



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**


Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

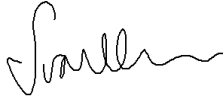

NARRABRI MINE

PUBLIC SAFETY MANAGEMENT PLAN

PANELS 201 - 202

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			


Prepared by:

Title	Name	Signature	Date
Senior Environmental Manager	S. van der Meulen Onward Consulting		30 March 2022
Director	Mark Vile Onward Consulting		30 March 2022

This document has been prepared by Onward Consulting to comply with the conditions of the Narrabri Mine project approval and has relied upon the relevant information available at the time of writing and all findings, conclusions or recommendations contained herein are based thereon. This document is for the use of Narrabri Coal Operations Pty Ltd and no responsibility will be taken for its use by other parties. Narrabri Coal Operations Pty Ltd may, at its discretion, use this document to inform regulators and the public.




Onward document number:
NCO-004E-0 PLN

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Acronyms and abbreviations

Acronym	Description
°	degree
AHD	Australian Height Datum
ANOVA	analysis of variance
AR	Annual Review
BFMP	Built Features Management Plan (as Appendix D to the Extraction Plan)
BCS	The Biodiversity Conservation and Science Directorate within DPE
CCC	Community Consultative Committee
CHPP	Coal Handling and Preparation Plant
DEM	digital elevation model
DGS	Ditton Geotechnical Services
DPE	The NSW Department of Planning and Environment
DPE Water	The Water group within DPE
EA	Environmental Assessment
EMP	Environmental Management Plan
EMS	NCOPL's Environmental Management System
EPA	The NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i> (NSW)
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Cth)
ha	hectare
HSE	health, safety and environment
km	kilometre
km ²	square kilometre
LiDAR	light detection and ranging
LMP	Land Management Plan (as Appendix I to the Extraction Plan)
LSMP	Landscape Management Plan (as Appendix F to the Extraction Plan)
LW	longwall panel
m	metre
MCP	Mine Closure Plan (as Attachment 4 of Appendix F to the Extraction Plan)
ML	mining lease
mm	millimetre
mm/m	millimetre per metre
MOP	Mining Operations Plan
Mt	million tonnes
Mtpa	million tonnes per annum
NCOPL	Narrabri Coal Operations Pty Ltd


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Acronym	Description
NDVI	normalised difference vegetation index
NSC	Narrabri Shire Council
OEH	The former NSW Office of Environment and Heritage
PED	personal emergency device (communications system)
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
POEO Regulation	Protection of the Environment Operations (General) Regulation 2009
PSMP	Public Safety Management Plan (this document)
RMP	Rehabilitation Management Plan (as Attachment 3 of Appendix F to the Extraction Plan)
ROM	run of mine
SMP	Subsidence Monitoring Program (as Appendix C to the Extraction Plan)
SoC	Statement of Commitments
SRP	subsidence reduction potential
TARP	trigger action response plan
TG	tailgate (i.e. TG1 = tailgate 1)
U95%CL	upper 95 % confidence level
UCS	unconfined compressive strength
WAL	water access licence
W/H	width to height (ratio)
WHC	Whitehaven Coal Limited
WM Act	<i>Water Management Act 2000 (NSW)</i>
WMP	Water Management Plan (as Appendix G to the Extraction Plan)
WSP	water sharing plan

Table of contents

1. Introduction.....	1
1.1 Background	1
1.2 Purpose and scope	3
1.3 Objectives.....	3
1.4 Statutory Requirements	3
1.4.1 Project Approval.....	3
1.4.2 EPBC approval	4
1.4.3 Mining lease	4
1.4.4 Work health and safety	5
1.4.5 Extraction Plan Guidelines.....	5
1.5 Description of underground mining	6
1.6 Risk assessment	6
1.7 Consultation and approval	6
1.8 Access to information.....	7
2. Subsidence and environmental consequences	8
2.1 Subsidence predictions	8
2.2 Potential public safety hazards	8
3. Subsidence management	9
3.1 Performance measures and indicators	9
3.2 Subsidence management	9
3.3 Contingency response	12
4. Plan implementation	13
4.1 Roles and responsibilities	13
5. Reporting, evaluation and review	14
5.1 Annual Review	14
5.2 Independent environmental audits	14
5.3 Management plan review and evaluation	14
6. Incidents and non-compliance.....	15
6.1 Incident notification.....	15
6.2 Non-compliance notification	15
7. Complaints management.....	16
8. References	17
9. Glossary	18

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			


Attachment 1	Compliance conditions relevant to the PSMP	20
Attachment 2	- Trigger Action Response Plan	24
Attachment 3	- Road inspections and response	27
Attachment 4	- Subsidence inspection checklist	30

Tables

Table 1.1 - Subsidence impact performance measures	4
Table 1.2 - Relevant ML 1609 condition	4
Table 2.1 - Maximum subsidence predications	8
Table 3.1 - Public safety management objectives and performance measures	9
Table 3.2 - Potential public safety risks, control measures and monitoring	10
Table 4.1 - Roles and Responsibilities	13

Figures

Figure 1.1 - Underground mining layout for Panels 201 to 202	2
--	---

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

1. Introduction

1.1 Background

The Narrabri Mine is an existing underground coal mining operation situated in the Gunnedah Coalfield. It is located approximately 25 kilometres (km) south-east of Narrabri and approximately 60 km north-west of Gunnedah, within the Narrabri Shire Council (NSC) Local Government Area in New South Wales (NSW). The Narrabri Mine includes an underground coal mine, a coal handling and preparation plant (CHPP) and associated rail siding and surface infrastructure.

The Narrabri Mine is operated by Narrabri Coal Operations Pty Ltd (NCOPL), on behalf of the Narrabri Mine Joint Venture, which consists of two Whitehaven Coal Limited (WHC) wholly owned subsidiaries, and other joint-venture partners¹. The underground mine is covered by Mining Lease (ML) 1609 which covers an area of 5,298 hectares (ha) for the predominant purpose of mining for coal from the Hoskissons Coal Seam.

Stage 1 of the Narrabri Mine was approved in November 2007 under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Construction of the mine and supporting infrastructure commenced in 2008, with production using a continuous miner following in 2010. Following the approval of the Stage 2 Environmental Assessment (R.W Corkery & Co., 2009) (the EA) and the issue of Project Approval 08_0144 for Stage 2 (Project Approval) in July 2010 and EPBC approval (2009/5003) in January 2011, the Narrabri Mine was converted to an 8 million tonnes (Mt) per annum (Mtpa) run of mine (ROM) longwall mining operation, which commenced in 2012.

The Project Approval has subsequently been modified on a number of occasions. The environmental assessment for Modification 5 (Resource Strategies, 2015) (MOD 5), approved in December 2015, changed the mine geometry by reducing the number of longwall (LW) panels from 26 to 20, increased some LW panel widths and increased the production to 11 Mtpa of ROM coal until July 2031.

