

# SAFETY ALERT



## BATTERY EXPLOSION INJURES EMPLOYEE

### INCIDENT

An employee was injured when a 12-volt battery on an excavator exploded while he was disconnecting it from a battery charging unit.

### CIRCUMSTANCES

The employee did not remove the excavator batteries from their box. This allowed hydrogen gas to collect around the batteries during charging. Hydrogen gas is very explosive. When the employee disconnected the charger from the battery, an electric spark ignited the hydrogen.

The resulting explosion blew off several battery vent caps and a piece of battery casing. Battery acid sprayed the employee's face and eyes, and the piece of casing cut him on the head.

### INVESTIGATION

- The batteries were not removed from mobile equipment battery box to be charged (as the operation manual said).
- The batteries were not charged in a well-ventilated area.
- The charger was not switched off or disconnected from mains power supply.
- The employee was not wearing appropriate personal protective equipment.
- The employee had not been trained in the correct procedure for battery charging.



The photo shows the battery after the explosion.

The dark circle on the right is the hole in the battery casing which was blown off.

The cap on the bottom left of the photo gives an idea of how big the piece of casing was.

The operator's face and eyes were also sprayed with acid.

The operator was very lucky to escape with minor injuries.

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## RECOMMENDATIONS

1. Risk reviews should be undertaken to identify hazards associated with charging of batteries.
2. Safe working procedures should be developed and relevant employees trained in the safe operation, maintenance and charging of batteries for mobile equipment.

APPROVED

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This is a general safety alert issued by the Department of Mineral Resources to provide information to industry. It is not meant to replace the mine's independent assessment of safety risks or safety measures. Mines should consider the measures to be taken as appropriate to the particular situation.