

Rating: Buy  
S&P 500: 1176

## Berry Petroleum Company Oil in the Kitty Litter

<i>Symbol</i>	BRY	<i>Ebitda Next Twelve Months ending 3/31/06 (US\$m)</i>	226
<i>Rating</i>	Buy	<i>North American Natural Gas/Ebitda (%)</i>	13
<i>Price (\$/sh)</i>	47.49	<i>Natural Gas and Oil Production/Ebitda (%)</i>	100
<i>Pricing Date</i>	5/4/05	<i>Adjusted Reserves/Production NTM</i>	11.2
<i>Shares (mm)</i>	22	<i>EV/Ebitda</i>	5.4
<i>Market Capitalization (\$mm)</i>	1,070	<i>PV/Ebitda</i>	5.7
<i>Debt (\$mm)</i>	160	<i>Undeveloped Reserves (%)</i>	30
<i>Enterprise Value (EV) (\$mm)</i>	1,230	<i>Natural Gas and Oil Ebitda (\$/boe)</i>	27.60
<i>Present Value (PV) (\$mm)</i>	1,280	<i>Present Value Proven Reserves(\$/boe)</i>	10.30
<i>Net Present Value (\$/share)</i>	50	<i>Present Value Proven Reserves(\$/mcf)</i>	1.70
<i>Debt/Present Value</i>	0.12	<i>Earnings Next Twelve Months (US\$/sh)</i>	3.60
<i>McDep Ratio - EV/PV</i>	0.96	<i>Price/Earnings Next Twelve Months</i>	13
<i>Dividend Yield (%/year)</i>	1.0	<i>Indicated Annual Dividend (US\$/sh)</i>	0.48

Note: Estimated cash flow and earnings tied to one-year futures prices for natural gas and oil.

Reported results may vary widely from estimates. Estimated present value per share revised only infrequently.

### Summary and Recommendation

We continue a buy-rating on the common shares of small cap **Berry Petroleum (BRY)** for representation in growing volume and rising value of domestic oil and gas production. The recent disclosure of test results seems to increase the probability that a long-known, but heretofore non-commercial, resource may add some 50 million barrels, or 40%, to proven reserves eventually. Though an alert trader might have sold when the stock hit a temporary high of \$65 in early March, current stock price is below estimated present value of \$50 a share where the unlevered long-term return would be 7% per year after inflation. Present value also presumes a constant real price of light, sweet crude oil of \$40 a barrel, a number that may prove to be low as an uptrend in oil price continues. The main risk may be that commodity price can also decline for the heavy crude oil that Berry produces.

### Diatomite Pilot Produces

Management discloses that five wells are producing a total of 100 barrels a day from a shallow formation that overlies a significant portion of Berry's Midway-Sunset oil production in California. During the rest of 2005, 26 wells are planned to be drilled into the diatomite formation. Management now expects to make a decision on commerciality by year end 2005 as disclosed in Form 10-Q just filed with the Securities and Exchange Commission. The timing of the decision has been moved forward from 2006 stated most recently in Form 10-K filed with the SEC only weeks earlier.

Berry's diatomite resource apparently contains some 200-250 million barrels in place. Officially, none is considered commercially recoverable. The aim of the pilot program is to develop techniques that could recover 20% of the oil-in-place. At that recovery factor the proven reserves would approximate 50 million barrels. Berry's total currently proven reserves are 125 million barrels equivalent.

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The name of the formation refers to “diatomites”, once tiny sea creatures. Each little diatomite, if we understand the theory correctly, occupies its own space in the rock and has now been filled with oil. The amount of void space filled with oil is unusually high, perhaps 60% or more. Once the oil is removed, the spaces in the rock tend to collapse, causing sinking on the surface above if not dealt with proactively.

The original space occupied by diatomites apparently contributes to the great absorbency in the litter boxes for pet cats. The diatomite material in kitty litter is naturally broken up so moisture can travel to the absorbent void space. In the diatomite rock formation there is unusually low connectivity between pores containing oil. Oil people call that low permeability. Thus getting the oil to flow from pore spaces to a well bore is the challenge. Berry does not say how that challenge is being met though we know steaming is involved as it is in most of Berry’s oil production in California.

In a nearby location, **ChevronTexaco (CVX)** apparently produces commercially from the diatomite. We understand that the density of wells may be as tight as one or more per acre of surface.

The diatomite formation occurs from the surface to about 750 feet below the surface. It could be strip mined!

Midway-Sunset is a great old oil field that has been producing for a hundred years and only recently achieved its highest rate of production. A great old gas field, the San Juan Basin has a similar history of continuing to deliver more. The parallel is the Fruitland Coal formation that occurred above the deeper Mesa Verde, Dakota and other gas formations. It was long known that the Fruitland Coal contained a lot of gas. Not until the late 1980s did **Burlington Resources (BR)** lead the innovative development that turned a non-commercial oddity into a valuable resource.

