CONCENTRATIONS OF H2S IN AIR AROUND THE OLKARIA GEOTHARMAL FIELD,KENYA

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ABSTRACT

Changes in concentration of H2S with distance away from the Olkalia geothermal power station ,and at one discharging well were continuously monitored over periods of up to 11days .The changes inH2S were corrected with changes in weather parameters.

Result that shows that within the power station concentration ofH2S can be expected to exceed7.5ppm over half hour periods at least once over a two week period. The levels of H2S decay With distance away from the power plant to levels below0.3ppm within about 0.5km from the power station. Concentration of H2S capable of causing plant injury are therefore expected to be present within 0.5km of power station , and over distance of several hundreds meters away from a discharging well.

The highest concentrations of H2S were obtained when winds were calm, humidity high, and atmospheric temperature low. In the Olkaria area ,these weather conditions exist between 2000Hrs and 0300Hrs local time. The study suggests that if these weather conditions persist for prolonged periods of time H2S concentration around the power station may arise to unsafe levels with regard to human health. These therefore need for an H2S monitoring program, and installation of an early warning system particularly when weather conditions point towards the buildup of H2S.

Measurement of the acidity of rain water showed no evidence that the high H2S concentration are contributing to acid rain formation in the immediate vicinity of the power station.