NUTECH

Introduction

This Oil In Place ("OIP") study presents the results of a 3D geological and petrophysical static model used to calculate the range of OIP over the UK Weald Basin Area of Interest ("AOI") and over eight licences in which UK Oil & Gas Investments PLC ("UKOG") have interests within the AOI. The study utilizes 86 wells, with updated analyses spatially distributed throughout the basin, based on calibrated values determined in the Horse Hill-1 ("HH-1") well.

The OIP calculated in the Report represents the total gross volume of all hydrocarbons in the ground before any extraction or production, and does not differentiate light moveable oil versus any other hydrocarbon phases present, neither have any potential economic cut-offs been applied. These OIP numbers therefore should be regarded as Total Petroleum Initially In Place as defined by the Society of Petroleum Engineer's Petroleum Resource Management System of resource reporting.

The results are summarised in Table 1 below:

Table 1 – Jurassic Tight Oil Section OIP (billion barrels, "BBO")

Area	Weald Basin AOI [2] (1261 sq. miles)			UKOG's Licence Interests [2] (151 sq. miles)					
	Gross OIP			Aggregate Gross OIP			Aggregate Net OIP		
Confidence level	**P90 Low**	**P50 Best**	**P10 High**	**P90 Low**	**P50 Best**	**P10 High**	**P90 Low**	**P50 Best**	**P10 High**
Jurassic Tight Oil [1]	61.8	124.3	229.9	8.1	15.7	29.4	2.0	3.9	7.2

[1] Jurassic Tight Oil is defined as the plays contained within the source rock shale sequences and interbedded tight conventional limestones of the Kimmeridge Clay, Oxford Clay and Lias Shale Formations. Conventional reservoirs of the Corallian and Great Oolite and of the overlying Portland section are excluded.
[2] Volumetric estimates by Nutech.

Table 2 and Figure 1 show the 45 updated wells used to populate the petrophysical model.

Table 2 – List of 45 Updated Wells

ALBURY_1	HOLTYE_1	STANMER_1
ASHOUR_1	HOOK_LANE_1	STORRINGTON_1
BALCOMBE_1	HORNDEAN_4	TURNERS_HILL_1
BAXTERS_COPSE_1	INWOOD_COPSE_1	URCHFONT_1
BIDDENDEN_1	KNOCKHOLT_1	WALLCROUCH_1
BORDON_1	LEE_ON_SOLENT_1	YARNBURY_1
BROCKHAM_1	LOMER_1	STOCKBRIDGE_5
CHILWORTH_1	MIDDLETON_1	COLLENDEAN_FARM_1
EGBURY_1	NETHERHAMPTON_1	HORSE_HILL_1
FAIRLIGHT_1	OLD_ALRESFORD_1	ODIHAM_1
FARLEY_SOUTH_1	PAGHAM_1	STRAT_A1
GODLEY_BRIDGE_1	PALMERS_WOOD_1	LOWER_KINGSWOOD_1
HEDGE_END_1	ROGATE_1	BLETCHINGLEY_1
HELLINGLY_2	ROTHERFIELD_1	BLETCHINGLEY_2
HOE_1	SOUTHWATER_1	EAGLESDEN_1

