21 December 2012

Department of Planning and Infrastructure

GPO Box 39

SYDNEY NSW 2000

Attention: David Mooney

Dear Sir,

Re: Drayton South Coal Project – Application No 11-0062

Sunrise Town Planning Pty Ltd has been engaged by United Pastoral Pty Ltd, the owner of Arrowfield Estate to coordinate and prepare submissions on the proposed Drayton South Coal Project.

Arrowfield Estate is on the Golden Highway adjacent to the southern boundary of the Drayton South Project approximately 600 metres from the mine disturbance area.

Background

The Arrowfield Estate Vineyard was established in 1894 as a wine vineyard. The iconic property was developed in 1965 as fully commercial wine producer and is owned and operated by United Pastoral Pty Ltd which also owns and operates Hollydene and Wybong Estate Vineyards, the three of the oldest in the Upper Hunter Valley.

The Estate was further developed in 1999 and again in 2004 to include a large warehouse cool room export facility, restaurant, cellar door, offices, meeting rooms and staff quarters. Extensive building infrastructure remains on the property, managed in conjunction with Hollydene and Wybong Vineyards.

United Pastoral wine enterprise is comprised of three separate premium vineyards and pastoral properties comprising Wybong Estate, Hollydene Estate that supply through and operate from the main infrastructure and facilities at Arrowfield. These are only with 25klms from each other and since 2003 have been fully integrated relying solely on Arrowfield as the hub for processing, marketing, administration, hospitality and export facilities. United Pastoral has detailed these issues regarding the development of the Drayton South Coal Project in the attached letter.

The current owners are proposing a staged upgrade and development of the Arrowfield Estate to include a refurbished restaurant, cellar door and conference facilities, installation of 23 new high quality tourist cabins for visitors' accommodation together with the construction of two function centres with chapels, upgrade of internal access roads and car parking. The proposed development is an extension of the current major facilities on the property. The proposed works will provide additional facilities for weddings, meetings, conferences and other events for the existing tourist trade, local mining and equine industries in the Upper Hunter.

• Some observations

During the review of the EA documents and the site assessment, the following observations were made and need to be considered when the Department reviews the EA and requests additional clarification and information.

The exhibited Environmental Assessment states the following on page 8 in relation to the Arrowfield property:

"In 2010, Arrowfield Estate was closed down and wine making infrastructure was removed. The property has recently been acquired by Hollydene Estate and does not currently operate as a vineyard or winemaking enterprise."

This lack of understanding of the current and proposed development of the Arrowfield site appears to influence the proper identification and assessment of impacts on the site. No reference is made to the development planning which has been underway with a development application currently being assessed by Muswellbrook Council. Eventhough Drayton South made a submission to the exhibited proposals.

The tourism focus of the Arrowfield development will be further enhanced with the completion of the Hunter Expressway by bringing the accommodation and facilities closer to potential users.

According to Hunter Valley coal mining professionals, the proposed mine is topographically different to other mines in the Hunter Valley, in that due to the shallow nature of the coal seam along a fault line, the mine will be elevated exposing the workings to the surrounding landscape.

There should be more detailed consideration of the potential impacts of blasting on the structural integrity of the wine storage buildings at Arrowfield as these buildings are comprised of huge concrete walls and foundations built into the hillside. These substantial concrete structures are embedded in to the bedrock and hill as part of the structural design.

Due to the proximity of Arrowfield to the mine, the issue of fumes and the need for a Management Plan was raised and needs to address the possible effects from blasting both airborne and potentially poisonous blast fumes Apparently the preparation of Fume Management Plans is an integral part of mining planning in Queensland but NSW is yet to have these measures included.

• Key Issues

The key issues relate to air, dust, visual and socio-economic matters. Specialist consultants have been reviewed the exhibited documentation and have prepared detailed reports to accompany this submission. These reports are attached with the key issues summarized below.

o Air Quality

Martin Belk at RCA reviewed the dust aspects and concluded

The dust impacts on the Arrowfield development (i.e., the cabins and chapel and as an extension of the current facilities); **and** the existing activities (e.g. the vineyards and facilities) as shown in the Air Quality Impact Assessment are significant, given a number of factors found in RCA's review particularly the large number of air quality exceedances at or near the location of the Arrowfield estate.

• Noise Impacts

Ray Tumney at RCA reviewed the noise aspects and concluded:

Overall I am not satisfied that the acoustic assessment by Bridges Acoustics represents the claimed worst case impacts and some additional information would need to be provided to correct that situation.

Equally I am not satisfied that the acoustic assessment adequately details the acoustic impacts that will be observed at Arrowfield Estate over the course of the life of the Drayton South Expansion

o Visual Assessment

The assessment was prepared by Environment and Planning. The key issues as follows:

- The VIA has not taken into account Arrowfield's development proposals currently before Council (including dust and light impacts, and impacts to views).
- The VIA has not assessed visual impacts at Arrowfield's existing facilities as an operating business (including dust and light impacts).
- The VIA has not adequately considered the DG's Requirement to assess visual impacts on tourists.
- Socio-Economic Assessment

A review of the socio-economic aspects of the EA was undertaken by an experienced and specialised consultancy firm Lantz Marshal. In reviewing both reports, deficiencies and limitations were identified with recommendations as follows:

- A new comprehensive SIA be prepared.
- A new extensive economic analysis has been undertaken at a broad level with additional analysis to address the local and regional economic impacts deriving from the ,

Actions Required

Timely resolution of these matters is paramount as the ongoing delays create potential financial distress for United Pastoral as it endeavours to achieve its business plans for Arrowfield.

Given the above issues, it is requested that the Department of Infrastructure and Planning seek more information and clarification prior further consideration of this matter.

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Yours faithfully

Garry O'Dell Sunrise Town Planning Pty Ltd



20th December 2012

Department of Planning and Infrastructure GPO Box 39 SYDNEY NSW 2000

Attention: David Mooney

Dear Sir,

Re: Drayton South Coal Project – Application No 11-0062

Dear Sir,

United Pastoral Pty Limited trading as Hollydene Estates Wines is located in the rich Upper Hunter Valley of New South Wales, Australia, the original and oldest wine grape growing in the country dating back to 1894. Hollydene at Arrowfield which is at the gateway to the Upper Hunter is rated as a 4* winery, with highly awarded and decorated premium wines in Australia and export to China, Hong Kong and Vietnam.

United Pastoral wine enterprise is comprised of three Upper Hunters three oldest vineyards and pastoral properties comprising Wybong Estate, Hollydene Estate that supply through and operate from the main infrastructure and facilities at Arrowfield Estate. These are only with 25klms from each other and since 2003 have been fully integrated relying solely on Arrowfield as the hub for processing, marketing, retail, administration hospitality and export facilities. These properties provide three of the oldest and most iconic vineyard and wine estates in the Upper Hunter. It is important to note that without Arrowfield Estate and the significant facilities Hollydene and Wybong could not viably operate as stand alone enterprise.

The history of Arrowfield dates back to 1834 with the first wine grapes planted in 1894 at the current property. By 1969, Arrowfield, the then largest wine vineyard in NSW was rationalised down with the integration of the Coolmore Horse Stud to 240 acres. Wybong Estate and Hollydene Estate have produced premium wine grapes since 1965. With all Wybong, Hollydene and Arrowfield wines recognised as some of the most iconic in the Australian wine industry.



HOLLYDENE ESTATE (AT ARROWFIELD) 3483 Golden Highway, Jerry's Plains, Upper Hunter Valley, NSW 2330 PO Box 69 Denman NSW 2328 РНОNЕ +61 2 6576 4021

F A C S I M I L E +61 2 6576 4079

W W W. H O L L Y D E N E E S T A T E . C O M

E M A I L info@hollydeneestate.com Hollydene Estate bounds the west of the new Xstrata Mangoola mining operations and Wybong Estate on the northern side of the mine and now sits in the Ridgelands coal exploration area. After it became apparent the negative environmental effects of the proposed new mining operations to our Hollydene and Wybong Estates became apparent, a decision was made to retain only the vineyards operations and redevelop the whole enterprise at Arrowfield fro which we had been operating separately from since 2004. The concerns which were contemplated by us then but not reflected in the original modeling by the mine owners regarding dust, light and noise to Hollydene and Wybong Estates have since been realised with the now full operating mine within 2klms from these estates.

The Arrowfield, Hollydene and JUUL brand wines have been produced at the current Arrowfield facilities since 1969. The facilities at Arrowfield are world-class infrastructure constructed in the 1960s era being redeveloped and expanded in 1999 and 2004. There is no other operating vineyard estate in the Upper Hunter comparable.

