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9 December 2022

Transport and Resources Committee
Parliament House
George Street
BRISBANE QLD 4000
Attn: Dr Jodhi Rutherford, Committee Secretary

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Submission – Parliamentary Inquiry – Coal Mine Safety

1   Glencore Coal Assets Australia (**GCAA** or **Glencore**) welcomes the opportunity to provide a submission to the Queensland Parliamentary Inquiry into Coal Mining Industry Safety (the **Inquiry**).

2   This submission responds to the matters raised directly by the Transport and Resources Committee in the published Terms of Reference for the Inquiry.

3   It is structured as follows.

    (a)   In the introduction to this submission Glencore has provided an overview of its approach to cultivating and improving safety culture within its organisation, both at a corporate level and at the mine site.

    (b)   In the subsequent sections of this submission, Glencore has set out its views in respect of each of the five topic areas that were identified in the Terms of Reference as particular areas of focus. In doing so, Glencore has provided responses to those recommendations contained in Parts I and II of the Queensland Coal Mining Board of Inquiry Reports (together, the **BOIRs**) that are directly relevant to each of the five topic areas in the Terms of Reference.

Introduction: Cultivating and improving safety culture within an organisation

Management

4   GCAA considers that the role of the management function at the corporate level (ie, above the mine site) is to lead the organisation's approach to safety in the following ways:

    (a)   **Developing the health and safety framework:** the framework covers the areas of Health, Safety, Environment and Community and Human Rights (HSEC & HR), Technical Services, Personnel Development and Asset Management. It provides structure and consistency across the organisation;

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(b) **Setting expectations:** the framework is supported by a suite of HSEC & HR Standards **(the Standards)** which provide direction and establish and set expectations. The Standards were developed by and are owned by the GCAA Leadership Team. They outline the minimum requirements for GCAA's operations in key areas. Importantly, the Standards identify what needs to be done and when, but do not specify *how* it is to be done, as this must be addressed within the Safety and Health Management System for each individual operation, and requires local consultation and engagement to cultivate ownership;

(c) **Monitoring performance:** by conducting audits and by designing and undertaking a robust assurance program to verify that measures are being implemented effectively; and

(d) **Intervention:** taking action where necessary to address any deviations from the plan or minimum requirements.

5   The GCAA management structure is decentralised; each operation is managed as an individual business with its own management team that is accountable for its own performance. This structure reflects the way in which GCAA want the business to run. At a corporate level, it means that:

(a)   GCAA Director of Operations (line management) oversees for all operational performance including HSEC; and

(b)   GCAA Functional Directors (internal experts) define, monitor and audit the systems with which the operations are expected to comply, but the Director of Operations is responsible for the implementation and delivery of those systems.

6   Further, GCAA recognises the HSEC department must be appropriately structured and well-resourced in order to support a systemic and coordinated approach. In this regard, we note that GCAA has a Director - Health, Safety and Training, and a Director - Environment and Community. These are two separate roles, each of which reports to the Chief Operating Officer, rather than being combined into a single role with accountability for all Sustainable Development or HSEC matters.

7   The GCAA Health, Safety and Training (**HST**) team provides support functions and content expertise in the areas of risk, health, safety, training, systems, compliance, assurance and emergency capability. A key activity for the HST team is undertaking on-the-ground validation of performance, and accounts for a large proportion of their work activity, with all key strategic initiatives followed through with verification activities to confirm implementation. This also provides an opportunity for mentoring and coaching of health and safety professionals and other operational personnel at the operational level.

8   An important feature of the GCAA management philosophy is that the corporate function is to provide support to operations but is not there to do their job for them. The Site Senior Executives (**SSEs**) are responsible for developing and implementing their own Safety and Health Management Systems, and must be accountable for delivering performance against those systems.

9   GCAA requires all management, from line managers to supervisors, to perform visible leadership activities and to set an example of appropriate HSEC behaviours. The Regional Asset HSEC Protocol for Targeted Visible Leadership expands on these requirements and defines the desired characteristics of the GCAA Targeted Visible Leadership program with a key focus on improving safety performance. This is supported by the GCAA Organisational WHS Culture Model. Our approach to Targeted Visible Leadership is risk based, with a more structured and detailed interaction conducted for those tasks that are considered higher risk. Each interaction is scheduled as part of the planning process and is driven from the requirements contained within the safety and health management system.

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Safety Initiatives

10   GCAA is committed to learning from incidents, identifying systemic issues and introducing measures that are designed to make a meaningful improvement to safety performance across the organisation.

11   In 2015, the Mining Safety Advisory Council initiated a Safety Culture survey across the NSW Mining Industry. GCAA volunteered to participate, committing to conducting the same survey across our Queensland operations. This required GCAA to establish an internal capability to facilitate the process to maintain consistency across all operations.

12   The survey utilised the NOSACQ-50 Safety Climate questionnaire, and was supported by focus groups and workplace health and safety (WHS) systems and practices workshops in order to gain further insights into the survey results. The NOSACQ-50 Safety Climate questionnaire is an internationally recognised survey tool that has been used extensively globally, giving a broad base of data to allow comparison and benchmarking of results.

13   The Hudson Cultural Maturity Ladder was utilised to rate the maturity of WHS systems and culture, and was included in the focus groups and workshops. Analysing the survey results against the Hudson Cultural Maturity Ladder, GCAA was categorised as "***Proactive***", which carries the following description:

      "*we work on the problems we still find - the organisation has systems in place to manage hazards and staff and management have begun to acquire beliefs that safety is genuinely worthwhile*."

14   In 2019, when the Queensland Safety Resets (**Safety Resets**) were initiated by Queensland Mines Minister Anthony Lynham, GCAA did two things immediately:

      (a)   Introduced the same program across all of our operations in Australia (not restricted to Queensland), and;

      (b)   incorporated the Safety Resets into our HSEC Strategy and Annual Planning process to ensure that every two years, GCAA would have a Safety Reset across all Australian operations, regardless of whether there was an industry-led Safety Reset or not.

15   Glencore had over 10,000 employees and contractors participate in the Safety Resets, and identified 1,419 improvement opportunities across 189 workshops.

16   In 2021, GCAA also nominated to participate in the QRC-led High-Reliability Organisation (**HRO**) benchmarking review, conducted by Noetic Consulting and supported by the Commissioner of Resources Safety and Health. The purpose of this exercise was to review how HRO principles could be implemented in the mining industry.

17   GCAA's participation in, and implementation of, the initiatives referred to above demonstrates our commitment to continuous improvement in health and safety, and that our business actively seeks opportunities to improve. This is consistent with our active involvement in industry initiatives across our operations over many years.

18   GCAA is proud of the safety improvements it has implemented over the past decade, and believes those improvements are due in part to a range of specific initiatives that have been developed internally, and subsequently tested and implemented successfully. Specific examples of our strengths and industry leadership in health and safety initiatives are set out below:

Level 1 emergency exercises

19   "Level 1" emergency exercises have been held annually in Queensland since 1998 and are the result of a recommendation made by the Queensland Mining Warden's inquiry into the explosion at the Moura No. 2 Mine in August 1994. These exercises are conducted under the guidance of an organising committee and specifically target underground operations. In 2010, Xstrata Coal NSW introduced a similar

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requirement, requiring a Level 1 emergency exercise to be conducted at one surface and one underground mine, under the direction of an organising committee, separate from the operation itself. This initiative was implemented to test site emergency capability arrangements, including incident management and response.

20   In 2015, with the merger of our New South Wales and Queensland operations, the initiative was continued across all GCAA operations. GCAA currently coordinate and facilitate at least one exercise per annum in Queensland and one in New South Wales. To date, we have conducted 22 Level 1 Emergency Exercises and continue to receive support of this commitment from both Qld and NSW Mines Rescue, along with State based emergency services organisations, including the Police, Fire and Ambulance services. The Rescue Helicopter is also actively involved, and is committed to mobilising to the exercises (where work activity permits).

21   The objective of the exercises is to develop and implement a simulated emergency scenario that will challenge the adequacy and effectiveness of the site Emergency Management Plan and its associated procedures. It is also intended to test the suitability of the GCAA Incident Management Manual and associated Duty Cards, and is fundamental in the continuous improvement of these systems.

22   The specific matters assessed throughout the exercise are:

(a)   Emergency Response.

(b)   Evacuation.

(c)   Incident Management.

(d)   Business Recovery.

23   Each exercise involves a number of assessors from our neighbouring operations and is sponsored by one of our Operations Managers (typically from the operation who participated the year before) and facilitated by the state based Safety and Emergency Capability Manager.

