ABOUT INVICTUS ENERGY LTD

Invictus Energy Ltd is an independent oil and gas exploration company focused on high impact energy resources in sub-Saharan Africa. Our asset portfolio consists of a highly prospective 250,000 acres within the Cabora Bassa Basin in Zimbabwe. Special Grant 4571 contains the world class multi-TCF Mzarabani and Msasa conventional gas-condensate prospects.

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NEW GEOCHEMICAL ANALYSIS OF CABORA BASSA SOURCE ROCK TYPED TO OIL SEEPS

HIGHLIGHTS

- Geochemical analysis of new outcrop samples of the Permian aged Mkanga formation collected in July indicate strong correlation to 2 oil seep samples on trend in neighbouring Mid Zambezi sub basin in Zimbabwe.
- Analysis of the Triassic aged Alternations Member (Upper Angwa) confirms good source potential for gas and liquids generation
- Geochemical data correlates with other African and West Australian Basins having oil and gas prone source rocks that charge multi billion barrel and multi Tcf discoveries.

Invictus Energy Limited ("Invictus" or "the Company") (ASX:IVZ) is pleased to announce it has received the geochemical analysis results from its recent outcrop source rock field sampling program carried out in July 2019 in the Cabora Bassa Basin to the west of SG 4571 permit (Figure 3). The analysis was conducted by GeoMark Research in the USA. A total of 19 samples were obtained for source rock analysis, with 7 of these samples undergoing saturate/aromatic (SARA), biomarker and isotope analysis.

The new program of outcrop sampling and geochemistry analyses has provided the Company with a cohesive RockEval and extract SARA/isotope/biomarker database, and has allowing for source rock facies and maturity interpretation and correlation with equivalent parameters from the existing database; and subsequently has expanded confidence in the source rock presence and quality.

The analysis confirms at least two source rock facies are present in the Cabora Bassa Basin, in the Mkanga Formation (Permian age) which consists of a high-quality oil prone lacustrine source rock interbedded with good quality gas and liquids source rocks; and the Angwa Alternations Member (Triassic age) consisting of good quality gas and liquid (condensate and potentially light oil) prone source rock.

The Mkanga Formation has present day Total Organic Content (TOC) values up to 40% and Hydrogen Index (HI) up to 380. whilst the Alternations Member of the Angwa Formation has TOC values up to 35% and HI up to 290. The TOC average is well above the recommended thresholds of 0.5 and 2.5 weight % of gas and oil generation respectively and confirms the ability of the source rock to generate significant quantities of hydrocarbons.

The source rock analysis also correlates with data from other African and West Australian Basins and suggests affinity with oil and gas prone source rocks from Madagascar, Ethiopia, Tanzania, Seychelles, Uganda and Perth Basins where billions of barrels in place and multiple TCF gas volumes have been discovered (see Figure 1). The calculated vitrinite reflectance (%Ro) and TMax data from RockEval suggests the majority of samples from outcrop are immature for hydrocarbon generation and expulsion (at surface), indicating the sampling locations on the flanks of the basin have undergone minimal burial and uplift; this is consistent with the rift-sag model of basin development.

However, three new samples from the Permian aged Mkanga Formation have calculated %Ro sufficient for hydrocarbon generation, with the geochemical analysis of these samples additionally indicating the presence of generated liquids. Extrapolation of these maturities into the subsurface of the basin suggests therefore that these source rocks identified in outcrop will have generated and expelled hydrocarbons deeper in the basin.

Invictus Managing Director Scott Macmillan commented:

"The new RockEval geochemistry data has provided evidence that the source rock sequences present in the Cabora Bassa Basin possess good to excellent gas and liquid potential, comparable to ones in Africa and West Australia which host multi-billion barrel oil and multi-TCF gas discoveries (Figure 1). The reprocessing of the seismic data has generated higher resolution imagery, particularly near surface on the flanks of the Chewore Inliers, to the west of SG 4571, where the source rocks samples were collected from surface (Figure 2).

