PENENTUAN ZONA PROSPEK DAN DISTRIBUSI RESERVOAR BERBASIS SEISMIK ATRIBUT DAN SEISMIK INVERSI *MODEL BASED* : STUDI KASUS LAPANGAN "F" CEKUNGAN JAWA BARAT BAGIAN UTARA

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ABSTRAK

Cekungan Jawa Barat Utara merupakan salah satu cekungan aktif produksi yang masih diproduksi hingga saat ini. Lapangan "F" melingkupi daerah seluas kurang lebih 40.000 km^2 yang hingga saat ini dilakukan pengembangan oleh PT.Pertamina Hulu Energy *Offshore North West Java* (ONWJ). Anggota *Main* pada Formasi Cibulakan Atas diendapkan pada lingkungan laut dangkal. Struktur geologi yang berkembang berupa sesar-sesar turun berarah baratlaut – tenggara dan sesar geser berarah timurlaut – baratdaya. Penelitian ini bertujuan untuk mengetahui area prospek distribusi *reservoir* pada lapangan "F" pada zona FS 32 yang berada *interval Main* dengan lingkungan pengendapan Delta. Penelitian ini difokuskan kepada Anggota *Main* karena hidrokarbon berupa *flow oil* ditemukan pada bagian utara seismik 3D yaitu sumur PSN-1. Harapannya persebaran *reservoir* batupasir Zona FS 32 dapat ditemukan sejauh mana pelamparan *reservoir* tersebut.

Penelitian ini dilakukan dengan mengintegrasikan data *seismic 2D* dan *3D* serta data *well vertical* dan *well directional*. Data marker dan *completion log* sebagai data referensi dalam analisis zona target pada data sumur. Dengan basis metode *seismic attributes frequency & amplitude* serta *deterministic inversion acoustic impedance & p-velocity model based* akan menghasilkan *model static* perserbaran *reservoir* batupasir. Metode tersebut akan dilakukan *cutoff* untuk memisahkan good *reservoir* dan *non-reservoir* dan selanjutnya akan dianalisis zona prospek dan distribusi lateral *reservoir* secara presisi.

Hasil penelitian ini didapatkan bahwa pada Anggota *Main* zona FS 32 dengan basis atribut seismik frekuensi dan amplitude serta dengan *deterministic inversion model based* menujukkan karakter *reservoir* yaitu *low frequency (10-30 Hz)* dan *high amplitude* serta *high acoustic impedance (17000-18000 ft/s*gr/cc)* pada area tenggara *vintage seismic 3D* dengan ditandai adanya antiklin yang merupakan tempat akumulasi hidrokarbon dengan sistem jebakan struktural

Kata kunci: *Seismic Attributes, Model Based Inversion, Instantaneous Frequency, Sweetness, RMS,* Cekungan Jawa Barat Utara

ABSTRACT

PROSPECT ZONE DETERMINATION AND RESERVOAR DISTRIBUTION BASED ON SEISMIC ATTRIBUTES AND SEISMIC INVERSION BASED MODEL: CASE STUDY FIELD "F" NORTH WEST JAVA BASIN

The North West Java Basin is one of the active production basins that is still being produced today. Field "F" covers an area of approximately 40,000 km^2 which is currently being developed by PT. Pertamina Hulu Energy Offshore North West Java (ONWJ). The Main members of the Upper Cibulakan Formation were deposited in a shallow marine environment. The geological structure that developed was in the form of descending faults with a northwest-southeast trend and shear faults with a northeast-southwest trend. This study aims to determine the prospect area for reservoir distribution in the "F" field in the FS 32 zone which is in the Main interval with the Delta depositional environment. This study focused on Main Members because hydrocarbons in the form of flow oil were found in the northern part of the 3D seismic, namely the PSN-1 well. It is hoped that the distribution of the Zone FS 32 sandstone reservoir can be found to what extent the reservoir is stretched.

This research was conducted by integrating 2D and 3D seismic data as well as vertical and directional well data. Marker data and completion log as reference data in the target zone analysis on well data. Based on the seismic attributes frequency & amplitude method as well as the deterministic inversion acoustic impedance & p-velocity model based, it will produce a static model of the distribution of the sandstone reservoir. The method will be cutoff to separate the good reservoir and non-reservoir and then will analyze the prospect zone and the lateral distribution of the reservoir with precision.

*The results of this study found that the Main Member of the FS 32 zone with the basis of the attribute seismic frequency and amplitude as well as with a deterministic inversion model based on the reservoir character, namely low frequency (10-30 Hz) and high amplitude and high acoustic impedance (17000-18000 ft/s). *gr/cc) in the southeast area of vintage seismic 3D marked by the presence of anticline which is a place for the accumulation of hydrocarbons with a structural trap system.*

Kata kunci: *Seismic Attributes, Model Based Inversion, Instantaneous Frequency, Sweetness, RMS, North West Java Basin*