Fatal 1 - LOTOTO failure of an isolator

WHAT HAPPENED

The battery isolator switch on a generator set used to power a washing plant failed to danger. Users of similar equipment are advised to note the contents of this alert and carry out checks on equipment they operate.

The generator set was fitted with a battery isolator switch shown in the attached image. The purpose of the isolator is to isolate power from the battery to the starter motor of the generator set as a means of achieving secure isolation during maintenance, for example.

In normal operation, the generator is started and stopped from a control panel that is in a different location from the battery isolator.

The isolation procedure involved

- shutting down the plant in the normal way
- switch the battery isolator switch to the '**OFF**' position
- remove the key from the battery isolator switch
- move the lockable flap to cover the barrel of the lock
- secure the flap with a multi hasp padlocking device
- operators add their personal locks to the multi hasp
- attempt to star the generator set by normal means

By chance it was discovered that the battery isolator key had fallen from the barrel of the lock **WHILE THE GENERATOR WAS RUNNING.**

This was immediately reported as a near hit and investigated by site management.

The investigation showed that the barrel of the lock was worn and it was possible to remove the key in the **ON** position. In fact, the key was so loose in the lock barrel that vibration had caused it to fall out.

Clearly the key should be retained in the lock barrel in the **ON** position and is designed only to be removed in the **OFF** position.

The failure created a hazardous situation where the key could be removed from the isolator without isolating power from the battery. An operator may lock the flap in position believing that the battery is isolated when in fact it isn't. Isolation has not been achieved and the safety of operatives working on the plant is then entirely dependent on the final **TRY OUT** step of **LOTOTO** to reveal the defect.



LEARNING POINTS / ACTIONS TAKEN

- Immediate action was taken to replace the worn battery isolator switch lock barrel.

Key Learning Points

- Operators of similar plant and equipment are advised to review their isolation procedures to ensure that their **LOTOTO** procedure includes isolating power at the battery to prevent any risk of the plant starting during maintenance activities.
- High integrity switched battery isolators or lockable battery terminal bags or boxes are available and should be used and form part of the **LOTOTO** procedure.
- Isolators are safety critical and should be included in a scheme of examination and maintained as necessary.
- Plant operators should have sufficient training and competence to be able to identify dangerous situations and understand the importance of reporting them as well as knowing how to report them so that they can be remedied.

LOCATION:	**QUARRY**	**ALERT STATUS:**	**Normal**
ACTIVITY:	**GUARDING AND ISOLATION**	**DATE ISSUED:**	**28/11/2022 12:06:42**
SUB ACTIVITY:	**NO SUB ACTIVITY AVAILABLE**	**INCIDENT No:**	**03630**