Incident periodical August 2022

Industry Performance HPIFR and SIFR
Recent High Potential Incidents
Learnings and Recommendations
Queensland Coal Mines Inspectorate

Coal Inspectorate

Resources Safety & Health
Queensland

1. Incident – Collision

- A dump dozer operator communicated with a rear dump truck operator and directed them to dump the load at the start of the Tip Head (at the V Drain).
- When attempting to raise the tray of the dump truck, the operator was unable to do so.
- They found that the dozer operator had reversed under the tray of the rear dump truck and the tray was hitting the ROP structure on the dozer.
- There were no injuries sustained.

Recommendations

- Implement higher level controls, over and above positive communications, that ensure inadvertent contact between mobile equipment.
- Ensure the mines SHMS provides adequate monitoring for effective application of risk control measures to prevent mobile equipment collisions on dumps.
- Ensure the mines SHMS provides for appropriate action to be taken if the SHMS risk control measures are identified as not effectively applied.

Site Senior Executive

- Should ensure compliance with procedures and processes. This includes consistently monitoring the application of critical controls during dumping operations each shift.
- Take appropriate action if the SHMS risk control measures are identified as not effectively applied.

Supervisors

- Carry out their activities and work in a way that does not expose themselves or someone else to an unacceptable level of risk.
- Must follow site procedures and work instructions.
- If in doubt “STOP” outside of the “No Go Zone”

Coal Mine Workers

2. Serious Accident – CMW crush injury

- A ventilation crew were concreting under a set of newly installed regulator machine doors.
- The doors were secured open by chains while the concreting was being performed.
- There was a high ventilation quantity in this roadway.
- A part of the work process was testing the clearance of the doors over the concreted section.
- After testing the left door, it was chained back open.
- While attempting to test the right door, the chain on the left door released and the ventilation closed the left door.
- Control over the right door was lost and it closed also.
- A coal mine workers leg caught between the doors when they closed, resulting in a compound fracture.
- No JRA was developed for the task and the hazard identification process did not identify the high ventilation in the work area as a hazard.
- The points for securing the doors were not fit for purpose.

Recommendations

- Ensure hazard identification and risk control is not being left to the coal mine workers with the least experience and knowledge.
- Ensure all tasks are properly resourced and competently supervised.
- Ensure all equipment and restraining devices are fit for purpose and functional.

Site Senior Executive

- Ensure hazard identification and risk control is not being left to the coal mine workers with the least experience and knowledge.
- Ensure tasks are not allocated before you have confirmed they are properly planned and risk assessed.
- Ensure your workplace inspections identify all hazards
- Confirm CMWs have considered all hazards present and are following relevant procedures.
- Enforce compliance with critical controls to prevent injury

ERZC/ Supervisors

- Ask supervisors and ERZCs' to list out the hazards they have identified during their inspection and job planning
- Carry out their activities and work in accordance with any SOPs, SWIs, JRA/JSAs prepared to manage those hazards.

Coal Mine Workers

3. Incident – Fly Rock

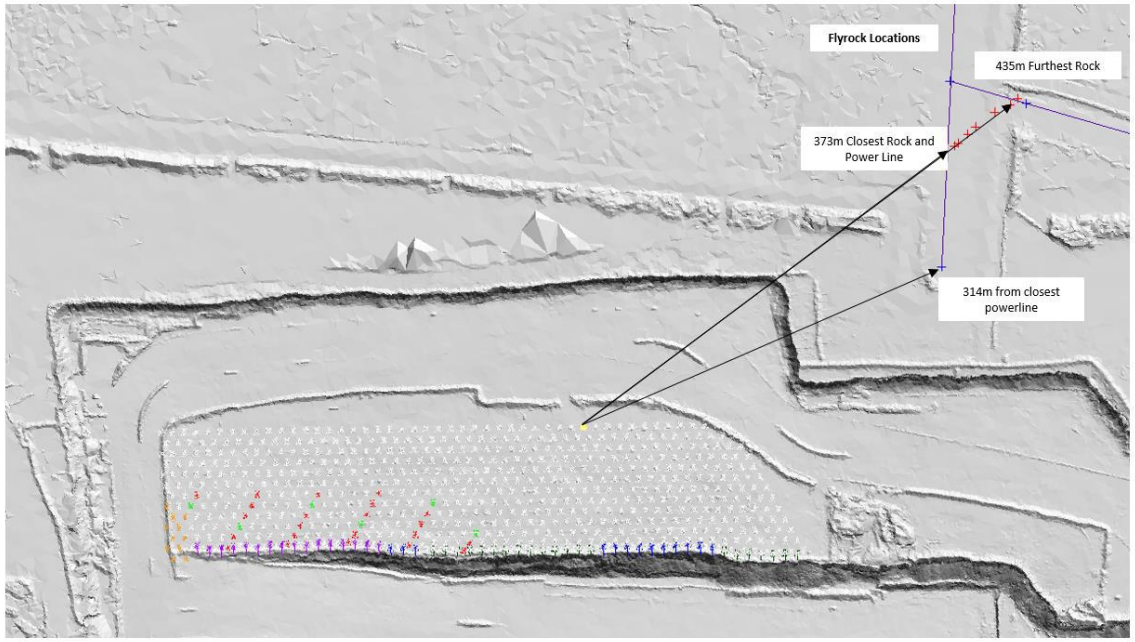
- During the firing sequence of a shot, the first 100 m of the bench has initiated. The firing sequence then stalled for approximately 4 seconds before recommencing. This resulted in exposing a leading free face for a short time period.
- When initiation recommenced, fly rock was ejected at the rear of the pattern, damaging power lines approximately 370 metres away.
- Power to the mine was interrupted as a result.
- The delay in timing was caused by using two different timing profiles in the blast design and the change was not effectively communicated.
- The resultant shot also produced a significant level of fume (Level 5). The fume dispersed while remaining in the fume exclusion zone (FEZ). No CMW were exposed.

