



## **RIO MUNI BASIN**

# OFFSHORE EQUATORIAL GUINEA FARM IN OPPORTUNITY



Atlas Petroleum International Limited ("Atlas") owns a 100% working interest in the H Block PSC, covering 991 km<sup>2</sup> in the offshore northern part of the Rio Muni Basin. To date, the company has a database of 2,800 km<sup>2</sup> of 3D seismic, with all of the block area covered. This work has resulted in the identification of the large (>500 mmbo) Aleta prospect, with the intention of drilling this during the latter part of 2015.

#### **Blocks Prospects and Leads**

A variety of structural and stratigraphic traps have been mapped within the prospective Senonian (Upper Cretaceous) section. The morphology and play elements appear very similar to the producing fields in G Block (~70 km on-trend, to the south), where >500 mmbo has been discovered. A stacked series of Santonian-Turonian sands pinches out and onlaps a pre-rift high to the east and can be tested with a vertical well of ~5,000m (3,760m below mud-line). The presence of the proven Mid Albian source has been identified from the characteristic seismic response and the play is de-risked by positive AVO. Prospective resources for an individual sand are estimated at 166 mmbo, 4 sand stacked mean at 542 mmbo and an upside of 1.3 billion bo.

Follow up prospectivity is identified in the Amigo 4-way structure (La Ceiba lookalike) and updip stratigraphic traps (Paloma) and downdip (Channel Complex - Ebano lookalike).

The following points highlight the key features:

- Large prospective resources (542 mmbo mean).
- Good on-trend analogy to proven play of similar size.
- COS estimate of 33%, de-risked by positive AVO response.
- Combines well defined sand geobodies similar to G Block, with a Lower Senonian age that allows a close association with the proven underlying source (Jubilee analogy).

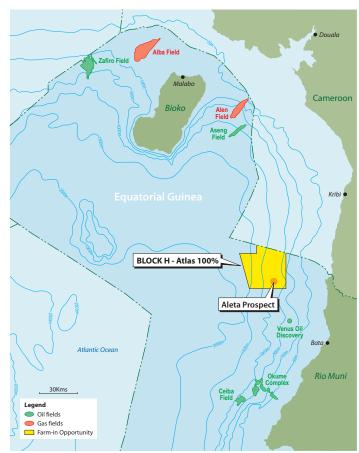
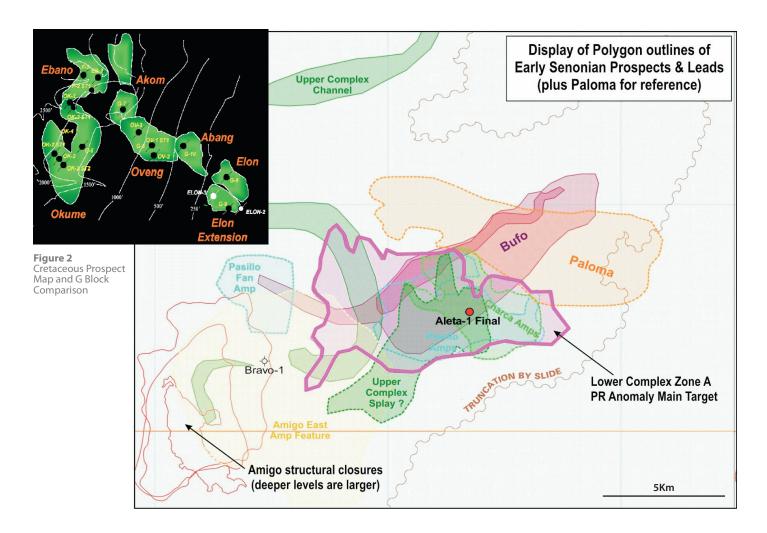


Figure 1 Location Map

- Dry hole costs of ~\$60mm (depending on exact rig rate and mob/demob) for a 5,000m vertical well in 1,240m of water (50 days drilling).
- Block dates from earlier phase of licensing with fiscal terms which are significantly better than those available today.
- A simple ownership of Atlas 100%, allowing for ease and flexibility of farm-in arrangements. The incoming party will become technical operator.







#### **Background**

Atlas is an independently owned company, based in Abuja and London, with a large portfolio of 21 offshore licences in 10 West African countries. Atlas has been active in EG since 1999 and currently has equity in 5 blocks, including the highly successful Block I (27.5%) which is currently producing 40,000 bopd from the Aseng Field and recently reached the milestone of 50 mmbo.

Block H was initially awarded to Atlas in 1999 and the PSC terms ratified in 2000. Roc Oil (Aus) farmed in and completed a 1,403 km<sup>2</sup> 3D survey and operated the drilling of the Bravo-1 well in 2004. The latter was a Tertiary test (TD 3,200m), which proved good sand quality in the Oligo-Miocene, but isolation from the underlying Cretaceous petroleum system.

