
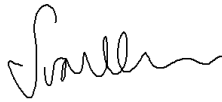

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AIR QUALITY MANAGEMENT PLAN

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Prepared by:

Title	Name	Signature	Date
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Acronyms and abbreviations

Acronym	Description
°	degrees
°C	degrees Celsius
AQMP	Air Quality Management Plan
BoM	Bureau of Meteorology
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
CoC	Conditions of consent for SSD 10269
CRO	Surface Competent Person
DPE	NSW Department of Planning and Environment
EIS	Environmental impact statement
EMS	Environmental Management Strategy
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPA	NSW Environment Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
EPL	Environment Protection Licence under the POEO Act
g/m ² /month	grams per square metre per month
GSC	Gunnedah Shire Council
GHGE	greenhouse gas emissions
HSE	Health, Safety & Environment
HVAS	high volume air samplers
IEA	Independent environmental audit
km	kilometre
m/s	meters per second
ML	Mining Lease
MLA	Mining Lease Application
mm	millimetre
Mtpa	million tonnes per annum
NCOPL	Narrabri Coal Operations Pty Ltd
NSC	Narrabri Shire Council
NSW	New South Wales
PCI	pulverized coal injection
PM _{2.5}	Particulate matter less than 2.5 µm in aerodynamic equivalent diameter
PM ₁₀	Particulate matter less than 10 µm in aerodynamic equivalent diameter
POEO Act	<i>Protection of the Environment Operations Act 1997</i> (NSW)
ROM	Run of mine

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Acronym	Description
SSD	State significant development
TARP	Trigger Action Response Plan
tph	tonnes per hour
µm	micrometres
VLAMP	<i>NSW Voluntary Land Acquisition and Mitigation Policy (2018)</i>
WHC	Whitehaven Coal Limited



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1. Introduction

1.1 Background

The Narrabri Mine is an existing underground coal mining operation situated in the Gunnedah Coalfield, approximately 25 kilometres (**km**) southeast of Narrabri and approximately 60 km northwest of Gunnedah, within the Narrabri Shire Council (**NSC**) Local Government Area, in New South Wales (**NSW**). It is operated by Narrabri Coal Operations Pty Ltd (**NCOPL**), on behalf of the Narrabri Mine Joint Venture¹, which consists of two Whitehaven Coal Limited's (**WHC**) wholly owned subsidiaries, and other joint-venture partners.

Stage 1 was approved in November 2007 (as PA 05_0102) under Part 3A of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**). Development of Stage 1 included site establishment and the construction of coal processing infrastructure commencing in 2008, with production using continuous miner mining methods up to 2.5 million tonnes per annum (**Mtpa**) commencing in 2010.

Project Approval 08_0144 for Stage 2 of the Narrabri Mine was issued under Part 3A of the EP&A Act in 2010, which allowed the Narrabri Mine to convert to a longwall mining operation to extract coal from the Hoskissons Coal Seam. Project Approval 08_0144 allowed for the production and processing of up to 11 Mtpa of Run of Mine (**ROM**) coal until July 2031. Approval under the *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) was granted on 21 January 2011 (**EPBC 2009/5003**) and the Narrabri Mine converted to a longwall mining operation within Mining Lease 1609, in 2012. Following the determination of Stage 2, PA 05_0102 for Stage 1 was surrendered on 2 August 2011.

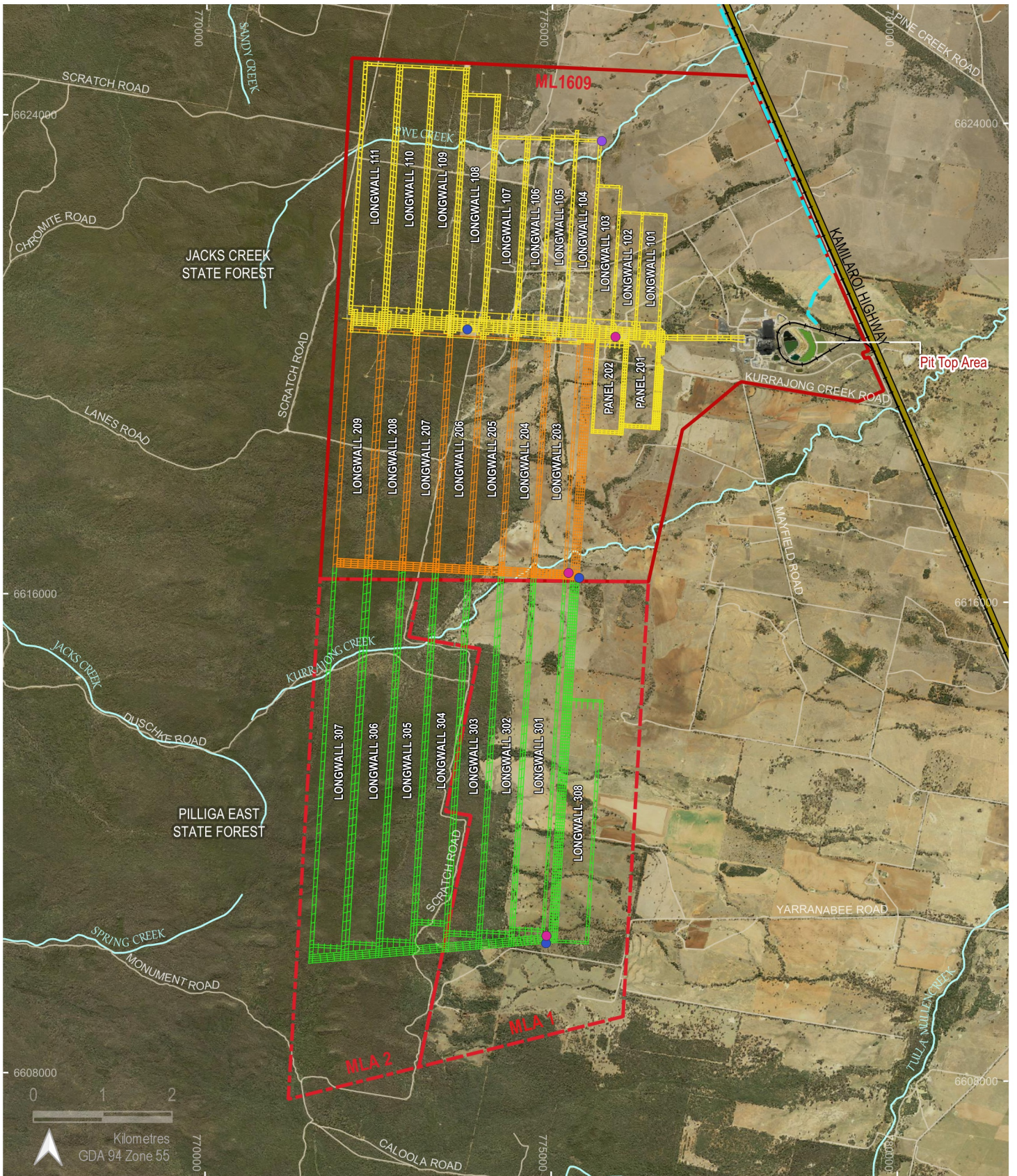
The Narrabri Underground Mine Stage 3 Extension Project (**Stage 3**) involves a southern extension to the previously approved Stage 2 mining area (approximately 609 ha of additional surface development footprint) to gain access to additional areas of coal reserves within Mining Lease Application (**MLA**) 1 and 2, an increase in the mine life to 2044, and the development of supporting surface infrastructure. Bord and pillar mining operations for panels LW 201 and LW 202 were previously approved as modification 7 (Mod 7) to PA 08_0144.

The Stage 3 Extension Project State Significant Development (**SSD**) was granted approval under section 4.38 of the EP&A Act on 1 April 2022, following the determination by the Independent Planning Commission (**SSD-10269**). Approval under the EPBC Act (**EPBC 2019/8427**) is pending.

Under the Stage 3 SSD-10269 Conditions of Consent (**CoC**), NCOPL is required to surrender PA 08_0144 no more than 12 months from the date of commencement of the Stage 3 development in accordance with the *Environmental Planning and Assessment Regulation 2021* (**EP&A Regulation**). Until then, the CoC prevail to the extent of any inconsistency with the conditions of PA 08_0144.

The Narrabri Mine underground mining layout is shown in Figure 1-1 and surface development footprint is shown in Figure 1-2.

¹ For full details on the joint venture ownership, refer to the introduction of the Environmental Management Strategy.

