

ENVOI

(Energy Venture Opportunities International)

Project Synopsis P156

**ONSHORE SOUTHERN
UNITED KINGDOM
(WEALD BASIN)
PEDL 135, 136, 137**

Magellan Petroleum Australia Ltd



May 2008

Participate in new prospectivity defined in 'proven producing' Weald Basin play trend + totally NEW unexplored 'Triassic' gas play with large 450+ Bcf potential where 1+ Bcf is commercial!

Magellan Petroleum Australia Ltd

EXECUTIVE SUMMARY:

INTRODUCTION: Magellan Petroleum Australia Ltd, an independent company with primary assets in Australia and the UK, is offering the opportunity for early participation in the exciting exploration of three of its Blocks (PEDL 135, 136 and 137) on the prospective northern margin of the Weald Basin. The large potential is not only in the proven / producing potential of the Jurassic plays on trend with existing fields BUT also a totally new and unexplored lower Mesozoic, Triassic gas play defined by the first comprehensive regional review and data reprocessing since the last main phase of exploration in the early 1980s. Magellan now believes that this new play is analogous to the deeper Triassic discoveries found in the Paris Basin which is the easterly extension of the same basin in France. Significantly, exploration of these deeper objectives in the Paris Basin was more advanced than the Weald Basin when exploration faltered with the oil price crash in the mid 80's. Little exploration has occurred since in the Weald to test these follow-on targets. *Magellan's work and evidence of a deeper gas source potential supports the potential and also, for the first time, appears to answer the question as to the source of the gas which has been found to date in the Weald Basin.*

Magellan are 100% owners and operators of PEDL 135, 136 and 137, totalling nearly 500km² on the northern edge of the Weald Basin, between 10 and 50 km south-west of Greater London. They would now like to find a new partner ahead of drilling two exploration wells to test the significant new Weald Basin potential identified, including a very large Triassic prospect.

BRIEF HISTORY: About 70% of the 90 wells drilled in the Weald Basin, mostly between the 1960's and early 80's, have encountered hydrocarbon shows and resulted in an estimated total 390 million bbls in place reserve potential being discovered. Of this, 41 MMbbls are estimated recoverable of which 19+ million bbls has been produced to date. Some 10 oil fields remain in production with current combined production in excess of 2,000 bopd. Most of these commercial fields are concentrated on the flanks of the Weald Basin, where reservoir development in traps associated with faulted structure have been charged by early migration out of the basin's depocentre.

PROSPECTIVITY OVERVIEW: The Weald Basin's existing oil plays are mainly reservoirised in the Middle

Jurassic oolitic limestones in the western parts of the basin; however, Upper Jurassic sandstones are also productive in the Brockham, Albury and Palmers Wood fields on-trend with Magellan's blocks on the northern margin of the basin. Various large undrilled oil prospects have been confirmed by Magellan with a combined total 140+ 'mean' MMbbls recoverable Jurassic potential.

Significant quantities of gas have also been discovered in the basin, mainly in the Upper Jurassic's Portland and Corallian sandstones, and Purbeck sandstones; variously at Albury, Godley Bridge and Bletchingley near or on trend with Magellan's Blocks (Ref: Montage). The assumption has historically always been that this gas has been generated from the same Lower Jurassic (Liassic) source as the oil. Magellan's review is the first comprehensive regional re-evaluation for 20 years since the 1980's including new petrophysical and geochemical (including isotope) analysis of the existing gases. This combined with new maturity modeling has confirmed that the gas source is unlikely to be Jurassic but almost certainly comes from a deeper source which could charge the deeper Triassic and Palaeozoic plays including the very large newly defined Triassic prospect (164 Bcf 'mean' recoverable potential of the Horse Hill prospect) in Magellan's acreage. Few wells in the Weald Basin have penetrated the Palaeozoic, so the stratigraphy of the deeper horizons is relatively unknown. The few wells which have indicate source potential within Carboniferous coals, the deeper Devonian and even Silurian shales.

VALUE: Scoping economics indicate that even very small fields with reserves of 250,000 bbls or 1 Bcf recoverable can be commercial in the Weald Basin area where accessibility of the reservoirs and closeness to infrastructure in south-east England, including also the very large population centre of London, ensure they can be profitably exploited. Discovery of some 10 MMbbls recoverable potential from one of the traditional Jurassic prospects could be expected to generate an NPV10 of around US\$ 195 million even at modest commodity prices. The discovery of 100+ Bcf recoverable in the Triassic onshore SE England would be colossal.

OBLIGATION & WORK PROGRAMME: Magellan's three Blocks are each licensed for a 6 year term which began in October 2004 and are due for relinquishment in September 2010. All work programme obligations have been fulfilled by the extensive re-processing and regional re-evaluation carried out to date. Magellan intend drilling two wells, one to test the traditional Jurassic reservoirs in the Manor Farm Prospect on Block PEDL 135 and one on PEDL 137 to investigate the large Horse Hill prospect with the traditional Jurassic oil play together with the very large new Triassic/Palaeozoic gas potential.

DEAL: Magellan is offering a share of its 100% interest in return for the funding two wells at a combined estimated cost of around £5.7 million (Est. US\$ 11 million equiv). Contribution to back costs and level of interest are subject to negotiation. Operatorship is available to suitably qualified parties.

High historical 27% success rate killed by 80's price crash & exploration of undrilled deeper Triassic prospects similar to analogues in the Paris Basin, which account for 110 MMbor.

