

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM S-8

**REGISTRATION STATEMENT
UNDER
THE SECURITIES ACT OF 1933**

ARCH COAL, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction of incorporation or organization)

43-0921172

(I.R.S. Employer Identification No.)

One CityPlace Drive, Ste. 300

St. Louis, Missouri

(Address of principal executive offices)

63141

(Zip Code)

ARCH COAL, INC. DEFERRED COMPENSATION PLAN

(Full title of the plan)

Robert G. Jones

Senior Vice President—Law, General Counsel and Secretary

Arch Coal, Inc.

One CityPlace Drive, Ste. 300

St. Louis, Missouri 63141

(Name and address of agent for service)

(314) 994-2700

(Telephone number, including area code, of agent for service)

Copies of all communications to:

Jeffrey W. Acre

K&L Gates LLP

K&L Gates Center

210 Sixth Avenue

Pittsburgh, Pennsylvania 15222

(412) 355-6500

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	x	Accelerated filer	o
Non-accelerated filer (Do not check if a smaller reporting company)	o	Smaller reporting company	o

CALCULATION OF REGISTRATION FEE

Title of each class of securities to be registered	Amount to be Registered	Proposed maximum offering price per share	Proposed maximum aggregate offering price	Amount of registration fee
Deferred compensation obligations (1)	\$ 20,000,000(2)	100%	\$ 20,000,000	\$ 2,576

(1) The obligations under the Arch Coal, Inc. Deferred Compensation Plan are unsecured general obligations of Arch Coal, Inc. to pay deferred compensation in accordance with the terms of the Arch Coal, Inc. Deferred Compensation Plan.

(2) Estimated solely for the purpose of calculating the registration fee pursuant to Rule 457(h).

EXPLANATORY NOTE

Pursuant to Instruction E of Form S-8, this filing relates to the registration of additional securities of the same class as other securities for which a registration statement filed on this form relating to a benefit plan is effective. The contents of the registration statement on Form S-8 (File No. 333-68131) filed on December 1, 1998 and the registration statement on Form S-8 (File No. 333-147459) filed on November 16, 2007 are hereby incorporated by reference.

PART II INFORMATION REQUIRED IN THE REGISTRATION STATEMENT

ITEM 3. INCORPORATION OF DOCUMENTS BY REFERENCE.

The following documents filed by the Registrant with the Securities and Exchange Commission (the "Commission") are incorporated by reference into this Registration Statement:

1. The Registrant's Annual Report on Form 10-K for the fiscal year ended December 31, 2012 filed with the Commission on March 1, 2013;
2. The Registrant's Quarterly Reports on Form 10-Q for the fiscal quarters ended March 31, June 30, and September 30, 2013;
3. The Registrant's Current Reports on Form 8-K, filed February 26, April 30, July 2 and August 12, August 19, August 27, December 13, December 16, and December 17, 2013; and
4. The description of the Registrant's Common Stock contained in the Registration Statement filed by the Registrant under Section 12 of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), including any amendments or reports filed for the purpose of updating such description.

All documents subsequently filed by the Registrant with the Commission pursuant to Sections 13(a), 13(c), 14 and 15(d) of the Exchange Act after the date of this Registration Statement, but prior to the filing of a post-effective amendment to this Registration Statement that indicates that all securities offered by this Registration Statement have been sold or which deregisters all such securities then remaining unsold, shall be deemed to be incorporated by reference into this Registration Statement; provided, however, that the Registrant is not incorporating by reference any information furnished (but not filed) under Item 2.02 or Item 7.01 of any Current Report on Form 8-K. Each document incorporated by reference into this Registration Statement shall be deemed to be a part of this Registration Statement from the date of filing of such document with the Commission until the information contained therein is superseded or updated by any subsequently filed document that is incorporated by reference into this Registration Statement or by any document that constitutes part of the prospectus relating to the Arch Coal, Inc. Deferred Compensation Plan, each meeting the requirements of Section 10(a) of the Securities Act.

ITEM 5. INTERESTS OF NAMED EXPERTS AND COUNSEL.

Jon S. Ploetz, Assistant General Counsel and Assistant Secretary of Arch Coal, Inc., has rendered an opinion as to the validity of the deferred compensation obligations being registered hereby. Mr. Ploetz is paid a salary by us and is a participant in various employee benefit plans offered to our employees generally.

2

ITEM 8. EXHIBITS.

The following exhibits are filed herewith or incorporated by reference as part of this Registration Statement:

Exhibit No.	Description
4.1	Arch Coal, Inc. Deferred Compensation Plan (incorporated herein by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-8 filed on December 1, 1998 (File No. 333-68131)).
5.1	Opinion of counsel.
23.1	Consent of independent registered public accounting firm.
23.2	Consent of counsel (included in Exhibit 5.1).
24.1	Power of Attorney (included on the signature page to this Registration Statement).

3

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Registration Statement on Form S-8 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of St. Louis, State of Missouri, on this 3rd day of January, 2014.

ARCH COAL, INC.

By: /s/ John T. Drexler
John T. Drexler
Senior Vice President and Chief Financial Officer

POWER OF ATTORNEY

Each of the undersigned directors and officers of Arch Coal, Inc., a Delaware corporation, do hereby constitute and appoint John W. Eaves, John T. Drexler and Robert G. Jones, or any of them, the undersigned's true and lawful attorneys and agents, with full power of substitution and resubstitution in each, to do any and all acts and things in our name and on our behalf in our respective capacities as directors and officers and to execute any and all instruments for us and in our names in the capacities indicated below, which said attorneys and agents, or either one of them, may deem necessary or advisable to enable said corporation to comply with the Securities Act of 1933, as amended, and any rules, regulations and requirements of the Securities and Exchange Commission, in connection with this Registration Statement, including specifically, but without limitation, power and authority to sign for us or any of us in our names in the capacities indicated below, any and all amendments (including post-effective amendments) hereto, and each of the undersigned does hereby ratify and confirm all that said attorneys and agents, or either one of them or any substitute, shall do or cause to be done by virtue hereof. This Power of Attorney may be executed in any number of counterparts.

