ANALYSIS OF IMPRESSED CURRENT CATHODIC PROTECTION (ICCP) SYSTEM DESIGN ON OFFSHORE PIPELINE OWNED BY JOB PERTAMINA-PETROCHINA EAST JAVA

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ABSTRACT

In general, the main problem often faced by the pipeline, especially in the offshore is the occurrence of corrosion. Corrosion can not be stopped but only can be prevented or slowed its rate. Preventing or slowing the rate of corrosion can be done by several methods such as design (design), selection of materials, utilising of inhibitors, coatings, and Cathodic Protection. But the method which is used in this final project is Impressed Current Cathodic Protection Systems (ICCP) which is designed and applied to the offshore pipeline owned by JOB Pertamina-Petrochina East Java. This ICCP system design is reviewed based on technical and economical aspects that will be compared with the Sacrificial Anode. From the results obtained that the design of ICCP system need 2 pieces Mixed Metal Oxide anode with length of anode 500 mm, outside diameter 25 mm, and current of anode 15 Ampere that will be installed at two points namely Palang Station area and local area FSO that will protect the pipe from corrosion for 20 years. Whereas for Sacrificial Anode, the number of anode which is required are 73 pieces aluminium bracelet anode with that is placed evenly along 18625.28 km. For economic aspect, ICCP system design of Palang Station and FSO area include equipment purchasing cost were Rp. 161.147.000,00, system installation cost were Rp. 9.000.000,00 and maintenance cost were Rp. 45.000.000,00. Economic aspect of Sacrificial Anode design include aluminium bracelet anode purchasing cost were Rp. 77.088.000,00, system installation cost were Rp. 36.500.000,00 and maintenance cost were Rp. 360.000.000,00.

Keywords: Corrosion, Impressed Current Cathodic Protection, Sacrificial Anode