

ABSTRACT

Jamaican thermal springs were investigated in a preliminary study of the island's geothermal potential. Bibliographic references to thirteen thermal springs were found, of which eight still exist and six investigated. The springs were considered in three groups viz. the Blue Mountain Block, the Clarendon Block, and the St Ann Inlier.

The hottest (30-55°C) springs occur in the Blue Mountains and are either sodium-chloride-sulphate or calcium-sodium-sulphate rich. Their mineralization is due to water-rock, often temperature dependent reactions. They occur along fault or joint planes in the Blue Mountain Cretaceous inlier.

Two warm (30-37°C), saline, radioactive springs occur in Tertiary White Limestone on the edges of the Clarendon Plains. They are formed by warm, saline water rising along the South Coast Fault diluted by shallow groundwater. The saline water is more concentrated than seawater, contains additional calcium and magnesium derived from the limestone, and radon gas possibly acquired from the Cretaceous volcanics exposed along the fault plane.

Windsor Spring in the St Ann Inlier is warm (35°C), hypersaline and associated with a methane gas seep. The water, which is calcium-sodium-chloride rich is believed to be connate seawater possibly associated with a hydrocarbon reservoir.

Silica and Sodium-Potassium-Calcium geothermometers indicated that the springs have low (90°C) or intermediate (90-150°C) reservoir temperatures.

The absence of present day or recent vulcanism suggests the thermal waters are formed by deep circulating groundwater. Circulation of groundwater to 2-3km depths in the Blue Mountains and to 1km in Clarendon and in the

St Ann Inlier would be sufficient to give the reservoir temperatures implied by the geothermometers.

Such low to intermediate temperature geothermal resources may be used for spaceheating or for therapeutic purposes. The development or further development of the more accessible Jamaican thermal springs would be an asset to the tourism industry.