
January 2000

Dangers associated with high voltage installations

In August of 1999 an electrician received severe burns to their left hand after contacting 2400 volts. This worker was extremely fortunate to have not lost a limb or worse, his **life**.

During the replacement of a 2400 volt, 4 cells MCC, the victim came in contact with a 2400 volt power source connected to the load side of the bottom right hand cell. The current flowed from the bus through the victim and into the door of the enclosure.

On investigating it was found that:

- The main disconnect, which was the top right cell was opened, locked and tagged.
- The transformer feeder was disconnected and grounded.
- The cell where the contact took place had been used as a transfer switch, but had not been used since 1978. The alternate feed was still connected and energized on the load side terminals of the cell.
- There was no signage or circuit diagram on the door indicating its purpose.
- There was no interlocking on either end of the supply conductor disconnects or the transfer cell.
- There was a schematic showing the second feeder but this was not supplied to the contractor doing the work.
- The equipment was not tested for potential at any time during the process. The victim received burns to fingers on his left hand.

This accident did not have to happen.

Rule 36-006 (4) of the Ontario Electric Safety Code states: *(4) Where the possibility of feedback exists:*
(a) Each group operated isolating switch or disconnecting means shall bear a warning notice to the effect that contacts on either side of the device may be energized; and
(b) A permanent, legible, single-line diagram of the station switching arrangement, clearly identifying each point of connection to the high-voltage section, shall be provided in a conspicuous location within sight of each point of connection.

If this high voltage cubicle had the required warning notices and single line diagram the worker would have been alerted to the hazards within the high voltage cubicle.

Proper lockout tagout procedures as required by the Occupational Health and Safety Act would have provided the proper protection for the worker, therefore, no contact.

The Electrical Safety Authority would like to advise all customers, to ensure that all high voltage installations meet the minimum requirements of Rule 36-006, to prevent this type of accident from occurring again.

- If you have had any additions or alterations to your high voltage switchgear your single line diagram should reflect those changes.
 - Post the Single Line Diagram in a conspicuous location within sight of each point of connection.
-