



SAFETY ALERT

STORED ENERGY

INCIDENT:

There have been a number of similar incidents and near misses involving the installation and removal of longwall roof supports using temporary hydraulic lines (whip hoses). Employees sustained superficial injuries, (eg hand injuries) when they were hit by high pressure hydraulic fluid (350 Bar Pressure).

CIRCUMSTANCES

The incidents occurred while setting up longwall chocks on an installation face using whip hoses connected to an adjacent chock Power Take Off (PTO) outlets. The employee isolated the hydraulic power in the whip hoses and released the pressure in the lines by opening the bleed line (Refer Photo No 1 & 2). The employee's hand was over the bleed outlet. The hydraulic fluid released and hit the employee's hand causing injury (near miss fluid injection).

INVESTIGATION

The hydraulic pressure was released into the working environment in an uncontrolled state where employees were present. There was no positive locking isolation device incorporated in the isolation of the hydraulic energy.

The system and equipment used to connect the temporary hydraulic power to install supports was not supplied by the Original Equipment Manufacturer (OEM), nor was the OEM consulted on the design and operation of the equipment.

RECOMMENDATION/S

1. Mines consult with the OEMs for the recommended procedure and equipment to install and remove the roof supports.
2. Review the equipment and components of the installation and recovery hoses for fit for purpose application.
3. The isolation valves should be the positive lockable type and the bleed valve (lockable type) should be capable of releasing the hydraulic pressure in a controlled state.
4. All procedures should include positive isolation instructions i.e. use lockable hydraulic isolation valves, with bleed valves that release the hydraulic pressure in a controlled manner away from all employees,(use a diffuser refer photo 3)

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Prepared by: Paul Drain
&David Nichols
Phone (02 49 31 6626)

and the depressurisation must be proven eg with a pressure gauge (Refer Drawing 1).

5. The pressure line must be connected to the relative ports, and return line must be connected back to tank at all times.
6. The hydraulic system must have pressure relief in the event of over pressurisation.
7. If possible reduce the installation pump pressure (eg from 350 Bar to say 150 Bar) to activate the roof supports. (Usually reduced pressure is used on the installation face not the recovery face)
8. Review SA05-01 Change Work Practices, Employer Obligations.
9. Review the OH&S Regulations 2001 Chapter 5
10. The pressure and return lines for PTO should be different sizes (eg DN10 & DN13).
11. Best practice is to interlock the isolation valve and the bleed valve so both valves cannot be open at the same time (Refer to Drawing 1).

Alternatively a system could be developed with the equivalent level of safety.

Photo No 1



Normal isolation valve and bleed valve arrangement for the Whip Hoses

Photo No 2



Whip hoses isolation and bleed valve lying on the ground

Photo No 3

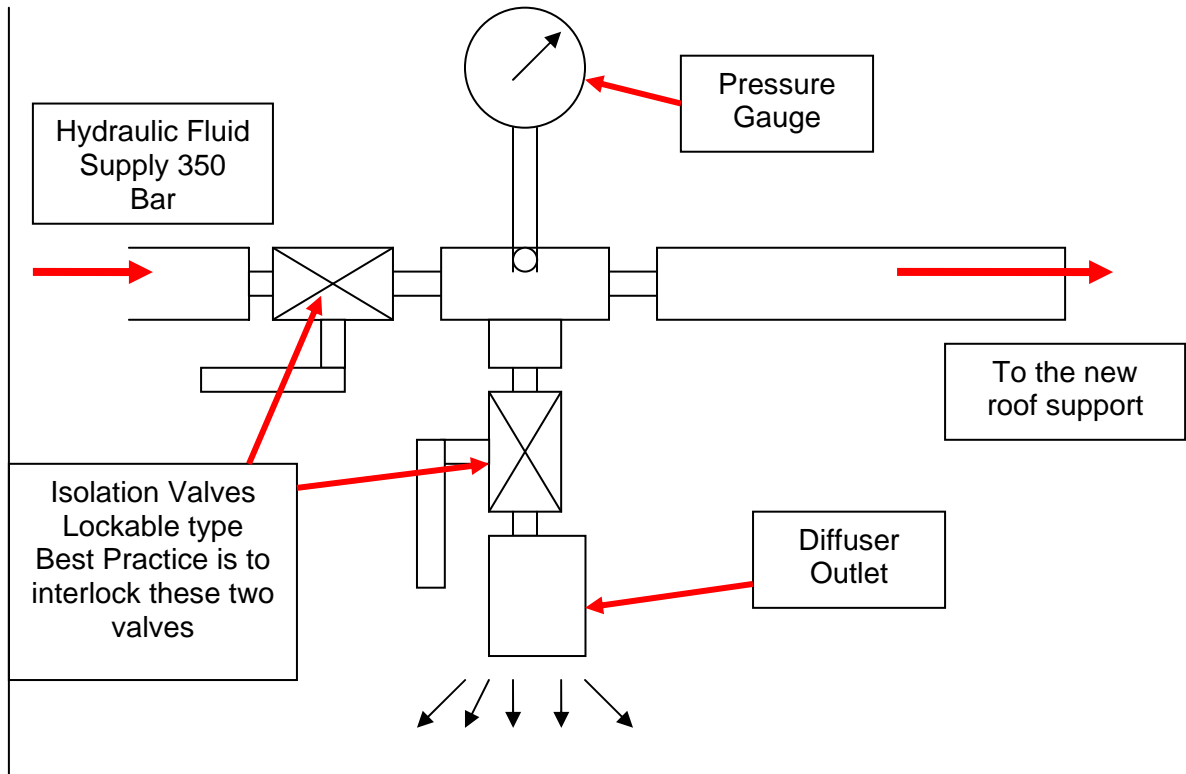
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Diffuser outlet

Drawing 1

The following equipment could be mounted on a board (e.g. Perspex) to have a hard barrier between the diffused hydraulic pressure flow and the employees.



R Regan
DIRECTOR MINE SAFETY OPERATIONS

Find Safety Alerts at: <http://www.minerals.nsw.gov.au/safety/safalert.htm>

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