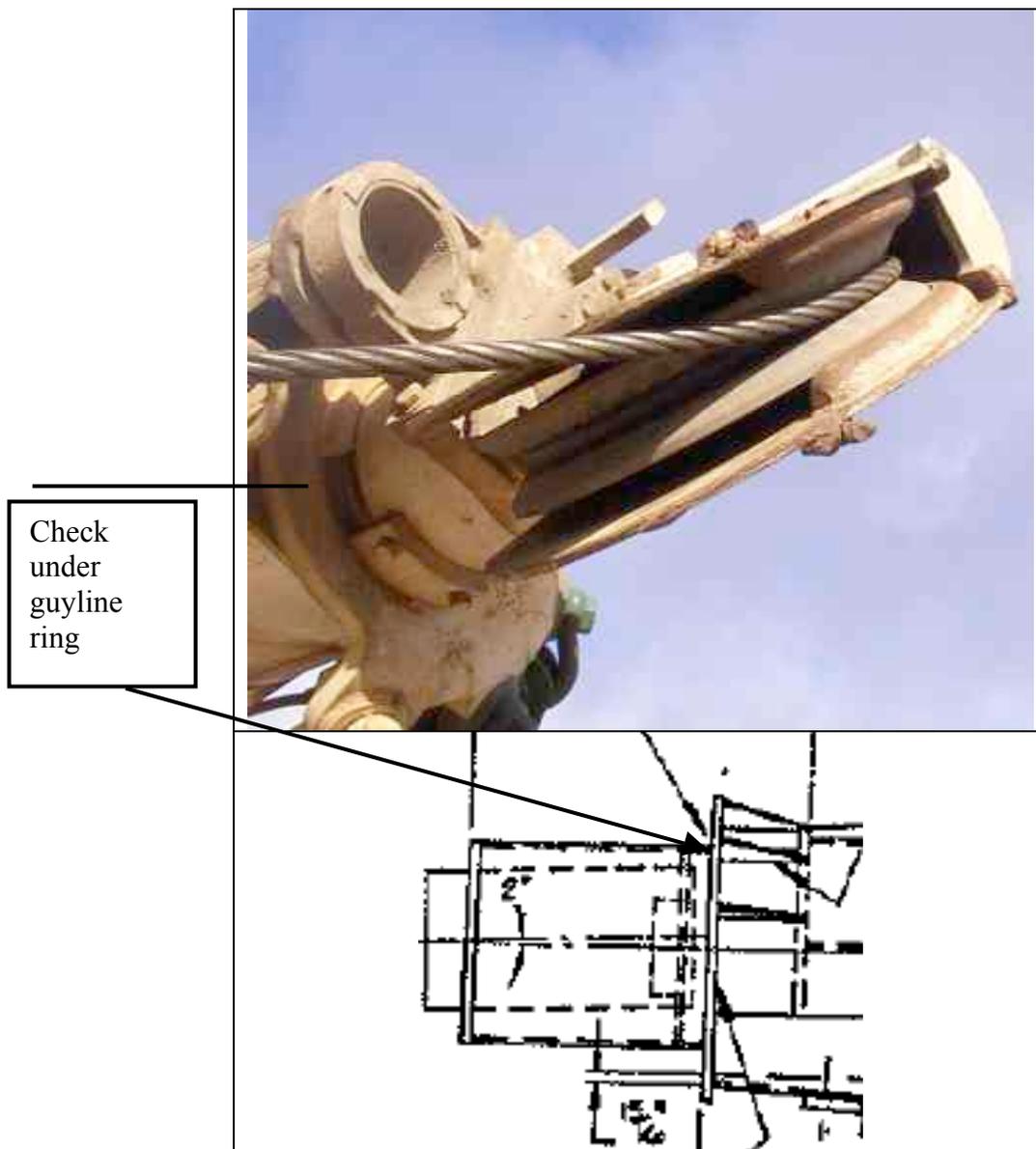


## Madill 171 & 172 Upper Tower Inspection

Two recent failures on Madill 171 yarders in New Zealand have resulted from cracking right through of the upper tower section in the vicinity of the guyline ring. The 172 tower is of similar construction in this respect and so must be considered similarly vulnerable. In both cases the skyline sheave assembly has separated from the tower and fallen to ground: one falling with the severed skyline rope; the other riding the skyline downward. Both cases are obviously extremely serious and could have resulted in serious harm.

This is an area of the towers on machines of this type which will require close scrutiny immediately and during subsequent Annual Yarder Tower Inspections.



**This is now a known failure mechanism with this tower type. It is occurring due to the age, usage and design of this part of the towers and is known as a *metal fatigue failure*. The problem will not go away short of redesigning and rebuilding this section of the tower. Each tower of this type still in use is almost certain to fail sooner or later. All owners of such towers must take effective preventative measures as indicated below:**

**Inspection Action Required:**

1. Remove guyline ring retainer blocks (2) to enable the ring to be displaced from its working position.
2. Clean using degreaser and visually inspect area under guyline ring working position paying particular attention to the “back” of the tower.
3. If any cracking is noted engage a chartered professional engineer (CPEng) to advise on repair options.
  - a. All repairs to the main structure of a yarder tower require a Structural Certificate from a CPEng. Tower Inspectors will not be able to issue an Inspection Certificate without a Structural Certificate from a CPEng.
4. If no cracking is observed engage a qualified and competent (preferably IANZ<sup>1</sup>-accredited) non destructive testing (NDT) company to inspect this area of the tower using suitable NDT methods for which the company is qualified/accredited.
  - a. **Absence of visible external cracks does not necessarily mean the tower is free from internal cracks which may propagate rapidly.**
  - b. The engagement of a properly accredited inspection company is critical to ensure the validity of the results obtained.
  - c. If NDT suggests cracking may be present, refer to # 3 above.
  - d. If NDT suggests the tower is sound, revert to annual inspections **which must include NDT if visible cracks are not detected.**

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<sup>1</sup> IANZ = International Accreditation New Zealand