

Order 34 2022 Conference



Today's sessions



- 8.30am Welcome
- 8.40am Industry update
- 9.10am Training for high-risk environments
- 9.50am MoC Scheme update

10.20am: Morning tea

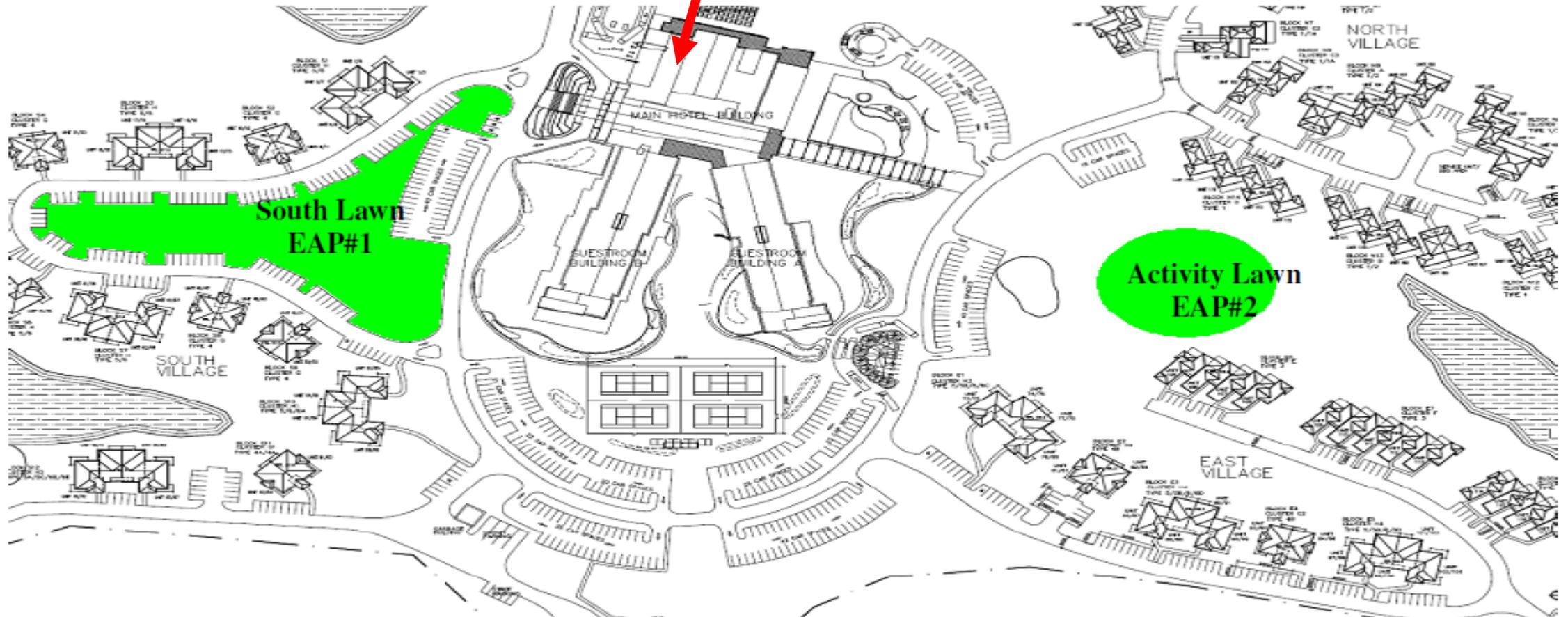
- 10.50am Clarence Colliery enforceable undertaking – free roam strata training
- 11.20am Digital learning transformation
- 12.00pm Introduction to afternoon demonstrations and displays