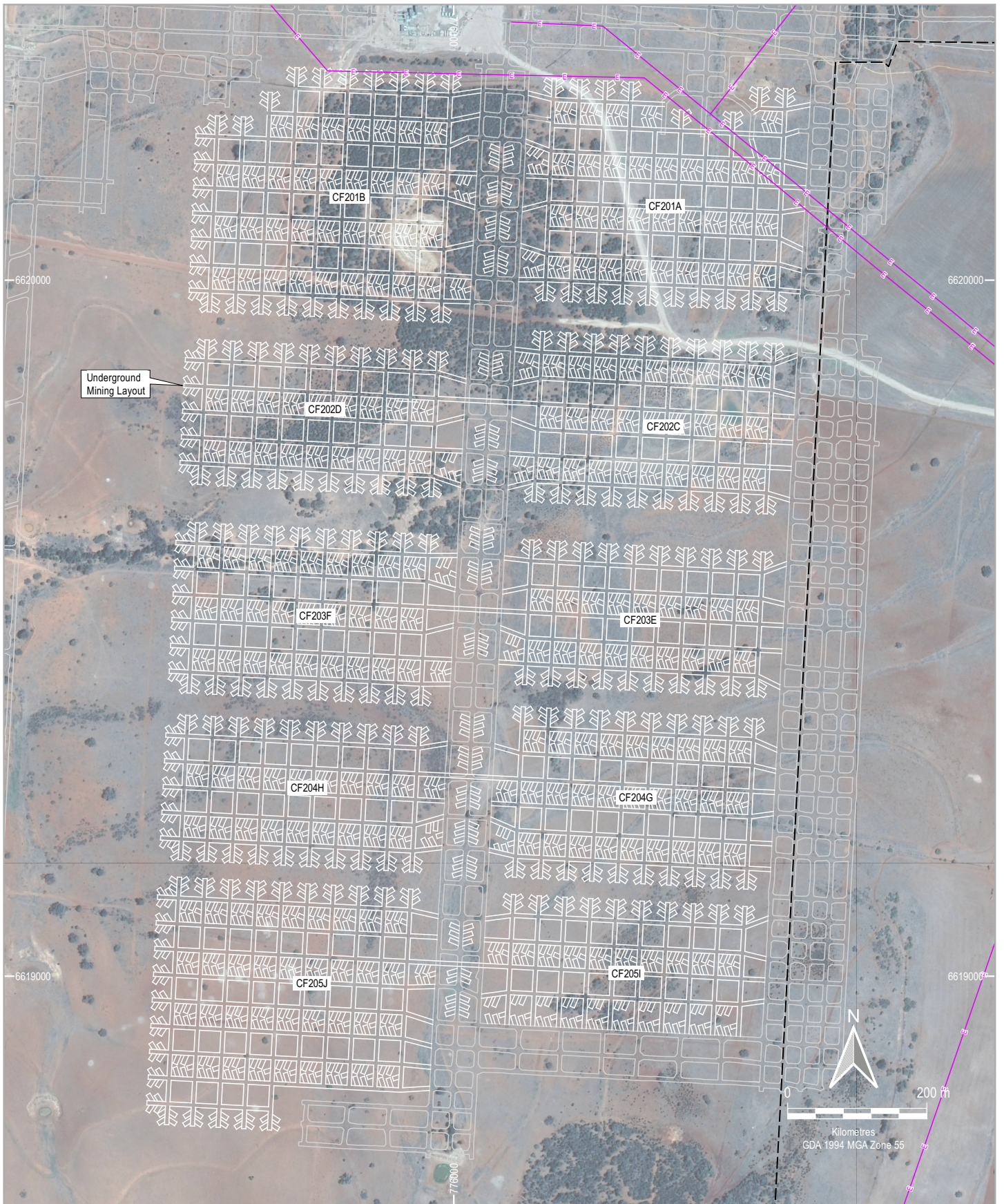
Modification 7, the most recent modification of the Project Approval, was approved on 23 November 2021. The environmental assessment for Modification 7 (Resource Strategies, 2021) (MOD 7) describes the change in mining method within the extent of the previously approved LW 201 and LW 202 and instead allows for up to 0.7 Mtpa via bord and pillar extraction at pillar reduction panels CF 201 to CF 205². The bord and pillar mining will occur concurrently with longwall operations and is scheduled to commence in 2022 for a period of approximately five years. There is no change to the previously approved longwall panels LW 203 to LW 205. The maximum ROM coal production rate of the concurrent operation remains within the approved limit of 11 Mtpa.

The Extraction Plan provides further details of the Narrabri Mine operations to date; a consideration of the applicable statutory requirements and the modifications to the Project Approval; and information relevant to the extraction of coal from pillar reduction panels CF 201 to CF 205 (hereafter referred to as **Panels 201 to 202**). The surface area predicted to be affected by the proposed secondary extraction of Panels 201 to 202 has been defined as the **Extraction Plan Area**.

The underground mining layout for Panels 201 to 202 is presented in Figure 1.1 and is further described in section 1.5.

¹ For full details on the joint venture ownership, please refer to the introduction of the Extraction Plan.

² The pillar reduction panel naming 'CF' is an acronym for 'cut and flit'.




Source: Geoscience Australia (2011); NSW Spatial Services (2019)

LEGEND

- — Underground Mine Footprint
- Electricity Transmission Line (Constructed)



Figure 1.1 : Underground Mining Layout for Panels 201 and 202

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

1.2 Purpose and scope

As required by Project Approval Schedule 6 Condition 2, this Public Safety Management Plan (**PSMP**) for Panels 201 to 202 has been prepared in accordance with the former NSW Department of Planning and Environment (**DPE**) *Draft Guidelines for the Preparation of Extraction Plans* (unpublished) (**Extraction Plan Guidelines**). It complies with Schedule 3 Condition 4(g) of the Project Approval, which states that, as part of the Extraction Plan, a PSMP is to be prepared to the satisfaction of the NSW Resources Regulator to ensure public safety in the mining area.

This PSMP outlines how NCOPL propose to manage potential risks to public safety resulting from the proposed secondary workings within the Extraction Plan Area, presented in Figure 1.1.

1.3 Objectives

The objective of the PSMP is to provide for the adequate management of public safety risks within the Extraction Plan Area that will be potentially affected by subsidence. This objective will be achieved through:

- monitoring of subsidence and environmental consequences to:
 - confirm predicted impacts/consequences are within predicted ranges;
 - identify impacts or exceedances that require additional management or response; and
 - inform future subsidence prediction and consequence management.
- management of public safety risks to:
 - prevent personal injury as a result of subsidence impacts; and
 - ensure that there are no unknown public safety risks prior to, during, and following undermining.
- effectively communicating with potentially affected stakeholders;
- implementing appropriate contingency response measures in the event of adverse consequences or impacts outside predicted range; and
- implementing a process of reporting and review of subsidence management measures to allow for continual improvement.


