In 2008 a 26 meters deep borehole (PG-1) was drilled in Mount Reina Sofia (275 meters a.s.l.) near the Spanish Antarctic Base of Livingston Island, South Shetland Islands. The borehole was drilled to monitor the temperature evolution with depth and estimating the heat flow density for the borehole (besides other things, such as reconstructing the ground surface temperature history for the area). Cores were obtained from it and were used to measure thermal conductivity, thermal diffusivity, heat production, porosity, and density. Seven cores were selected to measure thermal conductivity and thermal diffusivity. Thermal conductivity values vary from 2.56 to 3.28 W/mK while thermal diffusivity values vary from $1.09 \times 10^{-6}$ to $1.58 \times 10^{-6}$ m$^2$s$^{-1}$. Both thermal conductivity and thermal diffusivity, on average, increase with depth. A gamma-ray spectrometer was used to estimate the concentrations of uranium, thorium, and potassium of the cores, from which the heat production per unit volume was calculated. Heat production values estimated for the shallowest and deeper parts of the borehole (2-12 m and 12-25 m depth) are 2.218 microW/m$^3$ and 2.173 microW/m$^3$, respectively, which are compatible with acidic rock types. Porosity was also estimated for the cores and its value varies between 1.1% and 1.8%. Thin sections are being prepared to identify the rock types intercepted by the borehole. It is expected that temperature data to be collected during the field campaign of 2011 will allow estimating lower and upper bounds for the local heat flow density.