



Air Quality and Greenhouse Gas Management Plan

October 2021

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Background	1
1.2	Purpose and Scope.....	1
2	STAKEHOLDER CONSULTATION	4
2.1	Pre 2021 Consultation.....	4
2.2	2021 Consultation	4
3	BASELINE DATA	5
3.1	Air Quality	5
3.1.1	Depositional Dust.....	5
3.1.2	Particulate Matter - PM ₁₀	5
3.1.3	Total Suspended Particulates.....	6
3.2	Greenhouse Gas	7
4	STATUTORY REQUIREMENTS	7
5	AIR QUALITY IMPACT ASSESSMENT CRITERIA	7
6	AIR QUALITY AND GREENHOUSE GAS MANAGEMENT	9
6.1	Air Quality Management Controls	9
6.2	Energy Savings Action Plan (ESAP).....	13
7	AIR QUALITY, METEOROLOGICAL AND GREENHOUSE GAS MONITORING.....	15
7.1	Air Quality and Meteorological Monitoring Program.....	15
7.2	Monitoring Locations and Frequency	15
7.2.1	High Volume Air Sampler Methodology	16
7.2.2	Dust Deposition Gauge Methodology.....	16
7.2.3	Continuous Dust Monitoring (TEOM) Methodology.....	18
7.2.4	Meteorological Monitoring.....	18
7.3	Greenhouse Gas Monitoring Program.....	19
8	CONTINGENCY PLAN FOR UNPREDICTED IMPACTS	19
9	CONTINUAL IMPROVEMENT.....	19
10	COMPLAINTS, INCIDENTS AND REPORTING	20
10.1	Community Complaints and Independent Review	20
10.2	Incident Reporting	20
10.3	Landowner Notification	21
10.4	Information Dissemination	21
10.5	Annual Review	21
11	DOCUMENT REVIEW AND REVISION	21
12	REFERENCES	23

TABLES

Table 1 – Depositional Dust Gauges - Annual Average Insoluble Solids (g/m ² /month)	5
Table 2 – HVAS and TEOM - Annual Average Particulate Matter <10µm (PM ₁₀)	6
Table 3 – HVAS and TEOM – Annual Average Total Suspended Particulates (TSP)	6
Table 4 - Annual Forecast Emissions 2011-2025	7
Table 5 - Long and Short Term Impact Assessment Criteria for Particulate Matter	8
Table 6 - Long Term Impact Assessment Criteria for Deposited Dust	8
Table 7 - Air Quality Controls	9
Table 8 - Energy Savings Actions	13
Table 9 - Air Quality Monitoring Network	15
Table 10 - Air Quality Monitoring Frequency	15

FIGURES

Figure 1 - Site Layout	3
Figure 2 - Environmental Monitoring Network	17

APPENDICES

Appendix A	Approval Requirements
Appendix B	Management Plan Approval

1 INTRODUCTION

1.1 Background

Austar Coal Mine Pty Ltd (Austar), a subsidiary of Yancoal Australia Limited (Yancoal), owns the Austar Coal Mine, an underground coal mine located approximately 10 kilometres southwest of Cessnock in the Lower Hunter Valley in NSW (refer to **Figure 1**). The Austar Coal Mine incorporates the former Pelton, Ellalong, Cessnock No. 1 (Kalingo) and Bellbird South Collieries and includes coal extraction, handling, processing and rail and road transport facilities (refer to **Figure 1**).

Extensive mining has been undertaken within the Austar Coal Mine since 1916. Historical mining was predominantly via bord and pillar mining and more recently via conventional longwall mining and longwall top coal caving (LTCC) methods. Mining within the Bellbird South areas (Southland, Stage 1, Stage 2 and LWB1-B7, refer to **Figure 1**) was approved by the Minister for Urban Affairs and Planning in 1996 under DA 29/95, while mining of Stage 3 was approved by the Minister for Planning in 2009 under Project Approval 08_0111. Longwall mining commenced in the Ellalong Colliery area in 1983 and has subsequently progressed into the Bellbird South and the Stage 3 areas.

Most recently, mining commenced in the Bellbird South LWB1-B7 mining area in 2016 under DA 29/95 (as modified) and was completed in February 2020. Longwall panels B1 and B7 have not been extracted. Austar mining areas are shown in **Figure 1**.

On 30 March 2020, the Austar Coal Mine transitioned to care and maintenance, with cessation of mining and coal processing activities. On 26 February 2021, a decision was made by the Yancoal board to transition the Austar Coal Mine from care and maintenance to closure. Nevertheless, active water management, mine ventilation and mine inertisation remain key activities and this revision of the Air Quality and Greenhouse Gas Management Plan (AQGHGMP) has been prepared to document air quality management and monitoring activities whilst the site is in closure. Closure planning works are outlined in the current Mining Operations Plan. Management plans will be updated as required after closure planning works inform closure execution.

The 2021 review of most Austar environmental management plans has resulted in significant restructure of the documents to improve readability and provide more consistency between plans. Changes to actual content have been limited to any amendments required to reflect the closed status of the site and to align content with the requirements of PA 08_0111 and DA 29/95.

1.2 Purpose and Scope

This AQGHGMP outlines the management measures to be implemented during closure at the Austar Mining Complex to minimise the potential for air quality and greenhouse gas impacts on the local community and the environment.

The purpose of this AQGHGMP is to:

- Describe the air quality and greenhouse gas monitoring program associated with the Austar Mining Complex;
- Provide a mechanism for review of performance against relevant air quality impact assessment criteria;
- Provide a description of the measures to be implemented by Austar to mitigate air quality and greenhouse gas impacts;
- Describe the process for responding to any incidents, complaints or non-compliances; and
- Describe the review, reporting and continual improvement process.

The AQGHGMP has been prepared in accordance with the relevant conditions of PA 08_0111, DA 29/95 and Environment Protection Licence (EPL) 416 (refer to **Appendix A** for details of conditions).