Complimenting the premium wine production is highly recognised Angus beef cattle breeding along with high yield pasture cropping on the rich alluvial flats.

United Pastoral boasts the most experienced employees in viticulturist, wine makers, export marketing and beef cattle in the industry complimented by world class wine industry hospitality management providing a broad cross section of Australian, French, European, Chinese and New Zealand experience. Local farm hands and trainee viticulturist support these.

UNITED PASTORAL AROWFIELD ESTATE COMPRISES

- Re-equipping the winery with state of the art equipment and technology to establish Arrowfield as a world class and Australian leader. The winery will produce at least 300,000 bottles of wine per production cycle with a minimum capacity of 600,000 bottles per year. Eventual capacity to be around 2 million bottles per year to meet United Pastoral projected premium export market.
- Vintage and new vineyards producing reserve quality Shiraz, Semillon, Chardonnay, Verdelho complimented by the fruits from Wybong and Hollydene estate such as Sangovoise, Tempranillo, Traminer, Semillon, Shiraz and Chardonnay. The website <u>www.hollydene.com.au</u> highlights all the wine brands and the estate.
- Development of the Hollydene Olive both table and oil groves across Arrowfield estate in conjunction with local olives.
- Continuation and expansion of the United Pastoral renowned Angus beef cattle breeding program on Arrowfield.
- Significant wine cellaring (storage) and ageing facilities. Including 4000m2 export cool room constructed in 1999. The cellar building is one of the largest in the Hunter Valley large and has significant capacity for expansion as United Pastoral develops it expanding export business.
- Cellar Door (visiting centre for customers and tourists) to learn about, taste and purchase wines at the winery.
- Large restaurant & café as well as a substantial function centre to cater for weddings, parties, corporate meetings and conferences (capacity to exceed 500 persons).
- The proposed chapel, which is currently with Muswellbrook Shire Council for approval, will be constructed on the vineyard to cater for wedding ceremonies. These facilities will cater for the growing local demand from Singleton, Muswellbrook Shire and Denman as in the Upper Hunter, there are there are few comparable family friendly destinations.
- Proposed micro (small) brewery as in conjunction of the new wine making technology with in the expansive winery building creating hand crafted beers under the Hollydene exclusive brands.
- Hunter delicay shop for tourists selling local products such as Hollydene olives, Hollydene prime Angus beef, Hollydene lamb, Hunter cheeses plus art and craftwork from local and indigenous artists.
- Proposed currently in development application with Muswellbrook Shire Council for 23 eco luxury cabins with modern amenities for on vineyard visitors' accommodation.

W W W. H O L L Y D E N E E S T A T E . C O M



HOLLYDENE ESTATE (AT ARROWFIELD)PHONEFACSIMILEEMAIL3483 Golden Highway, Jerry's Plains, Upper Hunter Valley, NSW 2330+61 2 6576 4021+61 2 6576 4079info@hollydeneestate.comPO Box 69 Denman NSW 2328

- ٠ Three traditional fully renovated farmhouses, which have been on the property since 1969 national visitors on a continuous basis utilised by onsite Manager and visitors.
- Utilisation of the existing helipad for corporate use and for scenic helicopter flights over the beautiful scenery of the equine and Upper Hunter Valley. Arrowfield will operate in conjunction service direct to Sydney for guests.

After some ten years of investing all our resources into building and developing a sustainable long term business from one of the world's renowned premium wine grape regions located at Australia's first wine grape growing estate Arrowfield, we are now confronted with a coal mine development which will see this destroyed. Our overseas investors and clients demand an Estate to relate to the wines they are consuming. There experience is visit a premium facility with ambience and an environment representative other competitive vineyard estates comparable to Arrowfield. This cannot be achieved if the Drayton South Coal Mine is allowed to develop in any form neighbouring Arrowfield.

The proposed Drayton South Coal Mine is at complete odds and in conflict with more than a century of continuous occupation and statue that Arrowfield has enjoyed with co-habitation impossible. Once again that we will be stalled in our current development while the assessment process is undertaken which is significantly burdening us financially and further our international clients now looking elsewhere in view of this uncertainty.

Yours Truly

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Karen Williams Director United Pastoral Pty Limited

W W W. H O L L Y D E N E E S T A T E . C O M



HOLLYDENE ESTATE (AT ARROWFIELD) PHONE FACSIMILE EMAIL +61 2 6576 4021 3483 Golden Highway, Jerry's Plains, Upper Hunter Valley, NSW 2330 +61 2 6576 4079 info@hollydeneestate.com



PO Box 747 The Junction, NSW, 2291 Phone: 04 2424 3014 alison@environment-planning.com.au

20 December 2012

United Pastoral Pty Limited 3483 Golden Highway Jerrys Plains NSW 2333

Attention: Mr Gary Williams

Dear Gary

Drayton South Coal Project Visual Impact Assessment – Impact to Arrowfield property

Introduction

This report considers the visual impact of the proposed Drayton South Coal Project (the Project) on the Arrowfield Estate (Lot 101 DP805705, 3483 Golden Highway, Jerrys Plains). It has been prepared in support of the submission on the Project by United Pastoral Pty Limited (owner and operator of Arrowfield Estate), and follows a review of the Project Visual Impact Assessment (VIA) prepared by JVP visual planning and design (October 2012), and a site visit to the Arrowfield Estate (10 December 2012).

The objective of this report is to:

- Consider the visual aspects of the Project in relation to the existing Arrowfield Estate, and Arrowfield Estate's development proposals;
- · Highlight areas of the VIA where further investigation or information is required; and
- Raise potential concerns regarding visual aspects.

Background

Arrowfield Estate at Jerrys Plains is located immediately to the south of the Project. This property is one of three vineyards that comprise Arrowfield Estate wines. Currently, the Arrowfield Estate cellar door is situated at their Pokolbin property, however, the infrastructure and a current DA is in place for cellar door operations to resume at Arrowfield's Jerrys Plains property. In addition to the cellar door, Arrowfield's Jerrys Plains property has existing infrastructure and a current DA for a restaurant, administration and function facilities.

The first wine grapes were planted at Arrowfield in 1894. Grapes at the property are not presently harvested, however, it is intended to return the Estate to wine production in conjunction with Arrowfield's development proposals.

Arrowfield's Proposed Development

Currently before the Muswellbrook Council is a proposal by United Pastoral Pty Ltd to create a tourist and visitor accommodation centre (including 23 accommodation units), and a chapel/function centre (including the construction of two chapels), at the Arrowfield Estate. The development is intended to provide facilities and an attractive rural venue for weddings, conferences, events and the tourist trade.

The development would complement, and operate in conjunction with, an active cellar door, restaurant, visitor picnic area, and grape harvesting at the site.

A Statement of Environmental Effects and visual impact assessment has been prepared for Arrowfield's proposed development (RHM Consulting Engineers Pty Ltd, July 2012) describing the natural attributes of the area and the importance of these attributes to the development of the estate. The surrounding rural

land (including the rural land to the north where the Project would be located) is part of the scenic appeal of the site.

Review of the Project VIA

The VIA states that "Arrowfield Estate is a distinctive landscape setting that adds to the visual quality of the region and locality. It...is likely to have high sensitivity values due to its close proximity to the Project Boundary" (p20). The existing winery cellar door and administration and function facilities are located at the top of the hill with a north easterly outlook towards the Project (VIA, p20).

However, the VIA has classified the Arrowfield Estate as having low visual sensitivity due to lack of visibility to the Project (p62). The classification of low sensitivity has not, or not adequately, taken into account Arrowfield Estate's development proposals (which include the active operation of the existing facilities), and dust and lighting impacts from the Project.

In addition the VIA has not: provided sufficient information to determine the extent of the property from which views to the Project could be possible; adequately considered the Director-General's (DG's) Requirement to assess visual impacts on tourists; or, in conjunction with the impact on tourists, considered cumulative visual impact resulting from the failure of existing planting along the Golden Highway to inadequate to screen views into mine sites.

The above points are discussed below.

Arrowfield Estate's development proposals

The VIA has not included an assessment of the visual impact that would be experienced at Arrowfield's proposed accommodation and function centre facilities that would be located on high points of the Estate, with likely views to the Project.

The VIA concludes that any visual impacts on the high points on the tops of the ridgeline at Arrowfield would be moderate to low as they do not form part of the Estate's commercial areas (p105) – and no photomontages from Arrowfield looking toward the Project were included in the VIA. However, the high points on the tops of the Estate are integral to the development proposal, as they would house the proposed accommodation and function facilities, providing a scenic outlook for visitors. These locations were selected as sites for accommodation to take advantage of the views. A loss of visual amenity would negate the intent of the proposed facilities to provide a scenic venue for functions and accommodation.

