
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 11-K

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

For The Fiscal Year Ended December 31, 2010

OR

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

Commission File Number 1-13105

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

(Full title of the plan and the address of the plan, if different from that of the issue-named below)

Name and Address of the issuer of the Securities
Held Pursuant to the Plan —

Arch Coal, Inc.
One CityPlace Drive, Suite 300
St. Louis, Missouri 63141

(Name of issuer of the securities held pursuant to the plan and the address of its principal executive office)

ARCH COAL, INC.
EMPLOYEE THRIFT PLAN
FINANCIAL STATEMENTS
DECEMBER 31, 2010

Contents

	Page
Report Of Independent Registered Public Accounting Firm	1
Financial Statements	
Statement Of Net Assets Available For Benefits	2
Statement Of Changes In Net Assets Available For Benefits	3
Notes To Financial Statements	4 - 15
Supplementary Information	
Report Of Independent Registered Public Accounting Firm On Supplementary Information	16
Schedule Of Assets Held At End Of Year	17 - 18

**Report Of Independent Registered Public
Accounting Firm**

The Retirement Committee
Arch Coal, Inc. Employee Thrift Plan
St. Louis, Missouri

We have audited the accompanying statement of net assets available for benefits of the Arch Coal, Inc. Employee Thrift Plan (the Plan) as of December 31, 2010 and 2009, and the related statement of changes in net assets available for benefits for the years then ended. 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. An audit includes 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 also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, 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 at December 31, 2010 and 2009, and the changes in net assets available for benefits for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

/s/ Rubin Brown LLP
St. Louis, Missouri
June 27, 2011

**ARCH COAL, INC. EMPLOYEE THRIFT PLAN
STATEMENT OF NET ASSETS AVAILABLE FOR BENEFITS**

	December 31,	
	2010	2009
Assets		
Investments, At Fair Value		
Money market fund	\$ 3,205,840	\$ 1,818,595
Mutual funds	198,874,936	172,381,569
Stable value fund	78,214,788	66,072,507
Company stock	48,289,018	34,384,617
Collective trust fund	48,218,249	32,994,515
Brokerage securities	12,153,958	11,114,310
Total Investments At Fair Value	388,956,789	318,766,113
Receivables		
Company contributions	658,368	695,357
Participant contributions	890,430	890,908
Notes receivable from participants	19,865,218	17,036,423
Total Receivables	21,414,016	18,622,688
Net Assets Available For Benefits At Fair Value	410,370,805	337,388,801
Adjustment From Fair Value To Contract Value For Fully Benefit-Responsive Investment Contracts	(2,841,340)	(1,641,093)
Net Assets Available For Benefits	\$407,529,465	\$335,747,708

See the accompanying notes to financial statements.

**ARCH COAL, INC. EMPLOYEE THRIFT PLAN
STATEMENT OF CHANGES IN NET ASSETS
AVAILABLE FOR BENEFITS**

	For The Years Ended December 31,	
	2010	2009
Additions To Net Assets Attributed To:		
Contributions		
Participant salary deferral	\$ 23,391,009	\$ 20,993,759
Company	18,233,022	15,821,598
Participant after-tax	1,347,890	1,244,008
Rollover	786,352	8,743,332
Total Contributions	43,758,273	46,802,697
Deductions From Net Assets Attributed To:		
Benefits paid directly to participants	24,453,314	18,742,803
Administrative fees	414,395	260,230
Total Deductions	24,867,709	19,003,033
Investment Income:		
Dividends and interest	8,965,614	7,800,493
Net appreciation in fair value of investments	43,107,886	47,954,898
Net Investment Income	52,073,500	55,755,391
Interest Income On Notes Receivable From Participants	817,693	787,233
Transfer Of Assets Into Plan	—	600,453
Net Increase	71,781,757	84,942,741
Net Assets Available For Benefits — Beginning Of Year	335,747,708	250,804,967
Net Assets Available For Benefits — End Of Year	\$ 407,529,465	\$ 335,747,708

See the accompanying notes to financial statements.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN
NOTES TO FINANCIAL STATEMENTS
December 31, 2010 And 2009

1. Description Of The Plan

The Arch Coal, Inc. Employee Thrift Plan (the Plan) was established by Arch Coal, Inc. (the Company) for the benefit of the eligible employees of the Company, its subsidiaries and controlled affiliates.