NCOPL will implement all practical measures to prevent and/or minimise any harm to the environment that may result from construction, operation or rehabilitation activities at the Narrabri Mine.

1.4 Statutory Requirements

This PSMP has been prepared in accordance with the applicable conditions and requirements of the Project Approval, EPBC 2009/5003, ML 1609 and all relevant legislation and guidelines as set out in the following sections. A full consideration of the applicable compliance requirements is provided in section 2 of the Extraction Plan.

1.4.1 Project Approval

Project Approval Schedule 3 Condition 2 requires NCOPL to ensure that activities associated with the proposed secondary workings do not cause any exceedances of the performance measures as listed in Table 1.1, to the satisfaction of the Resources Regulator. Notes to this condition require NCOPL to define more detailed performance indicators for each of the performance measures, which are detailed in section 3.1.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

This PSMP also includes (in part) an assessment of the potential impacts and proposed management measures relating to built features.

Table 1.1 - Subsidence impact performance measures

Subsidence impact performance measures	
Public safety	
Public safety	No additional risk
Built features	
All built features	<ul style="list-style-type: none"> always safe serviceability should be maintained wherever practicable damage must be fully repairable and must be fully repaired or else replaced or fully compensated

There are no specific commitments in the Statement of Commitments (Appendix 3 of the Project Approval) related to this PSMP. The Project Approval conditions directly relevant to this PSMP have been presented in full in Table A1.1 in Attachment 1, together with a cross-reference where the requirements are addressed within this Plan.

1.4.2 EPBC approval


The Narrabri Mine is subject to EPBC 2009/5003 issued under the EPBC Act. There are no specific EPBC approval conditions related to this PSMP.

1.4.3 Mining lease

The original ML 1609, issued in 2008, has been amended to include a reference to Extraction Plans, removing the requirements for a Subsidence Management Plan. Table 1.2 lists the relevant conditions from ML1609 related to the management of subsidence and public safety risks, and where these are addressed.

Table 1.2 - Relevant ML 1609 condition

Mining Lease 1609 condition		PSMP reference
Condition	Summary of the requirement	
16	<p>Safety</p> <p>Operations must be carried out in a manner that ensures the safety of persons or stock in the vicinity of the operations. All drill holes shafts and excavations must be appropriately protected, to the satisfaction of the Director-General, to ensure that access to them by persons and stock is restricted. Abandoned shafts and excavations opened up or used by the lease holder must be filled in or otherwise rendered safe to a standard acceptable to the Director-General.</p>	Section 3.2 Attachment 2

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

1.4.4 Work health and safety

This PSMP has been developed to comply with the NSW work health and safety legislation including the:

- *Work Health and Safety Act 2011*;
- Work Health and Safety Regulation 2011;
- *Work Health and Safety (Mines and Petroleum Sites) Act 2013*; and
- Work Health and Safety (Mines and Petroleum Sites) Regulation 2014.

Under the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014 (**Mines and Petroleum Sites Regulation**), clause 67 states that NCOPL must manage risks to health and safety associated with subsidence at the mine and ensure that:

- (a) so far as is reasonably practicable, the rate, method, layout, schedule and sequence of mining operations do not put the health and safety of any person at risk from subsidence, and
- (b) monitoring of subsidence is conducted, including monitoring of its effects on relevant surface and subsurface features, and
- (c) any investigation of subsidence and any interpretation of subsidence information is carried out only by a competent person, and
- (d) all subsidence monitoring data is provided to the regulator in the manner and form and at the times required by the regulator, and
- (e) so far as is reasonably practicable, procedures are implemented for the effective consultation, co-operation and co-ordination of action with respect to subsidence between the mine operator and relevant persons conducting any business or undertaking that is, or is likely to be, affected by subsidence.

Under clause 33(1) of the Mines and Petroleum Sites Regulation, NCOPL must ensure that a high-risk activity identified in Schedule 3 (of the Act) and that applies to the mine site pursuant to that Schedule, is not carried out at or in relation to the mine site unless:

- (a) NCOPL has given notice of the activity to the regulator, and
- (b) the waiting period has elapsed, being the waiting period specified in Schedule 3 in relation to the activity, subject to any waiver or reduction of that period under subclause (6) or any extension of that period under subclause (7), and
- (c) the activity is carried out in the manner specified in the notice ((or in the notice as amended under subclause (7)).


Components of the Extraction Plan will be submitted to Resources Regulator as part of the high-risk activity notification scheme required for Panels 201 to 202.

1.4.5 Extraction Plan Guidelines

As stated in the Extraction Plan Guidelines, the PSMP should give appropriate consideration to risk assessment and risk management. This is further addressed in section 1.6.

The PSMP should also include proposed measures to manage health and safety risks due to:

- potential subsidence impacts on built features;
- potential instability of cliff formations or steep slopes caused by subsidence;
- deformations or fracturing of any land caused by subsidence, and

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

- any other impacts of subsidence.

These are further addressed in sections 2 and 3. Management measures directly relating to built features are outlined in the Built Features Management Plan (**BFMP**), provided as Appendix D to the Extraction Plan.

1.5 Description of underground mining

The production panels will be developed on a grid of 30.5 m square pillars (solid) in the upper 3.2 m of the lower Hoskissons Seam and second workings will 'pocket' every second row of pillars and increase the extraction ratio from 31 % to 66 %. The floor would then be brushed to 1.1 m depth on retreat to give a total roadway height of 4.3 m. The development roadways will be 6.5 m wide and 3.2 m high with the floor brushing only 5.5 m wide, effectively decreasing the pillar height from 4.3 to 4.13 m.

The north-south orientated, intra-panel (gate road) pillars will separate the production panels and include two outside rows (29.5 to 38.5 m wide x 35.1 m to 39.8 m long) and two inside rows (25 m wide x 29 m to 59 m long). Some of the two inside row pillars may also be extracted on retreat, depending on conditions, to leave residual pillar widths of 13 m.

The inter-panel (barrier) pillars between the CF panels will be orientated east-west and 34 to 64 m wide after second workings. The barrier pillars will have 29.75 m deep stub headings extracted on a centre spacing of 37 m, with one lift left and right on retreat.

1.6 Risk assessment


The Extraction Plan Guidelines state that appropriate consideration is to be given to risk assessment and risk management in the PSMP. This should include:

- the results of risk assessment conducted by a competent person in accordance with relevant standards and guidelines;
- a description of the investigation and analysis methods used in determining the risk control measures and procedures, carried out by a competent person;
- a description of all risk control measures and procedures, including a statement of the feasibility to manage identified risks; and
- a proposed program for implementation of the proposed risk control measures and procedures.

A subsidence risk assessment has been undertaken to identify the risks associated with subsidence at the Narrabri Mine. It builds on previous risk assessments completed for LW 101 to LW 110 and is presented as Appendix K to the Extraction Plan. The updated risk assessment for Panels 201 to 202 has not identified any high-risk items and, as a result, risks associated with subsidence within the Extraction Plan Area for the Narrabri Mine have been assessed as low to moderate.