### **Transformation to Natural Gas and Light Oil**

For the first time we calculate a separate value for Berry’s natural gas reserves (see table Functional Cash Flow and Present Value). An acquisition of producing properties in the Niobrara trend of Colorado and Nebraska boosts the importance of natural gas production. We don’t show it separately, but some ten percent of oil reserves now consist of light oil in Utah to counterbalance the company’s traditional heavy oil in California.

<b>Berry Petroleum Company</b>					
<b>Functional Cash Flow and Present Value</b>					
	<i>NTM Ebitda</i>	<i>Adjusted</i>	<i>PV/</i>	<i>Present</i>	
	<i>(US\$mm)</i>	<i>R/P</i>	<i>Ebitda</i>	<i>Value</i>	
				<i>(US\$mm)</i>	
North American Natural Gas	30	11.4	6.7	200	16%
Oil	196	11.2	5.5	1,080	84%
	226	7.6	5.7	1,280	100%
Debt (US\$mm)					160
Net Present Value (US\$mm)					1,120
Shares (mm)					22
Net Present Value (US\$/sh)					50

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There is no cash flow in our projection for the diatomite. At a low multiple of cash flow, present value is justified without any recognition for a large resource not yet reported as proven.

### Smart Contract Expires at Year End

Oil and gas production volume is likely to continue climbing though we assume a flat trend. The Company has a sales contract under which it sells 97% of its California oil production at a price about \$6 a barrel less than the Light, Sweet Crude benchmark, also known as WTI Cushing. The current market price for California heavy oil is about \$14 a barrel less than WTI. The contract expires December 31, 2005 after which we project a lower oil price for Berry (see table [Quarterly Results](#)).