12.10pm: Lunch

- 1.00pm Technical demonstrations and displays
- 3.00pm Conference concludes

Important information

We are here





Coal Services



Order 34

2022 Conference



Lucy Flemming
Managing Director/CEO

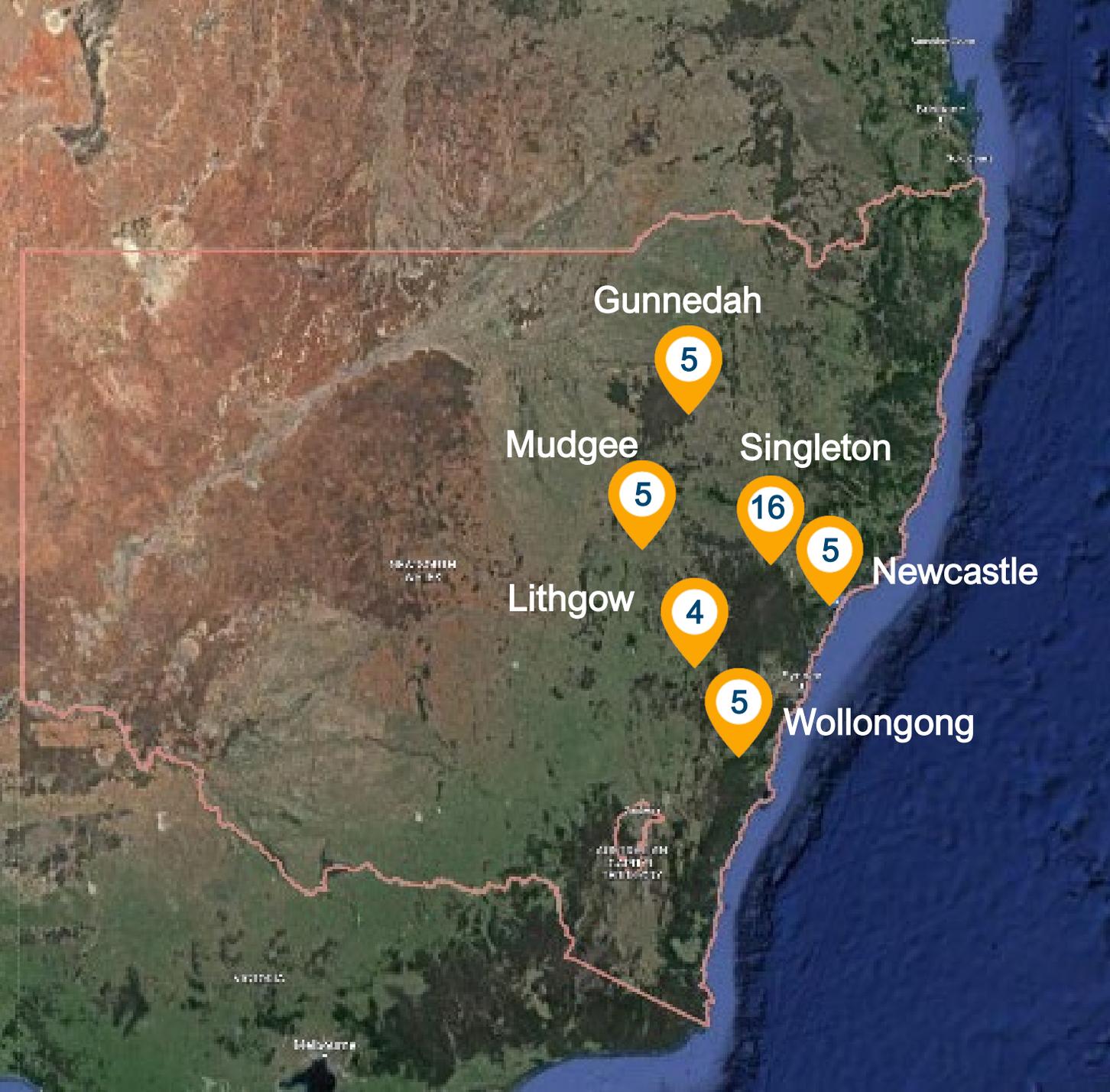
22 November 2022



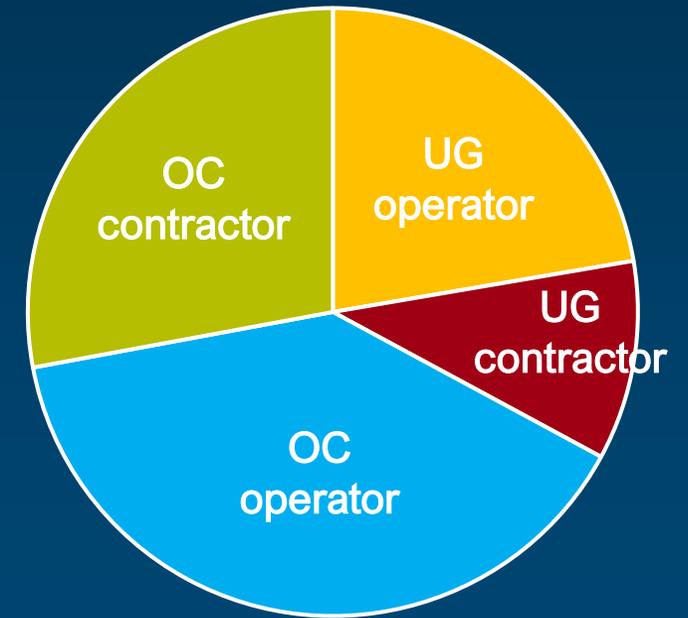
Coal Services

100 years of protecting





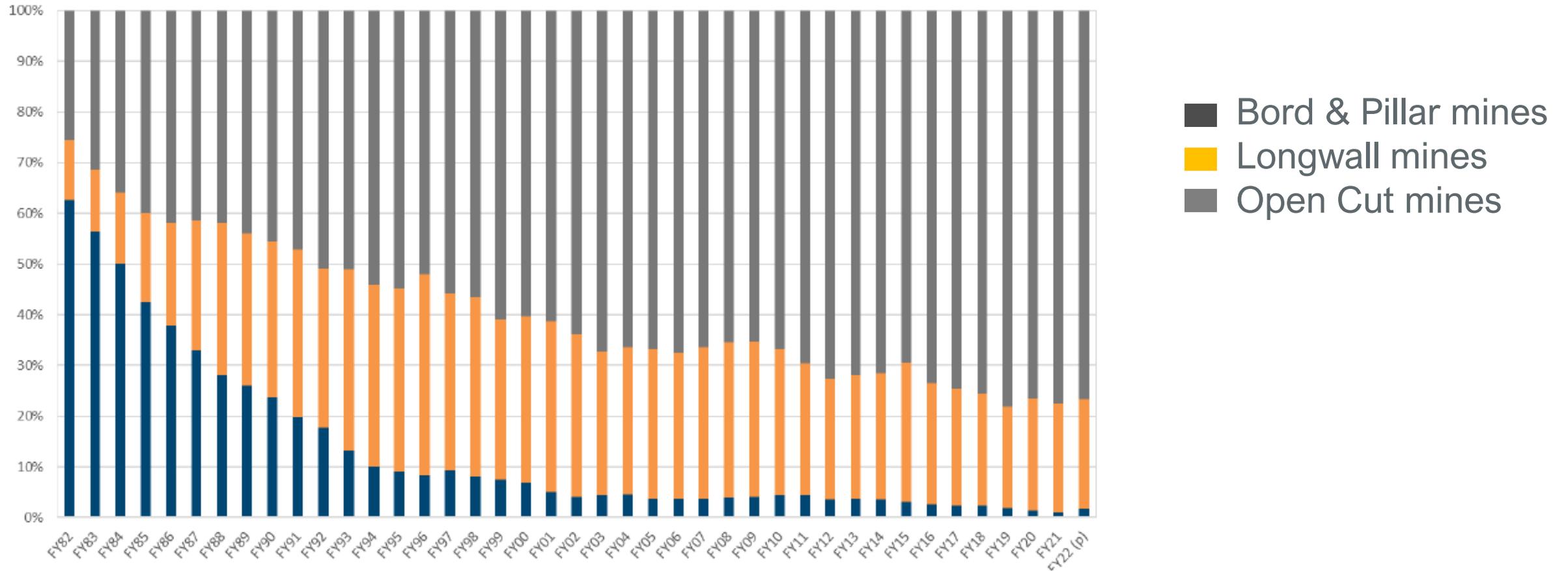
Number of mines	40
Production employment	22,974



Changing coal production risk profile



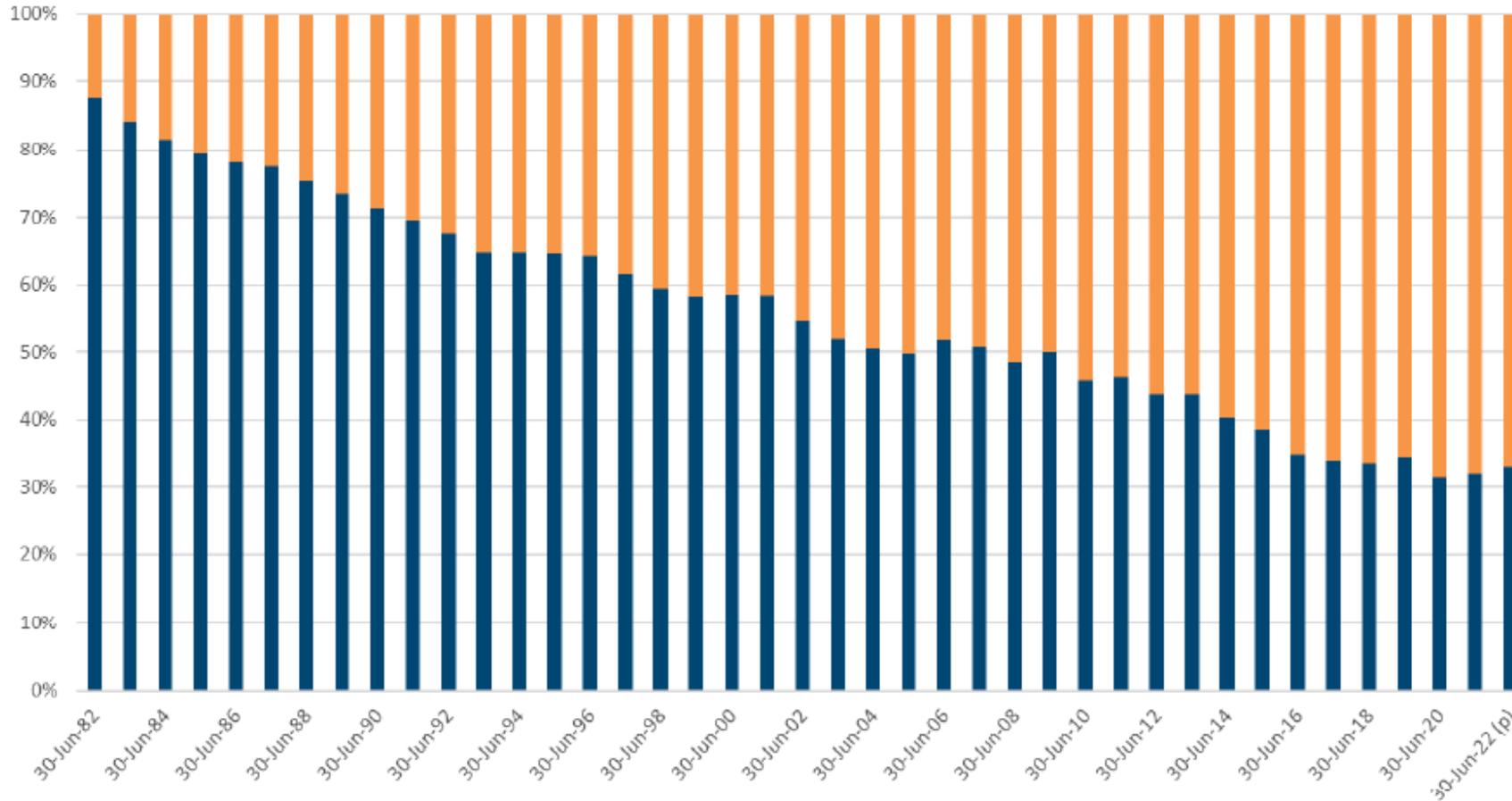
Raw Coal Production (tonnes) by Mining Method – open cut vs. underground



Production employment by mining method

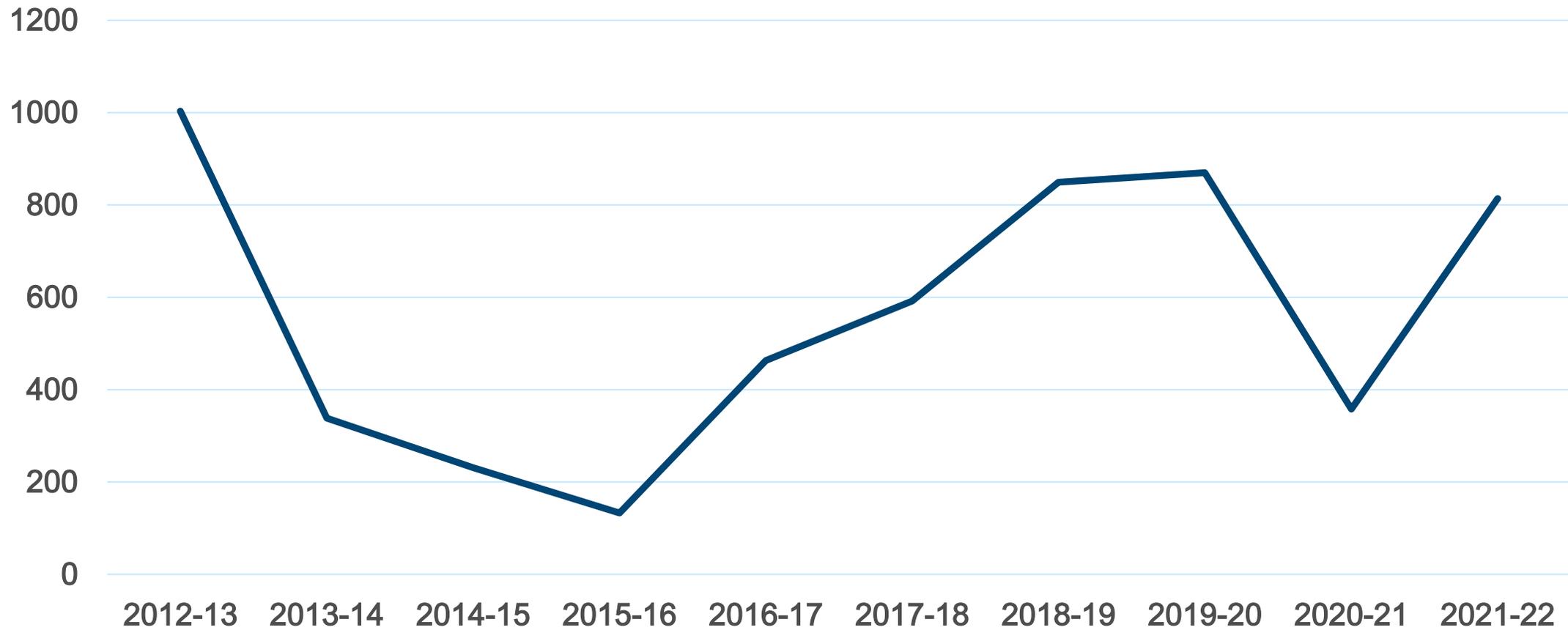


Open cut vs. underground



■ Underground mines
■ Open Cut mines

Generic Underground Induction for coal mines





Injury trends

- Contractors have a lower average age when injured
- Higher number of overall claims in UG vs. OC
- Handling or moving of equipment and/or machinery operation

