

**STUDI SIKUEN STRATIGRAFI DAN LINGKUNGAN PENGENDAPAN  
BATUAN KARBONAT PADA LAPANGAN “EFK”, FORMASI “TUBAN”,  
CEKUNGAN JAWA TIMUR UTARA BERDASARKAN DATA LOG SUMUR,  
SEISMIK 3D, SERBUK BOR DAN INTI BATUAN.**

**SARI**

ENDHAR FEBRI KARYANTO

**111 090 114**

Lokasi penelitian terletak di salah satu lapangan minyak dan gas milik PT. Pertamina PHE yang terletak di Bojonegoro, Jawa Timur. Lapangan EFK termasuk dalam Cekungan Jawa Timur Utara, Jawa Timur untuk fokus penelitian adalah stratigrafi interval Formasi Tuban bagian atas.

Penelitian dilakukan dengan menggunakan data paleontologi, inti batuan (core), serbuk bor (cutting), *log* sumur, *mud log* dan seismik 3D. Data *log* sumur sebagai dasar dalam pembuatan kerangka stratigrafi dan mengintegrasikan dengan data *mud log* serta seismik 3D. Data *log* sumur yang digunakan berasal dari sumur pemboran Lapangan EFK dengan jumlah keseluruhan 9 log sumur, 3 data inti baruan, 2 data serbuk bor.

Tujuan dari penelitian ini adalah untuk mengetahui fasies, sikuen stratigrafi, dan lingkungan pengendapan Formasi Tuban yang berada di wilayah *onshore* Cekungan Jawa Timur Utara pada Lapangan EFK.

Hasil penelitian yang didapatkan dari analisa dan interpretasi batuan inti (core) Formasi Tuban pada sumur EFK yang telah tersedia didapatkan satuan empat (4) fasies pada EFK-01, lima (5) fasies pada EFK-02, dan dua (2) fasies pada EFK-03. Pada sumur EFK-01 terdapat fasies satu (9780-9440 md feet) berupa perulangan batugamping (wackestone-packstone), fasies dua (9440-9020 md feet) berupa dominasi (packstone), fasies tiga (8980-8630 md feet) berupa gradasi dari (wackestone-packstone-grainstone), fasies empat (8630-8410 md feet) berupa batulempung carbonaceous dengan sisipan batugamping (grainstone), dimana secara vertikal dari bawah ke atas menunjukkan pola lithofasies dominan coarsening upward/ carbonate keep-up phase. Dan pada ada sumur EFK-02 terdapat fasies satu (8710-8650 md feet) berupa perselingan (foraminifera wackestone-packstone), fasies dua (8554-8551 md feet) berupa (mudstone), fasies tiga (8554-8544 md feet) berupa (red alga wackestone), fasies empat (8554-8544 md feet) berupa (red alga rhodolit-coralline packstone), fasies lima berupa (red alga wackestone). Sedangkan pada sumur EFK-03 di dapatkan fasies satu pada (9030-9049 md feet) berupa (sandy limestone) dan fasies dua pada (9049-9061 md feet) berupa (sandy claystone), dengan indikasi didominasi planktonik.

Paket fasies lingkungan pengendapan pengendapan pada interval Formasi Tuban menunjukkan tipe *rimmed platform* dengan karakteristik litologi dan

kandungan paleontologi berupa kehadiran sedikit endapan silisiklastik dan dominan produk karbonat build up. Asosiasi fasies yang hadir pada formasi ini berupa lingkungan pengendapan open marine-inner platform (back reef) pada EFK-01, platform-margin reef (reef core) pada sumur EFK-01 dan EFK-02, Slope (Fore Reef) pada sumur EFK-03.

