DESIGN OF SACRIFICIAL ANODE CATHODIC PROTECTION SYSTEM ON PERTAMINA UPms V BURRIED PIPELINE

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Abstract

Sacrificial anode cathodic protection system is one of method to prevent corrosion attack with corroding the metal anode at galvanic cell. The metal is protected properly arrange in order that as cathode at corrosion cell and the other metal is attached as anode which has potential more negative.

Protection system design refers to NACE standard RP 169-2002 “Control Of External Corrosion For Underground or Submerged metallic Piping System”. The first step of design measure soil resistivity with Wenner method and it is continued the design appropriately based on NACE standard.

The average value of soil resistivity measured in Perak (north Surabaya) is 314.94 Ohm.cm. Zinc anode (ASTM B 418-88 Type II) is recommended under resistivity 2000 Ohm.cm as anode on submerged structure therefore Aluminum (Al-Zn-In) is used for under river condition or offshore structure. API 5L Grade B, NPS 12” Sch.80, SMLS pipe needs three aluminum anodes (@ 25 kg) and API 5L Grade B, NPS 12” Sch. 40, ERW pipe needs 19 anodes (@ 25 kg). Total current output of aluminum anode is 1.282 A and zinc is 5.459 A.

Keywords : Cathodic Protection, sacrificial anode, current density, pipeline