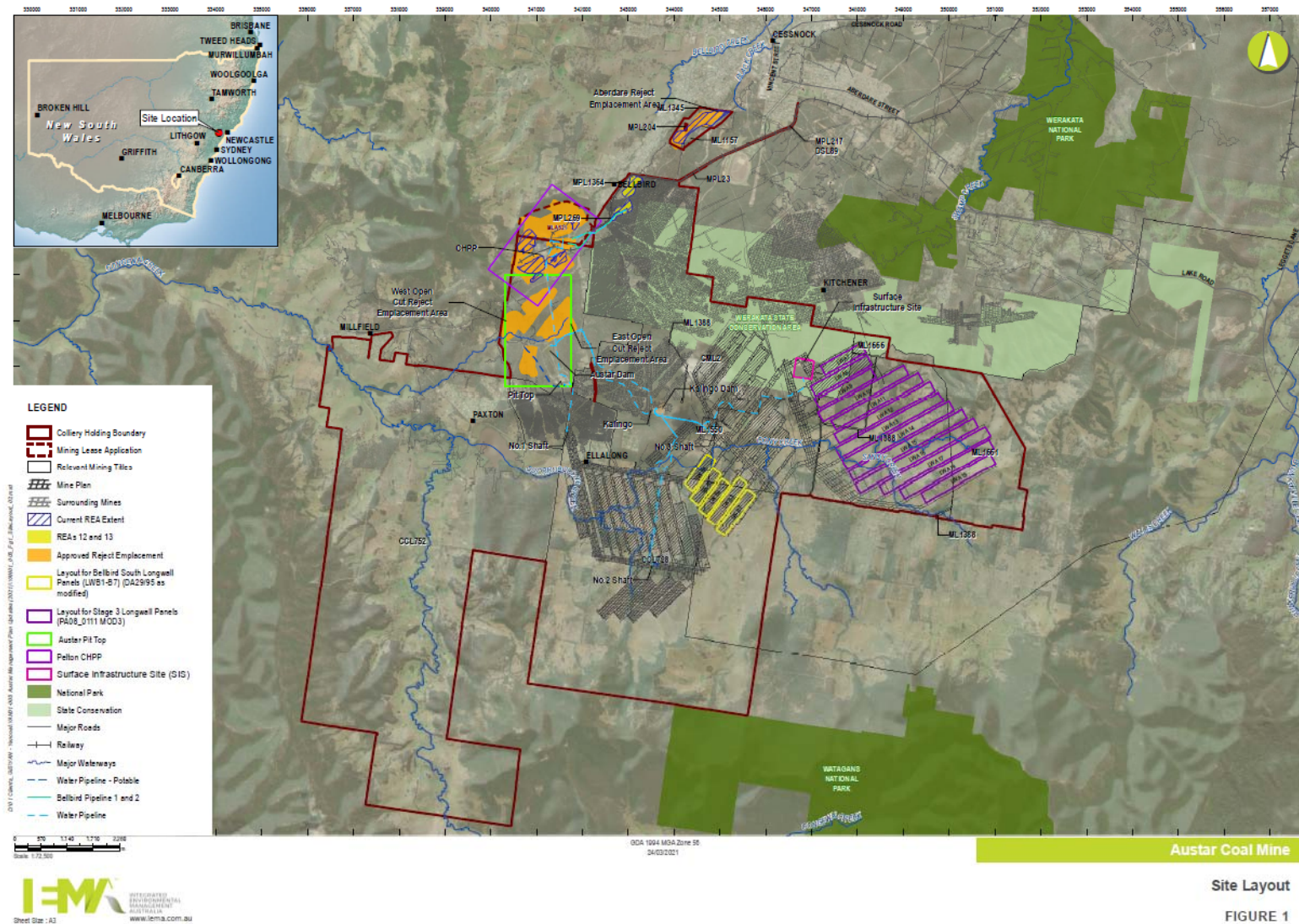


FIGURE 1 - SITE LAYOUT

2 STAKEHOLDER CONSULTATION

2.1 Pre 2021 Consultation

In accordance with Schedule 3 Condition 6(a) of PA 08_0111, consultation with the NSW Environment Protection Authority (EPA) was undertaken during preparation of the original AQGHGMP as well as for subsequent updates, as required.

OEH was consulted regarding Energy Savings Actions Plans in March 2013, specifically in relation to the Energy Savings Action Plan (ESAP) and Energy Efficiency Opportunities programs.

2.2 2021 Consultation

Given the EPA's previous advice that they do not review management plans, Austar approached the EPA during preparation of this plan to confirm their current approach. Austar proposed that, if this remained their current process regarding reviewing management plans, Austar would submit the plan to DPIE and, once approved, a copy of the plan would be provided to the EPA. EPA concurred with this approach.

Additional consultation specific to the energy savings action plan has not been undertaken for this revision given consultation for the AQGHGMP is only required with EPA and the State Government's formal requirements for an ESAP no longer exist.

Evidence of consultation for this revision has been provided to DPIE and the management plan approval letter is provided in **Appendix B**.

3 BASELINE DATA

3.1 Air Quality

A summary of air quality results since commencement of monitoring is provided in the following subsections. Air quality monitoring locations are shown in **Figure 2**.

3.1.1 Depositional Dust

Annual average depositional dust results since monitoring commenced are provided in **Table 1**.

TABLE 1 – DEPOSITIONAL DUST GAUGES - ANNUAL AVERAGE INSOLUBLE SOLIDS (G/M²/MONTH)

Year	D1 (Insoluble solids g/m ²)	D2 (Insoluble solids g/m ²)	D3 (Insoluble solids g/m ²)	D4 (Insoluble solids g/m ²)	D5 (Insoluble solids g/m ²)	D7 (Insoluble solids g/m ²)	D8 (Insoluble solids g/m ²)	D9 [^] (Insoluble solids g/m ²)
2007*	0.8	1.0	1.0	0.8	1.0	-	-	-
2008	0.7	0.9	1.4	1.0	2.0	-	-	-
2009	1.5	1.4	2.0	1.5	1.3	-	-	-
2010	0.9	1.5	1.5	0.9	0.8	-	-	-
2011	1.1	1.1	0.9	1.8	0.4	-	-	-
2012	1.0	3.3 [#]	1.0	3.4	0.7	-	-	-
2013	1.2	3.9 [#]	1.1	1.2	1.7	0.7~	0.4~	0.5~
2014	1.8	1.6	1.1	2.5	2.5	0.7	0.9	1.1
2015	0.7	1.1	1.1	2.6	2.6	0.7	0.5	0.8
2016	1.0	1.6	1.1	1.5	2.0	1.0	0.8	0.8
2017	0.9	1.4	0.9	1.7	0.9	1.0	1.0	1.1
2018	0.8	1.1	0.7	1.4	2.0	0.6	1.0	1.0
2019	1.5	1.6	1.0	1.8	1.3	1.2	0.8	1.3
2020	1.2	1.8	1.0	1.7	1.2	1.0	1.3	1.6

Notes: *2007 Annual Average calculated on data collected from April to December 2007.

~Annual average data for 2013 calculated from July to December 2014.

Investigation found annual average result influenced by resident's activities (earthworks, vegetation clearing, burning off).

[^] Gauge D9 was moved approximately 650 metres north in September 2021 due to land access issues.

Annual average depositional dust results are below the long term impact assessment criteria for maximum total deposited dust levels of 4g/m²/month on all occasions.

With the exception of D2 (Pelton Village) in 2012 and 2013, annual average depositional dust results have not exceeded the maximum increase in deposited dust levels of 2g/m²/month. An investigation into elevated depositional dust measurements at D2 was undertaken and found that Austar was not reasonably the source of the increased results, with local ground disturbance activities by the neighbouring resident (earthworks, clearing, mowing, pile burning) potentially the contributing factor in months where elevated results were observed.

3.1.2 Particulate Matter - PM₁₀

Annual average PM₁₀ results since monitoring commenced are provided in **Table 2**.

TABLE 2 – HVAS AND TEOM - ANNUAL AVERAGE PARTICULATE MATTER <10µm (PM₁₀)

Year	HVAS1 (PM ₁₀ µg/m ³)	HVAS2 (PM ₁₀ µg/m ³)	HVAS3 (PM ₁₀ µg/m ³)	TEOM (PM ₁₀ µg/m ³)
2007*	17.9	18.0	-	
2008	14.0	14.3	-	
2009	16.0	17.2	-	
2010	12.3	14.3	-	
2011	13.5	14.3	-	
2012	12.4	13.7	-	
2013	12.3	13.3	-	
2014	12.5	13.7	10.9 [#]	
2015	9.9	10.4	9.6	
2016	10.8	12.0	10.1	9.6
2017	11.4	14.6	10.5	10.5
2018	15.8	18.0	14.7	12.8
2019	26.3	25.1	20.9	21.6
2020	13.6	13.9	12.8	13.9

Notes: *2007 Annual Average calculated on data collected from 24 March 2007 to end December 2007.

[#]2014 HVAS3 Annual Average calculated on data collected from 9 June 2014 to end December 2014.

Annual average results for PM₁₀ are well below the long term impact assessment criterion of 30µg/m³.

3.1.3 Total Suspended Particulates

Annual average Total Suspended Particulates (TSP) results since monitoring commenced are provided in **Table 3**.

TABLE 3 – HVAS AND TEOM – ANNUAL AVERAGE TOTAL SUSPENDED PARTICULATES (TSP)

Year	HVAS1 (TSP µg/m ³)	HVAS2 (TSP µg/m ³)	HVAS3 (TSP µg/m ³)	TEOM (TSP µg/m ³)
2007*	44.8	45.0	-	
2008	35.0	35.8	-	
2009	40.0	43.0	-	
2010	30.8	35.8	-	
2011	33.8	35.8	-	
2012	31.0	34.3	-	
2013	30.8	33.3	-	
2014	31.3	34.3	27.3 [#]	
2015	24.8	26.0	24.0	
2016	27.0	30.0	25.3	24.0
2017	28.5	36.5	26.3	26.2
2018	39.5	45.0	36.8	31.9
2019	65.8	62.8	52.3	54.0
2020	34.0	34.8	32.0	34.8

Notes: *2007 Annual Average calculated on data collected from 24 March 2007 to end December 2007.

