

## Incident Summary

### Details of incident

On the 8<sup>th</sup> of April 2008 at 3pm a hydraulic excavator owned and operated by a contractor was working at the face in a Tarmac quarry. This machine was loading rock from the shot pile onto dumpers, it was standing on a rock platform approximately 3m high to enable it to load the dumpers correctly and to dress the face as required.

The machine driver had started working at the site, for the contractor the day before the incident, he was fully inducted by the site assistant manager and during this process it was identified that he was lacking in hard rock experience. This was brought to the attention of the Site Manager, who expressed concerns to the contractor's management team. The contractor carried out an assessment of the driver and gave the all the clear, unfortunately this was not completed satisfactorily.

During the machine operator's second day he was attempting to reach some rock at the bottom of the face left by a previous operator when he rolled off the edge of the rock platform, through 270° with the machine coming to rest as shown on the photograph below. The driver escaped without injury.



Following the incident a full investigation was carried out with the following key actions undertaken:

1. A working party was established to formulate a "Tool Box talk" for the operation of excavators on rock pile. This group included experienced machine operators, geotechnical specialists and Tarmac's safety department. This resulted in the Tool Box Talk (see appendix 1) being rolled out across Tarmac. Elements of this TBT were subsequently included in the QNJAC guidance for rock platform construction. (Information Sheet 1 June 2009: Safe Face Management Operation in Quarries'). Tarmac now ensures all relevant employees and contractors receive the Toolbox Talk 'Building a rock platform at the face'
2. Tarmac now requires that an excavator driver used at the face in hard rock quarries is subject to the specific MPQC assessment for the machine being used at the face before authorisation is issued.
3. At site level, the induction processes have been reviewed and amended to ensure that contractors are checked for their experience and competence.
4. A key contractor review process was established to drive improved interaction between the two parties. A standard agenda was formulated (see Appendix 2) and these are now carried out 6 monthly with key contractors across the region at a senior level. This process has driven increased client - contractor relations and allowed the sharing of best practice and early resolution of business issues. This process is now being developed to bring together key contractors who work along side each other on site, this to drive improved interaction and understanding which will improve safety (e.g. Geotechnical specialist, Drill and Blast, and Load and Haul contractors)

We can and must all learn from this incident and ensure that machine drivers have an adequate induction process completed, together with the appropriate competency confirmed to undertake the required task. This means having the right qualifications, knowledge and experience for the task in hand. Evidence of an MPQC (EPIC) or CPCS certificate for an item of equipment alone is not sufficient to assume full competence for the task.

# Safety Toolbox Talk

Tarmac 

## BUILDING A ROCK PLATFORM AT THE FACE

It is common practice for hydraulic excavators to be used at the working face to dig the shot pile and load dumpers or mobile crushers.

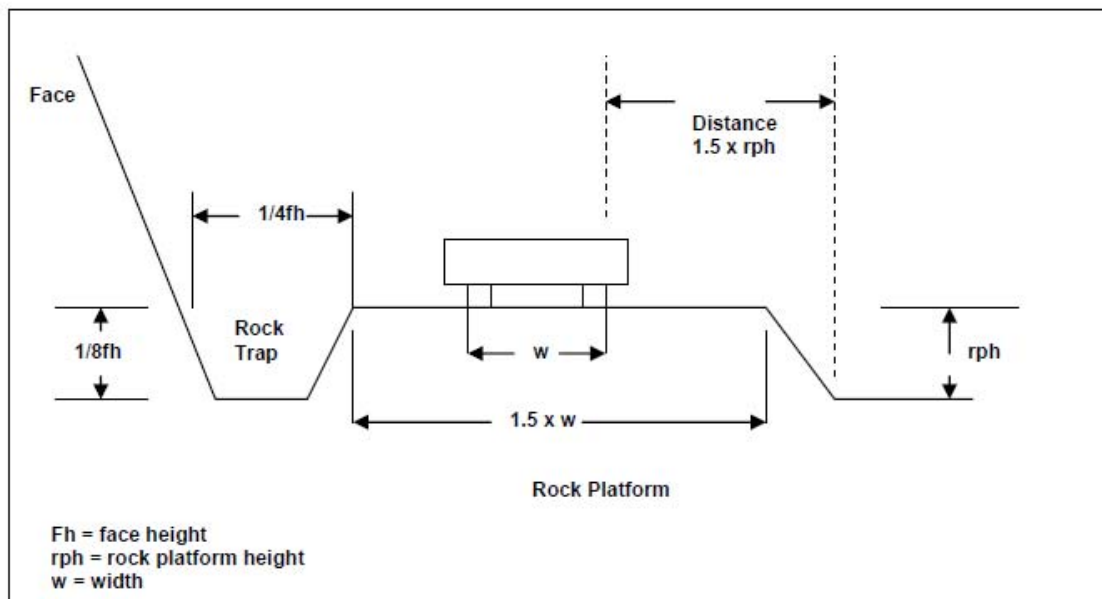
Excavators need to be able to see clearly into the rear of dump trucks in order to load them safely and be able to reach the crest or the top of the face in order to dress down the crest as deemed necessary following an inspection. This is to ensure that the risk of loose rock falling onto the excavator is minimised.