Exploration History: In southern England there were reports of hydrocarbons encountered over 150 years ago, and specifically gas detected in water wells in 1836. Hydrocarbon exploration in the Weald Basin began in earnest in the early part of the 20th century, with a major phase of exploration between the 1930's and 60's focused on drilling surface features with little success. The discovery of the Wytch Farm oil field in the Sherwood (Triassic) sandstone in the Wessex Basin in Dorset in 1973 (at the time the largest onshore oil field in Europe) led to a resurgence of interest in region and Weald Basin to the east particularly where progress in seismic acquisition enabled exploration of the prospective Mesozoic play potential masked at the surface below unconformities. This led to a large number of new exploration wells in the first half of the 1980's, resulting in the commercial discoveries in the Middle Jurassic's Great Oolites (Humbly Grove, Herriard, Horndean, Stockbridge and Singleton fields) in the western and southern parts of the basin as well as the Corallian, Portland and Purbeck discoveries in the northern and central part of the basin (including Palmers Wood, Godley Bridge, Albury and Brockham). Many other discoveries in the basin, which at the time were non-commercial, are now the focus of new appraisal and potential development (including Avington, Cowden, Lingfield and Bletchingley). This intensive phase of exploration and related success limited focus away from any deeper potential and was effectively switched off with the commodity price crash of the late 80's and most of the 90's too.

In total 89 wells have been drilled in the Weald Basin, 24 of which tested hydrocarbons. A total of 10 fields have or are still producing resulting in a straight geological Success Rate of 27%.

PEDL 135, 136 and 137 Area: Within the Magellan acreage 5 wells have been drilled, 3 in PEDL 135 to the west, 2 in PEDL 137 to the east and none so far in PEDL 136. On the eastern edge of PEDL 135, both Shalford-1 drilled in 1958 and Bramley-1 in 2000 had oil shows but were unsuccessful. The evidence from Magellan's most recent remapping indicates that both were off structure and almost certainly originally located on old surface mapping with poor seismic control. There is also now clear evidence that

Coxbridge-1 drilled in 1994, a dry well on the western part of PEDL 135, together with Normandy-1 (1986), just to the north of the block, which again had minor shows, were also located off structure. Similarly, Leigh-1 well (1967) in PEDL 137 had gas shows, but was drilled on a surface anticline and was off structure at depth.

Collendean Farm-1, drilled in 1967 in PEDL 137 encountered 'good oil shows' in the Jurassic reservoirs and was even tested but did not flow. The actual well location has also now been 'ground truthed' by Magellan, and is several hundred meters from where it was historically located on the maps. Mapping of the recently reprocessed seismic indicates that the wells correct location means it was drilled across the bounding fault in a downthrown location and therefore off structure. As a result, this leaves the upthrown closure of the block's main Horse Hill Prospect, totally untested.

First re-evaluation of the extensive historical well & seismic database with modern technology unlocks new potential 20 years on!

Database & Modern Data Analysis: The Weald Basin is covered by a large, pre-existing well and seismic database, acquired over many years. Initially, Wealden exploration concentrated on surface features, but by the late 1970's new seismic techniques were showing how the subsurface geology differed to that of the surface, with surface compressional features resulting from a Tertiary overprint on the pre-existing Jurassic-Cretaceous extensional basin. The resulting inversion also meant that the surface structures were offset from deeper closures. Renewed exploration activity in the late 1970's and early 1980's was therefore concentrated on the older fault blocks of Jurassic and early Cretaceous age, leading to the discovery of a number of oil accumulations in the Weald Basin, including Stockbridge, Humbly Grove, Storrington and Palmers Wood.

Little new work was done until commodity price resurgence in the early 21st century. Complete regional understanding of the Weald Basin was further hindered by licensing and data confidentiality rules, resulting in small licence areas and poor regional integration of the available data.

Magellan albeit quietly, has very much been a pioneer of a new initiative and even before being awarded their acreage in 2004, they were acquiring key historical data, particularly around their licenses. Acquired from Government and other past and present operators

Magellan has now established a comprehensive digital database including regional 2D seismic obtained by Conoco and other operators in the 1980's, which has been reprocessed and shows dramatic improvement in data quality, particularly at depth. They have also carried out extensive petrophysical re-evaluation of historical wells and analysed selected core material. The resulting regional study now appears to be the first time this data has been properly integrated and evaluated digitally and with modern technology including extensive reprocessing and integrated statics analysis.

Some 720 kms of existing data has been reprocessed by Magellan along with analysis of some 60 historical wells. Geochemical and basin modelling studies together with a comprehensive remapping is the basis for their new initiative. One of the most significant results of the reprocessing of the seismic is that it revealed that many wells were either located outside closure. This explains the previous lack of success on the Magellan acreage.

The reprocessing has resulted in a significant improvement in the data and subsurface imaging as well as a new understanding of the hydrocarbon habitat, which has in turn enabled Magellan to high-grade and focus on the large untested potential in the proven Jurassic plays but also, with the much improved seismic also the new deeper untested Triassic potential with its Licenses.

Petroleum system with proven/producing Jurassic plays proven on trend by existing fields + NEW untested potential in deeper Triassic plays

Regional Overview & Petroleum Geology:

Tectonic setting: The Weald is a Mesozoic extensional basin later modified by mid-Tertiary inversion. Its evolution can be summarised in five main Phases:

Phase I - Hercynian Uplift (Late Carboniferous): The Hercynian Orogeny produced important thrust lineaments in Southern Britain, forming lines of weakness which later influenced the basin's structure during periods of reactivation. Uplift and subsequent erosion gave rise to the basement unconformity. This is thought to be largely of Devonian and Carboniferous age though only a limited number of wells having been drilled deep enough to penetrate basement in the basin centre.