[#]2014 HVAS3 Annual Average calculated on data collected from 9 June 2014 to end December 2014.

Annual average results for TSP are well below the long term impact assessment criterion of 90µg/m³.

3.2 Greenhouse Gas

Greenhouse gas emissions associated with the Austar Mining Complex have been categorised into Scope 1, 2 and 3 emissions as per the *Austar Coal Mine Project – Stage 3 Greenhouse Gas and Energy Assessment* (Umwelt, September 2008). The two “scope” categories that are directly related to the on-site operation of Austar can be defined as:

- Scope 1 – covers *direct emissions* from the combustion of fuels (for example, diesel) and industrial processes within the boundary of the mining operation; and
- Scope 2 – covers indirect emissions from the mining operation’s consumption of purchased electricity that is produced by another organisation.

Annual forecast emissions for the Austar Mining Complex for the approved project are presented in **Table 4**.

TABLE 4 - ANNUAL FORECAST EMISSIONS 2011-2025

Scope	Source	Emissions (Annual Mean)
Scope 1	Onsite Fuel Combustion	1,392 t CO ₂ -e/kJ
	Fugitive Emissions from Underground Mining	28,800 t CO ₂ -e/3.6Mtpa ROM
Scope 2	Stationary Source Emissions (Electricity Consumption)	65.337 t CO ₂ -e/kWh

As the site has now closed, these annual forecasts are no longer applicable and actual energy use and emissions will be significantly lower. Emissions will continue to be reported as detailed in Section 6.2.

A mine gas monitoring station is located on the surface near the No.3 Shaft facility. Monitoring data indicates low levels of seam gas emissions and a composition that is predominantly CO₂ (2015-2016 Average 0.1%) with some CH₄ (2015-2016 Average 0.1%) under normal operating conditions. Gas desorption tests have been carried out previously in several boreholes and at development faces in the mining area. This indicated seam gas levels in the area are low, however have risen slightly in the Stage 3 area.

4 STATUTORY REQUIREMENTS

Relevant conditions from PA 08_0111 and DA 29/95, EPL 416 and PA 08_0111 Statement of Commitments and where these are addressed in this Plan are provided in **Appendix A**.

The National Greenhouse and Energy Reporting Act (2007) (NGER) is also addressed throughout this management plan. No other approvals or licences specific to air quality and greenhouse gas apply.

5 AIR QUALITY IMPACT ASSESSMENT CRITERIA

In accordance with Schedule 4 Condition 4 of PA 08_0111 and Schedule 3 Condition 17 of DA 29/95, Austar shall ensure that the dust emissions generated by activities at the:

- Kitchener Surface Infrastructure Site (PA 08_0111);
- Kalingo Infrastructure Upgrade Area (DA 29/95); and
- Any relevant EPL, for dust generated by all other components of the project (PA 08_0111)

do not cause additional exceedances of the air quality impact assessment criteria listed in **Table 5** at any residence on privately-owned land, or on more than 25 percent of any privately owned land.

TABLE 5 - LONG AND SHORT TERM IMPACT ASSESSMENT CRITERIA FOR PARTICULATE MATTER

Pollutant	Averaging Period	Criteria
Total suspended particulate (TSP) matter	Annual	90µg/m ³
Particulate matter <10µm (PM ₁₀)	Annual	30µg/m ³
Particulate matter <10µm (PM ₁₀)	24 hour	50µg/m ³

The long term impact assessment criteria for deposited dust is listed in **Table 6**.

TABLE 6 - LONG TERM IMPACT ASSESSMENT CRITERIA FOR DEPOSITED DUST

Pollutant	Averaging Period	Maximum increase in deposited dust level	Maximum total deposited dust level
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month

Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 2003, AS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulates – Deposited Matter – Gravimetric Method.

EPL 416 does not include impact assessment criteria.

6 AIR QUALITY AND GREENHOUSE GAS MANAGEMENT

6.1 Air Quality Management Controls

In order to mitigate potential air quality impacts from the Austar Mining Complex, a number of air quality management controls have been, are currently, or will be implemented to mitigate and/or manage potential air quality impacts from the site. These controls are detailed in **Table 7** and align to the findings of the report on Particulate Matter Best Management Practice Pollution Reduction Program (PRP) (Todoroski Air Sciences, September 2012).

TABLE 7 - AIR QUALITY CONTROLS

Mitigation ID	Mitigation Measure	Reference Document	When Required/Status
Design Controls			
1	Use of covered conveyors, enclosed transfer points and underground reclaimers for all ROM and product coal transfers. Only washery reject is transported by truck.	Particulate Matter Best Management Practice PRP	In place however not in use during closure.
2	The haul road to the reject emplacement area is essentially level, narrow and is vegetated right to the edge. In part, trees line the road and arc over it. This reduces the wind speed acting on the surface of the road which reduces the evaporation rate following watering for dust suppression.	Particulate Matter Best Management Practice PRP	The haul road will be maintained as required during closure.
3	ROM and product coal stockpiles are located in densely forested area. The site is surrounded by trees which act as a vegetative wind break.	Particulate Matter Best Management Practice PRP	Ongoing.
4	Enclosed coal handling and preparation plant.	N/A	In place however not in use during closure.
5	Progressive site rehabilitation and revegetation.	N/A	Rehabilitation is undertaken in accordance with the Mining Operations Plan.

Mitigation ID	Mitigation Measure	Reference Document	When Required/Status
Operational Controls			
6	Unsealed Roads Austar implement the following controls to reduce dust emissions from unsealed roads: • Optimise load capacity when hauling reject to limit number of return trips and travel distance of haul trucks; • Speed limit on haul road 50km/hour and 30km/hour at CHPP site; • Haul roads and other unsealed roads are watered when in use; • Visual dust monitoring is undertaken by supervisory staff to ensure effective dust control; and • Regular maintenance of haul roads including grading, and where appropriate gravelling, of heavy trafficked areas. Grader speed is maintained below 8km/hour.	Particulate Matter Best Management Practice PRP	Mitigation measures in place where required.
7	Sealed Roads Austar will provide for the rapid clean-up of material spilled onto any sealed road, with re-routing of traffic around the spills until they have been removed, to minimise the potential for dust emissions from sealed roads. Road sweepers are employed where necessary.	Particulate Matter Best Management Practice PRP	Control in place however spills unlikely during closure.
8	Conveyors and Coal Stockpiles Austar implement the following controls to reduce dust emissions from conveyors and coal stockpiles:	Particulate Matter Best Management Practice PRP	Not applicable during closure.

Mitigation ID	Mitigation Measure	Reference Document	When Required/Status
	• ROM coal reaches the surface in an oversaturated state being transported by covered conveyor to the ROM stockpile; • Water in the ROM coal is highly saline and when the ROM coal dries the stockpile surface forms a hard crust; • Minimising the drop height when loading a truck or stockpile; and • Visual monitoring of coal stockpiles in adverse weather conditions for dust emissions.		
9	Rehabilitation Areas and Closure Planning Investigations Austar implement the following controls to reduce dust emissions from rehabilitation area projects and closure planning investigations: • Reject emplacement area is compacted as required to stabilise the surface and minimise infiltration and spontaneous combustion risks; Completed areas are progressively vegetated to reduce area of exposed soils at any one time; • Minimise double handling of materials; • Use of water carts on unsealed roads and exposed areas as required; • Dust suppression equipment on drill rigs; • Avoiding or minimising earthmoving operations at wind exposed areas during dry, windy conditions; and • Visual monitoring of rehabilitation and closure planning investigation projects by supervisors,	Particulate Matter Best Management Practice PRP	Controls implemented as required.