To adequately consider the visual impact at Arrowfield, a description (and photomontages) of existing and proposed views from Arrowfield's proposed accommodation and function centre facilities should be included in the VIA, as well as an assessment the visual impact on the Estate in the location of Arrowfield's proposed development.

Visible dust

In addition to the visual impact on direct views, it might be possible that dust from the Project could be seen from the high points of the Estate where the accommodation and function centres are proposed to be located. This has not been considered in the VIA.

Additionally, the VIA has not adequately considered visual dust impacts at Arrowfield's existing facilities located in the lower areas of the Estate. These facilities need to be assessed as active operations as they have approval to operate as cellar door and restaurant, and it is proposed that these facilities would be operating as part of the Estate's development proposals.

The proposed operational area of the Project is located only one kilometre away from Arrowfield Estate at its closest point (although this distance is difficult to determine as property boundaries are not shown on many of the illustrations in the VIA). Therefore, it might be possible that dust from mining operations could be seen by visitors to the Estate, both from the lower areas of the Estate (where the cellar door, restaurant and visitors picnic area are located); and from the upper areas of the Estate (where the proposed accommodation and function centres would be located). This could adversely affect the experience of visitors who had come to the Estate to enjoy wine and a meal, experience the rural scenery

from the accommodation, and participate in celebrations and gatherings (such as weddings) that might be held at the function centres.

An assessment of the visual impacts of dust in relation to Arrowfield's proposed development, and in relation to Arrowfield's existing facilities as an active operation, should be included in the VIA.

Lighting impacts

It is not clear what the direct lighting impacts on Arrowfield's proposed facilities would be, or which areas of the Estate might be affected by diffuse light from the Project.

The VIA states that some direct night lighting impacts may be experienced to the south during the construction of the Houston Visual Bund from intermittent lights associated with truck movements involved in constructing the bund (p108-109). The VIA should clarify whether direct night lighting, either from the mining operations or the construction of the Houston Visual Bund, would be seen from Arrowfield's proposed facilities.

The VIA states that diffuse light effects "would be apparent from time to time", however, that the influence of surrounding mining operations and associated lighting activities would reduce the visual impact of diffuse light associated with the Project (p109). It is not clear why visual impact would reduce given the Project would introduce more lights into the area. Alternatively, the VIA could consider whether additional light sources would increase the cumulative effect of diffuse light, and intensify light impacts experienced on the southern properties. In addition, if the VIA included an illustration of the extent of the cumulative lighting halo (if such illustrations are possible), this might help assess the potential cumulative lighting impact.

An assessment of the visual impacts of lighting in relation to Arrowfield's proposed development, and Arrowfield's existing facilities as an active operation should be included in the VIA.

Viewshed

A map illustrating the areas from which views of the Project might possible has not been provided in the VIA, therefore, it is difficult to ascertain the extent of areas within the Arrowfield Estate which might see the Project. To help determine where on the Estate views could be possible, the VIA should include a viewshed analysis (a map of the area that is likely to view the Project) to indicate the extent of areas (as far as practical) where views might be possible. The viewshed analysis could be projected over various timescales to indicate the locations that could see the Project progressively over the life of the mine.

DG's requirements

The DG's Requirements specified "Visual" as a key issue to be assessed and requested: ... assessment of visual impacts on the thoroughbred breeding industry, residents, tourists and other road users. The VIA does not adequately address this Requirement.

The VIA states that the "Project does not significantly compromise the scenic and landscape settings of the tourist and agricultural businesses around the Project" (p108). However, there is only limited discussion in the VIA on the visual impacts on tourists, and the cumulative visual impact of mining on the tourism industry hasn't been considered. As Arrowfield would be a tourist facility, tourism in the area is an important consideration.

From the Golden Highway, views of elevated areas within the Project and the visual bund would be possible. The VIA considers the highway to be generally moderate to low sensitivity (VIA, p64). However, the VIA does not consider whether tourists would be deterred from visiting the area due to increasing views of the surrounding mines, and whether the cumulative visual impacts of seeing mining operations from the numerous vantage points along the Golden Highway, as well as other roads in the area, would influence the choice of visitors to travel to, and stay in, the Upper Hunter.

The perception of tourists visiting the area is likely to be influenced by views into existing mines (direct views and filtered views through the narrow and at times quite sparsely vegetated tree belts along the road side). The VIA could consider whether negative perceptions of the area as a tourist destination might

arise (or intensify) due to the cumulative visual impacts associated with increasing mining activities in the area.

Proposed Planting

The Project includes rehabilitation and screen planting to restrict views into the proposed operational mining area. However, as has been shown by the failure of existing planting to adequately screen views at other mine locations along the Highway, successful planting and rehabilitation is not guaranteed. Views of existing mining activities occur at intermittent intervals along the Golden Highway, contributing to the cumulative visual impact that would be experienced by road users.

Due to the importance of establishing vegetation to screen the Project, detail regarding the proposed planting could be provided, including information such as:

- a. the standard measures, targets and time frames that would be implemented to monitor growth and density to measure the success of planting;
- b. Contingencies and alternative methods to be employed in the event that targets are not achieved; and
- c. Trigger points (active throughout the life of the mine) that would lead to the implementation of contingencies if proposed planting was not achieving its intended outcome in screening the mine.

Appropriate measures, trigger points, and alternative methods to be implemented, could be determined and agreed prior to any approval of the Project.

Key Points

- The VIA has not taken into account Arrowfield's development proposals currently before Council (including dust and light impacts, and impacts to views).
- The VIA has not assessed visual impacts at Arrowfield's existing facilities as an operating business (including dust and light impacts).
- The VIA has not adequately considered the DG's Requirement to assess visual impacts on tourists.

Yours Sincerely

Alison Dodds (B.L.Arch, B.Plan. PG Cert Public Policy)

References

- JVP visual planning and design, October 2012, "Drayton South Coal Project Visual Impact Assessment". (Final Rev A).
- RHM Consulting Engineers Pty Ltd, 6 July 2012, "Statement Of Environmental Effects For Proposed Tourist And Visitor Accommodation And Chapels/Function Centres At Lot 101 Dp 805705 (No. 3483) Golden Highway, Jerrys Plains".



Acoustic Review of Noise impact Assessment Drayton South Coal Project – Application No 11-0062 Prepared for United Pastoral Pty Ltd (Arrowfield Estate) Prepared by RCA Acoustics RCA ref 9586 - 702.2 Acoustic Review December 12





RCA AUSTRALIA

ABN 53 063 515 711

92 Hill Street, CARRINGTON NSW 2294

Telephone: +61 2 4902 9200 Facsimile: +61 2 4902 9299 Email: <u>administrator@rca.com.au</u> Internet: www.rca.com.au

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Contents

1	INTRO	DUCTION	1	
2	TECHI	NICAL REVIEW OF THE BRIDGES ACOUSTIC REPORT	2	
	2.1	Assessment Criteria	2	
3	REVIE	W OF THE METHOD OF ASSESSMENT	3	
		MODELLING OF SOUND EMISSIONS NOISE SOURCES ASSESSED AIRBORNE SOUND IMPACTS	4	
4	BLASTING			
	4.1 4.2	GROUND VIBRATIONBLASTING OVERPRESSURE		
5	CONC	LUSION	7	



RCA ref 9586 - 702.2 Acoustic Review Client ref XXXXX

21 December 2012

United Pastoral Pty Ltd

C/- Sunrise Town Planning59 Gills LaneBrunkerville.NSW, 2323, Australia

Attention: Gary O'Dell

NOISE IMPACT REVIEW DRAYTON SOUTH COAL PROJECT – APPLICATION NO 11-0062

1 INTRODUCTION

RCA Acoustics has been engaged by the Arrowfield Estate to conduct a peer review of the acoustic impact assessment lodged for the proposed Drayton South expansion <u>Drayton South Coal Project – Application No 11-0062</u>. A number of issues concern the current owners of Arrowfield estate and their major overriding concern is that the mine expansion will prove to be a land use that is incompatible with the existing and future Arrowfield operations.

Arrowfield commenced as a vineyard and winery in 1969 after having been a pastoral property before that. The operation currently has wine production facilities, a wine storage area, wine tasting and restaurant facilities, and residential cottages that are let to holiday makers all year round.

A development application to add additional cottages to the Arrowfield Estate is currently before Muswellbrook Council and the Arrowfield owners are concerned that the progress of the Drayton Southern expansion could irreparably compromise their investment in new tourist infrastructure by causing disruption to tourist activities and making the acoustic climate in the area less attractive to people for overnight stays and extended holidays.

