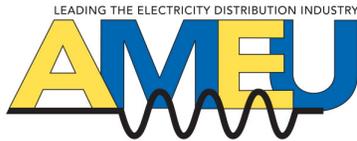


A FATALITY INVOLVING A SUB CONTRACTOR ON A SUBSTATION CONSTRUCTION PROJECT



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1 INTRODUCTION

The purpose of this brief is to inform and highlight the need for more stringent controls around risk assessment in operating procedures and training. The focus of this paper is risk assessment on certain construction regulations, which in this particular case study, a lack thereof resulted in a fatality. The first question that is raised is "what has this incident got to do with electrical safety". More attention should be given to risk assessment in other engineering fields in the construction of our electrical infrastructure.

2 BACKGROUND

Neptune substation is a newly constructed 132 kV substation located within the port of Richards Bay. It is owned and operated by the uMhlathuze Municipality. The substation is key in maintaining a stable supply of electricity to the existing Richards Bay load and will provide the future power requirements of the port and the port expansion. The substation is equipped with the latest in high voltage switchgear technology and due to its location, is fed via high voltage XLPE cables from an overhead line take off point.

Neptune substation was constructed over a period of 2 financial years between the years 2007 and 2009. The substation contract was awarded to a prominent power projects company with a net contract value of R55 million. The construction project involved a fairly large and complex civil engineering component.

3 ACCIDENT RESULTING IN A FATALITY

The names of the principle contractor, the subcontractor and the identities of the deceased and his supervisor are withheld due to sensitivities surrounding the nature of this incident.

Site Name:	Neptune substation
Date of incident:	14 November 2008
Time of incident:	08:40
Type of incident:	Lost time injury
Section where incident occurred:	Concrete batch plant
Name of injured:	Mr Gumede (not his real name)
Name of supervisor:	Mr Khoza (not his real name)

4 EVENTS OF THE ACCIDENT

On 14 November 2008, Mr Gumede's work task for the day was to provide a mix of concrete for the planned work and to clean the concrete mixer once the mixing operation had been completed.

At the time of the incident, all labour assisting with the mixing operation were requested to return to site where the concrete was being poured with the exception of Mr Gumede who was left alone to clean the concrete mixer.

Mr Gumede climbed onto the frame of the concrete mixer.

Mr Gumede's supervisor, Mr Khoza who was standing a way off, heard a loud "cracking" sound.

Mr Khoza immediately noticed Mr Gumede on the concrete mixer with his head wedged between the frame of the mixer and the hopper.

Mr Khoza together with two other employees immediately reacted and attended to the scene.

The concrete mixer was first switched off.

While holding Mr Gumede, the hopper was lowered. Mr Gumede was then lowered to the ground.

First aid was immediately administered and Netcare 911 was contacted.

Netcare 911 attended to the scene within 10 minutes. Paramedics stabilized Mr Gumede after which he was taken to a local hospital in Richards Bay.

Mr Gumede was later transferred the same day to a hospital in Umhlanga, Durban.

Mr Gumede was admitted into ICU and placed on a ventilator.

Due to excessive and uncontrollable bleeding on the brain, Mr Gumede passed away on the 19 November 2009.

The Department of Labour were notified and an inspection and full investigation was conducted and concluded.