The following description of the Plan provides only general information. Participants should refer to the Plan Document for a more complete description of the Plan's provisions.

Certain provisions of the Plan as described below do not apply to or have been modified for certain subsidiaries and affiliates of the Company.

General

The Plan is a defined contribution plan that covers substantially all salaried employees, nonunion hourly employees, and certain union employees where specified by applicable collective bargaining agreements of the Company, its subsidiaries, and any controlled affiliates that elect to participate in the Plan. It is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

On September 24, 2009, the Company completed the acquisition of Jacobs Ranch Coal, LLC, a mining complex previously owned by Rio Tinto Sage, LLC. The acquisition of the complex resulted in 595 new employees, who immediately became eligible and had the option to rollover account balances and transfer outstanding loans into the Plan.

The Plan was amended to recognize, for vesting purposes in the Plan, the prior service of Jacobs Ranch Coal, LLC employees.

Contributions

Participants may elect to defer between 1% and 50% of compensation. Highly compensated employees may contribute up to 16% of compensation. The Company is required to make matching contributions equal to 100% of participant salary deferral contributions up to the first 6% of eligible compensation.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (*Continued*)

The Plan includes an automatic enrollment provision for all eligible employees. The automatic enrollment provides for default salary deferral contributions of 6% of eligible compensation, which will be invested in a target retirement fund. The participant has the option to make changes to the salary deferral percentage and investment allocation at any time.

Participant Accounts

Each participant's account is credited with the participant's salary deferral contributions; the Company's matching contribution, and Company discretionary contributions, if applicable, and an allocation of Plan earnings. The allocation of earnings is determined by the earnings of the participant's investment selection based on each participant's account balance, as defined in the Plan Document. The benefit to which a participant is entitled is the benefit that can be provided from the participant's vested account.

Vesting

Participants are fully vested in their salary deferral contributions plus actual earnings. All eligible employees of the Company at December 31, 1997 became fully vested in the Plan. Eligible employees hired subsequent to December 31, 1997 vest in Company contributions and earnings upon the completion of three full years of service. The hourly employees at Mingo Logan and Mountain Laurel are fully vested after the completion of two full years of service.

All participants become fully vested upon death while employed, total disability, or normal retirement age, regardless of the number of months of participation.

Notes Receivable From Participants

Active participants, with some exceptions, may borrow from their account a minimum of \$500 or up to a maximum equal to the lesser of \$50,000 or 50% of their vested account balances. Note terms range from one to five years or longer for the purchase of a primary residence. The notes are secured by the balance in the participant's account and bear interest at the prime rate listed in the Wall Street Journal on the first day of the month the loan is processed. Principal and interest are paid ratably through weekly and bi-weekly payroll deductions. At December 31, 2010, interest rates on the notes receivable range from 3.25% to 9.5%. The final installments are due at various dates through June 2026.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (*Continued*)

Payment Of Benefits

Upon death, termination of service, or attainment of age 70-1/2, a participant may receive a lump-sum amount equal to the value of the participant's vested interest in his or her account. Participant accounts with vested balances of \$1,000 or less will be automatically distributed unless otherwise instructed.

In-Service Withdrawals

Subject to certain qualifications, upon reaching age 59-1/2 or upon experiencing a qualifying financial hardship, participants may withdraw of all or part of his or her vested account. Hardship withdrawals will be approved only if they conform to the Plan provisions and established Internal Revenue Service (IRS) safe harbors.

Forfeited Accounts

Forfeited amounts of Company contributions are used to offset future Company contributions to the Plan. At December 31, 2010 and 2009, forfeited amounts that were available to reduce future Company contributions were \$263,287 and \$256,263, respectively. During the Plan years ended December 31, 2010 and 2009, \$929,414 and \$1,330,244, respectively, in forfeited funds were used to offset Company contributions.

Investment Options

Upon enrollment in the Plan, a participant may direct contributions in a number of investment options offered by the Plan.

Administrative Expense

All expenses related to the administration of the Plan are paid from Plan assets.

2. Summary Of Significant Accounting Policies

Basis Of Accounting

The financial statements of the Plan are prepared under the accrual basis of accounting.

