Organic Geochemical Analysis of the Paleozoic Rocks, of the Suwanee Basin, North Florida

Ramsay A. Barrett[1], Tim Ruble Ph.D[2]
[1] Virginia Energy Consultants, LLC, 7831 Carters Run Drive, VA 20115, rdzce5@aol.com
[2] Weatherford Laboratories 8845 Fallbrook Dr. Houston, TX 77064 Tim.Ruble@weatherfordlabs.com

The Suwannee Basin is located in the northern Florida peninsula and extends north into very southeast Georgia. This basin consists of a Paleozoic section of sedimentary rocks that sub crops under a 3000 to 5000 foot thick sequence of Cretaceous to Recent sediments that comprise Coastal Plain Sequence. The Paleozoic section consists of Ordovician through Devonian aged sandstones and shales. This sequence of sedimentary rocks was first recognized from oil industry exploration wells in the 1930's and 1940's and initially affinities to the rocks in the Appalachian Piedmont were assumed. Later work indicated the Suwannee Basin was a fragment rifted from the African craton. The sedimentary section was initially deposited in the Bovie Basin of the Guinea, Africa and later rifted and accreted to the North American craton.

The dark gray to black shales were sampled from a drill cuttings sourced from eight oil industry test wells that penetrated Paleozoic aged rocks in the Suwannee Basin. The shales chosen for analysis were selected based on Gamma Ray response from well logs and cuttings descriptions from mud logs. Analysis consisted of determining TOC values, the suite of tests that make up Rock-Eval and vitrinite reflectance. Very limited vitrinite made determination of maturation values hard to ascertain. The interpretation when all data was combined was that the Paleozoic section of the Suwannee Basin was extremely mature and that the potential for commercial accumulations of natural gas as found in other black shales was not present in the Suwannee Basin.