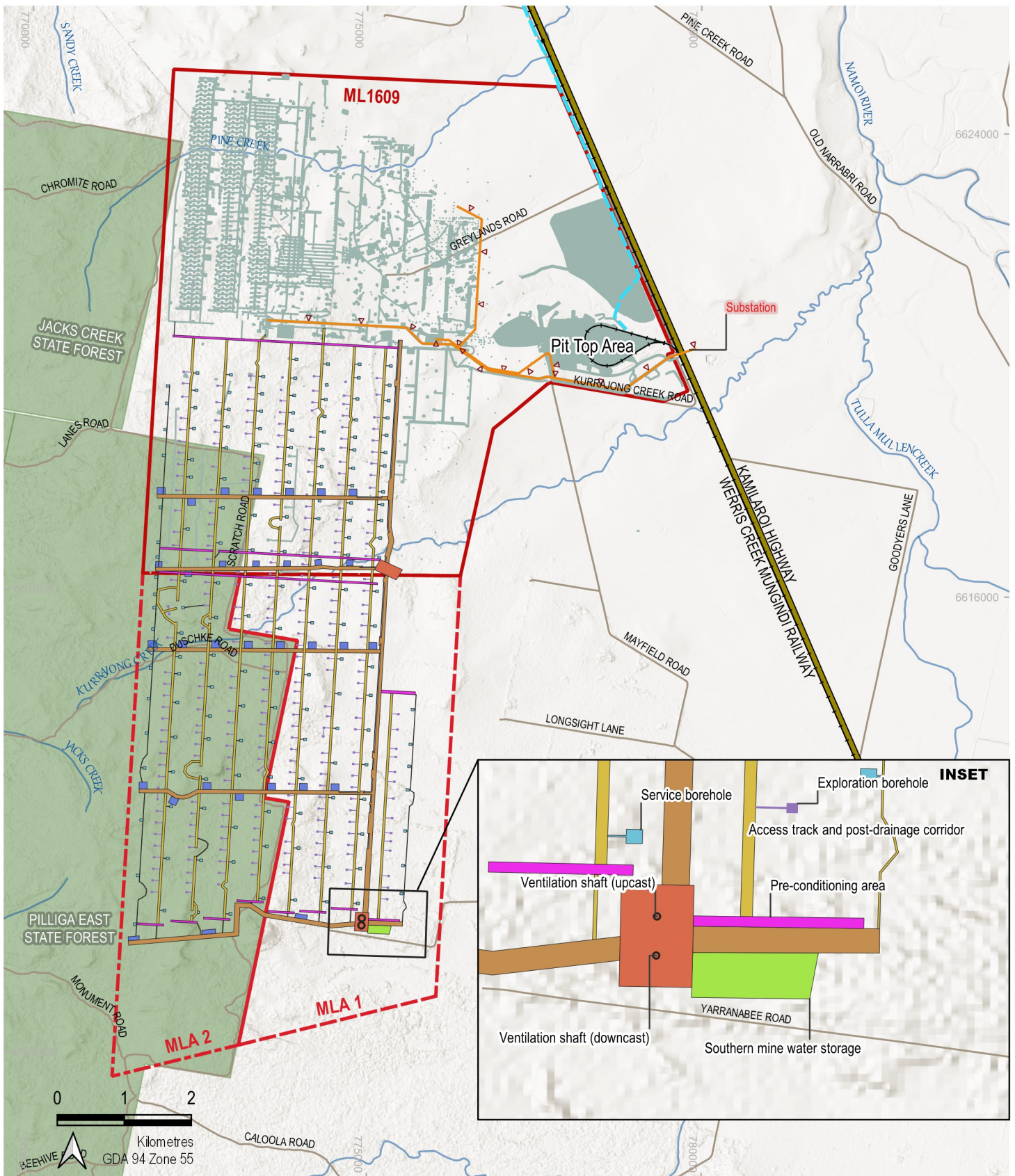


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


- ▭ ML1609
- ▭ MLA1
- ▭ MLA2
- ▭ Namoi River pipeline (buried)
- ▭ Stage 2 underground mining layout
- ▭ Stage 3 - 200 series underground mining layout
- ▭ Stage 3 - 300 series underground mining layout
- Ventilation complex (downcast)
- Ventilation complex (upcast)
- Ventilation complex (upcast - decommissioned)
- ▬ Highway
- ▬ Road
- ▬ Watercourse
- ▬ Railway

NARRABRI MINE

FIGURE 1-1
Underground Mining Layout




LEGEND

- | | | | |
|--|---|---|---|
|  | ML1609 |  | Stage 2 surface development |
|  | MLA1 |  | Access track and post-drainage corridor |
|  | MLA2 |  | Exploration borehole |
|  | State forest |  | Pre-conditioning area |
|  | Namoi River pipeline (buried) |  | Service borehole |
|  | Electricity transmission line (constructed) |  | Service borehole and power reticulation |
|  | Highway |  | Services corridor |
|  | Road |  | Southern mine water storage |
|  | Watercourse |  | Ventilation complex |
|  | Railway | | |

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FIGURE 1-2
Surface Development Footprint

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1.2 Purpose and scope

This Air Quality Management Plan (**AQMP** or **Plan**) has been developed in accordance with CoC B13, the Environment Protection Licence (**EPL**) EPL 12789, and the applicable regulatory framework regarding air quality.

As required by CoC B15, NCOPL will implement the AQMP as approved by the Planning Secretary. In accordance with CoC B14, NCOPL will not commence construction until this Plan is approved by the Planning Secretary.

This AQMP forms part of the Narrabri Mine Environmental Management Strategy (**EMS**).

1.3 Objectives


The objectives of this Plan are to:

- provide details of the relevant statutory requirements, including any relevant approval, licence or lease conditions;
- provide detail on the ambient air quality surrounding Narrabri Mine;
- describe the predicted air quality impacts from the development and operation of Narrabri Mine;
- describe the measures to be implemented to ensure:
 - compliance with the air quality criteria and operating conditions set in the CoC;
 - best practice management is being employed, including in respect of energy efficiency; and
 - the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events.
- describe the air quality management system in detail, including detailed performance measures and monitoring program in accordance with the relevant guidelines and methods;
- describe the protocol for managing and reporting any incident, non-compliance or exceedance of any air quality performance criteria, complaint, or failure to comply with other statutory requirements;
- detail the regulatory reporting requirements;
- describe the protocol for periodic review of this Plan; and
- identify the roles and responsibilities for implementation of this Plan.

1.4 Preparation and consultation


This Plan has been prepared by Mr. Servaes van der Meulen and Mr. Mark Vile of Onward Consulting Pty Ltd, who are certified and accomplished environmental practitioners with more than 20 years' experience each. Considering their individual and combined industry experience and professional expertise, both Servaes and Mark are deemed to be suitably qualified and experienced for the preparation of this AQMP, as required by CoC B13(a).

In accordance with CoC A20 and B13(b), the draft AQMP (Revision A) was provided to the EPA on 3 June 2022 for review and comment. Appendix A provides the EPA consultation correspondence letter dated 29 June 2022.

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1.5 Access to information


In accordance with CoC E17(a)(iii), the AQMP will be made publicly available on the WHC website following approval by the Department of Planning and Environment (**DPE**). Any subsequent revision of the AQMP approved by the DPE will be made publicly available on the website, and the superseded version will be removed to ensure the information is kept up to date in accordance with CoC E17(b). A copy of this Plan will also be kept on the Narrabri Mine site server. Any printed copies of this Plan are uncontrolled.

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2. Roles and responsibilities

All NCOPL employees and contractors (and their sub-contractors) are responsible for the environmental performance of their activities and for complying with all legal requirements and obligations. All personnel will be required to comply with the statutory approval requirements of the activities they undertake, and any potential environmental impacts from all activities will be managed in accordance with the relevant strategies, plans and programs.

In accordance with CoC E1, the EMS sets out the roles, responsibilities, authorities and accountabilities of all key personnel involved in the environmental management of operations at Narrabri Mine, which encompasses the requirements and obligations under this AQMP.

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3. Statutory requirements

3.1 Environmental Planning and Assessment Act 1979

The EP&A Act provides the statutory basis and framework for planning and environmental assessment in NSW. The EP&A Act includes provisions to ensure that the potential environmental impacts of a development are assessed and considered in the decision-making process. Stage 3 is permissible with development consent under the *State Environmental Planning Policy (Resources and Energy) 2021* and is identified as ‘State Significant Development’ under section 4.38 of the EP&A Act, and Clause 8 and Schedule 1 of the *State Environmental Planning Policy (Planning Systems) 2021*.

3.1.1 Project approval and development consent

The Stage 3 Extension Project (SSD 10269) was approved on 1 April 2022. The Narrabri Mine also incorporates the development formerly authorised under Project Approval 08_0144, until such time as this development consent is surrendered, in accordance with CoC A16.

In accordance with CoC E5(b), Appendix B, Table B-1 provides a summary of the relevant CoC relating to air quality and outlines the section of the AQMP in which each of these conditions have been addressed.

In accordance with CoC E5(c), Appendix C, Table C-1 provides a summary of the relevant commitments or recommendations within the Stage 3 Environmental Impact Statement (**EIS**) (Resource Strategies 2020) relating to air quality and outlines the section of the AQMP in which each of these commitments have been addressed. These relevant commitments or recommendations include those as amended or added to by the:


- Applicant’s Submission Report submitted 31 May 2021;
- Applicant’s Amendment Report submitted 31 May 2021;
- Applicant’s final Biodiversity Development Assessment Report dated September 2021; and
- Applicant’s Additional Information on GHGEs dated 15 October 2021 and 17 December 2021.

3.2 Protection of the Environment Operations Act 1997

The Protection of the Environment Operations Act 1997 (POEO Act) regulates pollution from a facility or activity through the placement of conditions in an EPL. Activities requiring an EPL are listed in Schedule 1 of the POEO Act and include mining for coal and coal works.

Section 124 of the POEO Act makes it an offence to operate any plant (other than domestic plant) at those premises in such a manner as to cause air pollution from those premises if the air pollution is caused by the occupier’s failure to maintain the plant in an efficient condition, or to operate the plant in a proper and efficient manner. Section 129 of the POEO Act states that the occupier of a premises must not cause or permit the emission of any offensive odour. Under section 148 of the POEO Act, duties are imposed on employers and employees to notify the EPA where a pollution incident causes or threatens material harm to the environment.

The *Protection of the Environment Operations (Clean Air) Regulation 2021* is the key regulatory mechanism in NSW for reducing emissions of harmful pollutants in the air and is integral to the administration of the POEO Act.

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The *Protection of the Environment Operations (General) Regulation 2021* gives effect to, and requires compliance with, the *National Environment Protection (National Pollutant Inventory) Measure 1998*. The regulation establishes reporting requirements for industrial facilities in NSW and also prescribes the offences for which penalty notices may be issued.

3.2.1 Environment protection licence

NCOPL is the holder of EPL 12789. The EPL will be varied to reflect all Stage 3 related development and operational activities.

In accordance with CoC E5(b), Appendix B, Table B-2 provides a summary of the relevant EPL conditions relating to air quality and outlines the section of the AQMP in which each of these conditions have been addressed.

3.3 Mining Act 1992

The *Mining Act 1992 (Mining Act)* regulates the licensing, land access, and operations for coal mines operating in NSW. Under the Mining Act, all resource activities must be licensed, including exploration activities.

3.3.1 Mining lease


NCOPL are the holder of Mining Lease 1609 (**ML 1609**) issued in January 2008. NCOPL are required to implement all practicable measures to prevent and/or minimise any harm to the environment that may result from the construction, operation, or rehabilitation of the development.

This Plan will be updated with any relevant conditions associated with future mining leases once these have been granted.

3.4 Relevant guidelines and standards

The following guidelines have been utilised during the preparation of the AQMP:

- *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (EPA 2017) (**Approved Methods (Modelling and Assessment)**);
- *Approved Methods for Sampling and Analysis of Air Pollutants in NSW* (EPA 2022) (**Approved Methods (Sampling and Analysis)**);
- *Voluntary Land Acquisition and Mitigation Policy* (DPE 2018) (**VLAMP**);
- AS 3580.1.1 “*Methods for Sampling and Analysis of Ambient Air: Guide to Siting Air Monitoring Equipment*”;
- AS 3580.9.6 “*Methods for sampling and analysis of ambient air – Determination of suspended particulate matter PM₁₀ high volume sampler with size-selective inlet – Gravimetric Method*”; and
- AS 3580.10.1 “*Methods for sampling and analysis of ambient air - Part 10.1: Determination of particulates - Deposited matter - Gravimetric method*”.

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4. Existing environment

This section provides a description of the environmental characteristics in the area, including local meteorological and ambient air quality conditions.

4.1 Meteorological conditions

To measure compliance with ambient air quality criteria, the NSW Government has established a network of monitoring stations across NSW with up-to-date records published on the NSW Government air quality monitoring network website.

Meteorological conditions are important for determining the direction and rate at which emissions from a source will disperse. The key requirements of air dispersion models include hourly records of wind speed, wind direction, temperature, and atmospheric stability.

Long-term meteorological data are available from the local and regional weather stations. The Narrabri Mine's site meteorological station can be used to collate short term data including temperature, temperature inversion, humidity, rainfall and wind speed and direction.

Wind

Analysis of wind direction over a seven-year period (2014 to 2020), within and surrounding the mine, identified the most common winds occur from the southeast and northwest. This pattern of winds is common for the North West Slopes and Plains of NSW and reflects the northwest-southeast alignment of the valley, and general route of the Kamilaroi Highway. The analysis also identified that wind patterns were similar in all seven years of data. This suggests that wind patterns do not vary significantly from year to year.

