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DDAS Accident Report

Accident details

Report date: 09/03/2004	Accident number: 386
Accident time: 12:04	Accident Date: 16/09/2003
Where it occurred: 50 kms SE of Ondjiva on road from Chiede to Malungo via Shikongo	Country: Angola
Primary cause: Unavoidable (?)	Secondary cause: Other (?)
Class: Excavation accident	Date of main report: 26/09/2003
ID original source: KO	Name of source: MgM
Organisation: Name removed	
Mine/device: SA No.8 AT blast	Ground condition: route/path
Date record created: 22/02/2004	Date last modified: 22/02/2004
No of victims: 1	No of documents: 1

Map details

Longitude:	Latitude:
Alt. coord. system: GR: 6365 81000	Coordinates fixed by:
Map east:	Map north:
Map scale: Melunga	Map series: SE33
Map edition: K1	Map sheet: 448
Map name: 1:100,000	

Accident Notes

mechanical detonation (?)
no independent investigation available (?)

Accident report

An accident report was made available by the demining group involved in September 2003. It is reproduced below, edited for anonymity.

Introduction:

On the 16th of September one of [demining group]'s Armoured Graders activated an anti-tank mine during road clearance operations. This accident occurred approximately 50 kms south-

east of Ondjiva on a road from Chiede to Malungo via Shikongo. After an investigation carried out on site on the 19th of September the following are the finding and conclusions.

Description:

[Demining group] has been carrying out demining operations in the Chiede area, of Namacunde District Cunene, Angola) since March 2003. This programme was instigated to help with the relocation of IDPs and Refugees in the area following the cessation of hostilities in Angola. The programme has mainly consisted of route clearance and EOD tasks to allow safe relocation, and allow WFP to deliver food donations directly to the recipients, rather than the nearest administrative centre.

On the 16th of September 2003 at 12:04 hours the Armoured Grader, assisting in route clearance operations on the road from Chiede to Malungo wa Shikongo, set off an anti-tank mine. The location of the accident was 32 kms south east of Chiede, while the grader was advancing towards Malungo via Shikongo.

Reference:

Map: Melunga
Map Series: SE33
Edition: K1
Map Number: 448
Scale: 1:100,000
Grid Ref.: 6365 81000

Assessment

The grader activated a mine under the right front wheel of the rear driving pair. Safety distances were being observed, no support team members were involved and none were injured. The accident occurred more than one kilometre from the nearest habitation, there were no local population that were involved. Medical support was on site immediately the area was made safe to extract the operator. The operator of the grader was shaken from the experience and suffered some short term hearing loss. No injuries were sustained. Since this accident the operator has been on compassionate leave with a family bereavement, so he has still not been interviewed. Any relevant information gathered will be sent as an addendum to this report, following his return to active operations.

The incident occurred approximately 50 metres from a previous mine blast on this road. Information of the previous [explosion] is unavailable since it occurred during a period when the area was occupied by foreign forces. The previous blast was evident by scorch marks on surrounding trees. It was already known that the route clearance team would be passing through a mined area. Information had been collected about this area, with the local population reporting that recently one boy, a goat and four cows had been killed. The grader suffered its accident in this mined area. To allow for safe extraction of the grader the area around the grader was cleared. This allowed the [Demining group] Mechanical Recovery Team to extract the grader for delivery to the [demining group] Workshop in Ondjiva for damage assessment and repairs.

The operator usually makes a minimum of three runs from his start point when opening a road, when clearing a lane a minimum of 8 metres width. Observing the area graded, the blade was set at approximately 30cm depth in the soft sand, moving the spoil into a windrow on the left-hand side of the vehicle. Under normal circumstances the operator would see an anti-tank mine move into this windrow, stopping the vehicle and alerting the EOD support. In this case it appear that one of two things occurred to allow the mine to pass under the blade. Either:

The operator was coming to the end of his run and was lifting up the blade to drop excess soil off before reversing down his cleared lane to restart on subsequent runs. This would then have allowed the mine to pass under the blade as the grader rolled forward to a stop.

or

In the action of the grader exposing deeper historical layer in the ground, the mine may have settled deeper than normal. This then would have allowed the mine to pass under the blade, activating the mine in the lower levels of soft sand.

