



Planning,
Industry &
Environment

WHS undertaking

Undertaking to the Secretary,
Department of Planning, Industry and Environment
given for the purposes of Part 11 of the *Work Health and Safety Act 2011*

by

Clarence Coal Pty Ltd

ACN 083 465 212

ABN 53083465212

Purpose

The purpose of this WHS undertaking is to document the undertaking given to the **regulator**, the Secretary of the Department of Planning, Industry and Environment, for the purposes of Part 11 of the *Work Health and Safety Act 2011 (WHS Act)* in connection with a matter relating to a contravention or alleged contravention by the person of the WHS Act.

Section A - general information

1. details of the company or individual proposing the undertaking

Name of Company or Individual	Clarence Coal Pty Ltd	
Registered address	[REDACTED]	
Mailing address (if different from above)		
Telephone	[REDACTED]	
Email address	[REDACTED]	
Legal Structure	Australian Proprietary company, limited by shares	
Type of business	Coal mine operator of the Clarence Colliery	
Commencement date of the entity	20 July 1998	
Workers	Full time 274	Other 20
Products and services	Coal	
Comments		

2.

It is alleged that on 4 July 2018, Clarence Coal, being a person conducting a business or undertaking at the Clarence Colliery at Clarence, NSW (the **Mine**), failed to discharge its obligations under section 19(1) of the *Work Health and Safety Act 2011 (NSW)* (the **WHS Act**) to ensure, so far as is reasonably practicable, the health and safety of workers at the Mine while the workers were at work in the business or undertaking conducted by Clarence Coal.

3. Details of the events surrounding the alleged contravention, e.g. incident details

On 4 July 2018, two workers, employed by Clarence Coal as operators, were tramming the continuous miner to the face in the drive of the 806A panel. During the tramming, the workers were using the continuous miner to clean up loose coal and/or trim the floor. One worker was operating the continuous miner and the other was undertaking the role of cable hand.

The continuous miner was shut down so that the workers could assist a shuttle car operator to replace brattice that had fallen down. Upon re-starting the continuous miner, pieces of rib spall struck the operators (**Incident**). The piece of rib coal that struck the continuous miner operator was approximately 1 metre by 0.5 metre in size and weighed approximately 750 Kg.

4. An acknowledgement that the regulator alleged a contravention has occurred

It is acknowledged that the Resources Regulator has alleged that Clarence Coal contravened the WHS Act in respect of the Incident.

5. The details of any injury that arose from the alleged contravention



6. The details of any enforcement notices issued that relate to the alleged contravention

Notices received:

 Yes (provide details) No

Date issued	Notice type	Notice number	Contravention	Action taken to respond to notice
4 July 2018	Section 198	180704DJM	Non-disturbance of scene	Complied with directions in notice.
5 July 2018	Section 198	180705DJM	Non-disturbance of scene	Complied with directions in notice.
5 July 2018	Section 195	N195-2018/00167	Prohibition of activity	Complied with directions in notice.
5 July 2018	Section 191	N191-2018/00435	Comply with directions: 1. develop a system for classifying the roads according to condition of the roads. 2. map the roads to that system. 3. develop a plan for prioritising the road works. 4. develop an action plan for the road works that includes required resources, expected resources and timings for the work. 5. implement action plan.	Complied with directions in notice.
18 July 2018	Section 191	N191-2018/00465	Comply with directions: 1. carry out a full review of the rib support system. 2. investigate the use of cuttable rib supports for use where secondary extraction is planned and where intersections are to be formed.	Complied with directions in notice.
24 July 2018	Section 155	180724-AT001	Notice to give information to the Department of Planning and Environment (the Resources Regulator)	Information provided as requested.
9 April 2019	Section 155	190409-AT001	Notice to give information to the Department of Planning and Environment (the Resources Regulator)	Information provided as requested.
9 April 2019	Section 155	190409-AT002	Notice to give information to the Department of Planning and Environment (the Resources Regulator)	Information provided as requested.
22 May 2019	Section 155	190522-AT001	Notice to give information to the Department of Planning and Environment (the Resources Regulator)	Information provided as requested.

9. The details of any existing safety management systems at the workplace including the level of auditing currently undertaken

Clarence Coal's Safety Management System (**SMS**) is a cohesive and comprehensive framework for the management of health and safety risks at the Mine. The SMS is an integration of documented plans, policies and procedures which are required to control the health and safety risks arising in the surface and underground operations at the Mine.

These plans, policies and procedures are built to meet the requirements of the WHS Mines Act, the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014* (NSW), the WHS Act and the *Work Health and Safety Regulation 2017* (NSW). They also align with *AS4801:2001 Occupational Health and Safety Management Systems - Specification with guidance for use*, *AS4804:2001 Occupational Health and Safety Management Systems - General guidelines on principles, systems and supporting techniques* and *AS/NZS ISO 31000:2009 Risk Management - Principles and guidelines*.

Clarence Coal recognises that for a SMS to be effective there needs to be appropriate checks and balances in place. This requirement stems from Clarence Coal's Health/Safety/Environment/Community (**HSEC**) Standards, in particular, the Audit, Review and Management HSEC Standard.

The SMS itself provides additional audit mechanisms, the key mechanisms including:

- The periodic review of the Mine Strata Failure Management Plan (**MSFMP**) to ensure that its suitability, adequacy and effectiveness is maintained;
- Weekly strata audits and panel inspections conducted by the Mine's under managers;
- Geotechnical survey and mapping of all roadways in production and subsequent extraction panels by site Geotechnical Engineer / Geologist
- Peer review of all Geotech survey and mapping by external Geotechnical Engineer
- Weekly Strata Meetings held by Technical Services;
- Inspections undertaken by deputies including their supervision of workers;
- Workplace inspections. Workplace inspection schedules are set out in the Business Management Framework (**BMF**). While Clarence Coal's culture is 'open door' the workplace inspections provide the Mine's management team with additional opportunities to engage with production and maintenance crews;
- Planned Task Observations (**PTOs**). The BMF identifies a focus for each PTO. The PTOs provide an opportunity for supervisors to reinforce safety elements in key areas of the Mine's operation;
- The review and consideration of previous shift reports / panel conditions;
- Daily HSEC Meetings;
- Modelling and data collection of the existing rib behaviour (geotechnical);
- The rostering of a Site Safety Health Representative to work an additional two shifts per week to undertake site inspections of the Mine and report any concerns to the Mine Manager;
- Compiling Monthly Operations Reports. Clarence Coal's Monthly Operations Reports capture leading and lagging safety indicators. Lag safety indicators are presented as graphs, assisting in the identification of any emerging trends. A summary is provided of any incidents including steps taken to prevent a recurrence. This provides transparency and accountability in

relation to any incidents that occur.