24   Outside of the individual operation's learnings, more broadly, these exercises have led to a number of improvement opportunities, including:

(a)   *Incident Management System:* Development and implementation of a common Incident Control and Command System (**ICCS**) across all GCAA operations supported by training facilitated by the state based Mines Rescue Services.

(b)   *Relationships***:** Key relationships with local and state based Police and Emergency Services and Mines Rescue Services – allowing us to understand how they work, and for them to understand how we work.

(c)   *Training:*

(i)   Incident Management training contextualized to our GCAA systems and facilitated by Mines Rescue.

(ii)   Scene Controller Training program developed and facilitated by Mines Rescue.

(iii)   Coaching through participation.

(d)   *Technology:*

(i)   The exercises allow GCAA to trial the use of technology in our response, and assess how we would respond to technology being used in the event of an incident at an operation (e.g. the use of drones).

(ii)   Use of simulations to provide realistic scene layouts.

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(iii)   Personnel mounted cameras (e.g. Go Pro's) to enhance the learnings and sharing of emergency simulation exercises to other GCAA operations.

Technology and Innovation

25   GCAA continues to seek and investigate relevant technological innovations that advance our operations' health and safety management. Our typical approach is to trial the technology at one of our operations prior to committing across the business. The technology must perform to an acceptable standard against the established specifications and must fundamentally strengthen the controls to manage the specific hazard and not introduce any additional hazards that potentially puts us in a worse position. This is continually tested and monitored throughout the trial process. All technology trials related to the management of our catastrophic risk report through to a GCAA steering committee which maintains oversight of the various projects.

Operator Awareness System (Guardvant)

26   Throughout a six-month period in 2015 and 2016, one of our operations in NSW experienced six operator impairment related incidents involving heavy equipment. This inspired a need to strengthen our controls concerning operator impairment, and GCAA initiated a full project to better understand relevant available technologies. GCAA identified and selected the Guardvant operator awareness system (**OAS**) for trial at one of our open cut operations.

27   The OAS is a non-intrusive eye closure and distraction monitoring solution specifically built for the mining industry. On-board hardware includes cabin camera and forward- facing camera, infrared sensor and in-cabin motion alarm and audible device. A dash mounted camera continually scans the operator's face to detect eye closure events while the truck is in operation (moving at > 5kph). When an eye closure event is detected an in-cab alarm is activated (audible and haptic), and video footage of the event is created and sent off-board for review. An eye closure event occurs when the operator has both eyes closed at 75% or more for longer than an accumulative period of 1.5 seconds.

28   In 2017, following a successful trial, GCAA committed to the implementation of the OAS across the GCAA opencut portfolio. The project was completed in 2019 with the installation of just under 450 units.

29   To support this system, in August 2020, GCAA introduced an Operator Awareness Monitoring Centre (OAMC), which operates from the offices of one of our operations in care and maintenance. The OAMC operates 24/7, with two Officers per 8 hour shift , monitoring 14 operations. The OAMC monitors for OAS events, and provides direct, positive communications to the operation (operator and supervisor) via two-way or phone. This has resulted in significantly improved event monitoring performance and reporting and provided a level of consistency across all operations.

30   Although operator vigilance is a known control for our vehicle interaction hazard, previous to the implementation of this system it was difficult to appropriately measure effectiveness, as it relied almost solely on self-reporting and/or operator acknowledgement. The introduction of this system has strengthened this control in a number of ways – both reactively through the alarms and vibration of the seat which draws the attention of the operator, and proactively through the identification and treatment of more systemic health issues.

Collision Avoidance

31   GCAA has played an active role in industry regarding the development and implementation of controls to prevent the risk of vehicle interaction. In the vehicle interaction landscape, technology has two fundamental roles:

(a)   Firstly, it can assist us in applying and implementing existing controls or practices.

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(b)   Secondly, it can improve or replace existing controls or practices.

32   With reference to the EMSERT nine level control effectiveness model, technology either assists us for 'design' and 'operate' controls (Levels 1-7) or it adds new 'react' controls (Level 8 and 9).
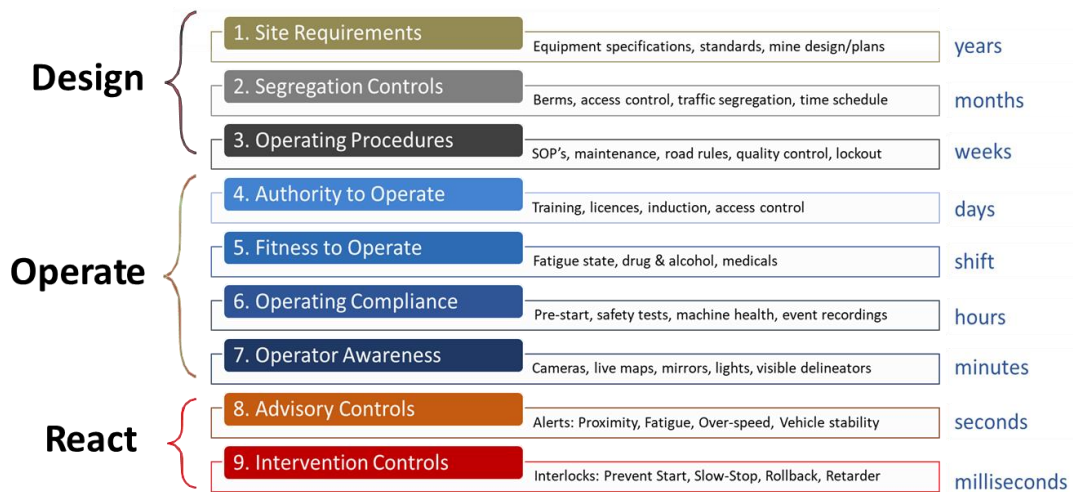

Design	1. Site Requirements	Equipment specifications, standards, mine design/plans	years
	2. Segregation Controls	Berms, access control, traffic segregation, time schedule	months
	3. Operating Procedures	SOP's, maintenance, road rules, quality control, lockout	weeks
Operate	4. Authority to Operate	Training, licences, induction, access control	days
	5. Fitness to Operate	Fatigue state, drug & alcohol, medicals	shift
	6. Operating Compliance	Pre-start, safety tests, machine health, event recordings	hours
	7. Operator Awareness	Cameras, live maps, mirrors, lights, visible delineators	minutes
React	8. Advisory Controls	Alerts: Proximity, Fatigue, Over-speed, Vehicle stability	seconds
	9. Intervention Controls	Interlocks: Prevent Start, Slow-Stop, Rollback, Retarder	milliseconds

Figure: EMERST Nine Layer Control Effectiveness Model

Extensive research and development of new technology 'react' controls that alert and advise operators (Level 8) and intervene independently of the operator (Level 9) has been undertaken over the last decade. While these 'react' control developments are progressing, there are still few examples of successful operational deployments within industry.

33   GCAA is currently developing an assessment methodology for technology, which is based on industry experience and research and separately analyses sensing, rules and interface system elements as they apply for the vehicle operator (Levels 7-8) and for machine intervention (Level 9). Industry experience has identified that scoping, implementing, integrating, and maintaining collision avoidance systems is complex because:

(a)   During operations there is an ongoing dynamic interdependence between design, operate and react controls (reference EMESRT Level 1-9 Model)

(b)   The successful implementation and integration of react controls requires a comprehensive baseline understanding of design and operate controls

34   Success requires precisely understanding what technology does and does not do, taking an engineering project approach, and considering human factors in design and during operational integration. This was the approach taken by GCAA in identifying and selecting a suitable Collision Avoidance System (**CAS**) to trial at Glendell Opencut. Once the risk-based decision was made to pursue available options, a project was established and resourced, and work commenced with involvement from the operation. Although COVID-19 impacted on the initial delivery date, the trial is coming to a conclusion, with the system now fully tested, and passing all required functional and performance requirements including EMERST PRA5 Storyboards. Portable units have been designed and a deployment process established for contractor vehicles, which has been initiated more recently.

35   The GCAA committed capital layout for this project is just under $100M, which caters only for the equipment and installation. The ongoing operating expenses will be verified during full system integration. This considers the workload and resources to manage the system on a daily basis, including the full design and implementation of the maintenance strategy. In total, there will be 2,800 CAS units required across GCAA for full system implementation. The project is due for completion in 2025.

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Underground Longwall Automation

36   Since the 1970's industry has examined the automation of longwall equipment, with a focus on reducing the exposure of underground coal mine workers to hazards such as dust, moving equipment and fly rock. The approach for GCAA has been to implement a floor steering philosophy, which does not try to replace how a coal mine worker would manually control a longwall. Rather, it implements a system of planning and then execution. An operator on the surface of the operation receives data about the current status of the longwall face (a face map), and plans what the shearer needs to do on the next shear. The plan is loaded into the shearer ready for execution on the next shear. While the shearer is executing the plan the surface operator is planning the next shear. This loop of plan and execute continues over and over. Because the surface operator is planning the next shear in advance, there is no need for instantaneous control of the equipment, as happens during a traditional manually operated longwall.

