

17 July 2015

Attn: Mr Stephen O'Donoghue
Department of Planning and Environment
23-33 Bridge Street
Sydney NSW 2000

Dear Stephen

Drayton South Coal Project Air Quality Review

This report has been prepared for the Department of Planning and Environment (DPE) to assist with their assessment of the Drayton South Coal Project (the 'Project'). The report provides outcomes of a peer review of documents relating to potential air quality impacts of the Project, specifically:

- *"Drayton South Coal Project – Environmental Impact Statement – Volume 1 – Main Report"*. Prepared by Hansen Bailey, May 2015. Referenced as Hansen Bailey 2015.
- *"Drayton South Coal Project – Air Quality and Greenhouse Gas Assessment"*. Appendix H from the Drayton South Coal Project Environmental Impact Statement. Prepared by Pacific Environment Limited (PEL), dated 1 April 2015. Referenced as PEL 2015a.
- *"Drayton South Coal Project – quantitative assessment of air quality impacts for Year 9"*. Letter report from PEL to Hansen Bailey, dated 10 July 2015. Referenced as PEL 2015b.

The scope of this review was as follows.

- 1) Consider the adequacy and accuracy of the air quality modelling undertaken for the proposal, including consideration of relevant guidelines, suitability of the model used, and the reasonableness of the inputs used in the model.
- 2) Identify any significant gaps or inconsistencies in the assessment of air quality impacts, the reliability of the predictions, and provide advice to the Department about the likely project impacts based on the information in the assessment documentation.
- 3) Review the project against best practice dust mitigation, management and monitoring, including the following areas:
 - a. haul roads;
 - b. materials handling;
 - c. real-time dust management; and
 - d. minimising surface disturbance.
- 4) Consider and recommend any additional measures to further minimise and mitigate any identified impacts, particularly on receivers to the south of the project.
- 5) Consider any differences between predicted air quality impacts of the current proposal (identified in the Environmental Impact Statement) and those associated with the original Drayton South Proposal (PA 11_0062), which was previously reviewed by SKM in 2014. In this respect, advise the Department:
 - a. whether the changes in predicted impacts are reasonable, reliable and suitably modelled; and
 - b. whether this modelling provides a reasonable basis for the Department's assessment of the likely impacts associated with the revised project (SSD 6875).

Review of potential health effects of airborne particulate matter, odour or greenhouse gas emissions was outside the scope of this review.

I am an Atmospheric Scientist with 17 years' air quality consulting experience. I have been specialising in meteorological studies, air dispersion modelling, emission estimation and air quality

17 July 2015

assessment for various industry sectors, but predominantly for coal mining in the Hunter Valley. It is in this capacity that I have undertaken the peer review of the prescribed documents.

The outcomes of the review are provided in the following sections. Please contact me on 4979 2663 if you have any questions on these outcomes.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Shane Lakmaker', with a stylized flourish at the end.

Shane Lakmaker

Senior Associate (Air Quality)
shane.lakmaker@jacobs.com

1. Overview

Anglo American is seeking approval for the Drayton South Coal Project, a proposed open-cut coal mine located approximately 13 kilometres (km) south of Muswellbrook in the Hunter Valley. The Project is fully described in the Environmental Impact Statement (EIS) (Hansen Bailey 2015) but can be summarised as follows:

- Continuation of operations at Drayton Mine as currently approved with additional mining within the East, North and South mining areas for a period of 15 years.
- Development of a new open cut mining area within EL5460, mining up to 6.4 Mtpa of run-of-mine (ROM) coal.
- Utilisation of the existing Drayton Mine equipment fleet.
- Utilisation of the existing Drayton Mine infrastructure including the coal handling and preparation plant (CHPP) and rail loop.
- Construction of a transport corridor from Drayton Mine to the new mining area.
- Progressive rehabilitation of disturbed areas as mining operations are completed.

The EIS for the Project was prepared by Hansen Bailey (2015) and included an *Air Quality and Greenhouse Gas Impact Assessment* (PEL 2015a). The main objective of the air quality assessment was to address the Secretary's Environmental Assessment Requirements (SEARs) in relation to air quality, as well as the assessment requirements of the Environment Protection Authority (EPA).

