Mines Safety Significant Incident Report No. 173

Employee burnt while setting up fire scenario for emergency response training

Summary of incident
An employee preparing for an emergency response fire-fighting training drill was burnt on his hands, arm, back and face when he was engulfed by a fire ball. He was lighting a stack of wooden pallets using unleaded petrol as an accelerant. The fire scenario was located inside a dedicated surface training compound on a mine site.

The employee raised the alarm but there were delays in the arrival of personnel to assist him.

Probable causes

Direct

- Over 10 litres of unleaded petrol was used as an accelerant to ignite the fire. The lower explosive limit (LEL) of petrol is 1.4%, and this fuel will explode in the presence of an ignition source if petrol vapour concentration is between 1.4 and 7.6%.
- A cigarette lighter was used instead of a fire igniter, which meant that the officer was close to the ignition point.

Contributory

- There were no documented and approved task instructions for the training scenario, including how to light the fire safely.
- No risk assessment or safety analysis was conducted for the scenario.
- There was an element of haste to light the fire before the emergency response team arrived.
- Personal fire protection (e.g. coat, helmet and gloves) was not used.
- The employee was working alone and had to call for assistance himself after being burnt.
- After the alarm was raised, confusion about communications and terminology delayed the response.

Action required

Live fire drills are an essential part of emergency response training. However, practical simulations using live fire and smoke can pose a significant risk to participants. When developing safe systems of work for emergency response team drills, mine sites should apply the same rigour and standards as used for other workplace activities.

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