Mitigation ID	Mitigation Measure	Reference Document	When Required/Status
	with operations modified or ceased when elevated dust levels are observed to occur.		
10	Spontaneous Combustion Spontaneous combustion has the potential to result in air quality and odour impacts. Underground ventilation is carefully managed and monitored to reduce the potential for spontaneous combustion. A real time gas monitoring system underground allows identification of concerns and a rapid response plan is in place to address any heating or ventilation concerns should they arise. A 2000m³/hour nitrogen inertisation plant is maintained on-site and used to pro-actively manage spontaneous combustion. Parts of the underground mine that are no longer used are sealed to prevent ventilation that may contribute to spontaneous combustion. Coal stockpiles are also monitored and regularly inspected. Immediate action is taken if heating is detected in the surface stockpiles. Should the early stages of spontaneous combustion be detected, close monitoring will be undertaken to minimise the risk of the outbreak. The stockpile will be spread and cooled at predetermined trigger points under the supervision of the CHPP Manager.	N/A	The underground ventilation system and nitrogen inertisation plant are continuing to be maintained as required during closure. Parts of the mine may be sealed to assist in the management of gas and spontaneous combustion as designed. No coal stockpiles onsite.
11	Odour and Fume Emissions In accordance with Condition 5 Schedule 4 of Project Approval 08_0111 Austar are required to manage offensive odours.	PA 08_0111	Gas monitoring in place during closure while ventilation fans are operational.

Mitigation ID	Mitigation Measure	Reference Document	When Required/Status
	Gas monitoring of the existing Austar ventilation shaft indicated that the concentration coal related gases such as methane and sulphur compounds is negligible and will not have an impact on the surrounding environment. Odours associated with the mine complex's ventilation system having the potential to impact off-site will be assessed and corrective actions developed as necessary.		

6.2 Greenhouse Gas Management Controls/Energy Savings Action Plan (ESAP)

Table 8 outlines management measures that form the energy savings action plan required by PA 08_0111.

TABLE 8 - ENERGY SAVINGS ACTIONS

Mitigation ID	Mitigation Measure	Reference Document	When Required/Status
Design Controls			
12	The Stage 3 expansion of the Austar Mining Complex was selected based on operational efficiency and development cost. Longwall Top Coal Caving (LTCC) technology was chosen for mining of coal, which allows for significantly increased resource extraction and increased operational energy efficiency within thick coal seams. Greenhouse gas and energy efficiency assessments were included in the design decision making process.		No coal extraction occurring. Not applicable during closure.
Operational Controls			
13	Feasibility study into the capture and beneficial utilisation of methane gas emissions from the project.	PA 08_0111	Study complete. Determined not to be technically feasible due to low methane concentrations.
14	Minimising energy use	N/A	Energy use reduced as much as possible during closure.

15	Managing and minimising waste and waste water to manage greenhouse gas emissions	N/A	Minimal waste and waste water being generated during closure.
16	Consideration of installing SF ₆ free switchgear	N/A	No new switch gear to be installed during closure. SF ₆ free switchgear to be considered if replacement is required.
17	Internal Energy and GHG Management Plan for Stage 3 operations which includes reviewing: • energy efficiency in plant and equipment procurement, consideration will be given to the life cycle costs advantages obtained by using energy efficient components; • the opportunity to install additional sub-metering for offices, workshops and winders; • operational initiatives such as turning off idling plant equipment; • control and temperature settings for air conditioning units in offices and switchrooms; • automatic control of external and internal lighting; • potential energy efficiency opportunities in water pumping and dust suppression systems; • review changes in power consumption with installation of new equipment and install power factor correction equipment to suit; and • review workshop and bathhouse lighting and office and high bay lighting.	PA 08_0111 Statement of Commitments 1.10.1	Plan related to operations and is therefore not applicable during closure. Energy use reduced as much as possible during closure.
18	Austar will monitor greenhouse gas emission, energy use and energy production by direct monitoring and modelling from activity data. The greenhouse gas monitoring program will involve direct measurement of fugitive emissions and the collation of activity data such as energy use, coal production and waste disposal. Monitoring will be undertaken to meet the standards required by the NGERS Act.	N/A	Monitoring continuing in accordance with NGERS Act requirements.

7 AIR QUALITY, METEOROLOGICAL AND GREENHOUSE GAS MONITORING

7.1 Air Quality and Meteorological Monitoring Program

To assess compliance against dust deposition and dust concentration criteria for Austar, PM₁₀ and depositional dust will be routinely monitored at locations shown on **Figure 2**. A meteorological station is operated at the CHPP.

In addition, tapered element oscillating microbalance (TEOM) is included in the Austar Mining Complex monitoring network to meet PA 08_0111 requirements relating to continuous monitoring. Of the Austar Mining Complex infrastructure areas, the CHPP has the largest disturbance area and therefore the greatest potential to generate dust. Based on wind data monitored from Austar's weather station, the prevailing wind direction at the CHPP during October-March is ENE and April-September SW. Given there are very few receptors to the SW of the CHPP and that the township of Bellbird is located to the NE, Bellbird was chosen as the TEOM location. This complements the PM₁₀ HVAS's which are located to the south and west of the CHPP.

Monitoring results will be used to assess the effectiveness of the management measures outlined in Section 6 in meeting impact assessment criteria. Exceedances will be investigated as detailed in Section 10.2.

7.2 Monitoring Locations and Frequency

The network to monitor air quality impacts and type of monitoring at each location is shown in **Table 9**.

TABLE 9 - AIR QUALITY MONITORING NETWORK

ID	Location	Monitoring Equipment
D1	Pyne Way, Mount View	DDG, HVAS
D2	Ellalong Road, Pelton Village	DDG, HVAS
D3	Bimbadeen Road, Mount View	DDG
D4	Ellalong Village	DDG
D5	South of No 3 shaft upcast ventilation shaft	DDG
D6	Bimbadeen Road, Mount View	TEOM
D7	Pelton Fire Trail, Quorrobolong	DDG
D8	Coney Creek Lane, Quorrobolong	DDG, HVAS
D9	Kitchener Village	DDG
Met Station	CHPP site, Pelton	Meteorological Station

Air quality monitoring locations will be reviewed and, where necessary, modified in consultation with DPIE and EPA according to progressive monitoring results and proposed closure activities.

The frequency of air quality monitoring to be undertaken for each type of monitoring equipment is detailed in **Table 10**.

TABLE 10 - AIR QUALITY MONITORING FREQUENCY

Type of Monitoring	Frequency
PM ₁₀ HVAS	Every 6 days

Type of Monitoring	Frequency
Depositional Dust Gauges	Monthly
TEOM	Continuous*
Meteorological Station	Continuous*

* refer Section 7.2.3 and 7.2.4

Air quality monitoring locations will be reviewed and, where necessary, modified in consultation with DPIE and EPA over the life of operations according to progressive monitoring results and physical changes in mining operations.

Where possible, air monitoring equipment will be sited in accordance with Australian Standard AS/NZS 3580.1.1:2016: Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment.

7.2.1 High Volume Air Sampler Methodology

HVAS are operated in accordance with *Approved methods for the sampling and analysis of air pollutants in NSW* (DEC 2007) and Australian Standard AS/NZS 3580.9.6:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM₁₀ high volume sampler with size-selective inlet – Gravimetric method.

Total suspended particulates (TSP) is not directly measured by instrumental techniques but is calculated on the basis that long term PM₁₀ concentrations are approximately 40% of the corresponding long term TSP concentration (Holmes, 2003). Holmes (2003) stated in the Air Quality Impact Assessment report for the Wambo Development Project that “Monitoring data from areas in the Hunter Valley where co-located TSP and PM₁₀ monitors have been operated for reasonably long periods of time indicate that long term PM₁₀ concentrations are approximately 40% of the corresponding long term TSP concentration.” Total suspended particulates will be determined by calculation based on this accepted long term PM₁₀ to TSP ratio. The formula for this calculation is:

$$\text{Calculated TSP Concentration } (\mu\text{g}/\text{m}^3) = \text{Measured PM}_{10} \text{ Concentration } (\mu\text{g}/\text{m}^3) \times 2.5$$

7.2.2 Dust Deposition Gauge Methodology

Monitoring of dust deposition gauges is undertaken in accordance with *Approved methods for the sampling and analysis of air pollutants in NSW* (DEC, 2007). Deposited dust is assessed as insoluble solids as defined by AS/NZS 3580.10.1:2016 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method.

