA suggests to DoP that any condition of consent dealing with residences subject to noise greater than 5 dBA above the Project Specific Noise Level should not be restricted to the two residences that are predicted to fall into this category.

In regard to private residences not subject to a negotiated agreement that are predicted to exceed the relevant criteria by between 1 and 5 dBA the new information presented by the proponent suggests there will now be:

- Two residences (Residences 44 and 60) that are predicted to experience noise levels between 3 and 5 dBA above the criteria, and
- Two residences (Residences 23 and 296) that are predicted to experience noise levels between 1 and 2 dBA above the criteria.

As DoP is aware EPA will generally only regulate via the Environment Protection Licence properties predicted to be up to 2 dBA above the Project Specific Noise Level. DoP will need to develop condition(s) for any consent (eg acoustical treatment of properties) for any residence impacted by noise greater than 2 dBA above the Project Specific Noise Level.

The EPA can, however, licence noise impacts at most private receivers, and proposed limits are included in the attached conditions.

No blast monitoring conditions are proposed in the NBA, which appears to rely on a future review of the existing Blast Management Plan, which was not attached. EPA has proposed conditons to address blasting impacts. Blast monitoring is currently undertaken at five associated receivers generally to the northeast, north and west of the premises, and suggests that another blast monitoring location should be installed to the south of the premises. This has been included in the EPA's proposed conditions as requiring monitoring at "Cr7 Pryce-Jones" (or other suitable worst affected location either south or south-east of the premises).

Rail movements from the proposal will use the existing rail spur and join the main North Coast Line between Stratford and Craven to head south towards Newcastle. The *Environmental Assessment Requirements for Rail Traffic Generating Developments* (EPA 2012) were used for the additional predicted on-network rail movements. There will be an increase in the number of properties where the rail noise criteria are predicted to be exceeded. EPA considers that this increase warrants mitigation by the use of only best practise rolling stock for rail movements resulting from this proposal. Additionally, as the proposed project will be responsible for approximately 33% of peak rail movements, it is reasonable for the proponent to mitigate this increase further by architectural treatments, barriers etc at sensitive receivers. A condition has been flagged to address this issue.

The EPA recommends that DoP include the attached noise conditions on any development consent granted for the project.

Limit Conditions

L6.1 Noise generated at the premises must not exceed the noise limits in the table below. The locations referred to in the table below are indicated by Appendices B1 and B5 to the document entitled *Stratford Extension Project Noise and Blasting Assessment* by SLR Consulting Australia Pty Ltd and dated 25 October 2012.

		NOISE LIMITS dB(A)			
Locality	Location	Day	Evening	Night	
		$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{Aeq\ (15\ minute)}$	$L_{A1\ (1\ minute)}$

44 – Cross/Jane	MGA Zone 56 Coordinates 399186mE / 6441925mN	39	39	39	47
60 – Healy/Greenwood	MGA Zone 56 Coordinates 402995mE / 6439798mN	39	39	39	45
23 – Bagnall	MGA Zone 56 Coordinates 405264mE / 6445571mN	37	37	37	45
296 – Watson	MGA Zone 56 Coordinates 398386mE / 6442098mN	37	37	37	45
Stratford Village residences	Stratford, NSW	36	36	35	45
All other privately-owned residences	All other privately-owned residences	35	35	35	45

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) Temperature inversion conditions greater than 3ºC/100m.

L6.4 For the purposes of the previous condition:

a) The meteorological data to be used for determining meteorological conditions is the data recorded by the meteorological weather station established for this premises for the purposes of this consent.
b) Temperature inversion conditions on this premises are measured using the meteorological station described in L6.4(a) as well as an additional temperature measurement tower located adjacent to this meteorological station.

c) Degrees C/100m temperature inversion conditions are to be determined by direct measurement of temperature lapse rate as referred to in Part E2 of Appendix E to the Industrial Noise Policy.

d) Temperature lapse rate must be measured over a minimum of 50 metre interval.

L6.5 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).

L6.6 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.

Note: For the purposes of this EPL the rail loop is considered part of the premises.

L6.7 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.

L6.8 For the purposes of determining the noise generated at the premises Class 1 or Class 2 noise monitoring equipment, as defined by AS IEC61672.1-2004 and AS IEC61672.2-2004, or other noise monitoring equipment accepted by the EPA, must be used.

Blasting Conditions

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.

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.

L7.5 Blasting at the premises may only take place between 9:00am-5:00pm Monday to Saturday. 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.

L7.7 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.

