AAPG International Conference Barcelona, Spain September 21-24, 2003

Carlos Cramez¹, J.M. Masset², M.J. Lemos de Sousa³ (1) H.E.A.T. Consulting Switzerland, St. Blaise, Switzerland (2) TotalFinaElf, Paris, France (3) Faculty of Sciences, University of Porto, Porto, Portugal

Salt Tectonics in Gas Storage & Radioactive Waste Disposal

Most geologists would agree that underground storage of hydrocarbons, as well as, radioactive waste disposal are possible in rocks with low permeability and wherein open fractures are unlikely, that is to say, that salt bodies are one of the best candidates. In fact, in evaporitic basins, such as Rio Maior (Portugal onshore), Gulf of Mexico, NordKapp basin, Angola offshore, etc., conventional inductive, or "Baconian" interpretation of the seismic lines proposed huge salt domes suggesting wonderful storage sites. Indeed, few projects were initiated on such interpretation without any geological criticism (tectonic, seismologic, etc.). However, an hypothetico-deductive, or "Popperian" interpretation of the seismic lines, in conjunction with a holistic geological setting, clearly indicated that the majority of such a proposed storage sites was inapropriated due to reduced volume of the salt rock, as well as, from the seismotectonic point of view. Two examples are shown: (i) an hydrocarbon storage project in Portugal, in which the inductive interpretation of the seismic lines and the geologic context was submitted to criticism too late and (ii) a radioactive waste disposal in NordKapp basin, in which the hypothetico-deductive interpretation of the seismic lines killed the "project" since the very beginning.