Failure of wire after stressing

WHAT HAPPENED

During a routine stressing procedure using 5 mm wire for the production of wet cast T-beams, a wire snapped in the centre of the bed seconds after the bed had been stressed and the pins inserted, causing an unplanned release.

The two broken parts traversed to either end of the bed travelling underneath the restraining chains, exited the end of the bed and continued to travel some distance down the workshop.



LEARNING POINTS / ACTIONS TAKEN

The wire was quarantined and both ends of the broken wire sent away for independent metallurgical examination. The conclusion was that the wire had been welded resulting in decarburisation.

Note: Clause 7.1.4 (Welds) in BS 5896:2012 High tensile steel wire and strand for the prestressing of concrete – Specification states that: “Wire shall contain no welds in the product as supplied by the manufacturer. Strands with normal production lengths may contain welds made in the individual wires before cold drawing, but shall not contain any welds made during or after cold drawing. Not more than one weld in any component wire shall be permitted in any 50m of strand.”

Additional Learning:

- Not to rely totally on the restraining chains.
- An enhanced exclusion process with a time factor built-in during and immediately following the stressing process, has been implemented.
- Additional guarding at the live end and safe, guarded zones for the operative undertaking the stressing process have been introduced.
- Ensuring that the wire conforms to the British Standard.





LOCATION:	**CONCRETE PRODUCTS PLANT**	**ALERT STATUS:**	**Normal**
ACTIVITY:	**GUARDING AND ISOLATION**	**DATE ISSUED:**	**03/08/2018 17:04:20**
SUB ACTIVITY:	**NO SUB ACTIVITY AVAILABLE**	**INCIDENT No:**	**01493**