Phase II - Rhaetian Transgression (Permo-Triassic): Subsidence began in the Wessex Basin and in the Central parts of the Weald Basin in the Triassic as a result of rifting and extension along the pre-existing E-W trending Hercynian lineaments. Coarse continental clastics were deposited before the area was flooded by the Late Palaeozoic /Lower Mesozoic marine transgression.

Phase III - Mesozoic Thermal Subsidence (Lower Jurassic - Mid Cretaceous): Extension continued with rapid subsidence in the Lower Jurassic before thermal subsidence commenced in the Middle Jurassic with the deposition of thick marine sediments. Rifting resumed in the latest Jurassic and continued into the Lower Cretaceous along reactivated east-west trends.

Phase IV - Upper Mesozoic Cycle (Upper Cretaceous): A major marine transgression extended marked the onset of Upper Cretaceous thermal subsidence and the widespread deposition of the thick chalk sequences.

Phase V - Regional Uplift and Inversion (Tertiary): A worldwide eustatic drop in sea level caused the emergence of the whole area in late Cretaceous/early Tertiary times. Regional Alpine movements resulted in an estimated 4,500ft uplift in the central part of the basin with the greatest uplift in the eastern part of the basin. More intense local uplift along pre-existing faults resulted in fault reversal and compressional folding. .

Large structural prospects identified with potential for stacked plays charged by proven oil and newly predicted gas play systems

Petroleum Systems: Two petroleum systems appear to exist in the Weald Basin; the first being the proven Lower Jurassic - Liassic oil play system and the second a newly predicted gas prone source in the Palaeozoic from which the basin's proven Mesozoic gas resource has been generated.

New analysis 'unlocks' concept of a second, deeper & potentially prolific gas source in addition to the proven Jurassic oil source

Source Rock Potential: *Jurassic Source Rocks:* Good oil prone source rocks are developed in both Upper and Lower Jurassic.

The **Lower Liassic** limestones and shales contain significant source potential and are considered to be the Weald Basin's main oil source rock consisting of a 600ft thick upper zone which has TOCs ranging from 0.5% to 2.5% and the lower zone which is up to 500ft thick with a TOC range of 1.0% to 1.3%. The potential is greatest in the centre of the basin, where individual shale units have TOCs up to 3.2%, but the interval shows considerable vertical and lateral variation, deteriorating in quality to the east. The major Liassic source kitchen is located immediately to the south of the Magellan acreage, near the Godley Bridge gas field, where the Liassic is over 2,000ft thick and has a TOC of up to 2.4%. Modelling indicates that the Liassic reached the top of the oil window at 6,000ft, during the Lower to Middle Cretaceous, with peak generation at 8,000ft.

The basal part of the Upper Jurassic **Oxford Clay** is a regionally thick unit of shales and mudstones, with a source rich basal section, 50 – 80 ft thick, with TOCs between 0.6 and 4.3%. Yields vary from 1.1 to 4.6 kg/tonne. Basin modelling suggests that the Oxford Clay is within the oil window, and is likely to have reached peak maturity for oil generation in the centre of the basin, but is probably marginally or insufficiently mature to have generated oil elsewhere in the basin. Burial history diagrams indicate that oil generation may have begun in the early Cretaceous and continued through to the Early Tertiary.

The Upper Jurassic **Kimmeridge Clay** is considered an extremely rich oil-prone source, with TOCs averaging between 1.5 and 6.5%, possibly reaching up to 20% in some black shales. However, it is thought to be immature throughout much of the Weald Basin, with basin modelling and maturity studies predicting that only the base of the formation in the axial part of the basin may have entered the oil window.

Hydrocarbons from the Jurassic sources appear to have migrated into the Magellan acreage from the source kitchen in the basin centre via the Great Oolite carrier bed, and charged the younger reservoirs via the fault zones.

NEWLY Predicted Palaeozoic Source Rock Potential: The 'historically accepted' model for the presence of gas in the proven / producing Mesozoic reservoirs in the Weald Basin is that it has been sourced from the same Lower Jurassic (Liassic) shales as for the oil, with the assumption that it had at a late stage of burial was sufficient for it to have entered the gas window.

Magellan's detailed new research has revealed a number of major problems with this interpretation:

- Firstly, the oil generated in the area is a 39-41°API, low sulphur, waxy crude and most wells have low GOR's and do not have a gas cap.
- Secondly, basin reconstruction and modeling suggest that the Jurassic source rocks were not buried deeply enough to have entered as fully into the gas window as isotope data from the gas produced in the region suggests it has!
- In addition, the gas is dry and has a nitrogen content (2–13%), consistent with generation from a Type III source at $R_o > 1.4\%$, rather than from a Jurassic Type II source rock which had only briefly entered the gas window.
- The maximum maturity of the Jurassic source in the Weald Basin is found in basin centre in the vicinity of Godley Bridge 1, where it was in the oil window with a V_r of only 0.75%.

Further evidence of an older origin of the gas comes from investigation of the diagenesis and mineralization of a number of horizons, particularly the Great Oolite. A high permeability zone in the Great Oolite reservoir at Humbly Grove is marked at the base by a palaeo hydrocarbon contact where reservoir appears to have been preserved by an early gas charge. The current fluid contacts closely follow the structural contours of the palaeocontact, suggesting that the palaeocontact has risen as a result of burial and compression before a later oil charge filled the poorer reservoir characteristics of the downdip Great Oolite reservoir. The gas in the Great Oolite has the same composition as the gas in the deeper Rhaetic reservoir indicating a similar origin.

