

The Specialist – “sharing through experience”

Machines Vessels Piping Materials Fired Equipment Civil Structural Inspection Electrical Instrument Control Process Safety Projects

Repairs and Coatings

“Do you specify the most suitable repair/coating process and procedure?”

A National Standard does not exist for a complete procedure. Success depends on using a competent applicator working to a high quality control plan, using appropriate internal standards.

Essential elements for correct repair :

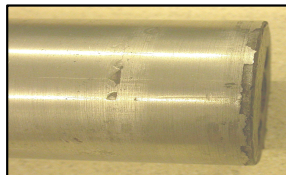
(i) Choice of repair/coating material has to resist damage, e.g. corrosion, wear: hard facing alloy, Chromium, Nickel....

(ii) Choice of process has to suit the material / the component and the duty e.g. welding, metal spraying, electroplating...

(iii) Repair/Coating Procedure must include surface preparation, machining, grit blasting.

(iv) A good application of repair/coating material, finishing to required size and tolerance with NDT.

(v) Verification by inspection, at all stages, and final approval by an independent engineer.



Contact **Bob** for further information.

Tel. +44 (0)1642 372369

Mob. +44 (0)7710 297101

bob.smith@gb.abb.com

Shaft coating failure leading to a grease fire

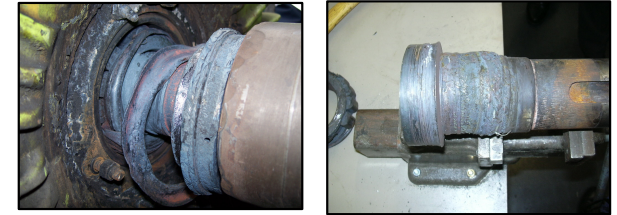
“Are repairs properly specified, verified, recorded and signed off”

Background

- Pump on a Hydrocarbon duty.
- The motor shaft had been previously repaired at the drive end bearing journal mount position.
- Bearing is rolling element type roller bearing NU314-C3.
- Motor is Bruce Peebles D315M frame, horizontal mount, 225Hp running at 2900rpm.

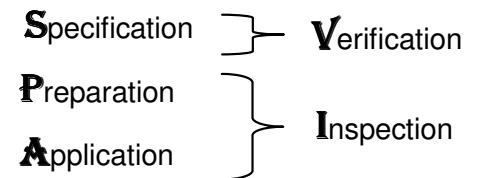
Investigation

- Past repaired coating failed at bearing mounting area without warning.
- Previous shaft repair by spray coating, to an unknown standard, came off.
- Bearing to shaft fits excessive.
- Bearing failed due to friction at inner race generating heat and reducing race to roller clearance.
- Grease fire during failure.



Key Elements

1. Shaft temperature at failure >1000degC, Auto Ignition Temperature 220degC. The effect could have been a lot worse!!
2. Maintenance & repairs carried out off site by 3rd party to an unknown standard.
‘Equipment operator ultimately has responsibility for the equipment integrity.’
3. Coatings – steps to remember,



Contact **Keith** for further information.

Tel. +44 (0)1642 735699

Mob. +44 (0)7710 610960

keith.howard@gb.abb.com