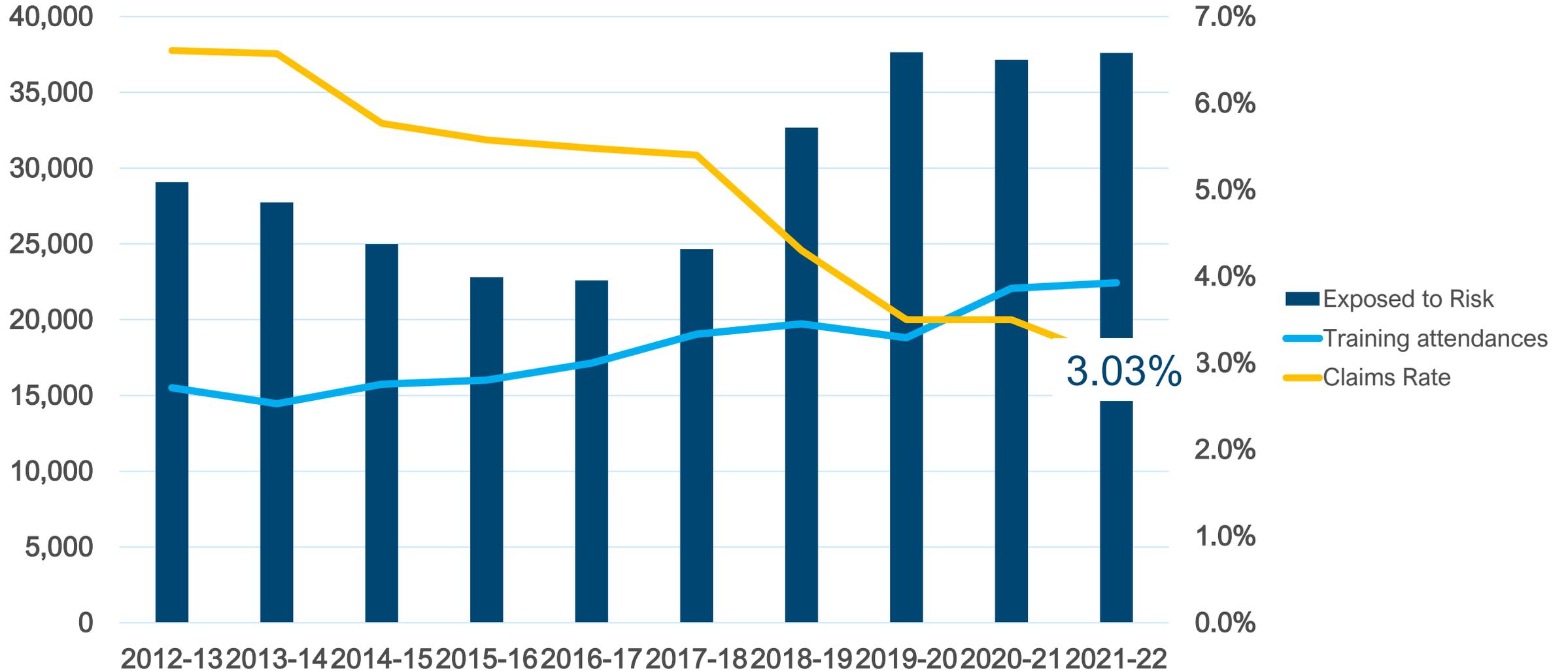


- Onboarding program?
- Time to learn?
- How can you confirm they understand the risks?
- Appropriate supervision and/or mentoring?



- Refresher training
- Specialised training depending on occupation/activity
- Ongoing awareness to reduce risk of industrial diseases

Safety training





What more can we do
in the training space to
prevent incidents from
occurring?



Associated non-technical skills

- Communication
- Situation awareness
- Decision making
- Leadership
- Teamwork

If safety is 'common sense'
then we need no trainers, training programs,
safety officers, inductions or safety legislation



Coal Services



NSW Police Rescue Presentation

Ben Kelly

Senior Constable, Newcastle Rescue & Bomb Disposal Unit

Order 34 Conference 2022

Maintenance of competence scheme update

Andrew Palmer
Manager Competencies and Authorisations

22 November 2022





The Department of Regional New South Wales acknowledges that it stands on Country which always was and always will be Aboriginal land. We acknowledge the Traditional Custodians of the land and waters, and we show our respect for Elders past, present and emerging. We are committed to providing places in which Aboriginal people are included socially, culturally and economically through thoughtful and collaborative approaches to our work.

Contents

Practising certificates	1
Guidance	2
Trial outsourcing of compliance audits	3
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Future audits and review	5
Questions	6

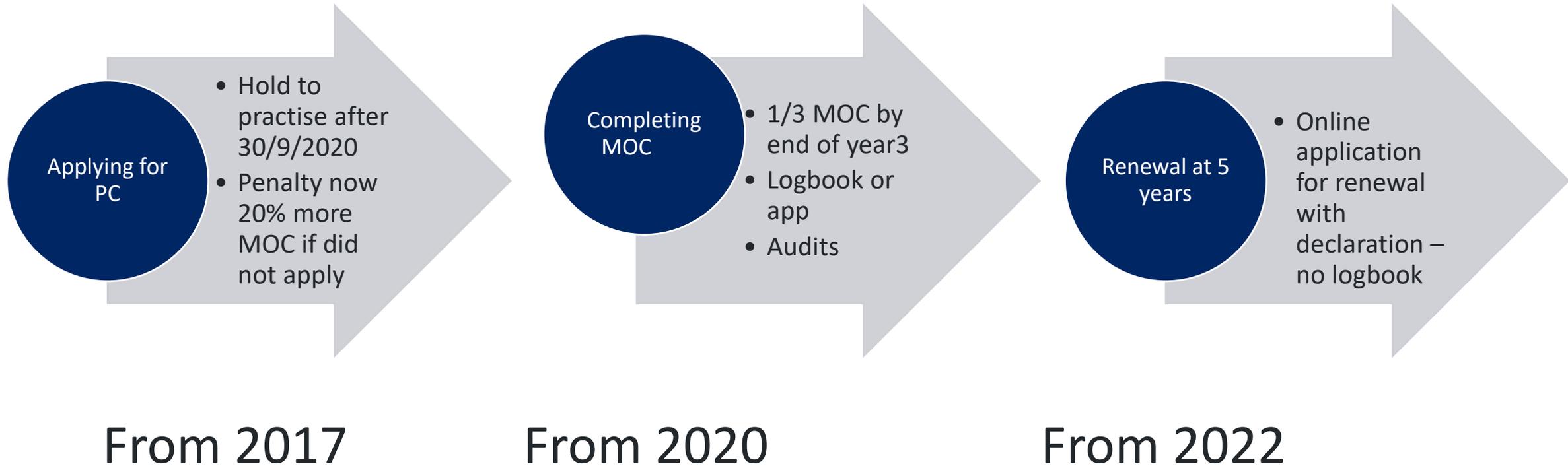
Maintenance of competence scheme update

Practising certificates

1

RECAP:

Issuing practising certificates and renewing



Operation

- 3,870 applications processed & certificates issued @ 9/10/22 (including renewals now) for currently about 3,700 certificates held by holders
- Reminder email sent from Resources Regulator portal to holder 3 months prior to expiry
- Condition of certificate to maintain contact details with Regulator:
 - Improved portal recently so practising certificate holders can now better update their contact details for register (place of work, qualifications)
- No longer offering voluntary audits for maintenance of competence – compliance only

Practising certificates issued – ug coal mines

Practising certificate statutory function	FY	FY	FY	FY	FY	Total to 30 June 2022
	2017-18	2018-19	2019-20	2020-21	2021-22	
Mining engineering manager	75	98	7	4	3	187
Electrical engineering manager	65	40	3	3	2	113
Mechanical engineering manager	64	33	4			101
Undermanager	91	247	18	8	3	367
Ventilation auditor	8	8				16
Ventilation officer	23	76	12	9	1	121
Dust explosion control measures auditor	7	2				9
Deputy	35	759	119	55	48	1016
Total by financial year:	368	1263	163	79	57	1930

Practising certificates issued – surface coal mines

Practising certificate statutory function	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	Total to 30 June 2022
Mining engineering manager	42	77	11	6	14	150
Open cut examiner	97	330	41	17	34	519
Electrical engineer	12	27	2	2	0	43
Mechanical engineer	18	18	7	0	0	43
Total by financial year:	169	452	61	25	48	755

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Guidance

Update on MOC Scheme

Changes in guidance

- No changes to gazette requirements since July 2020 (being remade under 2022 Regs)
- Guide to MOC last updated March 2021
- Recommended logbook (ver March 2022) extended to with worksheets for:
 - Totals per annum and other components in log to support compliance eg. annual cap on learning type
 - Ready reckoner of types of learning with hours caps
 - Self assessment for compliance (based on audit criteria)
 - Samples of self assessment and amended log
 - An optional way to save evidence in a worksheet