To ensure both the objectives can be met, it is common practice to construct a temporary rock platform for the excavator to stand on.

The following procedure must apply when constructing rock platforms from the shot pile at the working face:

- The height of the platform shall be such that it enables the excavator to load safely into the rear of the dump trucks or mobile crusher being loaded.
- The material used shall be from the blasted shot pile and the material shall be compacted by running the excavator backwards and forwards over the surface.
- An access ramp shall be formed at the edge furthest away from the face and at a gradient as near to 1 in 10 as possible.
- The minimum width of the platform shall be at least 1.5 times the outside width of the excavators tracks eg 4m wide tracks will mean a minimum width of the platform of 6m.
- Before getting out of the excavator, the driver must ensure that the machine is on as level a surface as possible. A bund shall be constructed and maintained along the edge of the platform to prevent access by a pedestrian.
- The slopes of the edge of the platform must not be undercut. They must be at the natural angle of repose for the rock. As a guide the distance from the foot of the slope to the outer edge of the excavator track must be at least 1.5 times the height of the platform (see diagram below).
- Between the platform and the working face there must be a rock trap to prevent any falling rock reaching the excavator. The width of the rock trap shall be a minimum of one quarter the face height and the depth shall be a minimum of one eighth the face height eg on a 12m face, the trap would be 3m wide and 1.5m deep.



**Remember:**

- Only competent and authorised persons shall work on excavators at the face and construct rock platforms.
- All new drivers on excavators who will work at the face and construct rock platforms must be subject to specific assessment by an authorised EPIC approved assessor at the face on which they will be working.
- Any contractor on site required to drive an excavator on a shot pile must be assessed by an authorised and competent assessor before being given authorisation to work at the face.
- All drivers working at the face must have the site Excavation and Taps Rules explained to them along with any specific geo-technical information about the quarry faces.
- The excavator driver must inspect the working face and area at the start of each shift for signs of instability and to ensure the working platform is in good order. If there is any cause for concern in the faces or the rock pile, the driver must move the machine away from the area and contact the quarry supervision.
- NEVER undercut the edge of the rock platform by digging material away.
- Quarry supervision must include the excavation and the rock platform in their daily and weekly inspections as part of the Excavation and Taps Rules.
- The excavator driver must wear the seatbelt whenever he is working in the machine.

**DO NOT LET THIS HAPPEN!**



**QUESTIONS – (there may be more than one correct answer)**

		<b>A</b>	<b>B</b>	<b>C</b>
<b>1</b>	Why are rock platforms used at the face?	To keep the excavator out of any water	To enable the driver to see into the rear of dumpers or into a mobile crusher feeder	To allow the excavator driver to reach the crest of the face in order to dress down any loose material
<b>2</b>	When should a rock trap be used in face excavations?	When there is a risk of falling rock	When the excavator cannot reach the crest	At all times when the excavator is working the face
<b>3</b>	How wide should the rock platform be?	A minimum of 1.5 times the width of the excavator tracks	As wide as the excavator	The same as the height of the platform
<b>4</b>	Who should be allowed to drive excavators at the face?	Only competent and authorised persons	Anyone with an EPIC or CSCS card	Anyone the manager appoints
<b>5</b>	What assessment should be carried out on excavator drivers?	By the quarry foreman	By a competent and authorised assessor	By an experienced excavator driver

**Appendix 2**

**MAJOR CONTRACTOR REVIEW MEETING**

**AGENDA**

1. Safety Health and Environment

- Vehicle Management Plans
- Policies/Standards
- Safety Alerts
- SHE Communications – SHE Bulletin
- Contractors input – maintenance/inspection

2. Competence

- Review
- NVQ's
- Assessment and testing

3. Operational Issues

- Equipment Changes
- Operations and Personnel
- Review of operational sites
- Local liaison issues

4. Contract Compliance

- Quality
- Production Volumes
- Payments

5. Any Other Business