37   The floor steering philosophy can be broken down into a further two stages. Both stages have a surface control room implementing the plan execute cycle:

   (a)   **On-face face mapping** – the current status of the longwall is captured by manual observations of the face conditions and transferred to the surface control room as input to the plan execute cycle. The coal mine worker doing the observations is nowhere near the moving equipment and always on the fresh air side of the moving equipment.

   (b)   **Remote face mapping** – the current status of the longwall is captured by cameras and other sensors and displayed in the surface control room as input to the plan execute cycle. This mode requires no people on the longwall face at all during operation.

38   The GCAA operations Oaky Creek North, Ulan Underground and Ulan West are implementing the floor steering methodology. All three operations have been successfully operating with on-face face mapping for many years. Oaky Creek North and Ulan West have the technology installed and proven to allow remote face mapping.

39   Development of Underground Longwall Automation demonstrates the commitment GCAA has to continuous improvement and innovation for the purpose of improved safety outcomes for its workforce. Projects such as this require significant resources, time and financial support in order for successful outcomes to be achieved. These solutions are not "plug and play", and without appropriate customisation and integration into the operational environment, they can potentially lead to unintended outcomes and may even have a detrimental impact on safety.

No Plan No Work

40   As mentioned above, GCAA is committed to learning from incidents, identifying systemic issues and introducing measures that are designed to make a meaningful improvement to safety performance across the organisation. By way of example, in 2016, an incident at Newlands Opencut resulted in fatal injuries to a contractor working at Newlands CHPP on a shutdown. The RSHQ conducted a full investigation, and an internal GCAA investigation was conducted and led by the Director - Health, Safety and Training. The outcomes of this investigation led to a number of improvement opportunities, including the 'No Plan No Work' campaign.

41   This ongoing campaign is targeted to all levels of the organisation and discusses the importance of having a risk based plan in place prior to commencing work. The campaign was targeted at all key stakeholders including operators, supervisors, superintendents and managers, and whether they are employees or engaged as contractors. The No Plan No Work principles can be broadly summarised as follows:

   (a)   if you do not have a plan, you do not start the work

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(b)   It is not about just having a plan to fulfill the requirements, it must be the right plan; and,

(c)   There is an individual benefit in getting the plan right.

42   A number of GCAA senior leaders were actively involved in the development of the campaign, and the launch was led by the Chief Operating Officer. The campaign continues to be sustained across GCAA operations.

43   Additionally, GCAA implements an ongoing, mandatory training program for key stakeholders titled "Operational Work Planning" (which meets the requirements of competency standard BSBMGT402 Implement Operational Plan). This training program has been included within the training needs analysis to support ongoing efforts to increase and maintain skills and knowledge in this area. GCAA continues to investigate and identify specific issues regarding work planning in order to understand improvement opportunities.

A – The impact of coal production rates on safety risk management

44   GCAA is committed to health and safety at its operations and follows a best practice, risk-based approach to managing risks of work-related injury and disease. Production decisions should be made with the health and safety of workers as the primary objective.

45   Health and safety duties and responsibilities are intimately intertwined in all aspects of coal mining, including in the production of coal. Attempting to disengage health and safety from production diminishes health and safety outcomes at the operations by undermining the fundamental principles around safety that the industry has been working hard to entrench in its workforces. Industry experience suggests that the separation of health and safety duties from production responsibilities can lead to increased levels of risk as well as reduced operational efficiencies.

46   It is the position of GCAA that an understanding of, and skills developed in the production of coal are fundamental to recognising and addressing associated health and safety risks that arise during mining operations, including those associated with production rates.

47   As a case example, the GCAA Oaky Creek North underground operation has designed an effective gas drainage system with the result that Oaky Creek North has not had to utilise the management of production rates as a control for safety risks associated with gas emissions, and the Oaky Creek North shearer otherwise has CH_4 feedback to control speed. The implementation of these safety controls is supported and carried out by personnel with extensive production experience who also hold statutory safety positions (such as Ventilation Officers (**VO**)).

48   Production related decisions should not be taken in isolation from health and safety considerations, but rather should be informed and motivated by those considerations. Attempting to delineate health and safety responsibilities from production related responsibilities is counterintuitive to effective safety risk management.

Workforce Survey

49   In 2021, GCAA again participated in a Safety Reset across all of our operations, and due to the concerns raised within the industry and as part of the Board of Inquiry process, a workforce survey was initiated as part of the Safety Reset to better understand the incident reporting culture across our operations.

50   The survey questions were framed to assist GCAA in understanding its performance against the following indicators:

(a)   **Zero Tolerance:** safety systems and standards across the operation

(b)   **Sensitivity to Early Warning Signals**: culture of alertness to early warning signals

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(c) **Reporting of Near Misses and HPIs**: process of Incident Reporting including reporting culture and ease of reporting

(d) **Investigation Process:** effectiveness of the investigation process

(e) **Communication of Outcomes:** extent that outcomes of Near Misses and HPIs are communicated back to the workforce

(f) **Effects of Reporting and Safety Culture:** overall impact of the site safety culture and Incident Reporting on changing the behaviours and processes on site

51   The survey was deployed across all GCAA operations and projects, including underground and opencut sites across Queensland and New South Wales. The survey also targeted all levels of the organisation, including both employees and contractors with the following demographics represented:

(a) 8,714 persons completed the survey, with just over 41% of the respondents being contractors.

(b) 2,151 were Trades people, and 4,350 identified as Operators.

(c) Of the contractors, 86% (3,603) were full time equivalent (including labour hire), with the remaining being part time onsite.

(d) 52.7% of respondents had worked in the mining industry more than 10 years, with the next highest having worked in the industry one to five years.

(e) The age profile was relatively evenly represented, with categories for less than 21, 21 to 30, 31 to 40, 41 to 50 and over 50.

(f) 11% of those who participated are female.

52   Scoring of the survey was designed as follows:

(a) High score is greater than or equal to 4.0

(b) Strong score is between 3.8 and <4.0

(c) Good score is between 3.65 and <3.8

(d) Reasonable score is between 3.5 and <3.65

(e) Average score is between 3.3 and <3.5

(f) Low score is <3.3

53   A summary of the results demonstrated:

(a) On a scale from 1 to 5, Overall GCAA score is a Strong 3.86;

(b) Zero Tolerance (4.08) and Sensitivity to Early Warning Signals (4.02) are high scores;

(c) Three of the five highest scoring questions in the survey are on Sensitivity to Early Warning Signals where 95% of workforce agree " We have safety systems and standards to ensure we work safely and responsibly";

(d) "At this mine, near misses and high potential incidents are taken seriously" also attracted a high score of 4.27, with 90% of respondents agreeing with this statement;

(e) Communication of Outcomes is the lowest indicator score, a Reasonable score (3.60), with three of the operations receiving a low score in this area.

54   While the general survey results were encouraging and indicated a sound overall safety culture, in line with our commitment to continually improve, GCAA identified and has subsequently implemented the following actions:

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(a)   Summary posters developed for all high potential risk incidents for use at various locations around our operations to assist in communication and sharing the learnings;

(b)   Introduction of communication sessions for all mandatory actions assigned from high potential risk incidents to aid in understanding the issue and the solution;

(c)   Introduction of Near Miss communication strategy to assist in sharing the learnings from some of the high potential incidents across our operations.

55   In addition to these, many of our operations conducted follow up workshops to gain further insights into the survey outcomes and establish site specific actions, a sample of which includes:

(a)   HPRI/serious incidents communicated via start of shift initially, followed up by detailed investigation overviews as part of training days, or if critical – a special briefing;

(b)   "The Week That Was" presentation to all start of shift communications inclusive of hazards, incidents, injuries and actions taken.

56

BOIR Part II Recommendation 4: *Coal mines regularly assess production rates and adjust them as necessary to ensure they do not result in gas emissions exceeding the capacity of the gas drainage system.*

- Based on the effectiveness of the gas drainage systems, Oaky Creek North has not had to utilise the management of production rates as a control.

- Regardless, the Oaky Creek North shearer has CH_4 feedback to control speed.

B – Industry's use of coal production-related and lag safety indicator-related bonuses and incentives to workers and executives, and their impact on the management of safety risk

57   GCAA's approach to management is also relevant to remuneration, as GCAA considers the relationship between performance and remuneration to be fundamentally linked to the organisational structure and the responsibilities that are assigned to individual roles within that structure. Performance should be measured against those responsibilities. For example, if an incident that occurs at a site level is found to have been caused by behavioural issues, it is appropriate to address that performance outcome at the site level rather than the corporate level, as the responsibility for establishing behavioural standards exists at the site level.

