

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 11-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2006

OR

TRANSITION REPORT PURSUANT TO SECTION 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 (NO FEE REQUIRED)

For the Transition Period From

Commission File Number 1-9735

A. Full title of the Plan and the address of the Plan, if different from that of the issuer named below:

BERRY PETROLEUM COMPANY THRIFT PLAN

B. Name of issuer of the securities held pursuant to the Plan and the address of its principal executive office:

Berry Petroleum Company
5201 Truxtun Avenue, Suite 300
Bakersfield, CA 93309

BERRY PETROLEUM COMPANY THRIFT PLAN

INDEX

Report of Independent Registered Public Accounting Firm	2
Financial Statements	
Statements of Net Assets Available for Benefits as of December 31, 2006 and 2005	3
Statement of Changes in Net Assets Available for Benefits for the year ended December 31, 2006	4
Notes to Financial Statements	5
Supplemental Schedule	
Schedule H, Line 4i - Schedule of Assets (Held at End of Year) as of December 31, 2006	12

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Administrators of the
Berry Petroleum Company Thrift Plan:

We have audited the accompanying statements of net assets available for benefits of the Berry Petroleum Company Thrift Plan (the Plan) as of December 31, 2006 and 2005, and the related statement of changes in net assets available for benefits for the year ended December 31, 2006. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. The Plan is not required to have, nor were we engaged to perform, an audit of its internal controls over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Plan's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2006 and 2005 and the changes in its net assets available for benefits for the year ended December 31, 2006, in conformity with accounting principles generally accepted in the United States of America.

Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets (held at end of year) as of December 31, 2006, is presented for the purpose of additional analysis and is not a required part of the basic 2006 financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This supplemental schedule is the responsibility of the Plan's management. The supplemental schedule has been subjected to the auditing procedures applied in our audit of the basic 2006 financial statements and, in our opinion, is fairly stated in all material respects, in relation to the basic 2006 financial statements taken as a whole.

As further described in Note 2, the Plan adopted Financial Accounting Standards Board Staff Position, AAG INV-1 and SOP 94-4-1, *Reporting of Fully Benefit-Responsive Investment Contracts Held by Certain Investment Companies Subject to the AICPA Investment Company Guide and Defined-Contribution Health and Welfare and Pension Plans*, for the years ended December 31, 2006 and 2005.

KMJ Corbin & Company LLP

Irvine, California
July 10, 2007

BERRY PETROLEUM COMPANY THRIFT PLAN
Statements of Net Assets Available for Benefits
December 31, 2006 and 2005

	2006	2005
ASSETS:		
Investments, at fair value:		
Interest bearing cash	\$ 243,292	\$ 157,632
Shares in registered investment companies	18,814,921	14,773,872
Common and collective trust	4,673,161	5,589,077
Common stock of sponsor	4,271,131	2,956,954
Participants loans	502,959	692,721
	28,505,464	24,170,256
Non-interest bearing cash	-	119,409
Accrued income	1,032	562
	28,506,496	24,290,227
Adjustment from fair value to contract value for fully benefit-responsive investment contracts		
	46,969	63,451
Net assets available for benefits	\$ 28,553,465	\$ 24,353,678

The accompanying notes are an integral part of these financial statements.

BERRY PETROLEUM COMPANY THRIFT PLAN
Statement of Changes in Net Assets Available for Benefits
Year Ended December 31, 2006

ADDITIONS:

Additions to net assets attributable to:	
Contributions:	
Participants	\$ 1,720,366
Employer	1,211,832
Rollovers	202,419
	<u>3,134,617</u>
Interest and dividends	1,434,508
Interest on participant loans	45,301
Net appreciation in fair value of investments	1,521,172
	<u>3,000,981</u>
Total additions	<u>6,135,598</u>

DEDUCTIONS:

Deductions from net assets attributable to:	
Administrative fees	4,137
Deemed distributions of participant loans	7,714
Benefits paid to participants	<u>1,923,960</u>
Total deductions	<u>1,935,811</u>
Net increase in net assets	4,199,787
Net assets available for benefits:	
Beginning of year	<u>24,353,678</u>
End of year	<u>\$ 28,553,465</u>

The accompanying notes are an integral part of these financial statements.

BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS

Note 1. Description of Plan

The following description of the Berry Petroleum Company Thrift Plan (the Plan) is provided for general information purposes only. Participants should refer to the Plan Agreement for more complete information.

