Allenby Capital

Company Note

Update

28 February 2023

Baron Oil plc (BOIL.L)

Sizeable contingent resource established

Baron Oil has published the CPR for its 75% owned Chuditch gas project in the Timor Sea. The CPR was prepared by ERC Equipoise (ERCE) following earlier 3-D seismic reprocessing over a large part of the Chuditch project. This was completed by the geophysical specialist, TGS-NOPEC, in Q3 2022. The CPR supports the view that Chuditch contains a substantial resource despite Prospective Resources being lower than previously indicated largely due to incomplete 3-D coverage on the Chuditch NE and Quokka prospects. Importantly, the identification of a 1.1 tcfe contingent resource for the Chuditch-1 discovery constitutes a major element of de-risking and underpins the potential of the asset. Our risked valuation for Chuditch increases by 52% to US$237m (1.027p) while the success case valuation stands at US$854m. A key near-term task is to secure a funding pathway before the drill or drop decision in mid-June.

- **Chuditch project:** Chuditch is a potential company-maker for Baron Oil. The project lies in the Timor-Leste sector of the Timor Sea close to the boundary line with Australia. The project is about 185 km south of Timor-Leste and 400 km north-west of Darwin. The residual 25% interest in Chuditch PSC (Production Sharing Contract) is owned by the Timor-Leste NOC (National Oil Company), Timor Gap. Baron free carries Timor Gap to development. The operator of Chuditch is the 100% owned Singapore-based subsidiary SundaGas. The Chuditch project was originally based on the Chuditch-1 discovery made by Shell in 1998 in the regionally prolific Jurassic Plover sandstones. The well, however, was never flow tested. In addition to the discovery, the Chuditch project includes the Chuditch SW (Alpha and Beta), the Chuditch NE and Quokka prospects.

- **Chuditch resources:** The CPR shows gross contingent and prospective resources across the Chuditch discovery and the prospects as 2.73 tcfe (455mm boe) of which condensate represents 3%. Resources relating to the Chuditch-1 discovery of 1.1tcfe are now classified as contingent and constitute 41% of the total. The CPR estimate for Chuditch reflects a conservative view compared to Baron's pMean estimate of recoverable gas of 3.2 tcf. We believe, however, 2.73 tcfe remains a sizeable resource base and is adequate for development at anything like East Asia LNG JKM benchmark prices currently of around US$18mm/Btu. We would also stress that the contingent resources offer critical mass.

- **Chuditch PSC terms and drilling**: The Timor-Leste regulatory authority, ANPM, granted Baron a six-month extension to Year 2 of the Chuditch PSC in Q4 2022. Year 2 will now expire on June 18, 2023 by which time Baron will need to make a drill or drop well commitment. In the third and final phase of the PSC post June 18, a final investment decision (FID) will be required on an appraisal well targeting the Chuditch-1 discovery. We believe well design and possibly well locations may have been identified using 3-D seismic. Assuming drilling goes ahead, it will be undertaken in relatively shallow water of around 70m enabling use of a relatively low-cost jack-up rig. The well will be deviated from vertical with a TD (total depth) of about 3,000m. We believe it will take about 42 days to drill/test and cost approximately US$24m. In our view, the earliest a well could be drilled is H2 2024 given the lead time to secure a JV partner and well planning.

Year End: 31 December					
(£'000)	**2019**	**2020**	**2021**	**2022E**	**2023E**
EBITDA	(442)	(710)	(1,321)	(1,367)	(1,500)
NET CASH / (NET DEBT)*	347	1,190	1,650	5,500	2,080

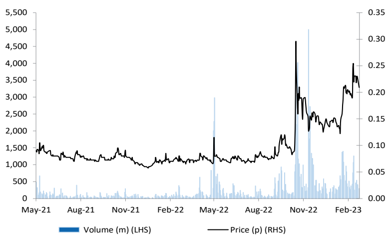
Source: Allenby Capital. Allenby Capital acts as Nomad & Broker to Baron Oil plc (BOIL.L). *Excludes project Bank Guarantees.

