



Environmental Management Strategy

Clarence Colliery

April 2020

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1. BACKGROUND

1.1. Introduction

Clarence Colliery is an underground coal mining operation located within the New South Wales (NSW) Western Coalfields, approximately 10 kilometres east of Lithgow. Clarence Colliery is bordered by Springvale to the north-west. The regional locality of Clarence Colliery is shown on **Figure 1**.

The Centennial Coal Company Limited is a wholly owned subsidiary of Banpu Public Company Limited. Centennial Coal Company Limited owns Clarence Colliery Pty Ltd, which has been appointed as the management entity for the Clarence Joint Venture.

Centennial Coal Company Limited has an 85% share in the Clarence Joint Venture, comprised of a number of wholly owned subsidiaries being Coalex Pty Ltd (51% share), Clarence Coal Investments Pty Ltd (29% share), SK Networks Resources Australia Pty Ltd (15% share) and Centennial Clarence Pty Ltd (5% share).

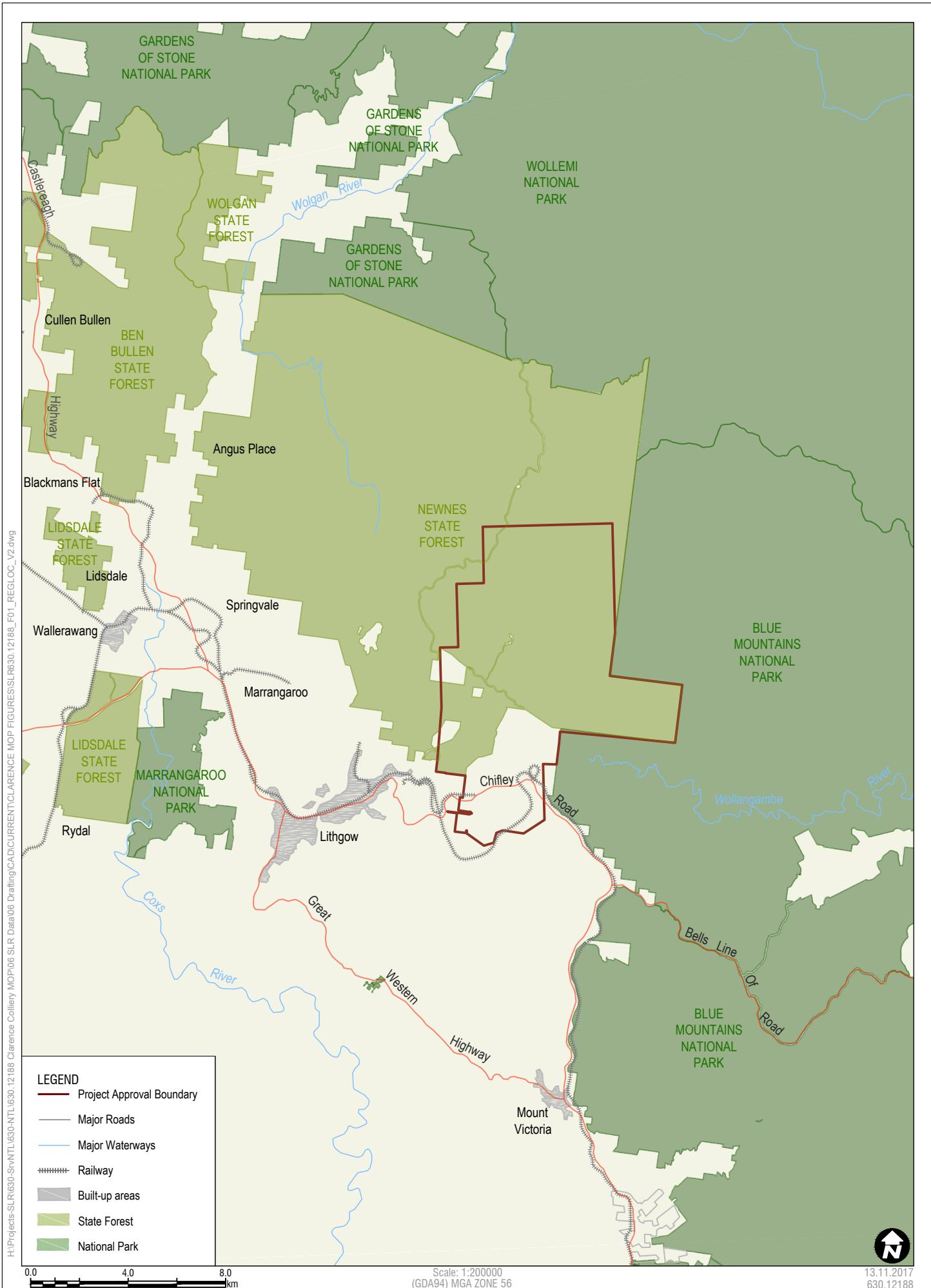
Mining commenced at Clarence Colliery in 1979 using bord and pillar extraction. In 1993 longwall mining was introduced but ceased in 1998 due to unfavourable geological conditions. Centennial purchased the mine in 1998 and reintroduced the bord and pillar (partial extraction) method. Clarence Colliery extracts thermal coal from the Katoomba Seam for the domestic and export markets.

In 2005 a development application was lodged with the former Department of Planning and Infrastructure (now Department of Planning, Industry and Environment [DPIE]) for the Extension of the Clarence Underground Coal Mine. The Minister granted Development Consent (DA 504-00) on 19 December 2005. The Development Consent has been modified four times (Mods 2,3, 4 and 5) since its approval (proposed Mod 1 was withdrawn).

Development Consent DA 504-00 allows Clarence Colliery to extract up to 3 million tonnes per annum (Mpta) of run of mine (ROM) coal until 31 December 2026. Mining operations are undertaken 24 hours per day, 7 days per week.

This Environmental Management Strategy (EMS) has been developed in accordance with Schedule 5, Condition 1 of Development Consent (DA 504-00). The EMS has been updated to incorporate the recommendations from the 2016 Independent Environmental Audit (IEA), in accordance with DA 504-00 Condition 1(f) Schedule 5, and to reflect the 1 January 2018 to 31 October 2022 Clarence Colliery Mining Operations Plan (MOP).

The Strategy has been developed to adhere to Centennial Coal's Environment and Community Policy by promoting environmental awareness, integrating environmental management into business, and through identifying and minimising the environmental impacts of operations. Clarence Colliery has adopted the Centennial Coal Environment and Community Policy which has been endorsed by the Centennial Coal Board of Directors. Clarence Colliery staff recognise the objectives of the Centennial Coal Environment and Community Policy and aim to achieve the environmental goals.



This Strategy applies to all employees and contractors associated with the operations at Clarence Colliery. Service providers and suppliers may operate under their own Environmental Management Strategy.

1.2. Project Description

The principle components of Clarence Colliery are:

- An underground coal mine with maximum production levels of 3 Mtpa of thermal coal for export and NSW markets;
- Associated pit top area containing surface infrastructure including:
 - Administration, bath house, store and workshop facilities;
 - Rail loop and load out facilities;
 - Conveyor systems to transfer coal from the underground mine to the pit top facilities including the load out on the rail loop;
 - ROM stockpile area;
 - Ventilation facility with a downcast ventilation shaft also located on the Newnes Plateau;
 - Coal stockpile facilities;
 - Coal Handling and Processing Plant (CHPP);
 - Four existing REAs (one additional approved but not developed); and
 - Water management structures including a sewage treatment plant, water treatment plant, storage and leachate dams and an effluent irrigation system.