1.7 Consultation and approval


Apart from consultation with the community through the Narrabri Mine's Community Consultative Committee (**CCC**), this PSMP does not require any further consultation. There is no public infrastructure or public access into the Extraction Plan Area. The overall consultation and approval process for the Extraction Plan is detailed in section 1.9 of the Extraction Plan.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

1.8 Access to information

In accordance with Schedule 6 Condition 10 of the Project Approval, the approved Extraction Plan and all appendices, audits and reports, and summaries of all monitoring data (where relevant) will be made publicly available on the WHC website. All information will be kept up to date.

Note that any printed copies of this PSMP are uncontrolled.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

2. Subsidence and environmental consequences

2.1 Subsidence predictions

The subsidence predictions for Panels 201 to 202 have been modelled and predictions updated, which includes using the measured levels for LW 101 to LW109. The subsidence effects (subsidence, tilt, curvature, horizontal displacements and strains) for the pillar reduction panels and the longwall panels have been estimated based on published subsidence data for a broad range of coalfield geometries. Maximum predicted and observed subsidence values (worst-case scenarios) for extraction of these panels, as presented in Table 2.1, have been adopted for the purposes of this PSMP. Note that the predicted values may be occasionally exceeded (up to 5% of the time) due to discontinuous strata behaviour associated with near surface cracking, joint displacement, geological features (e.g., faults) and/or rapid changes in topography (creek beds).

Table 2.1 - Maximum subsidence predications


Panel	Final maximum subsidence (S _{max}) (m)	Maximum tilt (mm/m)	Maximum tensile strain (mm/m)	Maximum compressive strain (mm/m)
CF 201-A	1.77	22	16	17
CF 201-B	1.77	21	14	15
CF 202-C	1.77	24	19	20
CF 202-D	1.77	32	27	29
CF 203-E	1.77	31	27	29
CF 203-F	1.77	23	18	19
CF 204-G	1.77	23	18	19
CF 204-H	1.77	32	27	29
CF 205-I	1.77	36	31	33
CF 205-J	1.77	22	16	17

2.2 Potential public safety hazards

Potential public safety hazards that may occur as a result of subsidence include:

- surface cracking;
- ground deformations;
- damaged infrastructure (e.g., damaged roads); and
- loss of services.

Potentially affected surface features are shown on Plan 2 in Attachment 2 of the Extraction Plan. Potential subsidence impacts on built features, which are also relevant to this PSMP, are detailed in section 2.2 of the BFMP. As previously discussed, no public facilities, amenity, or users will be undermined by Panels 201 to 202.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

3. Subsidence management

3.1 Performance measures and indicators

Specific performance measures for public safety are outlined in Table 3.1. These performance measures align with the PSMP objectives outlined in section 1.3.

Table 3.1 - Public safety management objectives and performance measures

Objectives	Performance measure/indicator
No additional safety risk.	<ul style="list-style-type: none"> No unmanaged risk to public safety as a result of mining operations. All identified public safety risks are managed quickly and appropriately to avoid injury.
Prevent personal injury as a result of subsidence impacts.	<ul style="list-style-type: none"> No injuries or accidents as a result of subsidence impacts or subsidence damage. Safety incidents are recorded within the NCOPL occupational health and safety management system for appropriate follow up and corrective action.

3.2 Subsidence management


For each of the risks identified with respect to public safety, controls have been developed to ensure that the level of risk is eliminated or reduced. Surface infrastructure affected by the extraction of Panels 201 to 202 that may pose a threat to public safety if damaged by subsidence, are summarised in Table 3.2. The majority of the management controls and monitoring requirements relating to public safety are also detailed within Attachment 2 of the BFMP, and are referenced here to avoid duplication and minimise any discrepancies.

Inspections must be conducted within areas of active subsidence (as required) until final remediation of subsidence effects have been completed. This is required to ensure that all safety controls identified in this PSMP are in place and appropriate to the subsidence effects that are being observed.


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Table 3.2 - Potential public safety risks, control measures and monitoring

Surface feature	Potential subsidence effect	Potential safety risk	Control measures	Monitoring
Land surface	<ul style="list-style-type: none"> • surface cracking • ground deformation • erosion • landslips 	Personal injury: <ul style="list-style-type: none"> • trip/fall hazard • vehicle hazard • individual trees may become unstable • movement of land/falling rocks 	<ul style="list-style-type: none"> • erect warning signs • road closure • temporary fencing • prevent unauthorised access to mine site • communicate with staff/contractors • visual inspections and repair of surface cracks, deformations and erosion 	Subsidence monitoring in accordance with the Subsidence Monitoring Program
Access roads and tracks	<ul style="list-style-type: none"> • surface cracking and ground deformation • formation of compression humps and dips • changes to drainage patterns 	Traffic hazard: <ul style="list-style-type: none"> • vehicle accident 	<ul style="list-style-type: none"> • erect warning signs • road closure • communication with staff/contractors • visual inspections • implementation of additional traffic controls • remediate road surface damage temporarily during active subsidence to maintain traffic ability 	Visual inspections in accordance with the BFMP
Water storage dams	<ul style="list-style-type: none"> • cracking of dam walls • loss of storage 	Personal injury: <ul style="list-style-type: none"> • dam wall failure resulting in sudden release of water 	<ul style="list-style-type: none"> • pre-mining assessment • visual inspections • draining (if required) and remediation works (e.g., reconstruct contour banks and repair cracking in and around dam wall) 	Visual inspections in accordance with the BFMP

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			


Surface feature	Potential subsidence effect	Potential safety risk	Control measures	Monitoring
Buildings/machinery sheds	<ul style="list-style-type: none"> release of potentially harmful substances (i.e., asbestos) structural instability interruption to services 	Personal injury: <ul style="list-style-type: none"> building collapse or uneven structure 	<ul style="list-style-type: none"> vacate dwelling and restrict access to buildings and surrounds prior to subsidence impacts occurring disconnect services to subsidence affected buildings pump septic tanks hazardous materials identification surveys retained structures to be confirmed structurally 	Assessments (pre and post mining) in accordance with the BFMP
Fences and gates	<ul style="list-style-type: none"> tilted fences wire breakage gates unable to open/close. 	Traffic hazard: <ul style="list-style-type: none"> livestock escape onto public roads (and potentially to Kamilaroi Highway to east) 	<ul style="list-style-type: none"> exclude stock from subsidence impacted area visual inspections install temporary fencing to control stock movements in event of existing fence damage rectify impacts to fences/gates 	Survey and visual inspection in accordance with the BFMP

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

3.3 Contingency response

A general procedure for contingency responses for an exceedance of any performance measure under the Extraction Plan is described in section 4.3 of the Extraction Plan.