Please refer to the last page of this communication for all required disclosures and risk warnings.

Corporate

Current price	**0.205p**
Sector	Oil & Gas
Code	BOIL.L
AIM	AIM

Share Performance



% Change	1m	3m	12m
BOIL.L	+11.8	+28.3	+178.8

Source: Thomson Reuters, Allenby Capital

Share Data		
Market Cap (£m)		39.6
Shares in issue (bn)		18.92
52 weeks (p)	High	Low
	0.29	0.07
Financial year end		31 December

Source: Company Data, Allenby Capital

Key Shareholders	
Hargreaves Lansdown	24.11%
Interactive Investor Services	14.42%
HSDL Nominees Ltd	11.12
Vidacos Nominees	5.69%
Barclays Direct Investing Nominees Ltd	5.38%

Source: Company, Allenby Capital

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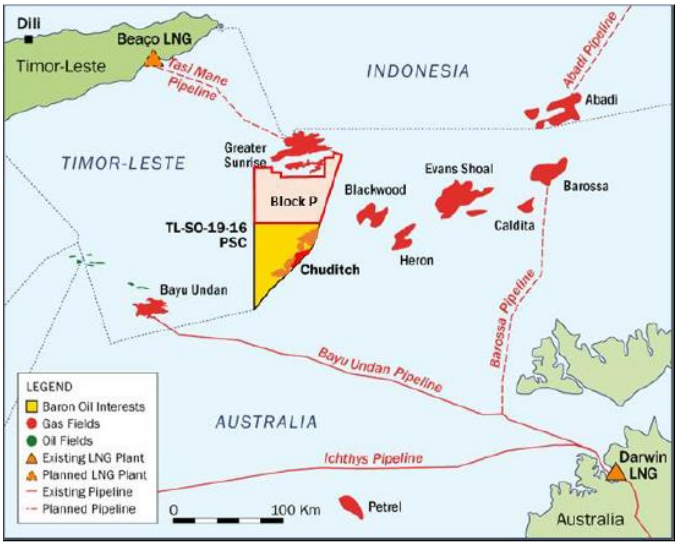
Equity Research

Exhibit 1: Location of licence TL-SO-19-16 Chuditch PSC

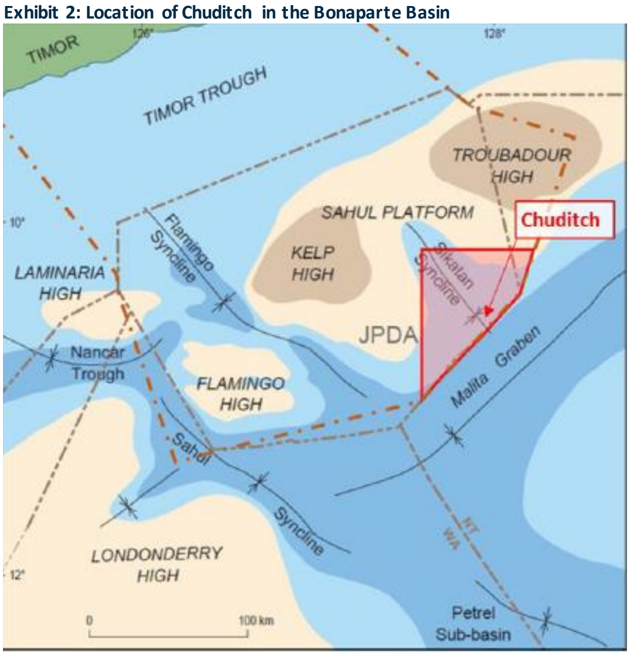


Source: Baron Oil/CPR

Regional geology

Bonaparte rift basin: The Chuditch project lies in the Bonaparte Basin largely offshore Western Australia and the Northern Territory. It was formed by late Palaeozoic and early Mesozoic rifting (movements in the earth's crust due to tectonic activity) roughly 300-200Ma. In the north, the Basin is bounded by the deep oceanic Timor Trough that borders onto the Timor-Leste coast. Bordering Bonaparte to the west and east are the Browse and Money Shoals Basins respectively. The Bonaparte Basin has been established as a significant producer of hydrocarbons for more than 20 years. The Mid-Jurassic Plover sandstones, as at Santos's Bayu-Undan field, have provided the dominant hydrocarbons reservoir.