Berry Petroleum Company Quarterly Results																					
	Q3		Q4		Year		Q1		Q2E		Q3E		Q4E		Year		Q1E		Next Twelve Months		
	9/30/04		12/31/04		2004		3/31/05		6/30/05		9/30/05		12/31/05		2005E		3/31/06		3/31/06		
<b>Volume</b>																					
Natural Gas (mmcf)	9.1	9.1	5.1	17.3	20.0	20.0	20.0	20.0	19.3	20.0	20.0	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	20.0	20.0
Oil (mbd)	19.32	19.90	19.20	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16	19.16
Total (mbd)	20.8	21.4	20.0	22.0	22.5	22.5	22.5	22.5	22.4	22.5	22.5	22.5	22.5	22.4	22.5	22.5	22.5	22.5	22.5	22.5	22.5
<b>Price</b>																					
Henry Hub (\$/mmbtu)	5.75	7.10	6.15	6.27	6.94	6.86	7.42	6.87	8.10	7.33	6.87	8.10	7.33	6.87	8.10	7.33	6.87	8.10	7.33	6.87	8.10
Differential (\$/mmbtu)	(0.23)	0.85	0.26	0.79	0.87	0.86	0.93	0.84	0.93	0.92	0.84	0.93	0.92	0.84	0.93	0.92	0.84	0.93	0.92	0.84	0.93
Company (\$/mcf)	5.98	5.93	5.89	5.48	6.07	6.00	6.49	6.03	7.08	6.41	6.03	7.08	6.41	6.03	7.08	6.41	6.03	7.08	6.41	6.03	7.08
WTI Cushing (\$/bbl)	43.89	48.31	41.44	49.65	51.36	53.43	54.36	52.20	54.12	53.32	52.20	54.12	53.32	52.20	54.12	53.32	52.20	54.12	53.32	52.20	54.12
Differential	8.31	8.47	9.17	8.47	8.42	8.76	8.91	3.13	14.19	10.05	3.13	14.19	10.05	3.13	14.19	10.05	3.13	14.19	10.05	3.13	14.19
Company	35.58	39.84	32.27	41.51	42.94	44.67	45.45	49.07	39.93	43.27	49.07	39.93	43.27	49.07	39.93	43.27	49.07	39.93	43.27	49.07	39.93
Total (\$/bbl)	35.60	39.54	34.48	40.38	41.98	43.38	44.48	42.58	40.31	42.55	42.58	40.31	42.55	42.58	40.31	42.55	42.58	40.31	42.55	42.58	40.31
<b>Revenue (\$mm)</b>																					
Natural Gas	5	5	11	9	11	11	12	43	13	47	43	13	47	43	13	47	43	13	47	43	13
Oil	63	73	242	72	75	79	80	305	69	303	305	69	303	305	69	303	305	69	303	305	69
Other, incl hedge	(7)	(10)	(26)	(5)				(5)			(5)			(5)			(5)			(5)	
Total	62	67	227	75	86	90	92	343	82	349	343	82	349	343	82	349	343	82	349	343	82
<b>Expense</b>																					
Lease operating	22	22	81	23	25	25	25	98	24	99	98	24	99	98	24	99	98	24	99	98	24
General and administrative	4	5	17	5	6	6	6	23	6	25	23	6	25	23	6	25	23	6	25	23	6
Total	26	27	98	28	31	31	31	121	30	123	121	30	123	121	30	123	121	30	123	121	30
<b>Ebitda</b>	35	40	128	47	55	59	61	222	51	226	222	51	226	222	51	226	222	51	226	222	51
Exploration	-	1	1	3	3	3	3	10	1	9	10	1	9	10	1	9	10	1	9	10	1
Deprec., Deplet., & Amort.	8	9	33	9	11	11	11	43	11	45	43	11	45	43	11	45	43	11	45	43	11
Other, incl hedge	(0)	0	(0)	1	9	11	12	32	12	43	32	12	43	32	12	43	32	12	43	32	12
<b>Ebit</b>	27	30	95	34	32	34	35	136	27	129	136	27	129	136	27	129	136	27	129	136	27
Interest	1	0	2	1	1	1	1	5	1	5	5	1	5	5	1	5	5	1	5	5	1
<b>Ebt</b>	27	30	93	33	31	33	34	132	26	124	132	26	124	132	26	124	132	26	124	132	26
Income Tax	8	4	22	11	11	12	12	45	9	44	45	9	44	45	9	44	45	9	44	45	9
<b>Net Income (\$mm)</b>	18	25	71	22	20	21	22	86	17	81	86	17	81	86	17	81	86	17	81	86	17
Per Share (\$)	0.82	1.13	3.18	1.00	0.90	0.96	0.99	3.85	0.75	3.60	3.85	0.75	3.60	3.85	0.75	3.60	3.85	0.75	3.60	3.85	0.75
<b>Shares (millions)</b>																					
Lease operating (\$/bbl)	11.53	11.12	11.07	11.79	12.00	12.00	12.00	11.95	12.00	12.00	11.95	12.00	12.00	11.95	12.00	12.00	11.95	12.00	12.00	11.95	12.00
General and admin (\$/bbl)	2.21	2.64	2.33	2.42	3.00	3.00	3.00	2.86	3.00	3.00	2.86	3.00	3.00	2.86	3.00	3.00	2.86	3.00	3.00	2.86	3.00
Deprec., D, & A (\$/bbl)	4.34	4.67	4.53	4.69	5.50	5.50	5.50	5.30	5.50	5.50	5.30	5.50	5.50	5.30	5.50	5.50	5.30	5.50	5.50	5.30	5.50
Ebitda Margin	57%	60%	57%	63%	64%	65%	66%	65%	63%	65%	65%	63%	65%	65%	63%	65%	65%	63%	65%	65%	63%
Tax rate	31%	15%	23%	33%	35%	35%	35%	34%	35%	35%	34%	35%	35%	34%	35%	35%	34%	35%	35%	34%	35%

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## Buy Oil and Gas Producers at Mid Decade

Multi-fold gain potential for oil and gas price over the years ahead justifies investment in recommended oil and gas producers, in our opinion. A McDep Ratio of 1.0 implies that a stock is valued at present value assuming a constant real oil price of US\$40 (see table [Rank by McDep Ratio](#)). That is lower than the current benchmark oil average futures price for the next six years of about US\$51 a barrel. Moreover the average price of oil for continuous delivery over the next six years is in a multi-year uptrend as defined by the current quotes above the 40-week average of about \$42 a barrel.

### Rank by McDep Ratio: Market Cap and Debt to Present Value

	<i>Symbol/ Rating</i>		<i>Price (\$/sh) 4-May 2005</i>	<i>Shares (mm)</i>	<i>Market Cap (\$mm)</i>	<i>Net Present Value (\$/sh)</i>	<i>Debt/ Present Value</i>	<i>McDep Ratio</i>
<b>Independent Natural Gas and Oil - Small Cap</b>								
Berry Petroleum Company	BRY	B	47.49	22	1,070	50.00	0.12	0.96
Energy Partners Ltd.	EPL	B	22.83	39	900	30.00	0.20	0.81
Cimarex Energy Company	XEC	B	36.60	81	2,950	50.00	0.15	0.77
Encore Acquisition Company	EAC	B	37.30	33	1,220	57.00	0.19	0.72
		<i>Total or Median</i>			<i>6,100</i>		<i>0.17</i>	<i>0.79</i>

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