This all points to the conclusion that the gas found in the Weald Basin must be sourced from the older Triassic or Palaeozoic strata. Upper Triassic (Rhaetic) black shales may be a potential source. Carboniferous Coal Measures, which are found in the eastern part of the basin (and also the Oxfordshire Coal basin to the north although not mature there) may also provide a source. The basal Lower Carboniferous black shales seen in the Mendips are another potential source, although no geochemical data is available.

The Upper Palaeozoic appears to have been eroded over the centre of the Weald Basin, suggesting that potential source rocks may be developed in the older Devonian or Silurian intervals. Potential source rocks in the Lower Palaeozoic section of the Weald have not been identified, but there is evidence that the Lower Ordovician Tremadocian has the potential to be a rich source particularly to the west in the Wessex Basin.

In the northern and eastern part of the Weald the Palaeozoic source rocks appear to be less mature than might be expected. Although well control is sparse, where seen the Palaeozoic section appears to be in the

gas window and not over mature (for example in Bolney-1 the Palaeozoics are in the gas window with a Vr of 1.3%, while in Godley Bridge-1 with reworked Carboniferous vitrinite is also in the gas window with a Vr of 1.5% to 1.98%).

Existing fields & discoveries are under drilled - full reserve potential has not been captured

Reservoir Potential: The Weald Basin's reservoir potential can be subdivided into the proven producing Upper Jurassic targets and the new highly prospective but very much untested and therefore unproven Triassic and Palaeozoic objectives:

Upper Mesozoic: A primary reservoir target in PEDL 135, 136 and 137 is the Upper Jurassic (Upper Kimmeridgian - Portlandian) **Portland Sandstone**, which is the proven reservoir in the Brockham oilfield and Godley Bridge gasfield and which had good shows in the Collendean Farm-1 and Bramley-1 wells. It has porosities ranging from 12-29% and permeabilities of up to 1,000 mD, the varying reservoir characteristics controlled by the original sorting. The sands thicken across the Hogs Back Fault, which passes through PEDL 135.

The Lower Kimmeridgian **Corallian Sandstone** is also a key objective in Magellan's acreage along the northern part of the Weald Basin as the London-Brabant Massif was the main source for the sands. They appear to deteriorate rapidly southwards and shale out into the centre of the basin. These sands are the primary producer in the Palmers Wood Field on trend to the main prospectivity on Magellan's acreage. Good oil shows were also encountered in the Normandy-1 and Bramley-1 wells within the acreage. Porosities of between 7% and 20% and permeabilities of up to 180mD are characteristic.

Lower Kimmeridgian – Oxfordian **Corallian Limestone** is locally developed on the northern basin margins and is an additional target in the Magellan acreage. It is the reservoir in the Bletchingley gasfield and has good shows in a number of wells. Reservoir characteristics are variable, with porosities of up to 15% but low matrix permeability. In the Bletchingley-1 well, an interval with a porosity of 4% flowed at 4.5 mmcfpd, suggesting fracture enhancement. Reservoir quality appears to be linked to the relationship between active high energy bioclastic facies and locally developed highs.

The Lower Jurassic (*Bathonian – Lower Callovian*) **Great Oolite** is the most important reservoir in the

basin producing at the Humbly Grove and Herriard, Stockbridge and Singleton Fields which lie directly west and south of PEDL 135. Good shows were seen at this interval in the nearby Collendean Farm, Godley Bridge, and Odiham wells. The primary reservoir intervals are oolitic limestones deposited in a shallow marine shoal environment. The interval has generally high porosity but low permeabilities. Reservoir characteristics are very variable and non-predictive, and are dominated by secondary porosity and some local fracturing. Early hydrocarbon charge can preserve high permeabilities. The best reservoir characteristics are in the oolitic grainstones and the interval appears to have only developed to reservoir quality in a NW-SE shoal belt in the western and north-western part of the Weald Basin. Although still prospective in the northern area of the basin and Magellan's acreage, the Oolite is considered a secondary objective.

A further secondary target is provided by marginal marine sands of the Lower Cretaceous Purbeck Formation. These sands are thin and difficult to recognise and their distribution varies widely, but they have excellent reservoir characteristics and form the main reservoir in the Albury gasfield, which lies between Magellan's blocks 135 and 137. In the Albury-1 well net reservoir sands are around 10 -12 ft thick, with average porosity 20 - 25% and estimated permeability between 1 and 1.5 D.

Lower Mesozoic: The new source model and possibility of pre-Jurassic source rocks opens up the range of potential new and untested reservoirs including the Triassic and deeper Palaeozoic potential.

Sands are found in the **Upper Triassic Bunter, Keuper and Rhaetic** intervals. The Rhaetic is gas bearing at Humbly Grove, to the west of PEDL 135. The Keuper sediments are most thickly developed away from palaeohighs. Regional mapping indicates that the Keuper sands are up to 60ft thick and lie in an east-west trending zone in the centre of the Basin. Holtye-1, about 50km east of PEDL 137, tested gas from this interval, which appears to be a thin lateral equivalent of the Triassic sands developed more thickly elsewhere (e.g. East Worldham-1). Due to the limited number of wells which have penetrated the Triassic in the basin centre, it is difficult to predict both the distribution and reservoir characteristics of these sands.

The **Lower Triassic Sherwood Sandstone** is the reservoir in the Wytch Farm field in the Wessex Basin, but its extent in the Weald Basin is unknown. The sands are expected within a fluvial system flowing to the west down the axis of the basin. It is possible that the Triassic sands onlap and are overstepped by the

Mercia Mudstone interval, so sands may be present within the Weald Basin, downdip of structural highs (ref: Schematic Triassic Cross Section on attached Montage).

