

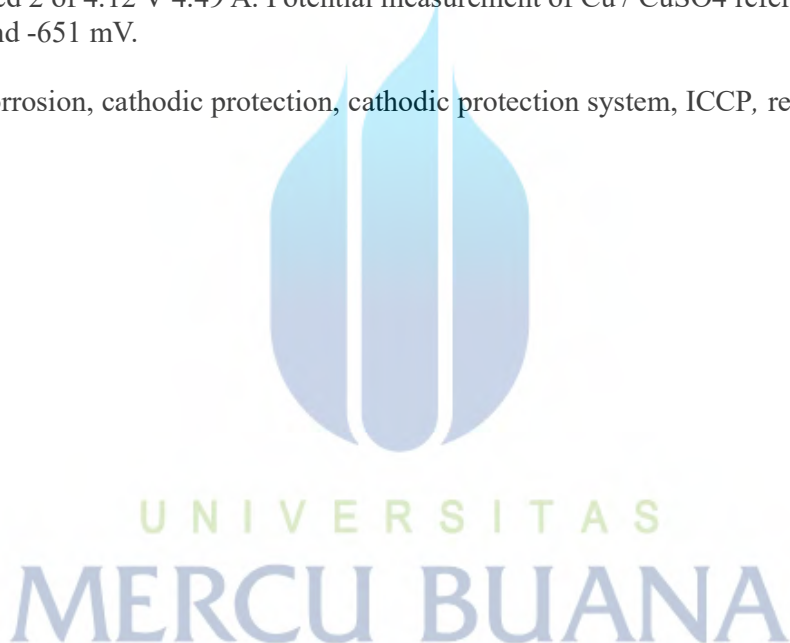
ABSTRACT

Corrosion is a natural feature of metals. Corrosion occurs on pipelines both on land and at sea. Many ways to prevent and reduce the rate of corrosion, one of them with cathodic protection. Common cathodic protection uses sacrificial anode and ICCP (Impressed Current Cathodic Protection) methods.

The purpose of this research is to know the cathodic protection system at sea water outlet pipe at Combine Cycle Power Plant (CCPP) PT Krakatau Daya Listrik.

This research is carried out by performing theoretical design calculations and protection system analysis installed in the CCPP sea water outlet pipeline, as well as the current and voltage requirements of the rectifier to inhibit the corrosion rate. The result of the research shows that the CCPP sea water outlet pipe installed cathodic protection using ICCP (Impressed Current Cathodic Protection) method of two deep well groundbed able to inhibit the corrosion rate with the need of voltage and current on the deep well groundbed 1 of 6 V 25 A, and at deep well groundbed 2 of 4.12 V 4.49 A. Potential measurement of Cu / CuSO₄ reference electrode is -920 mV and -651 mV.

Keywords: corrosion, cathodic protection, cathodic protection system, ICCP, rectifier.



ABSTRAK

Korosi merupakan merupakan sifat alami dari logam yang terjadi pada jalur pipa baik di darat maupun di laut. Banyak cara untuk mencegah dan mengurangi laju korosi, salah satunya dengan proteksi katodik. Proteksi katodik yang umum menggunakan metode *sacraficial anode* dan ICCP (*Impressed Current Cathodic Protection*).

Tujuan penelitian ini untuk mengetahui sistem proteksi katodik pada pipa *sea water outlet* di pembangkit listrik CCPP (*combine cycle power plant*) PT Krakatau Daya Listrik.

Penelitian ini dilakukan dengan melakukan perhitungan desain secara teori dan analisa sistem proteksi yang terpasang di pipa *sea water outlet* CCPP, serta kebutuhan arus dan tegangan dari rectifier untuk menghambat laju korosi. Dari hasil penelitian diperoleh data pipa *sea water outlet* CCPP yang terpasang proteksi katodik menggunakan metode ICCP (*Impressed Current Cathodic Protection*) dua buah *deep well groundbed* mampu menghambat laju korosi dengan kebutuhan tegangan dan arus pada *deep well groundbed* 1 sebesar 6 V 25 A, dan pada *deep well groundbed* 2 sebesar 4,12 V 4,49 A. Pengukuran potensial terhadap electrode reference Cu/CuSO₄ sebesar -920 mV dan -651 mV.

Kata kunci: korosi, *cathodic protection*, sistem proteksi katodik, ICCP, *rectifier*.

