

SAFETY ALERT

Shared Learning's

INCIDENT TITLE:

Near Miss - Yaw Brake Hydraulic Hose Failure

TIME AND DATE OF INCIDENT:

22nd September 2017

INCIDENT DETAIL :

During recent works at Te Apiti Wind Farm, hydraulic hoses associated with the yaw brakes were to be changed out for new items.

The system pressure was drained and isolations were made in accordance with the associated Approved Written Procedure. (AWP) The old hoses were removed and replaced with new that had been specifically made for the turbine by a Hydraulic hose manufacture in Auckland. The remaining work on the system was carried out and re-filled with new oil. A brief visual check was made of the work carried out ready for re-commissioning.

The isolations were removed and checked off prior to re-energising the system. The pump was run to raise the pressure up to the working amount. It was at this point that whilst inspecting for leaks, an un-crimped fitting burst apart releasing 140 bar of pressurised oil.

After the incident, all stocks of hoses held at site were checked and a further two were found to be un-crimped.

INITIAL RESPONSE AND INVESTIGATION OUTCOMES :

The un-crimped hose caused the stored energy to force the oil out of the fixed point elbow fitting. An emergency stop (E stop) was pushed within a second of the technician shouting. If the hose would have flailed at the other end this would have caused a whipping effect with the potential to cause injury. A visit was made to the manufacturer to determine why the hoses were missed and the following was confirmed:

- The production teams workload had doubled in the previous six months which created issues with the current QA process being done thoroughly
- No final inspection (QA) was in place prior to despatch
- Stock required to complete the order had to be ordered in from Europe as our indent agreement had expired with them which created pressure on deadlines
- Contractor staff installing the parts were unaware that the hoses had not been crimped as they were unfamiliar with these fittings
- No final post work check was carried out by the technician

LEARNINGS AND RECOMMENDATIONS FROM THIS INCIDENT:

To ensure there is no repeat of the incident, the following steps have been taken:

- The manufacture have agreed to improve their QA process with the addition of a final check that includes a check sheet that will follow the parts
- The manufacture were receptive to suggestions about fatigue management and will ensure adequate breaks are taken
- The hoses will be checked when received into stock at site as an internal double check before being assigned to a job
- A crimped fitting and an un-crimped fitting were shown to the Project Team to identify the difference
- The technician in charge of future works will be responsible for the final triple check to make sure the system is fit for returning to service
- For all technicians to understand what the difference between an un crimped and a crimped hose looks like (See photos below)

PHOTO:



Photo 1 Uncrimped



Photo 2 Crimped

The Corporate Safety and Health Team are currently working on systems to support the above learnings. If interested in viewing the full investigation report for this incident, it can be found in:

Safety Manager Id 802051 or by contacting Robert Ball – Wind Safety Specialist – 0277066308 or Mark Porter – Mechanical Engineer - 021635049



meridian