

Figure 1: Seal which leaked



Figure 2: Torque wrench and finger that was injected

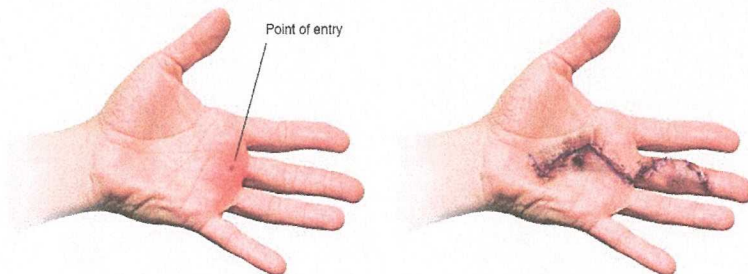


Figure 3: Example of a hydraulic fluid injection injury and the surgery required to remove the fluid, indicative of the injury that occurred

What happened?

A worker was using a hydraulic torque wrench to remove bolts on a flange. As the torque wrench was in operation the seal between the swivel manifold post and the cassette failed. This resulted in high pressure hydraulic fluid ejecting and penetrating through their glove. This injected into the workers finger. The worker was taken to hospital where they underwent surgery to remove the hydraulic fluid.

What could have happened?

If the worker had not known to stop work and seek medical attention immediately, the hydraulic fluid could have spread further resulting in more extensive surgery, possible amputation or severe complications.

Why did it happen?

Root causes

- 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. There are informal practices followed by all companies however there is no clear standard set across site for hydraulic fluid injection risks.

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HS4GLBL4003-L2 Master Template-non-CARE incident

HIGH PRESSURE EQUIPMENT CAN CAUSE MAJOR INJURIES

Preventing re-occurrence

Lessons

- ◇ Workers need to be vigilant with high pressure equipment
- ◇ Ensure you have controls in place for high pressure leaks and remain out of potential line of fire

Actions

- All companies who use tools which have the potential for hydraulic fluid injection to review the use of all equipment on site and ensure they have in place:
 - A pre-start check list
 - Minimum site requirements for the use of these tools which stipulates for workers:
 - Protective sleeve over fittings
 - Hydraulic Fluid Protection Gloves
 - 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
- Recommend all sites implement controls to manage the risk of hydraulic fluid injection