

## Abstracts of Additional Energy Minerals Session Papers

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### On a Mechanism for Seam Splitting and Implications for Exploration, Evaluation, and Exploitation of Coal Resources

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Exploitation of coal resources to meet both economic and community (environmental) expectations is commensurate with the scale of exploration, the comprehensiveness of data evaluation, and the “wisdom” shown in mine design. As accepted criteria, all three requirements rely on appropriate knowledge of the geology of the orebody and its associated sediments.

The Permian Coal Measures of eastern Australia are characterized by multiple seams within the measures which

may coalesce or split over the entire field in a seemingly complex manner. Associated structures in the sediment pile include non-conformable attitudes of bedding, and seam displacement by low-angled overthrust faulting or bedding plane shears along stone bands.

The origin of such structures is explained by a process of differential consolidation of the primeval peat, associated with intermittent sediment influx, and capture of local drainage. Consolidation, i.e., early lithogenesis of peats, relative to the consistency of associated sediments at the perimeters of areas undergoing differential compaction, provided a mechanism for lateral compression and yielding of the seam by simple shear.

The degree of splitting can be associated with variations in split quality while associated deformations of the sediment may give rise to difficult surface and underground support conditions. Thus much information on important resource parameters is obtained from thorough analysis of exploration results which should include an interpretation of the sedimentology of the coal measure section under evaluation.

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