CASE STUDY – AUGUST 2023
Location – Western Finland
9 turbine Wind Farm Site

PROJECT OVERVIEW

Defect and issue

Following erection of the 9 x turbines in Western Finland, the client discovered (according to the technical documents) that the TIG dressing on all the welded sockets (fixing points for the ladder, flange and miscellaneous units) was not carried out by the construction company, and did not reach the required NC100 standard on the welds.
There were 372 sockets per turbine welded to the turbine skin / wall.

Ladder socket fixings

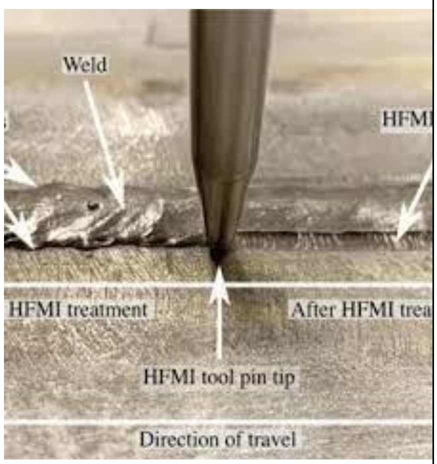
Defective socket

Solution

So to achieve the required welding spec (in-situ), and without the requirement to grind out the welds conventionally and then re-weld (due to large safety factors of the towers already being built), it was decided to use a procedure for welded structures called High Frequency Mechanical Impact Treatment (HFMI). This involved using a special peening tool with end pin that peened the full toe area of the socket weld, thus improving the fatigue weld strength and service life, but more importantly, achieving the welding standards required.

HFMI tool

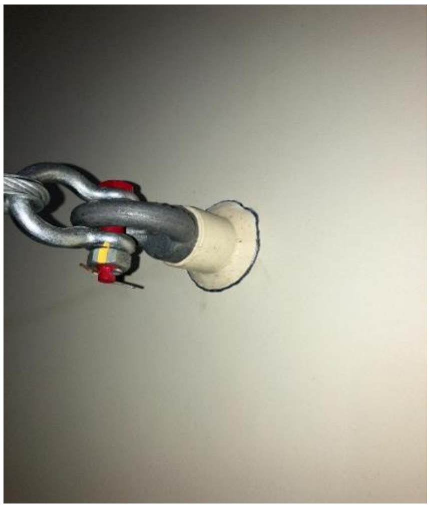
Peening illustration



Action

Our team of technicians, first - had to travel to Germany, where they were fully trained on the HFMI procedure with practical and theoretical training that included test piece exercises.

They then headed to site in Finland to carry out the work on the sockets, which included using our rope access methods.

On site activity	
Following all site requirements and inductions, our techs were ready to start on Turbine 01. The HMFI compressor was positioned at the flange level below the Top Tower platform section (where we started), with all ropes positioned and attached above, then we started to firstly remove the paint around the welds and then peen with the HFMI tool. When all sockets were finished in the turbine, we then painted all sockets to spec.	 

Project Highlights

- Job completed safely with zero lost time incidents
- Project completed on time
- All socket welds treated using the HFMI methods
- All socket welds surface prepped and painted to Turbine spec
- As job was finished around the start of October, (with temperatures plummetting), had it taken longer then the painting would NOT have been able to have been carried out…so lessons learned, is to be aware of end project times (if painting is required)
- Client commented throughout the project – We had good communication / documentation / and a good overall performance

1STOPWIND

1 STOP WIND

TECHNICAL SUPPORT SPECIALISTS

1StopWind are a technical support specialist company, carrying out a range of O & M scopes using experienced, multi-brand service technicians – serving both the onshore & offshore markets UK, Europe & beyond.

Services – Blade Repairs, Statutory Inspection & repair, Annual Servicing, NDT/Welding, Controlled Bolting, WTG Life Extension.

Email info@1stopwind.com

Phone 01412 397 739

Website https://1stopwind.com/