Exhibit 2: Location of Chuditch in the Bonaparte Basin

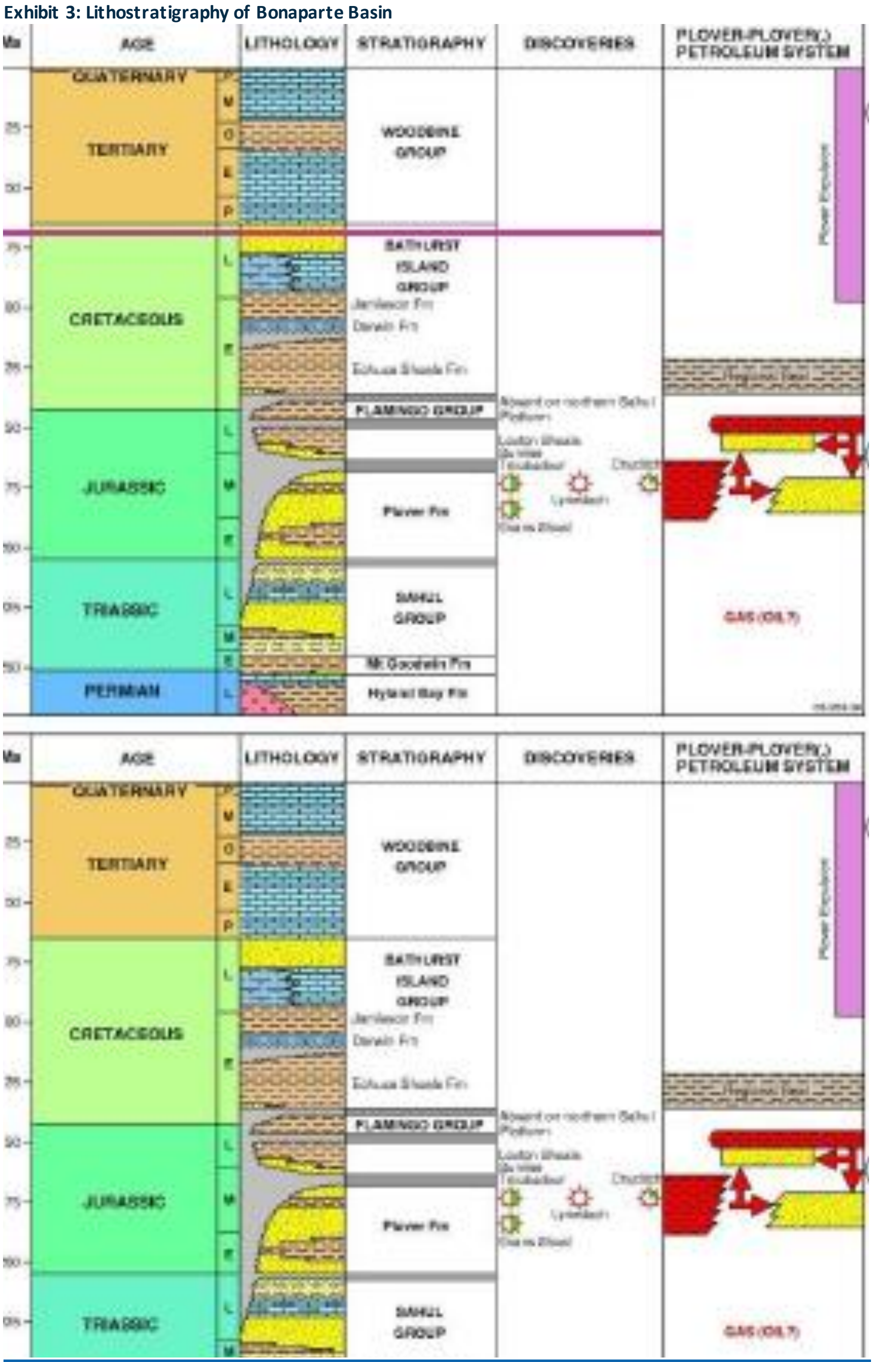


Source: SundaGas/CPR

Chuditch-1 discovery located on NW margin of Malita Graben fault: The Chuditch-1 discovery is situated on the north-western margin of the NE-SW trending Malita Graben fault, a major structural rifting feature towards the centre of the Bonaparte Basin. The discovery was made within a three-way dip closure. The Plover sandstones provide the reservoir while the source rocks are believed to be mudstones of Late Jurassic-early Cretaceous age. Early Cretaceous mudstones are believed by ERCE to provide the regional seal. In 1998, the Chuditch-1 discovery well was drilled to just over 3,000m. It encountered 105m of the Plover formation of which 24.5m were gas bearing.

Significantly, ERCE has commented in the CPR that the Chuditch-1 discovery has been clearly identified as a three-way closure on the seismic.

Exhibit 3: Lithostratigraphy of Bonaparte Basin



Source: Geoscience Australia/CPR

Geological risks

Low geological risk reflecting Chuditch-1 discovery, high quality seismic and proven hydrocarbons system: In the past, we have suggested that the Chuditch project is of low geological risk. We continue to be of this view. The key factor is the discovery on Chuditch-1 and high quality 3-D seismic coverage over a significant part of the project. It might be added that the Plover hydrocarbons system is well understood regionally. The Chuditch-1 discovery is considered by ERCE to have no geological risk. Looking across the remaining prospects, ERCE believes that the main geological risk relates to the trap reflecting uncertainty surrounding seismic depth conversion. ERCE refers to reservoir and hydrocarbons source risk as low. The close proximity of the prospects to Chuditch-1 supports this conclusion.

ERCE believes that the seal has proved effective at the Chuditch-1 discovery reflecting the presence of both top and side seals. In the case of Quokka and Chuditch NE, ERCE considers that there is greater seal risk due to higher uncertainty away from the discovery and off the existing 3-D coverage.