Hasil analisa *seismik stratigrafi*, didapatkan delapan (8) paket system tract dimulai dengan HST1 - LST1 (drowning phase) - HST2 (carbonate keep up) - LST2 - TST1 (carbonate catch up) - HST2 (carbonate keep up) - LST3 - TST3 (maximum flooding surface/ sequence boundary) carbonate give up dengan analisa arah pengendapan dengan menggunakan data *log* sumur dan peta *depth structure*, dilihat dari sesismik didapatkan pola pembentukan karbonat relatif arah barat-timur yang diakibatkan pola sesar RMKS yang membentuk kenampakan flower structure didominasi sesar naik kanan dengan 2 arah pola sesar utama, yakni timur laut-barat daya yang terdapat pada lapangan EFK dan barat-timur yang berada diluar formasi telitian lapangan EFK.

**STUDY OF STRATIGRAPHY AND DEPOSITIONAL ENVIRONMENT  
CARBONATE ROCK IN EFK FIELD, TUBAN FORMATION, NORTH EAST  
JAVA BASE ON WELL LOG DATA, 3D SEISMIK, CUTTING DAN CORE.**

**ABSTRACT**

ENDHAR FEBRI KARYANTO

**111 090 114**

The study sikuen stratigrafi and environment a deposition rocks carbonate on a efk, formation tuban, the north east java based on data logs well, 3d seismic, the drill and the core rocks.

Research sites located in one of the field oil and gas owned by .Pertamina phe located in Bojonegoro, East Java .The field efk included in the North East Java , East Java to focus research is stratigrafi interval formations tuban the top

The research was done using data paleontology, the rocks (core), the borer (cutting), logs well , mud logs and seismic 3d. Log entry well as a basis for making the skeleton stratigrafi and integrate with the data mud logs and seismic 3d. Log entry well used originates from wells gas drilling the field efk with the total 9 logs well, 3 data the rocks, and 2 data log a the drill.

The purpose of this study is to find fasies and sikuen stratigrafi fasies carbonate and the environment a deposition formations tuban located in the onshore the north east java on a efk. The research was obtained from analysis and interpretation core rocks (core) formations tuban on wells efk which has been available obtained a unit of four (4) fasies on efk-01, five (5) fasies on efk-02, and two (2) fasies on efk-03 .On wells efk-01 there are fasies one ( 9780-9440 md feet) of limestones looping (wackestone-packstone), fasies two (9440-9020 md feet) of dominance (packstone), fasies three (8980-8630 md feet) of gradations of (wackestone -packstone-grainstone), fasies four (8630-8410 md feet) of batulempung carbonaceous with insertions (limestones grainstone), where vertically from the bottom up showed the dominant lithofasies coarsening upward/carbonate keep-up phase. And at no wells efk-02 there are fasies one (8710-8600 md feet) in the form of perselingan (foraminifera wackestone-packstone), fasies two (8554-8551 md feet) of (mudstone), fasies three (8554-8544 md feet) of (red algae wackestone), fasies four (8554-8544 md feet) of (red algae rhodolit-coralline packstone), fasies five of (red algae wackestone). While in well efk-03 there fasies one on (9030-9049 md feet) of (sandy limestone) and fasies two on (9049-9061 md feet) of (sandy claystone), as indicated by the following dominant planktonic.

Package facies environment the deposition of the deposition of at intervals formation tuban showed type rimmed platform to characteristic of lithology and the paleontology of the presence of a little precipitate silisikklastik and the dominant products carbonate build up. Associated facies that is present at formation it will be environment the deposition of open marine-inner a platform (back reef) in efk-01, platform-margin reef (reef core) in well efk-01 and efk-02, slope (fore reef) in well efk-03.

Based on the analysis result of seismic stratigraphical, been gained eight (8) system tract package begins with hst1 - lst1 (a drowning phase) - hst2 (carbonate keep up) - lst2 - tst1 (carbonate catch up) - hst2 (carbonate keep up) lst3 - tst3 (maximum surface flooding/ sequence boundary) carbonate give up with the direction of the deposition of analysis using data logs wells map depth and structure, seen from sesismik obtained pattern formation of carbonate relatively east-west direction caused by geological fault rmks pattern forming kenampakan flower was structure dominated a geological fault rose 2 right direction with the pattern of a major geological fault, namely east laut-barat resources that are found on the field and east-west efk who located outside formations telitian efk field.