

## SARI

# STUDI GEOLOGI, PEMODELAN RESERVOIR KARBONAT LAPANGAN DAN PERHITUNGAN CADANGAN HIDROKARBON ASELOLE FORMASI CIBULAKAN BAGIAN ATAS CEKUNGAN JAWA BARAT UTARA

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Lapangan Aselole secara administratif terletak di Provinsi Jawa Barat, Cekungan Jawa Barat Utara dengan luas 30 km<sup>2</sup>. Lapangan ini terletak pada struktur sesar normal berorientasi utara - selatan daya akibat periode deformasi kompresi jika kita melihat struktur geologi regionalnya. Reservoir pada Lapangan Aselole adalah Formasi Cibulakan Atas dengan fokus penelitian pada interval lapisan batukarbonat Z-14. Penelitian ini bertujuan untuk memahami kondisi geologi lapangan penelitian, menentukan karakteristik reservoir seperti fasies pengendapan, distribusi dan property reservoir, serta prospek hidrokarbon pada reservoir Z-14. Data yang digunakan terdiri dari data seismik 3D, deskripsi batuan inti, data *wireline log*, data petrofisik. Metode yang digunakan adalah analisis *wireline log*, analisis *core* dan *cutting*, analisis data petrografi, analisis seismik, dan perhitungan cadangan. Reservoir Z-14 Formasi Cibulakan Atas pada Lapangan Aselole diendapkan pada lingkungan laut dangkal yaitu *Shallow Marine Carbonate* dengan arah pengendapan Utara - Selatan. Berdasarkan pemodelan property reservoir daerah penelitian memiliki nilai rata – rata v-shale 0,15, porositas efektif 0,056, saturasi air 0,78 dengan permeabilitas rata– rata 62 mD dan *net to gross* senilai 0,16. Estimasi total volumetrik hidrokarbon pada Lapangan Aselole sebesar STOIP 4 MMSTB dan GIIP 4307 MMSCF.

**Kata kunci** : Cekungan Jawa Barat Utara, Formasi Cibulakan Atas, objek modelling, pemodelan reservoir

## ABSTRACT

### **GEOLOGY STUDY, RESERVOIR MODELLING AND HYDROCARBON RESERVES ESTIMATION, ASELOLE FIELD, UPPER CIBULAKAN FORMATION, NORTH WEST JAVA BASIN**

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Aselole Field administratively is located in West Java Province and part of North West Java Basin encompassing an area of 30 km<sup>2</sup>. Aselole Field is located in normal fault with north-south trend as result of compression stage. Reservoir of Aselole Field is Cibulakan Upper Formation with study focus at carbonate interval Z-14. The main purpose of this study are to know geological condition of Aselole Field to determine reservoir characteristic such as depositional facies, reservoir properties and distribution, and hydrocarbon prospect of sandstone interval Z-14. The data used in this study consists of 3D seismic, core description, wireline log, and petrophysic. Several methods that have been used are wireline analysis, core and cutting analysis, petrography analysis, seismic analysis and hydrocarbon volumetric estimation. Z-14 resevoir Aselole Formation was deposited in Shallow Sea which is Shallow Marine Carbonate with north-south sedimentation trend. Based on reservoir property modelling the research interval has average reservoir v-shale 0,015, porosity is about 0,056, water saturation 0,78 with average permeability 62 mD and net to gross is about 0,16. The total hydrocarbon volumetric estimation on Aselole Field is STOIIP 4 MMSTB and GIIP 4307 MMSCF.

**Kata kunci** : North West Java Basin, Cibulakan Atas Formation, object modelling, reservoir modelling