

BEST PRACTICE

LOCATION:
ACTIVITY: Production and Processing
SUB ACTIVITY: Cement production
BEST PRACTICE No: BP734

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COMPANY: Lafarge Cement Ltd
COMPANY LOCATION: Aberthaw
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TITLE

Preventing hazardous working in a pre-heater tower

ARTICLE

Description

There is a high risk of injury when unblocking the cyclones located in the pre-heater tower at Aberthaw Works. This is due to the nature of the material creating the blockage. Blockages mainly occur when material (kiln feed) is introduced to the cyclones at the start-up of the kiln or following a short stop. It is not possible to see the cone section of the cyclones and establish if material is already blocking the outlet. If the kiln feed is introduced into the cyclone when it is blocked, the cyclone can fill with material. It requires many hours of manual labour to remove the material and can also expose the operators to very hot dust.

The cyclones are pre-heated using fossil fuels which raise the air temperature to 1000° C in the lower cyclone and 400° C in the top cyclones. The kiln feed is introduced at the top of the pre-heater tower and falls through the four cyclones where it meets hot gases moving in the opposite direction. The kiln feed becomes very hot and highly fluid during this process.

The following method was devised as a preventative aid to reduce the potential for blockages.

Prior to introducing the feed, a ball is inserted at the top of every cyclone by one operator and a second operator, who is situated at the base of the cyclone, listens for the ball hitting a metal plate. If the ball is heard he signals that the cyclone is clear and the process is then repeated for the other cyclones. If the ball is not heard, the process is repeated up to three times (in case the ball has lodged itself in the wall of the cyclone). If after these attempts the ball is still not heard, the process is stopped and the cyclone is opened up for inspection. This is a risky operation and can only be carried out by trained personnel.

Benefits

The benefits of introducing the drop ball test has been a significant reduction in the number of cyclone blockages. This simple test has also reduced the potential for operators to be exposed to the hot fluid-like ,dust™.

ARTICLE IMAGES