Figure 1 – Locations of 45 Updated Wells

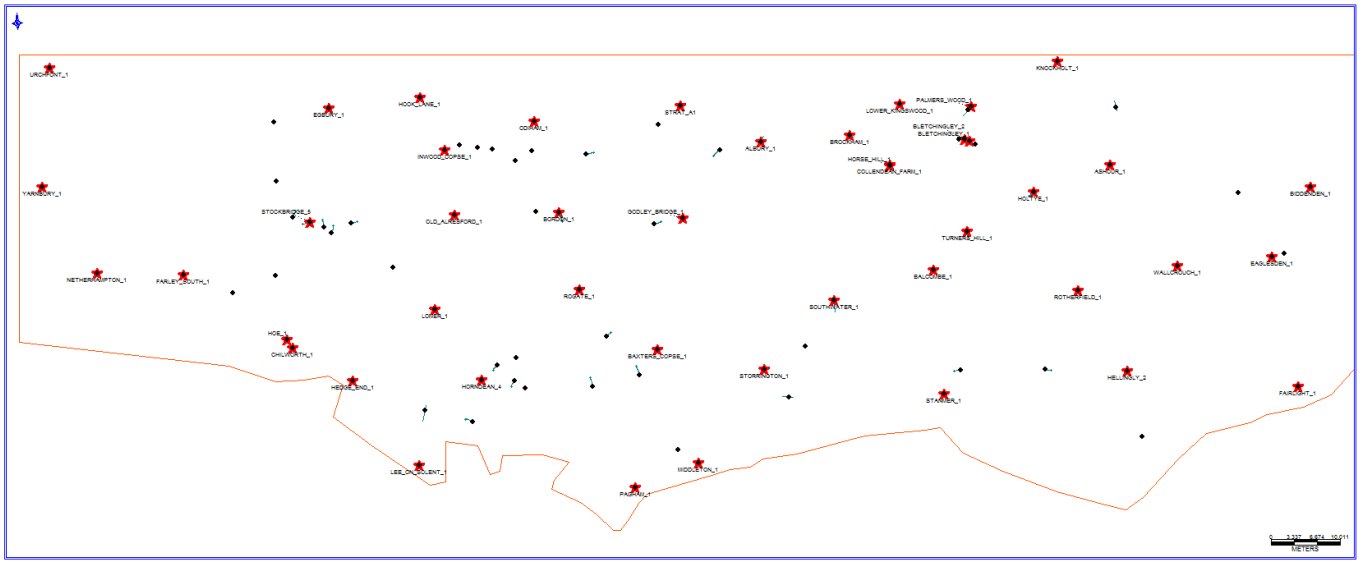


Figure 2 and Table 3 show the list and locations of the 85 DECC/OGA released wells in the database ans the Horse Hill-1 well. Figure 2 also shows the AOI and the locations of UKOG's eight licence areas. It should be noted that UKOG's Lidsey licence is outside the AOI.