The site layout is shown on **Figure 2**.

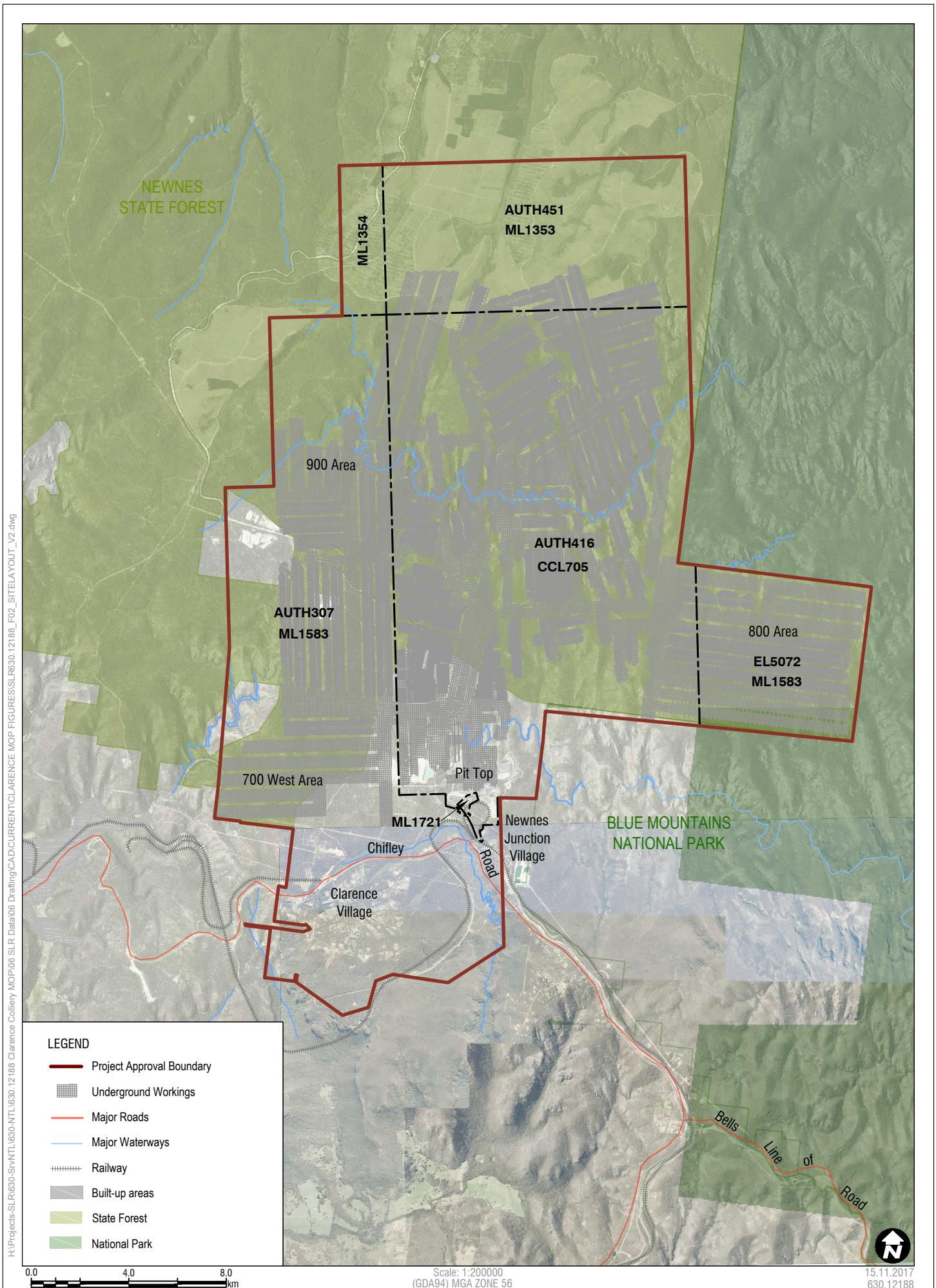
1.3. Purpose and Objectives

The purpose of this Strategy is to provide an effective management framework to identify and control potential environmental impacts to achieve compliance with environmental legislation and regulatory requirements applicable to Clarence Colliery.

This Strategy has been developed to satisfy the requirements of Schedule 5, Condition 1 of Development Approval DA 504-00.

Specific objectives of this document are to:

- Provide a clear description of responsibilities and requirements pertaining to environmental management at Clarence Colliery, to enhance the understanding of all employees and contractors;
- Provide ways to continually monitor compliance with regulatory and legislative requirements;
- Encourage continual improvement of performance regarding the environment and community;
- Provide direction and resources for environmental management;
- Provide direction to relevant environmental training programs for employees;
- Develop and maintain good relations with the community and stakeholders;
- Reduce the risk of incidents and complaints;
- Comply with Centennial Coal's Environment and Community Policy; and
- Comply with the relevant approval requirements, guidelines, standards and legislative requirements applicable to the Clarence Colliery EMS.



LEGEND

- Project Approval Boundary
- Underground Workings
- Major Roads
- Major Waterways
- Railway
- Built-up areas
- State Forest
- National Park

0.0 4.0 8.0 km

Scale: 1:200000
(GDA94) MGA ZONE 56

15.11.2017
630.12188

SITE LAYOUT

1.4. Environmental Management Strategy Context

The Clarence Colliery EMS incorporates four components (refer **Figure 3**):

- Environmental Management Strategy Document;
- Environment and Community Management Standards;
- Environmental Management Plans; and
- Environmental Management and Community Procedures.

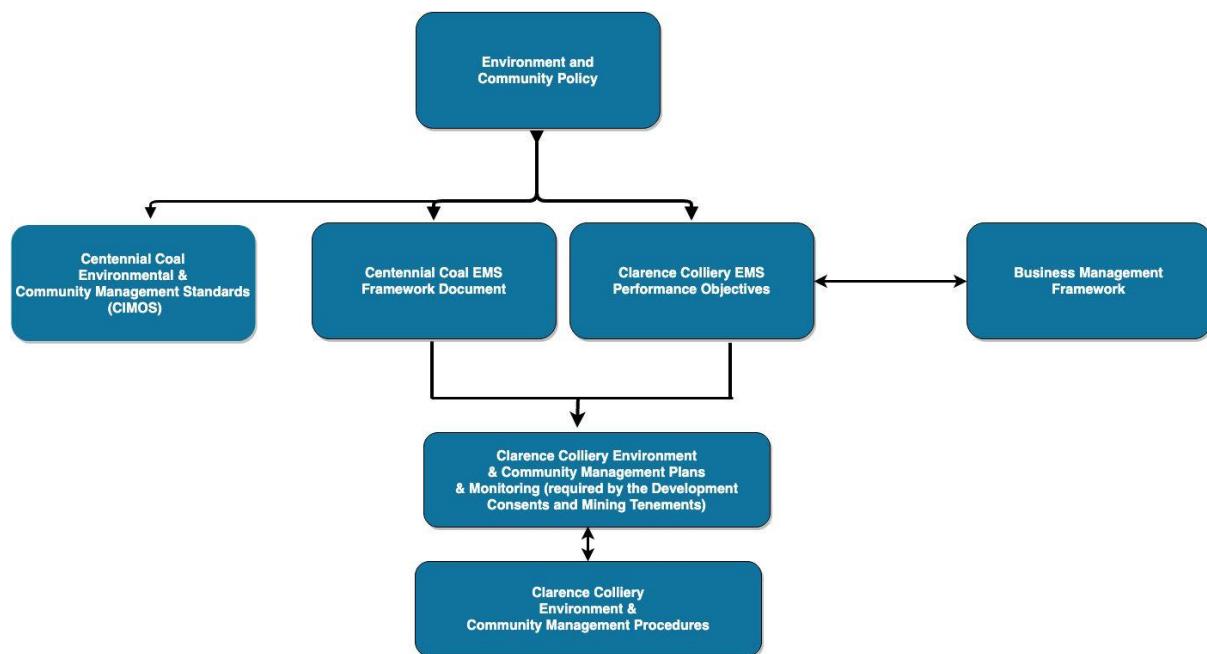


Figure 3 EMS Framework

1.4.1. Environment and Community Management Standards

Centennial Coal has developed and implemented environmental and community standards which are applicable to Clarence Colliery's operations.

