Penentuan Titik Bor Sistem Panasbumi Candradimuka Berdasarkan Data Magnetotellurik Dan Geologi = Determination of Drill Point for Candidimuka Geothermal System Based on Magnetotelluric And Geological Data

Hadi Allamilfar I., author

Abstrak

Lapangan panasbumi Candradimuka berada di dataran tinggi Dieng, merupakan daerah prospek di luar lapangan Dieng sebelumnya, sehingga diperlukan deliniasi zona permeabel untuk pemboran. Lapangan ini memiliki manifestasi berupa fumarol dan mata air panas di bagian Kawah Candradimuka diantara dua daerah vulkanik berumur kuarter yaitu Gunung Jimat dan Kawah Dringo. Perlunya deliniasi zona permeabel untuk menentukan sistem panas bumi di daerah Kawah Candradimuka dan juga diperlukan penentuan zona upflow dan outflow sebagai dasar dalam pemboran. Manifestasi panasbumi yang berada di permukaan akan di ambil sample fluida dan dianalisis dengan metode geokimia untuk mengetahui suhu fluida permukaan dan pendugaan suhu bawah permukaan. Kondisi bawah permukaan akan dianalisis dengan metode magnetotellurik dalam penentuan zona alterasi, heatsource, dan batas zona permeabel yang merupakan batas reservoir. Hasil penelitian menjelaskan zona permeabel yang merupakan reservoir sistem panasbumi Candradimuka dipengaruhi oleh formasi batuan Gunung Jimat-Kawah Dringo, dengan suhu reservoir sekitar 270degC. BOC sistem ini di ketinggian 1.000m dan deliniasi zona permeabel atau reservoir berada di elevasi 250m, dengan upflow berada di Gunung Jimat-Kawah Dringo, dengan outflow di sekitar patahan Wonopriyo di arah NW dari zona upflow. Direkomendasikan lokasi pemboran pada bagian batuan yang belum mengalami alterasi sehingga lebih aman untuk dibuat rig di sebelah timur manifestasi, kemudian arah pemboran di arahkan di sekitar patahan di tengah reservoir, dimana ada sekitar 1000m di bawah permukaan, dengan resistivitas sekitar 20-60 ohm.

.....The Candradimuka geothermal field is located in the Dieng plateau, which is a prospect area outside the previous Dieng field, so delineation of the permeable zone is required for drilling. This field has manifestations in the form of fumaroles and hot springs in the Candradimuka Crater section between two quarterly volcanic areas, namely Mount Jimat and Dringo Crater. It is necessary to delineate the permeable zone to determine the geothermal system in the Candradimuka Crater area and also to determine the upflow and outflow zones as a basis for drilling. Geothermal manifestations that are on the surface will be taken fluid samples and analyzed by geochemical methods to determine the temperature of the surface fluid and estimate the subsurface temperature. The subsurface conditions will be analyzed using the magnetotelluric method in determining the alteration zone, heat source, and the permeable zone boundary which is the reservoir boundary. The results of the study explain that the permeable zone which is the reservoir of the Candradimuka geothermal system is influenced by the rock formations of Mount Jimat-Dringo Crater, with a reservoir temperature of around 270degC. The BOC of this system is at an altitude of 1,000m and the delineation of the permeable zone or reservoir is at an elevation of 250m, with the upflow being at Mount Jimat-Kawah Dringo, with outflow around the Wonopriyo fault in the NW direction from the upflow zone. It is recommended that the drilling location is in the rock part that has not undergone alteration so that it is safer to build a rig to the east of the manifestation, then the drilling direction is directed around the fault in

the middle of the reservoir, which is about 1000m below the surface, with a resistivity of around 20-60 ohms.