Potential risks and controls associated with subsidence were identified as part of a risk assessment, as described in section 1.6. A trigger action response plan (**TARP**) for potential incidents identified under this PSMP is presented in Attachment 2. More detailed contingency response procedures for undertaking road repairs are outlined in Attachment 3.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

4. Plan implementation


4.1 Roles and responsibilities

To ensure adequate implementation of this management plan and the associated monitoring, the following responsibilities have been assigned to relevant NCOPL personnel (see Table 4.1). It is also noted that additional responsibilities are referred to within the Extraction Plan and the appended sub-plans.

Table 4.1 - Roles and Responsibilities

Roles	Responsibilities
General Manager	<ul style="list-style-type: none"> Ensure that adequate resources are available to NCOPL personnel to facilitate the completion of their responsibilities under this PSMP. Communication with statutory agencies and departments, public authorities and the community.
Mine Manager	<ul style="list-style-type: none"> Ensure all contractors, subcontractors and service-personnel are appropriately qualified, competent and licensed to undertake the required work and have a good environmental performance record. Ensure the PSMP is implemented and adhered to.
Environmental Superintendent	<ul style="list-style-type: none"> Ensure that all monitoring and reporting under the PSMP is completed within the timeframes specified, and is checked, processed and filed appropriately. Liaise with stakeholders regarding subsidence impact management. Authorise changes to this PSMP. Advise on matters identified in all approval, permit, licence and consent documents and ensure all operations are conducted in compliance with those conditions, and all other environmental obligations.

Though retaining the responsibilities identified above, the listed personnel may, at their discretion, delegate specific tasks to suitably qualified and experienced operational personnel or consultants.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

5. Reporting, evaluation and review

5.1 Annual Review

In accordance with Schedule 6 Condition 6, NCOPL will review the performance of its public safety management for the previous calendar year and report the relevant results within the Annual Review, to the satisfaction of the Secretary. The Annual Review will at minimum provide information regarding the effectiveness of the management measures to prevent, and if prevention is not reasonable and feasible, to minimise any impact on public safety.

Further, the Annual Review requires a number of items to be reviewed or assessed. In summary these are:

- monitoring results and complaints;
- non-compliances and incidents;
- compliance with performance measures;
- discrepancies between predicted and actual impacts; and
- measures to be implemented to improve environmental performance.

The Annual Review may also make recommendations for any additions, changes or improvements to the public safety management process.

The Annual Review will be made available on the WHC website.

5.2 Independent environmental audits

Prior to 13 September 2010, and every 3 years thereafter, unless the Secretary directs otherwise, NCOPL will commission and pay the full cost of an Independent Environmental Audit (**IEA**) of the operations at Narrabri Mine (Stages 1 and 2), to be conducted in accordance with the requirements under Schedule 6 Condition 7.

The audit team will be led by a suitably qualified auditor and the IEA will be conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary.


5.3 Management plan review and evaluation

As required by Schedule 6 Condition 3 of the Project Approval, within three months of any of the following:

- completion of an independent environmental audit (as required by Schedule 6 Condition 7);
- submission of an Incident Report (as required by Schedule 6 Condition 4);
- submission of an Annual Review (as required by Schedule 6 Condition 6); and
- any modification to the conditions of the Project Approval (unless the conditions require otherwise),

NCOPL will the review, and if necessary, revise this PSMP. This is to ensure that the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the Narrabri Mine operations. The review history table in the front of this Plan provides the details of each review.

Condition 3 of Schedule 6 further states that if the review determines that this PSMP requires revision, then this will be completed to the satisfaction of the Secretary.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

6. Incidents and non-compliance

6.1 Incident notification

An incident is defined under the Project Approval as *a set of circumstances that causes or threatens to cause material harm, and/or breaches or exceeds the limits of performance measures/criteria*. Material harm to the environment is defined under the Project Approval as *involving actual or potential harm to the health or safety of human beings or to the environment that is not trivial*. This definition excludes “harm” that is authorised under either the Project Approval or any other statutory approval (e.g., the EPL).

In the event of any exceedance of or deviation from performance criteria, NCOPL will advise the Secretary and any other relevant agencies as soon as practicable after becoming aware of the incident, in accordance with Schedule 6 Condition 4. Within 7 days of the event, NCOPL will also provide the Secretary and any relevant agencies a detailed report which will:

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

Notifications to the EPA will be made by contacting the Environment Line service 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 NCO’s Environmental Management System.


6.2 Non-compliance notification

In accordance with Schedule 6 Condition 2, where a non-compliance with statutory requirements or an exceedance of the relevant criteria or performance measures has occurred, NCOPL will, at the earliest opportunity, take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur. Once this has been achieved, all reasonable and feasible options for remediation (where relevant) will be considered.

In accordance with Schedule 6 Condition 4, within seven days of becoming aware of a non-compliance, NCOPL will notify DPE of the non-compliance³. The notification will be made in writing via the Major Projects website and identify the development (including the development application number and name), set out the condition or requirement 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 Secretary, to the satisfaction of the Secretary.

³ A non-compliance which has been notified as an incident under section 6.1 does not need to also be notified as a non-compliance.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			


7. Complaints management

Any complaints received in relation to this PSMP 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 the 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; and
- 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.

The Environmental Superintendent retains ultimate responsibility to ensure that complaints received are properly recorded and addressed appropriately.

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.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

8. References


Department of Planning and Environment (unpublished). *Guidelines for the Preparation of Extraction Plans*.

Ditton Geotechnical Services (2021) *Mine Subsidence Assessment for Pillar Reduction Panels CF201-CF205 (A-J) and Longwalls LW203 to LW205 at the Narrabri Underground Mine*. Prepared for Narrabri Coal Operations Pty Ltd. DGS Report No. NAR-004/8. Prepared for Narrabri Coal Operations Pty Ltd.

Resource Strategies (2015) *Narrabri Mine Modification 5 Environmental Assessment*. Prepared for Narrabri Coal Operations Pty Ltd.

Resource Strategies (2021) *Narrabri Mine Modification 7 - Environmental Assessment*. Prepared for Narrabri Coal Operations Pty Ltd.

