

## SUMMARY OF BLOCK 5

- Block 5 is located north of the Kwanza basin and is limited by Block 4 in the north, Blocks 18 and 19 in the west, Block 6 in the south, and by onshore in the east.
- Its total extension is approximately 5,000 Km<sup>2</sup>.
- 95% of the Block is situated at less than 200 m deep.
- Exploration Licences relating to the Block
  - **Angol-Total C.A.P.** Association (before Independence)
  - 2nd Contractor Group: **Conoco** 16.67%, **Exxon** 53.33%, **Agip** 10% **Repsol** 20% (87 à 92).
  - 3rd Contractor Group **P&P** 30%, **Bp** 27.5%, **Norsk Hydro** 27.5%, **NIR** 15%
- The Block has 2D seismic surveys dated from 1986, 1987, 1988, and 1989, in a total of about 8,201 km of 2D seismic.
- It also has 3D seismic surveys dated from 1996 and 2000, in a total of about 2,240 km of 3D seismic.
- During exploration campaign, 12 wells were drilled in Block 5, which resulted in 7 dry wells and 5 showing good samples of oil and were considered not to be commercial discoveries. Three wells tested their reservoirs: Catumbela (Muamba-1), Mucanzo (Pakubalu-1 and Mubafu-1) flowing from 700 to 1100 BOPD, with a density ranging from 29.4 and 33.8° API.

- Oil potential:

Pakubalu-1	7-9 MMBOIIP	30° API
Mubafu-1	19-22 MMBOIIP	32-33° API
Muamba-1	9-12 MMBOIIP	29° API

- Remaining potential:

- Cretaceous prospects and estimated reserves:

Mucanzo – 448 MMBO recoverable

- Tertiary prospects and estimated reserves:

Black Gold (Ouro Preto) SE – 250 MMBO recoverable

- Oil system

**Source rock:** There are at least two source rocks “Cuvo” and “Bucomazi Equivalente”

The presence of at least one of them is indicated by the abundance of oil samples and by marginal discoveries from the Block.

R<sub>o</sub> varies between 0.6 and 1.04

In Mubafu-1 well, geochemistry studies suggest the existence of two types of oil: Heavy Oil and biodegraded and light oil non-biodegraded.

**Reservoir:** The main reservoirs of Block 5 at the Albian level are:

Catumbela, Mucanzo, and Binga..

*Catumbela Reservoir:*

Facies – Limestone, **calcarenites**, calcilutites, bioclastic limestone with stylolites.

Deposition environment: shallow marine between a barrier environment and a beach environment.

Porosity: 15 a 22%

Reservoir quality: Varies between poor and moderate

Thickness: 140 to 213m

Penetrating into Muamba -1 well, Catumbela reservoir flows 429 BOPD, and after Acidification, it produced 728 BOPD (DST-2: 1703.1-1748m).

*Mucanzo Reservoir*

Facies – Reddish and brittle quartz arenites with a mixture of clays, poor selection, with grains varying from thick to small.

Deposition environment: shallow marine in a transitional area from a marine to coastal environment dominated by a river and deltaic environment.

Porosity: 20 a 26%

Reservoir quality: Varies between poor, moderate, and good.

Thickness: Increases in thickness towards SW and SE as observed in Lonzo-1, Mubafu-1, and Kibaba-1 wells. Decreases in thickness towards north from upper Ambriz (Lukunga-1).

Mucanzo reservoir flows between 700 to 1100 BOPD in Mubafu-1 and Pakubalu-1 wells.

**Seal:**

Post-salt formations, Quissonde and Cabo Ledo made up of clays and loams form the effective seal for Catumbela and Mucanzo formations.

- Main Risks:

The main risks from Block 5 are:

- Immaturity or lack of a source rock
- Uncertainty over the quality of reservoir
- Inefficiency of the seal in some prospect areas (sometimes with a decrease in thickness).
- Lack of structure seal
- Migration