Samples are collected every 30 +/- 2 days. Samples are additionally analysed for ash residue and combustible matter to the Australian Standard to assist in determining possible contamination and dust sources.

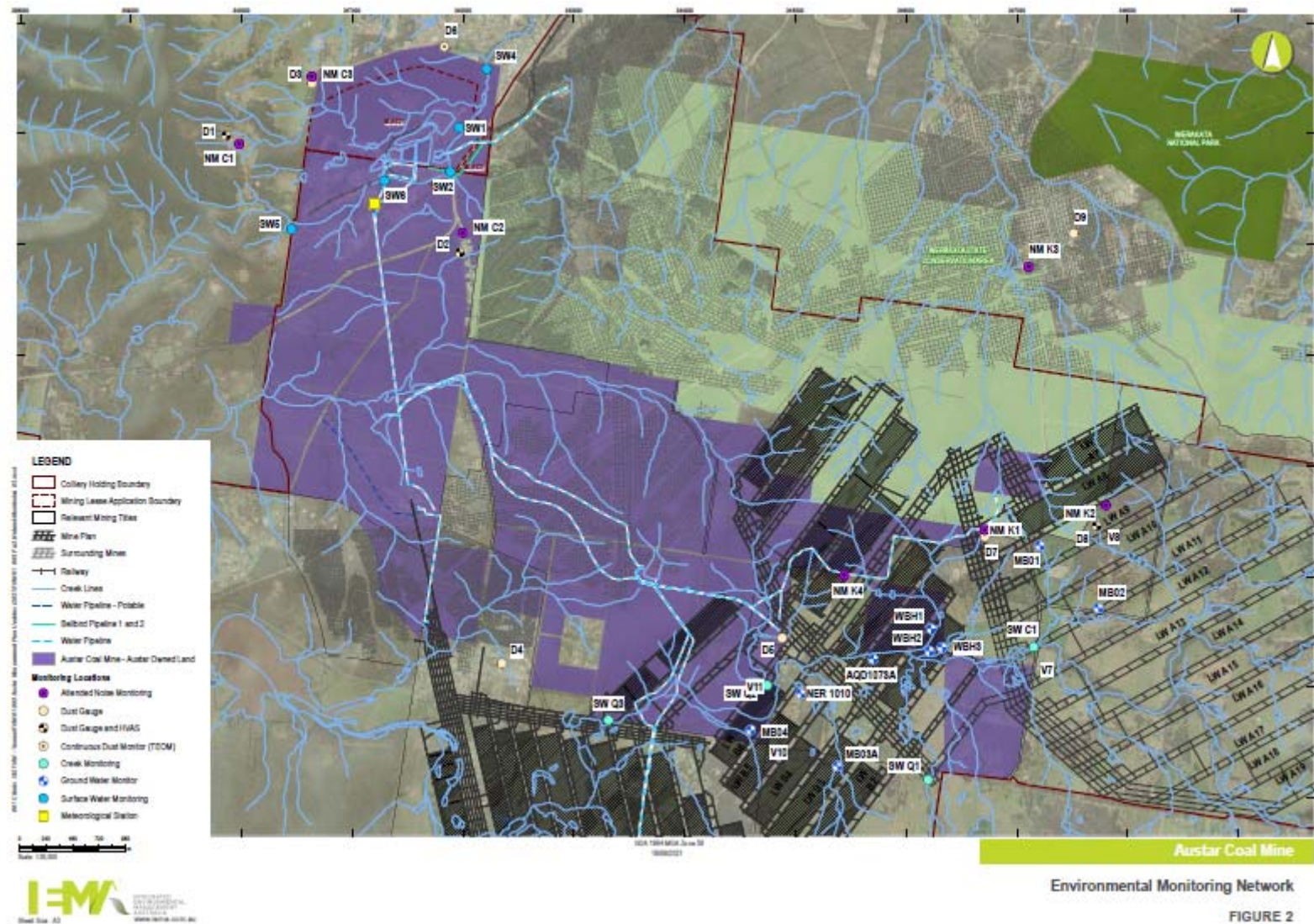


FIGURE 2 - ENVIRONMENTAL MONITORING NETWORK

7.2.3 Continuous Dust Monitoring (TEOM) Methodology

The TEOM data is used to compliment HVAS data in the following manner:

- Provide data to the northeast of the CHPP where no HVAS currently exists;
- Provide an understanding of regional episodic dust events;
- Provide an understanding of local episodic dust events;
- Provide an understanding of potential dust episodes resulting from mining activities; and
- Alert when dust levels are approaching the relevant criteria so that the operation can be adjusted accordingly (if required).

The TEOM unit operates in accordance with *Approved methods for the sampling and analysis of air pollutants in NSW* (DEC, 2007) and AS 3580.9.8:2008 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM₁₀ continuous direct mass method using a tapered element oscillating microbalance analyser.

Continuous (i.e. 100%) data capture cannot always be achieved due to equipment faults or interruptions. For the purposes of this monitoring, ‘continuous’ refers to the capture of relevant volume monitoring data for the duration of the frequency reporting period except during the following situations:

- Equipment breakdown;
- Power loss;
- Scheduled maintenance;
- Performance specification testing; and
- Vandalism.

7.2.4 Meteorological Monitoring

Austar utilises a continuous weather recording station located at the CHPP site to record meteorological data (refer **Figure 2**). The location of the weather station facilitates the capture of data that is representative of the area subject to potential dust emissions. Logged meteorological parameters include:

- Wind speed;
- Wind direction;
- Sigma-theta from sampled wind direction measurements;
- Temperature; and
- Rainfall.

The weather station is maintained and operated in accordance with *Approved methods for the sampling and analysis of air pollutants in NSW* (DEC, 2007) and AS 3580.14:2014 Methods for sampling and analysis of ambient air - Meteorological monitoring for ambient air quality monitoring applications.

Continuous (i.e. 100%) data capture cannot always be achieved due to equipment faults or interruptions. For the purposes of this monitoring, ‘continuous’ refers to the capture of relevant

volume monitoring data for the duration of the frequency reporting period except during the following situations:

- Equipment breakdown;
- Power loss;
- Scheduled maintenance;
- Performance specification testing; and
- Vandalism.

7.3 Greenhouse Gas Monitoring Program

Greenhouse gas monitoring will be undertaken in accordance with the requirements of the National Greenhouse and Energy Reporting Scheme.

8 CONTINGENCY PLAN FOR UNPREDICTED IMPACTS

In the event of impacts exceeding impact assessment criteria, the following process will be implemented:

- The Environment & Community Superintendent will be notified;
- The Environment & Community Superintendent to determine if the unpredicted impact constitutes an environmental incident that requires external reporting (**Section 10.2**);
- Investigate to evaluate the contributing factors to the event. The investigation may include (where applicable):
 - Assessment of weather conditions for the period of monitoring, including wind speed and direction;
 - Visual assessment of the area surrounding the monitoring location to identify any potential sources of dust generation (on site and off site);
 - Review of operational activities during the period of monitoring.
- Implement remedial response and/or adaptive management measures, dependant on the outcomes of the above investigation; and
- Implement the Review and Improvement component of this plan as required.

9 CONTINUAL IMPROVEMENT

Austar has undertaken a Particulate Matter Best Management Practice Pollution Reduction Program Report (Todoroski Air Sciences) in September 2012. The controls listed in Section 6.1 are largely aligned with the findings of the report.

Austar will implement reasonable and feasible best practice air quality mitigation measures appropriate for a closed site. The basis for continuous improvement of air quality mitigation measures will be through the ongoing monitoring of dust impacts and the contingency response and adaptive management process outlined in Section 8.

Any new mitigation measures that are implemented as a result of these investigations will be reported in the Annual Review.

