

Safety Alert

071 – In Service Rope Failure

A recent incident occurred where a hammer rope on a driven piling rig failed in-service. The rig was in the process of slewing off a recently installed pile with approx. 3m final projection. As the operator slewed the rope failed without warning and the hammer dropped down the mast approx. 3m to the floor. Luckily no persons were in the vicinity. The Rig Attendant's next task was to replace the under-pack timbers on the machine, thereby putting him in the danger zone had this failure occurred at that point.

Investigation Findings

- The rope broke approx. 8m above its anchor point on the rear of the hammer. This section would be subjected to deflection around the cathead and the rear deflector sheaves.
- The rope had been fitted for 19 months. 1700 operating hours.
- The rig had been thoroughly examined 7wks previous – no issues / defects reported. Although complaints had been received by operators over the quality of these examination by our competent persons and this was already subject to ongoing review.
- The crew reported that there were no issues or defects noted prior to the incident.
- The rope and piling rig mast were heavily contaminated in grease making a visual inspection of the rope very difficult.
- An independent report by the rope manufacturer identified a 'high amount of wear with multiple fatigue breaks exceeding the recognised discard criteria' i.e number strand breaks over a give distance.
- Ropes are not routinely lubricated in service by Aarsleff.
- The lower mast 'hammer stops' as fitted to all rigs are not routinely used.

Learning Points / recommendations

- Routine replacement period of hammer ropes reduced to 12 months.
- Review the management process for maintenance and inspection / replacement of rope systems, including training for relevant persons where necessary.
- Further discussions with our thorough examination competent persons – ongoing.
- ALL 'rig hammer stops' to be used whenever a person is working beneath / close to a free suspended hammer i.e. when not sat over a pile.
- Rig operators to highlight issues with rope contamination from grease which affects visual inspection of ropes. It maybe that we are over greasing in some areas, or grease is not reaching its intended point.

Point of impact with the floor



Cleaned rope showing multiple fatigue breaks



REMEMBER IF IN DOUBT STOP WORK AND SEEK ADVICE