

**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                                 |           |
|--|-----------|
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|   |   |   |
|---|---|---|
| 1. Name and Address of Reporting Person *<br><u>LORSON JOHN W</u><br><br>(Last) (First) (Middle)<br><u>ONE CITYPLACE DRIVE</u><br><br>(Street)<br><u>ST. LOUIS MO 63141</u><br><br>(City) (State) (Zip) | 2. Issuer Name and Ticker or Trading Symbol<br><u>ARCH COAL INC [ ACI ]</u> | 5. Relationship of Reporting Person(s) to Issuer<br>(Check all applicable)<br><br>Director 10% Owner<br><input checked="" type="checkbox"/> Officer (give title below) Other (specify below)<br><u>VP &amp; Chief Acctg Officer</u> |
|   | 3. Date of Earliest Transaction (Month/Day/Year)<br><u>02/16/2012</u>       |   |
|   |   | 6. Individual or Joint/Group Filing (Check Applicable Line)<br><br><input checked="" type="checkbox"/> Form filed by One Reporting Person<br><br><input type="checkbox"/> 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                    | 02/16/2012                           |  | M                              |   | 15,000  | A          | \$11.3  | 15,600  | D  |   |
| Common Stock                    | 02/16/2012                           |  | S                              |   | 15,000  | D          | \$14.17 | 600   | D  |   |
| Common Stock                    |                                      |  |                                |   |   |            |         | 689   | 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 |
| Employee Stock Options (right to buy)      | \$11.3   | 02/16/2012                           |  | M                              |   |  | 15,000 | (1)  | 04/25/2012      | Common Stock  | 15,000                                     | \$0.00   | 1,700   | D  |       |

**Explanation of Responses:**

1. The reporting person received 21,700 stock options on April 25, 2002. The stock options vested as follows: 5,425 stock options vested on April 25, 2003; 5,425 stock options vested on April 25, 2004; 5,425 stock options vested on April 25, 2005; and 5,425 stock options vested on April 25, 2006.

**Remarks:**

/s/ Jon S. Ploetz, Attorney-in-Fact      02/17/2012

\*\* 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.**