The PEL assessment was based on the use of an air dispersion model to predict (primarily) dust concentration and dust deposition levels in the vicinity of the project, including at the nearest sensitive receptors. Three (3) operating years of the mine life were considered and the modelling referred to the procedures outlined by the EPA in their *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005). An additional operating year was subsequently assessed (PEL 2015b).

The main conclusions of the PEL assessment, with respect to dust impacts, were that:

- Due to the Project contribution only, there are no privately-owned sensitive receptors predicted to experience exceedances of EPA or DPE criteria.
- For cumulative predictions, there are potential additional exceedances of the EPA's 24-hour average criterion for PM₁₀.
- There will be no blast fume (NO₂) impacts as blasting will be avoided under potentially problematic meteorological conditions.

2. Approach to Review

This review has been undertaken with consideration of the Secretary's Environmental Assessment Requirements (as relevant to the assessment of air quality), and the EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC 2005).

Specifically, the review has focussed on:

- Air quality impact assessment criteria.
- Model selection and approach.
- Meteorological data and methods for inclusion.
- Background levels and approach to cumulative effects.
- Emission inventories and calculations.
- Identification of sensitive receptors.
- Accuracy/clarity of presentation and interpretation of results.
- Clarity and adequacy of impact assessment.
- Proposed mitigation and monitoring.

Review of potential health effects of airborne particulate matter was outside the scope of this review.

This review was also carried out by considering:

- Consistency with the "*Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*" (DEC 2005).
- Air quality assessment requirements in the *Secretary's Environmental Assessment Requirements*.
- Emission factors from "*National Pollutant Inventory Emission Estimation Technique Manual for Mining, Version 3.1*" January 2012 (NPI 2012).
- Emission factors from "*Compilation of Air Pollutant Emission Factors*" (US EPA 1985 and updates).
- Consistency with "*NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining*" (Donnelly et al 2011).

3. Adequacy of air quality modelling

This section provides comments on the adequacy and accuracy of the air quality modelling presented by PEL (2015a and 2015b). It also identifies gaps and inconsistencies (where relevant), and provides comments on the reliability of the model predictions.

The following items require clarification:

- The EIS (Hansen Baily 2015) and Table 6.2 of PEL (2015a) indicates that larger trucks will be used from Year 10 onwards, however the emission inventories (Appendix A, Table A.1 to A.3) do not show any change in the assumptions on truck sizes between each modelled year. That is, 177t capacities appear to have been used for all scenarios. A comment is required on the potential change in total dust emissions due to larger trucks from Year 10 onwards, and the potential effect on model results. While the larger capacity trucks will lead to fewer trips for the same material quantity, this could be offset by potentially heavier vehicles which are calculated to have a higher emission per truck. The effect on emissions and potential change in impacts should be checked.
- Table 6.2 indicates that watering is used to control dust emissions due to wind erosion from exposed areas and overburden emplacements. The control factor applied for the modelling is listed as 50% (which is consistent with Donnelly et al 2011). Examination of the emission inventories in Appendix A reveals that 50% control factor has been assumed for the activity "WE – OB dump & disturbed area – controlled". Depending on the modelled year, the inventories imply that between 80 and 104 hectares (ha) of overburden emplacement areas will be subject to continuous watering. Clarification should be sought on how the watering of relatively large overburden emplacement areas will be undertaken in practice, assuming watering is the applicable control measure.
- Section 8.3.2.4 refers to the conservative nature of the modelling, and indicates that Anglo American's predictive and real-time dust management system will be used to manage the day-to-day operations. It is unclear whether this statement is suggesting that the predicted exceedances of criteria will be eliminated due to this management measure. It is assumed not, since the assessment has not demonstrated this effect in a quantitative manner.
- The PEL assessment concludes that, for cumulative predictions, there are (potentially) additional exceedances of the EPA's 24-hour average criterion for PM₁₀, however the Executive Summary and Conclusions sections of the report are silent on the number of properties. Inspection of the results in Section 8 show four properties with predicted additional exceedances; 226A, 226B, 226C and 217A. Confirmation should be provided that there are no more than four properties predicted to experience additional exceedances.

