ABSTRACT

PROBLEMS OF PIPELINE SCALING IN SODIUM-BICARBONATE DOMINATED GEOTHERMAL FLUIDS: POSSIBILITY OF ALTERNATIVE METHOD TO TRANSFER ENERGY FOR MULTI-UTILIZATION

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The problems are discussed of utilizing sodium-bicarbonate dominated geothermal fluids Which cause rapid scaling in pipelines and gate valves of production wells whilst chloride-dominated geothermal fluids produce silica scaling mainly in instruments and reinjection wells. The pipeline scaling causes reduction of the geothermal energy output due to blockage of the passageways for steam and hot water, which makes drilling of new production wells uneconomic.

In San Kamphaeng and Fang geothermal systems, Changwat Chiang Mai, Thailand, and Chingshui geothermal system, Taiwan, the chemistry of geothermal fluids is similar with regard to high pH sodium-bicarbonate dominated water, and thus pipeline scaling is a continuing problem. For multi-utilization, the possibility of alternative methods of transferring the energy from underground by means of heat pipes and thermosyphons is discussed.