58   When considering the measure of safety that is incorporated into performance-based remuneration, Glencore considers that both leading and lagging indicators have a role to play. This is reflected in the range of safety-related performance metrics that are applied to personnel within the management structure at each of GCAA's operating mines.

59   Irrespective of how it is structured, any bonus scheme can be subject to criticism if looked at in isolation. Remuneration structures need to be considered in the context of all of the other measures that exist within the organisation's culture model to drive behaviour.

BOIR Part I Recommendation 23: *The industry gives lead safety indicators greater weight than lag safety indicators when measuring safety performance.*

- Glencore does not apply weighting to lead or lag safety indicators, except in the context of performance payments where it is necessary to ascribe weightings to the different performance measures which are taken into account in determining performance payments.

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- The reason Glencore does not apply weighting to indicators when measuring the safety performance of an individual operation is because they are just that – indicators which inform our view as to how an operation is performing. In our view, to get a proper insight into the way an operation is performing from a safety perspective, it is necessary to adopt a balanced approach which takes account of both leading indicators and lagging indicators without prioritising certain indicators over others. It is important to recognise that for every recordable safety incident, there is a person who has been injured. Lagging indicators therefore have a very important role to play.

BOIR Part I Recommendation 24: The industry gives lead safety indicators greater weight than lag safety indicators in the determination of executive bonuses.

- Glencore provided the Board of Inquiry with extensive information about its performance appraisal system and the manner in which lead and lag safety indicators are incorporated into its remuneration framework. A feature of Glencore's performance appraisal program is that the weightings for individual components of the appraisal are tailored to the specific roles performed by individuals.

- The information provided to the Board, which included a number of real-life examples, demonstrated that leading indicators are incorporated into several individual elements of the overall performance appraisal that is undertaken for individual employees. For example, lead safety indicators feature heavily in the Health and Safety Index which is a performance measure applied to every operation each year. However, leading indicators also form part of the Individual Customer Service Indicators section of the performance appraisal, as well as the Managerial Customer Service Indicators and the Customer Feedback Key Result Areas.

- Glencore will continue to have regard to the way in which lead safety indicators should be weighted relative to lag safety indicators in the determination of executive bonuses.

- As the remuneration framework applies on a calendar year basis, Glencore will undertake this exercise at the time of implementing its remuneration framework for each successive calendar year.

BOIR Part II Recommendation 22: The industry reviews its production and safety bonus structures and make any necessary changes to ensure that those structures do not inadvertently discourage the reporting of safety incidents or injuries.

- Our key performance indicators include both leading and lagging indicators, as referenced in our submission. This is, and will continue to be, a work in progress in support of our indicators providing an accurate representation on performance whilst promoting a positive work health and safety culture.

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C – Accurate, fulsome and timely identification, classification and reporting of, and effective responses to, incidents and failures of risk controls

60   Every incident that occurs across GCAA's operations is treated, and responded to, in line with the potential consequence. It is the potential consequence of an incident that determines the type of investigation that is carried out and the personnel that are to be involved at the various stages of the investigation.

61   All incidents are investigated to establish the facts, identify root cause(s) and contributing factors, and to recommend corrective actions to prevent a reoccurrence. GCAA uses three levels of investigation – Basic, Intermediate and Detailed. For each level of investigation, the persons involved and the oversight increases within the organisation in line with the potential consequence. Both the Basic and the Intermediate investigations are based on the 5 Whys methodology, with the Detailed investigations utilizing the Incident Cause Analysis Method (ICAM).

62   A lead investigator is nominated, regardless of the level of investigation, and must hold as a minimum the competency of RIIWHS301 Conduct Safety and Health Investigations. Detailed investigations are only facilitated by an ICAM Champion who must hold the ICAM Facilitator competency. In addition, all ICAM Champions are required to participate in regular professional development activities, or facilitate a detailed investigation, to maintain this status.

63   The communication of investigation outcomes and findings, and the verification of action closeout, increases in formality in line with the potential consequence. A Basic investigation maybe communicated within the operation at which it occurs, whereas a Detailed investigation will be communicated more broadly across GCAA and Glencore globally, with formal verification activities facilitated by the GCAA Health and Safety Team, involving relevant technical expertise as the need arises.

64   For all investigations, relevant details of the incident, the investigation outcomes and actions to prevent a reoccurrence are maintained within GCAA's CMO safety database.

BOIR Part I Recommendation 1: Mine operators and parent companies regard, and action, a reportable methane exceedance as having a potential consequence of level 4 or 5 under corporate incident classification criteria.

- This recommendation assumes that all mine operators and parent companies have the same, or broadly equivalent, incident classification criteria. Whilst it may be the case that Anglo American and Glencore have similar criteria, this is unlikely to be the case for all mine operators. As such, there are likely to be difficulties in applying this recommendation on an industry-wide basis.

- Glencore has considered the recommendation in the context of its own corporate incident classification criteria. It is not currently the case that every reportable methane exceedance is treated as having a potential consequence of level 4 or 5. That is because Glencore's incident classification procedure is underpinned by a risk based approach that has regard to all relevant circumstances, risk factors and potential maximum consequences.

- If every reportable methane exceedance were to be treated as a level 4 or 5 automatically, this would mean that every reportable exceedance would be treated by Glencore as a High Potential Risk Incident (HPRI). If an incident is designated as an HPRI, this has a bearing on the type of incident investigation that is carried out, and on the level of management at which that investigation occurs.

- We do not consider an automatic classification approach to be appropriate. For example, a methane reading of 2.7% may persist for only a few seconds and not present a significant potential risk due to its short duration and / or lack of an ignition source. In this regard Glencore notes that, prior to the amendments to the legislation in 2017, temporary increases in methane were not reportable as HPIs if they were caused by a goaf fall. By contrast, a methane reading of, say, 2.1% (which would be sufficient to trip the face power at Oaky North) may persist for a longer period of time and, depending on the circumstances, may warrant being treated as an HPRI.

- Glencore's view is that adopting a risk based classification of all incidents (having regard to all of the relevant circumstances) is preferable to investigating an incident as a level 4 or 5 incident for the sole reason that it constitutes a methane exceedance of greater than 2.5%, which is significantly below the level at which methane enters the explosive range. In this regard Glencore notes that the lower flammability limit (LFL) is a term considered by many safety professionals to be the same as the lower explosive level (LEL). At a concentration in air lower than the LFL, gas mixtures are "too lean" to burn. Methane gas has a LFL of 4.4%.

- Glencore notes that, for all of the HPIs considered by the Board in Part 1 of the Inquiry, the investigations undertaken by the relevant mines were considered by the Board to be adequate. It is unclear from the material contained in the Board's Report what benefit would be realised by escalating each and every investigation to a level 4 or 5.

- However, Glencore is fully supportive of the proposition that all reportable methane exceedances should be the subject of a thorough incident investigation, and that investigation must include actions designed to prevent a reoccurrence. In our view this should be the focus of the response to an exceedance, rather than the classification of the event itself.

- Glencore reviewed its corporate procedures to determine whether changes need to be made to provide more detailed guidance regarding the nature of the investigation to be undertaken in response to a reportable methane exceedance, and the emphasis that is to be given to identifying actions to prevent reoccurrence.

- A full review of the procedure was conducted with a technical writer for flow, readability and clarity for ease of use and reference.

BOIR Part I Recommendation 2: *Mine operators and parent companies escalate the treatment of repeat high potential incidents of a similar nature and ensure a more rigorous investigation than for a single high potential incident. Reporting and investigation standards and procedures formally reflect this requirement.*

- Glencore agrees with this recommendation. Glencore updated its corporate procedures to incorporate a requirement for an investigation to be undertaken at a corporate level in response to repeat high potential incidents of a similar nature.

Part I Recommendation 7: *Mine operators and parent companies classify all methane exceedances at or above 2.5% concentration in the general body as HPIs for internal incident reporting purposes.*

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- Glencore agrees that every methane exceedance should result in an incident investigation. This investigation, coupled with the oversight of repeat incidents at a corporate level, is an appropriate way in which to respond to methane exceedances.

- Methane exceedances are reported to the regulator, with notifications of any reportable incident sent to relevant internal personnel, including senior management. GCAA also compiles a summary of reportable incidents as part of our monthly reporting process, and a detailed review as part of its annual reporting process.

- Glencore considers this recommendation to overlap with Recommendations 1, 8 and 9. As such, Glencore refers to its responses to each of those recommendations.

