Dropped Handrail Fell 6m to Walkway Below

SAFETY ALERT

Description of incident:

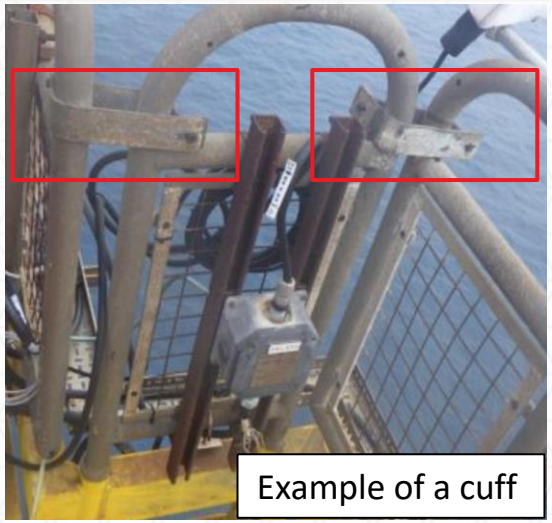
A section of handrail 1800mm x 1200mm and approx 80 kg fell from a structure 6 metres to a walkway on the pipe deck below.

Wind was gusting around 50 knots in the hours before the handrail was found. There was no process plant in the vicinity.

The root cause of the handrail failure was internal corrosion to the pots that connect the handrail posts to the supporting structure. This corrosion had caused significant metal loss and internal wall thinning to the inside of the pots reducing the strength of the connections.

Key Learnings:

- Planned inspection was completed on the handrail posts and connecting pots. The technique used (general visual inspection) did not and could not identify internal corrosion
- The original design of the handrail specified cuffs to connect the top rail to adjacent handrail panels. These are intended to provide some additional support to the panels. If they were present the handrail panel may have been retained in position thus preventing the dropped object event.
- Review risk assessment process for non SECE's that relate to structural components, where there is a credible threat to personnel and process.
- During handrail replacement the connection between the handrail and tertiary structure was not always being removed. This needs to occur to avoid potential dropped objects.


Example of a cuff

Contributory Factors:

- Unidentified Internal Corrosion and wall thinning of the pot.
- Handrail post / pot interface exposed to rainwater water and chlorides in the marine environment.
- Current Inspection Programme only calls for general visual inspection that would not have identified internal failure mechanism.
- Handrails had no cuffs attached as per original design.

Root Cause:

Internal corrosion, consequent wall thinning resulted in a loss of strength at the interface between the handrail post and pot.