Operating Conditons

O7.1 Real time noise monitors must be operated continuously in (or in close proximity to) Stratford and Craven villages. These monitors must filter sound frequencies so that the noise contribution from the premises can be estimated. These monitors must be alarmed at trigger noise levels in the evening and night-time periods (as defined above). In the event of the filtered noise level at the real time noise monitors exceeding trigger noise levels in the evening or night-time, actions must be taken that will reduce noise levels so that non-compliance with noise limits does not occur. Actions considered must include ceasing operations of certain activities. Actions taken in response to the alarm must be documented at the time of the decision in a manual log of noise control actions and must include date, time, likely main contributor(s) to noise levels and actions taken.

O7.2 In the event of any apparent exceedance of the noise limits measured by the real time noise monitors the licensee must, within 7 days of the apparent exceedance, provide to the EPA a report on the apparent exceedance which must include: the trend-line from the real-time noise monitor showing the contribution from the premises leading up to the exceedance; a copy of the log of noise control actions showing actions that were implemented in response to an alarm being received prior to the apparent non-compliance; the reason(s) for the noise non-compliance occurring; and actions that will be put in place to prevent a similar non-compliance occurring into the future.

O7.3 To reduce noise from mobile fleet and conveyors, prior to the Project commencing the fleet and conveyors must be upgraded as detailed in Table 27 of *Stratford Extension Project Environmental Impact Statement – Appendix C – Noise and Blasting Assessment* (SLR Consulting 2012).

Note: The abovementioned measures have been identified by the proponent as feasible and reasonable measures to reduce noise levels to meet criteria.

O7.4 To reduce noise from dozer operations on the premises during evening and night-time operations actions must be taken to:

a) limit the CAT D11XQ dozer to first gear while working on the Coal Preparation Plant coal stockpiles;

b) limit the CAT D10XQ dozer to second gear while working on the Avon North Waste Rock Emplacement;

c) limit the CAT D10XQ dozer to third gear while working in the Avon North Pit;

d) limit the CAT D10XQ dozer to second gear while working on the Roseville Waste Rock Emplacement;

e) limit the CAT D10XQ dozer to third gear while working in the Roseville West Pit;

f) limit the CAT D11XQ dozer to third gear while working in the Roseville West Pit;

g) limit the CAT D10XQ dozer to third gear while working in the Stratford East Pit;

h) limit the CAT D10XQ dozer to first gear operation in Year 7 and second gear operation in Years 2 and 10 when operating on the Stratford Waste Emplacement.

Note: The abovementioned measures have been identified by the proponent as feasible and reasonable measures to reduce noise levels to meet criteria.

Note: EPA will give consideration to not requiring any of the abovementioned measures where it can be demonstrated the measure will not be necessary in order to meet relevant noise limits

O7.5 Each of the dozers working in the areas detailed in the condition above must be fitted with electronic monitoring to record the gear the dozer is being operated in during evening and night-time operations. This monitoring must be fitted with an audible alarm in the cabin of the dozer should an incorrect gear (see condition above) be engaged during evening or night-time operation.

O7.6 The electronic monitoring system detailed in the above condition must be reviewed monthly by the proponent to determine that dozers are operating at all times during evening and night-time operation within the correct gear.

O7.7 The electronic monitoring system records detailed in the abovementioned conditions must be kept for a minimum period of 2 years and provided to an EPA officer upon request.

O7.8 To reduce noise levels:

a) All acoustic bunding as detailed in *Stratford Extension Project Environmental Impact Statement – Appendix C – Noise and Blasting Assessment* (SLR Consulting 2012) must be constructed prior to the Project commencing (or prior to activities in that section of each pit/waste emplacement commencing);
b) Activities within the Roseville West Pit that are audible at the premises boundary must only occur during day-time operations;
c) The Stratford East Pit waste rock fleet should only be operated in day-time hours during years 1 to 5 of the Project and out of pit waste rock dumping must only occur immediately behind acoustic bunds;
d) Avon North Open Cut waste rock must be disposed to the Stratford Main Pit during evening and night-time periods;
e) The Proponent must:
    I. conduct an annual testing program of the mobile equipment on site to ensure that noise attenuation measures remain effective;
    II. restore the effectiveness of any noise attenuation if it is found to be defective; and
    III. report on the results of any testing and/or attenuation work within the Annual Review.

Note: The abovementioned measures have been identified by the proponent as feasible and reasonable measures to reduce noise levels to meet criteria.

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.

