



Significant Incident Report No. 287

Subject: Crush injuries sustained during maintenance activities

Date: 01 September 2021

Summary of incident

The Department of Mines, Industry Regulation and Safety's investigation is ongoing. Information contained in this significant incident report is based on findings at the time of writing.

In February 2021, maintenance personnel at an exploration camp were carrying out maintenance to a reverse circulation drill rig and had attached a rod handler to the upright mast.

The rod handler, which is a hydraulically activated mechanism that consists of a grabbing implement and pivoting 'elbows', was lifted into place and fitted to the vertically orientated mast by means of a bolted mounting bracket, with the pivot/rotation point of the rod handler arm located at the bottom.

Maintenance personnel then installed a break out assembly – a gripping mechanism used to secure rods when coupling or uncoupling – to the drill rig and commenced reattaching hydraulic hoses.

During the task, a driller's assistant, who was instructed to reconnect hydraulic hoses, had placed himself between the rod handler and break out assembly.

The rod handler arm unexpectedly rotated down crushing the assistant's head between the lowering rod handler arm and the breakout assembly.

The driller's assistant sustained serious injuries.

Direct causes

The driller's assistant was in the line of fire when the rod handler arm swung down causing crushing injuries.

Contributory causes

The unsecured rod handler was installed in the vertical position due to the mast being upright.

The original equipment manufacturer (OEM) procedure for attaching the rod handler required the mast to be positioned horizontally prior to mounting.

Actions required

Industry is reminded of the risk mitigation benefits in generating awareness of line of fire hazards, via the utilisation of hazard identification tools, and the risks associated with procedural non-adherence.

To prevent similar incidents occurring, the Department recommends that:

- risk assessments are conducted to identify the presence of line of fire hazards prior to commencing the work task
- any assembly or disassembly work is carried out in accordance with manufacturer's instructions and specifications. In the absence of sufficient instructions, develop safe work procedures that implement sufficient controls to eliminate or mitigate the risk of injury or harm
- workers disassembling and assembling plant are adequately instructed, trained and assessed as competent
- regular and ongoing monitoring programs and processes are implemented to ensure adherence to safe work procedures and OEM's instructions
- inspection and audit of plant hydraulic and electrical systems are undertaken by a competent person to ensure prevention of uncontrolled movement.

Further information

Department of Mines, Industry Regulation and Safety

- SIR No. 243 – Drill fitter crushed between drill head and rod centraliser arm – fatal accident
http://www.dmp.wa.gov.au/Documents/Safety/SIR_No_243_Drill_fitter_crushed_between_drill_
- Code of practice – Mineral exploration drilling
https://www.dmp.wa.gov.au/Documents/Safety/MSH_COP_MineralExplorationDrilling.pdf
- Guideline – Isolation of hazardous energies associated with plant in Western Australian mining operations
https://www.dmp.wa.gov.au/Documents/Safety/MSH_G_IsolationofHazardousEnergies.pdf
- Mine safety matters pamphlet – Drill rig operation
http://www.dmp.wa.gov.au/Documents/Safety/MSH_MSM_P_DrillRigOperation.pdf
- Toolbox presentation – Line of fire hazard recognition (2018)
https://www.dmp.wa.gov.au/Documents/Safety/MSH_TB_LineFireHazRecogn.pptx

Visit www.dmirs.wa.gov.au/ResourcesSafety for information on occupational safety and health in the resources sector.

This Significant Incident Report was approved for release by the State Mining Engineer on 01 September 2021