RW Corkery & Co. Pty Ltd (November 2009) *Environmental Assessment for the Narrabri Coal Mine Stage 2 Longwall Project*, Project Application No:MP08_0144. Prepared for Narrabri Coal Operations Pty Ltd.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

9. Glossary

Term	Definition ⁴
Angle of draw	The angle between the vertical and the line joining the edge of the mining void with the limit of vertical subsidence, usually taken as 20 mm.
Anomalous subsidence	Normally refers to unexpected subsidence effects and is usually caused by latent geological conditions (joints, faults, dykes)
Chain pillar	The pillar(s) of coal left between adjacent longwall panels. This forms a barrier that allows the goaf to be sealed off and facilitates tailgate roof stability.
Compressive strain	A decrease in the distance between two points on the surface. This can cause shear cracking or steps at the surface if > 3 millimetres per metre (mm/m).
Council	Narrabri Shire Council
Cover depth	The depth of coal seam from the ground surface (metres).
Department	The NSW Department of Planning and Environment (DPE)
Environmental consequences	The environmental consequences of subsidence impacts including: damage to built features; loss of surface flows to the subsurface; loss of standing pools; adverse water quality impacts; development of iron bacterial mats; cliff falls; rock falls; damage to Aboriginal heritage sites; impacts to aquatic ecology; ponding.
Extraction Plan Area	The area predicted to be affected by the proposed secondary extraction of the approved pillar reduction panels CF 201-CF205
Far-field subsidence	Mining-induced movements of the ground surface in areas where vertical subsidence is less than 20mm.
First workings	Development headings created by a continuous mining machine - designed to remain stable during development and longwall extraction. Provide ventilation and services, access for staff and materials, and allow for transportation of raw coal out of the mine (i.e. also referred to as mains headings, gate roads, maingate, tailgate).
Goaf	The mined-out area into which the immediate roof strata breaks.
Groundwater	Water contained in the interconnected pore spaces and voids of the saturated zone of sediments and rocks.
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
Material harm	Material harm to the environment is defined in section 147 of the POEO Act
Minimise	Implement all reasonable and feasible mitigation measures to reduce the impacts of the Narrabri Mine.
MOD 5	Reduced the number of longwall panels from 26 to 20; increased the longwall panel widths for LW 107 to LW 120 from approximately 295 m to approximately 400 m; extended the western footprint approximately 60 m; and increased the maximum ROM coal processing rate from 8 Mtpa to 11 Mtpa.
MOD 7	Describes the change in mining method within the extent of the previously approved LW 201 and LW 202 and allows for up to 0.7 Mtpa via bord and pillar extraction at pillar reduction panels CF 201 to CF 205

⁴ The majority of the definitions are as provided in Project Approval 08_0144.




**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Term	Definition⁴
Panels 201 to 202	Pillar reduction panels CF 201 to CF 205
Project Approval	Development consent (DA_08_0144) issued on 26th July 2010 under Section 75J of the Environmental Planning and Assessment Act 1979 by the Department of Planning & Infrastructure (as modified).
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
Second workings	Extraction of coal from longwall panels, mini-wall panels, or pillar extraction.
Secretary	Planning Secretary under the EP&A Act, or nominee
Subsidence	The totality of subsidence effects, subsidence impacts and environmental consequences of subsidence impacts.
Subsidence effects	Deformation of the ground mass due to mining, including all mining-induced ground movements, including both vertical and horizontal displacement, tilt, strain and curvature.
Subsidence impacts	Physical changes to the ground and its surface caused by subsidence effects, including tensile and shear cracking of the rock mass, localised buckling of strata caused by valley closure and upsidence and surface depressions or troughs.
Tailgate	Refers to the tunnels or roadways down the side of a longwall block which provides a ventilation pathway for bad or dusty air away from the longwall face. It is usually located on the side of the longwall panel adjacent to extracted panels or goaf.
Tensile strain	An increase in the distance between two points on the surface. This is likely to cause cracking at the surface if it exceeds 2 mm/m. Tensile strains are usually associated with convex (hogging) curvatures near the sides (or ends) of the panels.
Tilt	The rate of change of subsidence between two points (A and B), measured at set distances apart (usually 10m). Tilt is plotted at the mid-point between the points and is a measure of the amount of differential subsidence
Unacceptable risk	The level of risk at which mitigation actions are deemed to be warranted.
Upsidence	Relative vertical upward movements of the ground surface associated with subsidence.
Vertical subsidence	Vertical downward movements of the ground surface caused by underground coal mining.
Watercourse	A river, creek or other stream, including a stream in the form of an anabranch or tributary, in which water flows permanently or intermittently, regardless of the frequency of flow events: In a natural channel, whether artificially modified or not, or in an artificial channel that has changed the course of the stream. It also includes weirs, lakes and dams

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Attachment 1 Compliance conditions relevant to the PSMP


	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Table A1.1 - Relevant Project Approval 08_0144 requirements

Project Approval 08_0144 conditions		Document reference										
Condition	Requirement											
Schedule 2 Condition 1	The Proponent shall 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 project.	Section 1.3										
Schedule 2 Condition 11	<p>With the approval of the Secretary, the Proponent may submit any management plan or monitoring program required by this approval on a progressive basis.</p> <p>Note: <i>The conditions of this approval require certain strategies, plans, and programs to be prepared for the project. They also require these documents to be reviewed and audited on a regular basis to ensure they remain effective. However, in some instances, it will not be necessary or practicable to prepare these documents for the whole project at any one time, particularly as these documents are intended to be dynamic and improved over time. Consequently, the documents may be prepared and implemented on a progressive basis, subject to the conditions of this approval. In doing this however, the Proponent will need to demonstrate that it has suitable documents in place to manage the existing operations of the project.</i></p>	There is no staging for the PSMP for Panels 201-202										
Schedule 3 Condition 2	<p>The Proponent shall ensure that the project does not cause any exceedances of the performance measures in Table 2, to the satisfaction of Resources Regulator.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="background-color: #0056b3; color: white;">Table 2: Subsidence impact performance measures</th> </tr> <tr> <th colspan="2" style="background-color: #f1c232;">Built features</th> </tr> </thead> <tbody> <tr> <td style="width: 30%;">All built features</td> <td> <ul style="list-style-type: none"> Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated. </td> </tr> <tr> <th colspan="2" style="background-color: #f1c232;">Public safety</th> </tr> <tr> <td>Public safety</td> <td> <ul style="list-style-type: none"> No additional risk </td> </tr> </tbody> </table>	Table 2: Subsidence impact performance measures		Built features		All built features	<ul style="list-style-type: none"> Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated. 	Public safety		Public safety	<ul style="list-style-type: none"> No additional risk 	Section 3.2
Table 2: Subsidence impact performance measures												
Built features												
All built features	<ul style="list-style-type: none"> Always safe. Serviceability should be maintained wherever practicable. Loss of serviceability must be fully compensated. Damage must be fully repairable, and must be fully repaired or else replaced or fully compensated. 											
Public safety												
Public safety	<ul style="list-style-type: none"> No additional risk 											
	<p>Notes:</p> <p>1) <i>The Proponent will be required to define more detailed performance indicators for each of these performance measures in Built Features Management Plans or Public Safety Management Plan (see Schedule 3 Condition 4 below).</i></p> <p>2) <i>Requirements regarding safety or serviceability do not prevent preventative or mitigatory actions being taken prior to or during mining in order to achieve or maintain these outcomes.</i></p> <p>3) <i>Compensation required under this condition includes any compensation payable under the Mine Subsidence Compensation Act 1961 and/or the Mining Act 1992.</i></p>	Section 3.1 Also refer to the BFMP										