5 OUTCOME OF THE INVESTIGATION

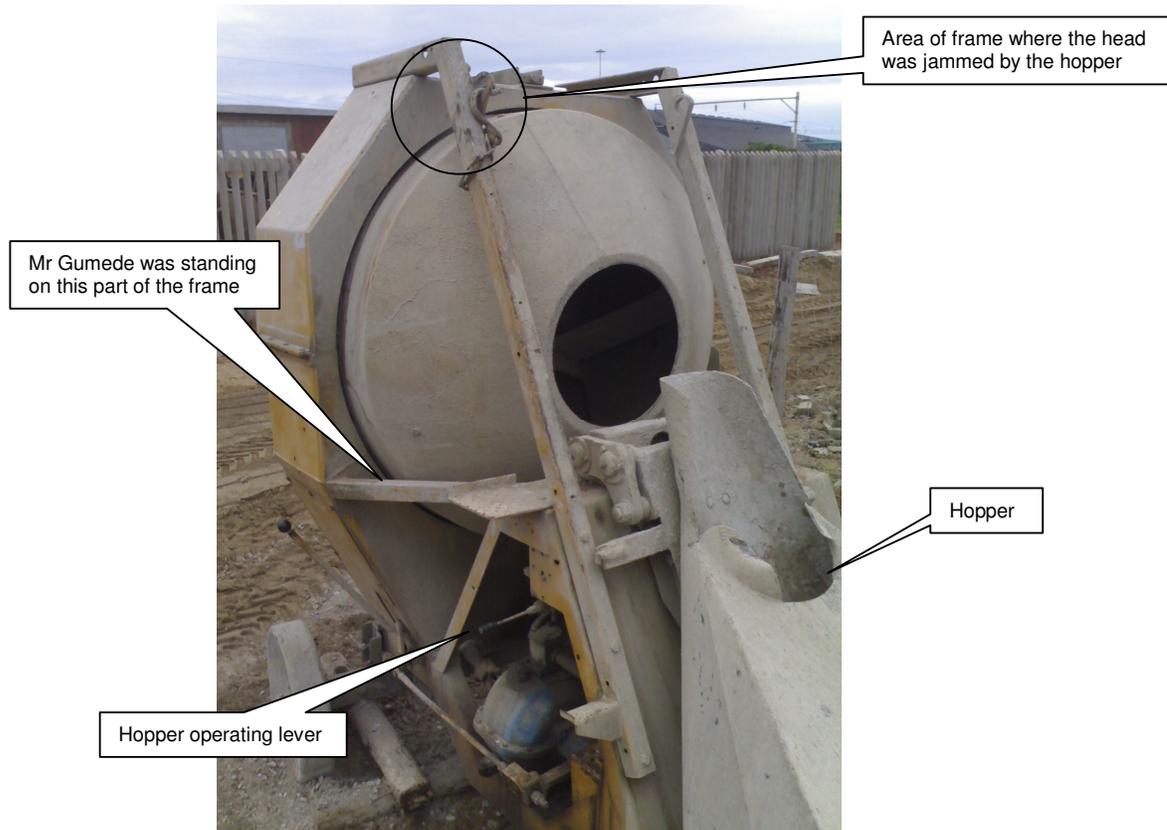
Mr Gumede had switched on the concrete mixer in order to rotate the water in the mixing drum to clean it.

It has been assumed that Mr Gumede climbed onto the concrete mixer to inspect the progress of the cleaning operation.

It is assumed that while standing on the frame, his foot accidentally pressed down on the operating lever, which controls the movement of the hopper.

Not realising what he had done, the hopper lifted with far too much acceleration and jammed his head against the frame of the concrete mixer, which resulted in an immediate head injury.

The following photograph attempts to illustrate the scene of the accident:



Mr Gumede had been trained and deemed competent to operate and clean the concrete mixer.

Mr Gumede had been operating the same concrete mixer for 4 months.

Mr Gumede had attended all safety and toolbox talks.

6 ANALYSIS

Why was the employee left to clean the concrete mixer alone in the first place? Is it fair to say that a single individual should undertake the cleaning of such a piece of machinery?

It has been found that there is no operating procedure for the cleaning of the concrete mixer. If such an operating procedure exists, should it clearly define the supervision of such a concrete mixer? Yes it should.

If Mr Gumede had been found to be competent to operate the concrete mixer, why did he climb up onto the frame in the first place? Unfortunately this question can never be answered. Sub clause 7 (5) of the construction regulations stipulates that the principal contractor is to ensure that the employee is informed of any hazard as stipulated in the risk assessment before any work commences.

There is no record of any risk assessment done for the operating and cleaning of the concrete mixer. So can it be assumed that Mr Gumede was informed through his formal training of the hazards pertaining to the safe operation of the concrete mixer or was he verbally informed on site? This question cannot be answered!

It can be noted that the principal contractor provided the safety specification to the sub contractor. The specification is clear that a risk assessment is to be undertaken for all rotating machinery.

Probably the most important find is that of the unguarded hopper-operating lever. Sub clause 18 (3) of the construction regulations is clear on the safe use of any batch plant. The regulation reads that all devices used to start or stop the batch plant are constructed in such a manner to prevent accidental starting.

It can be noted that the contractor has now installed a steel guard plate to prevent such an incident from occurring again and thus fully complying with the construction regulations.

Sub clause 18 (4) clearly states that all dangerous moving parts of a mixer are placed beyond reach of any person by means of doors, covers or similar means. It is a known fact that concrete mixers do not have any covers or similar means of preventing people from climbing onto them. If this is the case then once again the safe operating procedure as noted in 4.2 above should be clear on the supervision of the mixer while being operated or cleaned.

So is the question raised that we do not pay enough attention to the safety of our construction projects? No not at all. In this particular case, no risk assessment had been carried out. Insufficient operating procedures and training is clearly noted. Was both the client and principle contractor aware of the risks associated with the civil engineering component of this project?

7 CONCLUSION

It can be concluded that a single individual should never undertake the cleaning operation of a concrete mixer of this size alone. The risks associated with the operation of the mixer and it's

associated rotating and moving parts is too high and should be supervised at all times. Safety specifications should ensure that procedures to manage risk assessment are adhered to at all times. Although our safety briefings focus on electrical safety regulations and operating procedures, attention must also be given to safety in the construction of electrical infrastructure, which includes other engineering disciplines.