The average and maximum wind speeds exhibited similar ranges across all seven years. Maximum wind speeds reached around 12 metres per second (**m/s**) (as an hourly average) and these winds typically occurred in spring.


Rainfall and temperature

Typical rainfall and temperature statistics have been obtained from the Bureau of Meteorology (**BoM**) website for the Narrabri Airport (BoM No. 54038), which provides a reliable record of rainfall/temperature statistics representative of the area. Monthly rainfall is relatively low and summer dominant, whilst temperatures are warm to hot in summer and mild in winter.

A collation of rainfall data for the Narrabri region between 2002 and 2021 identified the:

- minimum annual rainfall of 206 millimetres (**mm**) in 2019;
- long term average annual rainfall of 569.84 mm;
- median annual rainfall of 584.8 mm; and
- maximum annual rainfall of 896 mm in 2021.

The average annual evaporation total is approximately 1,909 mm (between 2010 and 2021), compared to the long term annual average rainfall of 569.84 mm. This gives an annual deficit (difference between annual evaporation and rainfall) of approximately 1,339.16 mm. Evaporation is highest in the warmer months and lowest in the cooler months.

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4.2 Background air quality

Particulate Matter (**PM₁₀** and **PM_{2.5}**) and dust deposition data is collected from a number of air quality monitors in the vicinity of Narrabri Mine and wider area, including air quality monitors operated by NCOPL, other WHC-operated mines and the NSW Government.

Monitoring of particulate matter aims to capture data from existing mining operations, commercial and industrial facilities, agriculture, other localised particulate matter sources (e.g. wood heaters, vehicles using unsealed roads and wind erosion of exposed areas) and regional particulate matter sources (e.g. bushfires and dust storms).

PM₁₀ concentrations are measured by two high volume air samplers (**HVAS**), located to the southwest of the Narrabri Mine Pit Top Area. Deposited dust is measured by a network of dust deposition gauges, primarily located on mine-owned land.

Measured PM₁₀ data captured over six years (2014 to 2019) by two HVAS located near the Pit Top Area recorded eight exceedances of the EPA criteria (for 24-hour and annual average periods), however these results were influenced by regional dust events and bushfires. Measured PM_{2.5} has been recorded at the Narrabri and Gunnedah townships since late 2017. On one day in 2018, and 20 days in 2019, the 24-hour average PM_{2.5} concentrations exceeded the EPA criteria at the Narrabri monitoring station, coinciding with observed regional dust and bushfire events. Since 2014, all deposited dust monitoring locations have been below the annual average EPA criteria of 4 grams per square metre per month (g/m²/month).

Table 4-1 details the appropriate background levels (representative of the underground mine and contributions from all sources) that were used to model predictions for the assessment of potential air quality impacts. These background levels apply to all sensitive receptors.

Table 4-1 Background levels that apply at sensitive receptors

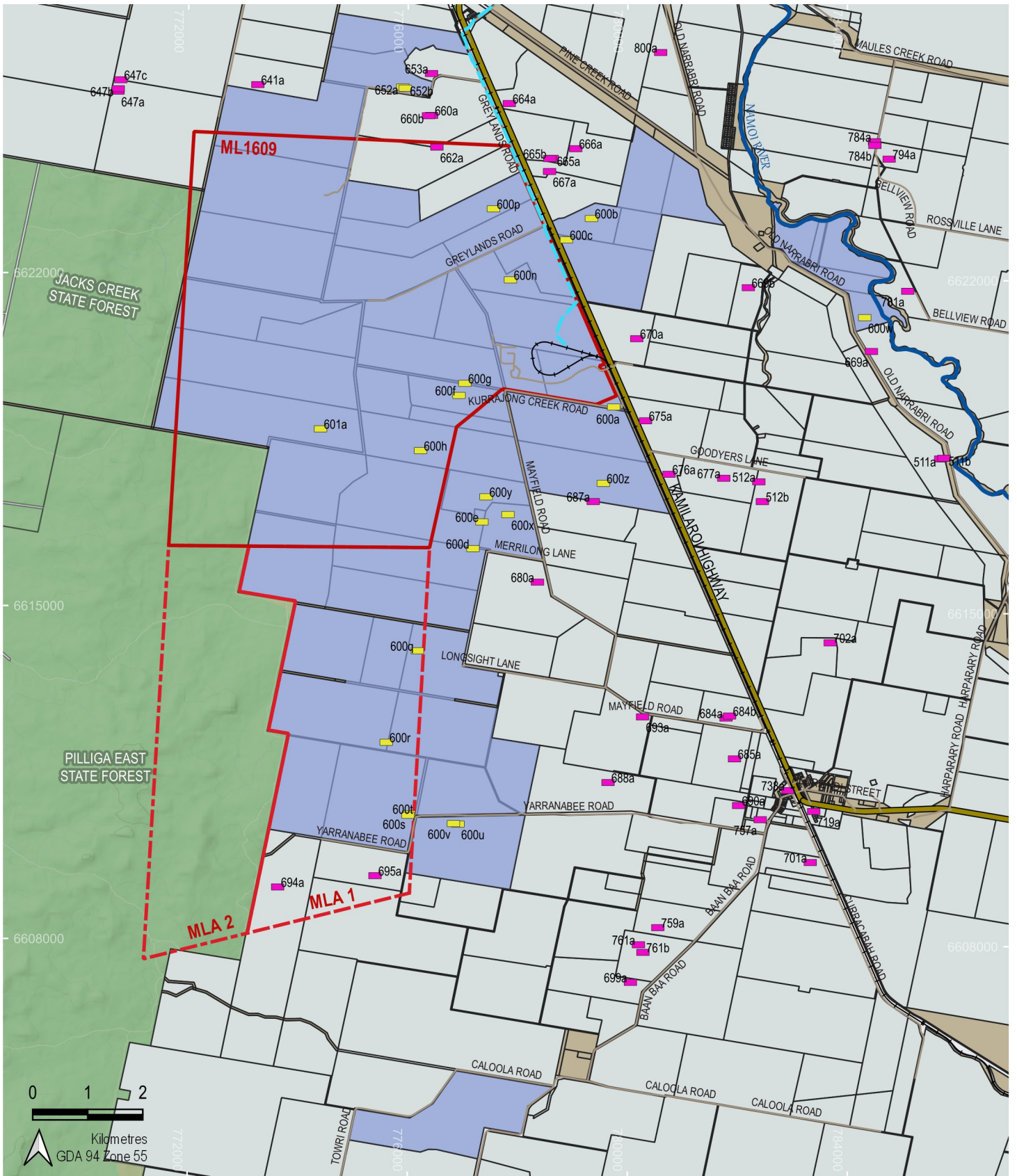
Pollutant	Averaging time	Background levels at sensitive receptors
Particulate matter (PM ₁₀)	24-hour	Variable by day
	Annual	11 µg/m ³
Particulate matter (PM _{2.5})	24-hour	12 µg/m ³
	Annual	4.2 µg/m ³
Deposited dust	Annual	1.7 g/m ² /month

Source: Jacobs (2020)

4.3 Sensitive receptors

The Approved Methods (Modelling and Assessment) defines a sensitive receptor as “a location people are likely to work or reside; this may include a dwelling, school, hospital, office or public recreational area”. This has also been interpreted as places of near-continuous occupation.

The sensitive receivers identified in and around the Narrabri Mine are shown in Figure 4-1.




LEGEND

- ML1609
- MLA1
- MLA2
- NCOPL-owned land
- Privately-owned land and other land
- Private dwelling
- NCOPL-owned dwelling
- Crown land
- State forest
- Namoi River pipeline (buried)
- Highway
- Roads
- Railway
- Watercourse

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FIGURE 4-1
Nearest Sensitive Receivers

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5. Predicted impacts

5.1 Air quality

Exposure to suspended particulate matter can lead to health and amenity impacts. The likely risk of these impacts depends on a range of factors including the size, structure and composition of the particulate matter and the general health of the person.

Such particles are typically less than 50 micrometres (μm) in size and can be as small as 0.1 μm . Fine particles less than 10 μm are referred to as PM₁₀, while fine particles less than 2.5 μm are referred to as PM_{2.5}. Suspended particulate matter has been assessed against the EPA impact assessment criteria provided in the Approved Methods (Modelling and Assessment).

Dust has been identified as the key potential air quality issue resulting from activities associated with coal handling, processing, and stockpiling.

5.1.1 Potential maximum air quality impacts

No exceedances of the EPA criteria are predicted at any sensitive receptor for 24-hour average PM₁₀ or PM_{2.5} concentrations, annual average PM₁₀, PM_{2.5}, Total Suspended Solids concentrations or dust deposition levels. Therefore, it is expected that the development and operation of Narrabri Mine will not lead to adverse air quality impacts at private sensitive receptors.

5.1.2 Assessment of impacts on privately-owned land


An assessment of the relevant air quality contours and land tenure information concluded that no privately-owned land is predicted to experience exceedances of the relevant VLAMP air quality criteria on greater than 25% of land (nor at any residence).

5.1.3 Coal transportation

Potential impacts from rail transportation of coal were considered as part of the Stage 3 EIS. Analysis of the potential impacts of off-site coal transport suggest that it is unlikely to result in any adverse air quality impacts.

5.1.4 Potential cumulative impacts

The area around the Narrabri Mine contains various emission sources that will contribute to local air quality including farming and agriculture. In addition, the Narrabri Gas Project is proposing progressive installation of up to 850 new gas wells on up to 425 new well pads over approximately 20 years, and the construction and operation of gas processing and water treatment facilities. Dispersion modelling for this project showed that PM₁₀ concentrations in the vicinity of the Narrabri Mine would be negligible, therefore no cumulative air quality impacts are anticipated.

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5.2 Odour

NCOPL identified that algae and bacteria in the existing brine storage ponds have previously led to off-site odour impacts. Specifically, this occurred from anaerobic areas of the dam due to no circulation or agitation below the water surface. Control measures implemented to reduce potential for off-site odour impacts include the introduction of algaecide to brine and mechanical aeration of the brine ponds.

Additionally, odour and other substances can be generated from the spontaneous combustion of coal via self-heating when coal and other carbonaceous materials undergo an exothermic reaction when exposed to oxygen in the air, to generate heat. This process causes the temperature of the material to rise which, in turn, accelerates the oxidation and the heat generation process. As the material temperature rises above about 70°C, the temperature acceleration is rapid enough to result in ignition of the material. This ignition is referred to as spontaneous combustion and results in the emission of noxious gases including carbon dioxide, carbon monoxide, sulphur dioxide, hydrogen sulphide, nitrogen oxides and a range of volatile organic compounds. These emissions can lead to nuisance odour effects.

NCOPL has not reported any issues relating to the spontaneous combustion of coal that would have led to off-site odour impacts, and Narrabri Mine does not have a history of material spontaneous combustion issues. Therefore, it is not predicted that offsite odour impacts will occur as a result of spontaneous combustion.

