

SAFETY BULLETIN

DATE: JUNE 2022

Pipe clamp failures

This safety bulletin provides safety advice for the NSW mining industry.

Circumstances

The NSW Resources Regulator has been made aware of multiple failures at different mines of 6" shouldered pipe quick install clamps.

Investigation

One mine had recently switched to a different style of pipe clamp and had failed to identify the change in the method of installation. The pipe clamp consists of 2 separate halves bolted on each side. The new style of pipe clamp had specific requirements that needed to be followed in the installation. The failure occurred when the entire lug was snapped off the clamp due to the uneven tightening of both sides of the clamp.

A second mine suffered a failure while recharging a line. Their investigation identified the clamp had not been installed evenly, as the length of exposed thread on the bolts was uneven and that the clamps were susceptible to damage from being over torqued. Extensive testing was conducted with the manufacturer. This testing identified deficiencies in the metallurgy which weakened the clamp.

In both cases, it was found that the key to achieving safe installation is to ensure the bolts are evenly tightened. This is achieved by gradually tightening both bolts and alternating sides. Poor installation practices such as tightening one side completely and only partially on the alternate side or over torquing the bolts can lead to joint failure or structural failure of the clamp.

Recommendations

The following recommendations are for mine operators and workers:

- mines should review the method of tensioning the bolts in pipe clamp assemblies to confirm the manufacturers' recommended torque setting is not exceeded. This includes providing the correct tools to avoid over torquing

- mines should confirm that pipe clamp installation procedures used on site comply with the manufacturer or supplier's procedure and recommendations
- workers must be trained in the correct procedure and made aware of the potential consequences of incorrect installation and failure
- procedures must be developed to routinely check clamps are correctly installed to the requirements of the procedure as part of recommissioning processes
- controls must be in place to prevent workers from being in the line of fire when commissioning and pressurising services.

Mine Operators must consult with manufacturers and suppliers of components used in pressurised piping systems in mines to:

- routinely test components to confirm conformance to design
- implement quality management systems to confirm that processes are in place to identify and correct variations in components.

NOTE: Please ensure all relevant people in your organisation receive a copy of this safety alert and are informed of its content and recommendations. This safety alert should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's common area, such as your notice board where appropriate.

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