1.4.2. Environmental Management Plans

Clarence Colliery's has developed (or are in the process of developing) a number of Environmental Management Plans to facilitate meeting the objectives set in this Strategy. These are listed in **Table 1**.

Table 1 – Management Plans

Management Plan	DA-504-00 Condition	Status
Water Management Plan <ul style="list-style-type: none"> - A Water Balance - An Erosion and Sediment Control - A Surface Water Monitoring Program - A Groundwater Monitoring Program - A Surface and Groundwater Response Plan 	Schedule 3, Condition 6	Dated May 2017
Biodiversity Offset Strategy	Schedule 3, Condition 12A	Incorporated into the <i>Centennial Regional Biodiversity Strategy Western Projects</i> in October 2014 (RPS, 2014) as part of MOD 3 regarding the construction of REA VI.
Air Quality and Greenhouse Gas Management Plan	Schedule 3, Condition 14	Incorporated into the <i>Centennial Western Region Air Quality and Greenhouse Gas Management Plan</i> , dated June 2018
Noise Management Plan	Schedule 3, Condition 16	Incorporated into the <i>Centennial Western Region Noise Management Plan</i> , dated June 2018
Heritage Management Plan	Schedule 3, Condition 30	Incorporated into the <i>Centennial Western Region Western Region - Aboriginal Cultural Heritage Management Plan</i> and dated July 2018.
Environmental Monitoring Program	Schedule 5, Condition 3	Dated May 2017

The environmental management plans listed in **Table 1** are subject to regular review and are therefore subject to change. Any revisions will be submitted for consultation and approval, as required. Updated management plans are provided to Council, relevant agencies and the Community Consultative Committee (CCC), following approval.

Each plan provides the strategy whereby potential impacts are identified, mitigation measures applied and assessment criteria developed to provide an acceptable level of performance.

The environmental management plans are supported by a comprehensive environmental monitoring program. Monitoring results for most environmental monitoring aspects such as water quality discharges and dust monitoring are reported monthly on Centennial's website and on an annual basis in the EPL Annual Return and the Annual Review. The Annual Review is accessible on the website. Further details of the environmental monitoring network are included in **Section 2.2** of this Strategy.

Subsidence Management Plans (SMPs) are prepared separately prior to carrying out mining in the lease extension areas, as required under Schedule 3, Condition 2 of the Development Consent. Further details of Clarence Colliery SMPs are provided in **Section 1.7**.

1.5. Environmental Management and Community Procedures

The Clarence Colliery Procedures have been developed to ensure that effective environmental and community procedures are implemented and adhered to by personnel conducting activities at the mine site.

1.6. Environment and Community Policy

Inherent in the design, operation and management of all of Centennial Coal's operations is the goal of achieving viable mines while maintaining the highest level of environmental performance. Centennial Coal's Environment and Community Policy objectives are achieved by:

- Ongoing implementation of an EMS that integrates environmental management into the business;
- Complying with all statutory requirements as a minimum;
- Recognising stakeholders and maintaining an effective working relationship;
- Ensuring that all employees and contractors are aware of their environmental responsibilities and receive the necessary training;
- Measuring, auditing, reporting environmental performance and implementing improvement actions where needed; and
- Using resources efficiently and minimising waste.

The Policy is communicated to all employees working for or on behalf of the organisation through staff and contractor inductions, and is displayed in the buildings that Clarence Colliery operates from. It is also available on the organisation's intranet.

In addition, the Policy is made available to the public on the Centennial Coal website at: www.centennialcoal.com.au.

Clarence Colliery accepts and has adopted the Centennial Coal Environment and Community Policy, which sets out the Company aims and values applicable to all employees and contractors. The Clarence Colliery Mine Manager, staff and personnel accept and are committed to implementing this Strategy to assist in meeting the Policy objectives. The Policy underpins the Clarence Colliery Environmental Management Plans.

The Environment and Community Policy has been endorsed by the Centennial Coal Board of Directors and the Mine Manager.

1.7. Approval and Licencing Requirements

Clarence Colliery expects that activities at its operations are conducted in accordance with relevant legislation and requirements of statutory authorities. Legislative and regulatory requirements are generally recognised through the imposition of conditions on the development consent, licences or mining approvals.

Clarence Colliery operations will be conducted in accordance with applicable State and Commonwealth environmental, planning, and natural resource legislation. Centennial Coal will maintain a register of relevant environmental legislative and regulatory requirements which will be reviewed and maintained.

1.7.1. Legislation

Key current environmental legislation that applies to Clarence Colliery, its employees and operations are described briefly below.

Environmental Planning and Assessment Act 1979

The provisions of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) determined the planning process for the Extension of the Clarence Underground Coal Mine. Given the scale of the development, it was assessed as a designated development under Schedule 3 of the *Environmental Planning and Assessment Regulation 2000*.

The Minister for Planning declared certain developments to be of State Significance. These developments are important to the NSW community and the Minister's approval is required before they can be built. Consequently, approval for the development was granted by the Minister for Planning on 19 December 2005 with the issuing of Development Consent containing a number of conditions with which the mine must comply during the life of the consent.

Environment Protection and Biodiversity Conservation Act 1999

The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) was introduced to give the Commonwealth greater control and input in development approvals. The main provision of the Act requires that Commonwealth approval be obtained for any actions that are likely to have a significant impact on a matter of National Environmental Significance (NES), in addition to any State approvals.

Primary matters of National Environmental Significance (NES) are:

- Declared World Heritage areas;
- Declared RAMSAR wetlands;
- Listed threatened species and ecological communities;
- Listed migratory species;
- Nuclear actions; and
- The environment of Commonwealth marine areas.

No approvals are currently required under the EPBC Act.

Mining Act 1992

The Mining Act 1992 is administered by the Department of Planning, Industry and Environment – the Resources Regulator (RR), and places controls on methods of exploration and mining, the disposal of mining waste, land rehabilitation and environmental management for mines. A mining lease cannot be granted until Development Consent has been granted under the EP&A Act.

A mining lease entitles Clarence to mine coal from within the lease area, subject to conditions that must be met in relation to environmental management, land rehabilitation and payment of royalties.

Subsidence Management Plans (SMPs) are a condition of the mining lease and are approved under the *Mining Act 1992*.

Protection of the Environment Operations Act 1997

It is under Schedule 1 of the *Protection of the Environment Operations 1997 Act* (POEO Act) that Clarence Colliery holds Environment Protection Licence (EPL) 726 issued by the Environment Protection Authority (EPA). The licence covers air, water, noise and waste emissions and impacts.

It is also under this Act that an entity can be prosecuted for an environmental offence.

Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* is administered by the Office of Environment and Heritage (OEH) for the identification and protection of threatened species, populations and ecological communities in NSW. Under this Act, Clarence Colliery cannot harm, damage or destroy any threatened species, or animal that is part of a threatened ecological community, or a protected animal, without prior approval from OEH.

National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* is administered by the National Parks and Wildlife Service for the conservation of nature, including habitat, ecosystems and ecosystem processes; biological diversity; landforms of significance including geological features and processes; landscapes and natural features of significance including wilderness and wild rivers; and the conservation of objects, places or features of cultural value within the landscape, including places, objects and features of significance to Aboriginal people; and places of social value to the people of NSW.

Under this Act it is illegal to damage, deface or destroy an Aboriginal relic without the written permission of the Director.

1.7.2. Rehabilitation

In terms of overall rehabilitation objectives, the RR requires that all disturbed surface lands be restored to provide a landform largely consistent topographically with the pre-mining landscape. In addition, a general condition relates to the restoration upon completion of operations.

A rehabilitation cost estimate is required for all mining tenement holders in NSW. This closure provision ensures that adequate resources are available to allow the rehabilitation and closure of mines following the cessation of operations.

The various environmental reporting requirements include the preparation of:

- MOPs; and
- Annual Reviews.

MOPs outline the mining and rehabilitation activities that are scheduled to occur generally over a period up to seven years. MOP's are submitted to the RR. The current MOP covers the period 1 January 2018 to 31 October 2022.

An Annual Review is prepared to cover each calendar year. This report is accepted by the RR to satisfy the mining tenement requirement for an Annual Environmental Management Report. The Annual Review assesses environmental performance of the mine against the MOP, the conditions of consent and other licences and approvals relating to the mine. It also includes details of monitoring carried out over the previous 12 month period.

1.7.3. Development Consent

Clarence Colliery currently operates under three development consents:

IRM.GE.76

IRM.GE.76 was approved by the former Blaxland Shire Council in 1976 for the construction of surface infrastructure and mining operations. It was later modified in 1993 by the former Greater

Lithgow County Council to amend the REAs proposed in the original EIS. The Consent was modified again on 6 May 2019 to permit the decommissioning and rehabilitation of REA 3.

174/93

This consent was granted approval in 1994 by the former Greater Lithgow County Council for the extension of underground coal mining and reject disposal areas.

Consent 174/93 was modified on 8 February 2018 to allow relocation of the REA V access and to allow associated vegetation clearing.

504-00

Development Consent DA 504-00 was approved in December 2005 by the then Department of Infrastructure, Planning and Natural Resources to expand operations and covert four mining tenements (EL5072, ALA5, ALA8 and A307) into a new mining lease (ML1583) (refer **Figure 2**). DA 504-00 has since been modified twice (MOD 2, MOD 3), both approved in 2014.

Additional detail pertaining to Clarence Colliery Development Consents is provided in **Table 2**.

Table 2 – Development Consents

Development Consent	Details	Date of Issue	Expiry
IRM.GE.76	Original development consent.	15 June 1976	Perpetuity
	MOD 1 – Amend the REAs.	21 July 1993	
	MOD 2 – REA 3 decommissioning and rehabilitation.	6 May 2019	
174/93	Extension underground coal mining and surface REAs	15 February 1994	Perpetuity
	MOD 1 – Relocation of REA 5 access and associated vegetation clearing.	8 February 2018	
DA504-00	Extension of the Clarence Underground Coal Mine.	19 December 2005	31 December 2026
	MOD 1 – Increased road haulage (withdrawn)	Withdrawn	
	MOD 2 – REA 6	17 June 2014	
	MOD 3 – Road haulage to the west	17 June 2014	

1.7.4. Mining Tenements and Authorisations

The Clarence Colliery holding includes Consolidated Coal Lease (CCL) CCL 705 and mining leases ML 1353, ML 1354, ML 1583 and ML 1721. Clarence Colliery undertake exploration activities in accordance with Exploration Licence (EL) 5072 and Authorisation (AUTH) AUTH 307, AUTH 416 and AUTH 451. Additional details relating to Clarence Colliery mining tenements have been provided in **Table 3**.

Table 3 –Mining Tenements

Name	Grant Date	Expiry Date
CCL 705	20 December 2005	20 December 2026
ML 1353	21 July 2015	21 July 2036
ML 1354	21 July 2015	21 July 2036
ML 1583	9 July 2006	9 July 2027
ML 1721	7 December 2015	7 December 2036
AUTH 307	21 May 2015	24 August 2019
AUTH 416	21 May 2015	24 August 2019
AUTH 451	27 March 2015	24 August 2019
EL 5072	31 July 1996	31 July 2022

1.7.5. Subsidence Management Plan Approvals

Underground mining at Clarence Colliery is undertaken in accordance with approved Subsidence Management Plans (SMPs) which are prepared to satisfy the requirements of relevant mining authorities. Details pertaining to the SMP approvals are provided in **Table 4**.

Table 4 – Subsidence Management Plans

Area	Approval	Description	Issue Date	Expiry Date
900	SMP Approval (Original) CL999	SMP for 900 Area submitted September 2013	22 January 2014	31 January 2023
	SMP Approval Variation 1 CL1076	Variation 1 to: <ul style="list-style-type: none"> Realignment of a roadway for the conveyor belt going in to the 907 Panel; Moving the 903a and 900 panels to the north by one pillar – again for belt installations and ventilation; Removing one heading from the 905 Panel (which was only first workings) to accommodate the 903 and 903a Panels; and Introduction of a bleeder roadway off A Heading on the 903a Panel to allow flood ventilation on extraction. 	7 May 2014	
	SMP Approval Variation 2 CL1164	Variation 2 to: <ul style="list-style-type: none"> Extraction of 901 panel with dual and single spine pillars; The 903 Panel was modified from an eleven heading layout to two single panels inclusive of the 905 Panel (seven heading layout) and the 907 Panel (six heading layout); The 911 Panel was modified from a seven heading panel to a six heading panel, retaining 30m centres; and Pillar dimensions in Panel 905 were modified. 	10 February 2015	

Area	Approval	Description	Issue Date	Expiry Date
	SMP Approval Variation 3 CL1294	<p>Variation 3 to:</p> <ul style="list-style-type: none"> • Remove the east-west oriented panels of 911, 913, 915 and 917 and replace them with north-south oriented panels to be named 911, 913, 915 and 917; • Move the 910 panel to the east to allow for a bleeder roadway off A Heading (enabling flood ventilation) whilst maintaining a minimum 40m barrier; • A name change for the 982 panel, now known as 912 panel; and • Establishment of a set of mains (900 Panel) in an east northeast-west southwest orientation from which panels will be developed. These panels will extend outside of the existing 900 SMP area and will not be extracted before 31 January 2019 (the life of the 900 Area SMP). 	7 June 2016	
	SMP Approval Variation 4 CL1294	SMP variation 4 extended approved mining to 31 January 2023.	25 January 2019	
800	SMP Approval (Original) CL960	SMP 800 Areas submitted November 2011 (originally in conjunction with Area 700W) following addendum.	1 November 2013	30 October 2021
	SMP Approval Variation 1 CL1078	<p>SMP 800 variation 1 to:</p> <ul style="list-style-type: none"> • The replacement of the three Enhanced 5 Heading Flexible Conveyor Train (FCT) panels 804, 806 and 808 with two 7 Heading Shuttle car panels (808 and 806 Panels); • The 6 heading shuttle car panel, 810, was changed to an Enhanced 5 Heading FCT panel; and • The 11 Heading Shuttle car panel, 803, was to be partially extracted on a seven heading shuttle car configuration. 	7 May 2014	
	SMP Approval Variation 2 CL1128	SMP 800 variation 2 to panel 812.	26 September 2015	
	SMP Approval Variation 3 CL1236	SMP 800 variation 3 to panels minor changes to the extraction configuration of panels 814, 816 and 818 and a review of pillar and panel stability in light of an updated geological model.	16 November 2015	
	SMP Approval Variation 4 CL1410_1	<p>SMP 800 variation 4 to:</p> <ul style="list-style-type: none"> • Developing a set of mains to the north off 808 panel (808 Mains) at 38-43 cut through. Two panels will then diverge off the 808 Mains, namely the 804a and the 806a panels, both in an east – west orientation; • Extraction off the 808 Mains; • Reducing the 806 panel to 36 cut through (just outbye of a projected fault); • Reducing the 804 panel to 36 cut through (just outbye of a projected fault); • Addition of the 822 Panel (FCT). • Extension of the SMP Approval to 30th October 2021. 	8 June 2017	

