USCG: wire rope hazard management – dropped turbine nacelle

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A wire rope parted, causing a wind turbine nacelle weighing 69 tons to fall 2.2m to deck.

IOGP Life Saving Rules:

Safe mechanical lifting

The United States Coastguard (USCG) has published Marine Safety Alert 11 -23 relating to an incident in which a wire rope parted, causing a wind turbine nacelle weighing 69 tons to fall 2.2m to deck, causing significant damage and loss of the nacelle.

What happened?

A vessel crane was being used to offload the 69 ton wind turbine nacelle. While hoisting, a wire rope parted, causing the load to fall to the deck. No-one was harmed, but the load landed within a metre of working personnel – there was high potential for serious injury. There was significant damage to the vessel and total loss of the cargo.

What went wrong?

The USCG noted that *investigation revealed that corrosion, wear, and monotonic ductile overload of the wire rope caused the failure*. Further, it was concluded the wire rope was still within its permitted service life but should have been replaced prior to the incident due to the corrosion and wear.

The USCG notes that *given the potential wear associated with harsh operating environments, it is imperative that vessel operators employ robust inspection and testing to ensure equipment suitability through its lifespan.*

Recommendations

The US Coast Guard strongly recommends that vessels equipped with shipboard cranes:

- Implement increased load testing frequency to verify wire rope integrity between class society mandated 5-year load tests.
- Are provided with and utilize pressure lubricating devices as recommended by the manufacturer for routine maintenance.
- Ensure maintenance tracking systems align with manufacturer's recommended maintenance protocol, including the period of employment and renewal of wire ropes.

- Consider shortened periods of employment and early renewal of crane wire ropes to prevent corrosion and fatigue induced failures.
- Instruct and train all personnel to never position themselves under cargo suspended by any crane, even temporarily.
- Ensure all shipboard crane operators are properly trained and cognizant of industry best practices;
- Implement increased wire rope visual inspection frequency.
- Degrease and remove all lubricant prior to crane wire rope visual inspections to ensure surface defects are not concealed.

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