ABSTRAK

METODE CSAMT UNTUK PENENTUAN INDIKASI FLUIDA SECARA LANGSUNG DAN PREDIKSI *WELL OUTPUT* DI LAPANGAN PANAS BUMI WAYANG-WINDU, KABUPATEN PANGALENGAN, JAWA BARAT

Oleh :
Hafiz Hamdalah
115 090 012

Survei geofisika menggunakan metode CSAMT untuk mengkarakterisasi sistem panasbumi dengan tujuan mengindikasikan fluida panasbumi secara langsung berdasarkan respon nilai resistivitas batuan di bawah permukaan, serta mengkorelasikan terhadap data *top of reservoir* (TOR), *top of epidote* (TOE), dan temperatur sumur. Dilakukan prediksi dari *well output* dari hubungan *resistivitas gradient* (RG) dengan resistivitas *plume*. Penelitian berlokasi di lapangan panasbumi Wayang Windu, kabupaten Pangalengan, Jawa Barat.

Proses pengambilan data dilakukan bulan Oktober-Desember 2012 dengan *mode* pengukuran skalar. dan *tranverse magnetic* (TM), jumlah titik pengukuran 251 titik, spasi antar titik bervariasi yaitu 50 m dan 100 m. jarak (r) antara Tx dan Rx adalah 10 Km dari perhitungan *skin depth* dan *near field*. Pengambilan data menggunakan TXU 30 (*transmitter*), V8 -6R (*receiver*) serial 2126 (system 2000.*net*) keluaran Phoenix Geophysics. Pengolahan data dengan bantuan *Time Domain Electromagentic* (TDEM) dan *slope* resistivitas sebagai koreksi pergeseran statik. Data terkoreksi dilakukan proses inversi 1D menggunakan inversi Bostick dan OCCAM. Penampang 2D CSAMT diperoleh dari hasil inversi 1D yang dilakukan *gridding* interpolasi. Perangkat lunak yang digunakan adalah *CMTPro, Ms. Excel, Interpex 1D, Global Mapper, Petrel, Surfer,* dan *Map Info Prefessional*.

Interpretasi dilakukan secara kualitatif dan kuantitatif berdasarkan pendekatan konseptual dan deterministik. Nilai resistivitas batuan yaitu batuan reservoir (>5 – 40 Ohm.m), *clay cap* (<5 Ohm.m), dan *overburden layers* (>40 Ohm.m). interpretasi 1D didapatkan *base of conductor* (BOC) dengan kedalaman rata-rata 1000 msl dan korelatif terhadap TOR sumur. Resistivitas rendah pada *clay cap* disebabkan alterasi argilitik berupa mineral *illite, smectite,* dan *kaolinite*. Indikasi fluida secara langsung merupakan respon resistivitas yang rendah (>5 – 10 Ohm.m) pada batuan reservoir. Hubungan RG dan resistivitas *plume* dapat diklasifikasikan prediksi *well output* produksi yaitu *very high, high, low* dan *low-dry* . Prediksi ini dapat mengurangi resiko untuk pemboran sumur selanjutnya

Kata kunci : CSAMT, panasbumi, mode skalar, *tranverse magnetic (*TM*)* , *resistivity gradient*. resistivtas *plume*, indikasi fluida, *well output*

ABSTRACT

CSAMT METHOD TO DETERMINATION DIRECT FLUID INDICATION AND PREDICTION OF WELL OUTPUT IN WAYANG WINDU GEOTHERMAL FIELD, PANGALENGAN REGENCY, WEST JAVA

Hafiz Hamdalah
115 090 012

Geophysiscal survey using CSAMT methods to characterize the geothermal system with the aim of geothermal fluid directly indicated by the response of rock resistivity values below the surface, and correlate the data to the top of the reservoir (TOR), top of epidote (TOE), and temperature wells. Do predictions of the well output of relations resistivity gradient (RG) with resistivity plume. Research located in Wayang Windu geothermal field, Pangalengan regency, West Java.

The process of data acquisition was conducted from October to December 2012 with scalar measurement mode. and tranverse magnetic (TM), the number of measurement are 251 points, a point varies the spacing between 50 m and 100 m. distance (r) between Tx and Rx is 10 Km from the calculation of the skin depth and the near field. Data acquisition using the TXU 30 (transmitter), V8-6R (receiver) serial 2126 (2000.net system) outputting Phoenix Geophysics. Data processing with the help of Time Domain Electromagentic (TDEM) and the slope of resistivity as a static shift correction. Corrected data inversion process is carried out using the 1D Bostick and Occam inversion. 2D sections obtained from the inversion of CSAMT 1D conducted gridding interpolation. The software used is CMTPro, Ms. Excel, Interpex 1D, Global Mapper, Petrel, Surfer, and Map Info Prefessional.

Interpretation is done qualitatively and quantitatively based conceptual approach and deterministic. Value of rock resistivity are reservoir rock (> 5-40 Ohm.m), clay cap (<5 Ohm.m), and overburden layers (> 40 Ohm.m). 1D interpretation of the obtained base of conductor (BOC) with an average depth of 1000 msl and correlative to the TOR well. Low resistivity clay cap on argilitik be caused alteration minerals like illite, smectite, and kaolinite. Direct fluid indication is a low resistivity response (> 5-10 Ohm.m) in the reservoir rock. RG relations and resistivity plume can be classified prediction output production well is very high, high, low and low-dry. This prediction can reduce the risk for subsequent drilling

Keywords *: CSAMT, geothermal, scalar mode, tranverse magnetic (TM) , resistivity gradient. resistivity of plume, fluid indication, well output*