Area	Approval	Description	Issue Date	Expiry Date
	SMP Approval Variation 5	<ul style="list-style-type: none"> Reducing the 818 panel to 24 cut through; Relocation of the 820 panel to the south; Development and extraction of a new panel known as the 819 panel; Modify the 820 panel from a Five Heading Enhanced FCT layout to a Four Heading FCT up to 23 cut through; Development and extraction of the 818 Mains; Development and extraction the 818A panel; 800 South Mains have varied in their orientation; and 822 panel has had to be relocated to the south. 	15 February 2018	
700 West	SMP Approval (Original)	SMP 700W Areas submitted November 2011 (originally in conjunction with Area 800)	18 June 2012	1 June 2021
	SMP Approval Variation 1 CL865	SMP 700 West Variation 1 to: <ul style="list-style-type: none"> Enable extraction of the 716 and 707 Panels that lie within the Lithgow No.2 Notification Area following approval from the Dam Safety Committee; and The addition of 15 cut throughs of extraction, extending the 714 and 716 panels to the north. 	7 August 2012	
	SMP Approval Variation 2 CL911	SMP 700 West Variation 2 to: <ul style="list-style-type: none"> Reduce the length of 714 Panel by some 23 cut throughs due to intersection of geological structure. 	16 October 2012	
	SMP Approval Variation 3 CL969	SMP 700 West Variation 3 to: <ul style="list-style-type: none"> Reduce SMP boundary to align with 900 Area SMP Extraction of 700 Mains. 	18 September 2013	
	SMP Approval Variation 4 CL986	SMP 700 West Variation 4 to: <ul style="list-style-type: none"> Reduce the length of 716 Panel due to intersection of geological structure, aligning with 714 Panel. 	18 September 2013	
	SMP Approval Variation 5 CL986	SMP 700 West Variation 5 to: <ul style="list-style-type: none"> Variation seeking to extend the Period of Approved Mining to the 1 June 2021 submitted on 26 May 2017. 	5 September 2017	

1.7.6. Licences

Details of all licences held by Clarence Colliery are provided in the sections below.

In accordance with the POEO Act, all pollution monitoring data collected as a result of a licence condition will be published.

Environment Protection Licence

Clarence Colliery operates under Environmental Protection Licence (EPL) 726, issued under the *Protection of the Environment Operations Act 1997* (POEO Act). The licence has an anniversary date of 1 January and allows four licenced discharge points (LDPs) and requires three dust monitoring points.

Water Licences

The main extraction licence held by Clarence is WAL 36479 which entitles extraction of 6,623 ML from the Sydney Basin Richmond Water Source and one Surface Authority which authorises

Council's transfer of water from a dam located at Clarence Colliery to Farmers Creek for town water supply.

Clarence Colliery also holds a number of water monitoring bore licences in accordance with Section 115 of the *Water Act 1912* and Water Supply Works approvals issued under the *Water Management Act 2000*.

Clarence Colliery will continue to liaise with DPI Water with regard to future licencing requirements during the MOP term.

Dangerous Goods Licence

Clarence Colliery possesses a Dangerous Goods Licence (NDG020999) for the storage and handling of dangerous chemicals on the premises. Under the Regulation, further notification or renewal to SafeWork NSW is only required for significant changes to the type, quantity and locations of hazardous chemicals within the premises or a change of contact details.

Radiation Management Licence

Radiation Management Licence 5078394 was granted renewal by the Environment Protection Authority (EPA) to extend the expiry date of the licence by a year to 8 February 2020. The renewal was granted in accordance with the *Radiation Control Act 1990* and extends the manufacturers working life for four fixed radiation gauges.

A summary of all licences held by Clarence Colliery is presented in **Table 5**.

Table 5 – Licences

Licence	Date of Issue	Expiry
EPL 726	28 November	1 January*
WAL36479	23 October 2014	Perpetuity
Water supply works – 10WA10715	1 July 2011	18 May 2026
Joint water supply works – 10WA103852	1 July 2011	29 September 2027
10UA103853	1 July 2011	29 September 2027
Water supply works – 10WA118758**	1 July 2013	11 December 2027
Water access licence - 10AL122285	1 July 2018	Perpetuity
Surface Authority 10SA001409	1 July 2011	29 September 2017***
Bore licence 10BL156676	12 May 1995	Perpetuity
Bore Licence 10BL161964	13 August 2003	Perpetuity
Bore Licence 10BL161965	13 August 2003	Perpetuity
Bore Licence 10BL161962	13 August 2003	Perpetuity
Bore Licence 10BL161963	13 August 2003	Perpetuity
Bore Licence 10BL602211	10 December 2007	Perpetuity
Bore Licence 10BL602212	10 December 2007	Perpetuity
Bore Licence 10BL602213	10 December 2007	Perpetuity
Bore Licence 10BL602819	9 March 2009	Perpetuity
Bore Licence 10BL602820	9 March 2009	Perpetuity
Bore Licence 10BL603337	7 September 2009	Perpetuity
Bore Licence 10BL604063	7 June 2010	Perpetuity
Bore Licence 10BL604098	5 July 2010	Perpetuity

Bore Licence 10BL604099	5 July 2010	Perpetuity
Bore Licence 10BL605316	30 January 2013	Perpetuity
Bore licence 10BL605494	12 December 2013	Perpetuity
Dangerous Goods Licence NDG020999	5 March 2015	Perpetuity
Radiation Management Licence 5078394	8 February 2017	8 February 2020

*Anniversary date.

**10BL604765 has been converted to 10WA118758.

**10SA001409 is under renewal.

1.7.7. Other Approvals

Access Agreement

Clarence Colliery also has an access agreement with the State Rail Authority to allow the construction of a road over the Lithgow to Sydney Rail Line. Details of the access agreement are provided in **Table 6**.

Table 6 – Access Agreements

Name	Description	Agreement with	Date of agreement	Expiry Date
Q648-100	Access Agreement with State Rail Authority	State Rail Authority	10 July 1981	Life of loop
PB54303	Level 2 Occupation Permit	Forestry Corporation of NSW	21 December 2012	Renewed Annually
C0003012	Threatened Species Licence	Office of Environment and Heritage	22 September 2017	22 September 2022
C0002449	Section 95(2) Certificate	Office of Environment and Heritage	2 February 2017	2 February 2022

Occupation Permit

Clarence Colliery has formal arrangements with the Forestry Corporation of NSW (FCNSW) in the form of an Occupation Permit (OP). The OP sets out access arrangement to subsidence lines and groundwater monitoring locations on the Newnes Plateau. In addition, the OP details rehabilitation and relinquishment requirements for infrastructure including exploration boreholes.

