

Deep Well-Grounded Magnetite Anode Chains Retrieval and Installation for Raslanuf Complex Impressed Current Cathodic Protection System Rectification

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Abstract : The number of deep well anode ground beds (GBs) have been retrieved due to unoperated anode chains. New identical magnetite anode chains (MAC) have been installed at Raslanuf complex impressed current Cathodic protection (ICCP) system, distributed at different plants (Utility, ethylene and polyethylene). All problems associated with retrieving and installation of MACs have been discussed, rectified and presented. All GB-associated severely corroded wellhead casings were well maintained and/or replaced by new fabricated and modified ones. The main cause of the wellhead casing's severe internal corrosion was discussed and the conducted remedy action to overcome future corrosion problems is presented. All GB-connected anode junction boxes (AJBs) and shunts were closely inspected, maintained and necessary replacement and/or modifications were carried out on shunts. All damaged GB concrete foundations (CF) have been inspected and completely replaced. All GB-associated Transformer-Rectifiers Units (TRU) were subjected to thorough inspection and necessary maintenance was performed on each individual TRU. After completion of all MACs and TRU maintenance activities, each cathodic protection station (CPS) has been re-operated, alternative current (AC), direct current (DC), voltage and structure to soil potential (S/P) measurements have been conducted, recorded and all obtained test results are presented. DC current outputs have been adjusted and DC current outputs of each MAC have been recorded for each GB AJB.

Keywords : magnetite anodes, deep well, ground beds, cathodic protection, transformer rectifier, impressed current, junction boxes

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