GPOSs for Chuditch SW Alpha and Beta high pre-drilling: Overall, the GPOS (geological probability of success) for the prospects are similar to previous estimates. The GPOSs of 52% on Chuditch SW Alpha and 45% on Chuditch SW Beta are both high pre-drilling. Note, the original Chuditch SW prospect has been segmented into two culminations, Alpha and Beta but form a single overall feature. Post the contemplated appraisal well on Chuditch-1, the Chuditch SW structure would presumably be next in line to be drilled. The lower GPOSs on Chuditch NE and Quokka of 30% and 26% respectively reflect the earlier stage of exploration and inferior seismic coverage vis-à-vis the other prospects. According to ERCE, where 3D seismic has not been shot, ‘dense’ 2-D seismic is available over Quokka while over Chuditch NE 2-D coverage is ‘moderate to sparse’. Further de-risking work on these prospects would require new 3-D seismic to be shot. We would not however expect this to occur until an appraisal well on Chuditch-1 has been drilled.

Farm-in-partner and development plans

Farm-in partner most likely a major E&P concern with access to both capital and engineering resources: Given the location of Chuditch, development will of necessity be LNG. The heavy requirement for both capital and engineering resources suggests that a major E&P farm-in partner will be preferred to advance development of the project. An East Asia utility might be a possibility but we think less likely. Such organisations are generally not well versed in oil and gas development and tend to enter projects at a later stage. Bearing in mind the drill or drop decision date on June 18, 2023, securing a funding pathway is a critical task near-term. In our view, it is the major area of risk at this juncture absent an extension to the licence term. Historically extensions have been granted.