Threatened Species Licence

Clarence currently holds a Threatened Species Licence under Part 2 of the *Biodiversity Conservation Act 2016* granted on 22 September 2017. The licence allows for installation and operation of a hand augured shallow piezometer for the purpose of groundwater monitoring. The piezometer is located within the Newnes Plateau Shrub Swamp (EEC).

OEH issued Clarence with a Section 95(2) Certificate on 2 February 2017. This Certificate was to confirm that installation of two hand augered shallow piezometers in Paddy's Swamp was not likely to significantly affect threatened species, populations, ecological communities or their habitats and consequently the Proposed Action does not require a licence under the Threatened Species Conservation Act 1995.

2. IMPLEMENTATION

Environmental management at the Clarence Colliery is implemented through a process of identifying and evaluating environmental aspects, potential impacts and developing management measures to avoid minimise and mitigate potential impacts. An inspection and monitoring program is used to assess the effectiveness of environmental management and procedures have been developed to respond to any non-compliances or emergencies.

2.1. Environmental Inspections and Impact Verification

Regular environmental inspections will be undertaken of the pit top, surface infrastructure areas and active mining areas. The purpose of these inspections is to verify that procedures listed in the environmental management plans are being successfully implemented to limit the impact on the environment. They are also important in identifying any areas where environmental works require upgrading, and are pro-active in detecting and preventing potential environmental non-compliances and incidents.

Inspections include:

- Routine water management, dust management and reject emplacement area inspections;
- Inspections for all water management and sediment control structures following heavy rainfall events
- Routine inspections of coal handling areas, reject emplacement areas, washery, storage areas and rehabilitation areas; and
- Flora and fauna inspections of areas potentially impacted by subsidence in accordance with subsidence monitoring programs.

Any non-conformances identified shall be investigated and reported in the Environment and Community Database (ECD).

2.2. Environmental Monitoring

In order to verify the degree of impact the operation is having on the environment and the success of mitigation measures employed, a detailed monitoring program covers all Clarence Colliery operations. Details of the monitoring program including water, noise and dust are contained in a separate document titled “Clarence Colliery – Environmental Monitoring Program”. A summary of the monitoring program is as follows:

2.2.1. Surface Water

Monitoring of these locations include dams, lagoons, creeks and rivers. Discharges from the site occur in accordance with the current EPL 726. Clarence currently has four LDPs.

The monitoring program is reviewed on a regular basis and at each stage of the development to ensure that mine management, government authorities and the local community are provided with a complete and accurate picture of the environmental effects and emission from the mine. Regular review of the effectiveness of the monitoring will allow Clarence Colliery to expand or alter the monitoring program as required.

2.2.2. Potable Water Monitoring

Monitoring of both potable and wastewater systems (effluent) is undertaken monthly.

2.2.3. Groundwater Monitoring

A comprehensive groundwater monitoring program is used to monitor the potential impacts on both groundwater base flow and surface water flows in water bodies above the mine. These flows are critical to the protection of upland swamps and wetlands, and supply a source of bore water to the residents of Clarence Village.

Groundwater monitoring includes the following geological formations:

- Banks Wall Sandstone;
- Burra-Moko Head Sandstone;
- Caley Formation; and
- Katoomba Coal Seam.

The groundwater monitoring program consists of:

- Groundwater level monitoring;
- Groundwater quality monitoring;
- Underground water transfer monitoring; and
- Stygofauna monitoring.

Groundwater levels are monitored via vibrating wire piezometers (VWPs) and standpipes, with groundwater levels recorded every three hours and data downloaded every two months. Groundwater quality is collected y at selected standpipes of Clarence Colliery's groundwater monitoring network.

Underground water transfers from Fire Tanks to underground workings and underground storage to WTP is also undertaken.

Monitoring for stygofauna also occurs biannually in spring and autumn, from a single groundwater bore. This monitoring program includes measurement of groundwater quality parameters and sampling of groundwater bores and identification of stygofauna.

Further details regarding the groundwater monitoring program are provided in Clarence Colliery's Water Management Plan.

2.2.4. Other Water Monitoring

Other water monitoring undertaken at Clarence Colliery:

- Wastewater monitoring; and
- Stream health monitoring.

Details of these monitoring programs are provided in the Clarence Colliery Water Management Plan.

2.2.5. Air Quality Monitoring

Three dust deposition gauges have been established around the site. These gauges are collected on a monthly basis. In addition, co-located Total Suspended Particulates (TSP) and Particulate Matter (PM₁₀) monitors operate over two months of the calendar year.

The air quality monitoring will measure any potential impact on nearby residences from operations at Clarence Colliery.

A weather station has been installed on site. Data on wind speed and direction, temperature (including sigma theta) and rainfall are recorded. This data can then be compared with air quality monitoring results to determine any trends and contributions from site activities or other surrounding land uses.

2.2.6. Noise Monitoring

Clarence Colliery is required by EPL 726 and DA 504-00 to undertake annual noise monitoring to evaluate compliance with the prescribed noise levels.

Monitoring is undertaken at an approved monitoring point between the project site and the sensitive receptors of Newnes. Any exceedance of the assessment criteria or receipt of a noise complaint will trigger further monitoring.

2.2.7. Flora and Fauna Monitoring

Flora and fauna monitoring is undertaken at Clarence Colliery pursuant to SMPs, Section 91 licence. Flora and fauna surveys are undertaken on a seasonal basis at numerous sites in the area, including control sites on the Newness Plateau.

2.3. Environmental Non-Compliance and Emergency Procedures

There are five incident (non-compliance) categories, each having a different response. These are: Incident (Low), Technical (Minor), Reportable (Moderate), Offence (Significant) and Prosecution (Major).

An Incident (Minor) refers to an incident on site only within the limits of the approved control systems where there is no environmental harm and little need for remediation. These are reported internally only. A Technical (Minor) incident includes a licence/approval/standard exceedance or non-compliance, one-off complaint or minor matter with no ecological damage (e.g. minor spill). These incidents and higher level incidents are reported in accordance with the relevant licence/approval/standard and in accordance with the Centennial Environmental Incident Reporting Guidelines. These incidents (non-compliances) are also logged and managed using Centennial's internal incident reporting system, ECD.

Should the monitoring program detect an exceedance in licence or Development Consent criteria but there is no actual or potential material harm to the environment the non-compliances are reported in the Annual Review, EPL Annual Returns and to relevant agencies as appropriate.

Emergency response regarding a pollution incident at Clarence will be completed as per the Pollution Incident Response Management Plan (PIRMP). The specific requirements for a PIRMP are set out in Part 5.7A of the POEO Act and the Protection of the Environment Operations (General) Regulation 2009 (POEO (G) Regulation).

Should an incident occur that has or is likely to cause 'material harm to the environment', as defined in Section 147 of the POEO Act, the incident must be verbally reported immediately to all Appropriate Regulatory Authorities (ARAs). A written report to the EPA is to be provided within 7 days of the date on which the incident occurred. Where an incident may give rise to a public danger, then State Emergency Services will be notified and any directives followed.

Clarence has also developed a site Emergency Management System as part of the Safety Management System. The Emergency Management System ensures that an effective response is initiated to minimise any potential environmental impact should the unlikely event of an environmental emergency occur. In addition, Clarence will ensure that all employees and contractors at the mine are aware of the Emergency Management System through inductions, training and toolbox talks.

