

Incident Learning: What happened?

A multi-disciplinary team consisting of Operations, Electrical and Rotating Equipment Reliability (RER) personnel were executing bi-monthly preservation preventative maintenance to solo run Zone 1 medium voltage (6.6KV) motors. Before starting each motor the Electricians would megger test and if the megger readings are healthy then proceed to rack-in the switchgear. After racking in the switchgear the Electricians would stand outside the substation and communicate with RER over the radio for the field Operator to start the motor from the field. On completion of the solo test run the motor is de-energised.

- The team decided to solo run the NHT pressure boost compressors starting with 3KM-3A motor which was tested successfully.
- The team then attempted to conduct the test on 3KM-3B and were unsuccessful. RER requested the Electricians assist with troubleshooting in the substation.
- At the same time, the field Operator and console Operator were communicating to check the possible cause that was preventing the motor from starting.
- Communication between RER and the Electricians was via the Electrical radio channel. While the field, Operator and console Operator were communicating on a different channel.
- The field Operator discovered that the flywheel door was not closed and prevented the motor from starting. After closing the flywheel door the field Operator pressed the field start switch and the motor energized while the Electrician was in the substation in front of the 6.6KV panel to analyze the alarms.
- The near loss is a potential level 3B, or High Potential Risk Incident (HPRI) due to the risk of an arch flash during start-up of the motor and the potential for serious injury or fatality.

3KM-3B panel in the substation



3KM-3B field stop start switch



What are the learnings for implementation?

Immediate actions taken for incident location:

- Work was stopped to ensure alignment on communication and the process to be followed to prevent re-occurrence

Key communication points:

- Communicate on a common radio channel during multidisciplinary activities.
- The energy used to start up a motor is usually 4-8 times the energy used to keep it running. This results in an increased risk of short-circuiting which could lead to an arch flash in the MCC. Verify that there are no personnel in the MCC before motor start up in the field.
- Stop the work and report all near loss incidents to your supervisor immediately. Only an operations supervisor can approve that the work can resume, after they conduct a risk assessment on the job site.
- Multidisciplinary teams must agree on and verify understanding of communication protocols and roles and responsibilities of team members prior to commencing an activity.