

**Symposium Information:** Offshore Cathodic Protection - Case Studies, New and Novel Designs or Inspection Techniques

**Paper and Presentation Title:** A Case Study on Diagnostic Investigation of Cathodic Protection System Requirement and Performance Review for Concrete Piles

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### **Abstract**

The construction of a port expansion project in Arabian Gulf for a major operator included the surface-based structures such as capping beams and reinforced concrete piles. In 2009, a criticality assessment study was conducted that established the requirement of an impressed current cathodic protection system for all piles included in offshore structure. The installed CP system was operational since August 2011 and was remotely monitored. The monitoring data showed that all the surface-based structures such as capping beams adhered to the requirements of BS EN 12696 with regards to polarization and depolarization. However, the reinforced concrete piles showed an initial negative polarization followed by steady state condition. Thereafter, the polarization project requirements were not achieved. Later in 2014, it was requested by the Operator and the Contractor to conduct a diagnostic investigation of the CP system and review the requirement for cathodic protection for the piles. This paper presents the review of impressed current cathodic protection system data, reports, adopted methodology, analysis, results interpretation and key findings.

**Key Words:** Impressed Current Cathodic Protection System (ICCP), Cathodic Protection (CP)