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
Schedule 3 Condition 3	Any dispute between the Proponent and the owner of any built feature over the interpretation, application or implementation of the performance measures in Table 2 is to be settled by the Resources Regulator. The Resources Regulator may seek the advice of the MSB on the matter. Any decision by the Resources Regulator shall be final and not subject to further dispute resolution under this approval.	Section 7
Schedule 3, Condition 4 (g)	The Proponent shall prepare and implement Extraction Plans for any second workings to be mined to the satisfaction of the Secretary. Each Extraction Plan must include the following to the satisfaction of the Resources Regulator: a Public Safety Management Plan to ensure public safety in the mining area;	This Plan
Schedule 6, Condition 2	The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include:	
	(a) detailed baseline data;	Section 1.5
	(b) a description of:	
	<ul style="list-style-type: none"> • the relevant statutory requirements (including any relevant approval, licence or lease conditions); 	Section 1.4
	<ul style="list-style-type: none"> • any relevant limits or performance measures/criteria; 	Section 1.4
	<ul style="list-style-type: none"> • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures 	Section 1.4.1
	(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria:	Section 3.1
	(d) a program to monitor and report on the:	
	<ul style="list-style-type: none"> • impacts and environmental performance of the project; 	Section 3.2
	<ul style="list-style-type: none"> • effectiveness of any management measures (see (c) above); 	Attachment 2
	(e) a contingency plan to manage any unpredicted impacts and their consequences;	Section 3.3 Attachment 2
	(f) a program to investigate and implement ways to improve the environmental performance of the project over time;	Section 4.3
	(g) a protocol for managing and reporting any;	
	<ul style="list-style-type: none"> • incidents; 	Section 6.1
	<ul style="list-style-type: none"> • complaints; 	Section 7
	<ul style="list-style-type: none"> • non-compliances with statutory requirements; and 	Section 6.2
	<ul style="list-style-type: none"> • exceedances of the impact assessment criteria and/or performance criteria; and 	
	(h) a protocol for periodic review of the plan.	Section 5
Schedule 6 Condition 3	Within 3 months of the submission of an:	Section 5.3
	(a) audit under condition 7 of Schedule 6;	
	(b) incident report under condition 4 of Schedule 6; and	




**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Project Approval 08_0144 conditions		Document reference
Condition	Requirement	
	(c) annual review under condition 5 of Schedule 6; and	
	(d) any modification to the conditions of this approval (unless the conditions require otherwise),	
	NCOPL shall review, and if necessary revise, the strategies, plans, and programs required under this approval to the satisfaction of the Secretary.	
Schedule 6 Condition 4	The Proponent shall notify the Secretary in writing via the Major Projects website and any other relevant agencies of any incident associated with the project as soon as practicable after the Proponent becomes aware of the incident. Within 7 days of the date of the incident, the Proponent shall provide the Secretary and any relevant agencies with a detailed report on the incident.	Section 6.1
Schedule 6 Condition 5	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval, and to the satisfaction of the Secretary.	Section 5
Schedule 6 Condition 6	By the end of March each year, the Proponent must submit a review of the environmental performance of the project for the previous calendar year to the satisfaction of the Secretary.	Section 5.1
Schedule 6 Condition 7	Prior to 13 September 2010, and every 3 years thereafter, unless the Secretary directs otherwise, the Proponent shall commission and pay the full cost of an Independent Environmental Audit of the project (Stages 1 and 2).	Section 5.2
Schedule 6 Condition 10	The Proponent shall: (a) make copies of the following publicly available on its website: <ul style="list-style-type: none"> • the documents referred to in Condition 2 of Schedule 2; • all current statutory approvals for the project; • all approved strategies, plans and programs required under the conditions of this approval; • a comprehensive summary of the monitoring results of the project, reported in accordance with the specifications in any conditions of this approval, or any approved plans and programs; • a complaints register, updated on a monthly basis; • minutes of CCC meetings; • the annual reviews of the project; • any independent environmental audit of the project, and the Proponent's response to the recommendations in any audit; • any other matter required by the Secretary; and 	Section 1.8
	(b) keep this information up-to-date, to the satisfaction of the Secretary.	Section 1.8

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Attachment 2 - Trigger Action Response Plan



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Table A2.1 - Trigger action response plan

Monitoring	Trigger	Action
Roads and access tracks		
<p>To note any subsidence impacts that require remediation or implementation of additional traffic controls</p> <p>Sites Visual monitoring of affected roads and tracks.</p> <p>Parameters Note any damage to roads that may cause traffic hazard (i.e., cracks, compression humps, ponded water on road surface)</p> <p>Analysis: Visual identification, refer to road management response tables in Attachment 4.</p> <p>Frequency As required whilst active subsidence is affecting the road(s) and until any required remediation works are completed.</p>	<p>Level 1 If inspections note that road is no longer trafficable or safe.</p>	<ul style="list-style-type: none"> Implement appropriate traffic control (may include hazard signs or temporary road closure). Notify mine personnel. Review potential detour options and provide alternative access (if available). Initiate road repairs/reconstruction to restore affected section to a trafficable standard (refer to Attachment 4).
	<p>Level 2 If vehicle accident occurs</p>	<ul style="list-style-type: none"> As for Level 1. Apply appropriate emergency / first aid treatment if required. Record and report incident in accordance with Narrabri Mine Health and Safety protocols. Identify cause of accident. If subsidence impact related, review the effectiveness of the management/monitoring actions under this BFMP and revise accordingly if required.
Water storage dams and soil conservation banks		
Condition		
<p>To document pre- and post-subsidence condition and allow identification of required remedial works</p> <p>Sites: All dams</p> <p>Parameters Obtain xyz coordinates along of water storage dam embankments/spillways and along contour banks. Photographic records.</p> <p>Analysis: Pre- and post-mining comparison</p> <p>Frequency: Pre and post-subsidence</p>	<p>Level 1 Post-subsidence survey identifies that spillway and dam wall not likely to operate as intended (i.e. spillway no longer lowest point on wall) or Post-subsidence survey identifies that contour bank not likely to operate as intended (i.e. damaged due to cracking, areas no longer able to drain, or lengths with increased slope).</p>	<ul style="list-style-type: none"> Notify Environmental Superintendent. Reduce stored water level (if not already reduced), assess and undertake repairs to wall or spillway as required (see Attachment 2) Reconstruct or repair as per Attachment 2.
Dam failure		
<p>To observe possible subsidence effects to dam wall and identify potential risk of impending dam failure</p> <p>Sites: All dams</p> <p>Parameters: Visual inspections noting their condition, water level, cracking or recent erosion of earth embankment.</p> <p>Analysis: Visual identification of changes</p> <p>Frequency: Daily during undermining of structure</p>	<p>Level 1 Minor superficial surface cracking observed – no apparent water leaking through wall.</p>	<ul style="list-style-type: none"> Notify Environmental Superintendent. Continue to monitor.
	<p>Level 2 Sudden drop in water level noted that is not attributable to other recent activities or use or deep cracking observed and water seepage through wall is visible (i.e. damp areas or signs of increased grass growth within embankment or immediately downstream) or severe cracking and visible signs of water discharging through earth embankment.</p>	<ul style="list-style-type: none"> As for Level 1 Restrict access to the area Reduce stored water level by pumping water out (release downstream) and maintain lowered water level until post-subsidence assessment and repairs can be carried out.
Property and livestock fences		
<p>To note the condition and functionality of affected fences to ensure effective exclusion of stock from active subsidence area.</p> <p>Sites: All panels (LW107-LW110)</p> <p>Parameters: Visual inspections of fences and gates/cattle grids within active subsidence area</p> <p>Analysis: Visual observation</p> <p>Frequency: On an as needs basis</p>	<p>Level 1 Damage observed to fences that can be attributed to subsidence movements.</p>	<ul style="list-style-type: none"> Notify Environmental Superintendent. Undertake repairs as per Attachment 2.
Residential dwellings and machinery sheds		