2.4. Cumulative Impact Assessment

Surrounding land uses include former coal mines including the Blue Mountains Colliery to the southwest of the Pit Top, an approved but yet to commence sand quarry to the east of the Pit Top (the Kaolin Sands project), the Hanson Quarry (located to the north west) and conservation reserve to the east (in the Blue Mountains National Park). Other land uses include housing, public roadways and rail. While each of these individual entities may themselves comply with environmental standards and legislation, the combined effects of these operations may result in environmental limits and criteria being exceeded at surrounding properties.

In order to deal with such cumulative impacts, Clarence Colliery will undertake monitoring in the surrounding area and analyse the data for trends in dust deposition and correlate them with weather data to determine and quantify where possible, contributions from other dust generators. In the event that the cumulative impact is unacceptable, discussions will be arranged with other dust generators to produce a combined effort to reduce the overall dust impact on the surrounding environment.

Similarly, noise monitoring will be undertaken to identify noise sources in the local area, other than Clarence Colliery, and their contribution to background noise levels. Clarence Colliery will try to collaborate with other proponents, including attendance at the CCC meetings held at Clarence.

Water monitoring is based around the measurement of groundwater levels above areas potentially affected by mining. Any measured impact will actually be a cumulative impact and include any influence from surrounding industries.

3. ENVIRONMENTAL MANAGEMENT

3.1. Structure and Responsibility

The Group Manager Environment has the responsibility and appropriate authority to:

- Ensure that EMS requirements are established, implemented and maintained in accordance with relevant consent requirements;
- Report on the performance of the EMS to senior management for review and as a basis for improvement of the system; and
- Update personnel regarding changes in environmental legislation, policy and guidelines; and
- Notify Clarence Colliery management and other relevant staff of changes that may significantly affect the operations.

3.1.1. Position Responsibilities

Each employee and contractor and visitors are responsible for adhering to the Centennial Coal Environment and Community Policy. Whilst the obligation of complying with the Environment and Community Policy lies with the entire workforce, further environmental management responsibilities are considered as part of the normal functions of some positions, relevant to the Strategy are described as follows:

Mine Manager

- Authorisation of the EMS;
- Responsible for approving environmental and community objectives and targets set in the Clarence Colliery Annual Strategic Plan;
- Reporting significant environmental incidents to external stakeholders as required;
- Promoting compliance with the Environment and Community Policy and fulfilling relevant requirements of the EMS;
- Compliance with the conditions of EPL 726, Development Approval DA 504-00, mining tenements and mining approvals;
- Delegation of resources to ensure environmental risk mitigation strategies are implemented; and
- Delegation of duties during the absence of the Environment and Community Coordinator.

Mine Superintendents

- Maintaining the highest possible environmental standards within their designated areas of responsibility;
- Make use of all identified resources are available to prevent or reduce environmental risks; and
- Immediately reporting environmental incidents and non-compliances to the Environment and Community Coordinator.

Environment & Community Coordinator

- Encourage or drive compliance with the Centennial Coal Environment and Community Policy;
- Reporting of environmental incidents as required to external stakeholders;
- Development and implementation of environmental strategies, plans, and procedures;
- Undertake regulatory and community consultation;
- Registration of community complaints and regulatory liaison in the ECD;
- Development and implementation of environmental work procedures;
- Development and implementation of environmental training and inductions;
- Auditing the effectiveness of the EMS;
- Compliance with all licences and approvals for environmental management of the site;
- Monitor subsidence impacts in accordance with the EMS, SMPs and Procedures; and
- Maintain the ECD.

Employees and Contractors

- Compliance with the Centennial Coal Environment and Community Policy, standards and procedures;
- Immediately reporting of environmental incidents and community complaints or enquiries to the Environment and Community Coordinator;
- Conducting operations in compliance with Clarence environmental management plans and procedures; and
- Identifying and implementing appropriate controls for environmental risks from any risk assessments and job safety analysis and communicating these with responsible staff.

HSEC Committee

- Promoting environmental awareness within the workforce and contractors; and
- Raising environmental issues and programs that will improve compliance with the Centennial Coal Environment and Community Policy, standards and procedures at committee meetings for appropriate staff to consider.

Delegation of roles or responsibilities may be determined by the Mine Manager at any time.

3.2. Reporting

3.2.1. Annual Review

In accordance with the requirements of Schedule 5, Condition 5 of Development Approval DA 504-004 Clarence Colliery will prepare an Annual Review which is accepted by the RR as satisfying the requirement for an Annual Environmental Management Report (AEMR). The Annual Review will be completed in accordance with the *Annual Review Guideline – Post-approval Requirements for State Significant Mining Developments* (NSW Government, 2015).

This report will be made available on the Centennial Coal website.

3.2.2. Annual Return

An Annual Return stating the sites compliance with the conditions of EPL 726 is completed and submitted to the EPA on an annual basis. This is completed by the due date as stated in the EPL.

3.2.3. Monthly Website Environmental Monitoring Report

Monitoring results are published on the Centennial Coal website on a monthly basis. This is to satisfy the requirements under the POEO Act which requires pollution monitoring data to be made available to members of the public. This report also satisfies the requirement of Schedule 5, Condition 12 which requires a summary of all monitoring results to be made available on the website.

3.2.4. Community Consultative Committee

In accordance with the requirements of Schedule 5, Condition 9 of DA-504-00, a CCC has been established to monitor the operations and provide a forum whereby the community can communicate with Clarence Colliery and be kept up to date with the progress of the mine.

The CCC comprises of:

- An independent chairperson;
- Two representatives from Centennial Coal, including the Environment and Community Coordinator;
- One representative from Council; and
- At least three representatives from the local community.

The appointment of the committee members were approved by the DPIE, in consultation with Council. The first meeting of the CCC was held on 5 June 2006.

3.3. Community Consultation

Clarence Colliery is aware of its community obligations and the importance of open communication with the community. During the MOP term Clarence Colliery will endeavour to keep the local community affected by its operation informed of its direction, plans and environmental performance. This will be achieved by the following activities:

- The Community Consultative Committee (CCC);
- Participation in local Shows;
- Distribution of letters;
- Local newspapers;
- The Centennial Coal website;
- Engaging in informal discussions with local residents as required; and
- Consultation with Council, DPIE, EPA, OEH etc on a as needs basis.

A complaints line currently exists at Clarence Colliery to receive calls from the local community. The complaints line (02 6353 8039) operates 24 hours a day, 7 days a week. The phone number is listed in the local directory for easy access and all residents are encouraged to contact the site regarding any issue of concern.

A Complaint register is maintained and available Clarence Colliery website.

3.4. Environmental Training

All Clarence Colliery employees and contractors will be inducted prior to commencing work on site. The environmental component of the employee induction includes:

- The importance of the Centennial Coal Environment and Community Policy;
- Relevant regulatory requirements;
- An overview of the Centennial Coal EMS framework;
- Roles and responsibilities;
- Significant environmental aspects, impacts and consequences; and
- Environmental procedures.

Visitors to Clarence Colliery operations will undertake a brief visitor induction, with an awareness section on key environment components.

Environment and community information is also communicated via site specific environmental and community awareness training. Awareness of environment and community will also be raised in site meetings and inspections.

General EMS awareness is assessed following the induction and refresher sessions, and records of assessment are maintained on site.