This report reviews the technical aspects of the acoustic study by Bridges Acoustics for the proposed Drayton south expansion and seeks to provide interpretive commentary on how the mining induce impacts will be likely to affect the property at Arrowfield and any visitors who may seek to participate in wine tastings, use the restaurant or stay at the Estate.

2 TECHNICAL REVIEW OF THE BRIDGES ACOUSTIC REPORT.

The acoustic report by Bridges Acoustics is a technically competent work that conducts an assessment in accordance with the NSW Industrial Noise policy. The report does, however, use modelling and predictive methods that I consider do not fully represent the effects of mine noise and blasting that will be experienced at Arrowfield Estates.

Neither does the report interpret the findings in terms of the likely human response to the events that will occur as result of mining noise impacts. The absence of interpretation of human response is, in my view, one of the reasons that there is often strident criticism of noise impact assessments as not being representative of the on ground experience of the community.

When presented with a report that demonstrates strict compliance with the criteria set out in the guidelines it is difficult for regulators to look behind the presented document and interpret the nuances that give rise to apparent continued and ongoing compliance demonstrated in the assessment document.

2.1 ASSESSMENT CRITERIA

The assessment criteria adopted by Bridges Acoustics are the standard INP criteria and are based on data logging in areas that are considered representative of the receiver locations. The outcome of the background data logging for Arrowfield Estates gives background sound levels ranging between 25dB(A) to 29dB(A) and existing industrial noise levels from mining of 22 dB(A). These levels are typical of a rural area without any significant amount of industrial sound and the Arrowfield Estate property can be considered, at this point, to be unaffected by Industrial Noise.

One of the key elements of being in a rural area and unaffected by industrial noise is that there are certain elements of the sound spectrum that are simply not present in the general acoustic environment. In general, industrial sounds have the largest effect on changing the rural acoustic environment in the frequency ranges between 100Hz and 500 Hz. Sound in what I will call the industrial frequency range 100Hz to 500Hz is generally the sound people observe not to be present when they go to a rural area for "peace and quiet" and in my view any changes to the sound levels in this range should be discussed in detail as part of assessing the impact. There are no specific criteria for determining a change in the character of the acoustic climate apart from examining an overall A-weighted sound level and in my view this does not tell the whole story.

So while the criteria adopted by Bridges Acoustics are in keeping with the letter of the INP they do not properly set a baseline against which the total noise impacts can be considered. This issue is not unique to the Bridges assessment of Drayton South but is an industry wide problem that the community is painfully aware of, but is generally at a loss to be able to come to grips with and manage effectively.



3 REVIEW OF THE METHOD OF ASSESSMENT

3.1 MODELLING OF SOUND EMISSIONS

The assessment method used by Bridges Acoustics is to model a series of localised point sound sources in selected locations that are intended to represent the operation of a coal mine at specific stages of its development. The models are based on the various stages of the intended Mine Plan and place noise sources in various locations within a theoretical open cut mine pit to predict the effects of the operations at various stages of development.

There are a number of potential risks in this process that must be carefully considered by the assessor as they are constructing the models.

- a. It is very easy to incorrectly assume that equipment working in a mine is always better shielded from the potential residential receivers than it will be in real life. In my view Bridges has made this error by assuming that all equipment will always be behind a 6 meter high wall. My check calculations reveal for example that:
 - i. a drill treated with the best available sound attenuation (as modelled by Bridges) when working on open ground at the start of a new bench at ground level in years 3 to 15 would produce sound levels at Arrowfield Estate of around 45dB(A) 48 dB(A) and similar sound levels in the 125 Hz, 250 Hz and 500Hz bands.
 - ii. Similarly a Dozer removing and stockpiling topsoil and preparing the drill pad will produce levels of 58- 61 dB(A) and sound levels 40-43 dB at 125 Hz, 50-53 dB at 250 Hz and 52-55 dB at 500 Hz. These conditions will be present for significant amounts of time all though the development of the Redbank Pit as it progresses to the south west.

Sound of this level will be highly intrusive for visitors to Arrowfield who have come for a quite country experience.

- b. There is further risk in modelling the progress of a mine that is brought about by constraints in the modelling tools that are available. Most modelling tools and ENM in particular only deal well with point sources. That is to say a noise emitting item of equipment is input into the model as an infinitely small stationary point with an assigned sound emission level. A range of assumptions must be made to mimic the operation of a mine in which noise emitters such as trucks, dozers and other mobile plant are moving around. The commonly accepted method of accomplishing this is to "time average the sound emissions" from the sources as Bridges has done by assuming that a source spends a proportion of its time at one location and another proportion of its time and another or several other locations. Time averaging effectively discounts the sound emission levels of equipment near to an affected residential receiver and it is difficult to develop a modelled situation that really represents that transit activities of mobile plant. The types of sound emission discount that arise from this process and as used by Bridges are:
 - i. An item of equipment allocated 50% of its time in two locations receives a 3dB discount on it sound emission in each location,
 - An item of equipment allocated 25% of its time in four locations receives a 6dB discount on it sound emission in each location,



iii. An item of equipment allocated 12% of its time in eight locations receives a 9dB discount on it sound emission in each location, and so on

The INP sets the assessment criteria around a 15 minute worst case assessment sound level and, therefore, if a discounted sound level is to be applied by time sharing the sound signature of mobile plant, then the plant must indeed be moving across the entire range of movement allocated in the model in a 15minute period. If it does not do this it cannot be allocated the discounted sound level. Drills for example do not move any significant distance within a 15 minute period and do not have significant down times in their duty cycle and so should not be allocated a time based discounted sound level. Dozers working in an area equally, do not move over an acoustically significant distance in their operations within a 15 minute period and have continuous duty cycle. Dozers should also not be allocated a time based discounted sound emission level.

Bridges has allocated time based discounts to both these items and in my view this underestimates the 15 minute equivalent continuous sound levels that are used to assess the impacts at Arrowfield Estate.

3.2 NOISE SOURCES

I have reviewed, as well as is possible, the number and distribution of noise sources displayed in the Bridges assessment and attempted to compare it with the Mine Plan published in the EIS document.

Bridges does not include his listing of noise sources from the ENM model and it is very difficult to determine from the noise source plots how many of each type of plant or equipment item is present in the model.

The noise source plots lack an appropriate scale and so determining the location of sources from the plots is difficult. Determining the actual Relative Level of the sources with respect to the receiver and an any assumed intervening topography is not possible from the information available because, although Table 17 of the Bridges report gives the height above ground of the source, the ground height on which that is based may not be readily determined. I cannot, therefore, properly review the accuracy of the modelling in this regard.

However, it is possible to review some elements and this give rise to concerns. For example:-

a. Table 11 of the EIS document lists 9 by D11 Dozers, 5 by D10 dozers and 17 large haul trucks as active for Drayton South in year 5. I cannot find even half of that equipment included in the noise source plot for year 5. So I am left with the unanswered questions of where is the remaining unallocated plant and equipment and what work is it performing. It is reasonable to assume that 10% of the fleet will be down for maintenance but that still leaves a large amount of equipment unaccounted for. The same appears to be true in other years but without the actual source listing from the INM program it is impossible to tell how much of the proposed equipment has been properly allocated to its work locations and what if any time based discounts have been applied to sound emission levels.



3.3 ASSESSED AIRBORNE SOUND IMPACTS

Bridges Acoustics makes the statement that the proposed mine operations have been assessed including ALL reasonable and feasible noise control measures and using the best available technology and applying the maximum practical buffer zones. That being the case I come to the view that there will be large amounts of the time when the impacts from airborne sound at Arrowfield Estate will be more in keeping with Bridges' Appendix D sound level plots, which Bridges' says are unacceptable impacts.

Overall, I am of the opinion that there will be an increase in ambient overall sound level at the Arrowfield Estate of 5 to 7 dB at night. Also there will be an increase in sound levels in the 100Hz to 500 Hz band of between 10dB and 30dB which will change the ambient climate from one that has no industrial noise to one that is dominated by industrial noise characteristics for significant portions of the year. That change to the acoustic climate will be permanent and irreversible for the life of the proposed Drayton South extension.

It is my expectation that visitors to Arrowfield who come to the area for "peace and quiet" and respite from urban area noise will no longer be guaranteed to be able to have that experience at Arrowfield Estate. What impact that may have on the viability of the business and what damage that may do to the proposed investment in new cabins is outside the scope of this review.

4 BLASTING

4.1 **GROUND VIBRATION**

Bridges has calculated the predicted blasting impacts based on the default values in AS 2187. While these are generally acceptable for one off unknown ground conditions there is no reason that these should be applied to ground conditions where there is extensive mining experience and where the propagation characteristics of the ground can be well known. I have extensive experience in monitoring blasting in the Hunter Valley region and I can attest that that the "B" value measured in the Hunter Region can reliably range down to between 1.3 and 1.1, which for blasting at 700 meters, using Bridges 500kg MIC and 1140 "K" value will produce a predicted ground vibration level in the range 13 mm/s to 25 mm/s PPV at Arrowfield Estate.

