UPDATED THERMODYNAMIC MODEL OF THE LOS HUMEROS GEOTHERMAL RESERVOIR, PUEBLA, MÈXICO

José Martínez Reyes **a**, Eduardo González Partida **a**, Renee J. Perez **b**.

a Geosciences Center, National Autonomous University of Mexico
Campo de Juriquilla, Qro., México, apartado postal 76230 .

b Department of Chemical and Petroleum Engineering, University of Calgary,
500 University Drive, Calgary Alberta, Canada, T2N 1N4

ABSTRACT

Los Humeros geothermal field is located on the eastern side of central Mexico approximately 25 km NW of the city of Perote in the State of Puebla, inside the volcanic complex of caldera type in the oriental part of the Mexican volcanic belt of the Plio-quaternary one.

In the present work departing from updated information of enthalpies and chemical composition of the download fluids of a wells section (H-012, H-015, H-016, H-017, H-019, H-039) of the Los Humeros geothermal reservoir, Puebla, México, provided by the C.F.E. (2007), we determined the thermodynamic condition of the reservoir comparing the values of enthalpies of the unload fluids of the wells with the values that the literature mentions for the different thermodynamic possible states of the fluids, identifying that Los Humeros geothermal reservoir is of vapor dominated thermodynamic state.
This vapor dominated thermodynamic state is compatible with the temperature profile of the reservoir, as observed in the average temperatures determined from the study of fluid inclusions (in the deepest zone T_h = 337 °C) and in the stabilized temperatures from wells (in the deepest zone T_s=300°C).

Key words: vapor dominated thermodynamic state, geothermal reservoir