

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

OMB APPROVAL	
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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

1. Name and Address of Reporting Person* <u>MESSEY ROBERT J</u> (Last) (First) (Middle) <u>ONE CITYPLACE DRIVE</u> (Street) <u>ST. LOUIS MO 63141</u> (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 Officer (give title below) Other (specify below) Senior Vice President & CFO
	3. Date of Earliest Transaction (Month/Day/Year) <u>02/07/2008</u>	
		6. Individual or Joint/Group Filing (Check Applicable Line) X 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)	2A. 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		19,150	A	(1)	57,238	D	
Common stock ⁽²⁾	02/08/2008		M		17,124	A	\$11.3	74,362	D	
Common stock ⁽²⁾	02/08/2008		M		8,824	A	\$9.075	83,186	D	
Common stock ⁽²⁾	02/08/2008		S/K		25,948	D	\$49.8	57,238	D	
Common stock								1,083	I	By 401(k) plan

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			38,300	(4)	12/31/2008	Common stock	38,300	(1)	0	D	
Employee stock option (right to buy) ⁽²⁾	\$11.3	02/08/2008		M			17,124	(5)	04/25/2012	Common stock	17,124	\$0.00	0	D	
Employee stock option (right to buy) ⁽²⁾	\$9.075	02/08/2008		M			8,824	(6)	02/29/2012	Common stock	8,824	\$0.00	0	D	

Explanation of Responses:

- The reporting person received 76,600 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 38,300 performance contingent phantom shares on February 7, 2008, the reporting person received 19,150 shares of common stock and \$940,457 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 effected 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 76,600 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, 38,300 performance-contingent phantom shares vested.
- The reporting person received 68,500 stock options on April 25, 2002. The stock options vested ratably over a four year period as follows: 17,125 stock options vested on April 25, 2003; 17,125 stock options vested on April 25, 2004; 17,125 stock options vested on April 25, 2005; and 17,125 stock options vested on April 25, 2006.
- The reporting person received 68,500 stock options on February 28, 2002. The stock options vested ratably over a four year period as follows: 17,125 stock options vested on February 28, 2003; 17,125 stock options vested on February 28, 2004; 17,125 stock options vested on February 28, 2005; and 17,125 stock options vested on February 28, 2006.

Remarks:

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

02/11/2008

** Signature of Reporting Person

Date

* 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.

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