Prior to the Incident, Clarence Coal, through its risk assessments managed by the SMS, determined that ribs in development roads were not required to be meshed for every condition. Instead, due to the geological environment of the Mine and the use of the bord

and pillar mining method, it was determined, following the advice of geological experts, that meshing would occur in accordance with Trigger Action Response Plans (**TARPs**).

The decision to use TARPs to determine when meshing was required was an outcome of detailed risk assessments, geotechnical reviews (undertaken by mining consultants with extensive experience), consultation with mine safety experts and consultation with the workforce. The TARPs provided trigger levels and support responses for the roadways to be supported, based on roadway design and geological prediction and assessment. Standards and Safe Work Procedures sit behind the TARPs and provide safe methods to undertake the tasks required by the TARPs.

Sitting above the TARPs is the MSFMP. The MSFMP provides the framework for Clarence Coal to interrogate and manage risks associated with ground or strata failure. Performance indicators such as results from strata audits and statutory reports are reviewed to measure the success of the implementation of the MSFMP. The MSFMP is periodically reviewed by Clarence Coal to ensure its suitability, adequacy and effectiveness is maintained.

Clarence Coal recognises that procedures, including TARPs, are only useful if workers have been trained in them. Clarence Coal delivered extensive training on the principles of strata behaviour including roof and rib strata and specific conditions associated with the Mine. This training package was delivered to the entire Clarence Coal workforce between September 2016 and March 2017. The training was delivered in small groups with no more than 7 participants per group.

The TARP 1232 was introduced on 14 February 2017 (**TARP 1232**). TARP 1232 sets the design and minimum level of roof and rib support to be installed according to strata conditions. TARP 1232 is prescriptive and provides a systematic approach to applying the appropriate level of support for ribs. For example, TARP 1232 identifies additional controls for "poor strata" and requires rib support of 1.2m (min) wide mesh installed no greater than 300mm from the roof bolted in a 1m W bolt pattern (CL891, CL892);

The TARP 3515 was introduced on 28 May 2018 (**TARP 3515**). TARP 3515 set out an escalation of steps to specifically manage the rib conditions. TARP 3515 supplements TARP 1232 and is required to be read with Support Rules CL891 and CL892. It enables identification and categorisation of rib conditions using photographic examples. If the ribs were unable to be managed in accordance with TARP 3515 then mining operations were required to cease and the area was closed as "No Road." Notwithstanding the steps of escalation in the TARPs, there was nothing to prevent anyone from installing more support as deemed necessary.

A Strata Card, which provides an immediate summary of strata conditions and recommended TARP controls, was handed to all underground workers during 2017. Clarence Coal recognised that the Strata Card needed to be accessible for workers. As such, the Strata Card was designed to fit into the back pocket of the SLAM booklet. This ensured that strata triggers were available to workers at all times to allow the workers to assess the conditions and apply the appropriate controls.

There were a number of checks and balances in place to verify that the TARPs were effective. These included:

- Inspections undertaken by deputies including their supervision of workers;
- Weekly strata audits and panel inspections conducted by the under managers;
- Weekly Strata Meetings held by Technical Services;
- Weekly roadway compliance checks completed by Mine Surveyors;

- Workplace inspections. Workplace inspection schedules are set out in the BMF. While Clarence Coal's culture is 'open door' the workplace inspections provide the Mine's management team with additional opportunities to engage with production and maintenance crews;
- PTOs. The BMF identifies a focus for each PTO. An example of a focus is persons working around moving equipment (no go zones). The PTOs provide an opportunity for supervisors to reinforce safety elements in key areas of the Mine's operation;
- Review and consideration of previous shift reports / panel conditions;
- Start-up meetings including the review of the shift's task hazards;
- Daily HSEC Meetings;
- Prior to the extraction cycle detailed mapping was completed and assessed for compliance against the TARP with a plan of remedial work developed
- Modelling and data collection of the existing rib behaviour (geotechnical);
- Monthly Operations Reports. Clarence Coal's Monthly Operations Reports capture leading and lagging safety indicators. Lag safety indicators are presented as graphs, assisting in the identification of any emerging trends. A summary is provided of any incidents including steps taken to prevent a recurrence. This provides transparency and accountability in relation to any incidents that occur.

Following the Incident, the Mine consulted and undertook an extensive consultation and feedback initiative. As part of this an extensive risk assessment was conducted which determined to adopt a process of systematic rib support in all production areas. Initially, this system involved using steel mesh and 1.2m chemically anchored bolts. The system then evolved into use of light gauge steel mesh and 1.2m mechanically anchored rib bolts. Several methods were trialled along the journey including cuttable mesh and bolt products but these products did not give the same levels of hazard control as steel mesh and bolts and in some cases increased the level of risk associated with installation. Specific details about the changes made following the Incident are set out at section 12.

Further, the need to remove rib strata support to allow for extraction has created additional risks for operators when adjacent to the ribs. This work process is being continuously reviewed to seek additional reasonably practicable controls that are suitable for the mine conditions.

10. The details of any consultation undertaken within the workplace regarding the proposal of a WHS undertaking (including workers and work health and safety representatives)

The Mine Manager issued a memorandum to all workers at the Mine advising that Clarence Coal is proposing to enter into a WHS Undertaking in relation to the Incident. The memorandum requested that the workers consider and provide any ideas they have for initiatives that could be included in the WHS Undertaking. The memorandum requested that all ideas be provided to be returned through the HSEC suggestions process and would be assessed by the WHS Undertaking Committee, which includes the Site Health and Safety Representative.

An undermanager provided feedback on undertaking virtual reality training. This has been adopted at the VRFR Program.

Clarence Coal also consulted with the Site Safety and Health Representative CFMEU about the projects and the representative is supportive of them.

11. A statement of regret that the incident occurred (ie not an admission of guilt)

Clarence Coal regrets that the Incident occurred.

12. Any rectifications made as a result of the alleged contravention:

Immediately following the Incident all production was ceased for a period of time. The Mine consulted and adopted an inclusive consultation and feedback initiative. As part of this an extensive risk assessment was conducted which determined to adopt a process of systematic rib support in all production areas. Initially, this system involved using steel mesh and 1.2m chemically anchored bolts, as per the mines existing rib support process.. The system then evolved into the use of light gauge steel mesh and 1.2m mechanically anchored rib bolts.

Several methods were trialled along the journey including cuttable mesh and bolt products but these products did not give the same levels of hazard control as steel mesh and bolts and in some cases increased the level of risk associated with installation. The steps included:

- Undertaking an extensive consultation and risk assessment, which followed the risk assessment guidelines, which included operators, technical and safety experts and mine management to assess the appropriate risk controls for rib stabilisation in development;
- Installed rib mesh and bolts at the face area as part of the mining process using the existing Joy Multibolters;
- Installed rib mesh and rib bolts in any areas where secondary extraction was taking place. This was achieved by using either the Joy Multibolter, QDS Bolter or RUS Airtrack Bolter; and
- The mine continued assessing suitable controls for the rib stabilization.

