Derek Oil and Gas Corporation

DRK CN
Shares Outstanding 60m
Market Cap C$3.26m
Convertible loan C$1.6m

Overview

Derek Oil and Gas Corporation is a TSX-V Listed oil development and production company concentrating on the 8,000 acre LAK Ranch field, in the Eastern margin of the prolific Powder River Basin, Wyoming, approximately 7 miles from Newcastle and the Wyoming oil refinery. Derek, which had encountered problems recovering its heavy oil, is now positioned to benefit from previous investment and new management with specialist knowledge and experience in heavy oil.

The company has a 95% working interest and a 66% net revenue interest in the play. A study in 2005 by Ivanhoe Energy Inc, the then operator, credited the LAK Ranch with 33mmbo recoverable. In 2006 Ivanhoe decided to concentrate on their proprietary oil upgrading process and withdrew from the project, selling their WI back to Derek, including a 4.4 square mile high-resolution 3D seismic survey carried out over the north portion of the LAK Ranch property. This survey has been instrumental in defining the extent of the Newcastle Sandstone and also delineating potential prospects in the deeper Fall River and Minnelusa Sandstones. No wells have yet been drilled into prospects contained in these deeper stratigraphic units.

Geology/Production

The Powder River Basin is one of the richest petroleum regions of the Rocky Mountains and hydrocarbons have been produced from this basin for over 70 years. Plays are both structural and stratigraphic types, with hydrocarbons occurring in three major reservoir systems, Pennsylvanian Permian, Lower Cretaceous and Upper Cretaceous. A report by the U.S.Geological Survey stated that over 2.7 billion barrels of recoverable oil and 2.3 tcf of gas have been discovered in 700 fields in this basin. Furthermore, it is one of the principal coalfields of the USA and a major source of coal bed methane.

On the LAK Ranch property, oil is located in the Upper Marine and Lower Channel sequences of the Cretaceous age Newcastle Formation, separated by a thin shale unit. Across the mapped area of the property, the Newcastle Zone consists of an Upper and Lower sandstone hydrocarbon with pay sections up to 100 feet in thickness. The structure on the property is a west-southwest plunging syncline (bowl-shaped structure) with a 30° dip. The Newcastle Zone outcrops on surface on the northeast portion of the property and plunges to depths of about 2500 feet on the western property boundary. Oil is currently being produced from the Newcastle Formation at depths of approximately 800 to 1200 feet at the pilot operation.

The Newcastle reservoir pay section consists of 25% porosity with permeability of 500-1000 millidarcies and an oil saturation of 60-65%. Crude oil is 19º API gravity, naphthenic, low in sulphur (0.26%) and has negligible paraffin.

History

Several attempts have been made to develop the LAK Ranch property with various recovery techniques. The low viscosity required EOR techniques and a SAGD pilot project recovered >5mbo

in 2001/2002; Ivanhoe produced >20mbo November 2004 to 2006 with the SAGD horizontal producer coupled with vertical up-dip injectors. They withdrew from the project in 2006.

Derek, with the assistance of petroleum consulting firms, designed and implemented a thermal vertical well pilot area on less than 20 acres. This pilot was a traditional 5 spot thermal pattern to test the economics of vertical well performance rather than drilling the more expensive horizontal wells. This programme resulted in the drilling of 12 wells, (4 injectors, 8 producers) which were completed and on production in September 2007. The infrastructure includes a 27MMBTU steam generator, water separation and disposal units, a fibre optic observation system, an aerial cooler, heater treaters and oil/water storage tanks at a total cost in excess of US$10million.

In late 2007, Derek's new management identified several shortcomings in the engineering of the pilot project and production facilities. Deficiencies such as insufficient steam capacity, inadequate progressive cavity pumps, insufficient insulation on piping and fibreglass piping used instead of metal piping. The fibreglass is not suitable for high temperature steam soaking and steam flooding. The estimated write off due to poor engineering design and implementation is c. $4million.

Current situation

In November 2007 Robert Hurkmans, a production/drilling engineer with over 30 years experience of heavy oil/thermal recovery gained with Shell Oil and Occidental, joined the Company as COO. He has reviewed the LAK Ranch situation and has instituted numerous revisions. He has concluded that the current pilot five spot configuration cannot produce efficiently due to the steep geological dip. Consequently, Derek now have revised the pilot area into an up dip injection configuration by converting three up dip producers into steam injectors and all the down dip injectors have been converted to producers. Introducing heat up dip and producing down dip in conjunction with the steep dip creates a favourable gravity drainage effect for the Co. to improve productivity response. This approach was validated in trials by applying all the resources of the existing steam generator to the 3 injector wells up dip from the existing horizontal well, which is located east of the 12 well programme. Production increased from 25 to 70 bopd.