We have conducted extensive studies on the spread of ground vibration and overpressure results from well managed and controlled mine blasting over the last 10 years and the spread of the uncertainty around predicted ground vibrations can be as high as a factor of 5 in the same ground for well controlled and managed blast tie ups. It has also been my experience that in the Hunter Valley a 500kg MIC is at the bottom end of the charge weights that are likely to be used and 800- 1000kg is more common.

It is not safe in my opinion to rely on a predicted ground vibration level at 4.7mm/s with a 500kg MIC using the generalised equation parameters.

The current Drayton Blast Monitoring and Management Plan is silent on the specific blasting technologies to be used and, so I assume that the normal practice will be to use Pyrotechnic (NonEI) detonation systems. When using pyrotechnic detonation systems, while the best efforts are made to adhere to the 8ms rule of separating ignition of individual holes, the natural tolerance spread of pyrotechnics means that this is not always



possible and more than one hole may ignite at a time. Should that be the case the MIC is doubled with the consequent increase in ground vibration.

A significant and detailed upgrade is required to the Drayton Blast Management Plan because it cannot at this point be assured that excessive blast impacts will not occur at Arrowfield Estate.

On the assumption that the 5mm/s recommended ground vibration criteria can be achieved with the use of smaller MICs and better controlled blasting tie ups and technology, we should consider what the actual effect of that level of vibration will be for the operations at Arrowfield.

It is well established that ground vibrations at between 1mm/s and 2mm/s from mine blasting in the Hunter Valley generate community complaint from people who have been notified and are habituated to mine blasting. It is very rare in the Hunter Valley for ground vibration level from mine blasting to exceed 2mm/s.

At a ground vibration level of 5mm/s people become frightened and there is a substantial likelihood that any items that are freestanding or loose on shelves may be dislodged. When the predicted blast vibration levels are considered in the context of guests at Arrowfield Estate who are not habituated to mine blasting it is reasonable to expect that they will become alarmed. It is unreasonable to expect guests to behave like people who are habituated to mine blasting an so there is a real prospect that they may have personal property damaged if it falls from a location whare it was not secure.

It is also reasonable to expect that at a ground vibration level of 5mm /s there would be some likelihood that wine bottles in storage or display racks may become dislodged. The dynamic effect on liquid in the wine vats is not established, at this point, but in my view is a risk that needs to be assessed because stationary equipment of the age of the Arrowfield infrastructure may not have been designed to accommodate dynamic blasting induced loads when filled with liquid.

4.2 BLASTING OVERPRESSURE

Although the incorrect orientation of a blast tie up can increase overpressure levels by more 20 dB, I am satisfied that blasting overpressure can be managed effectively provided the Mine Blasting plan is properly updated. The Blast Management Plan needs to ensure that blast tie ups take adequate account of blast directionality and directional overpressure propagation and that proper care will be taken to ensure adequate stemming and burden cover for each blast.

None of these issues have been considered in the Bridges assessment and the management of blast overpressure needs to be the subject of close scrutiny prior to any approval being issued.

Even so there will always be a circumstance where an undetected ground fault, unexpected face movement, or unexplained stemming ejection will occur and this will lead elevated blast overpressure levels.

The acoustic assessment by Bridges which shows that the smallest likely MIC is only just below the criteria in an area where the normal tolerance for error is very large suggests that there is a high risk that blasting from Drayton South could severely and unexpectedly affect Arrowfield Estate.



The most likely impacts will be that guests are frightened and that some wine bottles that are loosely stored or displayed may be dislodged and destroyed.

The effect of this aspect of the impacts may have on the viability of the business and what damage that may do to the proposed investment in new cabins is outside the scope of this review.

5 CONCLUSION

Overall I am not satisfied that the acoustic assessment by Bridges Acoustics represents the claimed worst case impacts and some additional information would need to be provided to correct that situation.

Equally I am not satisfied that the acoustic assessment adequately details the acoustic impacts that will be observed at Arrowfield Estate over the course of the life of the Drayton South Expansion.

The absence of commentary about the total range of airborne sound levels that will be observed and the likely change in the overall character of the acoustic climate to include a significant level of industrial noise, where none was previously present, requires evaluation and comment, in my view, to enable the operators of Arrowfield Estate to decide if the proposed expansion will adversely affect their business model and their proposed investment.

The fact that the proposed expansion of the Mine has already adopted ALL reasonable and feasible mitigation measures means that should it be found that there are issues that have not been properly explored, such as the issues related to modelling detailed above, and should that produce an adverse outcome in the future, then there would be no possibility of correcting the problem and Arrowfield Estate could suffer a debilitating loss.

I do not consider the acoustic assessment provides sufficient information to enable evaluation by the community of the on ground effects of the proposed expansion.

Yours Sincerely

RCA Acoustics

the Turney

Ray Tumney BEng(Mech), MEnv Stud, MAAS, MIEAust, MSEE, Principle Consultant

Date

21 December 2012





REVIEW OF AIR QUALITY ASSESSMENT – DUST IMPACTS Drayton South Coal Project, NSW

Prepared for Sunrise Town Planning Pty Ltd on behalf of United Pastoral Pty Ltd Prepared by RCA Australia RCA ref 9586-701/2 December 2012





RCA AUSTRALIA

ABN 53 063 515 711

92 Hill Street, CARRINGTON NSW 2294

Telephone: +61 2 4902 9200 Facsimile: +61 2 4902 9299 Email: <u>administrator@rca.com.au</u> Internet: www.rca.com.au

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Contents

1	BACK	GROUND	1
2	RCA'S	REVIEW OF THE AIR QUALITY IMPACT ASSESSMENT	2
	2.1 2.2	INTRODUCTION AND RCA'S METHODOLOGY Review	
3	RCA C	CONCLUSIONS AND RECOMMENDATIONS	7
4	LIMITA	ATIONS	8
REFE	ERENC	ES	9

RCA ref 9586-701/1

21 December 2012

Sunrise Town Planning Pty Ltd 59 Gills Lane BRUNKERVILLE NSW 2323

Attention: Mr Garry O'Dell



Geotechnical Engineering Engineering Geology Environmental Engineering Hydrogeology Construction Materials Testing Environmental Monitoring Noise & Vibration Occupational Hygiene

REVIEW OF AIR QUALITY ASSESSMENT – DUST IMPACTS DRAYTON SOUTH COAL PROJECT

1 BACKGROUND

RCA Australia (RCA) was requested by Sunrise Planning Pty Ltd (Sunrise), on behalf of United Pastoral Pty Ltd (United Pastoral) to carry out a review of the dust aspects shown within a document for the Drayton South Coal Project NSW.

Karen Williams from United Pastoral is the owner of "Arrowfield", an estate located approximately 10km north-west of Jerry's Plains NSW and 17km south-east of Denman NSW. This is a long established estate, with operations and developments dating back to 1969. The estate is highly regarded throughout the wine industry and public, and the existing operations include premium wine-producing vineyards; residences (3); a cellar; restaurant function areas; winery building and processing and export facilities.

Anglo American, the owner of Drayton Mining has submitted a Development Application (DA) for the continuation of mining operations into the Drayton South area, which is immediately north of the Arrowfield estate. In addition, United Pastoral has a DA with Muswellbrook Council for the development of the Arrowfield site for the provision of new accommodation (23 single storey cabins) and chapel function as an extension of the existing facilities (and as described above). In order to facilitate this application United Pastoral requested a review of the air quality aspects of the Drayton South proposal, more specifically, the dust aspects (not greenhouse gases such as Carbon Dioxide and Methane). In this way, the dust impacts of the proposed Drayton South operations on the Arrowfield estate, particularly the new development and existing operations (and members of the public), could be assessed as part of United Pastoral's DA.

The primary focus of RCA's review is the Air Quality Impact Assessment: *Final – Drayton South Air Quality and Greenhouse Gas Impact Assessment*, PAEHolmes, October 2012 (Ref [1]). Please note that this report is part of *Drayton South Coal Project - Environmental Assessment, Main Report*, Hansen Bailey November 2012 (Ref [2]).

The outcomes of RCA's review are shown in the following sections.

2 RCA'S REVIEW OF THE AIR QUALITY IMPACT ASSESSMENT

2.1 INTRODUCTION AND RCA'S METHODOLOGY

For this review, the air quality term "dust" includes particulate matter as described in Ref [1]:

- Total Suspended Particulates (TSP).
- Depositional dust.
- Particles with equivalent aerodynamic diameters of less than 10 microns (μm), known as PM₁₀. These particles are a sub-component of TSP.