PSC has already been extended once: Year 2 of the PSC has already been extended once. We believe that a further extension of six months for securing a farm-in partner is a possibility. Baron has previously indicated that the farm-out process is ongoing and that it has been in talks with multiple potential partners. Following the publication of the CPR and particularly given the identification of 1.1 tcfe of contingent resources, the farm-out process will now be accelerated. A possible outcome could be that a potential farm-out partner decides to buy Baron’s 75% interest in the Chuditch project. This would be the proverbial high-class problem for Baron.

The CPR mentions three development scenarios for Chuditch all involving LNG as follows:

- **LNG processing at Santos Darwin facility:** We believe technically this would be the most plausible development outcome. Field development at Chuditch would be combined with a relatively short c. 100-150 km tie-in to the existing Bayu-Undan-Darwin pipeline. LNG liquefaction would be undertaken at the

Santos operated facility at Wickham near Darwin. Liquids could be handled at Chuditch by a FPSO (floating, production, storage and offloading) vessel.

Santos, the second largest locally listed energy group in Australia, is very familiar with operating in the Timor Sea and is in the throes of expanding the Wickham plant. Notwithstanding Santos's Barossa field development 300 km north of Darwin, the Wickham plant will probably need extra feedstock in the coming years to buoy utilisation at the expanded facility. Santos has the engineering resources and the capital raising capability to undertake large scale field development.

- **Link to Woodside-operated Greater Sunrise project:** The Woodside-operated Greater Sunrise project is based on a 1974 discovery and lies about 100 km north of Chuditch and 150 km south-east of the Timor-Leste shoreline. With resources of over 5 tcf, Greater Sunrise is a large-scale project but is situated remotely in deep water with no easy development options. The Timor-Leste government has promoted development via a gas pipeline linked to a planned petrochemical complex on the coast. Woodside, however, has suggested that this would not be economic. Furthermore, crossing the deep Timor Trough presents a major technical challenge. Woodside's preferred option had been to export gas to Darwin for conversion into LNG. Recently Woodside has indicated that it is prepared to investigate the viability of a Greater Sunrise development linked to Timor-Leste rather than Darwin.

  Conceptually this could open the door for a linked Chuditch development. However, we think it unlikely that the economics of a Greater Sunrise project linked to Timor-Leste have changed radically of late. We also believe that the lead time involved would be very long, given the scope and engineering complexities of a Greater Sunrise project.

- **Floating LNG Vessel:** Baron has proffered the idea of a FLNG (floating liquefied natural gas) development at Chuditch. This would involve producing LNG on a highly specialised vessel at sea before transfer to carriers for onward shipment. An alternative on the floating theme would be to operate from a platform. The key advantage of FLNG technology is the ability to unlock remote, relatively small fields in theory economically. The disadvantages are very high operating costs and safety issues working in confined space. Adverse weather conditions may also pose a challenge.

  FLNG technology is relatively new. Large-scale vessels can cost upwards of US$5bn and have long manufacturing lead times measured in years. So-called hybrid technology linked to a platform and sea-bed facilities could theoretically provide a lower cost option with initial capital costs of perhaps nearer US$1bn. Hybrid FLNG technology, however, is still subject to some of the same operational disadvantages as using full-size vessels.

Development lead time

CPR suggests lead time to first gas possibly optimistic: Baron had been suggesting a development plan for Chuditch that would result in a 60-month lead time to first gas in 2028. The CPR, however, indicates that this is possibly optimistic. Without going into detail in terms of the development scenario, ERCE believes that a 66-90-month lead time could be more realistic. This would imply first gas around 2030.

Contingent resources

Contingent on a viable development plan and funding: The CPR refers to the resources relating to the Chuditch-1 discovery as being contingent. In this context, contingent relates to development being unclarified. For the resources to be non-contingent, the operator would need to finalise a commercially viable development plan and have sufficient funding to execute the plan. This could include obtaining a farm-in partner and obtaining permitting.

Financials

Comfortably financed for commitments in 2023-----We believe Baron is comfortably financed currently in terms of its commitments in 2023 reflecting the £5m gross fund raise in mid-November 2022. The raise was undertaken at 0.12p/share. At end 2022, we estimate that the cash balance was about £5.5m, excluding the $1m bank guarantee relating to the Chuditch licence.