Extract from self assessment worksheet

	A	B	C	D	E
	Check	Guidance	Response - Yes / No	If no, detail actions to correct	Action completed (if applicable)
1	1. Is your log set up with details to help you manage it and make it identifiable for an audit?	Not mandatory but recommended to refer to when making log claims and when you have to submit it to the Regulator			
2		a) full name			
3		b) statutory function(s): highest statutory function that you are required to satisfy			
4		c) practising certificate number			
5		d) issue date of certificate			
6		e) period: date log commenced to date of last claim or certificate expiry date			
7		f) Bonus Year eligible: Yes or no			
8		g) other eg. column headings to make clearer			
9					

3

Trial outsourcing of compliance audits

Update on MOC Scheme

Trial

- Trial outsourcing compliance audits in 2022 for minimum of 100 audits for holders with certificates expiring starting from 1 July 2022 to 31 December 2023.
- Under the Departments procurement policy, requested quotes from 2 organisations with capabilities in MOC and auditing to provide minimum of 50 audits each:
 - Mines Rescue Pty Ltd
 - Core Mine Training Pty Ltd
- Quotes were assessed and accepted, including a fee for requesting logs from holders and follow up (in addition to fee for the audit)

Compliance auditing process roles

Contractors:

- Contact holders to obtain copy of log within 3 weeks and later 4 types of evidence
- Refer no responses or requests for extension to Regulator
- Complete audits and notify holders of outcomes with template letter and emails
- Provide all records to Regulator for retention

Regulator:

- Provide contractors with contact details of holders
- Follow up non-responses or issues raised by holders to log requests
- Review first 5 draft audits for each contractor and provide feedback

Audits planned for contractor, mine class & function

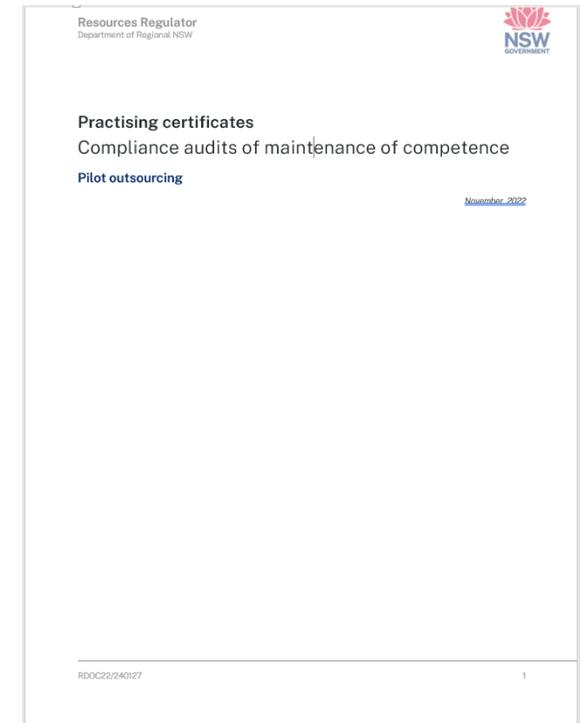
Contractor	Class of mine	Functions	Target amount
Mines Rescue	Surface - coal	Mining Engineering Manager	10
		Open Cut Examiner	10
		Electrical Engineer	10
		Mechanical Engineer	10
	Surface - mines	Quarry Manager	10

Audits planned for contractor, mine class & function

Contractor	Class of mine	Functions	Target amount
Core Mine Training	Underground – coal	Mining Engineering Manager	3
		Undermanager	10
		Deputy	10
		Ventilation Officer	3
		Ventilation Auditor	3
		Dust Auditor	3
		Electrical Engineering Manager	3
		Mechanical Engineering Manager	3
	Underground - metalliferous	Mining Engineering Manager	3
		Underground mine supervisor	10

Outcomes of trial

- Report to the Mining Competence Board endorsed & to be published
- Summary of key findings (refer also results slides that follow):
 - Pilot was successful in achieving the scope and objectives (100+ audits completed)
 - Audits completed were to the standards specified
 - The contractors found the standards were generally appropriate, including the threshold of 6 non-conformances to determine whether holder was conforming substantially or not
 - The Regulator and contractor identified improvements to the process, including how logs are legitimately requested to ensure holders respond
- Recommendations summarised:
 - Continue with outsourcing auditing, possibly with a panel of procured suitable suppliers
 - Regulator review its audit documentation and guidance in light of audit findings
 - The audit findings and results be fed into the review of MOC Scheme in 2023