Figure 2 – Locations of 86 Database Wells, Study AOI and UKOG's Licences

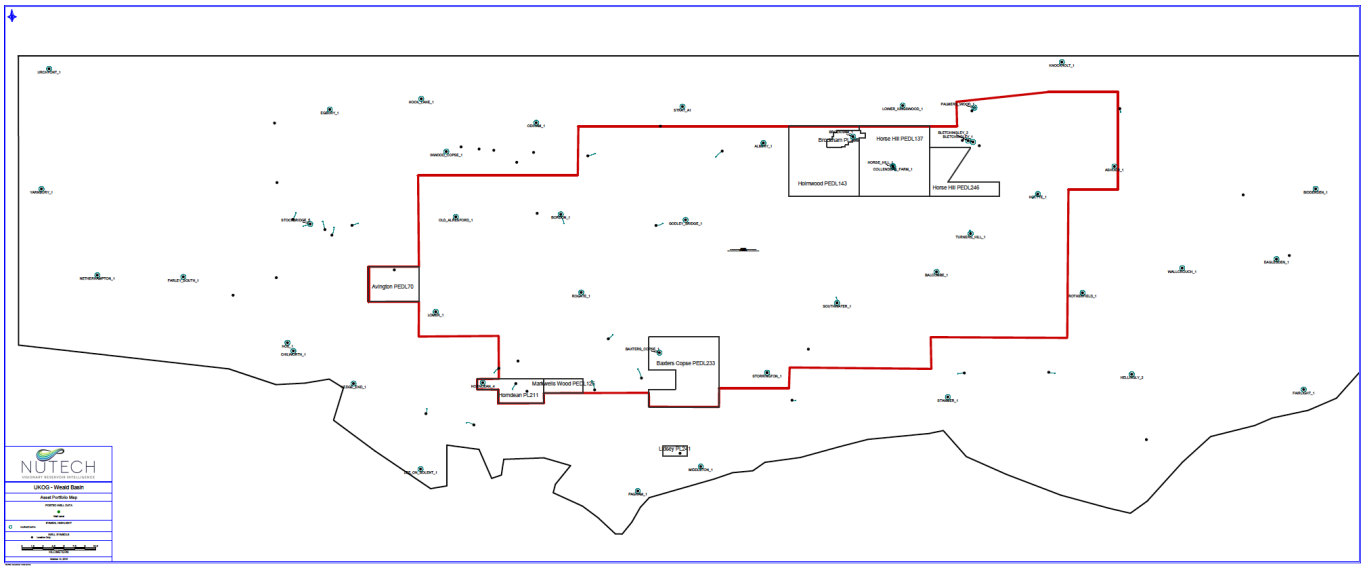


Table 3 – List of 86 Wells in Database

86 Weald Basin Wells		
ALBURY_1	GOODWORTH_1	ODIHAM_1
ASHINGTON_1	HEDGE_END_1	OLD_ALRESFORD_1
ASHOUR_1	HELLINGLY_2	PAGHAM_1
AVINGTON_1	HERRIARD_1	PALMERS_WOOD_1
BALCOMBE_1	HERRIARD_2	PALMERS_WOOD_3
BAXTERS_COPSE_1	HESTERS_COPSE_1	POTWELL_1
BIDDENDEN_1	HINTON_MANOR_1	RINGMER_1
BLETCHINGLEY_1	HOE_1	ROGATE_1
BLETCHINGLEY_2	HOLTYE_1	ROTHERFIELD_1
BLETCHINGLEY_6	HOOK_LANE_1	SHIPBOURNE_1
BORDON_1	HORNDEAN_2	SINGLETON_1
BRAMLEY_1	HORNDEAN_3	SOUTHWATER_1
BROCKHAM_1	HORNDEAN_4	STANMER_1
CHILGROVE_1	HORSE_HILL_1	STOCKBRIDGE_3
CHILWORTH_1	HUMBLY__GROVE_X5	STOCKBRIDGE_4
CLANFIELD_1	IDEN_GREEN_1	STOCKBRIDGE_5
COLLENDEAN_FARM_1	INWOOD_COPSE_1	STOCKBRIDGE_6
COXBRIDGE_1	KNOCKHOLT_1	STOCKBRIDGE_8
CROCKERHILL_1	L_R/26-1_(EAST_WORLD	STORRINGTON_1
DETENTION_1	LEE_ON_SOLENT_1	STORRINGTON_2
EAGLESDEN_1	LIDSEY_X1_(1)	STRAT_A1
EDEN_BRIDGE_1	LOCKERLEY_1	TURNERS_HILL_1
EGBURY_1	LOMER_1	UPPER_ENHAM_1
FAIRLIGHT_1	LOWER_KINGSWOOD_1	URCHFONT_1
FARLEIGH_WALLOP_1	MIDDLETON_1	WALLCROUCH_1
FARLEY_SOUTH_1	MINSTED_1	WASHINGTON_1
FURZEDOWN_1	NETHERHAMPTON_1	WESTHAM_1
GODLEY_BRIDGE_1	NORMANDY_1	WESTMESTON_1
GODLEY_BRIDGE_2Z		YARNBURY_1

Methodology

The **NULOOK** Textural Vision and Shale Vision model was utilized in petrophysical analysis of 86 key wells, 45 of ehich were updated with learnings from the HH-1 well, and were selected based on geological distribution to account for well clustering, log data availability, and formation coverage. The NULOOK™ petrophysical analysis is the core foundation for reservoir characterization, offering a textural based approach to log analysis that is capable of extracting complex reservoir properties from traditional open-hole well log data such as triple combo. An accurate determination of effective porosity is derived using a proprietary multi-mineral based system which integrates a multi-source clay volume logic and a series of algorithms which yield a pores size distribution. The pore size distribution is based on Nuclear Magnetic Resonance (NMR) data as well as an extensive core analysis database which gives an understanding of the texture of the reservoir rock. From this textural understanding, bound and free fluid are determined as well as a very robust permeability which correlates to core results.

A triple combo log consists of:

- Nuclear
  - Neutron
  - Density
  - Gamma-Ray
- Resistivity

Where possible, and where the available curve data permits, the analytical services incorporate all aspects of the NULOOK technical analysis:

- NULOOK Textural Vision
- NULOOK Shale Vision
- NULOOK Fracture Intensity Vision

For the list of petrophysical properties each of these NUTECH Proprietary Petrophysical Processes are used to analyze, please see Table 4 below:

Table 4 – NUTECH's Proprietary Petrophysical Processes

NUTECH Service Name	Used for Calculating Rock Properties
NULOOK Textural Vision	1-Clay Volume 2-Lithology & Porosity 3-Bulk Volume Water 4-Rw 5-Rock Texture 6-Permeability 7-Flags
NULOOK Shale Analysis	1-Shale Volume(Vsh) 2-Textural Model 3-Irreducible Water (BVI) 4-Total Organic Carbon(TOC) 5-Volume Clay 6-Lithology 7-Bulk Volume Water 8-Permeability 9-Shale Quality Flags 10-Adsorbed and Free Gas
NULOOK Fracture Intensity Vision(FIV)	Fracture Flags