3. Incident – Fly Rock

AA114

Hole Coordinates

(634376.157,7521130.821,192.050)



Recommendations

- Review management of change process and ensure it is effective.
- Review procedures in place for ensuring changes in blast design are effectively managed in accordance with the mines management of change process.
- Ensure processes are in place for effective communication of change and communicated.

Site Senior Executive

- Observe and follow the mines management of change process when changes in blast design are implemented.
- Develop and implement processes for reviewing timing assessments prior to firing.
- Ensure clear communications between technical services and operations.

D & B engineers

- Ensure pre firing checklists are undertaken including exclusion zones for fly rock (equipment and people) and fume clouds that may be generated.

Shot firers

4. Incident – Burns to hand

- A CMW was using a brake cleaning product to clean excess grease from a rattle gun.
- The CMW has accidently depressed the rattle gun trigger creating a spark and igniting the residual brake cleaner and causing burns to the hand.
- Typically these products contain a mixture of flammable substances such as perchloroethylene, heptane and acetone; and have a low flash point of approximately 10°C.
- These products are accompanied with the following statements
  - Hazard statement – **H222** Extremely flammable aerosol
  - Prevention Statement – **P210** Keep away from heat/sparks/open flames and hot surfaces.

- **Alternate non-flammable contact cleaners are readily available.**

Recommendations

- Ensure processes are in place to select, purchase and introduce hazardous chemicals to site.
- Give consideration to selecting products that are less volatile and hazardous.
- Ensure CMWs are appropriately trained in the selection, storage, use and disposal of hazardous chemicals.
- Ensure systems are in place to ensure product safety data sheets SDS are easily accessible by CMWs.

Site Senior Executive

- Ensure compliance with procedures and processes. This includes reviewing risk assessments for products containing hazardous chemicals and conducting behavioural observations in the work area.
- Understand the hazardous properties in chemicals used by CMWs in the work area.
- Ensure SDS are readily available to CMWs and are consulted prior to use of hazardous chemical products.

Supervisors

- Review SDS prior to use of a chemical product and consider hazard statements.
- Allow for adequate dry time after using solvent based cleaning agents.
- Follow site procedures and work instructions.
- Ensure power source is removed or the trigger is locked prior to using flammable substance for cleaning of power tools.

Coal Mine Workers

5. Incident – Dust Exceedances

- Since the reduction in regulatory limits for airborne dust there has been a general improvement in personal exposure levels across underground operations during the first 2 quarters of 2022.
- This trend has reversed during quarter 3 of 2022.
- The increase in exceedances relate to both respirable coal dust (RCD) and respirable crystalline silica (RCS).
- The RCS exceedances are being recorded by mines required to mine through silica rich stone roof or faults for mains development and / or drift construction.
- RCD exceedances are being experienced by mines who have had to perform extensive gas drainage to manage inherent methane in the coal seam. This has resulted in very dry dusty coal and created a potential for greater slabbing on the face. Slabbing is known to generate significant quantities of airborne dust.
- Some mines are experiencing difficulty managing dust during manual operation of shields when mining through zones with roof cavities.