BOIR Part I Recommendation 8: Mine operators and parent companies treat such methane exceedances as indicating that a critical control may have failed, and undertake an investigation into the performance of the relevant critical control to determine if that is so.

- Glencore acknowledges that the failure of a critical control may cause or contribute to the occurrence of a methane exceedance. However, it could also be the case that there is a failure of a critical control which does not result in a methane exceedance. In our view, the failure of any critical control should give rise to an investigation, irrespective of whether it caused or contributed to a methane exceedance.

- Glencore updated its corporate procedures, and those at Oaky North, to incorporate a requirement for an investigation to be undertaken in response to any critical control failures. In addition, Glencore updated its procedures to incorporate a review of the performance of critical controls over time, and to identify and respond to any repeat failures.

- This is an area that we continue to improve as we refine our critical control process.

BOIR Part I Recommendation 9: Mine operators and parent companies ensure that such methane exceedances are formally notified as soon as possible to senior executives of the parent company.

- GCAA's existing procedure stipulates that all HPIs that are notifiable in accordance with the Act are reported to senior management and senior executives of parent companies. This communication occurs by way of an email distribution list with the title "GCAA Reportable Incident Notification". This distribution list has a large number of recipients within the GCAA management structure, including:

  o Chief Operating Officer;

  o All of the Chief Operating Officer's direct reports;

  o The directors of all companies within the GCAA corporate structure;

  o The distribution list that exists for "GCAA Senior Management", which includes individuals who are considered to comprise the senior management of the GCAA corporate group;

  o All general managers within the GCAA management structure;

  o All operations managers at GCAA's sites in NSW and Queensland;

  o All health, safety and training managers at a GCAA corporate level as well as those at GCAA's sites in NSW and Queensland;

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> - o   All environment and community managers at a GCAA corporate level as well as those at GCAA's sites in NSW and Queensland; and
>
> - o   All coal handling and preparation plant managers at GCAA's sites in NSW and Queensland.
>
> - The email distribution list serves the function of reporting HPIs to senior management and also sharing information regarding HPIs within GCAA's various operations. Notifications typically occur on the day of the HPI or the next day.
>
> - Glencore requires that all departmental notifications (which includes HPIs and methane exceedances in general body) are to be recorded in the CMO database and a GCAA Reportable Incident Notification Report is to be generated and forwarded to the GCAA Reportable Incident Notification distribution list.
>
> - Further, if an incident is classified as an HPRI, senior management is also notified immediately by way of a phone call.
>
> - In addition to the email distribution list described above, GCAA also reports all HPIs (including those relating to methane exceedances in general body) in its Health Safety and Training Monthly Report which is distributed to senior management and the senior executives of parent companies, with further analysis conducted as part of the development of the Health Safety and Training Annual Report These reports are also an input into the development of the Health, Safety and Training Annual Plan.

D – The appropriateness and potential safety impacts of the use of labour hire; and labour hire workers' roles in on-site safety, at coal mines

65   Glencore's view is that it is not the employment status of an individual worker that influences health and safety outcomes; what is relevant is whether the worker has the necessary skills, capability and understanding to complete the work that has been assigned to them.

66   This is consistent with the way in which the legislation applies. The *Coal Mining Safety and Health Act 1999* (Cth) (**CMSHA**) does not distinguish between permanent employees or contractors. It defines the obligations of the duty holders by reference to "coal mine workers" and "persons" more generally. For example, under section 41 a coal mine operator has an obligation to ensure the risk to coal mine workers is at an acceptable level. Similarly, section 42 requires the SSE to ensure the risk to persons from coal mining operations is at an acceptable level.

67   The responsibility to ensure that the risks in a coal mine are at an acceptable level is owed to all workers, regardless of whether they are full-time employees engaged under an Enterprise Agreement or a supplementary labour worker employed by a contracting company which has been engaged by a mining company to provide labour hire services.

68   GCAA believes that treating all workers equally, and providing them with equal access to opportunity and guidance from management, contributes to positive health and safety outcomes. The following specific examples demonstrate the equal treatment of permanent employees and supplementary labour workers at GCAA:

(a)   In Queensland, the Site Safety and Health Representative elections are held at the mine. All workers (employees and supplementary labour) have the opportunity to vote. Each person's vote carries equal weight. The participation of supplementary labour in the voting process is not controversial, and is not met with resistance from employees or mine management;

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(b)   all crews irrespective of employment type start their shifts together and participate in the same pre-start communications;

(c)   the same health and safety information is provided to all workers;

(d)   when staff positions become vacant, opportunities to step up into those roles are available to both employees and supplementary labour workers; and

(e)   no distinction is made between workers in the event that a worker has a complaint or raises an issue in relation to health and safety, or how it is determined that a worker should be reprimanded for an unacceptable standard of work or behaviour.

(f)   The approach to equal treatment of all workers has contributed to the following outcomes for the business:

     (i)   a deeper understanding by all workers of the mine site and its safety systems, because supplementary labour workers are typically at the site for the long term;

     (ii)   equal provision of training to employees and supplementary labour, meaning that there is no disparity in the opportunity for skill development between employees and supplementary labour;

     (iii)   a more harmonious working environment among all workers.

(g)   There is no demonstrable disadvantage from a health and safety perspective, either for GCAA, the workers or the contracting companies, that results from the labour hire employment arrangements that exist at GCAA sites.

(h)   Labour hire, or full time equivalent contractors, for the purposes of training, are considered in the same manner as full time directly-employed personnel and are included in all site training activities, including training days.

69   A key result of the workforce survey conducted in 2021 as part of the Safety Reset (referred to in more detail in Part A above) was that there is no evidence that contractors are less confident in reporting safety incidents for fear of reprisals. In fact, the survey results demonstrate that contractors (3.89) have a slightly higher overall score than Glencore Employees (3.83), although both demonstrated strong scores.

70   The following is also included in GCAA's generic induction and training packages:

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Glencore Generic Induction - Legislation

In addition to the obligations of mine workers under legislation, mine workers are also empowered to;

- Withdraw to a position of safety or refuse to undertake a task if they believe there is immediate danger

- Make representation to a regulatory inspector or inspection officer in regard to alleged contraventions of legislation such as relevant Acts or Regulations

- Make representation to a regulatory inspector or inspection officer in regard to a thing or practice at the mine that is or is likely to be dangerous
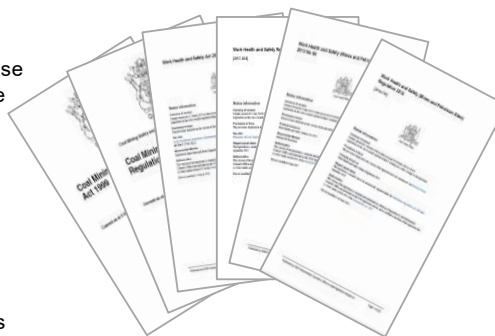
Note
Legislation requires that mine workers will not be disadvantaged and are protected from reprisal for taking such courses of action or making a complaint or helping an official in relation to a mine safety issue that concerns the safety or health of a person or persons while at a coal mine or as a result of coal mining operations

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BOIR Part II Recommendation 19: *Coal mines review their site induction procedures to ensure that all new workers at the mine, including labour hire workers and contractors, are fully informed about the fundamental importance of the reporting of safety concerns, including occupational health hazards, and assured that reprisals will not be taken in response. This will include ensuring that all new workers at the mine are aware of and understand the operation of sections 274, 275, 275AA and 275AB of the Act.*

- The GCAA Generic Induction is reviewed annually to incorporate necessary amendments. The induction is a mandatory requirement for all employees and contractors (including labour hire). The expectations for reporting health and safety concerns is addressed within multiple sections of the induction.

  o **Section 1 Introduction – Accountability** *"Everyone at GCAA is accountable. This means many things. Firstly, it means leading by example. It means having the courage to speak up when something is unsafe. It means stopping the job and notifying your Task Coordinator or Supervisor if safety is compromised. It means following rules and procedures. Finally, it means stopping to think before you commence a task or activity to ensure hazards are controlled"*

  o **Section 2 HSEC – Culture** – *"Leadership – Every employee, no matter their title or position, is a leader who can set a good example and influence health and safety outcomes. Zero tolerance - Never walk past an unacceptable or dangerous standard, action or behaviour. Assess the behaviour - An ability to look past the event and assess the behaviour that led to it. Proactive reporting - When incidents occur, information is gathered for investigation and prevention. Honesty and openness - Health and safety matters are reported, discussed and investigated fairly and with honesty and openness from all involved"*

  o **Section 3 H&S – Consultation** - *"Every person has a right and an obligation to raise any work-related health and safety concerns in briefings or by directly contacting their Task Coordinator or Supervisor"*

  o **Section 3 H&S – Obligations** - Legislative obligations are addressed generically. Under work health and safety legislation, certain obligations are imposed to protect the health and safety

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of workers who may be affected by business operations. These include: All personnel are obligated to take reasonable care of themselves and others at work; they must be provided with information, instruction, training and supervision so they are able to work safely; and they must convey any information that is required by others to ensure a safe workplace. These obligations also apply to Contractors when working at GCAA's operations.

