

BEST PRACTICE

LOCATION:
ACTIVITY: Production and Processing
SUB ACTIVITY: Aggregate processing
BEST PRACTICE No: BP697

ARTICLE YEAR: 2010
COMPANY: Aggregate Industries
COMPANY LOCATION: Duntilland Quarry
COMPANY TEL: 01689 870811

TITLE

 Award Winner  On Video

Clearing bridged stone in tunnel feeders

ARTICLE

DESCRIPTION

Bridging in the three tunnel feeders below the primary surge pile was a continual problem. The tunnel has a 3 metre diameter and the openings into the feeders are a metre square. Attempts to control the problem by operating the primary jaw crusher at a maximum 180 - 185mm setting provided no guarantee that the chutes would not bridge. Once a bridge has formed, there were three methods for getting the bridged stone to drop into the feeders.

Battering the side of the feed chutes with 14lb hammers gave rise to manual handling issues

Inserting poles 3 metres long up through the mouth of the feeder until contact was made with the bridged stone. The operator would then fish around with the pole until the bridged stone dropped. The pole method exposed operators to the risk of nipped fingers, sprained wrists and other injuries

he final resort was to remove the surge pile and clear the blockage from above, this process involved moving thousands of tonnes of stone.

In 2008, the quarry management team with a local engineering company investigated an engineering solution to provide the following:

Could be installed in a restricted space

Could reach into the feeder without endangering operatives

Could react quickly so that the weight of falling stone when the bridged stone dropped would not bend the tool.

A hydraulic arm with fast acting retraction was installed through a 45 degree hole drilled through the reinforced concrete and into the surge pile in one of the three feeders. This worked for 60% of the bridges but still required physical un-bridging for the others.

A double armed tool was designed for use in the second feeder with the arms angled at 30 and 45 degrees. This approach has proved successful in more than 95% of the bridges in that feeder.

BENEFITS

1. The development and installation of the hydraulic arms in the tunnel feeders has significantly reduced the potential for injury when the feeders bridge

ARTICLE IMAGES

