

## ABSTRACT

### FACTORS IN THE FORMATION OF URANIUM DEPOSITS COASTAL PLAIN OF TEXAS

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(Speaker at this month's special noon meeting)

Uranium deposits in the Texas Coastal Plain are in tuffaceous sands of Tertiary age that have undergone diagenesis and arid-climate weathering. Near-surface host sands are partly indurated by silica and zeolites. Calcareous rocks are capped with thick caliche. Clays are montmorillonitic.

The unoxidized deposits contain sooty pitchblende, uraninite, and coffinite as primary uranium minerals and commonly are approximately at radiometric equilibrium. Some deposits contain molybdenum and selenium. Near-surface oxidized deposits contain uranyl carbonates, phosphates, molybdates, vanadates, and silicates, and are highly variable in radioactivity and uranium content.

Karnes County deposits are in a graben defined by en-echelon faults that parallel the regional northeasterly strike of formation. Nearby are gas fields containing hydrogen sulfide. A Live Oak County deposit is along margins of a sand-filled channel; another is in coarse-grained sandstone along a fault where gas seeps occur. A Duval County deposit is in unconsolidated sands overlying sulfur-bearing caprock of a salt dome where hydrogen sulfide gas permeates the host rock.

Factors of genetic importance common to most deposits are: (1) presence of tuff containing small percentages of uranium, (2) present or past arid climate, producing alkaline ground water that leached trace elements from the tuff, (3) presence of hydrogen sulfide, carbonaceous matter, or hydrocarbons causing a reducing environment to precipitate the uranium, and (4) structural or permeability barriers to restrict the movement of ground waters.