

**SARI**

**ANALISIS LINGKUNGAN PENGENDAPAN DAN POTENSI SERPIH FORMASI  
KERUH DAERAH KUANTAN SINGINGI, PROVINSI RIAU, SUMATERA  
TENGAH**

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Daerah penelitian terletak di Sub-cekungan Kuantan Singingi diperkirakan berbentuk cekungan memanjang dan sempit. Secara stratigrafis termasuk kedalam Formasi Keruh yang tersingkap disebelah barat daerah Kuantan Singingi, tepi Barat Laut Cekungan Sumatera Tengah. Berdasarkan hasil analisis stratigrafi dan Petrologi Organik dengan metode *Tissue Preservation Index* (TPI) dan *Gelification Index* (GI) terdapat tiga siklus pengendapan, yaitu; Fasies Alluvial, Fasies Fluvial, Fasies Delta bagian atas dan bagian bawah. Penelitian ini difokuskan pada serpih Formasi Keruh yang dianggap berpotensi sebagai *oil shale* dan *gas shale* pada formasi keruh Eosen – Oligosen, dengan menggunakan data *Total Organic Carbon* (TOC), *Potential Yield* (PY) untuk kuantitas dan data *Hydrogen Index* (HI), *Termal Maturity* (Tmax) dan *Vitrinit Reflectance* (Ro) kualitas material organik dan tipe kerogen. Pada daerah Barat Laut lokasi penelitian (Manunggal, Nusariau, dan Makarya) memiliki batuan yang berpotensi sebagai *oil shale*, *gas shale*, *oil & gas shale*. Sedangkan pada daerah Tenggara daerah penelitian (PerkebunanTBS dan Sitiung) memiliki batuan yang berpotensi sebagai *oil shale* saja. Dari data analisis *Scanning Electron Microscopy* (SEM) tingkat diagenesis batuan sumber hidrokarbon Formasi Keruh termasuk kedalam tingkat diagenesis kelompok II atau setara dengan Mesogenetik matang A. Diagenesis tingkat ini diakibatkan oleh timbunan dengan kedalaman sampai dengan  $\leq 3000$  m, dan menghasilkan temperatur purba sampai dengan  $\leq 90^{\circ}\text{C}$

**Katakunci:** Formasi Keruh, Hidrokarbon, Diagenesis, Lingkungan Pengendapan

## ABSTRACT

### ***ANALYSIS OF THE DEPOSITIONAL ENVIRONMENT AND THE POTENTIAL SHALE KERUH FORMATION IN KUANTAN SINGINGI, RIAU PROVINCE, CENTRAL SUMATERA***

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The research area is located in the Kuantan Singingi sub-basin and is thought to be in the form of an elongated and narrow basin. Stratigraphically, it is included in the Keruh Formation which is exposed to the west of the Kuantan Singingi area, the northwestern edge of the Central Sumatra Basin. Based on the result of stratigraphic analysis and organic petrology using the *Tissue Preservation Index* (TPI) and *Gelification Index* (GI) methods. There are three depositional cycles; Alluvial facies, fluvial facies, upper and lower delta facies. This research focused on shale in the Keruh Formation which is considered to have potential as oil shale and gas shale in the Eocene – Oligocene, using *Total Organic Carbon* (TOC), *Potential Yield* (PY) data for the quantity and *Hidrogen Index* (HI), *Termal Maturity* (Tmax) and *Vitrinit Reflectance* (Ro) for quality of organic material and kerogen type. In the Northwest area, the research locations (Manunggal, Nusariau, and Makarya) have rocks potency oil shale, shale gas, oil & gas shale. Whereas the Southeast area (Park. TBS and Sitiung) have rocks that have the potential to be only oil shale. From SEM data analysis, the diagenetic stage of the hydrocarbon source rock of Keruh Formation is included in Mudrock Stage II which is equivalent to a Mesogenetics mature “A”. This diagenetic process was due to the burial history with the depth of up to  $\leq 3000$  m, and paleotemperature up to  $\leq 90$  0C.

**Keyword:** Keruh Formation, hydrocarbon, diagenesis, depotional environment