It is anticipated that information in response to the items listed above will not change the conclusions of the assessment. This is because the potential changes in Project emissions by addressing these items (if necessary) would be at most 5% or less.

No other specific issues (requiring a response) have been identified from the review and the overall conclusions are supported. My reasons for supporting the conclusions are as follows:

- Modelled meteorological data have been verified against monitored data.
- Activity emission factors are consistent with those prescribed by the US EPA (1995) and NPI (2012).
- Emission control factors are consistent with those outlined in the *"NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining"* (Donnelly et al 2011).

- An air dispersion model, approved for use by the EPA for these types of assessments, has been used and setup in accordance with the recommendations of the model developers.
- Model results have been compared to relevant, contemporary air quality impact assessment criteria.

4. Best practice dust management

In Table 6-2 the emission reduction measures for each activity have been reviewed against the “best practice” controls identified by Donnelly et al (2011). This approach is consistent with the current state of knowledge regarding measures to minimise particulate matter emissions from coal mining activities in Australia.

5. Additional measures

Section 12 of the assessment outlines the proposed monitoring and management measures that would be implemented with the Project. The approach focuses on managing short-term dust concentrations; this is an appropriate approach based on the assessment outcomes as 24-hour average PM₁₀ concentrations were identified as being the highest risk in terms of exceeding criteria.

The air quality assessment suggests that managing compliance will be an important aspect of the Project. This is demonstrated by:

- Real-time dust monitoring to determine if short-term “trigger” levels are breached, resulting in a course of action by accountable personnel. No specific trigger levels (PM₁₀ concentrations) have been defined in the air quality assessments, but there appears to be a commitment to set trigger levels (in the AQMP) to reduce the likelihood of air quality criteria being exceeded at nearest sensitive receptor areas.
- Meteorological and blast forecasting to identify the likely risk of dust emissions and impacts, and to assist with planning daily activities for managing dust.

In addition to measured meteorological conditions, predicted meteorological conditions and measured ambient conditions, it is suggested that the trigger levels referred to above should also consider visual conditions, for example, observed dust above wheel height.

It will also be important that the AQMP outlines measures to minimise complaints related to dust to the maximum extent practicable. These measures may include mechanisms to manage visual dust such as:

- Controlling the times at which short-term, potentially high dust-generating activities occur, such as blasting.
- Methods to enhance the visual dust monitoring capabilities of operational personnel. For example, cameras, routine inspections, and/or training of personnel.

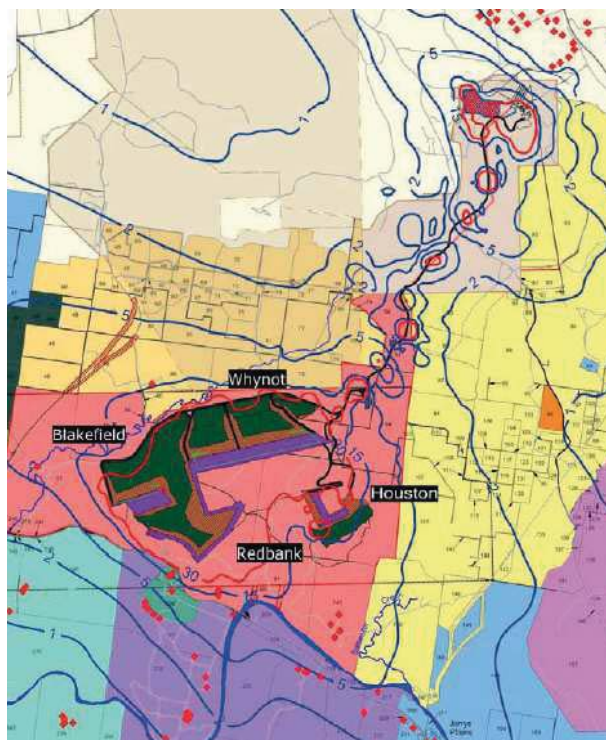
6. Original Proposal Compared to the Current Proposal

The key differences in predicted air quality impacts between the original proposal (PA 11_0062) and the current proposal (SSD 6875) have been examined. **Table 1** shows the history of emission estimates. The reductions in emissions are as expected, given the progressive retraction of the mine plan, reduction to exposed areas, and reductions to material handling quantities.