**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**


Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Monitoring	Trigger	Action
Harmful substances		
<p>To identify presence of potentially harmful substances that may be released as a consequence of subsidence</p> <p>Sites: All subsidence-affected buildings and structures Parameters: Hazardous materials (i.e. asbestos) identification survey Analysis: - Frequency: Prior to subsidence</p>	<p>Level 1 Survey reveals presence of asbestos or other hazardous material within the buildings or surrounds and that is considered a potential risk to the environment in the event of subsidence damage.</p>	<ul style="list-style-type: none"> • Notify Surface Operations Manager. • Remove or 'make safe' (demarcate) any potentially hazardous building materials that would potentially pose a health or environmental threat as a result of subsidence impacts (i.e. damage to asbestos) prior to subsidence impacts.
Post-subsidence condition		
<p>To assess post-subsidence condition of structure and determine if repair is practicable, cost-effective and safe</p> <p>Sites: All subsidence-affected buildings and structures Parameters: Post-subsidence structural assessment Analysis: - Frequency: Post subsidence</p>	<p>Level 1 Structure collapses or is considered to be uneconomic to repair.</p>	<ul style="list-style-type: none"> • Notify Surface Operations Manager. • Maintain safety fencing / exclusion of property to prevent access. • Demolish structure(s) and recycle/dispose of materials to a licensed waste facility.
Mine Infrastructure		
Surface to in-seam gas drainage wells		
<p>To confirm site has been decommissioned and is stable and safe</p>	<p>Level 1 Not fully decommissioned or considered unsafe to people or livestock.</p>	<ul style="list-style-type: none"> • Notify Technical Services Manager. • Undertake additional works as required to remove remaining structures and rehabilitate. • Repair post-subsidence cracking or identified impacts as required.
PED Cable		
<p>Maintain communications</p>	<p>Level 1 No longer operational.</p>	<ul style="list-style-type: none"> • Notify Surface Operations Manager. • Inspect to locate site of damage and replace or repair as required.
Survey Marks		
<p>Pre- and post-mining notifications for impacts.</p>	<p>Level 1 Notify of impacts to survey marks 14 days prior to impacts.</p>	<ul style="list-style-type: none"> • Registered Mine Surveyor to update details following mining.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Attachment 3 - Road inspections and response

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Road and track inspections

As nominated in Table A2.1 in Attachment 2, inspection of roads and access tracks will be undertaken as required. Inspections will be the responsibility of the Civil Services Coordinator and will be recorded using the checklist attached. Any required actions (as outlined below) will be reported to the Environmental Superintendent.

Impacts to roads - response

The level of response as detailed in Table A3.1 has been developed to assist in implementing appropriate levels or response for a range of potential subsidence impacts to the unsealed access roads within the Mining Lease.

Table A3.1 - Road impact table


Impact	Full road width	Half road width	Road edge
Cracking > 100 mm wide	HIGH	HIGH	MODERATE
Cracking 20 – 100 mm wide	MODERATE	MODERATE	LOW
Cracking < 20 mm wide	MODERATE	LOW	LOW
Water ponding	HIGH	MODERATE	LOW
Compression humps	HIGH	MODERATE	LOW
Other	MODERATE	LOW	LOW

Where impacts are noted to roads, the guidelines as presented in Table A3.2 will be implemented, noting that individual circumstances may require deviation from the following action. The order of priority for any contingency response under this plan will be:

1. Ensure the safety of mine personnel;
2. Minimise the duration of inconvenience or disruption; and
3. Repair in accordance with the level of impact (high, medium, or low) as identified in the table below.


Table A3.2 - Road response table

Level of impact	Response
HIGH	Barricade affected area and notify landowner, affected occupants/road users. Provide alternative access around hazard until remediation works are complete. Proceed with remediation works within 24 hours and document all actions.
MODERATE	Erect warning signs on both sides of hazard. Notify landowner, occupants/road users. Proceed with remediation works as soon as practicable and document all actions.
LOW	Proceed with remediation works in accordance with normal maintenance procedures under this plan and document all actions.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Method of remediation and available resources

NCOPL maintains an earthworks contractor on site to maintain and repair all internal mine access roads. Where repairs are required under this BFMP, the Civil Services Coordinator will direct the earthworks contractor to undertake the works. A range of plant and equipment including grader, roller, excavator, front-end loader and haul trucks will be maintained on site, and a stockpile of road gravel or similar will be stored on site for incidental repairs.

	NARRABRI MINE ENVIRONMENTAL MANAGEMENT SYSTEM	Document owner:	Manager HSE
		Document approver:	General Manager
		Revision period:	3 years
		Revision:	0
		Last revision date:	30 March 2022
WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202			

Attachment 4 - Subsidence inspection checklist



**NARRABRI MINE
ENVIRONMENTAL
MANAGEMENT
SYSTEM**

Document owner:	Manager HSE
Document approver:	General Manager
Revision period:	3 years
Revision:	0
Last revision date:	30 March 2022

WHC_PLN_NAR_PUBLIC SAFETY MANAGEMENT PLAN - PANELS 201 - 202

Subsidence inspection checklist (template)

Subsidence Inspection Checklist – Roads			
Date:		Panel No.	
Time:		Face position (chainage):	
Inspected by:		Area inspected	
Road(s) inspected			
Inspection Items	Present (Y/N)	Comments	Impact level (see Table A3.1)
Warning signage	Y / N	<i>In place / visible / undamaged?</i>	
Surface Cracking	Y / N	<i>Present? Widths? Extent? Location?</i>	<i>High / Medium /Low</i>
Compression humps	Y / N	<i>Present? Widths? Extent? Location?</i>	<i>High / Medium /Low</i>
Damage to roadside drainage or ponding over pavement	Y / N	<i>Present? Widths? Extent? Location?</i>	<i>High / Medium /Low</i>
Safety issues / other impacts?	Y / N	<i>Details?</i>	<i>Risk?</i>
Remediation Required		Earthworks contractor notified?	Reported to Technical Services Manager?
<i>Summary details and timeframes for repair – see response table</i>		<i>(Time/Date)</i>	<i>(Date)</i>
Signed:			