Subsequent to the above rectifications, the Mine sought to identify further safety innovations by undertaking further consultation with its workforce. The goal was to reduce manual handling risks, improve operator ergonomics and reduce operators' exposure to unsupported rib.

The following innovations resulted (photographs **attached**):

- Mechanical Rib Bolts – (sourced through DSI International) common rock bolts used in the hard rock industry;
- Light Weight Rib Mesh – (sourced through DSI International) trialled, by using Clarence Coal's own test roadway applying loads to simulate rib failure;
- Cocky Beak – Polyurethane extension bolted to the top of the drill rig to assist operators to balance the rib sheet during installation;
- Free Standing Rig Control Cabinets - upgraded to multibolters to allow the outsiders to lay over to rib bolt with controls in free standing cabinet: and
- Undertook an engineering assessment at another location where a mock underground roadway was constructed to assist in understanding the mechanical and support methods required to contain the Clarence rib conditions.

Several other initiatives were also implemented that related to workers' health and safety including the introduction of:

- Ethos Health (Pre-work warm up and injury prevention program); and
- Mental Health Movement (Mental Health Awareness and Education). Both of these programs were in place through 2019 and will continue through 2020.

Since July 2018, the total amount Clarence Coal has spent on the purchase of additional bolting equipment, modifications and upgrades of bolting equipment is \$5 million. Clarence Coal is planning to spend a further \$1 million on bolting equipment upgrades during 2020.

Between mid July 2018 and October 2019 Clarence Coal incurred additional operating expenditure of \$2.92 million since adopting systematic rib support installation in face areas.

13. An acknowledgement that the WHS undertaking may be published and publicised

Clarence Coal acknowledges that the undertaking will be published on the regulator's website and may be referenced in NSW Resources Regulator material.

Clarence Coal acknowledges that the undertaking may be publicised in newspapers or other publications (where applicable, as specified in Section B – enforceable terms).

14. A statement of ability to comply with the terms of the undertaking

Clarence Coal has the financial ability to comply with the terms of this WHS undertaking and can provide evidence with this undertaking to support this declaration.

15. Statement regarding relationships with beneficiaries

There are no known current relationships with any of the beneficiaries outlined in the enforceable undertaking, other than current employees and contractors of Clarence Coal and the broader coal mining community.

16. Intellectual property licence

Clarence Coal grants the regulator a permanent, irrevocable, royalty-free, world-wide, non-exclusive licence to use, reproduce, publish, distribute, electronically transmit, electronically distribute, adapt and modify any materials developed as a result of this WHS undertaking.

17. The company or individual may be required to provide information of any prior work health and safety convictions

The regulator requests a list outlining details of any prior work health and safety convictions or findings of guilt under work health and safety legislation² or work health and safety related legislation.

Does Clarence Coal have any such prior convictions or findings?

Yes No

² Subject to any local legal constraints such as spent conviction legislation.

The list is attached (if applicable)

Yes No

18. A commitment to participate constructively in all compliance monitoring activities of the undertaking

Clarence Coal acknowledges that responsibility for demonstrating compliance with this WHS undertaking rests with the organisations who have given this WHS undertaking. Evidence to demonstrate compliance with the terms will be provided to the regulator by the due date for the term.

Clarence Coal acknowledges that the regulator may undertake other compliance monitoring activities to verify the evidence that is provided and compliance with the relevant terms of this WHS undertaking.

The evidence provided to demonstrate compliance with the WHS undertaking will be retained by the organisations who have given this WHS undertaking until advised by the regulator that the WHS undertaking has been completely discharged.

Clarence Coal acknowledges that the regulator may initiate additional compliance monitoring activities of compliance with the terms of the WHS undertaking, such as inspections, as considered necessary at the regulator's expense.

19. A commitment that the behaviour that led to the alleged contravention has ceased and will not reoccur

Clarence Coal commits that the behaviour that led to the alleged contravention has ceased and that it will take all reasonably practicable steps to prevent recurrence of such behaviour.

20. A commitment to the ongoing effective management of work health and safety risks

Clarence Coal commits to the ongoing effective management of work health and safety risks in accordance with the legislation and regulations referred to above.

21. Acknowledgment of WHS undertaking guidelines

I have read and understood:

Enforceable undertakings guidelines version 5 dated August 2019.

Section B – enforceable terms

1. Publication of information about the undertaking

Clarence Coal must, within 30 days of receiving notification from the regulator of the acceptance of the WHS undertaking, cause a public notice to be published in the Lithgow Mercury and the Sydney Morning Herald which will be drafted using the script provided in Attachment B.

2. A commitment to disseminate information about the undertaking to workers, and other relevant parties (which may include work health and safety representatives), and in the annual report (if applicable)

Clarence Coal must disseminate information by implementing the following:

- (a) display a summary of the WHS undertaking on all Mine, Mine office and contractor noticeboards at the Mine for 30 days;
- (b) communicate, as far as reasonably practicable, the WHS undertaking through toolbox talks to workers at the Mine, following acceptance; and
- (c) present the WHS undertaking to all the workforce during the State of the Nation presentation (a quarterly presentation delivered by the Mine Manager).

Dissemination by each of the above methods must occur within 30 days of receiving notification from the regulator of the acceptance of the WHS undertaking and continue at regular intervals of no more than three months throughout the life of the undertaking.

3. Strategies that will deliver worker benefits

Clarence Coal is seeking to use this opportunity to drive significant safety change within Clarence Colliery and the Coal Mining Industry.

The proposals set out below are expected to present major safety improvements in bord and pillar and long wall underground coal mines. The application of an alternative and safer rib support system in an underground coal mine has not been achieved in over 20 years. The below proposals are seeking to take underground support systems to the next level and achieve above compliance results from a combination of people, safe systems and mining equipment innovations.

Clarence Coal will endeavor to identify new methods of containing rib formations in a stable and

enduring manner that addresses the hazards identified in the roadway lifecycle (development and extraction).

The introduction of mesh and bolts in all roadways on development has introduced a significant risk factor for the extraction cycle in that installed roadway and rib support is required to be removed prior to extraction.

It is well recognised that the removal of installed support is one of the highest risk activities in underground mining and the process places the workforce in close proximity to previously disturbed strata.

It is therefore proposed that the mine as part of this Enforceable Undertaking investigates rib behavior to better understand the influencing factors that deem support requirements necessary and investigates support strategies which contain rib failures that do not require physical intervention to remove prior to the extraction cycle.

The study and investigation should be supported by investigations in to fit for purpose equipment and machinery, behavior based safety programs and programs which support learning and development leveraging technology to enhance outcomes.

Any new rib support system can only be implemented in consultation with the workforce in conjunction with a behavioural based safety culture initiative. The Mindful Safety Worker Program delivered by Aframes Safety, is one such initiative.