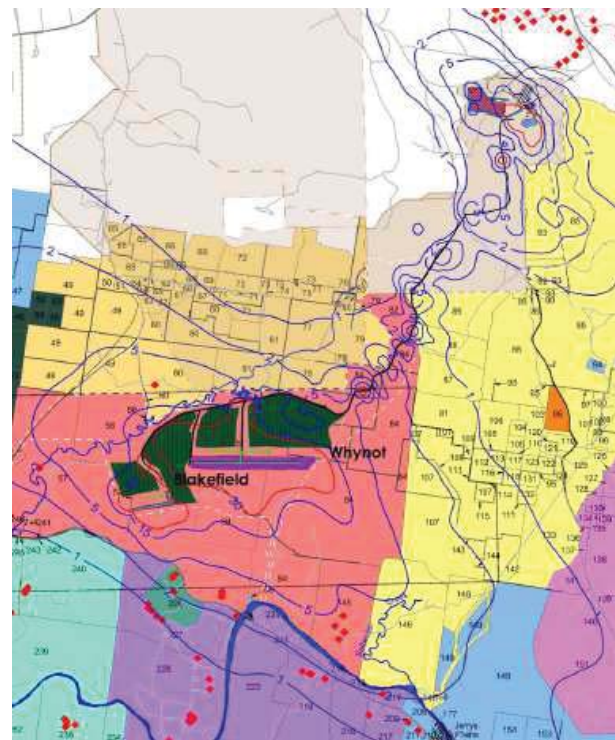
Table 1 : History of emission estimates for Year 10 operations

Reference	Estimated TSP emissions (kg/y)	Comments
PAEHolmes 25 Oct 2012	6,343,931	Original Proposal (PA 11_0062). Original estimate for Environmental Assessment.
PEL 9 Apr 2013	4,599,468	Emissions developed after Response to Submissions. Calculations included site-specific data on silt and moisture contents.
PEL 7 Feb 2014	4,825,169	Recalculation of emissions due to updating the assumed silt and moisture contents.
PEL 12 Mar 2014	-	Qualitative assessment of potential impacts due to the retracted mine plan.
PEL 14 May 2014	3,836,630	Quantitative assessment of potential impacts due to the retracted mine plan. Considers the retracted mine plan and previous outcomes on silt and moisture contents.
PEL 10 July 2015	4,019,010*	Current proposal (SSD 6875). Year 9 data presented as Year 10 was not modelled in the 2015 EIS.

The figures below show the predicted annual average PM₁₀ concentrations due to the Project, in its original and current form, as an indication of the change in potential impacts. These predictions are as expected, given the history of emission estimates and modifications to the project since the original Environment Assessment was completed.



Original proposal, Year 10, annual average PM₁₀



Current proposal, Year 9, annual average PM₁₀

17 July 2015

Reviews of emission calculations, methods for assessment and models have been undertaken. With regards to the original and current proposals it is concluded that:

- The changes in predicted impacts are reasonable, reliable and suitably modelled; and
- The modelling provides a reasonable basis for the Department's assessment of the likely impacts associated with the revised project (SSD 6875).

References

DEC (2005) *"Approved Methods for the Modelling and Assessment of Air Pollutants in NSW"*. August 2005, prepared by the Department of Environment and Conservation (now EPA).

Donnelly S, Balch A, Castillo E, Henville K, Planner J, Schloss A, Shaw N, Welchman S, Wiebe A, Vernon A, (2011) *"NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining"*, June 2011.

Hansen Bailey (2015) *"Drayton South Coal Project – Environmental Impact Statement – Volume 1 – Main Report"*. Prepared by Hansen Bailey, May 2015.

NPI (2012) *"National Pollutant Inventory Emission Estimation Technique Manual for Mining, Version 3.1"*. January 2012. Department of Sustainability, Environment, Water, Population and Communities.