Palaeozoic Targets: As very few wells have penetrated below the Mesozoic in the basin centre, there are no proven Palaeozoic reservoirs in the Weald Basin. However, the Upper Carboniferous Westphalian section in the Oxford Basin to the north is sand dominated, with good porosities. Where seen, the Carboniferous limestones appear to have little matrix porosity. Reservoir development will therefore be reliant on fracturing and karst development, as seen elsewhere in Southern England. The potential of the Devonian and Ordovician sands is unknown

Seals: The top seal to the Upper Jurassic Portland reservoirs is provided by the Purbeck anhydrite and overlying calcareous mudstones. Corallian reservoirs are sealed by overlying thick Kimmeridgian shales, which act as a good regional top seal, as well as by intra-Corallian shales. Great Oolite reservoirs are sealed by the thick shales of the Oxford Clay.

The postulated Palaeozoic reservoirs are expected to be sealed by widely developed, thick Triassic and Lower Jurassic shales.

It would appear that as no real overpressures exist in the Weald Basin, the faults may provide a pressure release mechanism and are not therefore considered, in general, to seal by themselves.

Generation, Timing & Migration: The first hydrocarbon charge in the basin is of gas from the Palaeozoic probably in the Lower Cretaceous. Generation of oil from the Jurassic probably began in the deepest parts of the Weald Basin in early Cretaceous times, with peak generation in the mid- to late Cretaceous.

Migration pathways in the Weald Basin were influenced by both sedimentary and tectonic trends. The Middle Jurassic Great Oolite was a prominent migration pathway, allowing the fill of reservoirs such as those of the Stockbridge and Goodworth fields which are located well away from the main Liassic source kitchen.

The Tertiary uplift in the Miocene meant that the source rocks were lifted out of the temperature and pressure regime required for hydrocarbon generation, effectively halting generation. This uplift, however, resulted in an important second phase of oil re-migration as a result of the tilting and destruction of some earlier traps.

Fault control on migration is demonstrated by the clear relationship between major faults and the charging of shallow reservoir horizons and the distribution of shows throughout the stratigraphic column in areas strongly affected by the Tertiary inversion. Movement along faults seems likely as reservoir-reservoir juxtapositions are otherwise not common, and hydrocarbons are often encountered when drilling through fault planes.

Successful drilling of deeper Palaeozoic gas plays would herald in a new era of Weald Basin exploration

Traps: Mesozoic oil is mostly trapped in Pre Upper Cretaceous aged structural closures, including footwall tilted fault block and horsts. Prospective tilt-blocks and horsts can occur anywhere, but seem to be best developed around the northern, western and southern margins of the Basin. Mid-Tertiary inversion structures, developed by reversal of earlier normal faults, are possible trapping mechanisms in hanging wall anticlines and downthrown closures.

Postulated Palaeozoic gas accumulations are expected to be trapped in unbreached pre-Upper Cretaceous and Intra-Jurassic tilted fault blocks.

Summary of Plays: These can be summarised:

Mesozoic Oil (& Gas) Plays - proven at Brockham, Palmers Wood and Humbly Grove

- Reservoir – multiple reservoirs: Upper Jurassic Corallian and Portland Sandstones and Middle Jurassic Great Oolite carbonates
- Seal - Upper Jurassic Kimmeridge Clay shales and Purbeck Anhydrites
- Source - Lower Jurassic Liassic and Upper Jurassic Oxford Clay shales
- Timing of charge - Lower Cretaceous-Miocene
- Trap Types – Footwall tilted fault block and horsts, hanging wall anticlines and downthrown closures

Palaeozoic Gas Play – Largely Unproven (Potential indicated at Humbly Grove and Holtye)

- Reservoir – Triassic and Palaeozoic sandstones
- Seal – Triassic and Lower Jurassic shales
- Source – Palaeozoic shales and coals
- Timing of charge – Lower Cretaceous
- Trap – Pre Upper Cretaceous and Intra Jurassic tilted fault block

Paris Basin Analogue: A total of 20 oilfields with combined reserve potential of 110 MMbbls have been discovered in Triassic reservoirs in the Paris Basin since the last main phase of exploration in the late 1970's and early 80's. Earlier exploration resulted in the discovery of 50 MMbbls in the shallower Middle Jurassic reservoirs

Triassic sands with excellent reservoir qualities are found at several levels within the Triassic, including the Rhaetic, Chaunoy and Donnemarie intervals. Unlike the postulated gas play in the Weald Basin, Lower Jurassic shales are thought to provide the oil charge, via fault juxtaposition with the older reservoirs. The traps are fault related and are of Early Liassic age and have often not been reactivated. They are generally subtle and the key for exploration success has proved to be the acquisition of good quality seismic that can successfully image the deeper section.

Widespread exploration in the Weald Basin was largely halted by the oil price crash in the mid to late 80's but before the significance of the discoveries in deeper and older Triassic reservoirs in the Paris Basin had become apparent.

Potential for 100 MMbor (mean) in newly defined prospects with proven Jurassic oil play potential + significant 150+ bcfgr (mean) potential in unexplored Palaeozoic (Triassic) gas play.

Prospects: Multiple stacked prospects at a variety of levels have been identified in Magellan's three blocks. The main areas of interest are the Horse Hill Prospect on PEDL 137 and the Manor Farm and Binton Farm prospects on PEDL 135. Other modest sized Jurassic leads have also been defined elsewhere in the blocks and particularly in PEDL 136 and form follow-on prospectivity requiring more study once the larger prospectivity has been tested.

