

Stop Log Pressure Equalising Valve (PEV) hydraulic pump failed causing unit to rupture



Piston and rod ejected



Mimic Hydraulic system with piston and rod in background

When and where this incident occurred:

Ohakuri Power Station, Ohakuri Road, Atiamuri,
16/06/2018 – Top of Dam.

Brief description of incident:

This unit is one that is used infrequently when testing the opening and closing of the diversion gates for maintenance work.

Whilst using the hydraulic unit to test the diversion gate during commissioning, the power pack disintegrated under pressure.

The piston, rod and cover assembly was ejected forward approximately 11m on the ground. The employee standing next to the pack when it ruptured narrowly missed being hit by the projectile. He was covered in warm oil, but no injury sustained. There was the potential for serious harm or fatality if someone had been standing in front of the unit.

Investigation showed the pressure release valve on the unit had been set to a higher pressure (4000psi) than the unit was capable of sustaining (3000psi max including safety factor). It appears the adjuster on the valve had been adjusted to allow for extra pressure and never reset to the correct setting.

The unit was manufactured of high carbon steel which has low ductility. Constant over pressurisation may have work hardened the material resulting in a sudden fracture.

Learnings:

1. There was no scheduled maintenance for the power pack, due to the irregularity of the use of it. An action was implemented to compile an inventory of all tools, mobile plant, and special equipment with potential high energy source.
2. There was no SOP for the opening and closing of the PEV. A SOP is to be developed for all of the above on a case by case basis.
3. All tools, mobile plant, and special equipment with potential high energy source are to be captured in maximo so that a PM can be generated to inspect them on a regular basis.
4. All existing hydraulic systems both portable and fixed need to be checked to ensure they have correct fittings for hydraulic service.
5. A new power pack is to be designed encompassing safety in design and ensuring it is fit for purpose.

For further information about this safety notification, please refer to Synergi Life incident 12609 , or contact Chris Savage, H&S Manager Hydro Operations.

Date issued: 30/07/2018

Please discuss this Safety Alert with workers at your next tool box or team meeting