BRITISH DRILLING ASSOCIATION

SAFETY ALERT
FEBRUARY 2023

What happened?

During February 2023, a contractor was carrying out a shallow borehole whilst using a cable percussion drilling machine. The borehole was being completed by a fully competent VQ qualified Lead Driller with significant experience in cable percussion 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 in September 2021, as reported by a BDA safety alert here, wire ropes and their condition remain a hot topic within the industry. During the course of the BDA audit, the auditor identified that the wire rope in use with the main winch was excessively worn..

Details regarding the rope on this cable percussion drilling machine were as follows:

- 16mm galvanized wire rope,
- Had been thoroughly examined less than four months previously by an independent competent person,
- Had been re-terminated using U-bolts since the last thorough examination,
- Had been inspected by the Lead Driller as part of his daily inspection on the day of the audit and had been noted as 'worn'.

The driller had also completed a wire rope inspection course within the last six months and obtained certification.

The rope had approximately 50% of its strands entirely broken at the pinch-point of the thimble and U-bolt, a high number broken strands at the bottom of the rope within the thimble and there were also numerous broken strands across the entire rope length.

What went wrong?

Mechanical Causes

- Frequent abrasive contact between the shackle and tooling,
- Excessive tightening of the U-bolts during re-termination, causing crushing and deformity to the wire rope.

Procedure Causes

- Failure of the daily/weekly inspection to sufficiently identify the wear,
- Failure to report damage to plant and machinery team,
- Failure to re-terminate the rope in accordance with manufacturers/industry guidance, tightening the u-bolts excessively and causing damage.
- Failure to apply knowledge learnt during wire rope inspection course,
- Failure to use protection between the thimble and tooling.

Outcome and Lessons Learnt

The BDA auditor immediately stopped the Lead Driller from drilling and informed both the BDA Audit Management and the driller's employer, and terminated the audit. The drilling machine was stood down until a new rope sourced to be fitted.

A toolbox talk was scheduled by the company for all operators of drilling machines to remind drillers of discard criteria for wire ropes, the correct re-termination procedure (including use of a calibrated torque wrench) and the importance of completing accurate daily/weekly inspection information.

Despite a very experienced, fully qualified Lead Driller operating the machine with a documented inspection regime being implemented, the damaged rope was not reported.

The audit criteria requirement to check the condition of the wire rope may have prevented a serious incident. The rope would have continued to be used as the driller had not reported the serious nature of the damage to their plant and machinery team.

All wire ropes in use on drilling machines should be inspected across their entire length on a regular basis by a competent person. Particular attention should be paid to the thimble area of re-terminated wire ropes in use with cable percussion drilling machines. This check should be documented within both official Thorough Examinations and daily/weekly inspections. All daily/weekly inspections should take note of the rope condition across the entire visible length and should be conducted by a competent operator who has received formal training on how to inspect wire ropes.

British Drilling Association Ltd – Registered Office: 55 Crown Street, Brentwood, Essex, CM14 4BD. Reg No: 1341987

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The BDA is committed to Improving Standards in Health & Safety, Quality of Workmanship and Technical Proficiency for the Drilling Industry and its Clients

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