3.4.1. Environment and Community Awareness Training

Information will provided on an as needed basis and will include relevant knowledge and skills to manage environment and community issues within an individual's area of responsibility (work scope) including the following:

- Describing the Environment and Community Policy, and also the environmental expectations of Clarence Colliery;
- Eliminate practices that may result in poor environmental performance by building the environmental capacity of employees;
- Improve application of existing procedures to improve environmental performance;
- Highlight individual/job role responsibilities;
- Improve environmental decision making and problem solving skills; and
- Reduce environmental risk.

The method of delivering the information is varied and may include Toolbox talks or face to face meetings/discussion with relevant personnel.

3.4.2. Targeted Environmental Training

Targeted environmental training of key staff, workforce and contractors in environmental procedures and programs will also be conducted as specified but not limited to the Clarence Colliery business plan. Specific environmental training may be delivered in the form of toolbox talks, training and assessment packages, and accredited training programs to update personnel regarding the Clarence Colliery procedures and environmental programs.

3.4.3. Environmental Training Competence

The Clarence Colliery induction and environmental awareness training incorporates a section to assess the competency of employees and contractors against environmental requirements.

3.5. Continual Improvement

Continual improvement shall be achieved through monitoring, internal and external communication with stakeholders, implementation of corrective and preventative actions, and through monitoring progress against the objectives included in the environmental management plans.

3.6. Complaints Handling and Disputed Issues

EPL 726 Condition M5.1, M5.2 and M5.3 outline the requirement for the operation of a telephone complaints line. The line must operate during operating hours for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by vehicle's or mobile plant.

A 24 hour complaints line exists at the mine to receive calls from the local community. The phone number is listed in the local directory. All complaints are logged on a complaints form which includes the following details:

- Date and time of the complaint;
- Complainant details;
- Details of the issue or complaint;
- Actions taken to remediate the issue;
- Follow up actions required;
- Details of further liaison with complainant; and
- Closure of the issue.

All complaints lodged go to the site Environment & Community Coordinator.

If a community member is not satisfied with the actions undertaken as a result of a complaint as described above, then disputes will be resolved in accordance with the disputes resolution procedure in Figure 4. It should be noted that there have only been a few isolated complaints received by Clarence Colliery, there have been no disputed issues nor outstanding issues requiring resolution.

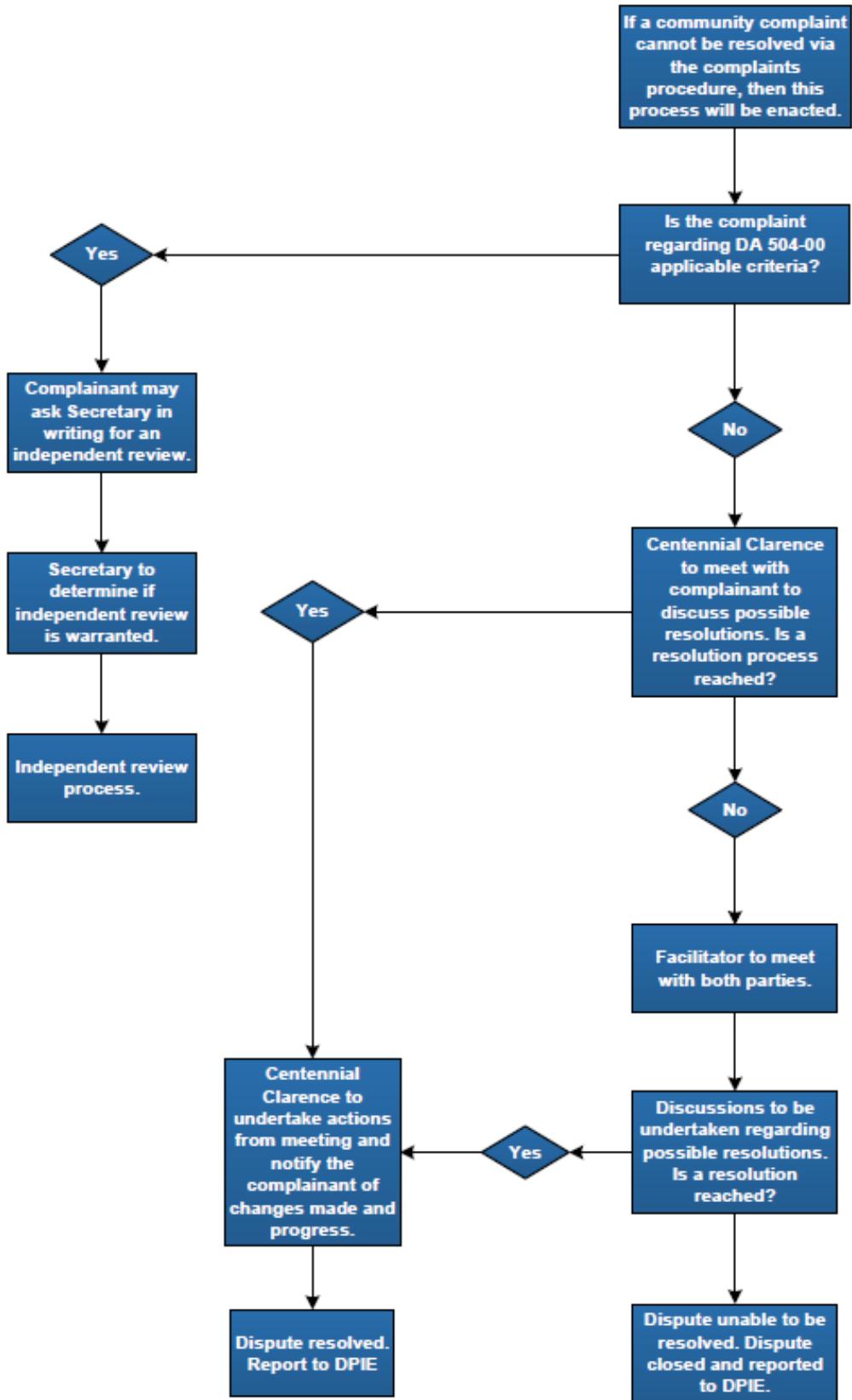


Figure 4 Dispute Resolution procedure

4. REVIEW

4.1. Environmental Auditing

External audits of the implementation of and compliance with the EMS will be conducted in accordance with Schedule 5, Condition 1 of DA 504-00.

4.2. Corrective Action

Non-compliances may become evident as a result of inspections, monitoring, through audit findings or complaints. Non-compliances identified shall be investigated and consider:

- (i) The cause of the non-conformance;
- (ii) A review of existing controls to identify modifications required to avoid repetition of the non-conformance; and
- (iii) Identification of the appropriate corrective or preventative action.

Non-compliances will be reported internally and externally to the relevant authorities as per the *Centennial Coal Management Standard 012 External Environmental Reporting* and in accordance with the PIRMP. Non-compliances during the reporting period will be outlined within the Annual Review.

4.3. EMS Review

Revisions of the EMS are to be organized by the site Environment and Community Coordinator (or a suitable delegate as directed by the Mine Manager) and will be approved by the Mine Manager. The revision status is contained in the document control table at the beginning of the Strategy.

The outcomes of a review will be documented by updating sections of these documents where required and revisions incorporated into the EMS for approval by the Mine Manager. Revised documents will be approved by the Mine Manager.

In accordance with the requirements of Schedule 5, Condition 1 of Development Approval DA 504-004, Clarence Colliery will review this Strategy (and associated environmental management plans) within three months of each Independent Environmental Audit.

If required, the Strategy (and relevant associated environmental management plans) will be modified to address evolving site conditions, latent conditions and/or changes to the proposed operations.

Following amendments a copy of the revised Strategy will be provided to the DPIE for approval.