30% of the block was mandatorily relinquished in 2005 and preparations were made to drill the Aleta prospect, with Pioneer Resources farming in and becoming operator. A protracted period of legal activity then occurred, due to Pioneer's decision to exit its entire African portfolio, finally ending with their withdrawal in 2010. White Rose then farmed in to the partnership in 2012, but recently had to exit due to internal corporate reasons. With the two remaining partners, Roc and PA Resources, also having substantially changed their strategies in the meantime, their withdrawal has also been secured and Atlas is now a 100% owner of the block.





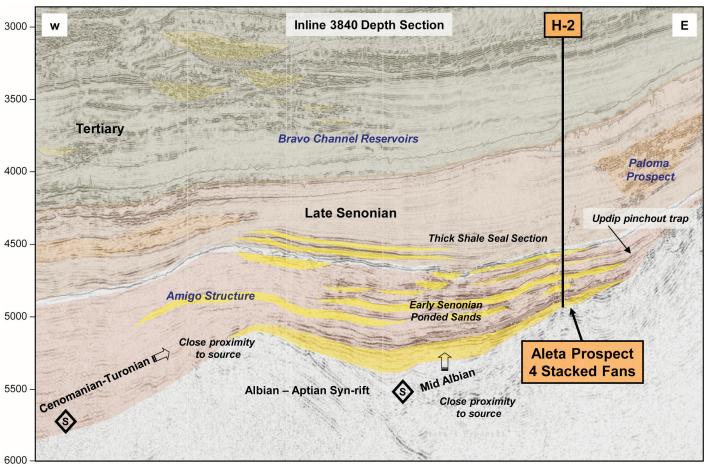


Figure 3 Geo-seismic Section Showing Petroleum System Components

#### **Petroleum System**

The Rio Muni Basin contains a thick, prospective sequence of Senonian rocks, with a Tertiary overburden which thickens from south to north. While good quality reservoirs exist both in the Tertiary and the Cretaceous, the effective petroleum play has so far been restricted to the Cretaceous. In the G Block, turbiditic, deepwater sands of Campanian age have been charged by underlying mid Albian, source rocks and trapped by overlying Maastrichtian shales and onlap onto the updip rift unconformity. The sands have a high net:gross and excellent porosities in the 24-28% range and exhibit positive Class 2 AVO when h/c filled.

In Block H, the Tertiary section has thickened to ~2,000m, while the main Cretaceous sand bodies have been correlated as pre-Santonian u/c. This places them in a similar age to the Jubilee (Ghana) reservoirs. As with Jubilee, some AVO response can be observed. The extensive river system which appears to have been active in H Block from Early Senonian to Miocene times can be traced back to canyon systems in-bound in the southern Block P area (Venus discovery), similar to the G Block Okume canyon ~50 km to the south.

Structuration in the basin is provided by Cretaceous aged inversion and subsequent gravity sliding and by the transcurrent movement of major fracture zones during Atlantic rifting. Block H exhibits all these, generated by the Kribi Fracture Zone, which runs SW-NE through the southern part of the block. This sets up the 4-way closed Amigo High, analogous to La Ceiba and the Aleta back basin the east.





Subsequent gravity sliding of the steepened shelf margin created the inboard high area onto which Lower Senonian sediments on-lap.

The source rock for G Block has been fingerprinted to the mid Albian, restricted marine shales, which tend to be preserved along the shelf margin, but are probably absent in the out-board, post-rift area (west of Amigo). Seismic character strongly supports their presence beneath the Aleta/Amigo back-basin, where they lie immediately below the Lower Senonian sand package and would be presently within the oil window. A further source candidate comprises the outboard Turonian/Cenomanian section, which has been proven in Ghana/Ivory Coast, but has not been penetrated by the mostly shelfal wells in EG. Nevertheless, RPS predict a significant oil-prone presence in the deeper offshore.

#### **Planned Work Programme**

The Aleta-1 well is currently planned to be drilled in 1,240m water with a TD of 5,000m during 2020. Based on a spread-rate of \$900,000 per day for a 50 day well with 8 days mob/demob and 15% contingency, a current dry hole cost of \$60 million is estimated.

#### **Proposed Deal**

Atlas is offering a substantial equity stake to one or more parties to pay 100% costs of the Aleta-1 well. Although there are substantial past costs associated with licence, Atlas position allows for flexible and more advantageous terms than have recently been the case. Having been awarded in 2000, the PSC benefits from a low GePetrol carry (5%), lower income tax rates (25%), high cost recovery (65%) and generally higher profit oil splits to the contractor.

### **Next Step**

A full database, with summary presentations and an SMT (Kingdom) Project is available for inspection. Interested companies are invited initially to contact Simco at their London address. On completion of a standard Confidentiality Agreement, access to the database will be provided.

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