Magellan's comprehensive new interpretation has required analysis of the complex velocity field which is a result of the combination of a locally thick surface chalk, Tertiary inversion effects and the stratigraphic thinning associated with the position of the acreage close to the basin margin. In the reprocessing special attention was paid to the statics.

The **Horse Hill prospect** covers an area of up to 16km² in the south-west quadrant of PEDL 137. It is a tilted horst structure, similar to the Palmers Wood Field structure, which lies only about 20 km to the north-east. It is downthrown to the north and south bounded by west – east trending faults. Collendean Farm-1, on the north-eastern edge of the structure, found good oil

shows, but closer examination of the well's actual position on the ground, drilled in 1964 and without the benefit of GPS, indicates it was incorrectly located on historical maps and that it does not pass through the fault into the Horse Hill closure, as intended, but was drilled too far to the north and is entirely on the downthrown side. This large prospect therefore remains undrilled.

The newly defined Horse Hill could contain up to 671 MMbbls oil in place, the majority in the Lower Portland sandstone, which alone has upside potential of 284 MMbbls. The Collendean Farm-1 well does confirm reservoir presence with porosity of 27% and a net:gross of 0.95, with an expected recovery rate in the region of 30%. The reservoirs are sealed by the Purbeck anhydrite & calcareous mudstones. Mean recoverable oil reserves for the prospect are 87 MMbbls. Potential probably also exists in the Corallian sands sealed by the overlying Kimmeridge Clay.

Importantly, the Horse Hill prospect is considered to have additional prospectivity of 456 Bcf in place (Mean 164+ Bcf recoverable) in the proposed Triassic gas play potential as mapped by Magellan. Triassic sandstone is the expected reservoir, with an anticipated porosity of 18%, net:gross of 0.58 and recovery factor of up to 70%. The stacked play potential of this prospect is therefore substantial.

Two prospects have been analysed on PEDL 135, lying to either side of the east-west trending Hogs Back Fault in the centre of the block. Binton Farm, with an area of about 15 km², is the downthrown rollover structure on the southern side of the fault and has upside potential for 253 MMbbls in place in the Portland sandstone, sealed by Purbeck anhydrite and calcareous mudstones. There is potential for an additional 60 MMbbls in place in the Corallian sandstones, sealed by the Kimmeridge Clay, with combined recoverable mean reserves potential of 53 MMbbls. Portland Sandstone porosity is expected to be 24% with a net:gross ratio of 0.46, while the Corallian sandstone has porosity of 18% and a net:gross of 0.57.

The smaller (6 km²) **Manor Farm Prospect** is a tilted fault block on the upthrown, northern side of the fault in PEDL 135. Total upside potential is 63 MMbbls in place, again from the Portland Sandstone as the primary and the Corallian Sandstone as the secondary reservoir. Both exhibit similar properties to those found in Binton Farm, and are thought to contain mean recoverable reserves of nearly 10 MMbbls. The Upper Portland Sandstone in the hanging wall (Binton Farm) prospect and the top Corallian Sandstone in the footwall may be in communication across the fault.

Successful drilling and confirmation of the deeper Palaeozoic gas play would open the doors to a new era of hydrocarbon exploration with as yet undefined reserves potential.

Obligations & Work Programme: Blocks 135, 136 and 137 were awarded to Magellan on the 1st October 2004 as operator with a 100% unencumbered interest.

The Licences have a 6 year term, with relinquishment due in September 2010. Future retention relies on drilling on the acreage in the initial term and a new work programme. There are no outstanding work or financial obligations, but Magellan intends drilling two wells in Q2 and Q3 2009 to test the two key prospects defined and considered 'ready to drill'. These will be the Manor Farm oil play prospect in PEDL 135 and the oil and gas plays of the Horse Hill prospect in PEDL 137. The 'back to back' drilling of these wells is expected to cost a total of around £ 5.7 million (Equiv. US\$ 11.5 million) of which the deeper Triassic test at Horse Hill farm would cost around £ 3.5 million.

Attractive fiscal terms with fully deregulated oil, gas and electricity markets

Commercial Overview:

Market & Development Options: In the event of a commercial discovery the Weald Basin is very well connected for the export and refining of hydrocarbons. Oil is exported from existing fields by road tanker or rail to refineries in the south-east of England or to the export facility near Southampton. Gas is sold either to utilities or for electricity power generation, and exported via the existing pipeline grid, which assures third party access as long as the gas meets the required specs. The operator has complete operational control and the market is fully deregulated.

The UK's tax take onshore, remains one of the best in the world and even more so being politically stable and with well developed markets and infrastructure. The fiscal terms are based on Corporation tax at 30% with Supplementary Corporation Tax at 20%. There are no royalties, bonuses or state participation, and no performance bond is required.

Economics / Value: Economic models for this part of the Weald Basin show positive returns would be possible from a field containing only modest reserves, as small as 0.25 MMbbls or 1 Bcf recoverable. Palmers Wood, for example, with in-place reserves of only 10 MMbbls, and recoverable reserves estimated to be in the region of only 3 MMbbls, has been very profitably in production since 1990. The discovery of some 10 MMbbls recoverable potential from just one of the traditional Jurassic play horizons in the Horse Hill prospect could be expected to generate an NPV10 or around US\$ 195 million even at modest commodity prices. The discovery of 100+ Bcf recoverable in the Triassic onshore SE England and so close to London would be colossal and a certain 'company maker'!