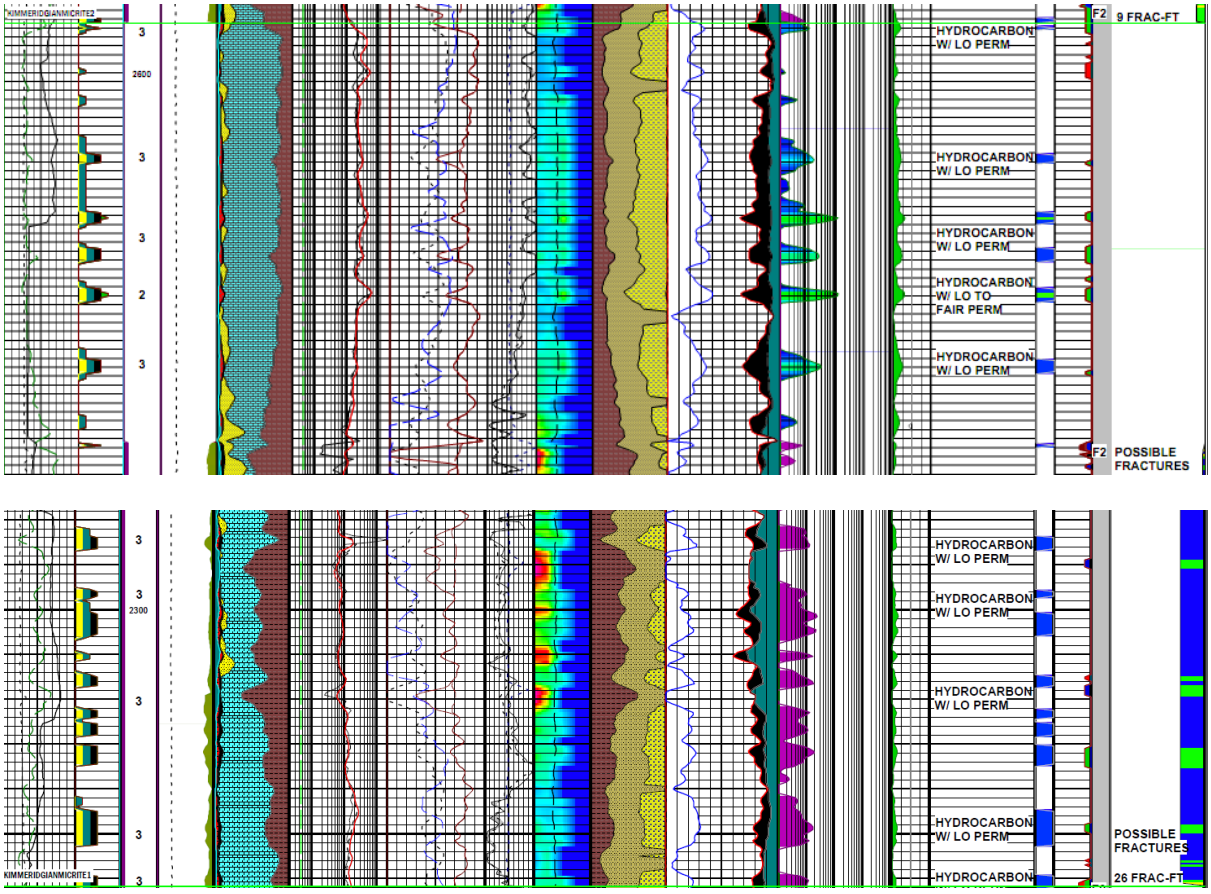
The analyst initially reviews the total logged intervals of the wells using the NULOOK™ Textural Vision™ to determine the lithology, porosity, permeability, and fluid saturation of each well. Further analysis of the shale formations in each well is undertaken using NULOOK™ Shale Vision™ to assess the hydrocarbon bearing potential of the source rock, followed by NULOOK™ Fracture Intensity Vision™ to identify the potential existence of naturally occurring fractures within the well. Shale Vision™ zones are identified utilizing the SHALE FLAG, denoted by a purple bar. The criteria are as follows:

- High Gamma Ray readings
- Density and Neutron porosity behavior
- Resistivity
- Caliper and SP (if available) as needed

There are areas present throughout the region in which the log curves provide an inconclusive response to whether the formation is an unconventional organic shale or not, for which NUTECH has taken the conservative approach and enabled the Shale Flag.