10 COMPLAINTS, INCIDENTS AND REPORTING

10.1 Community Complaints and Independent Review

Community complaints are to be managed in accordance with the requirements of the Environmental Management Strategy.

A complaints register will be published on the Austar Coal Mine website, which will be updated monthly, and a summary of complaints will be provided in the Annual Review.

If a landowner of privately-owned land considers the site to be exceeding the impact assessment criteria, the independent review requirements in Schedule 5 Conditions 3 and 4 are to be followed.

10.2 Incident Reporting

Schedule 7 Condition 6 of PA 08_0111 and Schedule 5 Condition 4 of DA 29/95 specify the requirements for incident reporting. An incident is defined as a set of circumstances that causes or threatens to cause material harm to the environment, and/or breaches or exceeds the limits or performance measures/criteria in the approval.

There is inconsistency between the wording of the conditions, however the following protocol addresses the requirements of both conditions.

Austar will notify the Department and any other relevant agencies, of any incident associated with the mine complex as soon as practicable after Austar becomes aware of the incident.

Within 7 days of the date of the incident, Austar will provide a detailed report on the incident to the Department and any other relevant agencies. The report will include the following details:

- The date, time and nature of the exceedance/incident;
- Identify the cause (or likely cause) of the exceedance/incident;
- Describe what action has been taken to date; and
- Describe the proposed measures to address the exceedance/incident.

Further investigation may be required beyond the 7 days depending on the nature of the incident.

The EPL should be referred to for notification requirements relating to incidents causing or threatening material harm to the environment.

As noted in Sections 7.2.3 and 7.2.4, continuous (i.e. 100%) data capture cannot always be achieved due to equipment faults or interruptions. Missing data as a result of the following situations is not considered an incident that requires formal external reporting however Austar will inform DPIE when such events occur:

- Equipment breakdown;
- Power loss;
- Scheduled maintenance;
- Performance specification testing; and
- Vandalism.

10.3 Landowner Notification

The landowner notification and provision of information requirements outlined in Schedule 5 Conditions 1 and 2 of PA 08_0111 must be enacted when triggered by exceedances of relevant impact assessment criteria.

10.4 Information Dissemination

A summary of monitoring results will be presented at Austar Community Consultative Committee (CCC) meetings.

Information will also be made available on the Austar website in accordance with the requirements of Schedule 7 Condition 9 of PA 08_0111 and Schedule 5 Condition 12 of DA 29/95.

10.5 Annual Review

In accordance with Schedule 7 Condition 3 of PA 08_0111 and Schedule 5 Condition 5 of DA 29/95, Austar will prepare an Annual Review for submission to the Department.

11 DOCUMENT REVIEW AND REVISION

Schedule 7 Condition 4 of PA 08_0111 and Schedule 5 Condition 8 of DA 29/95 specify the requirements for revision of strategies plans and programs. There is inconsistency between the wording of the conditions, however, both require that within 3 months of:

- The submission of an Annual Review;
- The submission of an incident report;
- The submission of an audit report; or
- The approval of a modification to the conditions of consent;

Austar shall review the strategies, plans and programs required by the approval/consent to the satisfaction of Department.

DA 29/95 requires Austar to notify the Department in writing of any such review being undertaken.

Where a review leads to revision of a document, the revised document must be submitted to the Department for approval. The timing for submission of revised plans differs between the consents, being 4 weeks in PA 08_0111 and 6 weeks in DA 29/95. Given this, the 4 week requirement in PA 08_0111 will prevail.

Any changes made to this Plan or supporting documents as a result of the review will be made in consultation with the EPA.

12 REFERENCES

Attorney-General's Department (2003) *National Environment Protection (Ambient Air Quality) Measure*

Department of Environment and Conservation NSW (2007) *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*

Holmes (2003) *Air Quality Impact Assessment: Wambo Development Project*

Todoroski Air Sciences (September 2012) *Particulate Matter Best Management Practice Pollution Reduction Program*, Todoroski Air Sciences Eastwood NSW.

Umwelt (September 2008) *Austar Coal Mine Project – Stage 3 Greenhouse Gas and Energy Assessment*, Umwelt Toronto NSW.

Appendix A:

Approval Requirements

PROJECT APPROVAL/DEVELOPMENT CONSENT REQUIREMENTS

Relevant conditions from PA 08_0111 and DA 29/95 and where these conditions are addressed in this Plan are listed in the tables below.

TABLE 1: PROJECT APPROVAL CONDITIONS (PA 08_0111)

Schedule	Project Approval Conditions	Section of this Plan																							
2	STRATEGIES, PLANS AND PROGRAMS																								
2	12. With the approval of the Director-General, the Proponent may submit any strategies, plans or programs required by this approval on a progressive basis.	Noted																							
2	13. With the approval of the Director-General, the Proponent may integrate any strategies, plans, programs, reviews, audits or committees required by this approval with any similar requirement under another development consent or approval relating to the Austar Mine Complex.	AQGHGMP addresses PA 08_0111 and DA 29/95 conditions																							
4	AIR QUALITY AND GREENHOUSE GAS																								
4	Impact Assessment Criteria 4. The Proponent shall ensure that the dust emissions generated by the project do not cause additional exceedances of the air quality impact assessment criteria in:																								
	(a) Tables 3, 4 and 5 for dust generated by the Surface Infrastructure Site ; and (b) any relevant EPL, for dust generated by all other components of the project, at any residence on privately-owned land, or on more than 25 percent of any privately-owned land. <i>Table 3: Long term impact assessment criteria for particulate matter – Surface Infrastructure Site</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>30 µg/m³</td></tr></table> <i>Table 4: Short term impact assessment criterion for particulate matter – Surface Infrastructure Site</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>50 µg/m³</td></tr></table> <i>Table 5: Long term impact assessment criteria for deposited dust – Surface Infrastructure Site</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>Deposited dust</td><td>Annual</td><td>2 g/m²/month</td><td>4 g/m²/month</td></tr></table> <i>Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 2003, AS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.</i>	Pollutant	Averaging period	Criterion	Total suspended particulate (TSP) matter	Annual	90 µg/m ³	Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month	5
Pollutant	Averaging period	Criterion																							
Total suspended particulate (TSP) matter	Annual	90 µg/m ³																							
Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m ³																							
Pollutant	Averaging period	Criterion																							
Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m ³																							
Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level																						
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month																						
4	Operating Conditions 5. The Proponent shall:																								
	(a) ensure that any visible air pollution generated by the project is assessed regularly and measures are taken to minimise air quality impacts on privately-owned land; and	6																							
	(b) implement all reasonable and feasible measures to minimise the off-site odour and fume emissions generated by the mine complex’s ventilation system or any spontaneous combustion on the site, to the satisfaction of the Director-General.	6																							

Schedule	Project Approval Conditions	Section of this Plan
4	Air Quality and Greenhouse Gas Management 6. The Proponent shall prepare and implement an Air Quality and Greenhouse Gas Management Plan for the mine complex, to the satisfaction of the Director-General. The plan must:	
	(a) be prepared in consultation with EPA, and be submitted to the Director-General for approval prior to the commencement of construction of the Surface Infrastructure Site (other than shaft construction referred to in Condition 1); and	2
	(b) include, in addition to the standard requirements for management plans (see Condition 2 of Schedule 7): • an air quality monitoring program providing for a combination of continuous monitors, high volume samplers and dust deposition gauges; • an energy savings action plan, including a feasibility study into the capture and beneficial utilisation of methane gas emissions from the project; and • a detailed continual improvement program for investigating, implementing and reporting on all reasonable and feasible measures to reduce dust generated by the mine complex.	7 6.2 9
4	METEOROLOGICAL	
4	7. The Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the project in accordance with the requirements in <i>Approved Methods for Sampling of Air Pollutants in New South Wales</i> and to the satisfaction of the Director-General.	7.2.4
5	NOTIFICATION OF LANDOWNERS	
5	If the results of the monitoring required in schedule 4 identify that impacts generated by the project are greater than the relevant impact assessment criteria, except where a negotiated agreement has been entered into in relation to that impact, then the Proponent shall, within 2 weeks of obtaining the monitoring results, notify the Director-General, the affected landowners and tenants (including tenants of mine owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is complying with the criteria in schedule 4.	10.3
5	If the results of monitoring required in schedule 4 identify that impacts generated by the project are greater than the relevant air quality impact assessment criteria in schedule 4, then the Proponent shall send the relevant landowners and tenants (including tenants of mine owned properties) a copy of the NSW Health fact sheet entitled "Mine Dust and You" (and associated updates) in conjunction with the notification required in condition 1.	10.3
5	INDEPENDENT REVIEW	
5	3. If a landowner of privately-owned land considers the project to be exceeding the impact assessment criteria in schedule 4, then he/she may ask the Director-General in writing for an independent review of the impacts of the project on his/her land. If the Director-General is satisfied that an independent review is warranted, the Proponent shall within 2 months of the Director-General's decision: (a) consult with the landowner to determine his/her concerns; (b) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Director-General, to conduct monitoring on the land, to: · determine whether the project is complying with the relevant impact assessment criteria in schedule 4; and · identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and (c) give the Director-General and landowner a copy of the independent review.	10.1