BOIR Part II Recommendation 21: Mine operators review their contracts with labour hire agencies and include, where necessary, provision for a documented process by which performance management issues, and grievance issues, in respect of labour hire workers are addressed.

- All suppliers must comply with Our Supplier Standards, which includes standards on ethical business practices, safety and health, human rights, labour rights, environment and communities. As per the Standard, we undertake, and communicate on, appropriate due diligence of our current and potential suppliers, using a risk-based approach.

- As per our major supplementary labour hire contracts (e.g. WorkPac), it is the responsibility of the Contractor for maintaining the employer/employee relationship with its personnel including, but not limited to:

  o establishing and communicating performance and conduct guidelines;

  o training and development (any Client specific training and development requirements will be discussed and agreed with the Contractor in advance);

  counselling and discipline;

  o payment to its personnel of all wages, benefits and allowances;

  o directing all personnel to comply with any other requirements notified by the Clients, including compliance to the Clients Site safety management system;

  o monitoring performance of the personnel through quarterly one-on-one performance reviews; and

  o scheduling and or rostering of personnel.

- Currently, our major supplementary labour hire contracts (e.g. WorkPac) do not include bonuses. Bonuses have only been offered ad-hoc in the past as a retention strategy for particular roles/circumstances. For example, should an excavator operator remain on site for a project, then they may receive an annual retention bonus.

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E – On-site safety, generally; and ensuring appropriate measures to address process safety and personal safety separately

71   In structuring its approach to safety management, Glencore has differentiated between personal safety and process safety for many years. This separation is clearly embedded in the GCAA Organisational WHS Culture Model (**Culture Model**), which is depicted below.

72   The Culture Model is a bespoke model which expresses the safety behaviours and standards of safety expected of all persons within GCAA's operations. Equal expectation is placed on contractors and employees. The Culture Model places safety as the first and primary priority for every person. The GCAA Targeted Visible Leadership Protocol applies the Culture Model in the context of leadership standards for all GCAA operations.

73   GCAA's view is that the role of management at the corporate level is to provide structure and guidance to operations, but not to direct operations *how* to design their safety and health management plans.

74   In performing this role, management needs to define the responsibilities that are to be assigned in respect of the different elements of the safety management framework, and to determine the appropriate levels of the organisation at which those responsibilities are to be allocated.

75   In addition, Glencore considers that:

(a)   assurance and verification; and

(b)   incident investigation and sharing of findings,

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are key functions to be performed by the corporate level of management.

Assurance and verification program

GCAA Assurance

76   GCAA has an assurance framework that provides a consistent approach to assurance activities, and aligns with Glencore Corporate requirements. This includes alignment of system elements to the Plan, Do, Check Act model, and considers local context for GCAA (for example, local legislative requirements, local regulator compliance initiatives and activities and management team oversight).

77   The GCAA assurance framework is supported by an Assurance Standard, and includes four principal assurance programs:

    (a)   Catastrophic Hazard;

    (b)   Fatal Hazard;

    (c)   HSEC and Human Rights Standards; and

    (d)   Legal Compliance.

    (**Assurance Programs**)

78   An annual assurance plan is developed and supported by an annual assurance schedule which details the assurance activities, timing, and methodology.

79   The GCAA Assurance Plan details the intent of the Assurance Program and the activities that are to be undertaken. In addition to the annual schedule, a five yearly projection of assurance activities (long-term schedule) is included.

80   The GCAA assurance approach includes a range of processes such as site verification, shadow reviews, effectiveness reviews, formal assurance programs, audits and inspections, with the most suitable process selected based on the assurance activity.

81   The principal Assurance Programs include both informal and formal activities involving second and third party auditors to provide assurance to the Senior Leadership Team within Glencore. The program reports are distributed to the Senior Leadership Team and other relevant member of senior management, whilst individual site reports are reviewed by Operations Managers and HST Managers prior to being finalised.

82   The site agreed action plans are driven from the "action required" findings and "improvement opportunities" identified. All actions arising from GCAA Assurance Programs are reported in the Health, Safety and Training Monthly Report. Actions are monitored utilising categories of overdue, cancelled, in progress and completed. Monitoring continues until all actions are completed

83   Upon completion of the Assurance Program, a review is undertaken so as to implement any improvements that may have been identified.

84   Each of the Assurance Programs follows a 5 step approach which can be customised to suit the topic:

Step 1: Planning	• Scope and criteria are defined in the program overview guideline
	• Designated Assurance Workbook
Step 2: Assessment	• Self-assessment – conducted by the operation
	• Shadow review – conducted by the assessor

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Step 3: Site Visit	• Interviews with key operational personnel
	• Field inspection
Step 4: Reporting	• Close out meeting with the operation detailing findings and recommendation
	• Site specific report with the operation detailing findings and recommendation
	• Overall program report with combined findings
Step 5: Action Plans	• Action plans approved by the Operations Manager
	• Monitor and verify action plan completion via the monthly report

85   Catastrophic hazards are hazards that have the potential to cause multiple fatalities, and include certain principal hazards identified in relevant legislation. They form part of the Catastrophic Hazard Assurance Program. The GCAA catastrophic hazards are:

Catastrophic Hazard	Catastrophic Hazard
Underground Strata	Surface Strata
Underground Fire	Surface Vehicle Interaction
Underground Explosion (Ignition of Gas)	Inrush
Underground Outburst	Tailings Storage Facilities
Noxious or Irrespirable Atmospheres	Aviation

86   The Catastrophic Assurance Program frequency and cycle is determined by the risk profile and performance of the operation.

87   Fatal Hazard Protocols contain the minimum requirements (mandatory requirements) for the management of specific fatal hazards across all GCAA operations. The requirements contained within the Fatal Hazard Protocols form the assurance criteria of the assurance program. Historically, there have been 12 Fatal Hazard Protocols:

FHP Name	FHP Name
Strata Failure	Working at Height
Fire and Explosion	Lifting and Cranage
Mobile Equipment	Confined Space and Irrespirable /Noxious Atmosphere
Inappropriate Emergency Response	Tyre and Rim Management
Inrush and Outburst	Electrical Safety
Explosives and Shotfiring [#1]	Inadequate Energy Isolation

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88   Over the last 12 months, Glencore has identified and elevated the hazards of Tailings Storage Facilities and Dam Management and Structural Failure to a fatal risk, and therefore work has commenced on developing specific fatal hazard protocols for these hazards.

89   The Fatal Hazard Assurance Program frequency and cycle is on a pre-determined 3 yearly cycle.

90   The Health, Safety, Environment and Community (**HSEC**) Standards Assurance Program aims to assess the implementation of the GCAA HSEC and Human Rights Standards at all operations over a three year cycle.

91   The GCAA HSEC Standards align with the requirements of the Glencore policies and guidelines. This program also aims to provide assurance to Glencore on the application of their systems at an operational level.

Std Name	Std Name
Leadership, Culture and Accountability	Environment
Strategy and Planning	Change
Documents and Records	Assurance
Training	Product Stewardship
Contractors and Suppliers	Cultural Heritage
Incident	Energy and Climate Change
Emergency	Closure Planning
Health and Hygiene	Tailing Storage Facilities and Dam Management
Human Rights and Our People	Security and Surveillance
Social Performance	Risk Management

92   The Legal Compliance assurance program operates on a biennial (2-year) cycle that includes a self-assessment in Year 1 and external assessment in Year 2.