The aim of this review was to assess the dust impacts from the proposed Drayton South Coal operations on the Arrowfield estate, which is owned by United Pastoral. RCA carried this out by reviewing the Air Quality Assessment (Ref [1]) for dust aspects in detail through each section of that report by reviewing:

- the objectives of the assessment and if these meet the Director General's requirements (Ref[5]);
- the methods used to assess dust impacts associated with the proposed Drayton South mining operations;
- the assessment criteria for dust;
- the results of the dust impact obtained by using air dispersion modelling;
- the impacts of any results where levels of predicted dust emissions exceeded the assessment criteria; and
- the dust management measures recommended in the assessment report (Ref[1]).

Please note that it was not the intention of this review to check the air emission calculations and the air dispersion modelling (eg, the model configurations) within Ref [1], as these tasks were considered to be outside the scope of this review.

In addition, other environmental documents were briefly reviewed for background information only (eg, Ref [3]). These 'other' documents were not part of Anglo American's DA submission for the Drayton South proposal.

2.2 REVIEW

The PAEHolmes' Air Quality Assessment report (Ref [1]) is structured in a logical fashion, and the detail within the main report sections (eg, Project Description, Methodology, Assessment of Impacts – Particulate Matter and Conclusions) is clearly outlined. RCA's only concerns regarding the *structure* of the report was the lack of reference numbering throughout the report. References are made throughout the report, however the references are not numbered in the text or in the reference section of the report (Section 12).

However, the review by RCA was focussed on the technical aspects and impacts relevant to dust outlined in the assessment report (Ref [1]), not the grammatical or aesthetic aspects of the report. RCA's concern regarding references does not affect the technical outcomes of the assessment including the impacts of dust from the proposed Drayton South operation on the Arrowfield estate.

RCA's *technical review* of the assessment report is as follows (the Ref [1] report sections are shown in *italics*):

- The assessment correctly states that the proposed mining activities have the potential to generate dust (Section 3.10), due the nature of the proposed operations.
- The Director-General's requirements (Ref [5]) are correctly specified in the assessment, where the requirements apply to dust.
- The assessment correctly references the NSW EPA agency comments, for example "Assess the risk associated with potential discharges and point source emissions for all stages of the proposal "(Table 3-2), and these comments are addressed in the assessment.
- Other Environmental references are correctly stated and included (eg, the Environmental Planning and Assessment Act 1979 shown in *Section 3.3*).
- The correct NSW EPA Impact Assessment Criteria is used in this assessment (for example Ref [4]), and for the assessment of dust from the proposed Drayton South operations, ie, a "Level 2" assessment as outlined in Ref [4].
- The NSW Government's 'Strategic Regional Land Use Plan' (SRLUP) is mentioned in *Section 3.6* of the assessment. This plan outlines suggestions for mitigating impacts from dust emissions, and the assessment report discusses how Anglo American proposes to address these suggestions (*Sections 6 and 9*).
- Information on the existing Air quality environment including dust emissions is clearly outlined in detail (*Section 4*). Historical air emission data is outlined including dust deposition, dust concentration (TSP and PM₁₀) and exceedances above the assessment criteria are outlined. The data for local meteorology is clearly defined, and the reasons for choosing the year 2005 as the 'modelling year' are discussed.
- Regarding the methodology used in the assessment (Ref [1]), RCA mostly agrees with the statement in Section 5.1 "The approach taken in this assessment follows as closely as possible the approaches suggested by the guidelines". RCA had some concerns (eg, the use of the Monte Carlo Simulation method), for more detail please see the 'concerns' section of this review.



- Page 4
- The existing dust control measures at Drayton Coal are clearly outlined in Section 6, with further detail in Table 6-1 (eg, the use of water carts for dust suppression). Table 6-2 shows an overview of EPA best practice emission reduction measures. It also shows which controls were applied for the dispersion modelling (eg, the application of water at conveyor transfers).
- Section 7 Emissions to Air this report section is actually the methodology for calculating the emissions, for both the surface operations from the project and approved operations at other mines in the area. The project's "modelling years" are clearly shown. The calculation methods are shown in detail, including the conservative approach to modelling. Summaries of estimated emissions are clearly shown in detail (eg, *Table 7-4*). There is an explanation of the dust contributions from distant mines shown in the last paragraph of page 53. However, there were inconsistencies found in this area of the report (refer to the 'concerns' section of this review).
- Section 8 Assessment of Dust Impacts a large amount of technical information is in this section, including tables and figures ('isopleths' from the dispersion modelling). Although there is commentary regarding the modelled results against the assessment criteria (eg, Section 8-4, "There are no privately owned residences that are predicted to experience annual average PM₁₀ concentrations above the assessment criteria"), RCA found concerns in this area of the report (refer to the 'concerns' section of this review).
- Considerations of Vacant Land and ROM Transport Options (eg, an alternative option of a conveyor) are clearly shown in *Section 8.10* and *8.11* respectively. Arrowfield Estates Pty Limited (understood to be now United Pastoral) is specifically mentioned in Table 8-11, refer to the section within this RCA report "review of dust impacts" for further detail.
- Dust impacts associated with spontaneous combustion and the construction phase and realignment of Edderton Road are clearly shown in *Section 8.12* and *8.13* respectively. The assessment report acknowledges that in both cases, there is the potential to generate dusts and the control management measures are outlined.
- Section 9 Monitoring and Management Measures The assessment once again acknowledges that the Drayton South project has the potential to generate dust. Measures to control dust impacts are outlined in detail and the main management measures proposed are real-time dust monitoring and a predictive meteorological forecasting system, in conjunction with a response system to manage the short-term impacts of the project.
- Section 11 Conclusions The major outcomes are outlined in this section. In summary, the main method of assessing air emissions is detailed (ie, dispersion modelling); the outcomes of the modelling (ie, that a number of residences will experience dust levels greater than the assessment criteria); a statement that the actual dust emission levels will be lower than the predicted levels due to the assumptions used, and the conservative nature of the methods; and that the worst case dust impacts would be managed by control measures at the site. However, RCA found several concerns in this area of the report, mainly as a result of the information presented in the previous report sections (refer to the 'concerns' section of this review).



Following the review, RCA's *technical concerns* with the assessment report (Ref [1]) are (section/area numbers of Ref [1] are shown in *italics*):

- *Figure 5-2 (p 26)* The inner domain (ie, the small rectangle) is placed immediately adjacent to the outer domain (ie, the larger rectangle). This raises concerns about the topography and the overall indications that are given from the modelling.
- *Figure 7-1 (p 47)* This figure shows the locations of neighbouring mines, however the location of the mines could change over time. As these mines have an influence over background dust locations, the change in mine locations could affect the dust levels (eg, by dilution) therefore affecting the modelling results.
- Data presented in Table 7-8 (p 52) and Table 7-9 (p 53) there are several examples of major differences between the measured concentrations and the predicted concentration, for certain data points. For example, in *Table 7-8*, Monitor ID data point 'DF04', the PM₁₀ concentrations are 19 and 42 μ g/m³ respectively. This represents a major difference, however this is not pointed out in the text.
- *Figure 7-14 (p 55)* The modelling contours are compressed immediately adjacent to the left of this figure, which suggests the approach may not have considered all of the modelling factors or that this figure has not been correctly compiled.
- *Table 8-4 (p 72) An* 'Acquisition criteria' of 150 µg/m³ is shown in this table, but it is not clear where this criterion is sourced from and no reference is shown for this criterion despite the detail shown in other sections of this assessment regarding criteria (eg, *Section 3.5*).
- *Table 11-1 (p 152)* The "residences with potential to experience dust levels above the EPA criteria" are mentioned throughout the report text, however not all of these residences are shown in this table.
- There are a number of exceedances above the air quality criteria at or near the location of the United Pastoral development these are shown throughout the assessment (eg, Table 8-4, p 72) but not all of these are shown in the table in the *Conclusions Section: Table 11-1 (p 152).* RCA considers that it is important to mention all exceedances in order to make accurate conclusions about the dust impacts.
- Section 8.3.2 (p 67) RCA considers that the Monte Carlo simulation may not have been the most appropriate simulation for this assessment. This simulation applies a random approach, however the influences shown in the assessment do not fully support random characteristics.
- It is not clear if **all** of the potential dust sources from the proposed operations are adequately considered, or if they modelled for the purposes of assessing the impacts against the relevant criteria. For example, Ref [1] states that dusts due to construction activities should be minimal, however it is not clear if the impacts from these activities have been properly addressed (eg, construction of bunding).
- Anglo Coal has management standards and plans regarding fumes and dust generated from blasting operations, including those at Drayton Hunter Valley NSW. For example, condition No. S3.13 (P.6) of Reference [6] states "During mining operations, the proponent shall,, minimise dust and fume emission from blasting at the project". However, it is not clear if dust impacts from all blasting operations have been adequately considered in this assessment (Ref [1]).