Other potential odour impacts may occur from the ventilation system which have previously been quantified. Computer-based dispersion modelling was used to predict off-site odour levels due to emissions from ventilation, goaf gas and pre-drainage ventilation points. Model predictions (up to 0.5 odour units compared to a criterion of 6 odour units) showed that the odour impacts due to the ventilation system are negligible. It is anticipated that adverse odour impacts from this source would not arise from the ventilation system.

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6. Air quality management system

6.1 Performance measures

In accordance with CoC B12, NCOPL will implement all reasonable and feasible avoidance and mitigation measures to:

- minimise odour, fume and particulate matter (including PM₁₀ and PM_{2.5}) emissions;
- eliminate or minimise the risk of spontaneous combustion;
- improve energy efficiency and minimise Scope 1 and Scope 2 greenhouse gas emissions;
- minimise visible off-site air pollution;
- minimise, to the greatest extent practicable, potential dust generating surfaces exposed on the site at any given point in time;
- operate a comprehensive air quality management system;
- minimise the air quality impacts during adverse meteorological conditions and extraordinary events;
- carry out regular air quality monitoring that differentiates between the incremental contribution from mining operations and that attributable to background contributions to determine compliance with the CoC; and
- regular assessment of the air quality monitoring data and modification of operations to ensure compliance with the CoC.

The following sections set out the specific performance criteria for monitoring and assessment of exceedances for odour and air quality.

6.1.1 Air quality criteria

In accordance with CoC B10, NCOPL must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated do not cause exceedances of the criteria listed in Table 6-1 at any residence on privately-owned land. Exceptions are permitted in regard to exceedances on mine owned land in accordance with CoC B11 and in accordance with private landholder agreements.

Table 6-1 Air quality criteria particulate matter

Pollutant	Averaging period	Criteria ^d
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³
	24 hour	^b 50 µg/m ³
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³
	24 hour	^b 25 µg/m ³


Notes:

^a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).

^b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).

^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.

^d µg/m³ = micrograms per cubic metre.

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6.1.2 Odour criteria

In accordance with CoC B9, NCOPL must ensure that no offensive odours, as defined under section 129 of the POEO Act, are emitted from the site.

6.2 Management measures

6.2.1 Air quality

In accordance with CoC B10, NCOPL will implement all reasonable and feasible avoidance and mitigation measures so that particulate matter emissions generated do not cause exceedances of the criteria listed in Table 6-1 at any residence on privately-owned land.


Dust mitigation

Key dust mitigation measures that will be implemented by NCOPL include:

- enclosure of the Coal Handling and Preparation Plant (**CHPP**);
- enclosed conveyors, where practicable;
- construction of a perimeter amenity bund and windbreaks;
- review of BoM 7-day weather forecasts and review of real-time data (i.e. wind speed, wind direction and air quality conditions) from NSW government regional monitoring stations² to assist in planning during adverse meteorological conditions and extraordinary events;
- water sprays on ROM and product coal stockpiles and transfer points;
- regular maintenance and application of water to suppress dust generation on unsealed surfaces including haul roads and minor unsealed roads;
- water sprays operated on all continuous miners, the longwall unit and the breaker feeder to minimise dust creation underground;
- spontaneous combustion will be managed and monitored in accordance with the approved Spontaneous Combustion Management Plan;
- drillers are to assess the dust source and wet down affected area (i.e. water truck) during drilling activities, when required;
- soil stripping undertaken at a time when there is sufficient soil moisture to prevent significant lift-off of dust (where practicable) and stripping avoided in periods of high winds;
- topsoil stripping and handling activities will cease during adverse meteorological conditions when dust controls are ineffective (e.g. use of water as suppressant);
- only the minimum area necessary for mining operations will be disturbed at any time;
- progressive rehabilitation of areas of disturbance; and
- cleared trees and branches retained on the margins of cleared areas for use in stabilising disturbed areas once they are no longer required.

Air quality impacts during surface development activities will largely result from dust generated during earthworks and associated construction of services corridors and access tracks, mine ventilation infrastructure,

² Live air quality and meteorological data from <https://www.dpie.nsw.gov.au/air-quality/air-quality-maps/greater-nsw-map> (Greater NSW air quality map)

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gas management infrastructure, and water management infrastructure. The implementation of the controls listed above will be applied during infrastructure development activities as appropriate.

Reactive dust control measures are detailed in the Trigger Action Response Plan (**TARP**) in Appendix D.

Gas flaring

The Narrabri Mine will incorporate flaring of pre-drainage gas (which contains methane) in particular parts of the underground mining area, which has the potential to produce oxides of nitrogen emissions. The key mitigation measures to reduce potential impacts of oxides of nitrogen emission on the local air quality environment will include:

- operation of a maximum of three flaring units at any one time; and
- location of the infrastructure away from any sensitive receptors.

Impacts of oxides of nitrogen emissions are expected to be minimal based on the above mitigation measures along with the following considerations:

- prevailing winds are generally from the south-west (i.e. not in the direction from flaring infrastructure to sensitive receptor locations); and
- opportunities for flaring are limited by the availability of suitable pre-drainage gas.

6.2.2 Odour

Management options to mitigate brine storage odour include:


- minimising the anaerobic zones in the dam through mechanical aerator devices and circulation of water via pumps; and
- limiting algal growth to limit food sources for odour generating bacteria through dosing of algacide.

Spontaneous combustion will be managed in accordance with the Spontaneous Combustion Management Plan.

6.2.3 Energy efficiency

The following measures represent all identified reasonable and feasible avoidance and mitigation measures to improve energy efficiency at the Narrabri Mine and minimise Scope 1 and Scope 2 emissions. To ensure best practice energy efficiency management and reduction of Scope 1 and Scope 2 emissions to as far as reasonably practicable, NCOPL will:

- regularly maintain plant and equipment to minimise fuel/electricity consumption and associated emissions;
- continue to select plant and equipment that are energy efficient;
- train relevant staff on continuous improvement strategies regarding efficient use of plant and equipment, including maintaining equipment to retain high levels of energy efficiency;

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- the Scope 1 Emissions Minimisation Plan will be prepared within 12 months of commencing the development and regularly reviewed and updated in accordance with CoC B18 and CoC B19; and
- source electricity generated by renewable or carbon neutral energy sources where reasonable and feasible in accordance with CoC B16.

6.3 Monitoring program

6.3.1 Monitoring locations

The Narrabri Mine air quality monitoring network includes:

- two PM₁₀ HVAS;
- one dust deposition gauge; and
- a meteorological monitoring station (weather station and inversion tower).

Table 6-2 provides detail on the air quality monitoring locations and associated parameters. Figure 6-1 shows the air quality monitoring network.

Table 6-2 Air quality monitoring locations

Monitoring point	Coordinates (MGA94, Zone 55)		Location	Parameters
	Easting	Northing		
ND3*	780000	6620698	“Bow Hills” property	Deposited dust
ND9	777047	6619621	“Claremont” property	PM ₁₀
ND10	779775	6619367	“Turrabaa” property	
W1	777573	6619790	Pit Top Area	Weather analysis
W2	777523	6619622	Pit Top Area	Measurement of inversion conditions

Note:

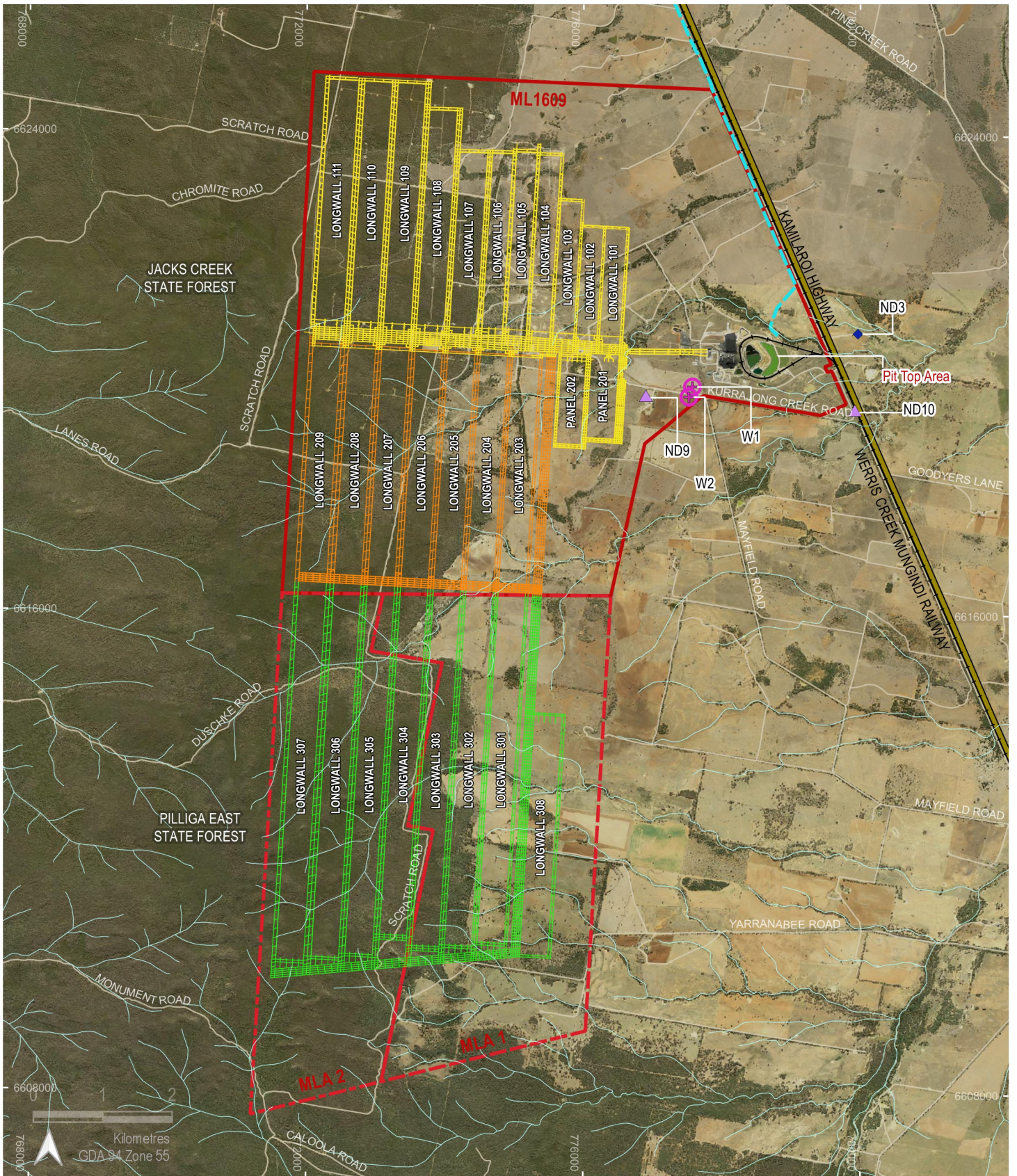
* NCOPL has a private agreement in place in respect to air quality

Notwithstanding the above, and in accordance with CoC E16, air quality monitoring may be undertaken at suitable representative monitoring locations instead of at privately-owned residences providing that these representative monitoring locations are set out in the respective management plan/s.