PAEHolmes (2012) *"Drayton South Air Quality and Greenhouse Gas Assessment"*, prepared by PAEHolmes, dated 25 October 2012, Job number 3617B.

Pacific Environment Limited (2015a) *"Drayton South Coal Project – Air Quality and Greenhouse Gas Assessment"*. Appendix H from the Drayton South Coal Project Environmental Impact Statement. Prepared by Pacific Environment Limited (PEL), dated 1 April 2015.

Pacific Environment Limited (2015b) *"Drayton South Coal Project – quantitative assessment of air quality impacts for Year 9"*. Letter report from PEL to Hansen Bailey, dated 10 July 2015.

Secretary's Environmental Assessment Requirements, SSD 14_6875.

US EPA (1985 and updates) *"Compilation of Air Pollutant Emission Factors"*, AP-42, Fourth Edition.

Important note about your report

The sole purpose of this report and the associated services performed by Jacobs is to undertake a limited review of, and comment on, the reports entitled "Drayton South Coal Project – Environmental Impact Statement – Volume 1 – Main Report" (Hansen Bailey 2015), "Drayton South Coal Project – Air Quality and Greenhouse Gas Assessment" (PEL 2015a) and "Drayton South Coal Project – quantitative assessment of air quality impacts for Year 9" (PEL 2015b) ("Principal Reports") by Hansen Bailey and Pacific Environment Limited ("Principal Consultants"), in accordance with the scope of services set out in the contract between the Department of Planning and Environment (the "Client") and Jacobs Group (Australia) Pty Ltd ("Jacobs"). That scope of services, as described in this report, was developed with the Client.

Jacobs' review was a form of peer review, undertaken on a level-of-effort basis, to provide additional assurance to the Client as to the quality of the Principal Reports. This review does not constitute a means by which the Client or the Principal Consultant can pass on design responsibility to Jacobs. The responsibility for the design remains fully with the Principal Consultants.

Jacobs has exercised the usual care and thoroughness of the consulting profession as applicable when undertaking a form of peer review, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined in this note, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law. Within the scope of our review, we have used reasonable efforts to discover errors or omissions, but did not review for unsafe conditions with respect to equipment, processes or systems, and shall not be liable for failure to discover any particular defect, deficiency or unsafe conditions that is not obvious based on that review.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided in the Principal Reports. Except as otherwise stated in this report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

The data in the Principal Reports are from information sourced at the time or times outlined in the report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

The review is also subject to all the same limitations as applied to Principal Report.

This report has been prepared on behalf of, and for the exclusive use of, Jacobs's Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party including the Principal Consultant."

This page
intentionally
left blank

27 July 2015

Team Leader - Planning Services, Resources Assessments
NSW Department of Planning & Environment
(c/o NSW Environment Protection Authority)
85 Faulkner Street
ARMIDALE NSW 2350

Attention: Stephen O'Donoghue

Dear Stephen,

**Drayton South Coal Project
Response to Air Quality Peer Review**

This memo has been prepared by Hansen Bailey and Pacific Environment Limited (PEL) to provide the Department of Planning & Environment (DP&E) with a response to the requested clarifications contained within Jacobs Peer Review report.

Jacobs completed a peer review of documents relating to potential air quality impacts of the Project including the main volume of the Drayton South EIS as prepared by Hansen Bailey and dated May 2015, the Air Quality and Greenhouse Gas Assessment prepared by PEL dated April 2015 (Appendix H of the EIS) and an additional report prepared by PEL titled '*Drayton South Coal Project – quantitative assessment of air quality impacts for Year 9*' dated July 2015.

Within Section 3 of their peer review report Jacobs requested clarification on four relatively minor items noting that "*it is anticipated that information in response to the items listed will not change the conclusions of the assessment.*"

A response to each of the four items is provided below as requested.

Item

The EIS (Hansen Bailey 2015) and Table 6.2 of PEL (April 2015) indicates that larger trucks will be used from Year 10 onwards, however the emission inventories (Appendix A, Table A.1 to A.3) do not show any change in the assumptions on truck sizes between each modelled year.