The enhanced seismic imaging obtained has enabled the outcrop source and reservoir sequences to be mapped into the subsurface with greater confidence as well as providing a favourable view of the timing of two major episodes of generation of hydrocarbons into the multiple traps in the basin. The location of the source rock directly beneath reservoir positions them to charge the primary Upper Angwa Alternations Member target as well as shallower horizons in the Pebbly Arkose, Forest and Dande Formations. There is potential evidence of this shown by the seismic amplitude anomalies that conform to structure."

Mkanga Source Rock Results

Three new extract samples from the Permian aged Mkanga subset contain generated hydrocarbons with parameters that correlate to 2 active oil seeps in the Mid Zambezi basin to the south west. The oil occurs in vesicles within light grey-white to medium brown-white veins of quartz and quartz breccia.

The previous analysis of the Dinde seep located in the Mid Zambezi Basin in Zimbabwe by Mobil stated "…on fracturing the rocks, which were almost too hot to handle having been lying in the sun on a day when the temperature approached 40degC, the light brown coloured, clean smelling oil liberated from the ruptured vesicles was observed to flow freely, forming a thin film on the surface of the rock. Cavities examined on the surface of unbroken samples were noted to commonly be lined with a dark black-brown coloured coating which still possesses an oily odour. These smears are probably the heavier hydrocarbon constituents remnant following the evaporation of the more volatile fractions (lighter hydrocarbons)."

The analysis of the Dinde oil seep confirmed that unusually for a seep the oil has not suffered any biodegradation and may have been transported hydrothermally from deeper in the basin up the quartz fault plane.

The majority of Mkanga samples show correlation with Permian age coals and carbonaceous shales of the Perth Basin in Western Australia. The Lower Mkanga d13C saturate and aromatic data also correlates with more algal dominated Ugandan samples around the Lake Albert oil fields and the early Jurassic age Nyuni tar balls, shows & seeps thought to be the source rocks for the coastal, southern Tanzanian gas-condensate fields.

The Mkanga samples also correlate to results obtained in the Maamba Coal Field, in the Mid-Zambezi Rift in Zambia, which contains dead oil in the pore spaces of thin interbedded sandstones[1].

Alternations Member (Upper Angwa) Source Rock Results

The d13C saturate and aromatic data suggest a correlation between the new Angwa Alternations Member samples with some from the Lake Albert oil fields. The Alternations Member source rock samples collected from surface possess lower thermal maturities than those of the underlying Mkanga Formation and have not been buried deep enough to generate hydrocarbons on the basin flanks.

The presence of Lower Triassic age source rocks within the Cabora Bassa Basin makes it comparable to the Morondava Basin in Madagascar, which hosts the multi-billion barrel heavy oil and tar sand discoveries in Tsimiroro and Bemolanga, the light oil in the Manadaza and gas-condensate in the Manambolo accumulations. The Perth Basin also contains Lower Triassic source rock intervals which along with the Permian source is responsible for charging both oil and gas accumulations. These accumulations are sourced from the lateral equivalents of the Mkanga Formation and Alternations Member in the Cabora Bassa Basin.

Glossary

RockEval: Rock Eval pyrolysis is used to identify the type and maturity of organic matter and to detect petroleum potential in sediments.

S1: the amount of free hydrocarbons (gas and oil) in the sample (in milligrams of hydrocarbon per gram of rock). If S1 >1 mg/g, it may be indicative of an oil show. S1 normally increases with depth. Contamination of samples by drilling fluids and mud can give an abnormally high value for S1.

S2: the amount of hydrocarbons generated through thermal cracking of non-volatile organic matter. S2 is an indication of the quantity of hydrocarbons that the rock has the potential of producing should burial and maturation continue. This parameter normally decreases with burial depths >1 km.

Tmax: The temperature at which the maximum release of hydrocarbons from cracking of kerogen occurs during pyrolysis (top of S2 peak). Tmax is an indication of the stage of maturation of the organic matter.