Given these concerns, RCA considers that the overall dust impacts and conclusions shown in this assessment (Ref [1]) are affected significantly, particularly regarding the dust impacts from the proposed Drayton South operations on the Arrowfield estate.

The following outlines RCA's *review of the dust impacts* from the proposed operations at Drayton South on the Arrowfield estate based on the information presented in Ref [1]:

- For the *existing* air quality environment (ie, prior to the proposed Drayton South operations), dust monitoring has been carried out since 1998. RCA estimated from the figures and other information shown in Ref [1] that the monitoring locations most representative of the Arrowfield estate are *dust deposition* Locations D7, D11 and D14; and *High Volume Air sampling*, Location HV2a. Note: location HV2 would have been more suitable for this review, however Ref [1] stated that this High Volume Air sampler did not measure PM₁₀ and TSP.
- The results of the dust deposition show that at the locations nominated above, there were no exceedances of the assessment criteria.
- The results of the High Volume Air sampling at Location HV2a exceeded the assessment criteria for PM₁₀ during the years 2002 to 2006 inclusive. However, the sampler was located near a cultivated farm paddock, which could have contributed to the higher dust levels. Once this sampler was re-located away from the paddock, the PM₁₀ results were below the assessment criteria. Further, all of the historical results for TSP were below the assessment criteria for TSP, and the averages of all data for TSP and PM₁₀ were below the respective assessment criteria.
- In regard to the consideration of vacant land, Ref [1] clearly states in Section 8.10 "Additional assessment has been conducted to identify privately owned land, including vacant land, where more than 25% of the land is predicted to experience dust levels above the relevant criteria ...". In Table 8-11, the Arrowfield estate (Lot ID 226) is clearly shown as the location to be impacted greater than 25% over 'years' 10 and 15.
- For the *air quality modelled for the proposed Drayton South operations*, RCA estimated from the figures and other information shown in Ref [1] that the residence most representative of the Arrowfield estate is *residence 226*. For the purposes of this review, RCA included locations 226A, 226B, 226C and 226D as these locations appeared to be within the boundaries of the Arrowfield estate.
- The wind roses shown in Ref [1] demonstrate that (Section 5.4, p 26): " On an annual basis, winds are predominantly from the south-east and the north-west quadrant". Therefore, the Arrowfield estate could be downwind of the Proposed Drayton South Development at certain times, and therefore the Drayton South dust emissions.
- The results of the air modelling at residence 226 shows exceedances of the relevant air quality assessment criteria and therefore there is potential for the Arrowfield estate to experience dust levels above the EPA's air quality assessment criteria over the 27 year operation of the project. These exceedances are summarised in Table 11-1 of Ref [1] and include 24-hour PM₁₀ exceedances for the "project alone" scenario, occurring up to 23 days per year (for location 226B); cumulative annual average PM₁₀ exceedances (for locations 226A, 226B and 226C); and annual average TSP exceedances (for locations 226B and 226C). However, not all of the exceedances shown in the assessment are shown in Table 11-1 of Ref [1]. For example, Table 8-4 (p 72), refer to the fourth column for 'receptor ID' 226B. The assessment predicts



there will be 102 days per year for cumulative PM_{10} dust that exceed the assessment criteria, compared with the EPA assessment criteria of 5 exceedances (maximum) per year. Therefore, the conclusions about the dust impacts do not fully represent all of the exceedances, and the more realistic outcomes at the Arrowfield estate (and at other locations in the vicinity, such as the township of Jerry's Plains).

• RCA agrees that the actual dust emission levels will be lower than the predicted levels due to the assumptions used, and this would apply to the Arrowfield estate. However, given the number of air quality exceedances (ie, compared to the air quality criteria), and other factors such as the prevailing wind patterns (as shown in the wind roses), the proposed dust control measures at the Drayton South site are unlikely to maintain dust levels at acceptable levels at the Arrowfield estate. This includes not only the proposed development (accommodation including 23 single storey cabins and chapel function as an extension of the existing facilities); but also the existing facilities at the estate including the vineyards; residences (3); a cellar; restaurant function areas; winery building and processing and export facilities.

Please note that RCA's comments on dust impacts at the Arrowfield estate are based on impacts within the *general* air environment. This review did not assess the impact of dust from coal operations on viticulture, as this was considered to be outside the scope of this review.

3 RCA CONCLUSIONS AND RECOMMENDATIONS

RCA was requested by Sunrise Planning Pty Ltd (Sunrise), on behalf of United Pastoral Pty Ltd (United Pastoral) to carry out a review of the dust aspects shown within a document for the Drayton South Coal Project NSW.

The aim of this review was to assess the dust impacts from the proposed Drayton South Coal operations on the Arrowfield estate, which is owned by United Pastoral.

This review was carried out by a 'desktop' study. It involved checking in detail, the primary Air Quality Impact Assessment associated with the proposed development: *Final* – *Drayton South Air Quality and Greenhouse Gas Impact Assessment*, PAE Holmes, October 2012.

RCA's review found that this Air Quality Impact Assessment was carried out in accordance with the NSW EPA (DECC) methodology and was detailed in most of the technical aspects that influence the conclusions associated with dust impacts.

Despite some concerns with some technical detail, the outcomes of the Air Quality Impact Assessment are considered to be stated satisfactorily in some cases and the dust impacts shown in the assessment are based on conservative (and realistic) factors and assumptions. These factors and assumptions are also typical of air quality assessments used in mining operations.



The dust impacts on the Arrowfield development (ie, the cabins and chapel and as an extension of the current facilities); **and** the existing activities (eg, the vineyards and facilities) as shown in the Air Quality Impact Assessment are significant, given a number of factors found in RCA's review particularly the large number of air quality exceedances at or near the location of the Arrowfield estate. For example, 102 days per year of 'exceedances' for cumulative PM₁₀ dust compared with the EPA assessment criteria of five exceedances (maximum) per year. Further, not all of the potential dust sources and impacts are clearly shown in the Air Quality Impact Assessment. The dust control measures proposed at Drayton South are unlikely to maintain air quality standards at the Arrowfield estate within the relevant criteria and are therefore unlikely to maintain the health amenity of the residents within the proposed accommodation (ie, 23 new single storey cabins). This would also apply to the existing activities (eg, the vineyards and facilities).

RCA trusts that this matter can be resolved between Anglo American and United Pastoral Pty Ltd, and that a suitable arrangement can be made.

4 LIMITATIONS

This report has been prepared for Sunrise Planning and United Pastoral in accordance with an agreement with RCA dated 26 November 2012. The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

This report has been prepared for the sole use of Sunrise Planning and United Pastoral. The report may not contain sufficient information for purposes of other uses or for parties other than Sunrise Planning and United Pastoral. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA.

The information in this report is considered accurate at the date of issue with regard to the current conditions of the site. Conditions can vary across any site that cannot be explicitly defined by investigation.

This review did not assess the impact of dust from coal operations on viticulture, as this was considered to be outside the scope of this review.

Environmental conditions including contaminant concentrations can change in a limited period of time. This should be considered if the report is used following a significant period of time after the date of issue.

Yours faithfully

RCA AUSTRALIA

Mart. Belk.

Martin Belk Associate Environmental Engineer

Geoff Mason Environmental Services Manager



REFERENCES

- [1] PAEHolmes, Final Drayton South Air Quality and Greenhouse Gas Impact Assessment, October 2012.
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- [5] NSW Planning and Infrastructure, Drayton South Coal Project (11_0062) Director General Requirements, August 2011.
- [6] Anglo Coal (Drayton Management) Pty Ltd, Policy and Procedures Blasting Management and Monitoring Plan.

Lantz Marshall

PLANNING - COMMUNITY - ECONOMIC - RECREATION

Independent Review of:

Social Impact Assessment Economic Impact Assessment

South Drayton Project

Introduction

This report is a peer review of the Social Impact Assessment and Economic Impact Assessment prepared as part of the proposed Drayton South Coal Project – Application No 11-0062.

The objective of this peer review is to:

- 1. Consider the SIA and EIA in terms of scope and compliance with current best practice methodologies, standards and guidelines.
- 2. Highlight areas of the SIA and EIA where further investigation or information is required.
- 3. Raise potential concerns regarding the reports and their compliance.