Schedule	Project Approval Conditions	Section of this Plan
5	4. If the independent review determines that the project is complying with the relevant impact assessment criteria in schedule 4, then the Proponent may discontinue the independent review with the approval of the Director-General. If the independent review determines that the project is not complying with the relevant impact assessment criteria in schedule 4, then the Proponent shall: (a) implement all reasonable and feasible measures, in consultation with the landowner, to ensure that the project complies with the relevant criteria, and conduct further monitoring to determine whether these measures ensure compliance; or (b) secure a written agreement with the landowner to allow exceedances of the relevant impact assessment criteria, to the satisfaction of the Director-General. If the further monitoring referred to under paragraph (a) above determines that the project is complying with the relevant impact assessment criteria, then the Proponent may discontinue the independent review with the approval of the Director-General.	10.1
7	ENVIRONMENTAL MANAGEMENT, REPORTING AND AUDITING	
	Management Plan Requirements	
	2. The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
	(a) detailed baseline data;	3
	(b) a description of: - the relevant statutory requirements (including any relevant approval, licence or lease conditions); - any relevant limits or performance measures/criteria; - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Appendix A 5
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	6
	(d) a program to monitor and report on the: - impacts and environmental performance of the project; - effectiveness of any management measures (see (c) above);	7
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	8
	(f) a program to investigate and implement ways to continually improve the environmental performance of the project over time;	9
	(g) a protocol for managing and reporting any: - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria; and	10
	(h) a protocol for periodic review of the plan.	11

Schedule	Project Approval Conditions	Section of this Plan
7	Annual Review Each year, the Proponent shall review the environmental performance of the mine complex to the satisfaction of the Director-General. This review must: (a) describe the works that were carried out in the past year, and the works that are proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the mine complex over the past year, which includes a comparison of these results against the · the relevant statutory requirements, limits or performance measures/criteria; · the monitoring results of previous years; and · the relevant predictions in the EA and Extraction Plan; (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the mine complex; (e) identify any discrepancies between the predicted and actual impacts of the mine complex, and analyse the potential cause of any significant discrepancies; and (f) describe what measure will be implemented over the next year to improve the environmental performance of the mine complex.	10.5
7	Revision of Strategies, Plans and Programs 4. Within 3 months of: (a) the submission of an annual review under Condition 3 above; (b) the submission of an incident report under Condition 6 below; (c) the submission of an audit report under Condition 7 below; or (d) any modification to the conditions of this approval, (unless the conditions require otherwise), the Proponent shall review the strategies, plans, and programs required under this approval, to the satisfaction of the Director-General. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted for the approval of the Director-General. <i>Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended to improve environmental performance of the project.</i>	11
7	Incident Reporting 6. The Proponent shall notify the Director-General and any other relevant agencies of any incident associated with the mine complex as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Director-General and any relevant agencies with a detailed report on the incident.	10.2
7	Access to Information 9. From the end of 2009, the Proponent shall make the following information publicly available on its website: (a) a copy of all current statutory approvals for the mine complex; (b) a copy of the current environmental management strategy and associated plans and programs; (c) a summary of the monitoring results of the mine complex, which have been reported in accordance with the various plans and programs approved under the conditions of this approval; (d) a complaints register, which is to be updated on a monthly basis; (e) a copy of the minutes of CCC meetings; (f) a copy of any Annual Reviews (over the last 5 years); (g) a copy of any Independent Environmental Audit, and the Proponent's response to the recommendations in any audit; and (h) any other matter required by the Director-General.	10.4

TABLE 2: DEVELOPMENT CONSENT CONDITIONS (DA 29/95)

Schedule	Development Consent Conditions	Section of this Plan																							
3	AIR QUALITY																								
3	Impact Assessment Criteria 17. The Applicant must ensure that the <i>dust emissions generated by the Infrastructure Upgrade Area</i> identified in Figure 1.3 of the April 2006 SEE do not cause additional exceedances of the air quality impact assessment criteria listed in Tables 3, 4 and 5 at any residence on, or on more than 25 percent of, any privately-owned land. <i>Table 3: Long term impact assessment criteria for particulate matter</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>90 µg/m³</td></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>Annual</td><td>30 µg/m³</td></tr></table> <i>Table 4: Short term impact assessment criterion for particulate matter</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr><tr><td>Particulate matter < 10 µm (PM₁₀)</td><td>24 hour</td><td>50 µg/m³</td></tr></table> <i>Table 5: Long term impact assessment criteria for deposited dust</i> <table><tr><th>Pollutant</th><th>Averaging period</th><th>Maximum increase in deposited dust level</th><th>Maximum total deposited dust level</th></tr><tr><td>Deposited dust</td><td>Annual</td><td>2 g/m²/month</td><td>4 g/m²/month</td></tr></table> <i>Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 2003, AS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.</i>	Pollutant	Averaging period	Criterion	Total suspended particulate (TSP) matter	Annual	90 µg/m³	Particulate matter < 10 µm (PM ₁₀)	Annual	30 µg/m³	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM ₁₀)	24 hour	50 µg/m³	Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level	Deposited dust	Annual	2 g/m²/month	4 g/m²/month	5
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Deposited dust	Annual	2 g/m²/month	4 g/m²/month																						
3	Operating Conditions 18. The Applicant must:																								
	(a) ensure any visible air pollution generated by the development is assessed regularly, and measures taken to minimise air quality impacts on privately-owned land; and	6																							
	(b) implement all reasonable measures to minimise the off-site odour, greenhouse gas and fume emissions generated by the mine’s ventilation system or any spontaneous combustion at the development, to the satisfaction of the Secretary.	6																							
3	Monitoring 19. The Applicant must prepare an Air Quality Monitoring Program for the development to the satisfaction of the Secretary. This program must include an air quality monitoring protocol for evaluating compliance with the air quality impact assessment criteria in this consent. The Applicant must implement the approved program as approved from time to time by the Secretary.	7																							
3	METEOROLOGICAL MONITORING																								
3	20. The Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the development in accordance with the requirements in Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales and to the satisfaction of the Secretary.	7.2.4																							

