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Investigation of Stibnite (Antimony) Scale in Germencik Geothermal Site, Büyük Menderes Graben, Western Turkey

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Scale problems in geothermal power plants are one of the reasons that reduce power plant efficiency. Silica scaling, calcite scaling, and sulfide scaling are the most common scale types in geothermal power plants. These scale problems in geothermal power plants can be seen in geothermal wells and surface equipment systems. In this context, various measures should be taken to control the scale problems in geothermal power plants. In this study, the stibnite scaling observed in the preheater system of the Germencik geothermal power plant in the west of Turkey is discussed in full detail. Possible types of scale that may occur in the geothermal wells in the power plant were revealed, and the optimum reinjection temperature was determined for stibnite scaling, which reduces the efficiency of the power plant. Within the 3D modeling of the geothermal power plant and different geochemical models, the precautions to be taken at the power plant are examined in all details.

Keywords: Stibnite, Scaling, Binary power plants, Germencik, power plant efficiency

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