Real-time air quality monitoring will commence in time to guide the planning of Stage 3 mining operations³. The real-time monitoring for PM₁₀ and PM_{2.5} will be undertaken in accordance with CoC B12(b) to assess against the criteria listed in Table 6-1. The proposed locations for siting of the real time monitors will consider the predominant wind direction, location of sensitive receptors and requirements for siting air monitoring equipment on the advice of a suitable qualified and experienced person. This Plan will be updated to include the newly installed real time monitors in the monitoring program following installation.

Prior to the real-time monitors being installed, the Greater NSW air quality map described in section 6.2.1 will be used to access real-time air quality monitoring data from Narrabri and Gunnedah to assess regional dust levels.

³ Refer to the glossary in section 12 for the definition of mining operations.




LEGEND

- ML1609 ML1609
- MLA1 MLA1
- MLA2 MLA2
- Namoi River pipeline (buried)
- Stage 2 underground mining layout
- Stage 3 - 200 series underground mining layout
- Stage 3 - 300 series underground mining layout
- ◆ Deposited dust monitoring site
- ⊕ Meteorological station
- ▲ PM10 monitoring site
- Highway
- Roads
- + Railway
- Watercourse

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FIGURE 6-1
Air Quality Monitoring Locations

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6.3.2 Monitoring method

Monitoring will be conducted according to the Approved Methods (Sampling and Analysis) and the following Australian Standards:

- AS 3580.1.1 “Methods for Sampling and Analysis of Ambient Air: Guide to Siting Air Monitoring Equipment”;
- AS 3580.9.6 “Methods for sampling and analysis of ambient air - Determination of suspended particulate matter PM₁₀ high volume sampler with size-selective inlet - Gravimetric Method”; and
- AS 3580.10.1 “Methods for sampling and analysis of ambient air - Part 10.1: Determination of particulates - Deposited matter - Gravimetric method”.

Table 6-3 summarises the monitoring method requirements. A summary of the monitoring results will be provided as part of the Annual Return prepared for EPL 12789, the EPL monthly reports, the quarterly CCC meetings, and the Narrabri Mine Annual Review.

Table 6-3 Air quality monitoring requirements

Parameter	Units of measure	Method	Frequency
Particulate matter - PM ₁₀	Micro grams/cubic meter	HVAS (PM ₁₀ gravimetric method)	Every six days
		Real-time measurement method ^	Continuous
Particulate matter - PM _{2.5}	Micro grams/cubic meter	Real-time measurement method ^	Continuous
Particulates – deposited matter	Grams/per square meter/per month	Dust deposition gauge (Deposited matter gravimetric method)	Monthly (min. of 4 weeks)

^ Measurement method will be determined based on the type of real-time air quality instrumentation installed according to proposed changes to the air quality monitoring network outlined in section 6.3.1.


6.3.3 Data collection and analysis

Once every six days, each HVAS pre-weighted filter will be removed, replaced, and sent to a NATA accredited laboratory for analysis, generally in monthly batches. If there is a technical fault, power outage or any other unplanned event that may cause delays in the HVAS unit replacement (e.g. adverse weather event), NCOPL will remove and replace the pre-weighted filter as soon as reasonable practicable following the unplanned event.

Once every four weeks, the dust deposition gauge is switched out and the bottle sent to a NATA accredited laboratory for analysis.

Condition M1.3 of EPL 12789 requires the following records to be kept for all samples:

- the date(s) on which the sample was taken;
- the time(s) at which the sample was collected;
- the point at which the sample was taken; and
- the name of the person who collected the sample.

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In addition to the above, the following will be recorded at the time of sample collection:

- evidence of sample contamination;
- conditions at or around the monitoring location;
- site activities that could impact on air quality results; and
- any relevant regional conditions (e.g. bushfires, dust storms) etc.

6.3.4 Meteorological conditions

NCOPL have an established site-specific meteorological monitoring station and meteorological tower installed and operated in close proximity to the Pit Top Area (Figure 6-1). Real time data of meteorological conditions is collected to determine the direction and rate at which emissions from a source will disperse.

The meteorological station complies with the requirements in the Approved Methods (Sampling and Analysis) and is capable of measuring meteorological conditions in accordance with the *Noise Policy for Industry*.

The meteorological station is checked daily to ensure its functionality in collecting and recording the following data:

- temperature;
- humidity;
- rainfall; and
- wind.


Table 6-4 details the method and criteria for meteorological monitoring.

Table 6-4 Metrological monitoring method

Parameter	Units of measure	Frequency	Averaging period	Sampling method*
Rainfall	mm	Continuous	1 hour	AM-4
Wind speed @ 10 metres	m/s	Continuous	15 minute	AM-2 & AM-4
Wind direction @ 10 meters	°	Continuous	15 minute	AM-2 & AM-4
Temperature @ 2 metres	°C	Continuous	15 minute	AM-4
Temperature @ 10 metres	°C	Continuous	15 minute	AM-4
Sigma theta @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4

Note:

* Approved Methods for the Sampling and Analysis (EPA 2022)

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7. Trigger Action Response Plan

The TARP provided in Appendix D has been developed to identify, assess and respond to triggers such as potential exceedances and are implemented to manage risk to operations, personnel and the environment. The TARP controls the implementation of mitigation measures to reduce the potential for dust emissions from operations during adverse meteorological conditions.

The TARP includes measures for all major dust generating activities including:

- coal processing;
- stockpiling;
- surface drilling; and
- surface civil works.

In addition to the trigger points and associated control measures to be implemented, the TARPs also detail the delegation of responsibility at each trigger point.

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8. Incidents and non-compliance

8.1 Incident notification

An incident is defined under the CoC as *an occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance.*

Material harm, as defined under the CoC, is harm to the environment that:

involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment)

This definition excludes “harm” that is authorised under either the CoC or any other statutory approval (e.g., EPL).

In accordance with CoC E9, NCOPL will notify DPE and any other relevant agencies immediately as it becomes aware of an incident. Incident notification will be made in writing via the Department’s Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.

Notifications to the EPA will be made by contacting the Environment Line on 131 555 and written details of the notification will be provided within 7 days of the date on which the incident occurred.

Incident reporting and emergency response is further described in the EMS.

8.2 Non-compliance


The CoC defines a non-compliance as *an occurrence, set of circumstances or development that is a breach of this consent.* For clarity, ‘this consent’ is referring to development consent SSD-10269.

In accordance with CoC E4, where an exceedance of the relevant criteria or performance measures (i.e. air quality exceedance attributable to mining) has occurred, NCOPL will, at the earliest opportunity, take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur. All reasonable and feasible options for remediation (where relevant) will be considered and a report submitted to the DPE describing those options and any preferred remediation measures or other course of action.

In accordance with CoC E10, within seven days of becoming aware of a non-compliance, NCOPL will notify DPE of the non-compliance⁴. The notification will be made in writing via the Department’s Major Projects Website and identify the development (including the development application number and name), set out the CoC that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

NCOPL will implement any reasonable remediation measures as directed by the Planning Secretary, to the satisfaction of the Planning Secretary.

⁴ A non-compliance which has been notified as an incident under section 8.1 does not need to also be notified as a non-compliance.

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8.3 Notification of exceedance to landowners

In accordance with CoC D6, as soon as practicable, and no longer than 7 days after obtaining monitoring results showing an exceedance of any air quality criteria in Table 6-1, NCOPL will provide the details of the exceedance to any affected landowners and/or tenants along with a copy of the fact sheet entitled “*Mine Dust and You*” (NSW Health, 2017).

8.3.1 Independent review


If a landowner considers that the Narrabri Mine is exceeding any air quality criteria, they can request an independent review from the Planning Secretary. Any independent review requests will follow the process outlined under CoC D7 to CoC D9.

The independent review process is further detailed in the EMS.

8.3.2 Land acquisition

An exceedance of the air quality criteria detailed in Table 6-1 may trigger landowner acquisition rights as per the VLAMP. If a written request for acquisition from a landowner is made, NCOPL will follow the process outlined under CoC D10 to CoC D17.

The land acquisition process is further detailed in the EMS.

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9. Reporting, evaluation and review

9.1 EPL Annual Return

In accordance with Condition R1 of EPL 12789, NCOPL will submit an Annual Return to the EPA within 60 days after the end of the reporting period (anniversary date).

9.2 Annual Review

NCOPL will review the performance of its air quality management system for the previous calendar year and report results within the Annual Review to the satisfaction of the Planning Secretary and in accordance with CoC E11. Table B-1, Appendix B lists all components of the Annual Review.

In accordance with CoC E12, the Annual Review will be submitted to DPE, the IAPUM (via DPE as Secretariat), NSC and Gunnedah Shire Council (**GSC**) and regulatory agencies and made available to the CCC and any interested person upon request. The Annual Review will also be made publicly available on the WHC website.

9.3 Independent Environmental Audit

Within one year of commencement of the development, and every three years thereafter (unless the Planning Secretary directs otherwise), NCOPL will commission an Independent Environmental Audit (**IEA**) of the development, to be conducted in accordance with CoC E13 and CoC E14. The IEA will be led and conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Planning Secretary.

The IEA process and requirements are further described in the EMS.

9.4 Record keeping


In accordance with EPL 12789 Condition M1.2, NCOPL will retain all monitoring and reporting records as follows:

- in a legible form, or in a form that can readily be reduced to a legible form;
- kept for at least 4 years after the monitoring or event to which they relate took place; and
- produced in a legible form to any authorised officer of the EPA who asks to see them.

9.5 AQMP review and evaluation

In accordance with CoC E7, NCOPL will review the suitability of the AQMP within three months of the:

- submission of an incident report under CoC E9 or E10;
- submission of an Annual Review under CoC E11;
- submission of an IEA under CoC E13;
- approval of any modification of the CoC (unless the conditions require otherwise); or
- notification of a change in development phase under CoC A14.

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As required by CoC E8, if the review under CoC E7 determines that the AQMP requires revision to either improve the environmental performance of the development, cater for a modification, or comply with a direction, the revised document will be submitted to the Planning Secretary for approval within six weeks of the review. The revision status of this AQMP is indicated in section 13.

A dedicated review register will be maintained which will provide the details of the review of all relevant strategies, plans and programs that need to be reviewed as required by CoC E7.


9.6 Improvement measures

Consent condition E5(g) requires this Plan to include a program to investigate and implement ways to improve the environmental performance of the development over time. Improvement measures may be investigated through review of the following:

- monitoring data, and any assessment of trends;
- audit outcomes, including audits of air quality management measures;
- incident reports, including any community complaints; and
- industry leading practice in air quality management.

Reasonable and feasible improvement measures will be implemented and documented as a management measure in a revision to the Plan as described in section 9.5.

CoC E5(j) states that the Plan is to include a protocol for periodic review of the Plan. The protocol for review is set out by CoC E7, E8 and E11, which have been addressed in section 9.5.


