

SARI

STUDI GEOLOGI DAN KARAKTERISTIK MANIFESTASI PANAS BUMI DAERAH REMBUL DAN SEKITARNYA, KABUPATEN TEGAL, JAWA TENGAH

Daerah penelitian berada di Desa Rembul, Kecamatan Bojong, Kabupaten Tegal, Jawa Tengah. Penelitian ini bertujuan untuk mengetahui kondisi geologi dan kondisi manifestasi panas bumi pada daerah penelitian. Metode penelitian yang digunakan yaitu observasi lapangan, pemetaan geologi detail dan analisis geokimia air panas bumi. Satuan geomorfologi pada daerah penelitian yaitu Satuan Geomorfologi Punggungan Aliran Lahar (PALH), Satuan Geomorfologi Lembah Aliran Lava (PALV) dan Satuan Geomorfologi Punggungan Aliran Lava (PALV). Stratigrafi pada daerah penelitian dari tua ke muda yaitu Satuan Satuan Aliran Lava Gunung Slamet, Satuan Breksi dan Satuan Aliran Lava Gunung Slamet. Struktur geologi yang berkembang di daerah penelitian yaitu sesar turun geser kiri rembul. Terdapat 3 manifestasi air panas bumi yaitu MAP Cahaya, MAP Pengasihan dan MAP Gua. Hasil analisis data geokimia air panas bumi pada daerah penelitian, diketahui tipe air panas berupa air bikarbonat dengan kondisi air *immature water* dan manifestasi panas bumi dari satu sistem panas bumi. Hasil analisis temperatur reservoir dengan metode silika-entalpi diperkirakan bersuhu 168°C. Rasio percampuran air panas bumi dan air metorik berdasarkan metode klorida-entalpi yaitu MAP Cahaya 95% air metorik dan 5% air panas, MAP Pengasihan 88% air metorik dan 12% air panas bumi dan MAP Gua 97% air metorik dan 3% air panas bumi. Perhitungan teori Han dkk yaitu MAP Cahaya 97,8% air metorik dan 2,2% air panas bumi, MAP Pengasihan 90% air metorik dan 10% air panas bumi dan MAP Gua 99,5% air metorik dan 0,5% air panas bumi. Perhitungan sumber daya spekulatif sebesar 1,449045 MWe dan termasuk dalam sistem temperatur rendah (SNI 13-6482-2000).

Kata kunci: Geologi, Geokimia Air Panas Bumi, Metode Silika-Entalpi, Metode Klorida-Entalpi, Sumber Daya Spekulatif

ABSTRACT

STUDY OF GEOLOGY AND CHARACTERISTICS OF REMBUL AREA MANIFESTATION AND ITS SURROUNDINGS, TEGAL DISTRICT, CENTRAL JAVA

The research area is in Rembul Village, Bojong District, Tegal Regency, Central Java. This study aims to determine the geological conditions and conditions of geothermal manifestations in the study area. The research method used is field observation, detailed geological mapping and geochemical analysis of geothermal water. Geomorphological units in the study area are the Lahar Flow Geomorphology Unit (PALH), Lava Flow Geomorphology Unit (PALV) and Lava Flow Geomorphology Unit (PALV). Stratigraphy in the study area from old to young, namely the Unit of Mount Slamet Lava Flow Unit, Breccia Unit and Mount Slamet Lava Flow Unit. The geological structure that developed in the study area is the fault down left shear rembul. There are 3 manifestations of geothermal water, namely MAP Cahaya, MAP Pengasihan and MAP Gua. The results of analysis of geochemical data on geothermal water in the study area, it is known the type of hot water in the form of bicarbonate water with immature water water conditions and geothermal manifestations from one geothermal system. The results of reservoir temperature analysis using the silica-enthalpy method are estimated to be 168° C. The mixing ratio of geothermal water and meteoric water based on the chloride-enthalpy method is MAP Cahaya 95% meteoric water and 5% hot water, MAP Pengasihan 88% meteoric water and 12% geothermal water and MAP Gua 97% meteoric water and 3% hot water earth. Calculation of the theory of Han et al, namely MAP Cahaya 97,8% meteoric water and 2,2% geothermal water, MAP Pengasihan 90% meteoric water and 10% geothermal water and MAP Gua 99,5% meteoric water and 0,5% of geothermal water. Speculative resource calculation is 1.449045 MWe and is included in the low temperature system (SNI 13-6482-2000).

Keywords: Geology, Geochemistry of Geothermal Water, Silica-Enthalpy Method, Chloride-Enthalpy Method, Speculative Resources