Petrology and Hydrothermal Alteration Mineral Distribution of Wells La-9d and La-10d in Aluto Geothermal Field, Ethiopia

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Abstract:

Laboratory analysis of igneous rocks is performed with the help of the main oxide plots. The lithology of the two wells was identified using the main oxides obtained using the XRF method. Twenty-four (24) cutting samples with different degrees of alteration were analyzed to determine and identify the rock types by plotting these well samples on special diagrams and correlating with the regional rocks. The results for the analysis of the main oxides and trace elements of 24 samples are presented. Alteration analysis in the two well samples was conducted for 21 samples from two wells for identifying clay minerals. Bulk sample analysis indicated quartz, illite & micas, calcite, cristobalite, smectite, pyrite, epidote, alunite, chlorite, wairakite, diaspore and kaolin minerals present in both wells. Hydrothermal clay minerals such as illite, chlorite, smectite and kaoline minerals were identified in both wells by X-ray diffraction. High temperature hydrothermal minerals; such as, wairakite, biotite, and epidote exists in both wells based on the X-ray diffraction analysis result.