

# Blasting during Freezing Conditions

## WHAT HAPPENED

A blast took place at an Opencast Coal Quarry in West Glamorgan, South Wales, that caused flyrock to project outside the site's 150 metre danger zone. The weather conditions were dry, sunny and freezing and that day was regarded as the coldest day during two weeks of freezing conditions.

The incident was reported to the Health and Safety Executive although it was not reportable under RIDDOR, as the flyrock did not project beyond the site boundary. No injury occurred as a consequence of this incident.

The stemming in one hole or possibly two of the holes had failed because of the extremely cold conditions. It has been custom and practice for many years to water the blast area prior to firing in order to suppress the dust. The blast area on this occasion was watered approximately 90 minutes before firing. It had been noticed that water had frozen around the drill holes.

The operating company had never before experienced this type of incident. On investigation,

it was concluded that ice formed in and around the stemming and the side of the shot hole and as there was no cohesion between the stemming and the side of the shothole. The stemming was ejected on firing, in turn causing flyrock to be projected outside the danger zone.

## LEARNING POINTS / ACTIONS TAKEN

The following additional controls have subsequently been introduced for blasting in freezing conditions:-

- Watering of blast areas to be suspended during freezing or near freezing conditions.
- Stockpiles of chippings to be covered with tarpaulins to prevent freezing.
- Firing to take place as soon as possible after stemming the holes.
- Danger zones to be extended in freezing or near freezing conditions.

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LOCATION: QUARRY  
ACTIVITY: PRODUCTION AND PROCESSING  
SUB ACTIVITY: FACE ACTIVITY

ALERT STATUS: Normal  
DATE ISSUED: 01/03/2011  
INCIDENT No: 00283