In conjunction with Aframes Safety, Clarence Coal will deliver the Mindful Safety Worker Program (**MSW Program**) to its workforce. The MSW Program is in addition to a number of behavioural based safety culture initiatives Clarence Coal already has in place. The MSW Program will teach workers how their mind works (including thought processes) and how to control their behaviours. The MSW Program will provide the workers with mindfulness tools that will assist their decision making process, both at work and outside of work, providing mental health benefits to the workers. In addition, the MSW Program, at a collective level, contributes to fostering a positive safety culture at the Mine by reinforcing safety behaviours.

Clarence Coal will also work with Coal Services to develop a bespoke Virtual Reality "Free Roam" Strata Hazard Training Program (**VRFR**). The VRFR Program aims to deliver state of the art interactive training on managing strata related hazards. The VRFR Program works by integrating Clarence Coal's TARPs and safety procedures into the VRFR Program. The VRFR Program then enables the participant to communicate safety information from TARPs using messages, questions and small animations. The questions will test participants' understanding of the types of hazards they are being presented with and what steps they need to take. The utilisation of the interactive technology will assist Clarence Coal's workers to gain a different perspective on the management of strata related hazards at the Mine.

Clarence Coal recognises the importance of good ergonomics in rib bolting processes and the impact this has on the health of the workforce. It is Clarence Coal's current process to complete an operational risk assessment when a new piece of equipment is introduced. Separate to Clarence Coal's existing requirements for new equipment, it will engage the University of Queensland to undertake an ergonomic assessment of roof and rib bolting processes used at the Mine to identify areas of improvement, with a particular focus on safety in design in the bolting process. The outcome of the ergonomics assessment will allow Clarence Coal to identify opportunities to improve its roof and rib bolting processes including allowing it to re-evaluate the design of the bolting processes and equipment with potential for identification of "next generation" equipment.

4. Strategies that will deliver industry benefits

Clarence Coal recognizes that rib support in underground coal mining has used the same mechanism of support, being bolts and steel mesh, for approximately 20 years. The risks to workers, in particular in bord and pillar mines, that involve the installation and removal of rib bolts and mesh, is an ongoing risk that is managed through systemic controls.

The challenge to remove the workers from the immediate risk, by remaining near the center of the roadway and not having to place, or remove, bolts or mesh onto the rib, will eliminate this risk to the workers.

The search for a suitable product that will manage the risk of the rib stabilisation in lieu of mechanical support has identified a polyuria silica product of "Silcrete", that can be sprayed onto the ribs to provide the required rib support. The product has been developed and used by DSI Underground in NSW in Hard Rock Mining Pilot Program at North Parkes Mine. It is noted that underground mine conditions do vary and mechanical support may be needed in certain geological conditions.

The Silcrete product is nontoxic, nonflammable and suitable for use in underground coal mining. The product may also assist as a fire prevention tool.

Clarence Coal will initiate a trial of DSI Silcrete, a thin spray liner as an alternative to steel mesh and rib bolts. This will be done to determine whether it can eliminate or minimise the risks to workers associated with the use of steel rib mesh and rib bolts during the installation and subsequent removal of rib support. If proven effective, introduce the use of silcrete at Clarence Coal and share its effectiveness (or otherwise) with industry peers.

Post application testing will be completed against performance specifications and all data from the project will be incorporated into a report. Clarence Coal will also engage Strata 2, its current geotechnical engineering consultant to review the project's results and provide reports on the effectiveness of silcrete as a rib support. Clarence Coal has consulted with ACARP about the proposed project and has committed (if successful) to providing project results to ACARP as part of their roadway development project. Clarence Coal has been advised that ACARP are supportive of the trial of this rib support control.

The results would be available to be shared by ACARP across the broader industry through industry workshops and by communication through the ACARP Committee, which has representatives from each of the leading coal mining companies. These results will also be shared with the mining industry, where in consultation with the Resources Regulator, the results will be publicized at three mining industry seminars

The VRFR Program will also be shared with other coal mines as a new benchmark in interactive training. It will demonstrate the technology that is available for other mines to adopt and, in turn, provide their workers with a fresh perspective on strata management.

A video will be prepared by Coal Services identifying key parts of the VRFR program. The Video will be made available to share at NSW Coal Mining Industry seminars, including the Mining Engineering Managers Safety Seminar and the Mine Managers Association of Australia Annual CPD Seminar.

The results of the ergonomics assessment and any improvement opportunities will be made available to share with Original Equipment Manufacturers (OEMs) and at NSW coal mining industry seminars and through presentations.

Clarence Coal will engage Coal Services to undertake a short animated video presentation of the Incident, in consultation with the Regulator that will be made available to the mining industry and delivered at three mining industry seminars including the Mining Engineering Managers Safety Seminar and the Mine Managers Association of Australia Annual CPD Seminar.

5. Strategies that will deliver community benefits

A donation to the Lithgow Community Hospital's (Hospital) therapy pool will deliver benefits to the local Lithgow community by providing the community with a therapy pool to assist patients with their short and long term rehabilitation. Current issues with the Hospital's therapy pool, including the unreliability of pump and filter systems, have resulted in the need for patients to travel to Katoomba and Bathurst to receive their rehabilitation treatment. A donation will enable the issues with the therapy pool to be resolved and provide patients with access to a local therapy pool. The donation will also provide for the purchase of new exercise equipment that will assist with the rehabilitation process.

6. A commitment regarding linking the strategy and promotion of benefits to the WHS undertaking

Clarence Coal commits that it will link the promotion of any benefits arising from the WHS undertaking and associated initiatives to the WHS undertaking.

7. Reimbursement of the regulator’s agreed costs associated with, and any monitoring of, the enforceable undertaking

Clarence Coal must pay the regulators recoverable costs associated with the undertaking, as itemised below, and acknowledges that payment is due **30 days** after receipt of the regulator’s invoice:

investigative, legal and administrative costs	\$81,717
<input type="checkbox"/> compliance monitoring costs	\$10,000.00
<input type="checkbox"/> publication costs	\$
Total amount	\$91,717

8. Minimum spend

Clarence Coal must spend a minimum of \$524,941.54 excluding GST, in carrying out its obligations as set out in this WHS undertaking, inclusive of the regulator’s recoverable costs.

Clarence Coal acknowledges the minimum spend comprises of:

Activities to deliver	Total estimated cost
Benefits to workers	\$188,225 (excl GST)
Benefits to industry	\$120,000 (excl GST)
Benefits to community	\$125,000 (excl GST)
Regulator recoverable costs	\$91,717 (excl GST)
Estimated total value of the undertaking	\$524,942 (excl GST)

9. Project of undertaking

Where a project or projects are proposed to deliver benefits to workers, industry and community, Clarence Coal offers and will carry out the projects set out in Attachment A to this WHS undertaking.

