



# S A F E T Y B U L L E T I N

## USE OF THE BUCKET OF A LOADER AS AN ELEVATING WORK PLATFORM IN UNDERGROUND OPERATIONS

### PRELIMINARY

The **indiscriminate and uncontrolled** use of a front end loader bucket as an elevating work platform is an **improvised application** and a **sub-standard work practice**.

The first problem is that a loader bucket is an unsuitable place of work. Persons have been killed and seriously injured while working from loader buckets. With the bucket in the raised and back-tilted position, persons working in the bucket have inadequate footing, and have no safe retreat from falling rock if scaling or drilling. With the bucket in the raised horizontal position there is inadequate workspace and no barrier to falling forward.

A further problem is that although loader bucket and operating linkage are very robustly constructed, these components are subject to heavy stress and wear and tear when the bucket is used for production loading in its designed application.

It is therefore of critical importance that regular inspection and maintenance is carried out on these components, not only to assure the safety of persons working with a front end loader in the activities to be described in the following, but also to protect any persons who may be working in the vicinity of the loader during normal usage, including drivers of trucks being loaded.

### OPERATING PRACTICE WITH LOADER BUCKETS

#### Immediate Access to Installations at a Height in Underground Operations

It is considered reasonable practice to allow a person or persons to be raised in a bucket, with personal fall arrest equipment attached to the bucket, in order to access an item or installation at a height too great to be readily accessed by other safe means, and in the absence of purpose designed elevating equipment.

This practice should be limited to simple tasks such as turning on a valve, attaching a survey string line to a spad in the back, or re-attaching a vent hanger to a catenary line, with the loader stationary.

No drilling or scaling of the back or sides should be permitted, nor other activity such as hanging or retrieving vent or cable as the loader is driven along. A fatal accident resulted from the latter activity in recent years in the Northern Territory.

#### Working on High Backs or Side Walls at a Height

Where it is necessary to carry out any form of sustained work involving the use of tools such as scaling, drilling and rock bolting, and purpose designed elevating equipment is not available for any reason, the work should be undertaken only from a purpose built platform designed to be securely attached to the bucket of a front end loader which is of sufficient size to allow use of an adequate platform; (normally having a 3.8m<sup>3</sup> bucket or larger).

The platform should be robustly constructed to an engineered design and be provided with a substantial fixed steel hand rail, and kick plates around the edges.

Provision is required to shackle and chain or pin the platform in place.

Such a platform on a 3.8m<sup>3</sup> bucket can provide up to a 3m by 3m working space with a solid level footing.

Scaling can be done with a good margin of safety by working close to the back **from under secured ground** and barring forward of the front guard rail so that any scaled rock falls forward of the front of the platform.

Such a platform secured to a loader bucket forms a very strong and stable work platform which will not be tipped even if a substantial slab of rock does fall on it.

## **PRECAUTIONS TO BE OBSERVED FOR WORKING FROM BUCKETS**

The following precautions should be observed, whether the work to be done is a short simple process of immediate access to high backs or installations described earlier, or operating with a purpose built platform fitted to the bucket.

- the persons involved (including maintenance personnel), must be satisfied that the loader is in good working order. A joint inspection of the structural components and hydraulic hoses and their controls should be carried out by the loader operator and crew before undertaking any task from the bucket;
- the bucket and its arrangements should be suitably designed for the additional activities being carried out eg. anchors for safety lanyards, modified hydraulics, controls which prevent accidental operation. Useful information is contained in the Australian Standard 1418.10 - 1987, Crane Code, Part 10 - Elevating work Platforms. Appropriate safety belts and harnesses for work at heights should be used as described in Australian Standards AS1891-1983 and AS2626-1983;
- persons to work in the bucket, the person operating the loader and any person in the nearby vicinity should be properly trained and be competent to perform their respective tasks;
- the loader operator must remain at the loader controls during the time that people are working from the bucket.
- neither the loader nor the bucket should be moved until clear standard instructions are given from the person on the bucket platform and received and acknowledged by the operator at the controls of the unit;
- only specified tasks, documented in work procedures approved by the manager or his representative, each of which has been risk assessed, should be carried out from a bucket.

- movement of the loader when persons are working **from a bucket platform** should be limited to repositioning the unit at creep speed for each phase of the work. No immediate access work with persons standing directly in the bucket should involve movement of the loader. Persons must not ride on a bucket platform or in a bucket when a loader is trammed from place to place.

## SUMMARY

There is a number of practical reasons for accepting the **controlled** performance of both categories of work described above.

Some of these are outlined here to enable operators to assess the risks and determine suitable standard procedures, on an informed basis.

The use of **purpose built equipment**, even for the simple short duration task in the first category described, is often not practicable due to the frequency with which such tasks crop up in the working shift. There is a practicable limit to how many such units can be both economically justified and accommodated in the vehicle fleet in the mine or sector of the mine.

In single heading operations it is difficult to justify the addition of a purpose built unit, and for limited or marginal mining operations the acquisition and use of such an additional unit may not be economically or operationally practicable.

Even in the case of a large operation, the capacity to use a loader for the simple short duration task under standard safe work procedures will often minimise the possibility of mine workers taking greater risks by **improvising** hazardous means to access high backs, with very high risk of injury.

In relation to **surface operations** there is much less justification for the improvised use of loader buckets.

Structures and plant can and should be designed to provide safe access at a height, and the constraints on vehicle movements which exist underground are not a problem in surface operations.

Moreover the constantly changing conditions in underground workplaces, which generate the need for this type of access, should not arise in surface operations, where fixed designed plant is installed.

For particular non-standard tasks in surface operations, purpose built access equipment should be available. This may include a designed work platform for use with a crane.

J M Torlach  
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