

789 – Assessment and Repair of Large Critical Induction Motor In Oil & Gas Facility

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Abstract: Motors in critical operations need to be procured under a premium standard specification, maintained very well, supported by technical center and backed up with an equipped workshop. This is essential to deal with any emergency situation similar to the one explained in this paper where a large critical motor failed during operations forcing the plant to act immediately utilizing inhouse resources to perform root cause analysis (RCA), material failure analysis, procure the material, repair and test the motor, and finally monitor its performance with no interaction from the OEM. The RCA confirmed the failure to be caused by Stress Corrosion Cracking (SCC) in the rotor retaining ring due to wrong material selection during the motor design phase. The used material was steel alloy with 18Mn-4Cr which is susceptible to SCC. Furthermore, the failed ring caused major damage to the stator windings which were repaired temporarily while manufacturing a new set of coils to rewind the stator. Despite the major damage to the motor, our local service workshop managed to return the motor back to service in a short time. All these efforts were captured in this paper.