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Audit results for holders

Update on MOC Scheme

Responses to log requests and follow up

2022 - Audit response types

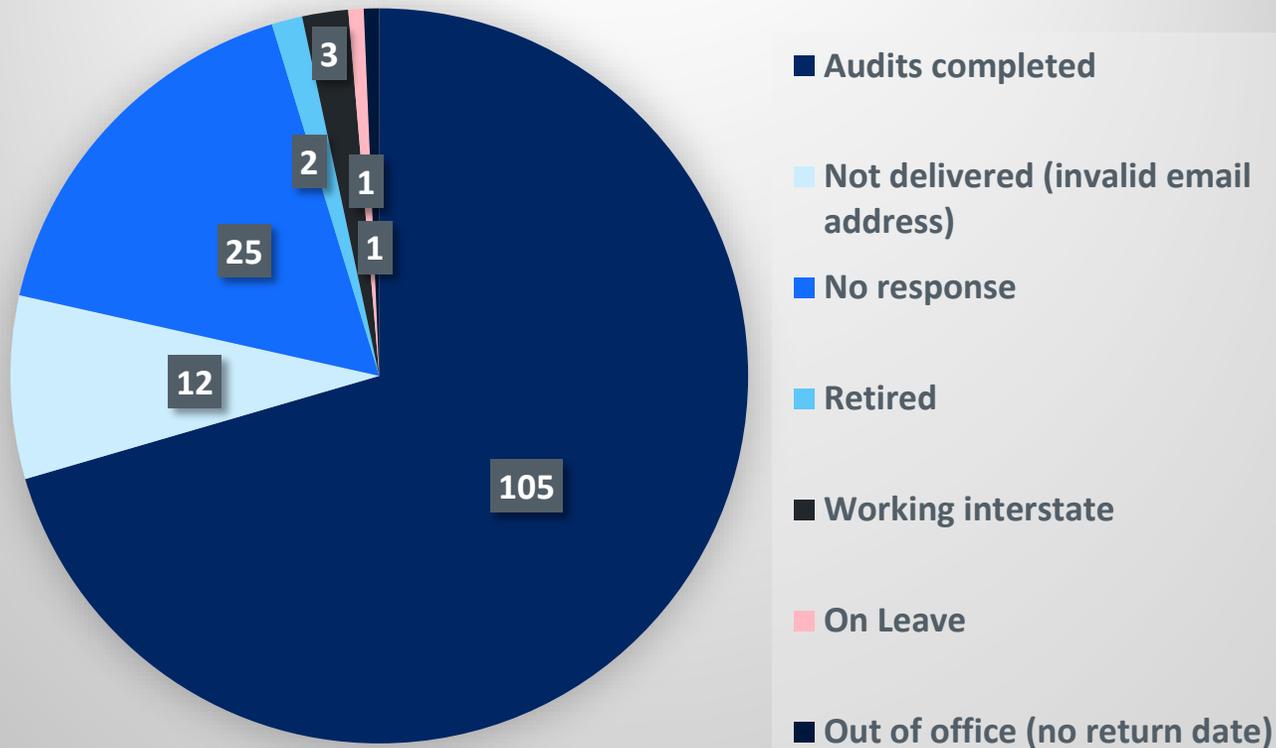


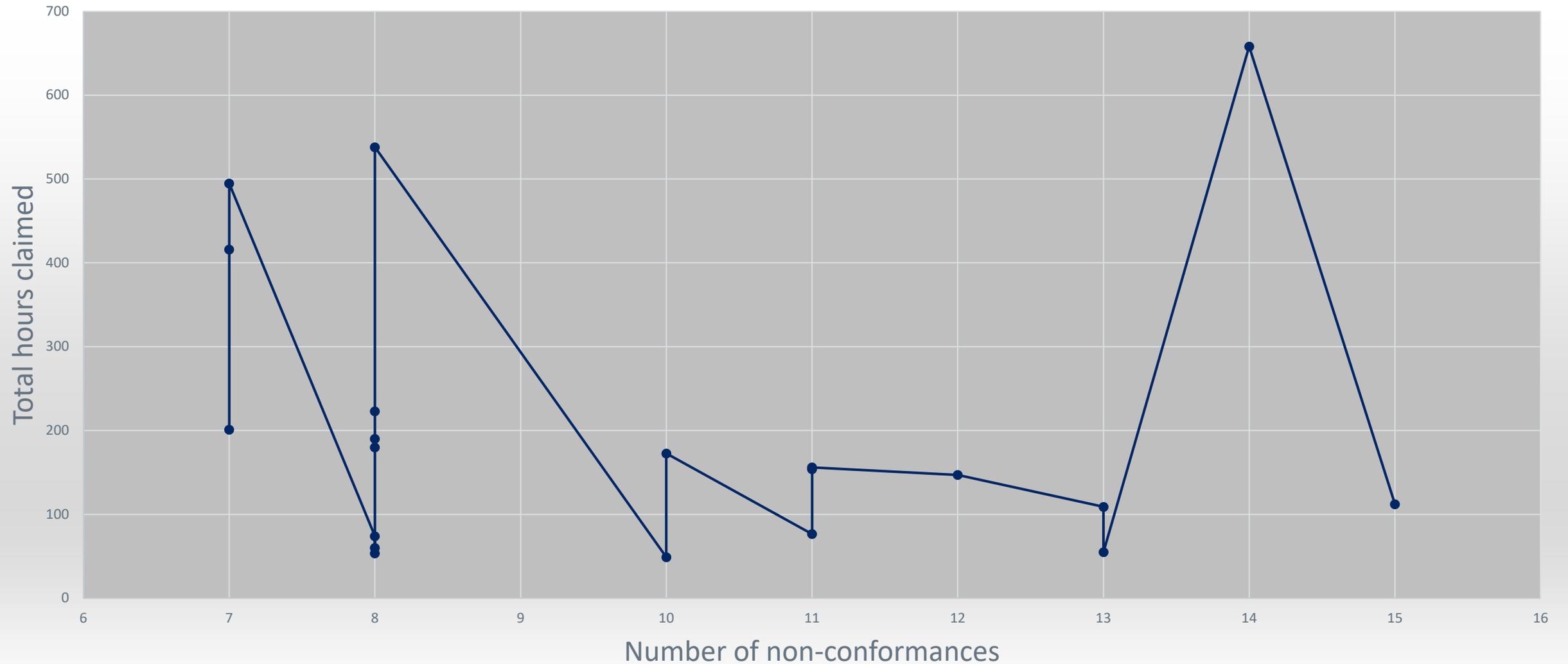
Table - Follow up of non-responses

Response	Number	Resolution - Audited	Follow up action (if any)
No response	25	3	Still being followed up to be audited next time or upon renewal
Not delivered	12	2	As above
Retired	2	0	Noted – allowing certificate to lapse or cancelled
Working interstate ongoing	3	0	As above
On leave (long term)	1	0	Noted on records for to be audited next time or upon renewal
Out of office (no return date)	1	0	As above
Total	44	5	

Breakdown of conformance levels for auditees



Substantially non conforming by number NCRs and total hours



Further analysis of substantially non-conforming

- Majority had extensive detailed logs but did not:
 - a) apply requirements to what they were claiming eg. learning not eligible or
 - b) did not meet the requirements eg. 8 of the 19 holders have not completed the Learning from Disasters course or 7 hours of training in disasters.
- Those with excessive hours claimed have typically received one non-conformance for exceeding the maximum hours that can be claimed in one year of the log (maximum 1/3 of total hours).

Outcomes for substantially non-conforming holders

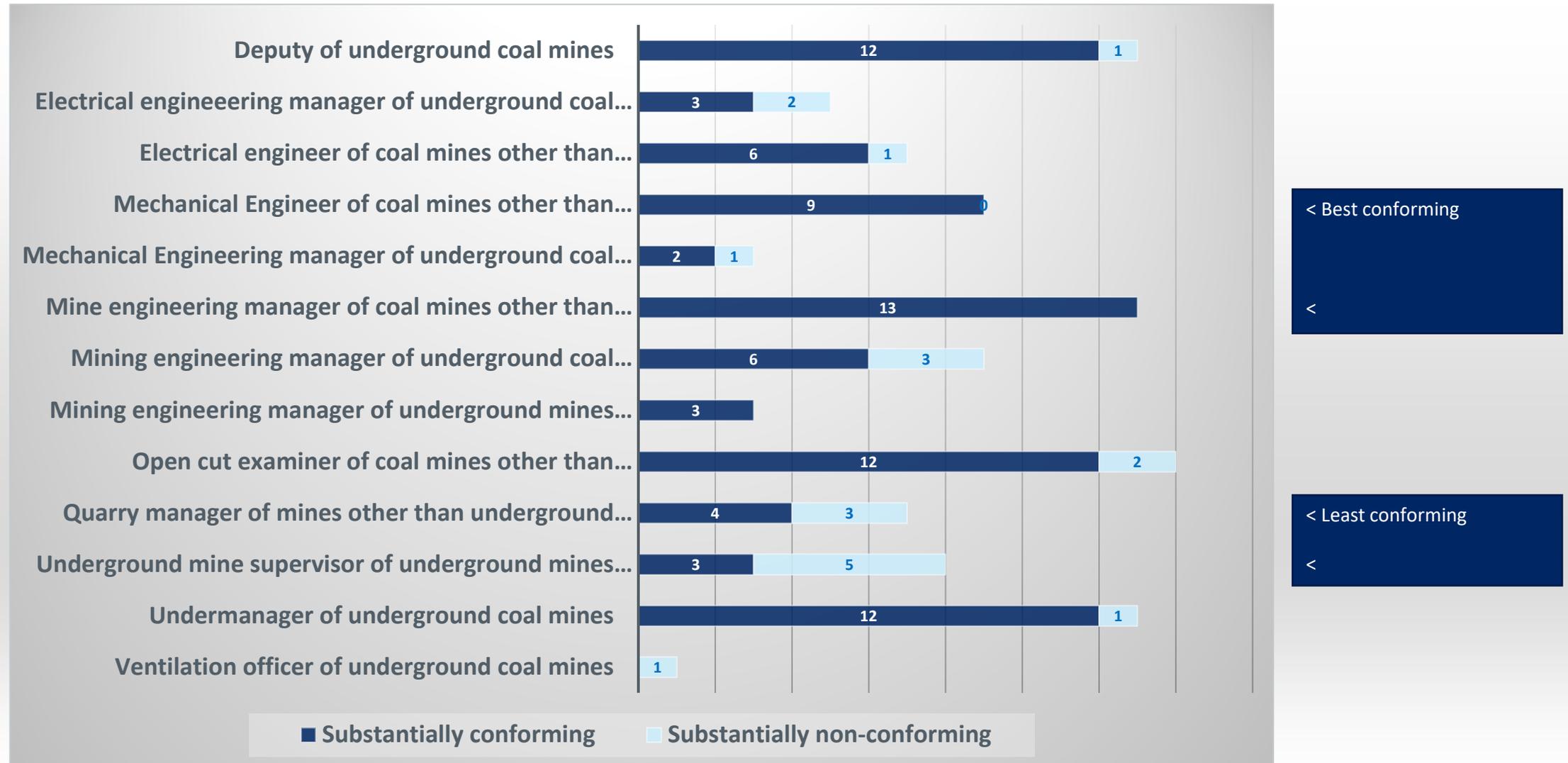
The Resources Regulator has taken no action against substantially non-conforming holders because:

1. they had made a substantial effort to comply and were co-operative with the auditors
2. Most still have time to rectify any non-conformances in the log before their certificate expires & renew
3. The Regulator has indicated that it would apply more leniency in this introductory five year period of the scheme.

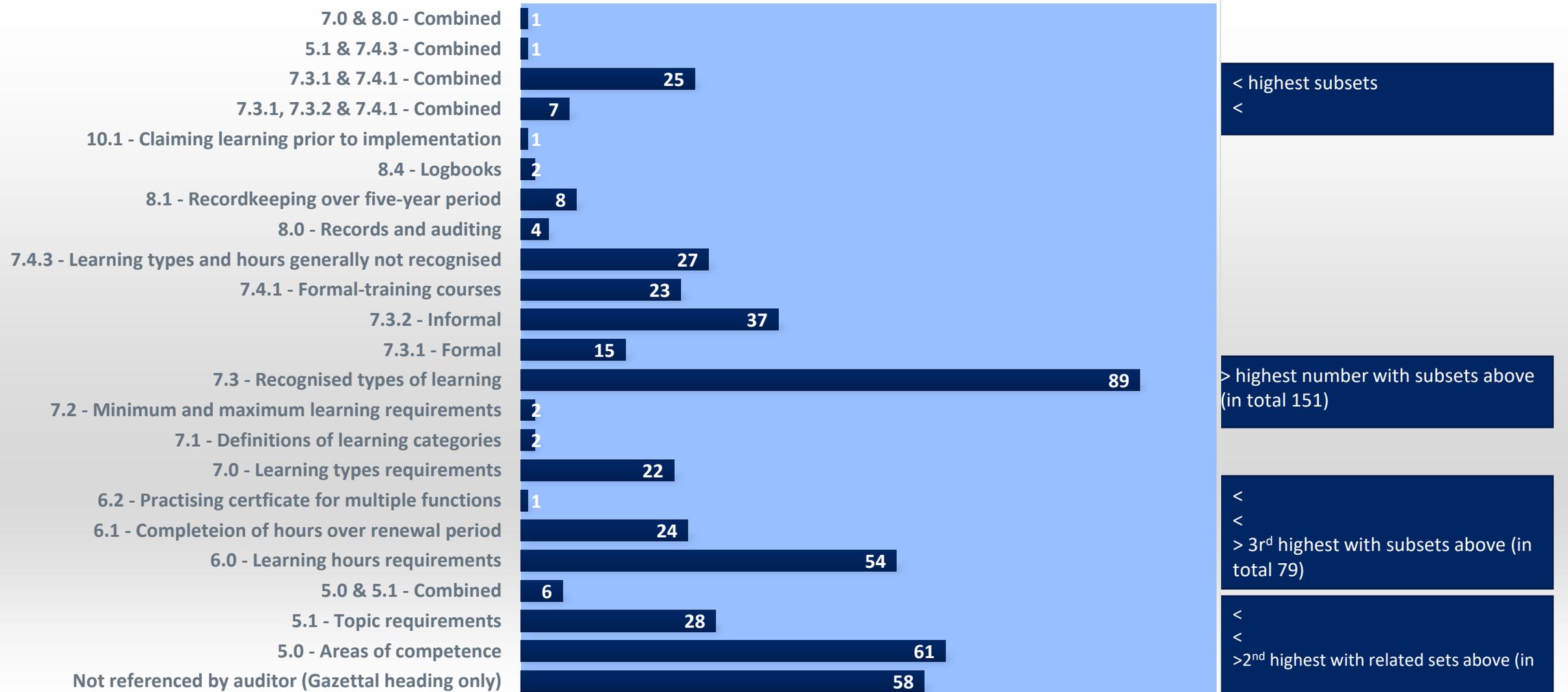
Those with substantial non-compliances were informed in writing of the requirement to:

- a. Correct the non-conformances in their log or evidence documents
- b. Submit a copy of their corrected log with their application for renewal of their practising certificate so the Regulator can confirm this

Breakdown of conformance levels for auditees by function



Number of non-conformances for different requirements



Positive observations on audit results

The following were found in the report to be positive outcomes from the compliance audits:

- 81% were found to be substantially conforming
- Most people who were substantially conforming have attended the Learning From Disasters course. The auditors cited this as a good example of directed learning (except for those holders substantially non-conforming as referred to in previous slide).