Schedule	Development Consent Conditions	Section of this Plan
5	ENVIRONMENTAL MANAGEMENT, MONITORING, AUDITING AND REPORTING	
5	Incident Reporting 4. Within 7 days of detecting an exceedance of the limits/performance criteria in this consent, the Applicant must report the exceedance/incident to the Department (and any relevant agency). The report must: (a) describe the date, time, and nature of the exceedance/incident; (b) identify the cause (or likely cause) of the exceedance/incident; (c) describe what action has been taken to date; and (d) describe the proposed measures to address the exceedance/incident.	10.2
5	Regular Reporting 4A. The Applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.	10.4
5	Annual Review 5. By the end of September each year, unless the Secretary agrees otherwise, the Applicant must submit a review to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the previous year to 30 June, and the development that is proposed to be carried out over the current year to 30 June; (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous year to 30 June, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • requirements of any plan or program required under this consent; • monitoring results of previous years; and • relevant predictions in the documents listed in condition 2 of Schedule 2; (c) identify any non-compliance over the past year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the development; (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the next year to improve the environmental performance of the development.	10.5
5	Revision of Strategies, Plans and Programs 8. Within 3 months of: (a) the submission of an incident report under condition 4 above; (b) the submission of an Annual Review under condition 5 above; (c) the submission of an audit report under condition 6 above; and (d) the approval of a modification to the conditions of this consent, the Applicant must review the strategies, plans and programs required under this consent, to the satisfaction of the Secretary. The applicant must notify the Department in writing of any such review being undertaken. Where this review leads to revisions in any such document, then within 6 weeks of the review the revised document must be submitted for the approval of the Secretary. <i>Note: The purpose of this condition is to ensure that strategies, plans and programs are regularly updated to incorporate any measures recommended</i>	11

Schedule	Development Consent Conditions	Section of this Plan
5	Updating and Staging of Strategies, Plans or Programs 8A. To ensure that strategies, plans or programs required under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, the Applicant may at any time submit revised strategies, plans or programs for the approval of the Secretary. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis. With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent. While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the operations associated with the development are covered by suitable strategies, plans or programs at all times. If the submission of any strategy, plan or program is to be staged; then the relevant strategy, plan or program must clearly describe the specific stage/s of the development to which the strategy, plan or program applies; the relationship of this stage/s to any future stages; and the trigger for updating the strategy, plan or program.	Noted
5	Relationship with other consents 8B. With the agreement of the Secretary, the Applicant may combine any strategy, plan, program, review, audit or committee required by this consent with any similar requirement under another development consent or approval relating to the Austar Mine Complex, including Project Approval 08_0111 for the Stage 3 mining area.	AQGHGMP addresses PA 08_0111 and DA 29/95 conditions
5	Evidence of Consultation 8C. Where consultation with any public authority is required by the conditions of this consent, the Applicant must: (a) consult with the relevant public authority prior to submitting the required document to the Secretary for approval; (b) submit evidence of this consultation as part of the relevant document; (c) describe how matters raised by the authority have been addressed and any matters not resolved; and (d) include details of any outstanding issues raised by the authority and an explanation of disagreement between any public authority and the Applicant.	2

Schedule	Development Consent Conditions	Section of this Plan
5	Access to Information 12. The Applicant must: (a) make copies of the following publicly available on its website: - the documents listed in condition 2 of Schedule 2; - all current statutory approvals for the development; - approved strategies, plans and programs required under the conditions of this consent; - a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent; - a summary of the progress of the development; - contact details to enquire about the development or to make a complaint; - a complaints register, which is to be updated on a monthly basis; - minutes of CCC meetings; - the last five annual reviews; - any independent environmental audit of the development, and the Applicant's response to the recommendations in any audit; - any other matter required by the Secretary; and (b) keep this information up-to-date, to the satisfaction of the Secretary.	10.4

EPL REQUIREMENTS

Relevant conditions from EPL 416 and where these conditions are addressed in this Plan are listed in the table below.

ENVIRONMENT PROTECTION LICENCE 416 (EPL 416)

Section	EPL Conditions	Section of this Plan
4	OPERATING CONDITIONS	
4	O3 Dust	
	O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.	6.1
5	MONITORING AND RECORDING CONDITIONS	
5	M4 Weather Monitoring	
	M4.1 The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in condition M4.2.	7.2.4

Section	EPL Conditions	Section of this Plan																														
	M4.2 For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns. Point 7 <table><tr><th>Parameter</th><th>Units of Measure</th><th>Frequency</th><th>Averaging Period</th><th>Sampling Method</th></tr><tr><td>Air Temperature</td><td>Degrees Celsius</td><td>Continuous</td><td>1 hour</td><td>AM-4</td></tr><tr><td>Wind direction</td><td>Degrees</td><td>Continuous</td><td>15 minute</td><td>AM2 & AM-4</td></tr><tr><td>Wind speed</td><td>m/s</td><td>Continuous</td><td>15 minute</td><td>AM-2 & AM-4</td></tr><tr><td>Sigma theta</td><td>Degrees</td><td>Continuous</td><td>15 minute</td><td>AM-2 & AM-4</td></tr><tr><td>Rainfall</td><td>mm</td><td></td><td>24 hours</td><td>Standard rain gauge</td></tr></table>	Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method	Air Temperature	Degrees Celsius	Continuous	1 hour	AM-4	Wind direction	Degrees	Continuous	15 minute	AM2 & AM-4	Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4	Sigma theta	Degrees	Continuous	15 minute	AM-2 & AM-4	Rainfall	mm		24 hours	Standard rain gauge	7.2.4
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	M4.3 Rainfall at the premises must be measured and recorded in millimetres per 24 hour period, at the same time each day. Note: The rainfall monitoring data collected in compliance with Condition M4.2. can be used to determine compliance with L1.2.	7.2.4																														

STATEMENT OF COMMITMENTS

A list of the Statement of Commitments from PA 08_0111 which are relevant to air quality and greenhouse gas and where these commitments are addressed in this Plan are listed in the table below.

PROJECT APPROVAL STATEMENT OF COMMITMENTS (08_0111)

Appendix	Statement of Commitments	Section of this Plan								
3	1.9 AIR QUALITY									
	1.9.1 Austar Coal Mine will manage operations associated with the operation of the Surface Infrastructure Site so that dust deposition as a result of the development does not exceed levels set out in Table 1.2 at nearest non-project related residences. Table 1.2 - Dust Deposition Criteria <table><tr><th>Pollutant</th><th>Averaging Period</th><th>Maximum Increase in Deposited Dust Level</th><th>Maximum Total Deposited Dust Level</th></tr><tr><td>Deposited dust</td><td>Annual</td><td>2 g/m²/month</td><td>4 g/m²/month</td></tr></table> Note: Deposited dust is assessed as insoluble solids as defined by Standards Australia, 1991, AS 3580.10.1-1991: Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method.	Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level	Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month	5 6.1
Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level	Maximum Total Deposited Dust Level							
Deposited dust	Annual	2 g/m ² /month	4 g/m ² /month							
	1.9.2 Austar Coal Mine will expand the existing dust monitoring network to include dust deposition gauges at locations to the south and north of the proposed Surface Infrastructure Site. Dust monitoring findings relating to the Surface Infrastructure Site will be reported annually in the Annual Review.	7								
3	1.10 ENERGY AND GREENHOUSE GAS									

Appendix	Statement of Commitments	Section of this Plan
	1.10.1 Austar Coal Mine will develop and maintain an internal energy and GHG management plan for Stage 3 operations in accordance with Austar Coal Mine requirements. This will include reviewing: • energy efficiency in plant and equipment procurement, consideration be given to the life cycle costs advantages obtained by using energy efficient components; • the opportunity to install additional sub-metering for offices, workshops and winders; • operational initiatives such as turning off idling plant equipment; • control and temperature settings for air conditioning units in offices and switchrooms; • automatic control of external and internal lighting; • potential energy efficiency opportunities in water pumping and dust suppression systems (for example, variable speed drive pumps); • review changes in power consumption with installation of new equipment and install power factor correction equipment to suit; and • review workshop and bathhouse lighting and office and high bay lighting.	6.2
3	1.15 CONTINUOUS IMPROVEMENT OF EXISTING OPERATIONS	
	1.15.5 Austar Coal Mine will investigate opportunities for reduction in energy use and greenhouse gas emissions from the Austar Mine Complex. This will include: • ongoing review of emissions monitoring and management technology; • review of coal operations and potential for improvement as part of producing clean coal through coal preparation to reduce moisture and ash content, sulphur, nitrogen and other contaminants. This results in reduced emissions of greenhouse gases and other pollutants when the coal is used; and • consider the application of the in-force National Greenhouse and Energy Reporting System (NGERS) and the Carbon Pollution Reduction System (CPRS) on Austar operations.	6.2

Appendix B:

Management Plan Approval