Element	Element	Element
1 - Administration	9 - Underground Mine Mechanical Operational Controls	17- Emergency Management
2- Statutory Functions	10 - Undergorund Mine Electrical Operational Controls	18 - Consultation / SHRs
3 - Risk Management	11 - Health Monitoring	19 - Survey / Mine Plans
4 - General Workplace Management	12 – PHMPs	20 - Construction / Demolition

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Element	Element	Element
5 - Safety Management Systems	13 – PCPs	21 - Training / Information
6 - Operational Controls - All Mines	14 - Hazardous / High Risk Work	22 - Hazardous Substances
7 - Undeground Mining Operational Controls	15 - Contractor Management	23 - Incident Management - Causal Analysis
8 - Underground Mine Ventilation	16 - Plant and Structures	

Other Assurance – HPRI Verification

93   As an example, all High Potential Risk Incidents that occur across GCAA are subject to a 2nd/3rd party verification of action implementation. The 5-step process is applied as follows:
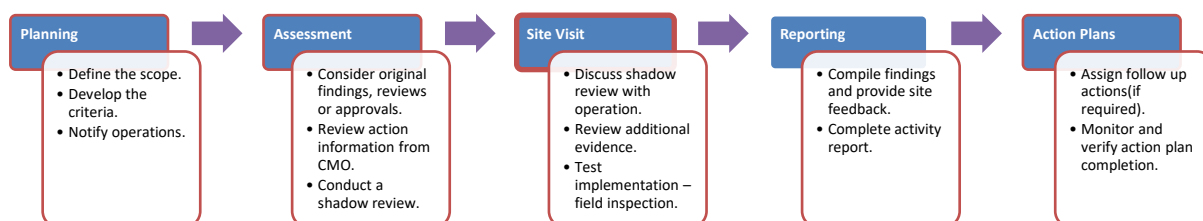

Figure 2: HPRI Review Assurance Approach

Operational Assurance Plans

94   In addition to the assurance conducted by GCAA across all operational sites, each operation develops an annual assurance plan supported by an annual assurance schedule.

95   The operational assurance plan is more localised and focussed on elements within the safety and health management system, verification of incident action closeout, and high-risk work activity verification.

96   The Operational Assurance Plan is to be based on an assessment of the risks and opportunities specific to the operation and includes:

(a)   issues and concerns raised by GCAA, management or workforce representatives

(b)   operational risks identified during activities conducted under the risk management framework

(c)   the operation's incidents and incident trends

(d)   community, employee and stakeholder feedback

(e)   changes in the operation's business, risks, operations, management programs or controls

(f)   risks identified during assurance activities (for example, ongoing compliance with legal and other obligations, including codes of practice and standards and other relevant requirements)

(g)   the requirements of GCAA HST and EC assurance plans

(h)   GCAA requirements (such as projects and initiatives)

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    (i)   HSEC and HR performance, including leading and lagging indicators

    (j)   continual improvement opportunities.

GCAA Catastrophic Hazard Management

97   GCAA supports the use of critical control management as a methodology for elevating the importance of certain controls. This is demonstrated by the fact that GCAA has developed a Regional Asset HSEC Protocol for Catastrophic Hazards, which places a significant emphasis on critical controls, and is required to be implemented by all GCAA operations.

98   The development and implementation of the catastrophic risk process was incorporated into the GCAA HST Annual Plan as a three year project from 2016 to 2019, referred to as the "GCAA Catastrophic Hazard Project". GCAA adopted the 9 step model from the ICMM project (refer to Figure 3: ICMM Nine Step Process) and the tools and definitions from the ACARP project, *"C23007 Selection and Optimisation of Risk Controls"* which was published in June 2015.

99   In regards to the ICMM 9 step model, the steps are divided between planning (a GCAA function) and implementation (at each Operation), with feedback and review a key part of the process.
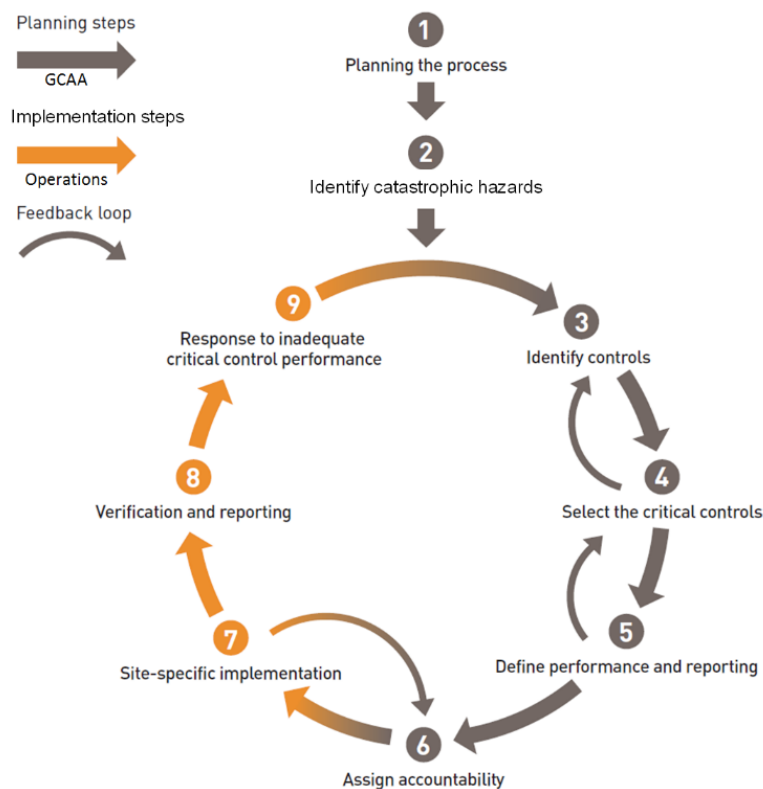
Figure 3: ICMM Nine Step Process with GCAA & Operations responsibilities

100   Fundamentally, the intent of the GCAA Catastrophic Hazard Project was to improve the control of low probability, high consequence events within the business, which was to be achieved by:

    (a)   identification of the catastrophic hazards;

    (b)   development and implementation of a standard suite of critical controls[1];

    (c)   design and implementation of appropriate monitoring and verification processes; and

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[1] A critical control is a control that is crucial to preventing an event or mitigating the consequences of the event. The absence or failure of a critical control would significantly increase the risk despite the existence of the other controls. In addition, a control that prevents more than one cause or mitigates more than one consequence is could be classified as critical.

(d)   design and implementation of an assurance process.

101   Within GCAA, hazards identified from the Broad Brush Risk Assessment (BBRA) with a Potential Maximum Consequence (PMC[2]) rating of five (PMC5[3]) are referred to as catastrophic hazards. The following catastrophic hazards were identified and within scope of the project:

(a)   Underground Strata;

(b)   Underground Fire;

(c)   Underground Explosion (Ignition of Gas);

(d)   Underground Outburst;

(e)   Surface Strata;

(f)   Surface Vehicle Interaction;

(g)   Inrush;

(h)   Tailings Storage Facilities;

(i)   Noxious or Irrespirable Atmospheres; and

(j)   Aviation.

102   Critical controls are only applied to catastrophic hazards. Other verification and assurance programs are implemented within GCAA to monitor the controls for hazards that are not rated as catastrophic, and controls for catastrophic hazards that are not determined to be critical controls.

103   Each hazard identified as having catastrophic potential is supported by:

(a)   a bow tie risk analysis which is facilitated with a cross section of personnel from operations across GCAA, and includes internal and external expertise;

(b)   the identification of specific controls that require additional monitoring and reporting (critical controls) to manage catastrophic hazards.

(c)   mandatory implementation of the critical controls at operations where the hazard/s exist;

(d)   a schedule for the monitoring and verification of critical controls; and

(e)   reporting and monitoring regime to senior management.

Roles and responsibilities

104   The way in which GCAA manages catastrophic risk is multi-faceted and integral to the way we do business. It is recognised that all levels of the organisation have a role in the success of the critical controls from identification and selection through to implementation and verification.

105   The Chief Operating Officer (COO) is responsible for establishing the system in its entirety, and is supported by the Director - Health Safety and Training and the Health and Safety Risk Manager who are responsible for establishing the process of how catastrophic hazards are identified and treated.

106   Each catastrophic hazard is assigned an owner at both the GCAA and operational level.

107   The GCAA Catastrophic Hazard Owner, who is a member of the GCAA Leadership Team, is nominated by the COO. The owner is responsible for:

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[2] Potential maximum consequence is the plausible worst case impact to GCAA and its operations arising from a risk where risk controls are assumed to be ineffective. It does not consider the likelihood of the event occurring and it may not be the absolute worst case conceivable.
[3] PMC5 Safety Consequence according to the GCAA Risk Matrix is "multiple fatalities (5 or more fatalities in a single incident), Multiple cases (5 or more) of permanent damage injuries or diseases that result in permanent disabilities in a single incident

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(a)   reviewing and approving the bowtie, including the controls, critical controls and verification activities, in conjunction with the subject matter experts (SMEs);

(b)   overseeing and monitoring the catastrophic hazard and associated critical control verification process for their particular catastrophic hazard; and

(c)   reviewing and approving any changes, updates or variation requests related to the catastrophic hazard.

108   Subject Matter Experts are assigned for each Catastrophic Hazard for GCAA consisting of a Technical SME and an Operational Lead. They have the relevant knowledge and expertise related to the specific catastrophic hazard and are nominated by the GCAA Senior Leadership Team.

109   The Technical SME:

(a)   Provides technical expertise and guidance for the specific risk.

