

INCIDENT ANNOUNCEMENT

Employee Serious Harm Injury – Arc Flash Burns from 415 Volt Three Phase Flash-over

1. Incident Summary

On Monday 5 May 2014 at 9:07 P.M., at a dairy farm in Rotherham, North Canterbury, a MainPower employee sustained arc flash burns to his hands from a 415 volt three phase flash-over while working at a MainPower transformer site. No electric shock was involved. A dairy farm employee, who was standing next to the MainPower employee at the time of the incident, sustained whiteout and irritation of the eyes, and received minor burn holes in his 100% polyester microfleece pants without burning his skin underneath. The dairy farm employee was subsequently medically assessed and diagnosed as having no residual issues with his eyes.

The MainPower employee had been called out after-hours to assist a MainPower Network Field Operator with the individual restoration of power supply to two farms following a power outage on the main 22 kV overhead line in that area. This required the use of a portable resistive load bank, temporarily connected on the low voltage (LV) side of the individual farm supply transformer, to minimise the impact of ferroresonance during single-phase livening from drop-out fuses.

The incident occurred after the transformer at the first farm was livened and while the employee was disconnecting the portable load bank clip-leads from the line side of the transformer LV isolator (HRC fuse-switch-disconnector). The initial clip-lead connections to the line side of the transformer LV isolator were made by the employee prior to livening the transformer, and involved the removal of the shrouded terminal cover.



Photo 1 Transformer LV isolator line side terminals (Weber, 3 ϕ , 160 amp, HRC fuse-switch-disconnector).



Photo 2 Transformer site (3 ϕ , 100 kVA, 22 kV/415/240 V). New transformer LV isolator installed.



Photo 3 Transformer LV isolator line side terminals



Photo 4 Portable load bank clip leads (3 ϕ + N & E)

2. Incident Outcome

The employee was taken by ambulance to Christchurch Hospital accident and emergency department, and subsequently transferred to the plastics ward.

The employee sustained serious harm injuries. Specifically, full thickness and partial thickness burns to both hands, with most of the burns on his left hand.

The following photos were taken on the fourth day and are associated with the removal of dead skin from the employee's left hand.



Photo 5



Photo 6



Photo 7

The employee was subsequently discharged from Christchurch Hospital on the fifth day following admission, and initially requires follow-up assessments and changing of dressings every three days.

WorkSafe NZ has been notified of the occurrence of this serious harm workplace incident in accordance with legislative requirements.

This incident is currently subject to an internal investigation. Further information will be provided in due course.

3. Initial Instruction Following the Incident

MainPower's Network Manager Operations issued an instruction to relevant staff requiring de-energised connection and disconnection of the portable load bank via LV HRC fuses with a maximum fuse-link rating of 63 amps.

Without pre-empting the result of the full investigation into this incident it is timely to re-emphasise the importance and necessity of following safe working practices at all times when working on live electrical equipment, cables and conductors, including the use of PPE appropriate to the situation.

If you have any questions about the information in this bulletin please contact the SHEQ department or Engineering Manager