Estimates And Assumptions

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 assets and liabilities, disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of additions to and deductions from net assets during the reporting period. Actual results could differ from those estimates.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (*Continued*)

Investment Valuation And Income Recognition

The Plan's investments are reported at fair value. Fair value is the price that would be received in an asset sale or paid to transfer a liability in an orderly transaction between market participants at the measurement date. See Note 3 for a discussion of fair value measurements.

In 2010, the Plan adopted a recently issued accounting standard that requires participant loans to be classified as notes receivable from participants and measured at unpaid principal balance plus accrued but unpaid interest. Previously, these participant loans were classified as Plan investments, and were subject to the fair value measurement and disclosure requirements as described in Note 3. This guidance was applied retroactively in 2009 and this standard had no impact on the Plan's net assets available for benefits.

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

As required by accounting standards, 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. The Statement of Net Assets Available for Benefits presents the fair value of the investment contracts, as well as the adjustment of the fully benefit-responsive 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.

Payment Of Benefits

Benefits are recorded when paid.

Reclassifications

Certain 2009 amounts have been reclassified, where appropriate, to conform to the financial statement presentation used in 2010.

ARCH COAL, INC. EMPLOYEE THRIFT PLANNotes To Financial Statements (*Continued*)**3. Investments**

The Company has established a Retirement Committee to oversee the activities of the Plan and has appointed the Vice President — Human Resources as the Plan Administrator. Mercer Fiduciary Trust Company is the Trustee for the Plan and Mercer HR Services is the Plan's Recordkeeper.

Investments consist of the following at:

	December 31,	
	2010	2009
Money Market	\$ 3,205,840	\$ 1,818,595
Mutual Funds		
American Century Income and Growth Fund	16,307,331	18,389,814*
Growth Fund of America	21,087,195*	22,784,112*
Investment Company of America	8,618,054	7,829,638
Black Rock Small Cap Core Equity Fund	3,015,997	2,713,372
Dodge & Cox Balanced Fund	42,114,799*	27,375,060*
Franklin Templeton Balance Sheet Fund	12,079,133	11,248,655
Artio International Equity Fund	11,488,144	14,186,316
PIMCO Total Return Fund	27,938,788*	26,231,661*
Jennison Mid Cap Growth Fund	5,806,920	5,393,504
Wells Fargo Advantage Outlook 2010	3,669,815	2,943,550
Wells Fargo Advantage Outlook 2020	11,047,536	8,414,366
Wells Fargo Advantage Outlook 2030	12,107,813	8,492,618
Wells Fargo Advantage Outlook 2040	23,593,411*	16,378,903
Total Mutual Funds	198,874,936	172,381,569
Stable Value Fund (At Contract Value)	75,373,448*	64,431,414*
Company Stock	48,289,018*	34,384,617*
Collective Trust Fund		
Northern Trust Collective S&P 500 Equity Index Fund	48,218,249*	32,994,515*
Brokerage Securities	12,153,958	11,114,310
	\$ 386,115,449	\$ 317,125,020

* Investment represents 5% or more of net assets at the end of the respective Plan year.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (Continued)

During 2010 and 2009, the Plan's investments, including gains and losses on investments bought and sold, as well as held during the year, appreciated in value as follows:

	2010	2009
Mutual funds	\$ 16,677,069	\$ 34,795,167
Company stock	19,190,959	9,817,649
Collective trust fund	6,200,210	—
Brokerage securities	1,039,648	3,342,082
	<u>\$ 43,107,886</u>	<u>\$ 47,954,898</u>

Stable Value Fund

The Plan invests in the Invesco Stable Value Fund (the Fund), a benefit-responsive investment managed exclusively for the Plan by Invesco Institutional, N.A. (Invesco). Invesco maintains the contributions in a managed account, which is credited with earnings on the underlying investments and charged for participant withdrawals and administrative expenses. The Fund's key objectives are to provide preservation of principal, maintain a stable interest rate, and provide daily liquidity at contract value for participant withdrawals and transfers in accordance with the provisions of the Plan.