10. Timeframe for delivery

The strategies set out in this WHS undertaking must be completed by Clarence Coal on or before 18 months following acceptance of this WHS undertaking by the regulator.

Section C - Offer of undertaking

BY AN INDIVIDUAL

I offer this undertaking and commit to the terms herein.

Signed:
[Person]

Name:
[Print name]

Position:

Dated at this
..... day of, 20.....

BY A CORPORATION

As a duly appointed and authorised officer or agent of

Clarence Coal Pty Ltd

I offer this undertaking and commit

Clarence Coal Pty Ltd

to the terms herein.

Signed:
[Director]

Name: *CREA SHIELDS*
[Print name]

Position: Director

Dated at *FIFTEEN* this
29 day of *APRIL*, 20*20*

Signed:
[Director or company secretary]

Name: Peter Parry
[Print name]

Position: Director

Dated at Sydney this
29th day of April, 2020

Section D – Regulator’s acceptance of undertaking

I accept this undertaking as an enforceable undertaking under section 216 of the *Work Health and Safety Act 2011*.

Signed: *[Signature]*

Position Executive Director delegate of the Secretary,
Department of Planning, Industry and Environment

Dated at Newcastle this 7th day of May, 2020.

WHS undertaking to the Secretary, Department of Planning, Industry and Environment

ATTACHMENT A

(This attachment is incorporated in and considered part of the WHS undertaking given by Clarence Coal for the purposes stated herein, and are enforceable terms given under section B of the undertaking by Clarence Coal)

Clarence Coal will undertake the following:

1. Project 1: Mindful Safety Worker Program

(a) Objective

To foster a positive culture of safety at the Mine by delivering a training program that is focused on mindfulness to deliver safety benefits and mental health benefits to workers. The program will address the focus to accept and drive new safety concepts such as the Silcrete rib stabilisation system.

(b) Purpose

Clarence Coal recognises that each of its workers contributes to the safety culture of its organisation - every worker contributes to fostering a positive safety culture. Following the Incident, Clarence Coal introduced Ethos Health (a pre-work warm up and injury prevention program) and the Mental Health Movement (a mental health awareness and education program). Both of these programs were in place through 2019 and will continue through 2020. In addition to these programs, Clarence Coal undertakes the following activities to build and reinforce safety culture: daily HSEC meetings, monthly HSEC meetings and reports, implementation of Golden Rules, use of SLAMS, toolbox talks and PTOs.

Clarence Coal recognises that the importance of a positive safety culture in the workplace needs to be constantly reinforced and invigorated. In this regard, Clarence Coal has identified a fresh concept to deliver to its workforce. The concept involves using mindfulness to enhance the Mine's safety culture and deliver mental health benefits to workers.

Aframes Safety, a safety consultancy, has developed the Mindful Safety Worker Program (**MSW Program**) that takes participants through a number of mindfulness elements. These elements include explaining:

- The way their mind works;
- Their thought processes and demonstration of how to develop effective thought processes;
- How to control emotions and behaviours; and
- How each worker contributes to the Mine's positive safety culture.

The workers will also establish their "safety purpose", including the encouragement of positive beliefs, and learn tools for mental and emotional control that will assist their decision making process both at work and outside of work.

The MSW Program is above and beyond Clarence's current safety culture undertakings (that are mostly behaviour based) because it teaches workers the role that mindfulness plays in safety. The MSW Program is designed to change people's belief systems and therefore bring innate behaviour changes by teaching the workers to have high performance thinking strategies that assist with a safety focused mindset.

In addition to the mental health benefits, the mindfulness element of the MSW Program builds on the policies and procedures that Clarence Coal has in place by mitigating the risk of workers switching to "auto pilot". Because Clarence Coal undertakes the process of place change mining (which requires completing repetitive tasks), there is a greater risk that workers switch to "auto pilot" mode, which can decrease their situational awareness. While Clarence Coal recognises that

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human error alone rarely causes injuries and that injuries are normally attributable to a combination of systematic, organisational, supervision and training failures, human error can be a contributing factor.

(c) Deliverables

Clarence Coal will engage 'Aframes Safety' to deliver the MSW Program. The MSW Program will be delivered to all of Clarence Coal's workforce over a three month period. The initial MSW Program will involve the safety leaders (Deputies and Undermanager's) participating in small groups (3 – 6 people) to overview the program (1 hour session) and create buy in by the leadership team. Shift team sessions will then be held (15 – 20 people per session) for a 3 hour education session on site to educate people in the fundamentals of the MSW Program. Approximately, 250 Clarence Coal workers will attend the education sessions.

To test the veracity of the MSW Program, Aframes Safety will undertake safety culture interactions after the MSW Program has been rolled out. These sessions will involve interactions “on the job” to assess behaviours and thought processes in each crew rostered on each shift at the Mine, including production panels and outbye processes. Two interaction sessions will be undertaken for every crew. The first interaction session will be undertaken during the initial assessment to serve as a benchmark. The second interaction session will be undertaken after the education sessions to assist in measuring the success of the MSW Program. The interaction sessions will be for a duration of 2 – 3 hours.

A report will be prepared on the veracity and success of the MSW Program. The report would also be made available for the facilitator to share through its online forums.

(d) Timeframe

Key ask	Due
Engagement of Aframes Safety to conduct the MSW Program and develop a training schedule to involve the entire Clarence Coal workforce over a 3 month period.	Within 2 months of acceptance of WHS undertaking
Completion of the roll out of the MSW Program to the Clarence Coal workforce.	Within 7 months of acceptance of WHS undertaking
Completion of the follow up safety culture interactions, undertaken by Aframes Safety, to assess the effectiveness of the MSW Program.	Within 9 months of acceptance of WHS undertaking
Report completed on the veracity and success of the MSW Program	Within 12 months of acceptance of WHS undertaking

2. Project 2: Virtual Reality “Free Roam” Strata Hazard Training Program

(a) Objective

To provide the Clarence Coal workforce with an innovative virtual reality technology tool that trains workers on the management of strata failure.

(b) Purpose

Effective strata management is a key piece in managing work health and safety risks at the Mine. A core component to effective strata management is the sufficient training of workers on the identification of conditions and implementation of the hierarchy of risk controls. While Clarence Coal has provided its workers with extensive training on the application of its TARPs,

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developments in virtual reality technologies have created innovative training and development opportunities for Clarence Coal that will enable it to optimise learning outcomes for its workforce.

Clarence Coal has identified Coal Services as a partner for it to work with to achieve its training objectives. Coal Services is a specialised health and safety scheme that provides an integrated suite of services to help identify, assess, monitor and control risks inherent in the coal mining industry.