General

The Plan is sponsored and administered by Berry Petroleum Company (the Company or Plan Sponsor). The Plan is a defined contribution plan under Section 401(a) of the Internal Revenue Code (the Code), which includes a cash or deferred arrangement under 401(k) of the Code, and is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA), as amended. Employees of the Company are immediately eligible for enrollment in the Plan upon their hire date.

Contributions

Employees who elect to participate in the Plan may contribute from 1% to 60% of their eligible compensation, as defined in the Plan Agreement. Effective January 1, 2006, the Plan was amended to change the Company match from a variable rate ranging from 6% to 9% to a 100% match of each participant's contribution up to the first 8% of the participant's eligible compensation.

In 2007, the Plan was amended to allow employees to contribute their 401(k) contributions to a Roth 401(k) account. The first Roth 401(k) contributions began April 1, 2007.

Participant and employer contributions are subject to statutory limitations, which for 2006 were \$15,000 pre-tax and \$44,000 for total employee and employer contributions, respectively. Employees who have attained the age of 50 by the end of the Plan year are eligible to make an additional catch-up contribution, for which the limit was \$5,000 for 2006. Participants vest immediately in their contributions, and vesting in employer contributions is at a rate of 20% per year of service during the first five years of employment. In addition, participants may elect to contribute a percentage of eligible compensation into the Plan on an after-tax basis or as noted above as a Roth 401(k) contribution. After-tax contributions are subject to special Internal Revenue Code rules which must be satisfied and reduce the maximum amount a participant may contribute. Any contributions that adversely affect the Plan's non-discrimination tests may be refused or refunded.

Contributions made by or on behalf of Plan participants are invested as directed by the participants and held under a trust agreement in one or more of the investment options selected by the Plan Sponsor in accordance with the provisions of the Plan Agreement. Employees may choose to have their contributions invested in the Fidelity Managed Income Portfolio, the Berry Petroleum Company Common Stock Fund and a selection of mutual funds.

**BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS**

Note 1. Plan Description, continued

Investment Funds

The investment selections available to participants are as follows:

Berry Petroleum Company Common Stock Fund	Spartan U.S. Equity Index Fund
Fidelity Managed Income Portfolio	CRM Mid Cap Fund (1)
Fidelity Contrafund	ABF Small Cap Value PA Fund
Fidelity Diversified International Fund	ABF Large Cap Value PA Fund
Fidelity Inflation Protected Bond Fund	Morgan Stanley Institutional -
Fidelity Low-Priced Stock Fund	Equity Growth Portfolio B Fund
Fidelity Puritan Fund	PIMCO High Yield Admin Fund
Fidelity U.S. Bond Index Fund	RS Smaller Company Growth Fund
Fidelity Freedom Income Fund	
Fidelity Freedom Funds (2)	

- (1) Option added as of February 27, 2006.
(2) The entire range of Freedom Funds are available and comprise the Freedom 2000, 2005, 2010, 2015, 2020, 2025, 2030, 2035, 2040, 2045 and 2050. Not all of these funds are currently being used by participants.

The following investments had fair values at December 31, 2006 and 2005 representing more than 5% of net assets available for benefits:

	2006	2005
Fidelity Managed Income Portfolio	\$ 4,673,161 (a)	\$ 5,589,077 (a)
Berry Petroleum Company Common Stock Fund	4,515,424 (b)	3,234,557 (b)
Fidelity Diversified International Fund	3,949,574	2,553,393
Fidelity Contrafund	3,378,562	3,083,824
Fidelity Low-Priced Stock Fund	2,875,574	2,600,759
Spartan U.S. Equity Index Fund	2,236,371	2,106,217
ABF Large Cap Value PA Fund	1,559,371	*

- * Indicates that the investment balance represented less than 5% of the Plan's assets.
(a) The schedule reflects the fair value. The contract value of the investment at December 31, 2006 and 2005, was \$4,720,130 and \$5,652,528, respectively.
(b) Investment balances include cash and cash equivalents of \$243,261 and \$277,041 at December 31, 2006 and 2005, and accrued income of \$1,032 and \$562 at December 31, 2006 and 2005, respectively.

**BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS**

Note 1. Plan Description, continued

Trustees and Administration

The Company has entered into a trust agreement with Fidelity Management Trust Company (Fidelity) to handle duties as the named Trustee for the Plan. Three officers of the Company, Walter B. Ayers, Ralph J. Goehring and Kenneth A. Olson, are the Administrators of the Plan, and Berry Petroleum Company is the Plan Sponsor. The Administrators have the authority to delegate plan administration duties as necessary. On November 16, 2006, the Board of Directors of Berry Petroleum Company approved Mr. Ayers replacing Mr. Heinemann as an Administrator for the Plan. Certain administrative expenses are paid by the Company. Fidelity, as the Trustee, receives contributions from the Plan Sponsor, invests and reinvests the Plan's assets, determines the market value of Plan assets, prepares statements and processes loans and withdrawals to beneficiaries.

Participant Accounts

Participants can access their accounts at any time with Fidelity's Net Benefits online service. Each participant account is credited with the participant's and the Company's contributions, and the allocation of any Plan earnings or losses. Earnings or losses are allocated on a fund-by-fund basis. Allocations are based on the ratio of the participant's account balance in each investment option to the total assets of the investment option. Forfeitures of terminated participants' non-vested accounts may be allocated to participants' accounts as an additional Company match or used to offset Plan expenses. If there is an allocation of forfeitures to participants' accounts, it is based on service units from 0 to 12 depending on months of service during the year. Only employees who are active participants at December 31 each year are eligible for the allocation of forfeitures to their accounts. The Plan had unallocated forfeitures at December 31, 2006 and 2005 of \$41,619 and \$29,939, respectively, which were allocated to participants accounts in January 2007 and 2006, respectively.

Participant Loans

Participants are entitled to borrow from their vested account balances in amounts from \$1,000 to \$50,000, but not in excess of 50% of their vested account balances. Interest is computed based on the prime rate in the Wall Street Journal on the date of the application, plus 1%. A maximum of two loans can be outstanding at any one time and each loan must be repaid over a period of 1 to 5 years, unless the loan is for the purchase of a principal residence, in which case the loan may be repaid over a period of 10 years. Each loan is supported by a promissory note with the participant's account balance as collateral. In the event of default, death, disability or termination of employment, the entire outstanding principal balance and accrued interest may become immediately due and payable.

Hardship Withdrawals

The Plan allows for hardship withdrawals to pay certain housing, health or education expenses if the participant does not have other funds available for these expenses. Internal Revenue Service (IRS) regulations require that a participant cannot make contributions to the Plan for six months after taking a hardship withdrawal. In addition, participants will not receive matching contributions or forfeitures for the six months they are ineligible to participate in the Plan. For the year ended December 31, 2006, the Plan had no hardship withdrawals.

**BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS**

Note 1. Plan Description, continued

Payment of Benefits

Upon termination of service due to retirement, death, disability or other reasons, the participant or beneficiary, in the case of death, can request withdrawal of his or her account equal to the value of the vested balance in the participant account, reduced by any unpaid loan balance. If desired, a participant can leave the account balance in the Plan until the participant attains the age 70 1/2 unless the participant's vested account balance is less than \$5,000, in which case the vested account balance can be distributed to the participant. The Plan allows withdrawals from the participant accounts in the form of installment payments in addition to lump sum distributions.

Plan Termination

Although it is anticipated that the Plan will remain in effect indefinitely, the Company has the right to discontinue its contributions and terminate the Plan subject to the provisions of the Employee Retirement Income Security Act of 1974. In the event of complete or partial termination of the Plan, participants become 100% vested in the employer contributions and earnings thereon. Upon termination of the Plan, all participants have equal priority in the distribution of any Plan assets in excess of Plan liabilities.

Note 2. Summary of Significant Accounting Policies

Basis of Accounting

The Plan's financial statements are prepared using the accrual method of accounting in accordance with accounting principles generally accepted in the United States of America.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of net assets available for benefits and changes therein. Actual results could differ from those estimates.

Investments

Investments are stated at fair value. Quoted market prices are used to determine the fair value of the equity securities of the Berry Petroleum Company Stock Fund. Investments in shares of registered investment companies are stated at fair value, based on the net asset value of the underlying investments and are valued daily. Investments in common and collective trusts are stated at fair value based on the value of the underlying investments as determined by the Trustee and are expressed in units. Participant loans are stated at cost, which approximates fair value.

**BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS**

Note 2. Summary of Significant Accounting Policies, continued

Investments, continued

The Fidelity Managed Income Portfolio Fund (Managed Income Fund) consist primarily of investments in short-term bonds and other fixed income securities, mortgage backed securities, asset-backed securities and derivative instruments. The Managed Income Fund also purchases third party wrap contracts and investment contracts offered by insurance companies and other approved financial institutions that provide for the payment of a specified rate of interest. The Managed Income Fund is considered to be fully benefit-responsive, and the wrap and investment contracts in the fund assure that payments will be made for participant directed withdrawals at contract value. In determining the net assets available for benefits, the Managed Income Fund is included in the accompanying financial statement at contract value, which represents contributions made under the contract plus earnings, less withdrawals and administrative expenses. As provided in the FSP (see below) an investment contract is generally valued at contract value, rather than fair value, to the extent it is fully benefit-responsive. The average yield to maturity and crediting interest rate for the fund was approximately 4.27% and 3.65% at December 31, 2006 and 2005, respectively.

In accordance with the policy of stating Plan assets at their fair value, the Plan presents the net appreciation (depreciation) in the fair value of its investments in the statement of changes in net assets, which consists of the realized gains or losses and the unrealized appreciation (depreciation) on those investments.

Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Dividends are recorded on the ex-dividend date.

Payment of Benefits

Benefit payments to participants are recorded when paid.

Expenses of the Plan

The Plan's administrative expenses are paid by either the Plan or the Plan's Sponsor as provided by the Plan Agreement.

Adoption of New Accounting Pronouncement

As described in the Financial Accounting Standards Board Staff Position, FSP AAG INV-1 and SOP 94-4-1, *Reporting of Fully Benefit-Responsive Investment Contracts Held by Certain Investment Companies Subject to the AICPA Investment Company Guide and Defined Contribution Health and Welfare and Pension Plans* (the FSP), investment contracts held by a defined contribution plan are required to be reported at fair value. However, contract value is the relevant measurement attribute for that portion of the net assets available for benefits of a defined contribution plan attributable to fully benefit-responsive investment contracts because contract value is the amount participants would receive if they were to initiate permitted transactions under the terms of the plan. As required by the FSP, the Statement of Net Assets Available for Benefits presents the adjustments of the investment contracts from fair value to contract value. The Statement of Changes in Net Assets Available for Benefits is prepared on a contract value basis.

**BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS**

Note 2. Summary of Significant Accounting Policies, continued

Adoption of New Accounting Pronouncement, continued

The Plan has adopted the financial statement presentation and disclosure requirements effective December 31, 2006 and retroactively restated the statement of net assets for the periods presented. The effect of adopting the FSP had no impact on net assets which have been historically presented at contract value.

Note 3. Tax Status

Fidelity Management Trust Company, the Plan's Trustee, received a favorable IRS Determination Letter from the IRS for their Prototype Plan (the Prototype Plan) in November 2002. On June 1, 2003, the Company adopted Fidelity's Prototype 401(k) Plan conforming the operations of the Plan to the Prototype Plan, thereby allowing the Company to rely on Fidelity's current and future favorable IRS determination letters. Although the Plan has been amended since receiving the determination letter, the Plan Sponsor believes the Plan is designed, and is currently being operated, in compliance with the applicable requirements of the Internal Revenue Code.

Note 4. Transactions with Parties-in-Interest and Related Party Transactions

During the years ended December 31, 2006 and 2005, there were transactions involving investment of Plan assets in investment funds maintained by the Plan's Trustee and participant loans. The Trustee and participants are considered to be parties-in-interest as defined in Section 3(14) of ERISA. One of the Plan's investment options is Berry Petroleum Company Common Stock which is purchased by the Plan's Trustee in the open market.

During the year ended December 31, 2006, the Plan Sponsor paid \$52,229 of Plan administration and employee education costs. In addition, as of December 31, 2006 and 2005, the Plan had outstanding participant loan balances of \$502,959 and \$692,721, respectively. All of these transactions are considered exempt party-in-interest transactions under ERISA.

**BERRY PETROLEUM COMPANY THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS**

Note 5. Reconciliation of Financial Statements to Form 5500

The following is a reconciliation of net assets available for plan benefits per the financial statements to the amount per the Form 5500 as of December 31, 2006:

Net assets available for benefits per the financial statements	\$ 28,553,465
Adjustment from fair value to contract value for fully benefit-responsive investment contracts	<u>(46,969)</u>
Net assets available for benefits per the Form 5500	<u>\$ 28,506,496</u>

The following is a reconciliation of investment income per the financial statements to the amount per the Form 5500 for the year ended December 31, 2006:

Investment income per the financial statements	\$ 3,000,981
Adjustment from fair value to contract value for fully benefit-responsive investment contracts for the year ended December 31, 2006	<u>(46,969)</u>
Investment income per the Form 5500	<u>\$ 2,954,012</u>

Note 6. Risks and Uncertainties

The Plan provides for investments in any combination of mutual funds, Berry Petroleum Company Common Stock and a Managed Income Portfolio, with different investment strategies. These investments are exposed to various risks, such as interest rate, market and credit risks. Due to the level of risk associated with certain investments and the level of uncertainty related to the changes in the value of these investments, it is at least reasonably possible that changes in risks in the near term would materially affect participants' account balances and the amounts reported in the statements of net assets available for benefits and the statement of changes in net assets available for benefits.