The Proposed Development

Drayton Mine is managed by Anglo Coal (Drayton Management) Pty Ltd which is owned by Anglo American. Drayton Mine commenced production in 1983 and currently holds Project Approval 06_0202 (dated 1 February 2008) which expires in 2017, at which time the operation will have to close.

The proposal will allow for the continuation of mining at Drayton Mine by the development of open cut and highwall mining operations within the Drayton South mining area while continuing to utilise the existing infrastructure and equipment from Drayton Mine.

The proposal is located approximately 10 km north-west of the village of Jerrys Plains and approximately 13 km south of the township of Muswellbrook in the Upper Hunter Valley of New South Wales (NSW). The proposal is predominately situated within the Muswellbrook Shire Local Government Area (LGA), with the south-west portion falling within the Singleton LGA.

The Project is located adjacent to two thoroughbred horse studs, two power stations and several existing coal mines. This includes Arrowfield Estate.



Note: Arrowfield Estate is predominately contained within the Mining Authorisation Boundaries – south of Redbank.

Review of Social Impact Assessment

A Social Impact Assessment (SIA) was prepared by Hanson Bailey. As per the prepared SIA:

The information contained in the SIA has been drawn from a number of sources including studies carried out by surrounding mining operations and published background information and statistical data.

The information was used to obtain a general understanding of the local setting and potential social impacts to the local area. The statistical data referenced in this SIA is drawn primarily from the 2006 census data compiled by the Australian Bureau of Statistics (ABS) and population and housing projections from the NSW Department of Planning & Infrastructure (DP&I), as well as other publicly available sources.

A detailed review of the SIA has been undertaken by an experienced and specialised consultancy firm (Lantz Marshall). The assessment has identified a number of serious and substantial deficiencies within the SIA. These deficiencies entail:

- 1. No independent assessment has been undertaken. The SIA is purely reliant on broader studies and ABS data. Although the report passes the 'weight test' the report predominately relies on Australian Bureau of Statistics data from 2006. Although copious the ABS data provided is broad in nature and provides limited correlation to the social impact of the proposal.
- 2. The SIA has not been prepared in line with current SIA standards, best practice methods nor recommended guidelines.
- 3. The above deficiencies are reflected in the lack of a specialist preparing the SIA. The SIA has not been prepared by a specialist within the social and/ or community impact industry. As an example would an air quality report by a non environmental scientist?? Although not specified within the Director General's requirements it is considered best practice to utilise an experienced and qualified social planner in the preparation of a SIA.
- 4. Of particular concern no specific community and stakeholder engagement has been undertaken to support the preparation of the SIA. Consultation is the foundation for all SIA's and is cornerstone for all SIA methodologies.
- 5. No social assessment of the needs of the surrounding landowners and their associated land uses has been undertaken.
- 6. The need for future community infrastructure is noted in a general manner within the SIA however there is no analysis as to the specific future requirements.
- 7. There is no correlation to other specialist reports. Although a number of the specialist reports identify areas of concern that will have a social impact on the surrounding land uses (eg Air Quality) there is no reference to the issue within the SIA nor further assessment.

It is considered that the entire purpose of a SIA has not been understood and is entirely non compliant with recognised SIA standards. It is recommended that a compliant SIA be prepared in line with current best practice standards and associated guidelines.

A Social Impact Assessment focuses on the human dimension of environments. It seeks to address the question "what will be the impact of a project/development on people" and to anticipate outcomes that may flow from a proposed development which are likely to affect people's way of life, their culture and/or their community.

The purpose of a Social Impact Assessment is to:

Assist in establishing the full facts about the development, to support a well-informed decision about the appropriateness of the development proposal,

- Minimise adverse impacts and maximise beneficial impacts of the development,
- See Assess the impacts of the development on future generations,
- Inform the community and facilitate participation by the community in the planning and development assessment process,
- Security Facilitate the consideration of alternative development proposals, and
- Enhance existing data to inform the planning and development assessment process.

In the preparation of the Social Impact Assessment Report it is required to give consideration to:

- Solution The scale, complexity, time frame and nature of the proposal,
- Social issues likely to be relevant to the proposal,
- The degree of significance of the identified issues, such as the number of people or size of the area likely to be affected:
- The communities likely to be affected by the proposal,
- An identifiable effect on the availability and use of existing community services, facilities and land and/or may require the provision of such services, facilities and land,
- Section An identifiable effect on the social composition and/or character of the locality, and
- A distinct (either positive or negative) effect on a particular social group either residing on or in the vicinity of the site.

The recommended methodology for a compliant SIA would entail a systematic, staged approach of enquiry with the core stages being:

<u>Profiling:</u> This involves the understanding of the scale and scope of the project, parameters of the SIA, identification of the stakeholders (determined by the areas of affectation).

<u>Scoping:</u> This involves the identification of the likely impacts arising from the development and includes consultation and feedback from identified stakeholders. Consultation is undertaken in a range of ways and may include informal consultation, stakeholder engagement, surveys etc. This would particularly focus on surrounding landowners.

<u>Assessment:</u> This section explores the likely impacts that will arise. The scope of the assessment is determined by the likely impacts and as a guide may include (but not be limited to),

- Impact on surrounding land uses and associated operation of businesses
- Changes to the population and characteristics of the area
- Community structure, its character or beliefs
- Solution The health and safety of those living and working in the vicinity of the development
- An assessment of safety as it relates to crime, anti social and nuisance behaviour
- Social cohesion, in particular the quality of life of those living in the vicinity of the development
- Cost of living, including housing affordability
- Accessibility
- Sense of Place and community
- The impact on existing services

<u>Management:</u> All impacts should be identified and those that are identified as having an adverse or detrimental affect need to be managed and mitigated where possible. It is not always possible to manage all adverse impacts however identification of these impacts and how they can be managed must be taken into account. Similarly impacts that are identified as being positive need to also be identified and capitalised upon where possible and appropriate. This allows for an assessment as to whether the proposal meets net community benefit criteria.

<u>Monitoring</u>: Strategies to monitor identified impacts may need to be identified to ensure that management strategies are adhered to and those cumulative impacts are identified, monitored and taken into account with further development.

To achieve the assessment will be constructed using accepted modelling techniques, utilising demographic information obtained from the ABS Census (current information) and other statistical sources as well as liaison with identified stakeholders within the area of affectation.

Review of Economic Impact Assessment

An Economic Impact Assessment (EIA) was prepared by Gillespie Economics. The determined scope of the EIA was identified as:

- 1. A detailed assessment of the costs and benefits of the project as a whole and whether it would result in a net benefit for the NSW community.
- 2. A conclusion justifying the project taking into consideration the economic impacts of the project.

The EIA has extensively explored:

- Senefit Cost Analysis
- Simple output outcomes
- State economic significance

A detailed review of the EIA has been undertaken by an experienced and specialised consultancy firm (Lantz Marshall). The assessment has identified a number of limitations within the EIA. The limitations identified include:

- In any EIA both the potential positive <u>and negative</u> impacts need to be identified and determined. As per the identified scope/ aim of the EIA it's purpose is to justify the project. This raises concerns about the EIA in terms of whether it is an independent assessment or purely a listing of economic benefits.
- There is no assessment of the economic impacts on surrounding land uses which contribute greatly to the local and regional communities. In essence, no consideration of the economic impacts (both negative and positive) have been considered for:
 - Two thoroughbred horse studs
 - Winery
 - Proposed tourist accommodation
 - Two power stations
 - Several existing coal mines.

It is considered that a review of the EIA is required to address the noted limitations. The results of this assessment may have a substantial impact on the conclusions of the EIA.

Conclusion

The Drayton South Coal Project – Application No 11-0062 incorporated both a Social Impact Assessment and Economic Impact Assessment. Both reports are Director General's requirements. In reviewing both reports serious and substantial deficiencies and limitations have been identified.

The standard of the SIA is considered to be substantially lacking and it is recommended that a new comprehensive SIA be prepared. As a bare minimum the revised/ new SIA will need to:

- Be prepared by a specialist within the field in line with current SIA best practice methodologies, standards and associated guidelines.
- Incorporate a systematic approach Profiling, Scoping, Assessment, Management and Monitoring.
- Incorporate an independent assessment rather than pure reliance on broader ABS and planning documentation.
- Incorporate a detailed and comprehensive community and stakeholder stakeholder engagement strategy targeting social planning issues and opportunities.
- Review and incorporate the other specialist reports including their results and consideration of any required mitigation strategies.

In terms of the EIA extensive economic analysis has been undertaken at a broad level (benefit cost analysis; input – output analysis) however further analysis is required to address the local and regional economic impacts deriving from the proposal is required.