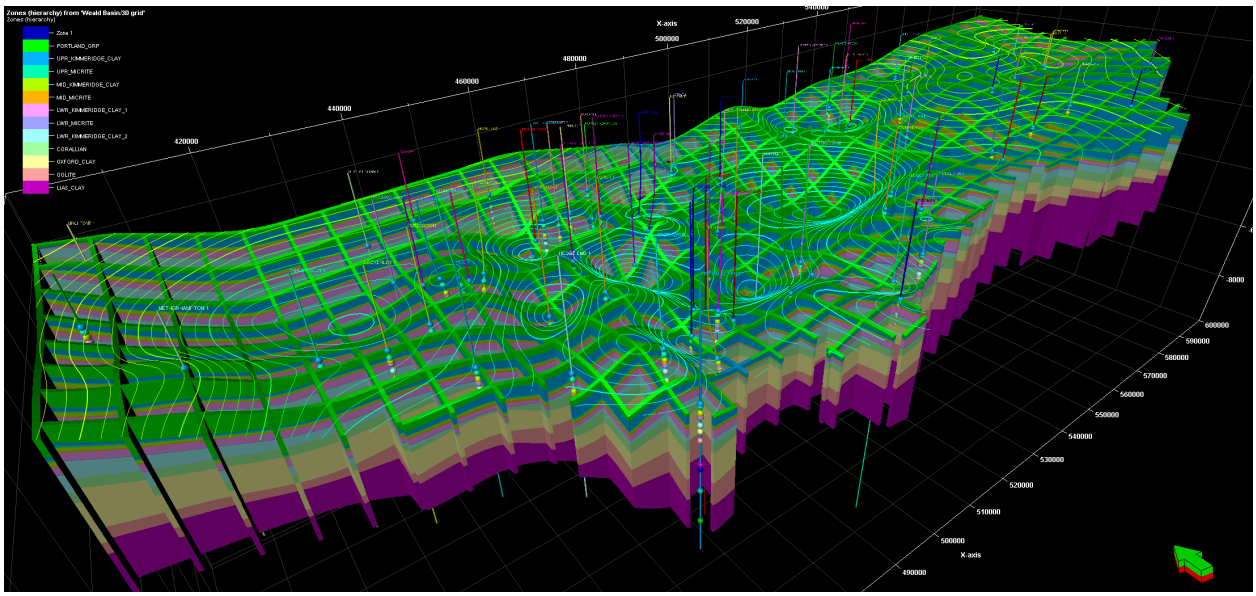
Figure 3 provides snapshots illustrating the NULOOK NTV, Shale, and Fracture Intensity results.

Figure 3 – Snapshots Illustrating Results



A 3D grid model with color zonation of model is generated in NUTECH's **NUVIEW** unit, as shown in Figure 4. Within this grid framework, the NULOOK petrophysical properties are distributed. The SHALEMOD flag is used to distinguish clay/shale data intervals from conventional intervals. For the volumetric calculations, PHIE and SW are the main log property components.

Figure 4 – 3D Grid Model



NUVIEW 3D static geological modeling workflow**:**

- Build 3D grid model over the area of interest zoned by well correlation formation picks.
- Model SHALEMOD based facies using stochastic Sequential Indicator Simulation.
- Model NULOOK petrophysical properties within each facies type using stochastic Sequential Gaussian Simulation.
- Calculate 3D model volumes within polygons of interest.
- Extract property maps by vertical summation within each zone of interest.