HI: Hydrogen Index (HI = [100 x S2]/TOC). HI is a parameter used to characterize the origin of organic matter. Marine organisms and algae, in general, are composed of lipid- and protein-rich organic matter, where the ratio of H to C is higher than in the carbohydrate-rich constituents of land plants. HI typically ranges from ~100 to 600 in geological samples.

References

1. Phiri, C., P. Wang, and I. Nyambe, 2016, Geology and potential hydrocarbon play system of Lower Karoo Group in the Maamba Coalfield Basin, Southern Zambia, Journal of African Earth Sciences. 118, 245-262.

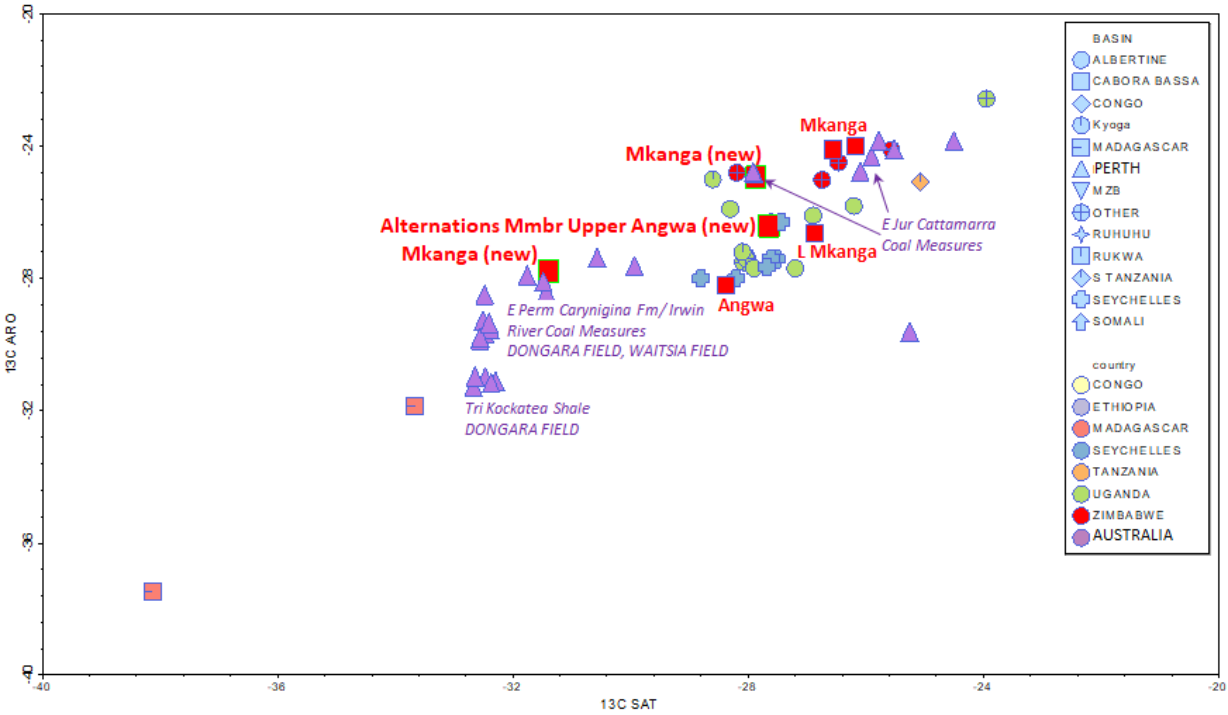

Figure 1 - Cabora Bassa Basin Source Rock Comparison to African and Western Australia Source Rocks showing similarity of d13C saturate and aromatic data

