

# DDAS Accident Report

## Accident details

<b>Report date:</b> 19/05/2006	<b>Accident number:</b> 409
<b>Accident time:</b> 12:52	<b>Accident Date:</b> 06/04/2004
<b>Where it occurred:</b> 34 k SE of Ondjiva on road from Chiede to Malungo	<b>Country:</b> Angola
<b>Primary cause:</b> Inadequate equipment (?)	<b>Secondary cause:</b> Management/control inadequacy (?)
<b>Class:</b> Missed-mine accident	<b>Date of main report:</b> 15/04/2001
<b>ID original source:</b> KO	<b>Name of source:</b> MgM
<b>Organisation:</b> Name removed	
<b>Mine/device:</b> AT (unrecorded)	<b>Ground condition:</b> route/path sandy
<b>Date record created:</b> 16/04/2004	<b>Date last modified:</b> 05/07/2005
<b>No of victims:</b> 0	<b>No of documents:</b> 1

## Map details

<b>Longitude:</b>	<b>Latitude:</b>
<b>Alt. coord. system:</b> 6380 80990	<b>Coordinates fixed by:</b>
<b>Map east:</b>	<b>Map north:</b>
<b>Map scale:</b> Melunga	<b>Map series:</b> SE30
<b>Map edition:</b> K1	<b>Map sheet:</b> 448
<b>Map name:</b> 1:100,000	

## Accident Notes

inadequate equipment (?)  
no independent investigation available (?)  
non injurious accident (?)  
mechanical detonation (?)  
mechanical follow-up (?)  
mine/device found in "cleared" area (?)

## **Accident report**

The following accident report was broadcast on the internet by the demining group involved. The text made public is introduced below, edited for anonymity.

Mine Accident to [Demining group] MPV

### **Introduction**

On the 6th of April one of [Demining group]'s Mine Proofed Vehicles activated an anti-tank mine during road clearance operations. This accident occurred approximately 34 kms south-east of Ondjiva on a road from Chiede to Malungo wa Shikongo. After an investigation carried out on site on the 7th 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 of Cunene, 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 manual demining tasks to allow safe relocation, and allow WFP to deliver food donations directly to the recipients, rather than the nearest administrative centre.

On the 6th of April 2004 at 1252 hours the WMF Wolf MPV, 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 34 kms south east of Chiede. The Wolf was supporting [Demining group]'s armoured grader while route-clearance was in progress towards Malungo wa Shikongo.

### **Reference**

Map: Melunga  
Map Series: SE33  
Edition: K1  
Map Number: 448  
Scale: 1:100,000  
Grid Ref.: 6380 80990

The area where the accident took place is on the northern edge of the Kalahari Desert. The soil is very sandy. There is some forestation, though not dense. The land surface is held together by grass, green with recent rains. Once the grader removes this surface binding, the surface becomes heavy, due to the exposure of soft loose sand.

### **Assessment**

The Wolf activated a mine under the left rear wheel. Safety distances were being observed, no support team members were involved and none were injured. The accident occurred more than three kilometres 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 driver. The driver of the Wolf was unaffected by this experience. No injuries were sustained. Since this accident the driver has continued his tasks as driver/mechanic, driving another MPV. This vehicle was being used to help extract the damaged MPV to the main [Demining group] workshop in Ondjiva.

The accident occurred approximately 2550 metres from a previous mine blast on this road. On this occasion the armoured grader activated an anti-tank mine under one of its wheels. Information had been collected about this area, with the local population reporting that recently one boy, a goat and four cows have been killed in mined areas around the road. Another vehicle had already activated a mine on this road, some 50 metres from the accident site of the armoured Grader. To allow for safe extraction of the Wolf 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 driver/mechanic was using his vehicle to prove the area clear behind the grader, clearing a lane a minimum of 8 metres width. In normal circumstances an Explosive Vapour Dog Detection Team would have cleared the area behind the armoured grader to prove the area. The EVDD team had cleared 500 metres in front of the site of the previous mine accident on the armoured grader. Unfortunately the EVDD team were not available as operations re-started on this site. The accident occurred 2250 metres in front of the previous accident. The Wolf was being used in the absence of the EVDD team.

The accident occurred on the extreme left side of the cleared road. The base of the mine was measured at 0.9 metres below the level of the surface, prior to grading. After grading the base of the mine would be 0.7 metres below the surface. Inspection of the crater revealed no evidence of the anti-tank mine. With knowledge of mine used in the area, this mine was in all probability a South African No8 anti-tank mine. When activated the mine would then have been some 0.5 of a metre below the surface.

In this case it appears that the mine to pass under the blade of the armoured grader. The mine had sunk in the soft sand over the years since being laid, being brought closer to the surface by the actions of the [Demining group] armoured grader. The weight of the Wolf III Turbo (16 tons) and the soft sand were enough to activate the anti-tank mine, even at a depth of 0.5 mts.

At present the available [Demining group] Explosive Vapour Detection Dog (EVDD) Teams were operational on another emergency clearance task in Seles. They returned to this operational site immediately. These teams would normally search graded routes and windrows (berms) to detect remaining mines and other UXOs. These would then be removed and destroyed to allow for clearance status. In this case the Wolf was being used as a stopgap until their return. Although not perfect, the method proved effective.

The Wolf requires some repairs to be carried out to the wheel housing and brakes, as well as a new wheel and tyre. [Demining group] has a spare axle, as well as the two spare wheels on the Wolf. The Wolf should be operational again shortly. The damaged axle will be sent to WMF in Windhoek, Namibia, for the required repairs.

### **Conclusions**

- The armour deflection of the Wolf's monocoque hull deflected the blast from the anti-tank mine as expected.
- The Wolf sustained minimal external damage, with no structural damage.
- The integrity of the armoured cab was not compromised. This resulted in no injuries to the operator.
- Safety considerations were maintained, [Demining group] SOP's were observed.
- The accident, though unfortunate, was not unexpected. It is normal to expect occasional detonations under the wheels.
- This accident is preferable to a missed mine being later detonated by a soft skinned vehicle.

### **Recommendations:**

- The operations on this road have been suspended until the EVDD team arrives from their previous tasking.
- There are expected to be more No8's on this route. [Demining group] will employ one EVDD Team in front of the armoured grader. When available, one EVDD Team will operate behind the grader, in front of the Wolf III Turbo.
- Wolf III Turbo to continue to continue with its present task, with the added layers of clearance in front.
- EVDD Team to check all areas previously cleared by the present method.

- Up date [Demining group]'s SOP's once new methods of clearance have been developed for operations in soft sand areas.

## **Analysis**

The primary cause of this accident is listed as “*Inadequate equipment*” because the machine was being used as a clearance tool, with road tyres and without being approved for this use. The internal investigator reports that the machine was being used “to prove the area clear behind the grader”. What it proved was that the area was not clear. The demining group recognised that the dog team should have been on site, and they were brought to the site after the accident, so acknowledging that the method in use was inappropriate. How the Wolf was supposed to prove an area “8 metres width” with its tyres is unclear. Presumably it drove back and forth, partly on and off the area traversed by the grader.

The group’s senior management published the report proudly, seemingly unaware that clearance by driving a road is not accepted as thorough within humanitarian demining. Accordingly, the secondary cause is listed as a “*Management control inadequacy*”.