Results

The ranges of calculated geological and petrophysical parameters interpreted in each well's NULOOK and NULIST were used to run a stochastic simulation of OIP over the Weald Basin for key prospective tight Jurassic mudstone and limestone benches or reservoir units. The study covered OIP for the following reservoirs (results are presented in map and tabular form in the annexure):

- Kimmeridge Shale tight oil
- Kimmeridge Limestone (Micrite) conventional tight oil
- Corallian conventional limestone
- Oxford Clay shale tight oil
- Oolite conventional limestone
- Lias Clay shale tight oil

The study calculates that the total conventional and unconventional reservoirs, in the Weald Basin AOI, contain a Best Estimate or P50 OIP of 124 BBO within the Jurassic tight oil section (Kimmeridge Clay, plus Oxford Clay, plus Lias Clay). It should be noted that this figure excludes the Portland Sandstone reservoir. The most significant OIP, is contained within the unconventional shales and tight conventional limestone (micrite) sequences of the Kimmeridge which calculates a Best Estimate, or P50, total OIP of 82 BBO. The Kimmeridge limestones (micrites) are calculated to contain a P50 OIP of 20 BBO over the Weald AOI. Study results for the AOI are provided in Table 5.

The calculated OIP figures should not be construed as recoverable resources or reserves. These are IN PLACE values. Detailed deliverables of the geological model are presented in the annex.

Table 5 - Central Weald AOI, 1,261 Square Miles

	Gross OIP (BBO)		
Confidence Level	**P90 Low**	**P50 Best**	**P10 High**
Kimmeridge Clay	40.2	81.9	142.7
Oxford Clay	10.7	18.1	30.3
Lias	10.9	24.4	56.9
Total Jurassic Tight Oil	**61.8**	**124.3**	**229.9**

The Weald Basin AOI includes eight licences where UKOG holds licence interests, covering a gross area of approximately 151 square miles:

- Avington, PEDL070, area 7.1 square miles
- Baxters Copse, PEDL233, area 34.6 square miles
- Brockham, PL235, area 3.4 square miles
- Holmwood, PEDL143, area 35.5 square miles, subject to approval by the Oil & Gas Authority ("OGA")
- Horndean, PL211, area 10.5 square miles
- Horse Hill, PEDL137, area 38.4 square miles
- Horse Hill, PEDL246, area 16.8 square miles, 55.2 square miles for both Horse Hill licences
- Markwells Wood, PEDL126, area 4.3 square miles

UKOG's three further UK licence interests lie outside the AOI:

- Isle of White (offshore), P1916
- Isle of White (onshore), subject to award by OGA in the 14th Landward Licensing Round
- Lidsey, PL241

The study has also calculated, in the total conventional and unconventional reservoirs, the OIP over these eight UKOG license areas within the AOI, again excluding the Portland Sandstone. UKOG's eight licences contain a Best Estimate or P50 OIP of 22.1 BBO. The Jurassic tight oil section calculates at 15.7 BBO. The Kimmeridge limestones (micrites) are calculated to contain a P50 OIP of 2.1 BBO within UKOG's licences (net attributable to UKOG of 0.54 BBO) and a gross P50 OIP of 19.5 BBO within the overall AOI. Study results for UKOG's eight licences are provided in Table 6.

The calculated OIP figures should not be construed as recoverable resources or reserves. These are IN PLACE values. Detailed deliverables of the geological model are presented in the annex.

Table 6 - UKOG's Eight Licences, 151 Square Miles

	UKOG Gross OIP (BBO)			UKOG Net OIP (BBO)		
Confidence Level	**P90 Low**	**P50 Best**	**P10 High**	**P90 Low**	**P50 Best**	**P10 High**
Kimmeridge Clay	5.1	10.0	17.4	1.3	2.4	4.1
Oxford Clay	1.4	2.3	3.8	0.3	0.5	0.9
Lias	1.6	3.4	8.3	0.4	0.9	2.2
Total Jurassic Tight Oil	**8.1**	**15.7**	**29.4**	**2.0**	**3.9**	**7.2**

Possible US Tight Oil Producing Analogues

Nutech considers that the Kimmeridge limestones are analogous to the oil productive Austin Chalk and Eagle Ford formations of the US. Furthermore, the analyzed Kimmeridge benches are possibly analogous to the known oil productive hybrid tight oil sections of the Bakken of the US Williston Basin, the Wolfcamp, Bone Springs, Clearfork, Spraberry, and Dean Formations in the US Permian Basin. These recovery factors are achieved with the use of well stimulation techniques. These US analogues have estimated recovery factors of between 3% and 8% and in a few cases up to 15% of contacted Oil in Place per well.. These recovery factors are achieved with the use of well stimulation techniques.

