SAFETY ALERT
Shared Learning's

INCIDENT TITLE:
Bruise/Crush to the Arm Due To Uncontrolled Movement of a Gearbox during Replacment

TIME AND DATE OF INCIDENT:
Thursday 21st August 2014 1700hrs

INCIDENT DETAIL :

During a major component change a 14.5 Ton gearbox became snagged and moved uncontrolled which lead to substantial bruising to the lift supervisor/dogman's arm.

Problems were encountered during the day with snow storms and engineering issues with the demounting of the gear box. The decision was made to remove the gearbox.

As the gearbox was slewing left, it was noticed that the gearbox was not moving and was possibly snagged. A "stop stop" was called by the dogman. The crane operator did not hear this and continued to slew. Not knowing that the crane was still slewing slowly left, he then instructed the team to look for a snag point. As he put his arm on the rotating shaft to look for a snag underneath the gearbox, it then moved sideways and hit the couplings (1 on gearbox and 1 on generator) this caused the gearbox to stop on one side and pivot towards the generator with the technician's arm caught between them. The gearbox then stopped and swung back allowing the technician to get his arm free. At this stage the crane operator felt a shudder and stopped all crane movements.

INITIAL RESPONSE AND INVESTIGATION OUTCOMES :

First aid was administrated to the injured party and he was removed from his duty to rest. Another member of the work party took over dogman duties and removed the gearbox from the nacelle. The injured technician could not be taken down until the gearbox was clear of the nacelle as this was blocking the safe means of egress. Once the gearbox was clear he was helped down the tower and taken back to the services building for another examination by the site supervisor. It was at this time the decision was made to take him to A&E in Invercargill.
It is not good for the turbine to be left in an unbalanced state, so the replacement gearbox was put in secured and the roof put back on. The team then stopped work for the day.
As a direct result of this incident there was a crushing injury to an experienced technician. Even though his injuries were fairly minor this time we have since been informed that he has had further complications. Potential for a serious harm injury was there.
Even though the root cause of this incident reflects on a human error mistake from the technician's choice of positioning, there were also a number of contributed factors to consider.

LEARNINGS AND RECOMMENDATIONS FROM THIS INCIDENT:

- The work instruction did not identify the need to leave the chain pull retaining slings on to keep control until the gearbox was clear of all obstructions. It did not identify the possibility of the gearbox becoming snagged up and what to do. This has now been amended.
  It is encouraged that, if technicians find a safer way to do things that is not documented in the work instructions they speak up and assist with the amendment for continuous improvement and not wait for an accident to happen. (*Prevention is always better than the cure!*)
- Fatigue management has now been discussed to ensure travel/weather/policy is included in the contractor H&S plans.
- Radios to be inspected, suitable, serviced and inspected before use.
- Use an approved/separate radio channel for crane movements.
- Clear voice procedure during dogging of a crane must be used and all major commands must be repeated by both parties
- Cold weather PPE must be adequate.
- Take 5 was not applied.

PHOTO:

This photo shows the size of a 14.5 ton gearbox alongside a 2 ton vehicle.

A vehicle weighing 2 ton crushing your arm would be bad enough now think of the 14.5 ton gearbox!

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 Number 391663. If you do not have access to Safety Manager contact a member of Meridian's CSH team.

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