



What happened?

During April 2022, a contractor was carrying out a shallow borehole whilst using a multi-purpose rotary drilling machine. The borehole was being completed by a fully competent VQ qualified Lead Driller with over 25 years' experience in rotary drilling. During the progression of this borehole, the Lead Driller was undergoing an Audit from the BDA.

In light of the injury caused by the failure of a wire rope last September, as reported by a BDA safety alert [here](#), it is now mandatory requirement that the tensioning weight be moved during a BDA Audit.

Details regarding the rope on this rotary drilling machine are as follows:

- 4 years old
- Showed no signs of wear on the normally exposed sections
- Had been thoroughly examined less than 3 months previously by an independent competent person
- Had been inspected by the Lead Driller as part of his daily inspection at the start of the shift

However, there was no requirement on the daily/weekly inspection to expose the rope behind the tensioning weight. When the auditee was asked to expose this section of the wire rope as part of the audit, it became evident that the rope was severely worn / broken - see adjacent image and images on Page 2.

The rope had approximately 50% of its strands entirely broken.



What went wrong?

Mechanical Causes

- Tension weight was difficult to move and bolted in place

Procedure Causes

- Failure of the independent thorough examination to identify any wear
- Failure of the weekly inspection to identify the wear
- Failure of the inspection criteria to check behind the tensioning weight, despite evidence of earlier failure in this area being common knowledge in the industry



Outcome and Lessons Learnt

The Lead Driller immediately stopped the drilling machine and reported the findings to the supervisor and the head office. A replacement rope was immediately dispatched, and the machine remained unused until and new fully certified rope was fitted.

A toolbox talk was scheduled for the next morning by the company for all operators of drilling machines to check this area of the ropes before starting work, and the daily/weekly inspection criteria changed to include the specific requirement to inspect behind the tensioning weight.

Despite a very experienced, fully qualified Lead Driller operating the machine, and the correct inspection regime being implemented, the damaged rope evaded detection.

The audit criteria requirement to expose this section of the rope almost certainly prevented an incident. The rope would have continued to be used as there was no requirement to check this part of the rope within the companies' procedures.

All wire ropes in use on drilling machines should be inspected across their entire length on a regular basis. This check should be documented within both official Thorough Examinations, and daily/weekly inspections. All inspections should include removal of the tensioning weight from the ferrule area, and should be conducted by a competent operator who has received formal training on how to inspect wire ropes.



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