



**DEPARTMENT OF MINERALS AND ENERGY
WESTERN AUSTRALIA**

SIGNIFICANT INCIDENT REPORT NO. 45

FATAL AGRICULTURAL TRACTOR ACCIDENT IN QUARRY

INCIDENT

The operator of a trailer water cart towed by an agricultural tractor sustained fatal, multiple injuries when he was crushed between the tractor transmission lever and the collapsed structure of the cab after the front wheels of the tractor reared up when he was negotiating a steep gradient on a quarry haul road. The rearing action of the tractor pushed the rear of the cab into the goose necked, tow hitch of the trailer tank which caused extensive deformation of the cab structure. The cab was not of the ROPS type.

CAUSE

Calculations indicate that, in this case, an acceleration up the slope as low as 1.35 m/s/s would have been sufficient to cause the front wheels of the tractor to leave the ground.

Investigation revealed that the trailer brakes were inoperative and there was evidence that the tractor had previously been known to slip out of gear. Under these circumstances, had the tractor rolled backwards down the slope and the tractor brakes been applied a relatively low deceleration rate (again calculated at 1.35 m/s/s) would have been sufficient to cause the front wheels of the tractor to lift off the ground. The situation may have been compounded by the possibility that the operator was relatively inexperienced on this item of equipment.

COMMENT AND PREVENTATIVE ACTION

- There is a need to carefully evaluate the suitability of agricultural tractors before introducing such units to carry out work on mines; this is particularly so with the two-wheel drive type with independent brakes operating only on the rear wheels. Account should be taken of the gradients over which the vehicle is to operate and the uneven loading which can result when the unit is used for towing. Stability should be assessed in both the fore-and-aft and the side-to-side aspects to ensure that the tractor will not rear or roll over when in operation.
- Adequate protection must be provided for the driver in the form of a ROPS cab with suitable resistance to penetration, seat belt and suitable seating with back support. While not strictly related to the accident under discussion, adequate arrangements should also be made to guard power take-offs.
- Manufacturers' operating limitations and operating instructions should be strictly observed.
- Operators should be adequately trained and have sufficient, competently supervised operating experience before being allowed to operate such vehicles alone.

G J Dodge
ACTING STATE MINING ENGINEER

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SAFETY AWARENESS SAVES LIVES