The Fund invests in synthetic guaranteed interest contracts (GICs), which are wrap contracts paired with an underlying investment or investments, usually a portfolio, owned by the Plan, of common collective trust funds. The Plan purchases wrapper contracts from financial services institutions. Synthetic GICs credit a stated interest rate for a specified period of time. Investment gains and losses are amortized over the expected duration through the calculation of the interest rate applicable to the Plan on a prospective basis. Synthetic GICs provide for a variable crediting rate, which typically resets monthly and quarterly, and the issuer of the wrap contract provides assurance that future adjustments to the crediting rate cannot result in a crediting rate less than zero. The crediting rate is primarily based on the current yield-to-maturity of the covered investments, plus or minus amortization of the difference between the market value and contract value of the covered investments over the duration of the covered investments at the time of the computation. The crediting rate is most affected by the change in the annual effective yield-to-maturity of the underlying securities, but is also affected by the difference between the contract value and the market value of the covered investments. Depending on the change in duration from reset period to reset period, the magnitude of the impact to the crediting rate of the contract to market difference is heightened or lessened.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (*Continued*)

As described in Note 2, because the Fund is fully benefit-responsive, contract value is the relevant measurement attribute for that portion of the net assets available for benefits attributable to the Fund. Participants may ordinarily direct the withdrawal or transfer of all or a portion of their investment at contract value.

Certain events limit the ability of the Plan to transact at contract value with the issuer. Such events include the following: (1) material, adverse amendments to the Plan documents (including complete or partial Plan termination or merger with another plan), or (2) the decision by the Company to withdraw all assets from the funds and reinvest in another investment vehicle. The Plan Administrator does not believe that the occurrence of any such value event, which would limit the Plan's ability to transact at contract value with participants, is probable.

The investment contracts included in the Fund had an average yield of 2.13% and 4.05% for the years ended December 31, 2010 and 2009, respectively. The average crediting interest rate was 3.48% and 4.01% at December 31, 2010 and 2009, respectively.

Collective Trust Fund

The Plan invests in a collective trust fund in which the primary objective is to approximate the risk and return of the S&P 500 Index. This index is commonly used to represent the large cap segment of the U.S. equity market. The collective trust fund does not have any unfunded commitments relating to its investments or any significant restrictions on redemptions. Participant-directed redemptions can be made on any business day and do not have a redemption notice period.

Fair Value Measurements

The Plan follows current accounting standards, which establish a framework for measuring fair value. The framework provides a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of the fair value are described below:

Level 1 Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the Plan has the ability to access.

Level 2 Inputs to the valuation methodology include:

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (*Continued*)

- Quoted prices for similar assets or liabilities in active markets;
- Quoted prices for identical or similar assets or liabilities in inactive markets;
- Inputs other than quoted prices that are observable for the asset or liability;
- Inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3 Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

The asset's or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs.

Following is a description of the valuation methodologies used for assets measured at fair value:

Money Market Fund And Mutual Funds

Valued at the net asset value (NAV) of shares held by the Plan at year end, based on quoted market prices.

Stable Value Fund

Valued at NAV based on the market value of the underlying investment assets divided by the number of units outstanding at the end of the Plan year.

Collective Trust Fund

Valued at NAV as determined by the Trustee based on the market value of the underlying investment assets divided by the number of units outstanding at the end of the Plan year.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (Continued)

Company Stock And Brokerage Securities

Valued at the closing price reported on the active market on which the individual securities are traded.

The methods described above may produce fair value calculations that may not be indicative of net realizable value or reflective of future fair values. Furthermore, while the Plan believes its valuation methods are appropriate and consistent with other market participants, the use of different methodologies or assumptions to determine the fair value of certain financial instruments could result in a different fair value measurement at the reporting date.

The following tables set forth by level, within the fair value hierarchy, the Plan's investments at fair value as of:

	December 31, 2010			Total
	Level 1	Level 2	Level 3	
Money market fund	\$ 3,205,840	\$ —	\$ —	\$ 3,205,840
Mutual funds				
Growth funds	29,910,115	—	—	29,910,115
Balanced funds	92,533,374	—	—	92,533,374
Blended funds	20,106,198	—	—	20,106,198
Value funds	28,386,464	—	—	28,386,464
Income fund	27,938,785	—	—	27,938,785
Total mutual funds	<u>198,874,936</u>	<u>—</u>	<u>—</u>	<u>198,874,936</u>
Stable value fund	—	78,214,788	—	78,214,788
Company stock	48,289,018	—	—	48,289,018
Collective trust fund	—	48,218,249	—	48,218,249
Brokerage securities	<u>12,153,958</u>	<u>—</u>	<u>—</u>	<u>12,153,958</u>
Total investments at fair value	<u>\$ 262,523,752</u>	<u>\$ 126,433,037</u>	<u>\$ —</u>	<u>\$ 388,956,789</u>