At present no [demining group] Residual Vapour Detection Dog (REVD) Teams are operational. These are expected to come on line, after extensive training in Xangongo, early in 2004. These teams would normally search graded routes and windrows to detect remaining mines and other UXOs. These would then be removed and destroyed to allow for clearance status.

The minefield will be properly surveyed, logged, marked and prioritised for future clearance. The types of mines in the minefield are unknown. Fuzing mechanism from one anti-personnel mine was found during clearance but no comparisons with known fuzes has been concluded. It is assumed that the mine is some form of bounding fragmentation or fragmentation mine of unknown origin. No fragmentation or other parts of the anti-tank mine have been located. It is assumed to be of plastic/Bakelite manufacture, possibly a South African No.8 since the SADF were active in this area and these mines have previously been found. More information on located mines in this minefield will be passed on to the relevant authorities when information is available.

The grader requires complete replacement of all components on the right hand front tandem axle, from stub axle bearings outwards. Estimates for spare part costs for replacements, as well as consumables, will be in the region of \$6500. Slave armour plates had recently been welded to the bottom of the grader to improve blast protection. These appear to have been instrumental in protecting the underside of the grader from undue damage. Blast pressure in the operators cab was eliminated as shown by the lack of dust in the cab or "blown out" armoured glass windows.

Conclusions

The armour deflection and slave plates exceeded expectation on deflecting the blast from an anti-tank mine.

The grader sustained minimal external damage and no structural damage.

The integrity of the armoured cab was not compromised. This resulted in no lasting injuries to the operator.

Safety considerations were maintained, [demining group] SOPs were observed.

The accident, though unfortunate, was not unexpected. It is normal to expect occasional detonations under the front wheels, which are extended, into un-graded areas. Extra armour had been fitted in case of under-body detonations.

This accident is preferable to a missed mine being later detonated by a soft skinned vehicle.

Recommendations:

Reassess and alter, if necessary, the operation by the grader operator if a breakdown in procedures is finally defined as the root cause.

Clear the route in front of the accident site to check for any more anti-tank mines. In view of the threat probably being the No.8 anti-tank mine, manual excavation will have to be carried out.

Routes not to be defined as cleared until final confirmation by [demining group] REVD Teams

When the [demining group] REVD Teams have been trained and deployed, these teams will have to check and confirm all windrows and graded tracks.

Once the grader and operator are available [demining group] to carry on operations until the arrival of the trained REVD Teams.

Signed: Programme Director, [Demining group], Angola.

[In an interview shortly afterwards the driver said that his door was firmly closed at the time and did not blow open.]

Victim Report

Victim number: 502	Name: Name removed
Age:	Gender: Male
Status: driver	Fit for work: yes
Compensation: none	Time to hospital: not applicable
Protection issued: None	Protection used: none

Summary of injuries:

INJURIES

minor Hearing

COMMENT

See medical report.

Medical report

No medical report was made available. The victim was interviewed briefly on 6th October 2003 at which time we had returned to work. He reported a continued pain in one ear but no perceived hearing loss. When asked if he had experienced any chest pain or difficulty breathing he replied that he had not.

Analysis

This incident classification is as an "Excavation accident" because the grader was being used to expose or excavate mines.

The primary and secondary causes as listed as "Unavoidable" and "Other" because the demining group deployed the graders to prepare an area, not as a full-clearance tool. They knew that the grader did not clear mines thoroughly and so an unintended initiation was always a possibility. They planned for this by protecting the operator and important parts of the machine with apparent success, even in a worst-case blast situation like this when a mine detonates beneath the cab.