---------excluding expenditure relating to potential Chuditch and Dunrobin wells: We look for a cash outflow in 2023 of £3.42m split £1.47m from operations and £1.95m acquisition of intangibles. The latter relates to capitalised expenditure on the Chuditch and P2478 (Inner Moray Firth) projects and includes such factors as the CPR's, technical studies and P2478 seismic reprocessing costs. Our forecasts for 2023 exclude any well-related planning costs beyond desk studies, should commitments be made on drilling either a Chuditch appraisal well or a Dunrobin exploration well on P2478.

Valuation

Risked valuation

Working interests adjusted for potential farm-ins: Our valuation methodology for Baron Oil continues to reflect a sum-of-the parts calculation where the parts are the projects. Currently, there are two, Chuditch and the Inner Moray Firth Licence P2478. For each, the key components of the valuation are the net resource base, a risking factor which takes into account the geological probability of success and a valuation quotient expressed in US$/boe. We also adjust working interests for anticipated farm-ins.

Valuation quotient increased for Chuditch-1 from US$1.3/boe to US$2.5/boe: We believe that the seismic reprocessing exercise for Chuditch followed by the publication of a CPR have substantially advanced the de-risking process on the project. The upgrade in the resource classification for the Chuditch-1 discovery from best case prospective to contingent is a particularly significant development in the de-risking process. Farm-in interest should potentially be enhanced as a result. Previously we had assigned a valuation quotient to Chuditch-1 of US$1.3/boe. We are now raising this to US$2.5/boe for the Chuditch-1 contingent resources. The other prospects continue to be valued at U$1.3/boe. Our previous valuations have assumed that Baron will seek a free-carry farm-in for Chuditch and that this will necessitate conceding 50% of the equity. Baron's working interest will, therefore, drop from 75% to 37.5%.

Risked valuation for Chuditch increased from US$156m to US$237m: On a risked basis after allowing for a free carry, our risked absolute valuation for Chuditch has increased from US$156.0m to US$237.0m. The Chuditch-1 discovery now accounts for 75% of valuation for the project. At an exchange rate of £1=US$1.22 using 18,920.3m shares outstanding, the latter translates into 1.027p/share against 0.676p/share previously.

Overall risked valuation rises from 0.71p to 1.06p/share: Including the P2478 licence in the Inner Moray Firth, our risked valuation for Baron is US244.5m. This is up from US$163.5m previously, reflecting the upgrade on Chuditch. On a p/share basis, the valuation rises from 0.708p to 1.059p. Note we adjusted the Inner Moray Firth valuation recently for the results of the CPR also following a 3-D seismic re-processing exercise.

Success case

Success case valuation Chuditch >US$854m or 3.70p/share at £1=US$1.22: For Baron and other similar situations, we define a success case as taking a project through exploration, appraisal and FEED (front-end engineering design) to a feasibility study showing viability.

Our valuation on this basis is un-risked but after allowing for farm-in adjustments. Reflecting the substantial element of de-risking on this definition, the valuation quotient should be significantly higher than on a risked basis. We believe that in the event of a success case, Chuditch could sell for at least US$5/boe assuming commodity prices around current levels. This would imply an absolute valuation of >US$854m or 3.70p/share assuming £1=US$1.22 and 18,920.3m shares outstanding.

Announcement of a farm-in partner would be highly influential for the stock: Near-term, the key issue surrounding Baron Oil's valuation concerns securing farm-in partners for Licence P2478 and particularly Chuditch, bearing in mind the heavy near to medium term capital investment requirement and the looming drill or drop dates. An announcement that a farm-in partners has been secured especially for Chuditch is likely to be highly influential for valuation. It should be noted, however, it is likely to be a long and expensive row to hoe on a large project like Chuditch to progress through appraisal/exploration drilling, permitting, FEED, project funding and a successful pre-feasibility study. As we have noted, this might take towards the back end of the current decade.

