

## **GEOLOGICAL AND HYDROGEOLOGICAL CHARACTERIZATION OF THE IN BRAZILIAN NORTHEAST**

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The present report corresponds to a geological and hydrogeological characterization of the in Monte Alegre area of the state of Rio Grande do Norte, transition zone between sediments of strip coast to a crystalline embasement. Geologically the area is composed by a crystalline embasement pre-cambrian (gneisses and granites), by cretaceous sediments (sandy calcareous), by a tertiary-quaternary sequence (clay arenites) regarded as Barreiras Formation and by recent sediments (fluvial terrains and fluvial sequence). The Barreiras Aquifer constitutes the main reservoir of underground water that region. The hydrodynamic parameters determined for the Barreiras Aquifer in area were the transmissivity and the hydraulic conductivity, corresponding to  $1,82 \times 10^{-3} \text{ m}^2/\text{s}$  and  $1,64 \times 10^{-4} \text{ m/s}$ , respectively. The potentiometry of the area is characterized by the existence of an elevated zone of the surface of the underground waters with flow divergent in the sections north and central, corresponding to the main zone of recharge of the aquifer. The reservations regulators and yield exploitation of the Barreiras Aquifer were estimated as equivalent to subterranean flow evaluated in  $3,49 \times 10^6 \text{ m}^3/\text{year}$ . The permanent reserves was of the  $17 \times 10^6 \text{ m}^3/\text{year}$  and the volume exploited by the wells is of the  $0,733 \times 10^6 \text{ m}^3/\text{year}$ . The average annual hydric disponibility of the area is  $2,76 \times 10^6 \text{ m}^3$ . The underground waters are of the acid type, of low hardness and sweet. The salinity is more elevated towards the crystalline embasement, varying from 39,7 to  $540 \mu\text{s/cm}$ .