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (Continued)

	December 31, 2009			Total
	Level 1	Level 2	Level 3	
Money market fund	\$ 1,818,595	\$ —	\$ —	\$ 1,818,595
Mutual funds				
Growth funds	30,890,988	—	—	30,890,988
Balanced funds	63,604,497	—	—	63,604,497
Blended funds	22,015,954	—	—	22,015,954
Value funds	29,638,469	—	—	29,638,469
Income fund	26,231,661	—	—	26,231,661
Total mutual funds	<u>172,381,569</u>	<u>—</u>	<u>—</u>	<u>172,381,569</u>
Stable value fund	—	66,072,507	—	66,072,507
Company stock	34,384,617	—	—	34,384,617
Collective trust fund	—	32,994,515	—	32,994,515
Brokerage securities	<u>11,114,310</u>	<u>—</u>	<u>—</u>	<u>11,114,310</u>
Total investments at fair value	<u>\$ 219,699,091</u>	<u>\$ 99,067,022</u>	<u>\$ —</u>	<u>\$ 318,766,113</u>

There have been no changes in the methodologies used at December 31, 2010 or 2009.

4. Plan Termination

Although it has not expressed intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan, subject to the provisions of ERISA. In the event of Plan termination, participants will become 100% vested in their accounts.

5. Income Tax Status

The Plan obtained its latest determination letter on July 17, 2009 in which the IRS stated that the Plan, as then designed, was in compliance with the applicable requirements of the Internal Revenue Code. The Plan has been amended since receiving the determination letter. The Plan Administrator believes the amendments made will maintain the tax qualification of the Plan and the related trust will continue to be tax exempt.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (*Continued*)

Accounting principles generally accepted in the United States of America require plan management to evaluate tax positions taken by the Plan and recognize a tax liability (or asset) if the Plan has taken an uncertain position that more likely than not would not be sustained upon examination by the IRS. The Plan is subject to routine audits by taxing jurisdictions; however, there are currently no audits for any tax periods in progress. The Plan's federal tax returns for tax years 2007 and later remain subject to examination by taxing authorities.

7. Rollover Contributions

During 2009, the Plan received rollover contributions amounting to \$8,272,373 as a result of the acquisition of Jacobs Ranch Coal, LLC.

8. Transfer Of Assets Into Plan

During 2009, the Plan transferred in \$600,453 of outstanding participant loans as a result of the acquisition of Jacobs Ranch Coal, LLC.

9. Risks And Uncertainties

The Plan invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and that such changes could materially affect participants' account balances and the amounts reported in the Statement of Net Assets Available For Benefits.

10. Related Party Transactions

The Plan's investments include shares of Company common stock. The Company is the Plan Sponsor, and therefore, these transactions qualify as allowable party-in-interest transactions.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN

Notes To Financial Statements (Continued)

11. Reconciliation Of Financial Statements To Form 5500

Following is a reconciliation of net assets available for benefits and net increase per the financial statements to the Form 5500:

	December 31,	
	<u>2010</u>	<u>2009</u>
Net assets available for benefits per the financial statements	\$407,529,465	\$335,747,708
Adjustment from contract value to fair value for fully benefit-responsive contracts	2,841,340	1,641,093
Net assets available for benefits per the Form 5500	<u>\$410,370,805</u>	<u>\$337,388,801</u>
		For The
		Year Ended
		December 31,
		2010
Net increase per the financial statements		\$71,781,757
Adjustment from contract value to fair value for fully benefit-responsive contracts prior year		(1,641,093)
Adjustment from contract value to fair value for fully benefit-responsive contracts current year		<u>2,841,340</u>
Net increase per the Form 5500		<u>\$72,982,004</u>

**Report Of Independent Registered Public Accounting Firm
On Supplementary Information**

Our audits were performed 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 is presented for purposes of additional analysis and is not a required part of the basic 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 the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

/s/ Rubin Brown LLP
June 27, 2011
St. Louis, Missouri

ARCH COAL, INC. EMPLOYEE THRIFT PLAN
E.I.N.: 43-0921172 PLAN NO.: 006
SCHEDULE OF ASSETS HELD AT END OF YEAR
Page 1 Of 2
December 31, 2010