Existing fields & good local infrastructure mean rapid returns even on small fields

Deal Terms: Magellan Petroleum, which owns 100% interest in all of PEDL's 135, 136 and 137, is seeking a partner/partners to fund proposed two well drilling programme in return for up to half their interest (i.e. 50% WI). Preliminary cost estimates for drilling Horse Hill to a depth of over 8,000ft in order to penetrate the Triassic reservoir rocks is about £ 3.5 million (US\$ 7 million equivalent), while the shallower PEDL 135 prospect(s) are estimated likely to cost in the region of £ 2.2 million each (US\$ 4.5 million equiv) and therefore a total cost for both wells of £ 5.7 million (US\$ 11.5 million equivalent). Contribution to back costs and specific level of working interest earned is subject to negotiation.

Presentation & project data available for Immediate ONLINE review

Additional Information: Access to the project data on the Blocks is available for review in an online data room being hosted by EzDataRoom.com after execution of a Confidentiality Agreement. Seriously interested parties will be invited for a formal presentation and discussions either in Magellan's office in Brisbane Australia where a full hard copy dataroom and workstations would be available, or London where a preliminary presentation is possible and related discussions if appropriate.

All expressions of interest and requests for more information, including a copy of the CA for execution prior to access to the online data room, should be made through Envoi:

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Hanwell
London, W7 1EL
United Kingdom

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Fax : +44 (0)20 8566 1312
E : mail@envoi.co.uk



Contact: Mike Lakin

AN ACROBAT VERSION OF THIS SYNOPSIS IS ALSO AVAILABLE FOR REVIEW ON THE 'ACTIVE PROJECTS' PAGE OF ENVOI'S WEB SITE

www.envoi.co.uk

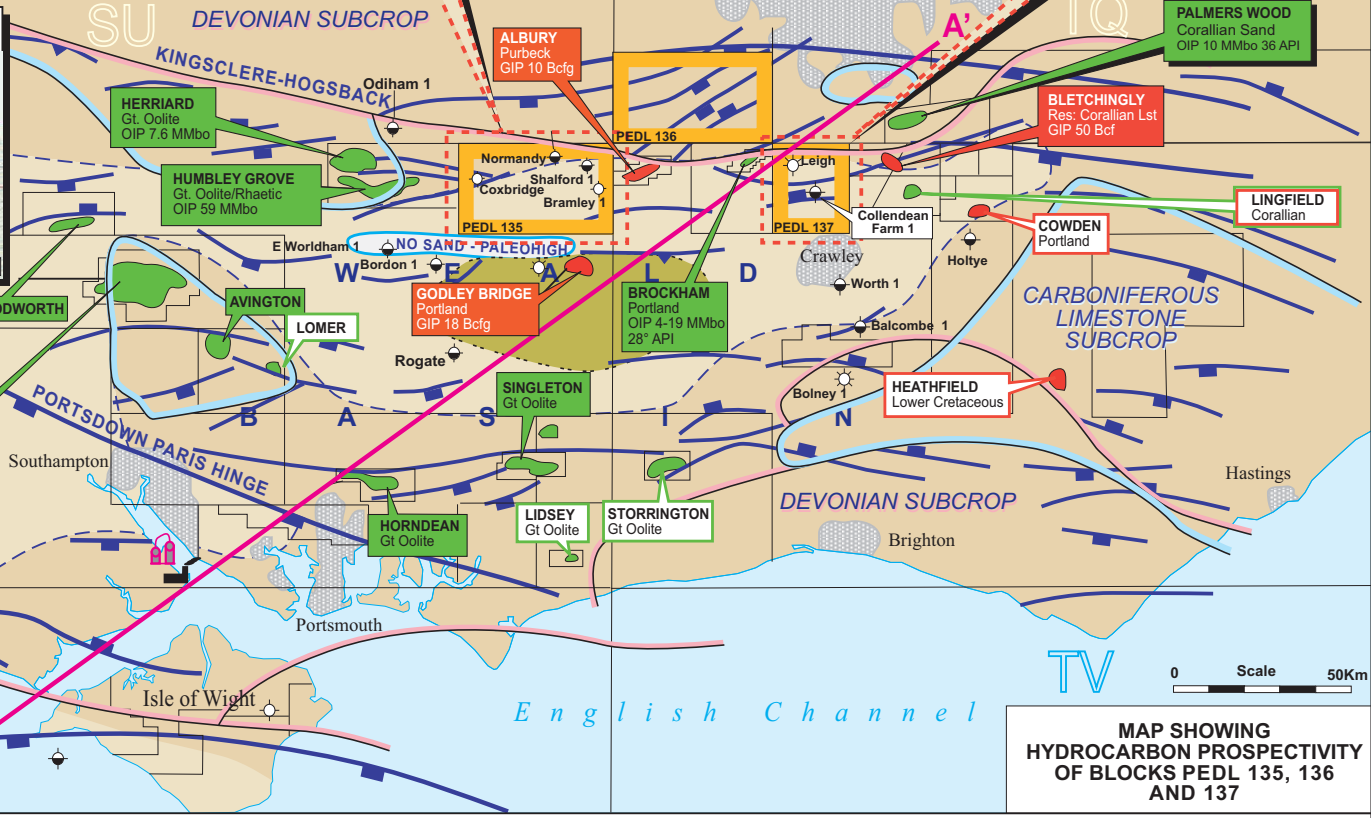
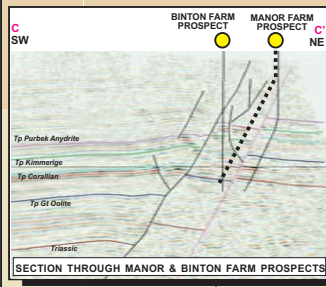
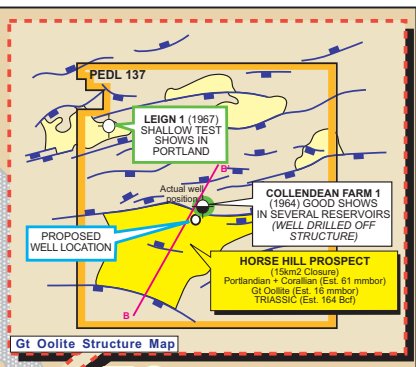
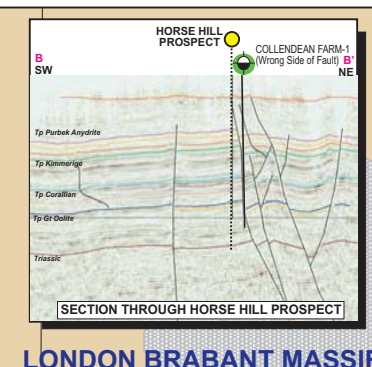
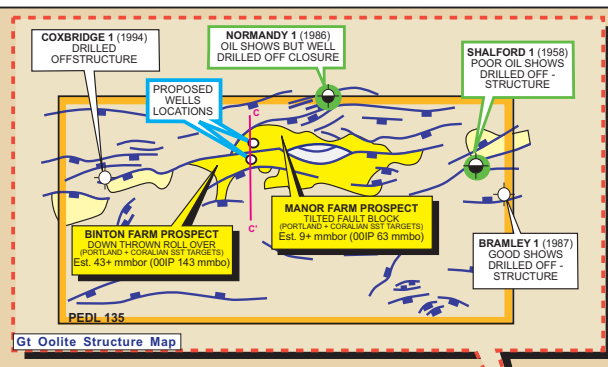
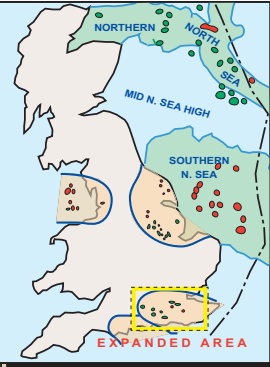
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SUMMARY OF KEY PETROLEUM GEOLOGY OF THE WEALD & DORSET BASINS ONSHORE SOUTHERN UK