Pursuant to the requirements of the Securities Act of 1933, as amended, the following persons in the capacities and on the dates indicated have signed this Registration Statement below.

<u>Signature</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ John W. Eaves</u> John W. Eaves	President and Chief Executive Officer and Director (Principal Executive Officer)	January 3, 2014
<u>/s/ John T. Drexler</u> John T. Drexler	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	January 3, 2014
<u>/s/ John W. Lorson</u> John W. Lorson	Vice President and Chief Accounting Officer (Principal Accounting Officer)	January 3, 2014

4

<u>Signature</u>	<u>Capacity</u>	<u>Date</u>
<u>/s/ Steven F. Leer</u> Steven F. Leer	Chairman of the Board of Directors	January 3, 2014
<u>/s/ David D. Freudenthal</u> David D. Freudenthal	Director	January 3, 2014
<u>/s/ Patricia F. Godley</u> Patricia F. Godley	Director	January 3, 2014
<u>/s/ Paul T. Hanrahan</u> Paul T. Hanrahan	Director	January 3, 2014
<u>/s/ Douglas H. Hunt</u> Douglas H. Hunt	Director	January 3, 2014
<u>/s/ J. Thomas Jones</u> J. Thomas Jones	Director	January 3, 2014
<u>/s/ George C. Morris III</u> George C. Morris III	Director	January 3, 2014
<u>/s/ Theodore D. Sands</u> Theodore D. Sands	Director	January 3, 2014
<u>/s/ Wesley M. Taylor</u> Wesley M. Taylor	Director	January 3, 2014
<u>/s/ Peter I. Wold</u> Peter I. Wold	Director	January 3, 2014

5

EXHIBIT INDEX

<u>Exhibit No.</u>	<u>Description</u>
--------------------	--------------------

- 4.1 Arch Coal, Inc. Deferred Compensation Plan (incorporated herein by reference to Exhibit 4.1 to the Registrant's Registration Statement on Form S-8 filed on December 1, 1998 (File No. 333-68131)).
- 5.1 Opinion of counsel.
- 23.1 Consent of independent registered public accounting firm.
- 23.2 Consent of counsel (included in Exhibit 5.1).
- 24.1 Power of Attorney (included on the signature page to this Registration Statement).

[Arch Coal letterhead]

January 3, 2014

Board of Directors
Arch Coal, Inc.
One CityPlace Drive, Ste. 300
St. Louis, Missouri 63141

Dear Ladies and Gentlemen:

I am Assistant General Counsel and Assistant Secretary for Arch Coal, Inc., a Delaware corporation (the "Company"). This opinion letter is being furnished in connection with the preparation of the Registration Statement on Form S-8 (the "Registration Statement") to be filed by the Company with the Securities and Exchange Commission for the registration under the Securities Act of 1933, as amended (the "Securities Act"), of \$20,000,000 of deferred compensation obligations relating to the Arch Coal, Inc. Deferred Compensation Plan (the "Plan").

This opinion is being delivered in accordance with the requirements of Item 601(b)(5) of Regulation S-K under the Securities Act.

In connection herewith, I have examined the Registration Statement. I have also examined the Company's Certificate of Incorporation and Bylaws, each as amended, and the corporate actions of the Company that provide for the issuance of the deferred compensation obligations which are the subject of the Registration Statement, and I have made such other investigation as I have deemed appropriate. I also have examined and relied upon certificates of public officials and, in rendering my opinion, have made the assumptions that are customary in opinion letters of this kind. I have not verified any of those assumptions.

Based upon and subject to the foregoing and the additional qualifications and other matters set forth below, I am of the opinion that, when issued in accordance with the terms of the Plan, the deferred compensation obligations that are the subject of the Registration Statement will be valid and binding obligations of the Company, enforceable in accordance with their terms, except as enforcement thereof may be limited by bankruptcy, insolvency or other laws of general applicability relating to or affecting enforcement of creditors' rights or by general equitable principles.

The opinion expressed above is limited to the laws of the State of Missouri, the Federal laws of the United States of America and, to the extent required by the foregoing, the General Corporation Law of the State of Delaware as in effect (and published or otherwise generally available) on the date hereof, and I assume no obligation to revise or supplement the opinion should such law be changed by legislative action, judicial decision or otherwise. In rendering the opinion, I have not considered, and hereby disclaim any opinion as to, the application or impact of any laws, cases, decisions, rules or regulations of any other jurisdiction, court or administrative agency.

I hereby consent to the filing of this opinion as Exhibit 5.1 to the Registration Statement and to the references to my name in the Registration Statement. In giving such consent I do not thereby concede that I am in the category of persons whose consent is required under Section 7 of the Securities Act or the rules and regulations thereunder.

Very truly yours,

/s/ Jon S. Ploetz

Jon S. Ploetz

Assistant General Counsel and Assistant Secretary

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statement (Form S-8) pertaining to the Arch Coal, Inc. Deferred Compensation Plan of Arch Coal, Inc. of our reports dated March 1, 2013, with respect to the consolidated financial statements and schedule of Arch Coal, Inc., and the effectiveness of internal control over financial reporting of Arch Coal, Inc. included in its Annual Report (Form 10-K) for the year ended December 31, 2012, filed with the Securities and Exchange Commission.

/s/ Ernst & Young LLP

St. Louis, Missouri

January 3, 2014
