



GREGORY A. BILLHARTZ
Assistant General Counsel

August 4, 2008

VIA EDGAR AND FACSIMILE (202-772-9368)

U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-7010
Attn: H. Roger Schwall, Assistant Director

Re: Arch Coal, Inc.
Form 10-K
Filed February 29, 2008
File No. 1-13105

Dear Mr. Schwall:

I am writing this letter on behalf of Arch Coal, Inc. (the "Company") in response to the comment letter of the Staff of the Commission dated July 31, 2008 regarding the above-referenced periodic report. This letter sets forth each comment of the Staff in the comment letter (numbered in accordance with the comment letter) and, following each comment, the Company's response.

Form 10-K filed February 29, 2008

General

1. We note in various places throughout your Form 10-K that mention is made to the Magnum Coal asset sale in 2005. In light of its continued relevance, in all future filings, as long as its impact continues to be material, please include a summary of the Magnum Coal transaction in an appropriate place in your reports. We note the disclosure in footnote number 2 of your financial statements.

In addition to the notes to the financial statements, we have included a description of the transaction involving Magnum Coal Company ("Magnum") in Item 1 — Business under the heading "Our History" on page 2 and in footnote 2 to the table on page 9, in Item 6 — Selected Financial Data in footnote 3 on page 37 and in Item 7 — Management's Discussion and Analysis of Financial Condition and Results of Operations under the heading "Items Affecting Comparability of Reported Results" on page 38. In reliance on the instructions to Item 303(b) of Regulation S-K, in preparing our Quarterly Report on Form 10-Q for the quarter ended March 31, 2008, we assumed that users of that report have read and have access to the description of the Magnum transaction contained in our Annual Report on Form 10-K for the year ended December 31, 2007.

In future filings, we will continue to disclose the Magnum transaction in the appropriate items to the extent that the impact of the transaction continues to be material and relevant.

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Coal Mining Methods, page 7

2. Please tell us whether or not you perform retreat mining. Further, please represent to us that in future filings you will indicate whether or not you perform retreat mining.

We currently conduct retreat mining in certain underground mines at our Cumberland River and Lone Mountain mining complexes. In 2007, the quantities of coal we recovered from retreat mining represented an insignificant portion of our total coal production. In future filings, we will indicate whether we perform retreat mining at our underground mining complexes.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 37

3. We note your disclosure in various places in your MD&A which compares and contrasts various reporting periods and references such periods as reflecting "weaker market conditions" (see for example pages 39 and 43). In all future filings, revise such disclosure to ensure that it is internally consistent with respect to your characterization of results.

In future filings, we will clarify our disclosures to ensure that the characterization of our financial results is internally consistent across reporting periods.

In addition, the Company hereby acknowledges that (i) the Company is responsible for the adequacy and accuracy of the disclosures in the filing, (ii) Staff comments or changes to disclosures in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing and (iii) 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.

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 this filing, please contact John T. Drexler at (314) 994-2976 or me at your earliest convenience.

Sincerely,



Gregory A. Billhartz

cc: John T. Drexler

John Madison
Michael Karney
U.S. Securities and Exchange Commission