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Future audits and review

Update on MOC Scheme

Future audits and review

Future audits

- Annual target of 128 audits to be completed, which may be targeted to certain functions and requirements
- Further outsourced audits to be completed in 2023 – 2024

Review

- A review to be undertaken by the Resources Regulator to determine the effectiveness of the maintenance of competence scheme after 5 years of operation
- Review will include comparing to the CPD schemes in Qld and NZ to see if beneficial differences can be accommodated and remove unnecessary differences to promote harmonisation

6. Thank you and any questions?



Morning Tea Break Conference Foyer

Virtual Reality Free Roam Strata Training

Adam Stait

HST Coordinator – Project Lead

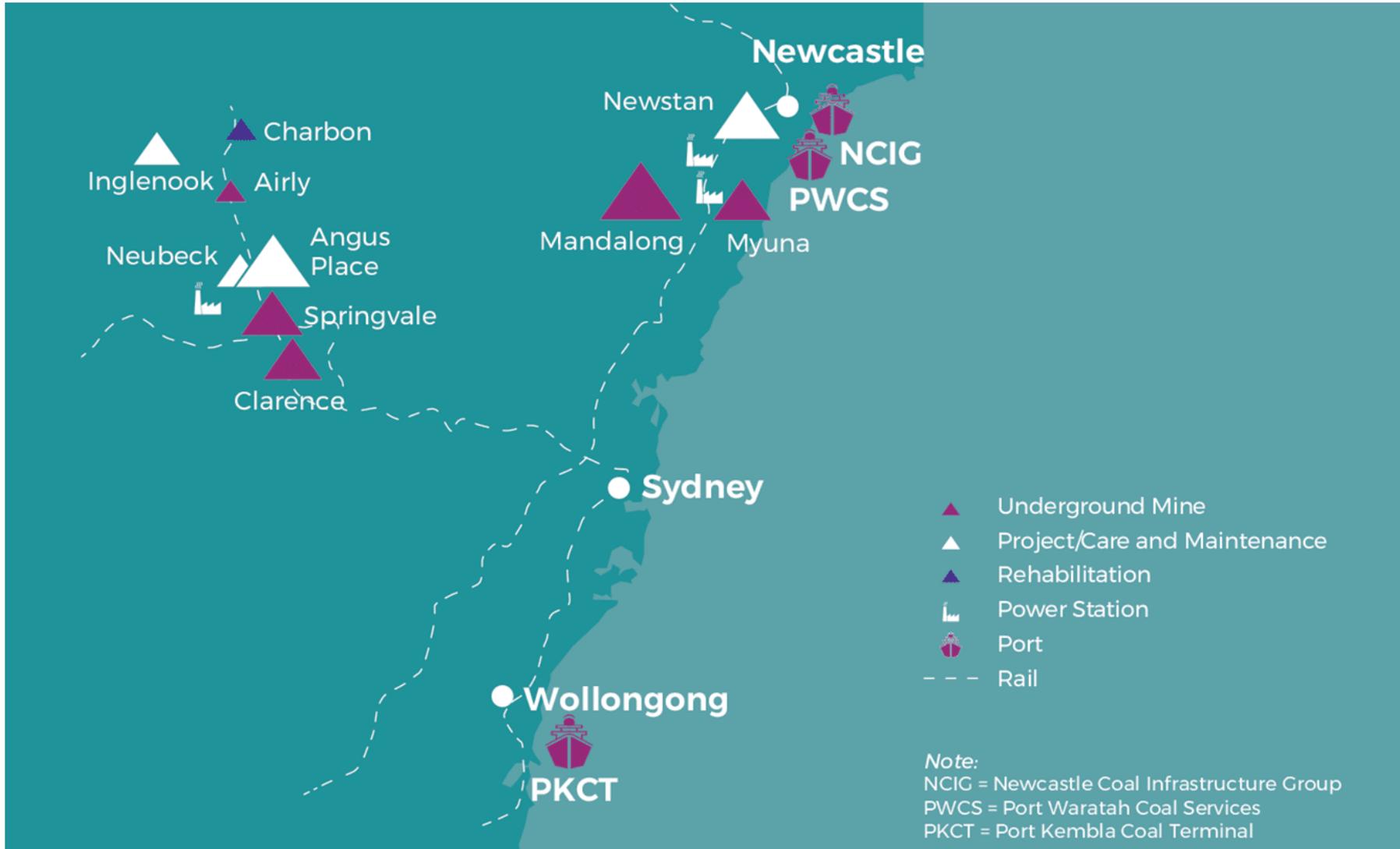
Agenda

1. Learning Outcomes
2. Location and Overview of Clarence Mine
3. Clarence Enforceable Undertaking
4. Strata Training at Clarence
 - Previous approach to training
 - Why understanding strata at Clarence is important
5. VR Free Roam Training
6. Lessons for Industry

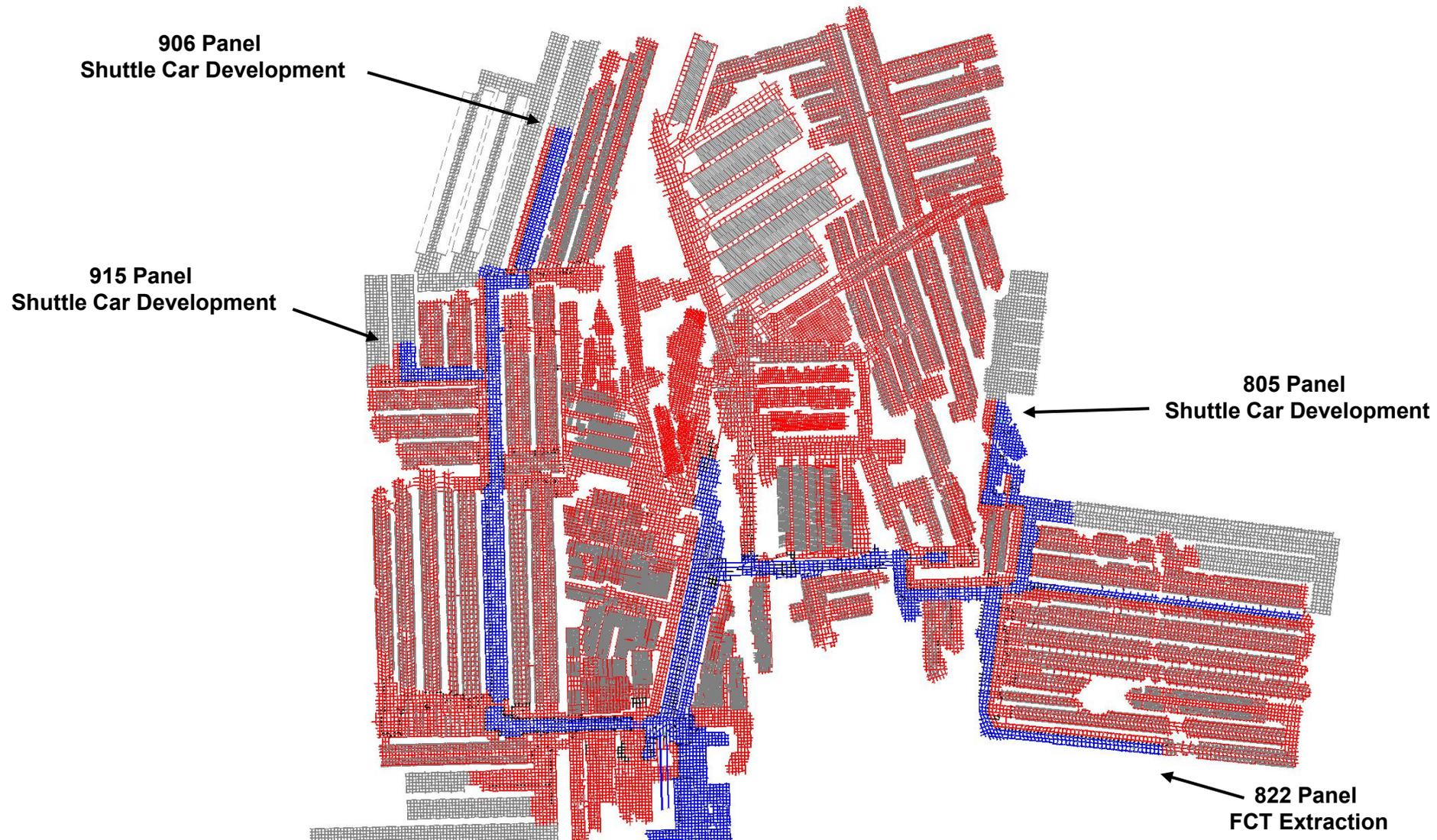
Learning Outcomes

The goal of today's presentation is to provide information and education around the use of Virtual Reality technologies in the development and implementation of training programs.