Point - Stratford mining Complex weather station

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature	°C	Continuous	1 hour	AM-4
Wind direction	°	Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4
Temperature lapse rate over minimum vertical height interval of 50 m.	°	Continuous	15 minute	Part E2 Appendix E of the NSW Industrial Noise Policy
Rainfall	mm	Continuous	15 minute	AM-4
Relative humidity	%	Continuous	1 hour	AM-4

M8 Requirement to Monitor Noise and Blasting

M8.1 To determine compliance with the Noise Limits shown in this licence, attended noise monitoring must be undertaken in accordance with all relevant conditions of this licence:

a) at the nearest and/or most affected locations listed in the Noise Limits Table; and
b) occur quarterly beginning 1 January each year.

M8.2 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 (or as determined by EPA) must be measured and recorded for all blasts carried out on the premises:
   - Residence "15(3) Falla Superannuation" (MGA Zone 56 Coordinates 401025mE / 6446996mN);
   - Residence "31(1) Isaac" (MGA Zone 56 Coordinates 400069mE / 6444804mN);
   - Residence "19(5) SCPL" (MGA Zone 56 Coordinates 400117mE / 6446058mN);
   - Residence "19(33) SCPL" (MGA Zone 56 Coordinates 403679mE / 6447341mN);
   - Residence "19(40) SCPL" (MGA Zone 56 Coordinates 404449mE / 6445763mN); and
   - Residence "Cr.7 Pryce-Jones" (MGA Zone 56 Coordinates 400906mE / 6441710mN) or other suitable location generally south of the premises.

The abovementioned locations are shown in Appendices B1 and B5 to the document entitled *Stratford Extension Project Noise and Blasting Assessment* by SLR Consulting Australia Pty Ltd and dated 25 October 2012.

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.

M8.3 All blasting shots on the premises must be recorded on video from a position allowing the collars of the shot, and where possible, any face, or toe, to be seen.

Reporting Conditions

R4.1 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.

R4.2 The licensee must report any exceedence of the licence blasting limits to the regional office of the EPA as soon as practicable after the exceedence becomes known to the licensee or one of the licensee's employees or agents.

Conditions recommended to be included in any project approval, if issued:

1. DoP should impose condition(s) relevant to any privately owned residence not subject to a negotiated agreement where noise levels are predicted to (or consistently do) exceed the project specific noise level by more than 2 dBA. These conditons could relate to noise ameliorative measures for the dwelling and/or acquisition rights, upon request.

2. DoP should impose condition(s) to require best practice rail rolling stock for additional trains associated with the project.

3. DoP should impose condition(s) to require ameliorative treatment of houses (upon request) which will exceed relevant rail noise criteria. The *Stratford Extension Project Environmental Impact Statement – Appendix C – Noise and Blasting Assessment* (SLR Consulting 2012) notes that 10 additional receivers (R8 to R17 as shown in Appendix I of the abovementioned document) would exceed the criteria as a result of the cumulative Project (peak) rail movements.

4. Noise Management Plan

The proponent must prepare and implement a Noise Management Plan that covers all premises based activities and transport operations. The plan must include but need not be limited to:

a) all measures necessary to satisfy the limits in Table **L6.1** at all times,
b) A system that allows for periodic assessment of Best Management Practice (BMP) and Best Available Technology Economically Achievable (BATEA) that has the potential to reduce noise levels from the facility,
c) Effective implementation of identified BMP and BATEA measures, where considered feasible and reasonable, to seek to reduce noise levels to the PSNL applicable under the NSW Industrial Noise Policy,
d) Measures to monitor noise performance and respond to complaints,
e) Measures for community consultation including site contact details.

B. Air

EPA has conducted a review of the exhibited EIS in regard to air impacts and notes the assessment has been satisfactorily conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* and indicates that the risk of adverse impacts at sensitive receptors is low provided operations are well managed and consistent with those proposed in the EIS. In particular EPA notes:

- No exceedances are predicted at privately owned receivers for project and cumulative annual average dust (PM_{10} and TSP).
- Monitoring data from the existing Stratford air monitoring network demonstrates compliance with the EPA's 24 hour and annual average PM_{10} criteria with a minimal number of readings above 50 $\mu g/m^3$ recorded between May 2001 and September 2011 (upon reporting to EPA of levels above 50 $\mu g/m^3$ EPA has investigated reasons for the levels and has generally been satisfied the main contributing factor has not been mine related)
- EPA also notes that an assessment of $PM_{2.5}$ impacts was conducted and no exceedances of the advisory standard were predicted.
- The proponent proposes the installation of real time air quality monitoring in close proximity to Stratford and Craven villages to provide real time monitoring of PM_{10} and $PM_{2.5}$
- Commits to the use of predictive and real time meteorological monitoring and real time dust monitoring to manage site activities to minimise dust impacts at receptors.