Clarification

The Project does not propose the use of larger trucks. As described in the main volume of the EIS and as modelled within the Air Quality Assessment (Appendix H of the EIS) the Project will rely on the truck fleet utilised at the existing Drayton Mine.

A review of the main volume of the EIS has found no commitment to utilising larger trucks so it is not clear where Jacobs found this reference in the EIS. With regard to the reference to larger trucks in Table 6.2 of the PEL report this is an error and is the only place it occurs in the report. The modelling as completed has assumed the correct truck fleet for the life of the Project.

Item

Table 6.2 indicates that watering is used to control dust emissions due to wind erosion from exposed areas and overburden emplacements. The control factor applied for the modelling is listed as 50% (which is consistent with Donnelly et al 2011). Examination of the emission inventories in Appendix A reveals that 50% control factor has been assumed for the activity "WE – OB dump & disturbed area – controlled". Depending on the modelled year, the inventories imply that between 80 and 104 hectares (ha) of overburden emplacement areas will be subject to continuous watering

Clarification

Whilst PEL have assumed that 50% of the overburden emplacement area and disturbed area will have a 50% control, (and Table 6.2 does say watering for surface stabilization), this is more on the basis that not all the exposed area will be active at all times and will therefore form a crust akin to a 50% control from watering. If a site is not disturbed, this crust will not break and does not require constant watering.

PEL have confirmed that the recent Pollution Reduction Program introduced in the Hunter Valley that has required sites to identified their wind erosion areas are actually showing upwards of an 80 - 90% control on areas that are not being actively used (and they have not been watered either).

Regardless, PEL have confirmed that even if the modelling were to assume that there was no control on all exposed areas the emissions increase would likely be less than 5% so would not alter conclusions of the assessment.

Item

Section 8.3.2.4 refers to the conservative nature of the modelling, and indicates that Anglo American's predictive and real-time dust management system will be used to manage the day-to-day operations. It is unclear whether this statement is suggesting that the predicted exceedances of criteria will be eliminated due to this management measure. It is assumed not, since the assessment has not demonstrated this effect in a quantitative manner

Clarification

The assessment is confirming that the modelling has shown that when the background levels are elevated that there is a risk that the properties to the south may exceed the 24 hour criteria. In such a case the commitment is that the real-time proactive and predictive monitoring system would be set up accordingly to give alerts to modify and as necessary cease operations close to these locations when background is high in order to prevent the Project causing an exceedance.

Due to the nature of modelling and predicting 24 hour averaging periods and the reliance on historic background data you can never guarantee that there will be no exceedances even if the modelling were to show this.

Item

The PEL assessment concludes that, for cumulative predictions, there are (potentially) additional exceedances of the EPA's 24-hour average criterion for PM₁₀, however the Executive Summary and Conclusions sections of the report are silent on the number of properties. Inspection of the results in Section 8 show four properties with predicted additional exceedances; 226A, 226B, 226C and 217A. Confirmation should be provided that there are no more than four properties predicted to experience additional exceedances

Clarification

As noted in Section 3.2.3 of EIS Air Quality Assessment (April 2015) the results are considered to indicative of other receivers in the vicinity of those assessed. All other residences have lower maximum contribution from the Project alone and would therefore be considered to be at a lower risk. As such, if these four are kept below the criteria then the others will be as well.

The other receivers include: 226D, 227A - E, 219A - D, 217A and 240-C - D.

Should you have any queries in relation to this letter, please contact me on (02) 6575 2000.

Yours faithfully

HANSEN BAILEY

A handwritten signature in blue ink that reads "D. Sullivan". The signature is written in a cursive style with a large initial 'D'.

Daniel Sullivan

Senior Environmental Scientist

This page
intentionally
left blank

29 July 2015

Attn: Mr Stephen O'Donoghue
Department of Planning and Environment
23-33 Bridge Street
Sydney NSW 2000

Dear Stephen

Drayton South Coal Project Response to Air Quality Review

I have received and reviewed a copy of the "Response to Air Quality Peer Review" document, prepared by Hansen Bailey and Pacific Environment Limited and dated 27 July 2015.

