The failure of the Pampulha Dam, although it did not cause loss of human lives, brought a number of social and economic consequences to the city of Belo Horizonte - MG (Brazil), therefore, dealing with its rupture process is of utmost importance searching to preventing new similar disasters that can have major impacts in urban areas. The dam broke off on April 20, 1954, flooding part of the city downstream and even Pampulha Airport. The rupture process began about 4 days earlier, with the observation of a crack with water surgency on the downstream slope, this failure evolved until the complete disruption of a section of the dam, releasing 12.6 million m³ of water. VARGAS (1955) prepared a technical report approaching the causes and process of rupture of the structure, which pointed out that the dam collapses due to an internal erosion of the piping type, generated by foundation movements caused by empty spaces existing in the foundation due to the presence of anthills in the region.