(b)   Participates in the development and review processes for the risk including critical controls.

(c)   Assists to make decisions where there is a difference of opinion, or to resolve any issues, as they arise.

(d)   Participates in change management activities.

(e)   Participates in the review and assessment of variation requests.

110   The GCAA Operational Lead:

(a)   Provides expertise and guidance for the specific risk from an operational perspective.

(b)   Participates in the development and review processes for the risk including critical controls.

(c)   Assists to make decisions where there is a difference of opinion, or to resolve any issues, as they arise.

(d)   Participates in change management activities.

(e)   Participates in the review and assessment of variation requests.

(f)   Supports analysis and trending of critical control performance.

(g)   Contributes to assurance and verification programs, where requested.

(h)   Monitors and validates assurance program action closeout.

111   At an individual site level, the Operations Manager assigns a Site Catastrophic Hazard and Site Critical Control Owner. The Site Catastrophic Hazard Owner, who is a member of the site leadership team is responsible for:

(a)   overseeing the catastrophic hazard management process for their assigned catastrophic hazard; including understanding the health of the relevant critical controls for the assigned catastrophic hazard;

(b)   reviewing verification activity findings for the applicable catastrophic hazard;

(c)   assisting with reviews and updates to applicable catastrophic hazard documentation including critical controls and subsequent submission to GCAA; and

(d)   assisting with the analysis of trends specific to the catastrophic hazard.

112   Site Critical Control Owners may be assigned by the Operations Manager or otherwise the critical controls remain the responsibility of the Site Catastrophic Hazard Owner. The Critical Control Owner is to have relevant technical knowledge of the critical control and is responsible for:

(a)   completion of all critical control verification activities to meet the GCAA reporting timeframes;

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(b) monitoring and reporting trends or verification activities that are close to trigger points;

(c) reporting any non-conformances and raising appropriate corrective actions; and

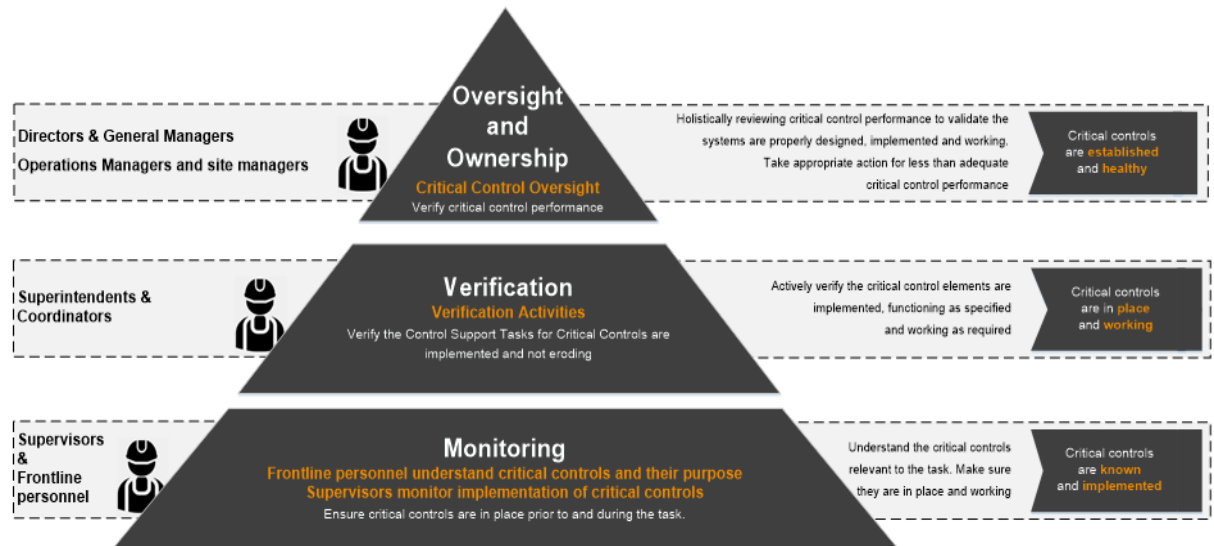(d) identifying any changes or updates to critical controls.

Figure 4: GCAA Critical Control Monitoring Responsibilities

Communication and Education

113 A communication strategy was developed to support the implementation of the GCAA Catastrophic Hazard project. This included the use of critical control logos, posters, and launch materials to increase awareness of catastrophic hazards and critical controls as a general concept.

114 E-learning training packages were implemented to assist the site owners to understand the GCAA critical controls and associated verification requirements.

115 Blended learning educational packages were presented to operational personnel to inform them of the critical controls, associated monitoring and reporting processes and their responsibilities.

116 To assist with the understanding and consistent communications, another e-learning training package has been developed and implemented in 2022. The e-learning is designed to be completed by the operational leadership team, site owners and personnel completing the verification activities.

Monitoring and Verification

117 Critical control monitoring and verification is conducted as per the GCAA Critical Control Schedule and reported monthly via the GCAA Health, Safety and Training Monthly Report. Critical controls are rated as per the Glencore critical control reporting matrix based on the critical control outcomes of the verification review.

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RED	An issue was identified in a Critical Control which: • Identified an exceedance of the threshold defined in the Critical Control performance specification. • May have allowed a catastrophic event to occur in certain circumstances. • Involved the continuation of an amber event over two reporting periods.
AMBER	• A technical issue was identified in a Critical Control that was rectified immediately and did not increase the probability of a catastrophic event, or • Where a scheduled Critical Control was not verified within its reporting period.
GREEN	• No issues identified with critical control performance.

Table 1: Glencore critical control reporting matrix

118   Amber and red rated critical controls are to be reviewed within the operation to identify improvement actions to resolve the issues found, which may focus on both immediate rectification as well as any systemic issues.

Reporting

119   GCAA operations report monthly on critical control performance, in alignment with the GCAA Critical Control Schedule. Reporting is undertaken in the CMO database and includes:

(a)   compliance to schedule for the reporting period;

(b)   critical control verification outcomes and associated rating (red, amber, green);

(c)   critical control actions to rectify issues or improvements to critical controls and the systems that support them; and

(d)   approval by the Critical Control Owner, Catastrophic Hazard Owner and the Operations Manager.

120   GCAA undertakes monthly, quarterly and annual reporting on the status of the critical controls. The monthly report is a consolidation of the operations and is contained with the GCAA Health, Safety and Training Monthly Report, which includes:

(a)   a 13 month rolling heat map showing the operation, associated catastrophic hazard and rating;

(b)   details of any underperforming critical controls for the month; in relation to the operation, catastrophic hazard, relevant critical control and assigned actions to rectify;

(c)   actual critical controls completed versus the schedule; by catastrophic hazard;

(d)   all critical control actions by operation showing the action status (in progress, complete, overdue); and

(e)   details of any overdue actions by operations including the action description and due date.

121   The GCAA Senior Leadership Team is provided with a quarterly update on the performance and trending of critical controls. This includes:

(a)   performance for the past three months; by catastrophic hazard, critical control and operation;

(b)   overview of any underperforming critical controls and associated actions to rectify; and

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(c)   trending and analysis of any underperforming catastrophic hazards, critical controls and identification of any similarities across the operations, catastrophic hazards or the critical controls.

122   Critical control performance is also reported internally to Glencore head office each quarter. This includes:

(a)   critical control completion and associated ratings by catastrophic hazard and operation;

(b)   underperforming critical controls including the issue identified; and

(c)   actual critical control completion versus scheduled.

123   An annual report is also prepared and is distributed across GCAA. This includes:

(a)   a 13 month rolling heat map showing the operation, associated catastrophic hazard and rating;

(b)   critical control rating by catastrophic hazard;

(c)   performance to verification plan; and

(d)   critical control action status.

<u>Continuous Improvement</u>

124   GCAA is coming to the end of a full review of our critical control management framework and the individual critical controls. The review has further refined our critical controls, performance specifications and verification activities. This work formed part of the HSEC Strategy and Annual Plan, spanning across 2021 to 2022, with implementation of the outcomes conducted in 2023.

BOIR Part I Recommendation 18: *The industry adopts strategies and performance measures to address process safety and personal safety separately.*

- This is the Glencore Safety Model as provided to the Board of Inquiry and, as such, Glencore agrees with the recommendation and considers that it already has strategies and performance measures in place which address it. This was recognised in the following sections of Part 1 of report published by the Board of Inquiry.

  o   paragraphs 6.35 to 6.47; and

  o   paragraphs 6.108 to 6.119.

- In particular, Glencore refers to paragraph 6.37 which includes a diagram depicting Glencore's Organisational WHS Culture model. The diagram clearly demonstrates that Glencore's approach is to address process safety and personal safety separately.