Wold Peter I Form 4 December 17, 2010

UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

Check this box if no longer

subject to Form 4 or

Section 16. Form 5

obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF **SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

(Last)

1. Name and Address of Reporting Person * Wold Peter I

2. Issuer Name and Ticker or Trading

Symbol

ARCH COAL INC [ACI]

(First) (Middle) 3. Date of Earliest Transaction

(Month/Day/Year) 12/15/2010

ONE CITYPLACE DRIVE, SUITE 300

> (Street) 4. If Amendment, Date Original

Filed(Month/Day/Year)

ST. LOUIS, MO 63141

5. Relationship of Reporting Person(s) to Issuer

OMB

Number:

Expires:

response...

Estimated average

burden hours per

OMB APPROVAL

3235-0287

January 31,

2005

0.5

(Check all applicable)

X_ Director 10% Owner Officer (give title Other (specify below)

6. Individual or Joint/Group Filing(Check

Applicable Line) _X_ Form filed by One Reporting Person Form filed by More than One Reporting

(City) (State) (Zip) Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

1.Title of 2. Transaction Date 2A. Deemed Security (Month/Day/Year) (Instr. 3)

Security

or Exercise

Execution Date, if (Month/Day/Year)

3. 4. Securities TransactionAcquired (A) or Code Disposed of (D) (Instr. 8) (Instr. 3, 4 and 5)

Code V Amount (D) Price

(A)

or

5. Amount of Securities Beneficially Owned Following Reported

6. Ownership 7. Nature of Form: Direct Indirect (D) or Indirect Beneficial (I) Ownership (Instr. 4) (Instr. 4)

(Instr. 3 and 4)

Transaction(s) (Instr. 3 and 4)

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

any

Persons who respond to the collection of SEC 1474 information contained in this form are not (9-02)required to respond unless the form displays a currently valid OMB control number.

(Month/Day/Year)

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

Code

of

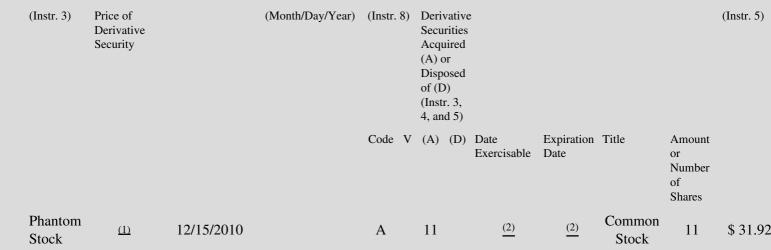
1. Title of 3. Transaction Date 3A. Deemed 5. 6. Date Exercisable and 7. Title and Amount of 8. Price of Derivative Conversion (Month/Day/Year) Execution Date, if TransactionNumber **Expiration Date Underlying Securities**

1

Derivative

Security

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Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Wold Peter I ONE CITYPLACE DRIVE SUITE 300 ST. LOUIS, MO 63141	X			

Signatures

/s/ Jon S. Ploetz, Attorney-in-Fact

**Signature of Reporting Person Date

Explanation of Responses:

- * 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).
- Each share of phantom stock represents a right to receive the value in cash of one share of Arch Coal, Inc. common stock. The shares of phantom stock are held by the director through the Arch Coal, Inc. Deferred Compensation Plan for Non-Employee Directors (the "Plan") and represent past compensation that the director elected to defer under the Plan into a hypothetical investment in shares of Arch Coal, Inc. common stock and/or dividends attributable to such deferred amounts.
- (2) Shares of phantom stock are payable in cash following termination of the director's service as a director of Arch Coal, Inc. The director may transfer certain portions of the phantom stock account into an alternative investment account at any time.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.

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