Exhibit 4: Baron Oil risked valuation summary

Basin	Project	Working interest		Net un-risked mean resources after farm-ins		Risking factor	Net risked mean resources after farm-ins	Valuation quotient	Net un-risked valuation after farm-ins	Risk adjusted valuation after farm-ins - Absolute		
		before farm-ins %	after farm-ins %	bcfe	mmboe	GPOS %	boemm	$/boe	$m	$m	£m	p/share
Bonaparte	Chuditch 1	75.0	37.5	419.8	70.0	100	70.0	2.5	174.9	174.9	143.4	0.758
Timor-Leste	Chuditch Alpha	75.0	37.5	152.5	25.4	52	13.2	1.3	33.0	17.2	14.1	0.074
	Chuditch Beta	75.0	37.5	108.8	18.1	45	8.2	1.3	23.6	10.6	8.7	0.046
	Chuditch NE	75.0	37.5	288.0	48.0	30	14.4	1.3	62.4	18.7	15.3	0.081
	Quokka	75.0	37.5	55.4	9.2	26	2.4	1.3	12.0	15.6	12.8	0.068
	Total	75.0	37.5	1024.4	170.7		108.1		305.9	237.0	194.3	1.027
Moray Firth	UK P2478 Dunrobin/ Golspie	32.0	16.0	193	32.2	23	7.5	1.0	32.2	7.5	6.1	0.032
Total				**1217**	**202.9**		**115.6**		**338.1**	**244.5**	**200.4**	**1.059**

Source: Allenby Capital

Chuditch 1 resources are contingent, other Chuditch/Quokka are Pmean

Working interests have been adjusted for anticipated farm-ins for the first stage of appraisal/exploration.

Risking factors are based on Baron Oil estimates in the case of Chuditch and the RPS CPR for Dunrobin/Golspie.

The risking factor for Chuditch is a composite for the probabilities of success given by Baron for the projects discovery, three prospects and a lead.

P2478 valuation includes both Dunrobin and Golspie prospects and the Jurassic and Triassic formations based on CPR data.

The shares in issue used in the per share calculation is 18,920.3m.

Exchange rate: £1=$1.22.

Exhibit 5: Chuditch project resource statement

	Un-risked resources				Risked resources				
	Mean estimate		Mean estimate		Mean estimate		Mean estimate		Risking
Discovery/prospect	**Gross**		**Net**		**Gross**		**Net**		**factor**
Gas/condensate	**Bcfe**	**boe mm**	**Bcfe**	**boe mm**	**Bcfe**	**boe mm**	**Bcfe**	**boe mm**	**GPOS %**
Chuditch 1 discovery	1119	187	840	140	1119	187	840	140	100
Chuditch SW Alpha	407	68	296	51	211	35	159	26	52
Chuditch SW Beta	290	48	218	36	131	22	98	16	45
Chuditch NE	768	128	576	96	230	38	173	29	30
Quokka	148	25	111	18	38	6	29	5	26
Total	**2732**	**455**	**2039**	**341**	**1730**	**288**	**1298**	**216**	**63**
Condensate									
Chuditch-1	35.4	5.9	26.4	4.4	35.4	5.9	26.4	4.4	100
Chuditch SW Alpha	12.6	2.1	9.6	1.6	6.6	1.1	4.9	0.8	52
Chuditch SW Beta	9.0	1.5	6.6	1.1	4.1	0.7	3.0	0.5	45
Chuditch NE	24.0	4.0	18.0	3.0	7.2	1.2	5.4	0.9	30
Quokka	4.8	0.8	3.6	0.6	1.2	0.2	0.9	0.2	26
Total	**85.8**	**14.3**	**64.2**	**10.7**	**54.5**	**9.1**	**40.7**	**6.8**	**63**

Source: Allenby Capital/CPR

Gas converted at 6000 mcf=1 boe

GPOS is geological probability of success.

Chuditch-1 discovery resources are contingent

All other resources are prospective to SPE PRMS standards.

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