In summary, there are no unresolved issues from the Jacobs peer review report of 17 July 2015. From this outcome, my conclusion is that the modelling provides a reasonable basis for the Department's assessment of the likely impacts associated with the revised project (SSD 6875).

The status of the comments are tracked in Section 1. Please contact me on 4979 2663 if you have any questions on this review.

Yours sincerely



Shane Lakmaker
Senior Associate (Air Quality)
shane.lakmaker@jacobs.com

1. Air Quality Peer Review Comments

- **JACOBS COMMENT (17 July 2015):**

The EIS (Hansen Baily 2015) and Table 6.2 of PEL (2015a) indicates that larger trucks will be used from Year 10 onwards, however the emission inventories (Appendix A, Table A.1 to A.3) do not show any change in the assumptions on truck sizes between each modelled year. That is, 177t capacities appear to have been used for all scenarios. A comment is required on the potential change in total dust emissions due to larger trucks from Year 10 onwards, and the potential effect on model results. While the larger capacity trucks will lead to fewer trips for the same material quantity, this could be offset by potentially heavier vehicles which are calculated to have a higher emission per truck. The effect on emissions and potential change in impacts should be checked.

HB / PEL RESPONSE (27 July 2015):

The Project does not propose the use of larger trucks. As described in the main volume of the EIS and as modelled within the Air Quality Assessment (Appendix H of the EIS) the Project will rely on the truck fleet utilised at the existing Drayton Mine.

A review of the main volume of the EIS has found no commitment to utilising larger trucks so it is not clear where Jacobs found this reference in the EIS. With regard to the reference to larger trucks in Table 6.2 of the PEL report this is an error and is the only place it occurs in the report. The modelling as completed has assumed the correct truck fleet for the life of the Project.

JACOBS RESPONSE (29 July 2015):

The HB / PEL response is accepted.

- **JACOBS COMMENT (17 July 2015):**

Table 6.2 indicates that watering is used to control dust emissions due to wind erosion from exposed areas and overburden emplacements. The control factor applied for the modelling is listed as 50% (which is consistent with Donnelly et al 2011). Examination of the emission inventories in Appendix A reveals that 50% control factor has been assumed for the activity "WE – OB dump & disturbed area – controlled". Depending on the modelled year, the inventories imply that between 80 and 104 hectares (ha) of overburden emplacement areas will be subject to continuous watering. Clarification should be sought on how the watering of relatively large overburden emplacement areas will be undertaken in practice, assuming watering is the applicable control measure.

HB / PEL RESPONSE (27 July 2015):

Whilst PEL have assumed that 50% of the overburden emplacement area and disturbed area will have a 50% control, (and Table 6.2 does say watering for surface stabilization), this is more on the basis that not all the exposed area will be active at all times and will therefore form a crust akin to a 50% control from watering. If a site is not disturbed, this crust will not break and does not require constant watering.

PEL have confirmed that the recent Pollution Reduction Program introduced in the Hunter Valley that has required sites to identified their wind erosion areas are actually showing upwards of an 80 - 90% control on areas that are not being actively used (and they have not been watered either).

29 July 2015

JACOBS RESPONSE (29 July 2015):

The HB / PEL response is accepted.

- **JACOBS COMMENT (17 July 2015):**

Section 8.3.2.4 refers to the conservative nature of the modelling, and indicates that Anglo American's predictive and real-time dust management system will be used to manage the day-to-day operations. It is unclear whether this statement is suggesting that the predicted exceedances of criteria will be eliminated due to this management measure. It is assumed not, since the assessment has not demonstrated this effect in a quantitative manner.

HB / PEL RESPONSE (27 July 2015):

The assessment is confirming that the modelling has shown that when the background levels are elevated that there is a risk that the properties to the south may exceed the 24 hour criteria. In such a case the commitment is that the real-time proactive and predictive monitoring system would be set up accordingly to give alerts to modify and as necessary cease operations close to these locations when background is high in order to prevent the Project causing an exceedance.