Identity Of Issuer	Description Of Investment	Current Value
Money Market Fund		
Federated	Prime Obligation Money Market Fund	\$ 3,205,840
Mutual Funds		
American Century	American Century Income and Growth Fund	16,307,331
American Fund Corporation	Growth Fund of America	21,087,195
American Fund Corporation	Investment Company of America	8,618,054
Black Rock Funds	Black Rock Small Cap Core Equity Fund	3,015,997
Dodge & Cox Funds	Dodge & Cox Balanced Fund	42,114,799
Franklin Investments	Franklin Templeton Balance Sheet Fund	12,079,133
Artio Investments	Artio International Equity Fund	11,488,144
PIMCO Investments	PIMCO Total Return Fund	27,938,788
Jennison Investments	Jennison Mid Cap Growth Fund	5,806,920
Wells Fargo	Wells Fargo Advantage Outlook 2010	3,669,815
Wells Fargo	Wells Fargo Advantage Outlook 2020	11,047,536
Wells Fargo	Wells Fargo Advantage Outlook 2030	12,107,813
Wells Fargo	Wells Fargo Advantage Outlook 2040	23,593,411
Total Mutual Funds		198,874,936
Company Stock		
Arch Coal, Inc.*	Common stock	48,289,018
Collective Trust Fund		
Northern Trust	Collective Daily S&P 500 Equity Index Fund	48,218,249
Brokerage Securities		
Mercer Securities	Mercer Securities Account (Participant Directed Brokerage Accounts)	12,153,958
Balance Carried Forward		310,742,001

* Represents party-in-interest

The above information is a required disclosure for IRS Form 5500, Schedule H, Part IV, line 4i.

ARCH COAL, INC. EMPLOYEE THRIFT PLAN
E.I.N.: 43-0921172 PLAN NO.: 006
SCHEDULE OF ASSETS HELD AT END OF YEAR
Page 2 Of 2
December 31, 2010

Identity Of Issuer	Description Of Investment	Current Value
Balance Brought Forward		\$ 310,742,001
Stable Value Fund		
Bank of America	IGT Invesco Short-Term Bond Fund	15,101,173
Bank of America	Wrapper Contract	60,781
ING Life & Annuity	IGT Invesco Short-Term Bond Fund	18,570,812
JP Morgan Chase Bank	IGT Invesco Multi-Manager Intermediate Government/Credit Fund	12,504,145
Monumental Life Insurance Co.	IGT Invesco Multi-Manager Core Fixed Income Fund	11,211,728
Monumental Life Insurance Co.	Wrapper Contract	24,462
Prudential Insurance Company	IGT Jennison Intermediate Government/Credit Fund	3,146,651
State Street Bank & Trust Co.	IGT BlackRock Intermediate Government/Credit Fund	3,122,348
State Street Bank & Trust Co.	IGT Invesco Intermediate Government/Credit Fund	3,130,658
State Street Bank & Trust Co.	IGT PIMCO Intermediate Government/Credit Fund	3,102,106
State Street Bank & Trust Co.	Money Market Fund	8,239,924
Total Stable Value Fund		78,214,788
Plan Participants*	Notes receivable, bearing interest at 3.25% - 9.5%, due at various dates through June 2026	19,865,218
Total		\$ 408,822,007

The above information is a required disclosure for IRS Form 5500, Schedule H, Part IV, line 4i.

Signatures

Pursuant to the requirements of the Securities Exchange Act of 1934, the trustees (or other persons who administer the employee benefit plan) have duly caused this annual report to be signed on their behalf by the undersigned thereunto duly authorized.

Arch Coal, Inc. Employee Thrift Plan

By: /s/ Sheila B. Feldman

Sheila B. Feldman
Plan Administrator

June 27, 2011

Exhibit Index

Exhibit

Description

23.1 Consent of Independent Registered Public Accounting Firm

**CONSENT OF INDEPENDENT REGISTERED
PUBLIC ACCOUNTING FIRM**

We consent to the incorporation by reference in Registration Statement on Form S-8 (No. 333-32777) of Arch Coal, Inc. of our report dated June 27, 2011 with respect to the financial statements and supplemental schedule of the Arch Coal, Inc. Employee Thrift Plan included in this Annual Report on Form 11-K for the year ended December 31, 2010.

/s/ Rubin Brown LLP
St. Louis, Missouri
June 27, 2011