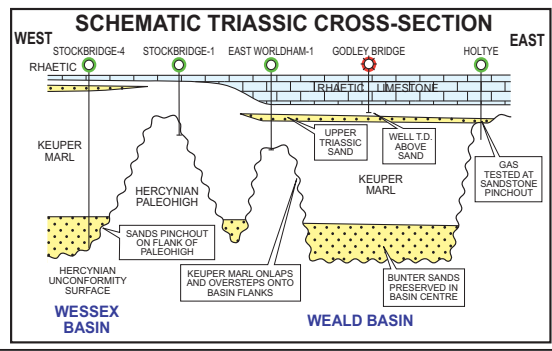
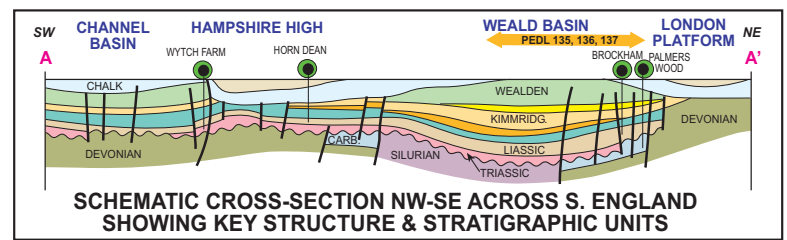
AGE	FORMATION	LITHOLOGY	PETROLEUM GEOLOGY	HYDROCARBON OCCURRENCE
TERTIARY	PLIO-PLISTOCENE			
	NEOGENE			
CRETACEOUS	PALAEOGENE			
	CHALK			
	UPPER GREEN SAND			
	GAULT CLAY			
JURASSIC	LOWER GREEN SAND			
	WEALDEN			
TRIASSIC	PURBECK		(R)	ALBURY
	PORTLAND		(R)	BROCKHAM GODLEY BRIDGE Prospects
	KIMMERIDGE		(S)	BLETCHINGLEY Prospects
	CORALIAN		(R)	PALMERS WOOD
	OXFORD CLAY		(S)	
	KELLAWAYS / CORNBURASH			
	OOLITES		(R)	Prospects HUMBLEY GROVE
PERMIAN	LIASSIC		(S)	
	RHAETIC		(R)	HUMBLEY GROVE
	KEUPER		(R)	HOLTYE
CARBONIFEROUS	MERCIA MUDSTONE		?	
	SHERWOOD SS & Equivalents		(R)	WYTCHE FARM Horse Hill Prospect
DEVONIAN	ZECHSTEIN			
	ROTLIEGENDES			
SILURIAN / ORD			?	(S)

KEY:

- Blocks on offer
- OIL & GAS FIELDS
- Undeveloped Developed
- PROSPECT
- KEY WELLS
- LIMIT OF TRIASSIC DEPOSITION
- CARBONIFEROUS SUBCROP LIMIT
- REGIONAL STRUCTURE
- CROSS-SECTION
- MAIN LIASSIC SOURCE KITCHEN
- AREA OF THICK TRIASSIC SAND
- RESERVOIR
- SOURCE
- SEAL
- POWER STATION
- REFINERY



MAP SHOWING HYDROCARBON PROSPECTIVITY OF BLOCKS PEDL 135, 136 AND 137



Prepared by **ENVOI**
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Montage showing location & hydrocarbon prospectivity of PEDL 135, 136, 137 on the Northern Weald Basin of Southern England