BERRY PETROLEUM COMPANY THRIFT PLAN
Plan # 002 EIN # 77-0079387
Schedule I - Schedule H, Line 4i Schedule of Assets (Held at End of Year)
As of December 31, 2006

(a)	(b)	(c)	(e)
Identity of issue, borrower, lessor, or similar party	Description of investment, including maturity date, rate of interest, collateral, par or maturity value	Current Value	
*	Fidelity Managed Income Portfolio	Common Collective Trust	\$ 4,673,161
*	Berry Petroleum Company Common Stock Fund ***	Class A Common Stock Fund (\$0.01 par value)	4,515,424
*	Fidelity Diversified International Fund	Mutual Fund	3,949,574
*	Fidelity Contrafund	Mutual Fund	3,378,562
*	Fidelity Low-Priced Stock Fund	Mutual Fund	2,875,574
*	Spartan U.S. Equity Index Fund	Mutual Fund	2,236,371
	ABF Large Cap Value PA Fund	Mutual Fund	1,559,371
	CRM Mid Cap Val Inv Fund	Mutual Fund	749,893
*	Fidelity Freedom 2020 Fund	Mutual Fund	510,718
	Morgan Stanley Institutional Equity Growth B Fund	Mutual Fund	494,784
	ABF Small Cap Value PA Fund	Mutual Fund	488,815
	RS Smaller Co. Growth Fund	Mutual Fund	407,689
*	Fidelity US Bond Index Fund	Mutual Fund	352,350
*	Fidelity Freedom 2030 Fund	Mutual Fund	329,333
*	Fidelity Puritan Fund	Mutual Fund	298,877
*	Fidelity Freedom 2010 Fund	Mutual Fund	280,765
	Pimco High Yield Admin Fund	Mutual Fund	268,494
*	Fidelity Freedom 2040 Fund	Mutual Fund	208,282
*	Fidelity Inflation Protected Bond	Mutual Fund	161,490
*	Fidelity Freedom 2025 Fund	Mutual Fund	147,071
*	Fidelity Freedom Income Fund	Mutual Fund	69,994
*	Fidelity Freedom 2000 Fund	Mutual Fund	43,574
*	Fidelity Freedom 2035 Fund	Mutual Fund	1,709
*	Fidelity Freedom 2015 Fund	Mutual Fund	1,631
	Fidelity Retirement Money Market **	Money Market	31
Total Investments			28,003,537
*	Participant loans	Interest bearing loans at prime rate plus 1% to 2%; interest rates on outstanding loans range from 6% to 10% for a period of 1 to 5 years.	502,959
Net assets available for benefits			<u>\$ 28,506,496</u>
* Party-in-interest			
** Fidelity Retirement Money Market Funds unallocated to participant accounts at year- end.			
*** Includes 137,734 shares of Class A Common Stock, \$0.01 par value, and cash of \$243,261 and accrued income of \$1,032.			

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Administration Committee has duly caused this annual report to be signed on behalf of the Plan by the undersigned hereunto duly authorized.

BERRY PETROLEUM COMPANY

Thrift Plan

/s/ Kenneth A. Olson

Kenneth A. Olson

Member of the Administration Committee

Date: July 10, 2007

EXHIBIT INDEX

Exhibit Number

Description

23.1

Consent of Independent Registered Public Accounting Firm (filed herewith).



EXHIBIT 23.1

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Registration Statement on Form S-8 No. 333-62871 pertaining to the Berry Petroleum Company Thrift Plan of our report dated July 10, 2007, with respect to the statements of net assets available for benefits of the Berry Petroleum Company Thrift Plan as of December 31, 2006 and 2005, and the related statement of changes in net assets available for benefits for the year ended December 31, 2006 and the related supplemental schedule, which report appears in the December 31, 2006 Annual Report on Form 11-K of the Berry Petroleum Company Thrift Plan.

/s/ KMJ Corbin & Company LLP
KMJ CORBIN & COMPANY LLP

Irvine, California
July 10, 2007