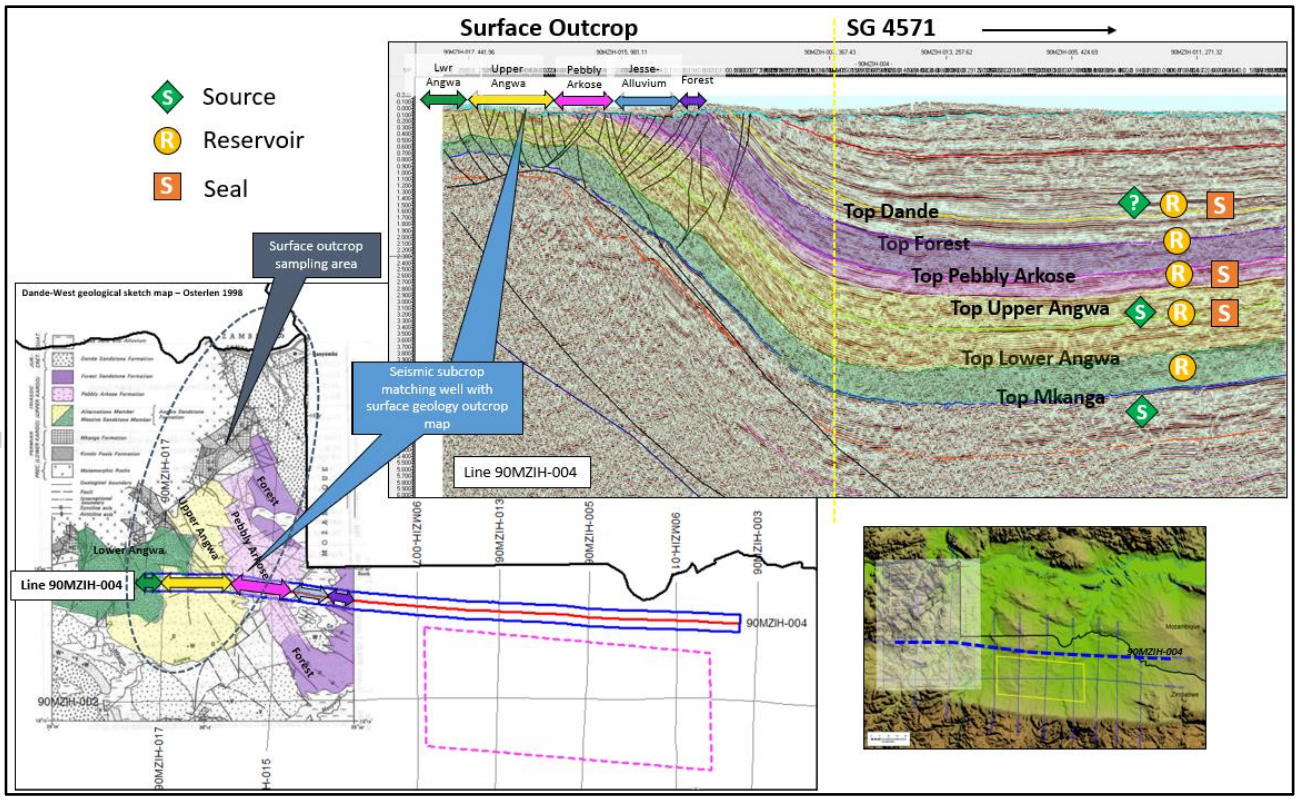

Figure 2 - Source rock outcrop sample locations, seismic line locations and mapping of horizons from outcrop into the subsurface

Figure 3 - July 2019 Source & Reservoir Sampling Locations

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About the Cabora Bassa Project

The Cabora Bassa Project encompasses the Mzarabani Prospect, a multi-TCF and liquids rich conventional gas-condensate target, which is potentially the largest, undrilled seismically defined structure onshore Africa. The prospect is defined by a robust dataset acquired by Mobil in the early 1990s that includes seismic, gravity, aeromagnetic and geochemical data.

#Cautionary Statement: *The estimated quantities of petroleum that may be potentially recovered by the application of a future development project relate to undiscovered accumulations. These estimates have both an associated risk of discovery and a risk of development. Further exploration, appraisal and evaluation are required to determine the existence of a significant quantity of potentially movable hydrocarbons. Prospective Resource assessments in this release were estimated using probabilistic methods in accordance with SPE-PRMS standards.*