The recommended conditions of approval (below) reflect these commitments and formalise the requirement for a comprehensive Air Quality Management Plan for the project.

General Dust Conditions

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

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

3. All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.

Air Quality Monitoring and Management

1. Requirement to monitor ambient particulate matter

a) The licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the tables below. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Points — Within or in close proximity to Stratford village
Within or in close proximity to Craven village

Parameter	Units of measure	Frequency	Averaging Period	Method
PM_{10} (TEOM)	Micrograms per cubic metre	continuous	1-hour	AM-22 (AS 3580.9.8-2008)

Points — At locations approved in writing by the EPA (generally located in the vicinity of sampling sites HVD3, HVD4, and east of HVD5) as shown on Figure 3.1 of the Stratford Extension Project – Air Quality and Greenhouse Assessment, which was appended to the EIS

Parameter	Units of measure	Frequency	Averaging Period	Method
PM_{10} (HVAS)	Micrograms per cubic metre	Every six days	24-hour	AM-18

The above monitoring points may be changed upon approval by EPA

Note: The calibration, quality assurance, quality control and audit program must be approved by the EPA prior to the installation of the monitoring equipment.

Note: Upon the implementation of TEOM monitoring it is the intention of the EPA to rationalise ambient air quality monitoring requirements on the Environment Protection Licence for the premises.

b) Monitoring of all parameters listed in Condition 1(a) Column 1 must commence prior to earth moving activities being undertaken on the premises.

2. Contingency monitoring

a) Prior to the commencement of activities associated with this consent, the proponent must submit a report to EPA Manager Hunter Region that details contingency actions, including monitoring, that will be implemented when either of the TEOM monitors is not operating in a proper manner.

Note: For the purpose of this condition 'proper manner' means:

(i) operation in accordance with manufacturers specifications and recommendations;
(ii) operation in accordance with relevant Australian Standards:
    i. AS 3580.14—2011;
    ii. AS 3580.9.8 -2008; and
(iii) operation in a manner that provides data required to satisfy Condition 3 below.

b) Prior to the commencement of dust generating actives associated with this consent, EPA must approve the proposed contingency methodology presented in the report required under condition 2(a).

c) To remove any doubt, the licensee must not undertake dust generating activities at the site at any time when there is no way assess to real time site specific or representative ambient PM_{10} and meteorological monitoring data which satisfies the requirements of Condition 3.

3. Dynamic dust management

a) The proponent must operate a dynamic dust action plan that stipulates actions that will be taken to reduce dust levels based on real-time air particulate levels;

b) Prior to the commencement of actives associated with this consent, the proponent must submit a report to EPA Manager Hunter Region that details:

(i) Action trigger levels based on measured real time PM_{10} concentrations at representative receptor locations and other inputs such as predicted and prevailing meteorology;

(ii) Specify actions to be taken in response to the identified trigger levels which may include, but not be limited to, additional control measures or limitations on particular site activities during adverse meteorological conditions;

c) A review of the effectiveness of the dynamic dust action plan must be conducted annually;

d) The plan and the management of all relevant activities on the site must be updated in accordance with the findings of any review of the plan;

e) The plan is to be available to the EPA upon request.

4. Dust generating activities

a) For all dust generating activities at the site, the proponent must prepare and implement an air quality management plan that includes the following parts:

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

C. Water and Groundwater

EPA has assessed the EIS with regard to potential water impacts. EPA has provided some potential conditions of approval for Department of Planning and Infrastructure's (DoP's) consideration, which are shown below. However, some other issues shown below need further consideration prior to a decision being made on the project.

Impacts on local water quality as a result of discharges of minewater is of concern to local residents. The EIS states (p4-44) "*The risk of a contained water overflow (ie spill) from the project was evaluated as part of the site water balance (Appendix B) and there were no spills simulated during the 123 climatic realisations simulated*". EPA notes from Appendix B "*the Project would be operated with an operational risk of disruption to mining which could occur as a result of exceedance of the design capacity of the water management system and the need to store water in active open pits if required. The operational risk to the project as a result of this has been assessed by Stratford Coal Pty Ltd and has been determined to be an economically and operationally acceptable risk*" (p.B-83). In recognition of the importance of this issue to the local community, EPA has proposed a condition below which makes clear that in times of wet weather the Stratford Mining Complex must be a zero discharge mine site.