Location and Overview of Clarence Mine



Location and Overview of Clarence Mine



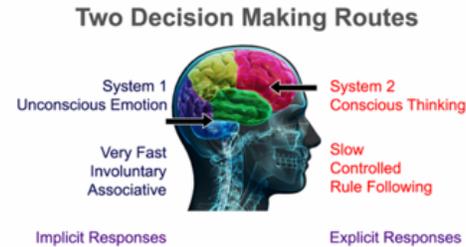
Clarence Enforceable Undertaking

- Incident July 2018 where rib / roof corner struck 2 operators causing serious injuries
- Incident report available at resources regulator website.
https://www.resourcesregulator.nsw.gov.au/_data/assets/pdf_file/0020/1219142/Clarence-Colliery-Rib-failure-at-Clarence-Colliery-Investigation-report.pdf
- Mine implemented rib support in all mining areas (previously installed above 3m)



Clarence Enforceable Undertaking

- Entered into Enforceable Undertaking in May 2020
- Undertaking included benefits to Industry, Workforce and Community
- Part of the EU was the **VR Free Roam Strata Training**



Safety Mindfulness – improving our situational awareness on the job for repeatable safer outcomes



VR Free Roam Strata Training– develop real life scenario based interactive training specific to Strata Hazards



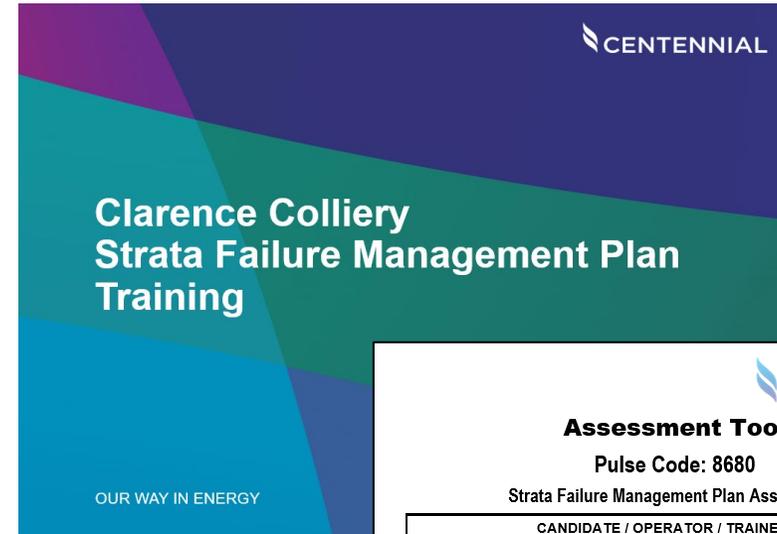
Ergonomics Assessment – improving the way we currently install support and future improvements



DSI Silcrete – potentially a system to improve the way we support ribs and remove support for extraction

Strata Training at Clarence

- Previously a PowerPoint presentation and assessment
 - Photographs of encountered strata conditions
- Typically delivered by a Technical Services representative
- Whole of workforce is trained
 - New starters and periodic retraining
- Imperative that all persons have an understanding of Clarence strata due to the nature of our production and support systems



CENTENNIAL
CLARENCE

Assessment Tool
Pulse Code: 8680
Strata Failure Management Plan Assessment

CANDIDATE / OPERATOR / TRAINEE DETAILS	
Name: _____	Position: _____
Payroll No: _____	Date: _____

TRAINER	
Name: _____	Position: _____

Refresher Assessment Only (Maintenance of Competence):

Note: Manager's Appointment is **not required for Refresher Assessment** Please tick Refresher Only

EMPLOYEE / CONTRACTOR SIGNATURE

After satisfactorily completing training relating to this assessment, through explanation / demonstration, I agree to apply the same principles and practices when operating this equipment at Clarence Colliery.

Name of candidate: _____	Date: _____	
Position or Contractor Company: _____	Signature: _____	

ASSESSOR SIGNATURE

Please tick:

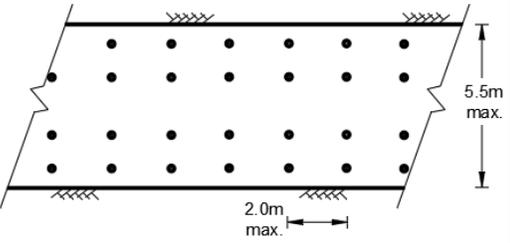
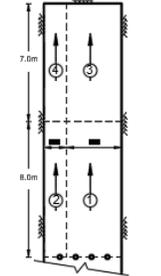
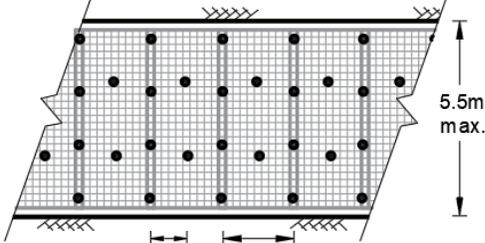
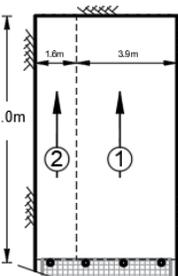
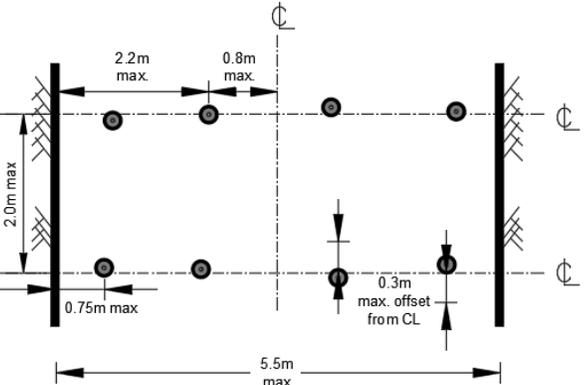
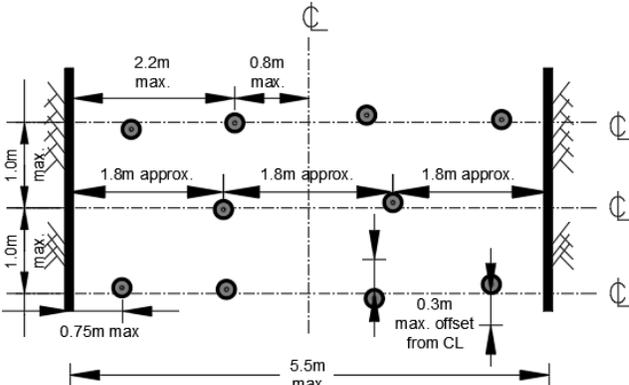
Learner Operator <input type="checkbox"/>	or <input type="checkbox"/> Restricted Operator <input type="checkbox"/>	or <input type="checkbox"/> Competent (COMP) <input type="checkbox"/>
		Not Yet Comp (NYC) <input type="checkbox"/>

At the time of this assessment the above candidate has been found Competent or NYC (tick above) to apply the principles and practices, in accordance with this assessment, at Clarence Colliery.

Assessor Name: _____	Date: _____	
Position: _____	Signature: _____	

Why Identifying Strata Conditions is Important

Normal and Moderate Support Rules (as of May 2021)

NORMAL STRATA - ROOF SUPPORT	CUTTING SEQUENCE	MODERATE STRATA - ROOF SUPPORT	CUTTING SEQUENCE
<p>4 x 1.8m (min. length) Chemically Anchored Bolt with Plate every 2m</p>  <p>5.5m max.</p> <p>2.0m max.</p>	<p>CUTTING SEQUENCE</p>  <p>Shuttle Car Maximum Cutting Sequence Shown Above. Maximum 18m cut for FCT. Cutting Sequence (1) - (4) = 3m.</p> <p>Cutting Sequence Applicable for Dual Pass Miner Set-up Only.</p>	<p>6 x 1.8m (min. length) Chemically Anchored Bolt with Plate and Roof Mesh every 2m. Intersections are 4 x 1.8m (min. length) Chemically Anchored Bolt with Plate and Roof Mesh every 1m.</p>  <p>5.5m max.</p> <p>1.0m max 2.0m max</p>	<p>CUTTING SEQUENCE</p>  <p>8.0m</p> <p>Cutting Sequence Applicable for Dual Pass Miner Set-up Only</p>
NORMAL STRATA - ROADWAY PATTERN			MODERATE STRATA - ROADWAY PATTERN
 <p>2.2m max 0.8m max</p> <p>2.0m max</p> <p>0.75m max</p> <p>0.3m max. offset from CL</p> <p>5.5m max</p>			 <p>2.2m max 0.8m max</p> <p>1.8m approx 1.8m approx 1.8m approx</p> <p>1.0m max 1.0m max</p> <p>0.75m max</p> <p>0.3m max. offset from CL</p> <p>5.5m max</p>