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10. Complaints management

Any complaints received in relation to air will be managed in accordance with the complaints management protocol as follows:

- publicly advertised telephone complaints line, 1800WHAVEN, will be in place to receive complaints.
- each complaint received will be recorded in a Complaints Register, which will include the following details:
 - date and time of complaint;
 - method by which a complaint was made;
 - personal details the complainant wishes to provide or, if no such details are provided, a note to that effect;
 - nature of the incident that led to the complaint;
 - action taken by NCOPL in relation to the complaint (i.e., any required remedial actions), including any follow-up contact with the complainant; and
 - if no action was taken, the reason why no action was taken.
- the Environmental Superintendent will be responsible for ensuring that an initial response is provided within 24 hours of receipt of a complaint (except in the event of complaints recorded when the mine is not operational or outside of usual business hours).
- once the identified measures are undertaken, the Environmental Superintendent will sign off on the relevant complaint within the Complaints Register.
- if necessary, follow-up monitoring will take place to confirm the source of the complaint is adequately mitigated.
- a summary of the complaints will be maintained by NCOPL and made available to the Community Consultative Committee, the complainant (on request) and on the WHC website. A summary of complaints received every 12 months will be provided in the Annual Review.

In the event that any complainant considers that NCOPL has not adequately addressed their concerns, the NCOPL representative will convene additional meetings with the complainant. If the complainant believes the matter remains unresolved, and no further agreement can be reached as to additional measures to be undertaken, then they may refer the matter to DPE.

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12. Glossary

Term	Definition
Annual Review	The review required by condition E11
Applicant	Narrabri Coal Operations Pty Ltd
Brine	High-concentration solution of salt (NaCl) in water (H ₂ O)
Calendar year	A period of 12 months from 1 January to 31 December
Conditions of Consent (CoC)	SSD 10269 issued under s4.38 of the EP&A Act
Construction	The carrying out of all physical works to enable mining operations to be carried out and decommissioning, including erection of buildings, infrastructure and other works and demolition, but not including pre-construction activities
Date of commencement	The date notified to the Department by the Applicant under CoC A14
Decommissioning	The permanent cessation of active use of the mine, including demolition of buildings, infrastructure and other works
Demolition	The deconstruction and removal of buildings, infrastructure and other works on the site
Department	The NSW Department of Planning and Environment (DPE)
Development	The Stage 3 development described in the Stage 3 EIS as modified by the CoC
Environmental Impact Statement	The Environmental Impact Statement titled <i>Narrabri Underground Mine Stage 3 Extension Project – Environmental Impact Statement</i> , prepared by Resource Strategies Pty Ltd on behalf of the Applicant and dated October 2020, as amended or added to by the Applicant's <i>Submissions Report</i> submitted 31 May 2021, the Applicant's <i>Amendment Report</i> submitted 31 May 2021, the Applicant's final <i>Biodiversity Development Assessment Report</i> dated September 2021, and the Applicant's <i>Additional Information on GHGEs dated 15 October 2021 and 17 December 2021</i> .
Environment	Includes all aspects of the surroundings of humans, whether affecting any human as an individual or in his or her social groupings
Feasible	Means what is possible and practical in the circumstances
Goaf	The mined-out area into which the immediate roof strata breaks
Incident	An occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance
Land	Part B of the CoC defines land to mean the whole of a lot, or contiguous lots owned by the same landowner, in a current plan registered at the Land Titles Office at the date of the CoC
Material harm	<p>Is harm to the environment that:</p> <ul style="list-style-type: none"> • involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or • results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding \$10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment) <p>This definition excludes "harm" that is authorised under the CoC or any other statutory approval.</p>


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Term	Definition
Mine owned land	Land owned by a mining, petroleum or extractive industry company (or its subsidiary or related party)
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the Project
Mining operations	The carrying out of mining, including the extraction, processing, stockpiling and transportation of coal on the site and the associated removal, storage and/or emplacement of vegetation, topsoil, overburden and reject material; and includes underground development necessary for mining operations to be carried out (such as installation and use of electricity, water, communications and other services and infrastructure)
Minor	Not very large, important or serious
Mitigation	Activities associated with reducing the impacts of the development
Narrabri Mine	The development approved under the CoC, together with the development approved under project approval 05_0102 and project approval 08_0144
Negligible	Small and unimportant, such as to be not worth considering
Non-compliance	An occurrence, set of circumstances or development that is a breach of the conditions of the statutory approvals
Plan	Air Quality Management Plan
Planning Secretary	Planning Secretary under the EP&A Act, or nominee
Pollution incident	Has the same meaning as in the POEO Act
Privately-owned land	Land that is not owned by a public agency or mine-owned land
Reasonable	Means applying judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and the nature and extent of potential improvements
Rehabilitation	The restoration of land disturbed by the development to ensure it is safe, stable and non-polluting over the short, medium and long term
Residence	Existing or approved dwelling at the date of grant of the CoC
Sensitive receptor	A location where people are likely to work or reside; this may include a dwelling, school, hospital, office or public recreational area.
Stage 2	Narrabri Mine Stage 2 approved under PA 08_0144
Stage 3	Narrabri Underground Mine Stage 3 Extension Project approved under SSD 10269

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13. Review history

Revision	Comments	Author	Authorised by	Date
0A	Approved by Department of Planning and Environment on 23 December 2022	Onward Consulting	Manager HSE	25 August 2022

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Appendix A - Consultation records



DOC22/452264-4
29 June 2022

Brent Baker
Environmental Superintendent
Whitehaven Coal Limited
Email: BrentBaker@whitehavencoal.com.au

No Comment to Planning Advice Request

Dear Mr Baker

Thank you for the request for advice from the NSW Environment Protection Authority (EPA) on the Narrabri Underground Mine Stage 3 Extension Project – Air Quality Management Plan (SSD-10269-PA-7) at Whitehaven Coal Limited.

The EPA does not provide advice on or endorsement of any management plans developed for planning assessments. Accordingly, the EPA will not be providing further comment to this request.

If you have any questions about this request, please contact me on (02) 6773 7000 or via email at info@epa.nsw.gov.au.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Lindsay Fulloon', is written over a light blue horizontal line.

LINDSAY FULLOON
Manager Regional Operations
Regulatory Operations Regional West

Phone 131 555
Phone +61 2 9995 5555
(from outside NSW)

TTY 133 677
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NSW 2124 Australia

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info@epa.nsw.gov.au
www.epa.nsw.gov.au

Shane Rily
Environmental Superintendent
Narrabri Coal Operations Pty Ltd
10 Kurrajong Creek Road
Baan Baa, NSW, 2390

23/12/2022

Subject: Air Quality Management Plan for Narrabri Coal 3 Project (SSD-10269)

Dear Mr. Rily,

I refer to your submission, requesting review and approval of the Air Quality Management Plan for the Narrabri Coal Stage 3 project. I also acknowledge your response to the Department's review comments and request for additional information.

I note the Air Quality Management Plan has been prepared in consultation with the NSW EPA and contains the information required by the conditions of approval.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions in Development Consent (SSD-10269).

Accordingly, as nominee of the Planning Secretary, I approve the Air Quality Management Plan (Rev 0A, dated 25 August 2022).


Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Wayne Jones on (02) 6575 3406.

Yours sincerely



Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary

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Appendix B - Compliance conditions relevant to this Plan


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Table B-1 SSD 10269 consent conditions relevant to this Plan

Condition	Requirement	Document reference
Obligation to minimise harm to the environment		
A1.	In addition to meeting the specific performance measures and criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent, and if prevention is not reasonable and feasible, minimise, any material harm to the environment that may result from the construction and operation of the development, and any rehabilitation required under this consent.	Section 6.2 Section 8.2
Evidence of Consultation		
A20.	Where conditions of this consent require consultation with an identified party, the Applicant must: <ul style="list-style-type: none"> a) consult with the relevant party prior to submitting the subject document; and b) provide details to the Department of the consultation undertaken including: <ul style="list-style-type: none"> i) the outcome of that consultation, matters resolved and unresolved; and ii) details of any matters not resolved between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved. 	Section 1.4 Appendix A
Staging, combining and updating strategies, plans or programs		
A21.	With the approval of the Planning Secretary, the Applicant may: <ul style="list-style-type: none"> a) prepare and submit any strategy, plan or program required by this consent on a staged basis (if a clear description is provided as to the specific stage and scope of the development to which the strategy, plan or program applies, the relationship of the stage to any future stages and the trigger for updating the strategy, plan or program); b) combine any strategy, plan or program required by this consent (if a clear relationship is demonstrated between the strategies, plans or programs that are proposed to be combined); c) update any strategy, plan or program required by this consent (to ensure the strategies, plans and programs required under this consent are updated on a regular basis and incorporate additional measures or amendments to improve the environmental performance of the development); and d) combine any strategy, plan or program required by this consent with any similar strategy, plan or program required by an adjoining mining consent or approval, in common ownership or management. 	No staging of the AQMP proposed No combining of AQMP with another plan proposed Section 9.5 No combining of AQMP with another plan proposed
Compliance		
A30.	The Applicant must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this consent relevant to activities they carry out in respect of the development.	Section 2
Applicability of Guidelines		
A31.	References in the conditions of this consent to any guideline, protocol, Australian Standard or policy are to such guidelines, protocols, Standards or	Section 3.4



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Condition	Requirement	Document reference
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	policies in the form they are in as at the date of inclusion (or later update) in the condition.	
A32.	However, consistent with the conditions of this consent and without altering any limits or criteria in this consent, the Planning Secretary may, in respect of ongoing monitoring and management obligations, agree to or require compliance with an updated or revised version of such a guideline, protocol, Standard or policy, or replacement of them.	

