# Risks of High Pressure







# What is it? and how can it occur?

- High pressure systems –open and closed systems
- Common injuries
- Fluid injection can penetrate into the skin at pressures as low as 100psi





## **Hydraulic Ram**

17/05/2017

#### What happened?

Ram ruptured and high-pressure hydraulic fluid erupted.

Hitting the worker and causing fatal injuries.

#### How did it happen?

The hydraulic ram and power pack was built by the victim's employer using a ram sourced from an excavator.

The pressure relief mechanism on the power pack was not compatible with the ram's safe operating pressure





# Hydraulic Torque Wrench



Figure 1: Seal which leaked

#### Why did it happen?

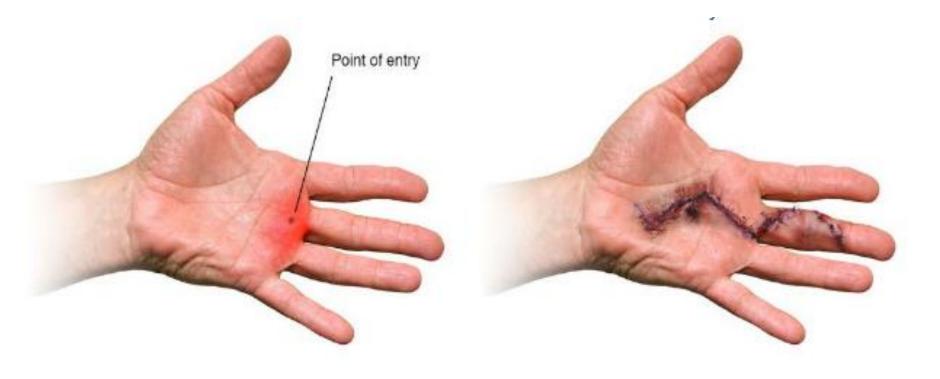
- ► The swivel manifold post screws were not adequately secured. This allowed for the sealing mechanism to fail.
- The risk of high pressure fluid injection had not been identified. There is a focus on safely using these tools, however this has been on pinch points



Figure 2: Torque wrench and finger that was injected



# Hydraulic Torque Wrench



#### What happened?

- Seal between the swivel manifold post and the cassette failed.
- ► High pressure hydraulic fluid ejected and penetrating through their glove and into finger.

Example of pressure injection injury and surgery required

### What we learnt?

Minimum site requirements for the use of these tools which stipulates the following controls:

- Protective sleeve over fittings
- Hydraulic Fluid Protection Gloves https://www.youtube.com/watch?v=XgjzCNkVnlw
- Double eye protection
- Kevlar apron (job specific)
- Workers to hold a card for medical personnel to be aware of the risk of hydraulic fluid injection
- Appropriate hand positioning





# High Powered water blasting OHSA example

#### What happened?

- What happened?
- Operating high-powered water blasting control gun, with an approximate 9,500 p.s.i. to clean the interior of a tank.
- Accidentally sprayed his thigh
- This resulted in a severe laceration to his thigh
- Crawled from the tank, but later died from his injuries due to a massive loss of blood



#### Why did it happen?

Front barrel of the water blasting control gun, was modified from the originally manufactured length of 48 inches to a length of 28.13 inches

### Thank You!

# Q &A