Coal Services has developed a program called Virtual Reality “Free Roam” Strata Hazard Training Program (**VRFR Program**). The VRFR Program aims to deliver state of the art interactive training on managing strata related hazards. The “Free Roam” Virtual Reality technology will allow the workers to enter into a realistic underground environment using the Gen4 VR Software Systems. The workers will follow a training program designed specifically for identification of strata hazards and the responses required to control those hazards using the Mines documented processes. It is proposed that the VRFR Program will be designed to have both team based and individual components as part of the competencies.

The virtual reality technology provides the flexibility to learn as you go whilst participating in problem solving strata related hazards by using the Mine’s documented processes. This VRFR Program will also develop an industry leading strata training program that can be shared with the industry to allow for “site specific” development by Coal Services.

(c) Deliverables

Coal Services will develop a bespoke program for Clarence Coal by integrating its current roof and rib TARPs, safety procedures and photographs of current strata conditions into the VRFR Program. The VRFR Program will enable the participant to communicate safety information from TARPs using messages, questions and small animations. The questions will test participants' understanding of the types of hazards they are being presented with and what steps they need to take. The training will include both installation of support and subsequent removal of rib support.

The VRFR Program will conclude with a competency assessment using both interactive on screen assessments and an e-learning module that can with be used in conjunction with a desktop version of the VRFR Program.

The VRFR Program can be shared with other coal mines as a new benchmark in interactive training.

A video will be prepared by Coal Services identifying key parts of the VRFR Program including learnings made by Clarence Coal through participation in the VRFR Program. The video will be shared amongst the wider Centennial group and made available to share at NSW Coal Mining Industry seminars, including the Mining Engineering Managers Safety Seminar and the Mine Managers Association of Australia Annual CPD Seminar.

(d) Timeframe

Key Task	Due
Engagement of Coal Services to start Gen4 development of the VRFR Program and the E Learning Module	Within 3 months of acceptance of WHS undertaking
Completion of the review and test of the VRFR Program including receiving input from Clarence Coal technical services team and the workforce to ensure accuracy of the scope and practicality of the VRFR Program.	Within 6 months of acceptance of WHS undertaking

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Development of a training schedule for the VRFR Program across all shifts and including a maximum of 25 workers per session	Within 8 months of acceptance of WHS undertaking
Completion of the rollout of the VRFR Program and the e-learning module to Clarence Coal workforce. Approximately, 250 workers will complete the VRFR Program.	Within 18 months of acceptance of WHS undertaking
Development of a video, by Coal Services, depicting the benefits of the VRFR Program. to be made available to the Industry and presented at three mining industry seminars	Within 24 months of acceptance of WHS Undertaking

3. Project 3: Strata Support Ergonomics Assessment undertaken by the University Of Queensland

(a) Objective

Undertake an ergonomic assessment of roof and rib bolting processes used at the Mine to identify areas for improvement in both process and equipment and identify "next generation" bolting equipment.

(b) Purpose

The identification of improvements in the ergonomics of roof and rib bolting processes will benefit the workforce at the Mine because it will reduce the instances of sprains or strains that may be caused by undertaking the roof and rib bolting processes. In accordance with its WHS Act obligations, Clarence Coal undertakes an operational risk assessment when a new piece of equipment is introduced into the workplace. Suitable risk control measures are then identified and implemented in accordance with the hierarchy of controls and the manufacturer's operation manual.

The strata support ergonomic assessment goes beyond Clarence Coal's compliance obligations because it provides an in depth analysis of ergonomics by considering design and process improvements. This could result in recommendations being made to the manufacturer about how the roof and rib bolting equipment is used in practice. As a consequence, any recommendations could flow onto industry and result in fewer injuries industry wide. Engaging the expertise of Robin Burgess-Limerick (Professor of Human Factors, Minerals Industry Safety and Health Centre, University of Queensland and a physiotherapist) provides an extra layer of scrutiny and may result in additional improvements being identified.

Clarence Coal will use its current operational risk assessment process as a springboard to undertake an ergonomics assessment that will focus on two key areas:

1. Critical assessment of current strata support practices. Stage 1 will involve an assessment on how people are working during installation and removal of support. In particular, looking for opportunities to design injury prevention programs to address any key ergonomic deficiencies found. An ergonomic assessment of the current bolting equipment will also be undertaken to identify any practical modifications that may make the equipment more optimal for operator ergonomics.
2. Identification of "next generation" bolting equipment. Stage 2 will involve conducting a further ergonomics assessment to identify design features for a "next generation" multibolter. The aim of the assessment will be to identify how safety in design can deliver better ergonomics for the process of installing roof and rib support. The assessment will consider the specific bolting requirements for operating in current seam sections and the future low height seam sections at Clarence Coal. Currently, the market provides limited options for bolting in specified conditions

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because there is no low height “fit for purpose” bolting equipment available to the Australian market due to the small size of the Australian place change market. Therefore, the outcome of the assessment will be provided to OEMs to assist them design a better “fit for purpose” bolter. Clarence Coal will also engage a third party engineering company to assist with concept and design aspects as identified in the assessment. The outcome of the ergonomics assessment will allow Clarence Coal to identify opportunities to improve its roof and rib bolting processes including allowing it to re-evaluate the design of the bolting. processes and equipment.

The ergonomics assessment will be led by Robin Burgess-Limerick, Professor of Human Factors, Minerals Industry Safety and Health Centre, the University of Queensland, and assisted by Dr Danellie Lynas, masters' degree in ergonomics and bachelor's degree in physiotherapy, who also works for the Minerals Industry Safety and Health Centre of the University of Queensland.

It is expected that the ergonomics assessment will proceed concurrently with the Silcrete trial as it is expected that roof strata controls of bolts and mesh will continue and due to certain geological conditions, controls for rib stabilization will involve bolts and steel mesh.

(c) Deliverables

The ergonomic assessment will include:

- Undertaking workplace observations at the Mine;
- Evaluating the ergonomic risks to health and safety identified in the workplace observations;
- Consulting with the workforce to assist in the identification of design and process improvements to current bolting equipment and practices;
- Providing ongoing human factors and ergonomics expertise throughout the ergonomic assessment;
- Review the findings with a third party engineering company to assist with producing conceptual and design aspects for an “Optimized” Bolting Machine suitable for Clarence conditions
- Learnings for OEM's and 3rd Party Engineers to assist Clarence in transitioning existing equipment to address the recommendations, and
- Providing a documented report on the findings of the ergonomic assessments and recommended actions.

The results of the assessments and any improvement opportunities will be made available to OEMs and to share at NSW coal mining industry seminars, for example, the Mining Engineering Managers Safety Seminar and the Mine Managers Association of Australia Annual CPD Seminar and through presentations. The results will be of particular interest to operators who mine using the bord and pillar and longwall methods as operations are similar across these areas.