EPA notes that at the end of the Project life it is proposed to have three open voids, being the former Roseville Pit, the former Avon North Pit and about half of the former Stratford East Pit. These voids will contain minewater, with a salinity level predicted to be 6,000 to 12,000 uS/cm. The EIS notes (p.5-18) "*the final void waterbodies are not predicted to spill under any of the simulated climatic sequences (Appendix B)*" and "*The final voids would be designed not to overflow to the downstream watercourses (Appendix B)*" (p.4-45). In recognition of the polluting potential of the minewater contained within the final voids and the importance of this issue to the local community, EPA has proposed a condition below which makes clear there must be no discharge of minewater following the end of mine life.

EPA has also conducted a review of the groundwater section of the EIS, keeping in mind that NSW Office of Water (NOW) has substantially more expertise groundwater assessment than EPA. EPA requests DoP, in consultation with NOW give consideration to the following points when assessing the development application:

- EPA notes (Figure 4-7 of EIS) apparently high permeability alluvium at depths between about 1 and 5 metres located between the Avon North Open Cut and Dog Trap Creek. EPA further notes most of the Avon North Open Cut will be an open void filled with minewater at end of mine life. EPA requests NOW and DoP give consideration to whether the proximity of the Avon North Open Cut to Dog Trap Creek might pose a risk of:
    - Unacceptable draw-down of Dog Trap Creek during extraction activities and
    - Unacceptable risk of water pollution of Dog Trap Creek during backfill of the void with waste rock and then when the Avon North Open Cut fills with saline and potentially low pH minewater.
- EPA notes (Figure 4-8 of EIS) the southern extremity of the Stratford East Open Cut coincides with the boundary of the Avondale Creek alluvium deposits. The Avondale Creek alluvium would appear to have high permeability. Figure 4-9 shows a drawdown of natural groundwater levels by about 5 metres directly underneath Avondale Creek as a result of the construction of the Stratford East Open Cut. EPA further notes much of the Stratford East Open Cut will be an open void filled with minewater at end of mine life. EPA requests NOW and DoP give consideration to whether the proximity of the Stratford East Open Cut to Avondale Creek might pose a risk of:
    - Unacceptable draw-down of Avondale Creek during extraction activities and
    - Unacceptable risk of water pollution of Avondale Creek when the Stratford East Open Cut fills with saline and potentially low pH minewater.

EPA recommended conditions of approval relating to water are shown below.

1 Except as may be expressly provided by a licence issued under the *Protection of the Environment Operations Act 1997* in relation of the development, section 120 of the *Protection of the*

Environment Operations Act 1997 must be complied with in connection with the carrying out of the development.

2 Except in accordance with any drought release of water allowed by the Environment Protection Licence (to maintain/supplement stream flow in times of drought) there must be no discharge of minewater from the premises.

Note: The 2012 EIS for the Stratford Extension Project has highlighted that the proponent has assessed the risks of an overflow of minewater in times of wet weather and acknowledges that storage of water in active pits would be necessary in such a wet weather scenario.

3 Following the cessation of mining activities there must be no discharge of minewater from the premises.

Note: The 2012 EIS for the Stratford Extension Project noted the polluting potential of waters that will be stored in the former Roseville Pit, the former Avon North Pit and the former Stratford East Pit following the end of mine life, but noted the final void waterbodies are not predicted to spill under any of the simulated climatic sequences and such voids would be designed not to overflow to the downstream watercourses.

4 In addition to the monitoring detailed in the EIS, prior to the commencement of activities associated with this consent two additional surface water monitoring sites must be established within Dog Trap Creek, upstream of the Avon North Open Cut and downstream of the Bowens Road North Open Cut. Two additional surface water monitoring sites must also be established within the unnamed tributary of Avondale Creek that runs between the Stratford Main Pit and Bowens Road North Pit, these sites must be located upstream of discharges from disturbed areas and immediately upstream of the confluence with Avondale Creek. Monitoring must be conducted monthly for electrical conductivity, pH, total suspended solids and turbidity. Monitoring must also be conducted for electrical conductivity, pH, total suspended solids and turbidity as soon as practicable after any rainfall event greater than 25 mm in any 24 hour period.

5 Waste rock must be assessed to determine if it is Potential Acid Forming (PAF). PAF waste rock must be segregated, handled and disposed so as to mitigate against acid formation and pollution of waters.

6 PAF material must not be disposed above groundwater level without EPA specifically approving in writing the location and design of the out-of-pit PAF waste cells.

Environment Protection Authority
January 2013