Bob Hurkmans has obtained and moved to site two 50MMBTU steam generators from the DOE (Department of Energy) Rocky Mountain Testing site located in Wyoming; the first of these will be installed by July '09 which will fulfill all requirements until January 2011, when it is planned to install the second. Bob has also negotiated for twelve beam pump units from the DOE and six of these have been installed with immediate production increases.

There are approximately ten shut in older wells that are suitable for returning to production. These wells will be brought back into the producer/steam-soaking schedule to assist in increasing productivity.

Development plan

Phase I -Three producing wells

Derek is planning to drill/complete three producers near the project pilot area in mid to late 2009. The wells will be initially steam soaked after drilling/completion and then placed on production. Should oil production decline, the wells will be steam soaked a second time. Since these production wells will be located down dip of the existing 1-P legacy horizontal well and its vertical injectors the Co. can expect to possibly have a steam drive response where they will not need to steam soak the new wells

after a first soak cycle. The cost of drilling a producing well is budgeted at $155,000 per well with injectors costs $125,000 per well. Ten old wells will also be returned to production.

Phase II - Thirty one producing wells
To continue with the steam drive expansion project Derek expects to start drilling additional wells in December 2009. The Company will drill four up dip injectors and four producers and continue drilling three producers per month for a total of 27 wells from April 2010 through December 2010.

Phase III -Seventy two producing wells
The next drilling programme will consist of six wells per month until the project is complete in December 2011 for a total of 72 wells.

Production

The wells will be steam soaked after completion and production is anticipated to increase from an initial 3 bopd cold production to 25 bopd after 5 months per well. The decline rate is calculated to be 0.976% per month and the wells will be re-soaked after production declines to ~10 bopd.

Total net barrels of oil per day production to the company is forecasted as follows:

June 2009	34
Dec 2009	180
Dec 2010	288
June 2011	571
Dec 2011	1,000
June 2012	1,600

The LAK Ranch oil is gathered by Teppco LLP and sent by truck to the refinery in Newcastle. Derek receives WTI less c.8%. Once production reaches 500 bopd the Wyoming Refining Company in Newcastle has offered to install a pipeline. They require the sweet crude for blending with sour Canadian crude oils and the heavy oil discount Derek receives will narrow.

Fully amortised recovery costs @ 500 bopd are $27.50 per barrel and fall to $24.75pb @ 1m bopd.

Capital Requirements

An initial capital injection of US$3.5 million is required to fund Phase I and II up to the point where sufficient cash flow is generated to complete the entire development, (Phases I, II, and III) with a $5.0 million operating line of credit. Derek proposes to raise this initial capital by way of an equity placement of units in the company. Each Cdn $0.07 unit to consist of 1 share and 1/2 share purchase warrant with a strike price of Cdn$0.12 and a term of 12 months.

Financials

Select financial forecasts from the project are as follows:

	Dec. '09	Dec. '10	June '11	Dec. '11	June '12
# barrels	9,700	26,600	43,333	66,667	75,000
Price per barrel	50	50	60	60	70
Gross Sales	$485,000	$1,330,000	$2,600,000	$4,000,000	$5,250,000
Cost of Sales	$365,000	$790,000	$1,200,000	$1,660,000	$2,050,000
Sales net to Derek	$30,000	$365,000	$950,000	$2,000,000	$2,700,000
Monthly Cash Flow	$30,216	$368,076	$963,000	$2,000,931	$2,750,000
Capex	$1,620,278	$1,076,667	$1,868,333	$1,108,333	nil
Shares issued (pre-dilution from options/ warrants)	120,428,450	166,317,339	178,317,379	178,317,379	178,317,379
Cash flow per share-Cdn $	$0.003	$0.03	$0.072	$0.15	$0.206
Cash on hand	$250,000	$1,250,000	$4,500,000	$1,900,000	$13,000,000

The financial forecast has assumed a realized oil price of $50 a barrel through December 2010, $60 a barrel for 2011, and $70 a barrel for 2012.

Capital structure

The pro-forma effect of the equity raise on the capital structure up to **June 2012** is summarized below:

Shares issued May 2009	60,428,450
July 09 pp-US$3,500,000@0.07cdn per unit-unit is one share and one half warrant @ 0.12cdn	60,000,000
Haegelin converts promissory notes 1-3	5,888,889
Exercise of June pp warrants in May of 2010	30,000,000
Exercise of July 08 wts@.20-june 2010	10,000,000
Haegelin loan conversion-assumes converts 1,000,000us @0.10	12,000,000
Pro-Forma Shares Issued	178,317,339
Options outstanding	2,350,000
Warrants outstanding	1,100,000
Fully diluted	181,767,339

SP Angel Contacts

Jimmy Couldrey

Tel: +44 20 7647 9645

Mob: +44 7770 433012

jimmy.couldrey@spangel.uk

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