Annex – Detailed Geological Model Results (P90/P50/P10)

Table 7 - Total Weald AOI, 1,261 Square Miles

P90, TOTAL AOI							
Case	Bulk volume [10^6 bbl]	Net volume [10^6 bbl]	Pore volume [10^6 RB]	HCPV Oil [10^6 RB]	OIP [MMBO]	Area [SEC]	OIP [MMBO/SEC]
P90						1,261	
Zones							
UPR_KIMMERIDGE_CLAY	2,223,547	2,223,547	167,118	18,762	14,432		11.4
UPR_MICRITE	508,011	508,011	28,917	6,040	4,646		3.7
MID_KIMMERIDGE_CLAY	566,755	566,755	39,374	5,125	3,943		3.1
MID_MICRITE	450,316	450,316	27,196	6,480	4,985		4.0
LWR_KIMMERIDGE_CLAY_1	985,496	985,496	69,401	6,698	5,153		4.1
LWR_MICRITE	126,551	126,551	7,257	1,221	939		0.7
LWR_KIMMERIDGE_CLAY_2	2,419,734	2,419,734	149,435	7,992	6,148		4.9
OXFORD_CLAY	2,768,618	2,768,618	123,376	13,905	10,697		8.5
LIAS	7,407,612	7,407,612	172,495	14,146	10,882		8.6
Facies							
Kimmeridge Total					**40,244**		**31.9**
Kimmeridge Micrite					**10,570**		**8.4**
Kimmeridge Shale					**29,675**		**23.5**
Jurassic Tight Oil Total					**61,823**		**49.0**

P50, TOTAL AOI							
Case	Bulk volume [10^6 bbl]	Net volume [10^6 bbl]	Pore volume [10^6 RB]	HCPV Oil [10^6 RB]	OIP [MMBO]	Area [SEC]	OIP [MMBO/SEC]
P90						1,261	
Zones							
UPR_KIMMERIDGE_CLAY	2,223,547	2,223,547	194,270	35,810	27,546		21.8
UPR_MICRITE	508,011	508,011	35,428	10,738	8,260		6.5
MID_KIMMERIDGE_CLAY	566,755	566,755	46,112	9,800	7,538		6.0
MID_MICRITE	450,316	450,316	35,648	12,292	9,456		7.5
LWR_KIMMERIDGE_CLAY_1	985,496	985,496	79,040	14,528	11,175		8.9
LWR_MICRITE	126,551	126,551	9,041	2,288	1,760		1.4
LWR_KIMMERIDGE_CLAY_2	2,419,734	2,419,734	179,005	21,034	16,180		12.8
OXFORD_CLAY	2,768,618	2,768,618	148,182	23,465	18,050		14.3
LIAS	7,407,612	7,407,612	240,038	31,679	24,368		19.3
Facies							
Kimmeridge Total					**81,915**		**64.9**
Kimmeridge Micrite					**19,476**		**15.4**
Kimmeridge Shale					**62,439**		**49.5**
Jurassic Tight Oil Total					**124,334**		**98.6**

P10, TOTAL AOI							
Case	Bulk volume [10^6 bbl]	Net volume [10^6 bbl]	Pore volume [10^6 RB]	HCPV Oil [10^6 RB]	OIP [MMBO]	Area [SEC]	OIP [MMBO/SEC]
P90						1,261	
Zones							
UPR_KIMMERIDGE_CLAY	2,223,547	2,223,547	218,037	56,919	43,784		34.7
UPR_MICRITE	508,011	508,011	43,244	17,859	13,738		10.9
MID_KIMMERIDGE_CLAY	566,755	566,755	51,853	17,816	13,705		10.9
MID_MICRITE	450,316	450,316	44,911	21,208	16,314		12.9
LWR_KIMMERIDGE_CLAY_1	985,496	985,496	86,674	24,774	19,057		15.1
LWR_MICRITE	126,551	126,551	10,730	3,627	2,790		2.2
LWR_KIMMERIDGE_CLAY_2	2,419,734	2,419,734	201,458	43,256	33,274		26.4
OXFORD_CLAY	2,768,618	2,768,618	169,735	39,434	30,334		24.0
LIAS	7,407,612	7,407,612	316,289	73,995	56,920		45.1
Facies							
Kimmeridge Total					**142,661**		**113.1**
Kimmeridge Micrite					**32,841**		**26.0**
Kimmeridge Shale					**109,820**		**87.1**
Jurassic Tight Oil Total					**229,914**		**182.3**

