

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL	
OMB Number:	3235-0287
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1. Name and Address of Reporting Person* <u>Slone Deck</u> (Last) (First) (Middle) ONE CITYPLACE DRIVE SUITE 300 (Street) ST. LOUIS MO 63141 (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>ARCH COAL INC [ACI]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>VP Investor Rel & Public Aff</u>
	3. Date of Earliest Transaction (Month/Day/Year) <u>02/07/2008</u>	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	
6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person		

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common stock ⁽¹⁾	02/07/2008		M		1,350	A	(1)	10,300	D	
Common stock ⁽²⁾	02/08/2008		M		1,500	A	\$11.4375	11,800	D	
Common stock	02/08/2008		S		1,500	D	\$50	10,300	D	

Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)	
				Code	V	(A)	(D)	Date Exercisable	Expiration Date						Title
Performance-contingent phantom stock	(3)	02/07/2008		M			2,700	(4)	12/31/2008	Common stock	2,700	(1)	0	D	
Employee stock options (right to buy) ⁽²⁾	\$11.4375	02/08/2008		M			1,500	(5)	07/22/2008	Common stock	1,500	\$0.00	0	D	

Explanation of Responses:

- The reporting person received 5,400 performance-contingent phantom shares on July 28, 2005. One-half of the performance contingent phantom shares vest if the average closing price of Arch Coal, Inc.'s common stock for a period of 20 consecutive trading days meets or exceeds \$40.00, subject to the achievement of certain financial performance targets. Upon vesting of 2,700 performance contingent phantom shares on February 7, 2008, the reporting person received 1,350 shares of common stock and \$66,298 in cash.
- The exercise of employee stock options and sale of underlying shares of common stock by the executive officer reported on this Form 4 were affected pursuant to a Rule 10b5-1 trading plan.
- Each performance-contingent phantom share represents a right to receive one share of common stock or the cash value thereof, unless otherwise deferred at the reporting person's election, pursuant to the Arch Coal, Inc. Executive Deferred Compensation Plan.
- The reporting person received 5,400 performance-contingent phantom shares on July 28, 2005. One-half of the performance-contingent phantom shares vest if the average closing price of Arch Coal's common stock for a period of 20 consecutive trading days meets or exceeds \$35.00 and the other half of the performance shares vest if the average closing price of Arch Coal's common stock for a period of 20 consecutive trading days meets or exceeds \$40.00, subject, in each case to the achievement of certain financial performance targets. On February 7, 2008, 2,700 performance-contingent phantom shares vested.
- The reporting person received 1,500 stock options on July 22, 1998. The stock options vested ratably over a three year period as follows: 500 stock options vested on July 22, 1999; 500 stock options vested on July 22, 2000; and 500 stock options vested on July 22, 2001.

Remarks:

/s/Gregory A. Billhartz,
Attorney-in-Fact

02/11/2008

** Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

** Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.