

“Zonasi Reservoir dan Estimasi Penentuan Titik Bor Panas Bumi Dengan Analisis Rotasi Tensor Data Magnetotellurik (Studi Kasus Lebak, Banten)”

Defri Kurniawan (12116099)

Pembimbing: Dr. Alimuddin Muchtar, S.Si., M.Si. *dan* Selvi Misnia Irawati, S.Si., M.T.

ABSTRAK

Eksplorasi daerah panas bumi di daerah Kabupaten Lebak, Provinsi Banten menggunakan metode magnetotellurik. Penelitian dilakukan menggunakan metode rotasi tensor magnetotellurik dengan pemodelan berupa inversi 2D. Tujuan dari penelitian ini yaitu memahami efek rotasi tensor magnetotellurik lalu membandingkannya dengan data yang tidak dirotasi, memetakan zona reservoir panas bumi wilayah penelitian, dan penentuan estimasi titik bor panas bumi. Data penelitian didapat dari Pusat Sumber Daya Mineral Batubara dan Panas Bumi. Data tersebut berupa data resistivitas semu, elevasi, frekuensi, dan lain-lain berbentuk data EDI. Data tersebut kemudian dianalisis menggunakan diagram polar untuk mendapatkan nilai rotasi yang akan dipakai pada tahap pemodelan. Setelah pemodelan didapatkan, pemodelan tersebut dianalisis lalu diinterpretasi untuk mengetahui zona sebaran reservoir lapangan panas bumi tersebut. Didapati *top reservoir* dari ketiga lintasan mulai terlihat pada kedalaman 800 meter dengan ketebalan rata-rata reservoir sebesar 5600 meter dan bersifat resistif. Didapati 2 titik rekomendasi pemboran pada koordinat X 643371.658 dan Y 9268352.68 serta X 642419.156 dan Y 9268966.515 yang berada diantara manifestasi panas bumi Cikawah dan Handeuleum.

Kata kunci: Panas Bumi, Magnetotellurik, Rotasi Tensor, Diagram Polar, Pemodelan Inversi.

“Reservoir Zoning and Estimation of Geothermal Drill Point Determination Using Magnetotelluric Data Tensor Rotation Analysis (Case Study Lebak, Banten)”

Defri Kurniawan (12116099)

Advisor: Dr. Alimuddin Muchtar, S.Si., M.Si. and Selvi Misnia Irawati, S.Si., M.T.

ABSTRACT

Exploration of geothermal area in Lebak Regency, Banten Province is using the magnetotelluric method. The research was conducted using the magnetotelluric tensor rotation method with 2D inversion modeling. The purpose of this study is to understand the rotational effect of the magnetotelluric tensor and compare it with non-rotated data, map the geothermal reservoir zone in the study area, and determine the geothermal drill point estimate. The research data were obtained from Pusat Sumber Daya Mineral Batubara dan Panas Bumi. The data are in the form of apparent resistivity, elevation, frequency, and others in the form of EDI data. The data is then analyzed using a polar diagram to obtain the rotation value that will be used in the modeling stage. After modeling is obtained, the modeling is analyzed and then interpreted to determine the distribution zone of the geothermal field recessive. It was found that the top reservoir of the three lines began to appear at depth of 800 meters with an average reservoir thickness of 5600 meters and was resistive. Two drilling recommendation points were found at X 643371.658 and Y 9268352.68 and X 642419.156 and Y 9268966.515 geothermal manifestations which are located between the Cikawah and Handeuleum geothermal manifestations.

Keywords: *Geothermal, Magnetotelluric, Tensor Rotation, Polar Diagram, Inverse Modelling.*