Table 8 - UKOG's 8 Licences, 151 Square Miles

P90, UKOG LICENCE AREA ONLY							
Case	Bulk volume [10^6 bbl]	Net volume [10^6 bbl]	Pore volume [10^6 RB]	HCPV Oil [10^6 RB]	OIP [MMBO]	Area [SEC]	OIP [MMBO/SEC]
P90						151	
Zones							
UPR_KIMMERIDGE_CLAY	210,793	210,793	16,217	2,881	2,216		14.7
UPR_MICRITE	58,245	58,245	3,200	584	449		3.0
MID_KIMMERIDGE_CLAY	63,947	63,947	4,423	674	519		3.4
MID_MICRITE	50,369	50,369	2,987	658	506		3.4
LWR_KIMMERIDGE_CLAY_1	123,542	123,542	8,257	763	587		3.9
LWR_MICRITE	18,134	18,134	1,256	189	145		1.0
LWR_KIMMERIDGE_CLAY_2	289,148	289,148	16,872	870	670		4.4
OXFORD_CLAY	319,105	319,105	14,518	1,861	1,431		9.5
LIAS	965,569	965,569	21,937	2,017	1,552		10.3
Facies							
Kimmeridge Total					**5,091**		**33.7**
Kimmeridge Micrite					**1,101**		**7.3**
Kimmeridge Shale					**3,991**		**26.4**
Jurassic Tight Oil Total					**8,074**		**53.5**

P50, UKOG LICENCE AREA ONLY							
Case	Bulk volume [10^6 bbl]	Net volume [10^6 bbl]	Pore volume [10^6 RB]	HCPV Oil [10^6 RB]	OIP [MMBO]	Area [SEC]	OIP [MMBO/SEC]
P90						151	
Zones							
UPR_KIMMERIDGE_CLAY	210,793	210,793	18,848	4,711	3,625		24.0
UPR_MICRITE	58,245	58,245	3,923	1,097	844		5.6
MID_KIMMERIDGE_CLAY	63,947	63,947	5,274	1,325	1,019		6.8
MID_MICRITE	50,369	50,369	3,923	1,272	978		6.5
LWR_KIMMERIDGE_CLAY_1	123,542	123,542	9,614	1,783	1,372		9.1
LWR_MICRITE	18,134	18,134	1,453	358	276		1.8
LWR_KIMMERIDGE_CLAY_2	289,148	289,148	20,411	2,389	1,838		12.2
OXFORD_CLAY	319,105	319,105	17,533	3,046	2,343		15.5
LIAS	965,569	965,569	30,994	4,474	3,442		22.8
Facies							
Kimmeridge Total					**9,952**		**65.9**
Kimmeridge Micrite					**2,098**		**13.9**
Kimmeridge Shale					**7,854**		**52.0**
Jurassic Tight Oil Total					**15,736**		**104.2**

P10, UKOG LICENCE AREA ONLY							
Case	Bulk volume [10^6 bbl]	Net volume [10^6 bbl]	Pore volume [10^6 RB]	HCPV Oil [10^6 RB]	OIP [MMBO]	Area [SEC]	OIP [MMBO/SEC]
P90						151	
Zones							
UPR_KIMMERIDGE_CLAY	210,793	210,793	21,212	7,475	5,750		38.1
UPR_MICRITE	58,245	58,245	4,739	1,822	1,401		9.3
MID_KIMMERIDGE_CLAY	63,947	63,947	5,796	2,170	1,670		11.1
MID_MICRITE	50,369	50,369	4,919	2,244	1,727		11.4
LWR_KIMMERIDGE_CLAY_1	123,542	123,542	10,550	3,135	2,411		16.0
LWR_MICRITE	18,134	18,134	1,635	531	408		2.7
LWR_KIMMERIDGE_CLAY_2	289,148	289,148	23,165	5,179	3,984		26.4
OXFORD_CLAY	319,105	319,105	19,834	4,913	3,779		25.0
LIAS	965,569	965,569	41,268	10,738	8,260		54.7
Facies							
Kimmeridge Total					**17,351**		**114.9**
Kimmeridge Micrite					**3,536**		**23.4**
Kimmeridge Shale					**13,815**		**91.5**
Jurassic Tight Oil Total					**29,390**		**194.6**