

ARCH COAL INC  
Form SC 13G  
February 08, 2008  
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**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

**SCHEDULE 13G**

**Under the Securities Exchange Act of 1934  
(Amendment No. )\***

**Arch Coal Inc.**

(Name of Issuer)

**Common**

(Title of Class of Securities)

**039380100**

(CUSIP Number)

**January 31, 2008**

(Date of Event Which Requires Filing of this Statement)

Check the appropriate box to designate the rule pursuant to which this Schedule is filed:

- Rule 13d-1(b)
- Rule 13d-1(c)
- Rule 13d-1(d)

\*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior cover page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

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CUSIP No. 039380100

1. Names of Reporting Persons  
PRIMECAP Management Company 95-3868081
2. Check the Appropriate Box if a Member of a Group (See Instructions)  
(a)   
(b)
3. SEC Use Only
4. Citizenship or Place of Organization  
225 South Lake Ave., #400, Pasadena, CA 91101
5. Sole Voting Power  
3,141,734
6. Shared Voting Power  
0
7. Sole Dispositive Power  
7,157,649
8. Shared Dispositive Power  
0
9. Aggregate Amount Beneficially Owned by Each Reporting Person  
7,157,649
10. Check if the Aggregate Amount in Row (9) Excludes Certain Shares (See Instructions)
11. Percent of Class Represented by Amount in Row (9)  
5.00 %
12. Type of Reporting Person (See Instructions)  
IA

Number of  
Shares  
Beneficially  
Owned by  
Each  
Reporting  
Person With

**Item 1.**

- (a) Name of Issuer  
Arch Coal Inc.
- (b) Address of Issuer's Principal Executive Offices  
One CityPlace Dr., Suite 300, St. Louis, MO 63141

**Item 2.**

- (a) Name of Person Filing  
PRIMECAP Management Company
- (b) Address of Principal Business Office or, if none, Residence  
225 South Lake Ave., #400, Pasadena, CA 91101
- (c) Citizenship  
U.S.A.
- (d) Title of Class of Securities  
Common
- (e) CUSIP Number  
039380100

**Item 3.**

- If this statement is filed pursuant to §§240.13d-1(b) or 240.13d-2(b) or (c), check whether the person filing is a:**
- (a)  Broker or dealer registered under section 15 of the Act (15 U.S.C. 78o).
  - (b)  Bank as defined in section 3(a)(6) of the Act (15 U.S.C. 78c).
  - (c)  Insurance company as defined in section 3(a)(19) of the Act (15 U.S.C. 78c).
  - (d)  Investment company registered under section 8 of the Investment Company Act of 1940 (15 U.S.C. 80a-8).
  - (e)  An investment adviser in accordance with §240.13d-1(b)(1)(ii)(E);
  - (f)  An employee benefit plan or endowment fund in accordance with §240.13d-1(b)(1)(ii)(F);
  - (g)  A parent holding company or control person in accordance with §240.13d-1(b)(1)(ii)(G);
  - (h)  A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act (12 U.S.C. 1813);
  - (i)  A church plan that is excluded from the definition of an investment company under section 3(c)(14) of the Investment Company Act of 1940 (15 U.S.C. 80a-3);
  - (j)  Group, in accordance with §240.13d-1(b)(1)(ii)(J).

**Item 4. Ownership**

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned:  
  
7,157,649
- (b) Percent of class:  
  
5.00 %
- (c) Number of shares as to which the person has:
  - (i) Sole power to vote or to direct the vote  
  
3,141,734
  - (ii) Shared power to vote or to direct the vote  
  
0
  - (iii) Sole power to dispose or to direct the disposition of  
  
7,157,649
  - (iv) Shared power to dispose or to direct the disposition of  
  
0

**Item 5. Ownership of Five Percent or Less of a Class**

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following .

**Item 6. Ownership of More than Five Percent on Behalf of Another Person**

**Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on By the Parent Holding Company or Control Person**

**Item 8. Identification and Classification of Members of the Group**

**Item 9. Notice of Dissolution of Group**

**Item 10. Certification**

**Signature**

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

February 7, 2008  
Date

/s/ Karen Chen  
Signature

Karen Chen, CCO  
Name/Title