

June 14, 2010

Mr. H. Roger Schwall  
Assistant Director  
Division of Corporation Finance  
Securities and Exchange Commission  
Mail Stop 3720  
100 F Street, NE  
Washington, DC 20549

Re: Arch Coal, Inc.  
Form 10-K for the Fiscal Year Ended December 31, 2009  
Filed March 1, 2010  
Definitive Proxy Statement on Schedule 14A  
Filed March 22, 2010  
File No. 1-13105

Dear Mr. Schwall:

We are providing this letter in response to the comments of the staff of the Securities and Exchange Commission (the "Staff") contained in your letter dated June 7, 2010 regarding the Annual Report on Form 10-K (the "Form 10-K") for the fiscal year ended December 31, 2009 filed by Arch Coal, Inc. (the "Company") on March 1, 2010 and the Definitive Proxy Statement on Schedule 14A (the "Proxy Statement") filed by the Company on March 22, 2010. Set forth below are the Staff's comments and our responses.

Engineering Comments

Definitive Proxy Statement on Schedule 14A filed March 22, 2010

Elements of Our Compensation Program, page 33

COMMENT NO. 1:

We note your response to comment 5. Please indicate if any of the operations under your control have been temporally idled, closed, or shutdown during your 2009 fiscal year as a result of an accident or safety concern.

RESPONSE:

None of the operations under our control were temporally idled, closed, or shutdown during our 2009 fiscal year as a result of an accident or safety concern.

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In connection with responding to the Staff's comments, we hereby acknowledge that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Thank you for your consideration. If you require any additional information on these issues, or if I can provide you with any other information that will facilitate your continued review of the Form 10-K and the Proxy Statement, please contact me at 314-994-2700 at your earliest convenience.

Sincerely,

ARCH COAL, INC.

By: /s/ John T. Drexler

John T. Drexler  
Senior Vice President and  
Chief Financial Officer