Recommendations

- Ensure plant and equipment is fit for purpose for the conditions being mined.
- Install engineering controls such as dust suppression and scrubbing systems to trap and remove dust.
- Ensure there is a system in place to monitor the condition and effectiveness of dust control systems (e.g. picks, sprays, covers, ventilation devices, foams and surfactants).
- Develop TARPS that respond to changes in control effectiveness, availability of automation and/ or visual dust levels etc.
- Consider the use of real time monitoring devices for establishing no go zones, identifying dust sources and to trigger rotation of workers.

Site Senior Executive

- Ensure operational checks/ inspections of dust controls are conducted at start of shift.
- Monitor conditions throughout shift and respond to changes in accordance with TARPS. This may require increasing rotation frequency, slowing cut rates or changing cutting sequence (eg Bi DI to Uni Di).
- Monitor CMW positioning, rotation of CMWs and respiratory protection compliance.

ERZC / Supervisors

- Understand and follow no go zones, positioning and crew rotation procedures.
- Ensure sprays are turned on and operating effectively.
- Maintain ventilation systems installed for effective operation (Vent tube advanced)
- Continuously monitor dust conditions and report changes in line with TARPS.
- Ensure respiratory protection is worn for duration of dust exposure period.

Coal mine workers

6. Hydraulic tooling failure

- Two fitters were using high pressure hydraulic tooling to fit an interference-fit coupling to a conveyor gearbox shaft.
- The tooling consisted of a steel bar attached to the shaft; a hollow hydraulic cylinder; strongback; hoses and a hydraulic pump.
- A steel bar was threaded into the end of the shaft and pulled through a hollow hydraulic cylinder and strongback.
- When pressure was applied, the steel bar failed resulting in a piece being projected at significant velocity, impacting with and penetrating the workshop's sheet metal walls.
- There were no CMW in the path of the projectile.
- Investigation revealed that the force generated by the pump had exceeded the capacity of the steel bar.
- In addition, the coupling wasn't pre-heated sufficiently for it to expand enough to be fitted safely.

The hydraulic pump & hollow cylinder from the incident.

Gearbox similar to the one in the incident

Recommendations

Ensure that:

- The SHMS effectively addresses the risks associated with hydraulic tooling.
- Resources are available for doing engineering assessments of hydraulic component assemblies.

Site Senior Executive

Do not allow tasks involving hydraulic tooling to commence unless:

- An engineering assessment had been completed to match hydraulic components for the specific task at hand.
- A risk assessment had been done and relevant CMWs are familiar with its contents.
- Relevant CMWs are appropriately trained to work with the hydraulic tooling for the task.

Supervisors

Ensure that:

- Engineering assessments and risk assessments are understood prior to commencement of the task.
- Hydraulic components used for the task are of matching capacity.
- Pre-heating of interference fitting components are done effectively.

Coal mine workers

Reporting sexual assault or harassment to RSHQ

- RSHQ has a dedicated response team for complaints and notifications of sexual assault or sexual harassment
- To contact the team, call **1300 581 077** or email complaints@rshq.qld.gov.au.
- If you are in immediate danger or your health and wellbeing has been threatened, contact the police (phone 000) and seek medical advice.
- Further information is available on RSHQ's website by scanning the QR code.

Resources Safety & Health
Queensland

What RSHQ can help with

- RSHQ's role is to ensure operators have effective controls and processes in place to:
  - reduce the risk of sexual harassment and assault in the workplace
  - receive and respond to complaints and incidents.
- RSHQ can also assist workers with referral to support services.

What RSHQ can't help with

- legal advice
- workers' compensation
- jurisdiction of other agencies (e.g. incidents occurring off-site)
- industrial relations

Coal Statistics – August 2022

- August 2022
  - 147 HPIs received
  - 4 Serious Accidents
  - 6 Non-reportable incidents
  - 17 Cases of reportable disease, 16 not attributable to mine exposure
  - 19 Dust exceedances
    - 8 Respirable coal dust (1st trigger levels)
    - 2 Respirable dust (2nd trigger levels)
    - 8 Respirable crystalline silica (1st trigger levels)
    - 1 Respirable crystalline silica (2nd trigger levels)

Communications from the Coal Mines Inspectorate

Letter from the CICM to OCEs on the Certificate of proficiency in Mine Gases and Gas Testing

Letter from the CICM - Ventilation Officer Certificate of Competency Requirements

Letter from the CICM – Implementation of BoI Recommendations

Level 1 Exercise Communique

Summary Report for Recognised Standard 20

Safety Alert 418
Roof bolt nuts

Safety Alert 417
Emergency response capability

Safety Alert 416
Pedestrian suffers serious crush injury

Safety Bulletin 204
Spontaneous combustion monitoring and response systems

To subscribe to communications from the Queensland Mines Inspectorate please email
QldMinesInspectorate@rshq.qld.gov.au