Odour

B9.	The Applicant must ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.	Section 6.2.2
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Air Quality Criteria

B10.	<p>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Table 2 at any residence on privately-owned land.</p> <p>Table 2 Air quality criteria</p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging period</th> <th>Criterion</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Particulate matter < 10 µm (PM₁₀)</td> <td>Annual</td> <td>^{a, c} 25 µg/m³</td> </tr> <tr> <td>24 hour</td> <td>^b 50 µg/m³</td> </tr> <tr> <td rowspan="2">Particulate matter < 2.5 µm (PM_{2.5})</td> <td>Annual</td> <td>^{a, c} 8 µg/m³</td> </tr> <tr> <td>24 hour</td> <td>^b 25 µg/m³</td> </tr> </tbody> </table> <p>Notes:</p> <p>^a Total impact (i.e., incremental increase in concentrations due to the development plus background concentrations due to all other sources).</p> <p>^b Incremental impact (i.e., incremental increase in concentrations due to the development on its own).</p> <p>^c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.</p>	Pollutant	Averaging period	Criterion	Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³	24 hour	^b 50 µg/m ³	Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³	24 hour	^b 25 µg/m ³	Section 6.2.1
Pollutant	Averaging period	Criterion													
Particulate matter < 10 µm (PM ₁₀)	Annual	^{a, c} 25 µg/m ³													
	24 hour	^b 50 µg/m ³													
Particulate matter < 2.5 µm (PM _{2.5})	Annual	^{a, c} 8 µg/m ³													
	24 hour	^b 25 µg/m ³													

Mine-owned Land

B11.	<p>Particulate matter emissions generated by the development must not exceed the criteria listed in Table 2 at any occupied residence on mine-owned land (including land owned by another mining company) unless:</p> <ul style="list-style-type: none"> a) the tenant and landowner (if the residence is owned by another mining company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under PART D of this consent; b) the tenant of any land owned by NCOPL can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice; c) air quality monitoring is regularly undertaken to inform the tenant and landowner (if the residence is owned by another mining company) of the likely particulate matter emissions at the residence; and d) data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property. 	Section 8.3
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Air Quality and Greenhouse Gas Operating Conditions

B12.	The Applicant must:	
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Condition	Requirement	Document reference
	a) take all reasonable and feasible avoidance and mitigation measures to:	
	i) minimise odour, fume, and particulate matter (including PM10 and PM2.5) emissions of the development;	Section 6.2
	ii) eliminate or minimise the risk of spontaneous combustion;	Section 6.2.1 Refer to the Spontaneous Combustion Management Plan
	iii) improve energy efficiency and minimise Scope 1 and Scope 2 GHGs generated by the development;	Section 6.2.3
	iv) minimise any visible off-site air pollution generated by the development;	Section 6.2.1 Section 7
	v) minimise to the greatest extent practicable, the extent of potential dust generating surfaces exposed on the site at any given point in time;	Appendix D
	b) operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;	Section 6 Section 7 Appendix D
	c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to Table 2 of the CoC above);	Section 6.2.1
	d) carry out regular air quality monitoring that differentiates between the incremental contribution of the project and that attributable to background conditions, to determine whether the development is complying with the relevant conditions of this consent; and	Section 6.3
	e) regularly assess the air quality monitoring data and modify operations on the site to ensure compliance with the relevant conditions of this consent.	Section 6.3.3 Section 7 Section 9.2 Appendix D

Air Quality Management Plan		
B13.	The Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Planning Secretary. This plan must:	
	a) be prepared by a suitably qualified and experienced person/s;	Section 1.4
	b) be prepared in consultation with the EPA;	
	c) describe the measures to be implemented to ensure:	
	i) compliance with the air quality criteria and operating conditions in this consent;	Section 6.2
	ii) best practice management is being employed, including in respect of energy efficiency; and	
	iii) the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events.	
	d) describe the air quality management system in detail; and	Section 6
	e) include an air quality monitoring program, undertaken in accordance with the <i>Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales</i> (DEC, 2007), that:	

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Condition	Requirement	Document reference
	i) uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of operations; iii) adequately supports the air quality management system; and iv) includes a protocol for identifying an air quality incident and notifying the Department and relevant stakeholders of any such incident.	Section 6.2.1 Section 6.3 Section 8
B14.	The Applicant must not commence construction until the Air Quality Management Plan is approved by the Planning Secretary.	Section 1.2
B15.	The Applicant must implement the Air Quality Management Plan as approved by the Planning Secretary	
Meteorological Monitoring		
B24.	Prior to the commencement of construction and for the life of the development, the Applicant must ensure that there is a suitable meteorological station operating in the vicinity of the site that: <ul style="list-style-type: none"> a) complies with the requirements in the <i>Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales</i> (DEC, 2007); and b) is capable of measuring meteorological conditions in accordance with the <i>NSW Noise Policy for Industry</i> (EPA, 2017), unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA. 	Section 6.3.4
Notification of exceedances		
D6.	As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise or air quality criterion in PART B of this consent, the Applicant must provide the details of the exceedance to any affected landowners and/or tenants. For any exceedance of any air quality criterion in PART B of this consent, the Applicant must also provide to any affected land owners and tenants a copy of the fact sheet entitled " <i>Mine Dust and You</i> " (NSW Health, 2017).	Section 8.3
Adaptive management		
E4	The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity: <ul style="list-style-type: none"> a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and c) implement reasonable remediation measures as directed by the Planning Secretary. To the satisfaction of the Planning Secretary.	Section 8.2
Management plan requirements		
E5.	Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: <ul style="list-style-type: none"> a) a summary of relevant background or baseline data; b) details of: 	Section 4




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Condition	Requirement	Document reference
	i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 3 Appendix B Appendix C
	ii) any relevant limits or performance measures and criteria; and	Section 6.1
	iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	
	c) any relevant commitments or recommendations identified in the document/s listed in condition A2(c);	Section 3.1.1 Appendix C
	d) a description of the management measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;	Section 6.2
	e) a program to monitor and report on the:	
	i) impacts and environmental performance of the development; and	Section 6.3
	ii) effectiveness of the management measures set out pursuant to paragraph (d);	
	f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	Section 7 Section 8.2 Appendix D
	g) a program to investigate and implement ways to improve the environmental performance of the development over time;	Section 8.2 Section 9.6
	h) a protocol for managing and reporting any:	
	i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion;	Section 8
	ii) complaint; or	Section 10
	iii) failure to comply with other statutory requirements;	Section 8.2
	i) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and	Section 1.5 Section 3.4 Section 11
	j) a protocol for periodic review of the plan.	Section 9.5
E6.	The Applicant must ensure that management plans prepared for the development are consistent with the conditions of this consent and any EPL issued for the site.	Section 3.1.1 Section 3.2.1 Appendix B Appendix C
Revision of strategies, plans and programs		
E7.	Within three months of the:	Section 9.5
	a) submission of an incident report under condition E9 or E10;	
	b) submission of an Annual Review under condition E11;	
	c) submission of an Independent Environmental Audit under condition E13;	
	d) approval of any modification of the conditions of this consent (unless the conditions require otherwise); or	
	e) notification of a change in development phase under condition A14,	
	the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.	
E8.	If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies,	Section 9.5

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Condition	Requirement	Document reference
	<p>plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.</p> <p><i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i></p>	
Incident notification		
E9.	The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.	Section 8.1
Non-compliance notification		
E10.	<p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The Notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance</p> <p>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</p>	Section 8.2
Annual Review		
E11.	<p>By the end of March in each year after the commencement of the development, or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:</p> <ul style="list-style-type: none"> (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year; (b) include a comprehensive review of the monitoring results and complaints record of the development over the previous calendar year, including a comparison of these results against the: <ul style="list-style-type: none"> (i) relevant statutory requirements, limits or performance measures/criteria; (ii) requirements of any plan or program required under this consent; (iii) monitoring results of previous years; and (iv) relevant predictions in the document/s listed in condition A2(c); (c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence; (d) evaluate and report on: <ul style="list-style-type: none"> (i) the effectiveness of the noise and air quality management systems; and (ii) compliance with the performance measures, criteria and operating conditions of this consent; (e) include an addendum report on Scope 1 and Scope 2 GHGE, which reports: <ul style="list-style-type: none"> (i) annual methane and annual total CO_{2-e} emissions (both categorised by source) and emissions intensity (based on ROM coal production); 	Section 9.2

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Condition	Requirement	Document reference
	(ii) overall annual emissions intensity, benchmarked against representative industry sectors and the predictions in the EIS, and performance measures in Table 3; and (iii) measures undertaken to minimise Scope 1 and Scope 2 GHGE, including actions under condition B19, and estimated reductions in CO _{2-e} as a result of measures implemented; (f) identify any trends in the monitoring data over the life of the development; (g) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (h) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.	
E12.	Copies of the Annual Review must be submitted to the IAPUM (via the Department as Secretariat), NSC and GSC and regulatory agencies and made available to the CCC and any interested person upon request.	Section 9.2
Independent Environmental Audit		
E13.	Within one year of commencement of development under this consent, and every three years after, unless the Planning Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development.	Section 9.3
E14.	Within three months of commencing an Independent Environmental Audit, or other timeframe agreed by the Planning Secretary, the Applicant must submit a copy of the audit report to the Planning Secretary, and any other NSW agency that requests it, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of the recommendations. The recommendations must be implemented to the satisfaction of the Planning Secretary.	
Monitoring and Environmental Audits		
E16.	Noise and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Part B, providing that these representative monitoring locations are set out in the respective management plan/s.	Section 6.3
Access to information		
E17.	Before the commencement of construction until the completion of all rehabilitation required under this consent, the Applicant must: a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website: (i) the documents referred to in condition A2(c) of this consent; (ii) all current statutory approvals for the development; (iii) all approved strategies, plans and programs required under the conditions of this consent; (iv) the proposed staging plans for the development if construction, mining operations or decommissioning is to be staged; (v) minutes of CCC meetings; (vi) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;	Section 1.5 Section 3 Section 8 Section 9 Section 10



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Condition	Requirement	Document reference
	<p>(vii) a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs;</p> <p>(viii) a summary of the current phase and progress of the development;</p> <p>(ix) contact details to enquire about the development or to make a complaint;</p> <p>(x) a complaints register, updated monthly;</p> <p>(xi) the Annual Reviews of the development;</p> <p>(xii) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report;</p> <p>(xiii) any other matter required by the Planning Secretary; and</p> <p>b) keep such information up to date, to the satisfaction of the Planning Secretary.</p>	


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Table B-2 EPL 12789 conditions relevant to this Plan

Condition	Requirement	Document reference												
Discharges to Air and Water and Applications to Land														
P1	<p>Location of monitoring/discharge points and areas</p> <p>P1.1 The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emissions of pollutants to the air from the point.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="background-color: #0056b3; color: white;">EPA ID No.</th> <th style="background-color: #0056b3; color: white;">Type of Monitoring Point</th> <th style="background-color: #0056b3; color: white;">Type of Discharge Point</th> <th style="background-color: #0056b3; color: white;">Location Description including NCOPL ID No.</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">3</td> <td style="text-align: center;">Ambient Air Quality Monitoring</td> <td></td> <td style="text-align: center;">Monitoring point (ND3) located at "Bow Hills".</td> </tr> </tbody> </table>	EPA ID No.	Type of Monitoring Point	Type of Discharge Point	Location Description including NCOPL ID No.	3	Ambient Air Quality Monitoring		Monitoring point (ND3) located at "Bow Hills".	Section 6.3.1				
EPA ID No.	Type of Monitoring Point	Type of Discharge Point	Location Description including NCOPL ID No.											
3	Ambient Air Quality Monitoring		Monitoring point (ND3) located at "Bow Hills".											
Dust														
O3	All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.	Section 6.2												
Monitoring and Recording Conditions														
M1	<p>Monitoring records</p> <p>M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.</p> <p>M1.2 All records required to be kept by this licence must be:</p> <ol style="list-style-type: none"> a) in a legible form, or in a form that can readily be reduced to a legible form; b) kept for at least 4 years after the monitoring or event to which they relate took place; and c) produced in a legible form to any authorised officer of the EPA who asks to see them. <p>M1.3 The following records must be kept in respect of any samples required to be collected for the purposes of this licence:</p> <ol style="list-style-type: none"> a) the date(s) on which the sample was taken; b) the time(s) at which the sample was collected; c) the point at which the sample was taken; and d) the name of the person who collected the sample. 	Section 6.3.3 Section 9.4												
M2	<p>Requirement to monitor concentration of pollutants discharged</p> <p>M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:</p> <p>M2.2 Air Monitoring Requirements</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="background-color: #0056b3; color: white;">Point 3</th> </tr> <tr> <th style="background-color: #0056b3; color: white;">Pollutant</th> <th style="background-color: #0056b3; color: white;">Units of measure</th> <th style="background-color: #0056b3; color: white;">Frequency</th> <th style="background-color: #0056b3; color: white;">Sampling Method</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Particulates – Deposited Matter</td> <td style="text-align: center;">Grams per square metre per month</td> <td style="text-align: center;">Once a month (min. of 4 weeks)</td> <td style="text-align: center;">AM-19</td> </tr> </tbody> </table>	Point 3				Pollutant	Units of measure	Frequency	Sampling Method	Particulates – Deposited Matter	Grams per square metre per month	Once a month (min. of 4 weeks)	AM-19	Section 6.3.2
Point 3														
Pollutant	Units of measure	Frequency	Sampling Method											
Particulates – Deposited Matter	Grams per square metre per month	Once a month (min. of 4 weeks)	AM-19											
M3	Testing methods – concentration limits	Section 6.3.2												




