

**STRUCTURAL AND STRATIGRAPHIC OCCURRENCE OF "BAD WATER" IN
COAHUILA, MEXICO**

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The "bad-water line" in Texas separates potable from non-potable ground water in the Edwards Limestone aquifer and associated limestones of Cretaceous age. The non-potable water is characterized by high concentrations of total dissolved solids, sulfate and sulfide, and by higher temperature. It occurs in a part of the aquifer with lower permeability and is associated with evaporites and carbonaceous material. This present study includes mapping the extension of the line from Texas to the vicinity of Monterrey, Nuevo Leon, by interpretation of chemical and isotopic analyses of water from wells and springs tapping the Cretaceous Aurora and equivalent limestones. In the northern part of the area (Acuña to Zaragoza) the two types of potable water are CaHCO_3 and CaSO_4 ; the bad-water types are diverse and include NaHCO_3 , CaSO_4 , and NaCl , with some H_2S , and a smell of petroliferous compounds. We hypothesize that: (1) the occurrence of bad water is essentially restricted to the Maverick basin and its genesis results primarily from solution of evaporites and carbonaceous material in the McKnight Formation which was deposited in a highly saline, euxinic environment (C.I. Smith, 1970); (2) the position of the bad-water line is significantly influenced by the ground-water flow pattern generated by the distribution of fractures in the anticlines associated with the Sierra del Burro uplift; (3) the Stuart City reef trend crosses beneath the southern end of Lomeria de Peyotes and marks the southern limit of the bad water; and (4) in the region south of the Peyotes, the interface between the potable water and non-potable water, resulting from simple solution of gypsum, is controlled by fresh water flushing through the fractured limestone and occurs downgradient from the flanks of the major double-plunging anticlines.