(d) Timeframe

Task	Due
Engagement of the University of Queensland to undertake an ergonomic assessment.	Within 3 months of acceptance of WHS undertaking.
Completion of the physical ergonomics assessment including engagement with the participatory ergonomics team through workplace interactions (stage 1)	Within 8 months of acceptance of WHS undertaking.

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Completion of the second ergonomics assessment for the purpose of identifying "next generation" bolting equipment (stage 2).	Within 9 months of acceptance of WHS undertaking.
Completion of ergonomic assessment reports including task analysis, risk assessment, participatory ergonomics process outcomes and provide ongoing assistance with any redesign activities.	Within 10 months of acceptance of WHS undertaking.
The stage 1 and stage 2 reports available to share with OEMs and NSW coal mining industry seminars	Within 12 months of acceptance of WHS undertaking.

4. Project 4: Trial of DSI Silcrete in consultation with ACARP

(a) Objective

To find a safe system of work that will eliminate the risk to workers applying mechanical controls working adjacent to the ribs in the underground coal mine. This will entail a trial of the use of DSI Silcrete, a thin spray liner (TSL), as a potential replacement for steel rib mesh and rib bolts during the process of installation and subsequent removal of rib support.

(b) Purpose

Clarence Coal recognizes that rib support in underground coal mining has used the same mechanism of support, being bolts and steel mesh, for approximately 20 years. The risks to workers, in particular in bord and pillar mines, that involve the installation and removal of rib bolts and mesh, is an ongoing risk that is managed through systemic controls.

The challenge to remove the workers from the immediate risk, by remaining near the center of the roadway and not having to place, or remove, bolts or mesh onto the rib, will eliminate this risk to the workers.

The search for a suitable product that will manage the risk of the rib stabilisation in lieu of mechanical support has identified a polyuria silica product of "Silcrete", that can be sprayed onto the ribs to provide the required rib support. The product has been developed and used by DSI Underground in NSW. It is noted that underground mine conditions do vary and mechanical support may be needed in certain geological conditions

To investigate whether the use of DSI Silcrete can eliminate or minimise the risks to workers associated with the use of steel rib mesh and rib bolts during the installation and subsequent removal of rib support. If proven effective, introduce the use of silcrete at Clarence Coal and share its effectiveness (or otherwise) with industry peers.

(c) Deliverables

DSI Underground is a manufacturer of specialist strata reinforcement and support products for coal and metalliferous mines. One of DSI Underground's products, DSI Silcrete, has recently been licensed for undertaking a polymeric process (MLA0004677).

Silcrete is a two component solvent free thixotropic urea silicate TSL mainly used in the hard rock industry. Silcrete is a thin skin lining designed specifically for the consolidation of stressed rock structures associated with mining. Silcrete prevents the unravelling of strata and therefore prevents the associated risks from falling rock.

The application process of spraying the Silcrete onto ribs involves workers standing near the centre of the roadway and operating hand held spray device. As the Silcrete is nontoxic and non-flammable, no additional PPE is required other than gloves, face mask and an eye wash bottle available for use..

Clarence Coal will undertake testing of the use of silcrete for strata stabilisation to determine if it is a suitable alternative to using steel rib mesh and rib bolts in appropriate applications. It is expected that the project will deliver a rib support system that significantly reduces the

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requirements for traditional steel mesh and bolts and provide a systematic rib support process that reduces the requirement for operators to interact with the rib strata.

Post application testing will be completed against performance specifications and all data from the project will be incorporated into a report. Clarence Coal will also engage Strata 2, its current Geotechnical Engineering Consultant to review the project's results and provide reports on the effectiveness of silcrete as a rib support.

Clarence Coal has consulted with ACARP about the project and will provide ACARP with the results (if successful) to disseminate to its stakeholders. The purpose of consulting with ACARP is to enable effective sharing of the results of the trial with Clarence Coal's industry peers. This would then present to the Industry the potential for a large scale project for all coal mines for rib support for underground roadway development. This project has the capacity to change coal mining practices in rib support to remove a multitude of workers from working near ribs. The benefits to workers and the mining industry will be significant.

Clarence Coal will also partner with DSI Underground during the project to ensure that it has the manufacturer's expertise available to use during the trial.

The final project report will be shared through DSI, ACARP and the Resources Regulator, via their websites and then shared across the mining industry including at the Mining Engineering Seminar and the Mine Managers Association of Australia Annual CPD Seminar.

(a) Timeframe

Key Task	Due
Completion of site risk assessment Review of operating procedures relevant to installation and removal of rib support. Define the scope of the project in consultation with ACARP	Within 3 months of acceptance of WHS undertaking
Introduction of the relevant DSI Silcrete equipment to site. Undertake required change management processes. Provision of training for workers on safe use of DSI Silcrete including safe work procedures.	Within 6 months of acceptance of WHS undertaking
Selection of initial site locations. Monitor and test locations against specified performance dimensions. Commencement of testing for effectiveness.	Within 6 months of acceptance of WHS undertaking
Finalisation of a Project Report on the results of the trial and the sharing of the report with industry peers through DSI, ACARP and the Resources Regulator, with the report published on each website.	Within 12 months of acceptance of WHS undertaking
Present findings to at 3 mining industry conferences or seminars including the Mining Engineering Seminar and the Mine Managers Association of Australia Annual CPD Seminar	Within 12 - 18 months of acceptance of WHS undertaking

5. Project 5 Donation to Lithgow Community Hospital

(a) Objective

To provide a donation to the Lithgow Community Hospital (**Hospital**) that will enable it to increase availability of the therapy pool by improving the pump and filter systems and purchase new exercise equipment.

(b) Purpose

The Hospital has identified the need for funding towards its therapy pool. The therapy pool at the Hospital assists patients with their short and long term recovery. In particular, the therapy pool can decrease patient pain and swelling, increase function, strength and range of movement. In turn, this improves patient recovery time and their quality of life. On average around 150 – 200 people use the therapy pool each week.

At present, the therapy pool at the Hospital is in need of improvement to its pump and filter system reliability. This is largely due to the age of the equipment. Unfortunately the deterioration of the therapy pool equipment has led to extended pool outages (6 – 8 weeks per year) and has dramatically increased the cost of maintaining the therapy pool. The unreliability of the therapy pool means that patients wishing to have hydro therapy are required to travel to Katoomba or Bathurst on a regular basis to carry out their rehabilitation.

(c) Deliverables

Clarence Coal has been advised by the Hospital that a donation of \$115,000 will greatly assist the Hospital to undertake the repairs to the pump and filtering systems, upgrades to the backwash tank and upgrades to the therapy pool interior facilities that will render it reliable for use by the Lithgow and surrounding communities. Clarence Coal has also been advised that an additional \$10,000 will assist to purchase new exercise equipment. New exercise equipment will allow people undertaking hydrotherapy to utilise state of the art equipment to assist them in their recovery.