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Condition	Requirement	Document reference																																																		
	<p>M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:</p> <ol style="list-style-type: none"> any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purpose of that testing prior to the testing taking place. <p>Note: The <i>Protection of the Environment (Clean Air) Regulation 2010</i> requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".</p>																																																			
M4	<p>Requirement to monitor weather</p> <p>M4.1 For each monitoring point specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the parameter 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:</p> <table border="1"> <thead> <tr> <th colspan="5">Point W1</th> </tr> <tr> <th>Parameter</th> <th>Units of measure</th> <th>Frequency</th> <th>Averaging Period</th> <th>Sampling Method</th> </tr> </thead> <tbody> <tr> <td>Rainfall</td> <td>mm</td> <td>Continuous</td> <td>1 hour</td> <td>AM-4</td> </tr> <tr> <td>Wind speed @ 10 metres</td> <td>m/s</td> <td>Continuous</td> <td>15 minute</td> <td>AM-2 & AM-4</td> </tr> <tr> <td>Wind direction @ 10 metres</td> <td>°</td> <td>Continuous</td> <td>15 minute</td> <td>AM-2 & AM-4</td> </tr> <tr> <td>Temperature @ 2 metres</td> <td>°C</td> <td>Continuous</td> <td>15 minute</td> <td>AM-4</td> </tr> <tr> <td>Temperature @ 10 metres</td> <td>°C</td> <td>Continuous</td> <td>15 minute</td> <td>AM-4</td> </tr> <tr> <td>Sigma theta @ 10 metres</td> <td>°</td> <td>Continuous</td> <td>15 minute</td> <td>AM-2 & AM-4</td> </tr> <tr> <td>Solar radiation</td> <td>W/m²</td> <td>Continuous</td> <td>15 minute</td> <td>AM-4</td> </tr> <tr> <td>Additional requirements - siting - measurement</td> <td></td> <td></td> <td></td> <td>AM-1 & AM-4 AM-2 & AM-4</td> </tr> </tbody> </table>	Point W1					Parameter	Units of measure	Frequency	Averaging Period	Sampling Method	Rainfall	mm	Continuous	1 hour	AM-4	Wind speed @ 10 metres	m/s	Continuous	15 minute	AM-2 & AM-4	Wind direction @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4	Temperature @ 2 metres	°C	Continuous	15 minute	AM-4	Temperature @ 10 metres	°C	Continuous	15 minute	AM-4	Sigma theta @ 10 metres	°	Continuous	15 minute	AM-2 & AM-4	Solar radiation	W/m ²	Continuous	15 minute	AM-4	Additional requirements - siting - measurement				AM-1 & AM-4 AM-2 & AM-4	Section 6.3.4
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Appendix C - Key EIS commitments



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Table C-1 Key EIS air quality management commitments

Source	Aspect	Details	Reference
EIS Section 6.9.5	Dust mitigation measures	<p>Key dust mitigation measures that would be implemented for the project include:</p> <ul style="list-style-type: none"> • application of water to stabilise the surface of the ROM and product coal stockpiles; • water sprays during loading of the ROM and product coal stockpiles; • conveyors would be enclosed, where practicable; • enclosure of the CHPP; and • application of water and regular maintenance of unsealed rejects haul route. 	Section 6.2.1
EIS Section 6.9.5	Odour mitigation measures	<p>Management options are implemented by NCOPL to mitigate brine storage odour, as required, including:</p> <ul style="list-style-type: none"> • minimising the anaerobic zones in the dam through circulation of water via pumps; and • limiting algal growth to limit food sources for odour-generating bacteria through dosing of algaecide. 	Section 6.2.2
Amendment Report Section 6.4.4	Potential oxides of nitrogen emissions associated with flaring of pre-drainage gas	<p>The impacts of oxides of nitrogen emission on the local air quality environment are expected to be minimal based on:</p> <ul style="list-style-type: none"> • a maximum of three flaring units would be used at any one time; • the infrastructure would be located away from any sensitive receptors; • prevailing winds are generally from the south-west (i.e. not in the direction from flaring infrastructure to sensitive receptor locations); and • opportunities for flaring are limited by the availability of suitable pre-drainage gas. 	Section 6.2.1

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Appendix D - Trigger Action Response Plan

Table D-1 CHPP and coal stockpile TARP (WHC-TARP-NAR-Surface Dust Control Rev1)

Trigger	Normal Operation	Level 1 TARP	Level 2 TARP	Level 3 TARP	Level 4 TARP
	Wind speed < 5 m/s	Wind speed > 5 m/s but <9 m/s	Wind speed > 9 m/s but < 11.5 m/s	Wind speed > 11.5 m/s but < 13.5 m/s	Wind speed > 13.5 m/s
		UNLESS Currently raining (noticeable ripples in still water); review if action required.	UNLESS Currently raining (noticeable ripples in still water); no action	UNLESS Constant rain (noticeable ripples in still water) for previous half hour; no action	UNLESS Constant rain (noticeable ripples in still water) for previous hour; no action
Automation	Normal operation.	Display a pop up on the CHPP Control room screen to alert the CHPP Control Room Operator to the change in TARP levels.	As per level 1	As per level 1	As per level 1
CHPP Control Room Operator	Normal operation.	<ul style="list-style-type: none"> Acknowledge pop up alert and record TARP level and relevant detail in CoalTrak. Alert all personnel over the two-way radio of the change in TARP level. Ask all personnel for any relevant information regarding conditions e.g. dust leaving the stockpiles or road dust being generated from cars or trucks. Verify stockpile spray system is healthy and available. If reports of dust leaving ROM tripper, contact mine Surface Competent Person (CRO) to verify underground belt sprays are operational. 	As per level 1 AND <ul style="list-style-type: none"> Pulverized Coal Injection (PCI): If dust from PCI conveyor is leaving stockpile footprint, commence thermal only production. Washed Thermal: Turn on spray at transfer tower CV801 to CV802. Move the tripper to the highest point on stockpile. If dust still leaving stockpile footprint, reduce CHPP throughput to 800tph. Crushed thermal: Turn on spray at transfer tower of CV107 to CV104 and reduce throughput to 800tph. 	As per level 2 AND <ul style="list-style-type: none"> Washed Thermal: Reduce throughput to 800tph. Place tripper to a location on the stockpile >20m high (yellow leg markers are 23m). If stockpile is below 20m, turn off spray at CV801 to CV802 tower and place tripper in dust chute. Bypass: feed rate to drop to 500tph. 	<ul style="list-style-type: none"> Cease all processing operations. Appropriate stockpile sprays to remain operational. Train loading is approved with all reasonably practical dust control actions put in place.
Process Operator	Normal operation, follow Stockpile Dozer Operations procedure.	Dozer operator to report any dusty conditions on stockpile areas and instruct the CHPP control room operator the appropriate sprays to turn on to minimise dust.	As per level 1 AND <ul style="list-style-type: none"> If dust generated from dozer operations is leaving coal handling area or rising above skyline then change strategy and report to Supervisor. First gear when on ground/floor level to reduce dust when tramming. Maximise height of all product stockpiles to reduce drop height of coal from conveyor. 	As per level 2	<ul style="list-style-type: none"> Train loading is approved with all reasonably practical dust control actions put in place. Short shove dozer's operations allowed to ensure underground coal production is not stopped.

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		Currently raining (noticeable ripples in still water); review if action required.	Currently raining (noticeable ripples in still water); no action	Constant rain (noticeable ripples in still water) for previous half hour; no action	Constant rain (noticeable ripples in still water) for previous hour; no action
CHPP Supervisor	Shiftly inspections	Supervisor to drive around ROM and product stockpiles and roads in process area to identify appropriate response.	As per level 1 AND <ul style="list-style-type: none"> Washed Thermal coal: If above controls implemented and dust still leaving footprint, reduce throughput to 600tph. At 600tph: if dust still leaving footprint place tripper in dust chute and turn off sprays. Crushed thermal: if throughput has been reduced to 800tph, the sprays are on and dust is still leaving stockpile footprint, drop to 500tph 	As per level 2 AND <ul style="list-style-type: none"> If dust leaving the stockpile when coal is landing on the stockpile above 20m, place tripper in dust chute. If dust from bypass discharge leaving the stockpile footprint, take feed of Bypass until wind speed decreases or rain persists longer than 30 minutes. If unable to control dust, cease processing operations. 	<ul style="list-style-type: none"> Ensure CHPP and Bypass plants are not operational. Ensure appropriate stockpile sprays remain operational. Notify CHPP Production Coordinator via text message.
CHPP Production Coordinator	No action	No action	No action required	No action required	Notify CHPP Superintendent

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Table D-2 Drillers and Civil Services TARP

Trigger	Normal Operations	Level 1 TARP	Level 2 TARP	Level 3 TARP	Level 4 TARP
	Wind speed < 5 m/s OR No visible dust being generated.	Wind speed > 5 m/s but <9 m/s OR Dust being created from travel or works being carried out.	Wind speed > 9 m/s but < 11.5 m/s OR Visible airborne dust being generated and rising above work area.	Wind speed >11.5 m/s but <13.5m/s OR Dust being generated from excessive wind speed.	Wind speed > 13.5 m/s OR Excessive dust is being generated rising above work area and traveling. Visibility is decreased due to dust.
					
Drillers	Normal operations	Operational dust – STOP , assess the dust source, and implement controls. Vehicle operators reduce speed to stop dust and notify water truck operator to wet road. Record actions on PLOD.	As per level 1 AND Notify drilling coordinator	As per Level 2 AND Notify water truck operator to wet down affected area. Wet down area using available resources.	STOP work Actions as per Level 2 and 3
Civil Services					
	Normal operations	Call up the water cart to wet down the travel roads or work area.	As per level 1 AND Increased water cart runs. Reduce travel speeds of vehicles to minimise dust. Report to civil services coordinator any dust being excessively generated or leaving the work area.	As per level 2 AND Reduce travel where possible to only operationally critical equipment with confirmation from Surface Operations Manager.	As per Level 3 AND Stop Operations if dust cannot be brought under control. Notify site contact / NCOPL Supervisor