Due to the nature of modelling and predicting 24 hour averaging periods and the reliance on historic background data you can never guarantee that there will be no exceedances even if the modelling were to show this.

JACOBS RESPONSE (29 July 2015):

The HB / PEL response is accepted.

- **JACOBS COMMENT (17 July 2015):**

The PEL assessment concludes that, for cumulative predictions, there are (potentially) additional exceedances of the EPA's 24-hour average criterion for PM₁₀, however the Executive Summary and Conclusions sections of the report are silent on the number of properties. Inspection of the results in Section 8 show four properties with predicted additional exceedances; 226A, 226B, 226C and 217A. Confirmation should be provided that there are no more than four properties predicted to experience additional exceedances.

HB / PEL RESPONSE (27 July 2015):

As noted in Section 3.2.3 of EIS Air Quality Assessment (April 2015) the results are considered to indicative of other receivers in the vicinity of those assessed. All other residences have lower maximum contribution from the Project alone and would therefore be considered to be at a lower risk. As such, if these four are kept below the criteria then the others will be as well.

The other receivers include: 226D, 227A - E, 219A - D, 217A and 240-C - D.

JACOBS RESPONSE (29 July 2015):

The HB / PEL response is accepted.

29 July 2015

References

Hansen Bailey (2015) *"Drayton South Coal Project – Environmental Impact Statement – Volume 1 – Main Report"*. Prepared by Hansen Bailey, May 2015.

Hansen Bailey and Pacific Environment Limited (2015) *"Drayton South Coal Project – Response to Air Quality Peer Review"*. Memo from Hansen Bailey and Pacific Environment Limited to the Department of Planning and Environment, dated 27 July 2015.

Jacobs (2015) *"Drayton South Coal Project Air Quality Review"*. Letter from Jacobs to the Department of Planning and Environment, dated 17 July 2015.

Pacific Environment Limited (2015a) *"Drayton South Coal Project – Air Quality and Greenhouse Gas Assessment"*. Appendix H from the Drayton South Coal Project Environmental Impact Statement. Prepared by Pacific Environment Limited (PEL), dated 1 April 2015.

Pacific Environment Limited (2015b) *"Drayton South Coal Project – quantitative assessment of air quality impacts for Year 9"*. Letter report from PEL to Hansen Bailey, dated 10 July 2015.

Important note about your report

The sole purpose of this report and the associated services performed by Jacobs is to undertake a limited review of, and comment on, the reports entitled "Drayton South Coal Project – Environmental Impact Statement – Volume 1 – Main Report" (Hansen Bailey 2015), "Drayton South Coal Project – Air Quality and Greenhouse Gas Assessment" (PEL 2015a) and "Drayton South Coal Project – quantitative assessment of air quality impacts for Year 9" (PEL 2015b) ("Principal Reports") by Hansen Bailey and Pacific Environment Limited ("Principal Consultants"), in accordance with the scope of services set out in the contract between the Department of Planning and Environment (the "Client") and Jacobs Group (Australia) Pty Ltd ("Jacobs"). That scope of services, as described in this report, was developed with the Client.

Jacobs' review was a form of peer review, undertaken on a level-of-effort basis, to provide additional assurance to the Client as to the quality of the Principal Reports. This review does not constitute a means by which the Client or the Principal Consultant can pass on design responsibility to Jacobs. The responsibility for the design remains fully with the Principal Consultants.

Jacobs has exercised the usual care and thoroughness of the consulting profession as applicable when undertaking a form of peer review, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined in this note, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law. Within the scope of our review, we have used reasonable efforts to discover errors or omissions, but did not review for unsafe conditions with respect to equipment, processes or systems, and shall not be liable for failure to discover any particular defect, deficiency or unsafe conditions that is not obvious based on that review.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided in the Principal Reports. Except as otherwise stated in this report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

The data in the Principal Reports are from information sourced at the time or times outlined in the report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by Jacobs for use of any part of this report in any other context.

The review is also subject to all the same limitations as applied to Principal Report.

This report has been prepared on behalf of, and for the exclusive use of, Jacobs's Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party including the Principal Consultant."