(d) Timeframe

Key Task	Due
Commitment of funds to the Hospital of \$125,000.	Within 4 months of acceptance of WHS undertaking

6. Project 6: Development of a short animation video presentation of the incident and safety lessons learnt

(a) Objective

To develop a short animated video presentation of the incident and the safety lessons learnt to provide a clear message to the workforce and industry, of the impact of the incident and that safety can always be improved.

(b) Purpose

Effective communication of an incident and its safety lessons, through a video presentation provides an excellent tool to continue the safety messaging of Clarence Coal, to think safe, work safe and home safe.

(c) Deliverables

Clarence Coal will engage Coal Services to produce a short animated video presentation. The workforce will be consulted to ensure that the video accurately captures the incident and to encourage engagement with the initiative. Clarence Coal will also consult with the Resources Regulator to obtain its feedback.

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The video will be made available to the mining industry through the Resources Regulator and delivered at three mining industry seminars including the Mining Engineering Managers Safety Seminar and the Mine Managers Association of Australia Annual CPD Seminar.

(d) Timeframe

Key Task	Due
Engagement of Coal Services to develop a short animated video presentation of the incident and safety lessons learnt.	Within 3 months of acceptance of WHS Undertaking
Delivery of animated video to Clarence Coal workforce and the mining industry through the Resources Regulator website.	Within 9 months of acceptance of WHS Undertaking

7. Costs

Clarence Coal agrees to pay the following minimum amounts as tabled in relation to each project identified.

Project	Cost \$
Project 1: Mindful Safety Worker Program	\$61,000
Project 2: Virtual Reality “Free Roam” Strata Hazard Training Program	\$76,400
Development of Video of Training	\$8,000
Project 3: Strata Support Ergonomics Assessment undertaken by the University of Queensland	\$50,825
Project 4: Trial of DSI Silcrete	\$100,000
Project 5: Donation to Lithgow Community Hospital	\$115,000
Purchase of Hydro Therapy Equipment for Lithgow Pool	\$10,000
Project 6: Development of Animation Video	\$12,000
Total Minimum Cost	\$433,225

8. Project Management Team

The Mine has assembled a “Project Committee” that comprises of a cross section of roles specific to each area that is required to manage each of the Project elements:

- Clarence Coal Manager Mining Engineering (Project Owner);
- Clarence Coal Business Improvement Manager (Chair);
- Clarence Coal Production Manager;
- Clarence Coal Engineering Manager;
- Clarence Coal HSECSuperintendent;

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- Clarence Coal Technical Services Superintendent; and
- Clarence Coal Site Safety and Health Representative.

Overall responsibility for the Project will be allocated to the Clarence Manager of Mining Engineering.

The Clarence Business Improvement Manager will act as the Project Committee Chairperson and is responsible for organising Project Committee meetings, allocating actions and tracking overall progress of each element of the projects.

Each person on the Project Committee will have responsibilities to manage the relevant parts as allocated to them by the Project Committee.

The Project Committee will meet on a monthly basis as a minimum, this may vary dependent on the status of the project. The Business Improvement Manager will be responsible for Scheduling meetings as required.

Any external resources, for example training providers, will be organised through the Project Committee and scheduled by the person responsible for the project.

ATTACHMENT B

(This attachment is incorporated in and considered part of the WHS undertaking given by Clarence Coal for the purposes stated herein, and are enforceable terms given under section B of the undertaking by Clarence Coal)

Public Notice of regulator's acceptance of undertaking

Notice of acceptance of a WHS undertaking under Part 11 of the Work Health and Safety Act 2011

On 4 July 2018, at the Clarence Colliery (the **Mine**), two workers who were employed by the Mine, were injured when rock and coal fell onto the workers whilst tramming the continuous miner to the face (the **Incident**).

Clarence Coal Pty Ltd (**Clarence Coal**) is the mine operator at the Mine. The Department of Planning, Industry and Environment investigated the Incident and subsequently alleged that Clarence Coal contravened the *Work Health and Safety Act 2011* (the **Act**) by failing to discharge its obligations under section 19(1) of the Act to ensure, so far as is reasonably practicable, the health and safety of workers at the Mine.

Clarence Coal entered into a work health and safety enforceable undertaking with the Department of Planning, Industry and Environment in relation to the Incident.

This notice has been published under the terms of a WHS undertaking and acknowledges acceptance of an undertaking, that is enforceable under the WHS Act, from Clarence Coal.

The undertaking requires the following actions:

- Deliver a training program to the workforce on mindful safety;
- Deliver a training program to the workforce on strata management using virtual reality technology and develop a video of the training;
- Undertake an ergonomic assessment of roof and rib bolting processes used at the Mine with a focus on safety in design;
- Undertake a trial of the use of DSI Silcrete as a strata stabiliser in consultation with ACARP;
- Donate \$125,000 to the Lithgow Community Hospital for equipment, repairs and upgrades to the therapy pool; and
- Engage Coal Services to prepare a short animated video presentation of the incident and safety learnings to be delivered to the mining industry.

The total value of the WHS undertaking is **\$524,942**.

The full undertaking and general information about enforceable undertakings is available at www.resourcesregulator.nsw.gov.au.

List of any prior work health and safety convictions or findings of guilt under work health and safety legislation

1. **Citation:** *Morrison v Clarence Coal Pty Ltd and Centennial Coal Company Limited* [2007] NSWIRComm 270.

Date of judgment (sentencing hearing): 30 November 2007.

Date of incident: 12 July 2004.

Provision breached: s 8(1) *Occupational Health and Safety Act 2000* (NSW) (**OHS Act**) Clarence Coal Pty Ltd and s 8(2) OHS Act Centennial Coal Company Limited.

Orders: Each defendant was fined \$80,000 and required to each pay half of the prosecutor's (Department of Primary Industries) costs.

Photographs referred to at section 12:

<p>Mechanical Bolts</p>	<p>1.2m Mechanical Anchored Bolt sourced from Hard Rock Mining through DSI</p>		<p>Lightweight, no need for chemical, halved operator interaction with rib during installation</p>
<p>Lightweight Rib Mesh</p>	<p>3mm Gauge rib mesh, sheets 2.2m x 1.7m</p>		<p>Lightweight, reduction in manual handling, load tested to suit application</p>
<p>Bolting Rig Cocky Perch</p>	<p>Poly block bolted onto the Rig Head Plate to allow for the rib sheet to balance and reduce operator overreaching and risk of sprain / strain</p>		<p>Reduction in likelihood of both overreaching and pinch point injuries</p>
<p>Rig Cabinet Upgrades</p>	<p>Multibolter control upgrade from mast mounted to free standing cabinets</p>		<p>Reduction in Operator twisting, turning and overreaching during rib bolt installation</p>



Mechanical Rib Bolt



Testing Lightweight Rib Mesh



Cocky Beaks fitted to Bolting Rig



Rib Stabilisation



The application of DSI silcrete