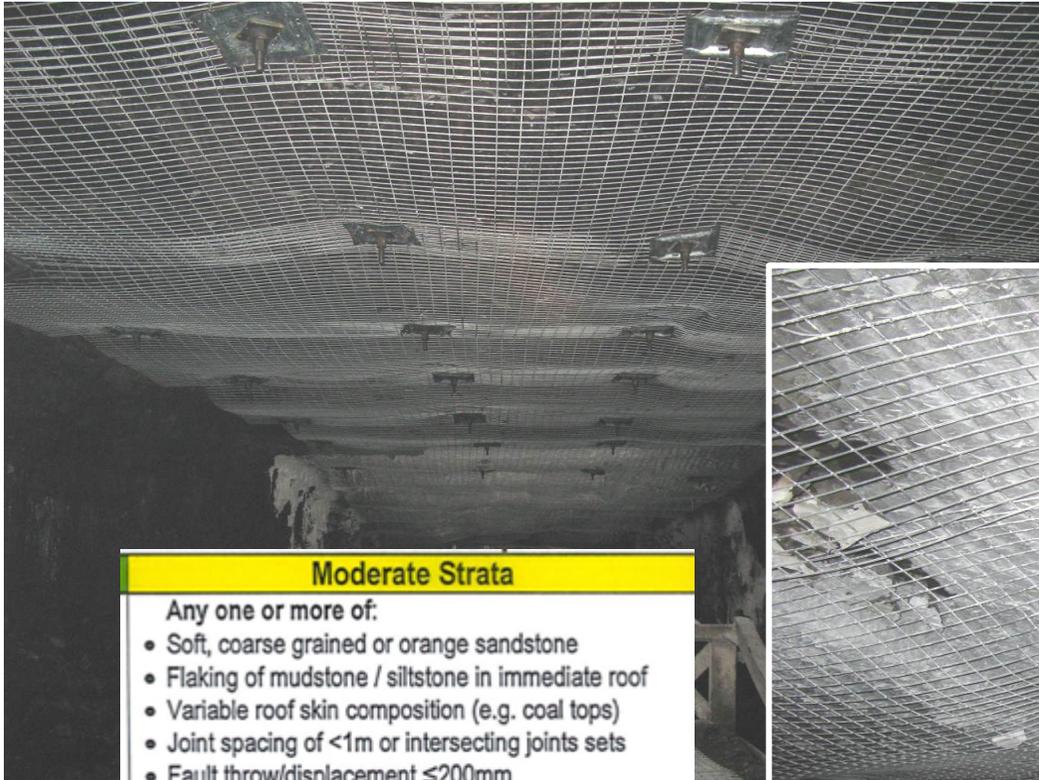
Examples of Normal Roof



Normal Strata
<ul style="list-style-type: none">• Fine-medium grained sandstone• Mudstone / siltstone bed in immediate roof not flaking• Uniform roof skin composition• Generally flat profile with pick marks visible
<ul style="list-style-type: none">• Sounds solid.• All bolts tensioning
<ul style="list-style-type: none">• Roadway driven at 5.5m excluding intersections• Allowing for spall, total width $\leq 6.0\text{m}$
<ul style="list-style-type: none">• Generally flat profile• Assess hazard of coal tops / roof canche



Examples of Moderate Roof



Moderate Strata

Any one or more of:

- Soft, coarse grained or orange sandstone
- Flaking of mudstone / siltstone in immediate roof
- Variable roof skin composition (e.g. coal tops)
- Joint spacing of <1m or intersecting joints sets
- Fault throw/displacement $\leq 200\text{mm}$
- Dykes, $\leq 100\text{mm}$ thick
- Multiple water drippers
- Strike-slip or shear fault identified by broken rock
- Sounds drummy
- Orange drill cuttings / soft drilling / hard bands
- > 6m to $\leq 6.4\text{m}$ at time of bolting, excluding intersections
- Up to 300mm
- Irregular cut profile



Outbye VS Panel Ribs



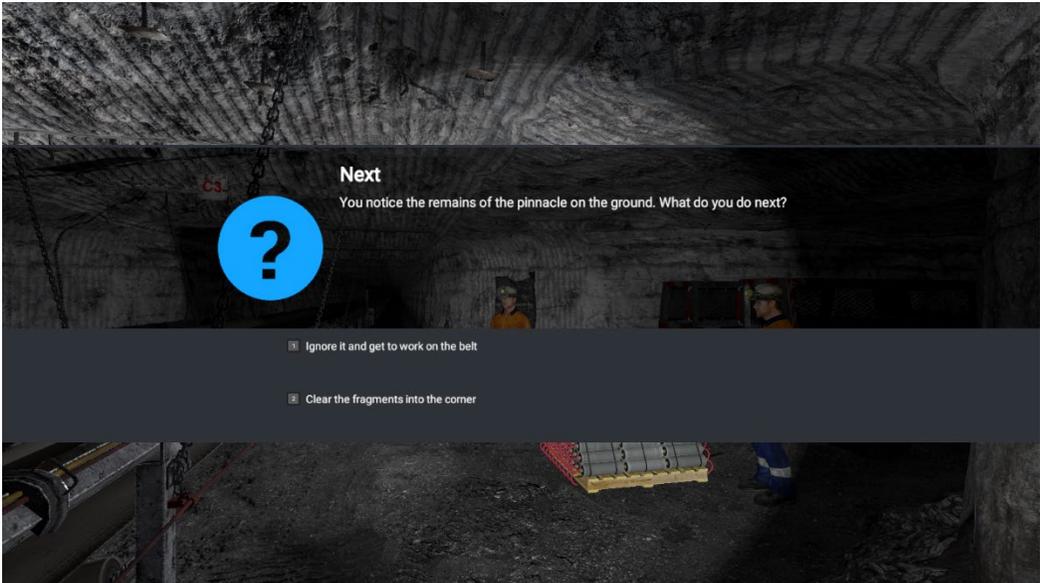
VR Free Roam Training

- Clarence VR Free Roam Training focused on four scenarios
 - Continuous Miner Development
 - Sequence Bolt Up
 - Rib Mesh Removal
 - Outbye Strata Hazards
- Allowed for greater levels of immersion – particularly for people with limited underground experience
- Incorporated an interactive assessment function

VR Free Roam Training



VR Free Roam Training



Lessons For Industry

Advantages

- Virtual Reality Training provides an interactive alternative to a typical PowerPoint / video training session
- Allows for greater levels of immersion
- Ability to customise scenarios for site specific conditions
- Can safely represent / interact with hazardous scenarios

Limitations

- Lead time for training package development
- Resources required for developing and delivering the package
- Training required each person to be linked have a PC for trainer interaction
- The ability to conduct training as a group

Next Generation VR

- Following a strata incident at Airly it was decided to utilise the VR platform for training
- Scenario learning outcomes
 - Demonstrate the actual event outcomes on the incident timeline
 - Replay the incident and put corrective actions in play
 - Highlight the uses of TARP's as part of the process
- Also developed a self escape scenario - Fire along panel travel road
 - Immediate response
 - Non-verbal communication
 - Tertiary escape (life line)
 - Fire Fighting
 - First Aid



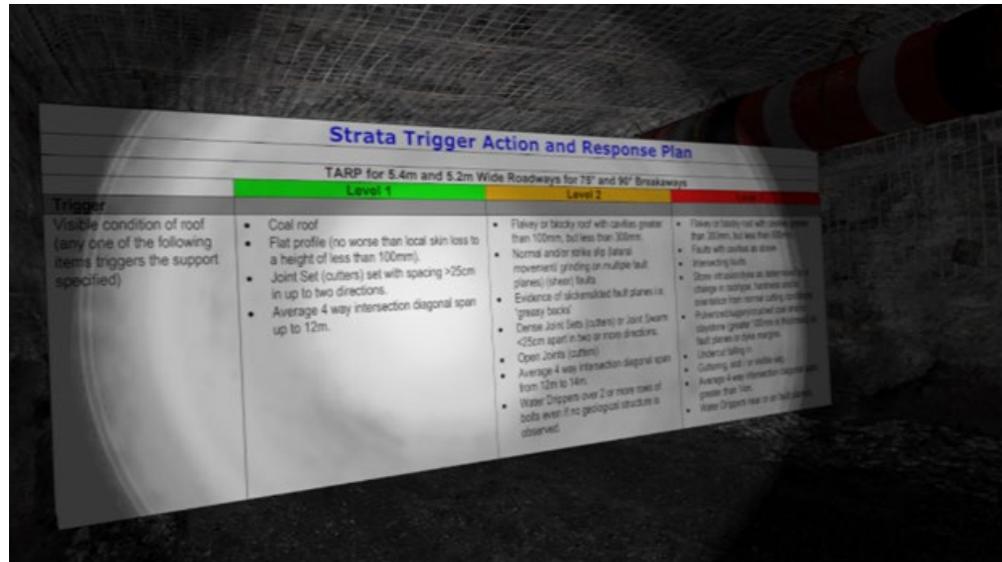
Next Generation VR

- The strata was scenario was developed with actual photo's of the incident



Next Generation VR

- Roof fall triggered
- Reset the scenario
 - Install support as per TARP



Next Generation VR Improvements

- Portable resources
- Central trainer controlling the scenario
- Entire class experiencing the same event at the same time
- Interactive
 - Utilising equipment within the scenario
 - Fighting a Virtual fire with an extinguisher
 - Reading increasing gas levels on a gas monitor your virtually holding





CENTENNIAL

Pegasus Learning Management System

Craig Hagen
Training & Development Specialist, Yancoal

Introduction to demonstrations and displays

Wayne Green

General Manager Mines Rescue, Regulation & Compliance



Lunch Redsalt Restaurant

Order 34 2022 Conference

