Paper Number: 4778 Depositional environment and their bearing on some coal bed parameters Oresajo, B.S.¹

¹Department of Geology, Federal University Birnin Kebbi, Nigeria, oresajo.bamidele@fubk.edu.ng

Coals can be found in a wide range of depositional environment. These can broadly be classified into paralic and limnic paleoenvironments. The parameters of coal beds include its thickness, continuity, sulphur and ash content. The depositional environment influences some parameters of coal beds, such as the thickness, lateral extent, maceral types and coal quality. This study considers the influences of depositional environment during the accumulation phase of peat on coal bed parameters, focussing on the depositional environment of coals of the Lower Maastrichtian Mamu Formation, in the Anambra Basin and the Fort Union Coal in the Powder River Basin, Nigeria. Results show the quality of coal, as demonstrated by sulphur and ash is related to the depositional environment. Peats that accumulated in coastal swamps that were transgressed by brackish and marine water commonly produces coal that has high sulphur content, while peat that accumulates in a continental environment far removed from marine influence produces coal that has a low sulphur content. Peat mires that are protected from sediment-carrying floods by raised topography produce coal that contains low amounts of ash, however, peat mires that are topographically low-lying and flooded by sediments produce coal high in ash content.

Coal thickness depends on how long the peat has accumulated within the swamp. Peat forming swamps between river channels form lenticular shapes. When these river channels are abandoned, these discontinuous, lenticular, peat-forming swamps advanced and coalesced over channel deposits, forming continuous beds. Also the petrographic composition especially the vitrinite and liptinite contents of seams in paralic environments vary, and can reflect the general fluctuations in ground water level due to eustatic sea level changes, while the petrographic composition of humic coals of limnic origin is uniform. Low water tables may lead to enhanced content of inertinite in the coal. The parameters of the peat forming mires therefore have bearings on coal formation.

References:

- [1] Akande S et al. (1992) NAPE Bull. 7: 26-38
- [2] Adeigbe O et al (2009) Earth Sci. Res. J. 32(2): 148-162
- [3] Buhacs K and Suter J (1997) AAPG Bull. 81(10), 1612-1639
- [4] Horn et al (1978) AAPG Bull. 62(12)
- [5] McCabe P and Parrish J (1992) GSA Special Paper 267: 418
- [6] Wuyep E (2010) GSA abstracts with programs 42(5): 609