

## S A R I

Daerah penelitian berada pada Formasi Ngrayong, Lapangan "RN", Cekungan Jawa Timur Utara yang merupakan lapangan minyak dan gas bumi milik PT. Pertamina EP Zona 11. Penelitian yang dilakukan dengan menggunakan metode deskriptif analisis menggunakan konsep sikuen stratigrafi dengan mengintegrasikan data sumur berupa data log sumur, *mudlog*, dan data biostratigrafi.

Penelitian menggunakan 7 data sumur diantaranya sumur RN-2, RN-4, RN-5, RN-9, RN-15, RN-16, dan RN-25 berupa data *wireline log*, *mudlog*, dan biostratigrafi berfokus pada lapisan Formasi Ngrayong. Berdasarkan hasil pengamatan kondisi geologi bawah permukaan pada Lapangan RN diinterpretasikan variasi litologi secara vertikal berupa batupasir, batugamping, dan serpih. Didapatkan 3 jenis elektrofasi yaitu, *bell*, *funnel* dan *cylindrical*. Dan terdapat 3 jenis *system tract* yaitu *highstand system tract*, *lowstand system tract*, dan *transgressive system tract*, yang menggambarkan bahwa pada saat diendapkannya litologi pada daerah telitian mengalami fase *regresi* dan *transgresi*.

Dari analisis data didapatkan adanya 4 fasies antara lain *upper shoreface*, *middle shoreface*, *lower shoreface*, dan *offshore* pada lingkungan *shallow marine*. Marker sikuen yang didapatkan terdiri dari *transgressive surface 1*, *maximum flooding surface 1*, *sequence boundary 2*, *transgressive surface 2*, dan *maximum flooding surface 2*. Sikuen yang teridentifikasi sebanyak 2 sikuen dengan litologi penyusunnya berupa batupasir, serpih, dan batugamping. Pada Model 2D paleogeografi arah sedimentasi timur laut-barat daya didapatkan TST 1 membentuk pola log *bell* pada fasies *offshore*. HST 1 membentuk pola log *bell* dan *funnel* pada fasies *lower shoreface* dan *middle shoreface*. LST 2 membentuk pola log *funnel* pada fasies *upper shoreface*. TST 2 membentuk pola log *bell* pada fasies *offshore*. HST 2 membentuk pola log *funnel* pada fasies *upper shoreface* yang berada pada *shallow marine*.

**Kata Kunci:** Cekungan Jawa Timur Utara, Fasies, Lingkungan Pengendapan, Sikuen, Paleogeografi

## **A B S T R A C T**

*The research area is located in the Ngrayong Formation, "RN" Field, in the Northern East Java Basin, which is an oil and gas field owned by PT. Pertamina EP Zone 11. The study employs a descriptive analysis method using the stratigraphic sequence concept by integrating well data such as well logs, mudlogs, and biostratigraphy data.*

*The study uses data from 7 wells, including wells RN-2, RN-4, RN-5, RN-9, RN-15, RN-16, and RN-25, with wireline logs, mudlogs, and biostratigraphy data focusing on the Ngrayong Formation layers. Based on observations of the subsurface geological conditions at the RN Field, vertical lithological variations were interpreted as sandstone, limestone, and shale. Three types of electrofacies were identified: bell, funnel, and cylindrical. Additionally, three types of system tracts were identified: highstand system tract, lowstand system tract, and transgressive system tract, indicating that during the deposition of lithologies in the research area, phases of regression and transgression occurred.*

*Data analysis revealed four facies: upper shoreface, middle shoreface, lower shoreface, and offshore within a shallow marine environment. The identified sequence markers consist of transgressive surface 1, maximum flooding surface 1, sequence boundary 2, transgressive surface 2, and maximum flooding surface 2. Two sequences were identified with lithologies consisting of sandstone, shale, and limestone. In the 2D paleogeographic model, sedimentation direction northeast-southwest, TST 1 forms a bell log pattern in the offshore facies. HST 1 forms bell and funnel log patterns in the lower shoreface and middle shoreface facies. LST 2 forms a funnel log pattern in the upper shoreface facies. TST 2 forms a bell log pattern in the offshore facies. HST 2 forms a funnel log pattern in the upper shoreface facies within the shallow marine environment.*

**Keywords:** *Northern East Java Basin, Facies, Depositional Environment, Sequence, Paleogeography*