



May 18, 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 (the "Staff") of the Securities and Exchange Commission (the "Commission") contained in your letter dated May 12, 2010 regarding the Form 10-K for the Fiscal Year Ended December 31, 2009 filed by Arch Coal, Inc. (the "Company") on March 1, 2010 (the "Form 10-K") and the Definitive Proxy Statement on Schedule 14A filed by the Company on March 22, 2010 (the "Proxy Statement"). Set forth below are the Staff's comments and our responses.

Form 10-K for year ended December 31, 2009

General

COMMENT NO. 1:

Reference to your consolidated income statement as well as to disclosure at note 18 on page F-39 suggests that Tennessee Valley Authority has accounted for more than 10% of your revenues for each of the past three years. At page 15, you indicate that you sold 72% of your coal in 2009 under long-term supply agreements. You discuss at page 33 the risk that "The loss of, or significant reduction in, purchases by our largest customers could adversely affect our profitability." You also indicate at page 17 that you use "sole source suppliers for certain parts of our business such as explosives and fuel" Ensure that you describe in the filing in necessary detail the material terms of all material contracts and file such contracts as exhibits pursuant to Item 601(b)(10)(ii)(B) of Regulation S-K.

RESPONSE:

In response to the Staff's comment, we submit that our agreements with our significant customers, including Tennessee Valley Authority, our long-term supply agreements, and our agreements with our significant suppliers, including our sole source suppliers, are not required to be filed as exhibits pursuant to Item 601(b)(10)(ii)(B) of Regulation S-K. These contracts are of the sort that ordinarily accompanies the kind of business conducted by us and are in the ordinary course of our business. Accordingly, such contracts are not required to be filed unless they are contracts "upon which the registrant's business is substantially dependent," including "continuing contracts to sell the major part of registrant's products or services or to purchase the major part of registrant's requirements of goods, services or raw materials" Our business is not "substantially dependent" on any individual contract with any of our customers or suppliers, including the above-referenced contracts.

Our sales to our significant customers are made pursuant to multiple contracts with each customer. As a result, we do not believe that any individual contract is material. In particular, while the Tennessee Valley Authority is our largest customer and sales to it have accounted for more than 10% of our total revenues for each of the past three years, these sales include spot sales, as our disclosure indicates, as well as sales made pursuant to multiple contracts with the Tennessee Valley Authority. Further, while our long-term supply contracts in the aggregate accounted for approximately 72% of our coal sales in 2009, sales under any individual long-term supply contract did not account for a material portion of our coal sales (we have over 150 such agreements). Accordingly, none of these contracts constitutes a contract to sell "the major part" of our products. In addition, if, for any reason, we do not deliver coal in accordance with a customer agreement, we believe that adequate alternative means to sell the coal on commercially reasonable terms are available, including agreements with other purchasers and sales on the spot market. While we recognize that the loss of a customer or a significant reduction in purchases by a customer could impact revenues, we do not believe that our business would be fundamentally altered in the absence of any individual customer contract such that our business is "substantially dependent" on that contract.

While we do use sole source suppliers for certain parts of our business, our business is not "substantially dependent" on any one contract with these suppliers. Purchases under any one contract did not account for a material portion of our supply purchases and thus no contract with our suppliers is a contract to purchase "the major part" of our supply needs. In addition, we believe adequate substitute suppliers are available to provide the supplies necessary to operate our business, as our disclosure indicates, and we believe these alternative suppliers will supply the necessary materials to us on commercially reasonable terms.

For the foregoing reasons, we have concluded that the agreements with our customers and suppliers are not required to be filed as exhibits under Item 601(b)(10)(ii)(B) of Regulation S-K or described in further detail. Going forward, we will continue to assess whether our business is substantially dependent upon any one contract such that an exhibit filing is required

under Item 601(b)(10)(ii)(B), and if so, we also will describe the material terms of such a contract in necessary detail in our disclosure.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 48

COMMENT NO. 2:

Disclosure in the Business section of your filing indicates that coal production in the Appalachian region has declined in recent years primarily as a result of the depletion of economically attractive reserves, permitting issues and increasing costs of production and that you expect these trends to continue. Separately, we note that the segment information included in the notes to your financial statements indicates that, for the most recent two years, your central Appalachian segment has generated a disproportionate share of your operating income, relative to the sales generated by each of your segments. In view of the significance of your central Appalachian segment, you should disclose the material impacts that the identified trends have had, or are reasonably likely to have, on your financial condition, results of operations or liquidity. Additionally, you should disclose any actions that you have taken, or plan to take, to offset the impacts of the identified trends.

RESPONSE:

We acknowledge the Staff's comment and will continue to monitor trends related to our coal production in the Appalachian region. While we do think that the depletion of economically attractive reserves in the Appalachian region is a general trend in the coal industry, at this time we do not believe that it has had, or in the near term is reasonably likely to have, a material impact on our financial condition, results of operations or liquidity.

In October 2007 our Mountain Laurel complex in Central Appalachia began production. In addition, as indicated in the Form 10-K, beginning on page 12 under the heading "Central Appalachia," each of our mining operations in the Appalachian region has existing reserves available to sustain current production levels until at least 2017 before annual output starts to significantly decline. As a result, we do not believe that this decline in the Appalachian region, or the increase in production costs associated with mining coal from less economically attractive reserves, will have a material impact on our financial condition, results of operations or liquidity until at least 2017, if at all.

We currently do not believe we can state with certainty whether this trend is reasonably likely to have any material effects on our financial position in 2017 and beyond, primarily due to the length of time until we would experience a significant decline in our production levels in the Appalachian region. During the interim time period, several factors could significantly affect this trend and its impact on our financial condition, including the potential for additional acquisitions outside of the Appalachian region by us, any increases in coal prices for coal mined both within and outside the Appalachian region, and any changes in the applicable permitting

laws and regulations in the Appalachian region or in other regions in which we operate. As a result, we currently believe that our discussion in the Form 10-K of the trend that is the subject of the Staff's comment is similar to the types of optional forward-looking disclosures that the Staff noted in the Concept Release on Management's Discussion and Analysis of Financial Condition and Results of Operations when it described optional forward-looking disclosures as involving "anticipating a future trend or event or anticipating a less predictable impact of a known event, trend or uncertainty" (Securities Act Release No. 6711 (April 24, 1987) at 13717).

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

General

COMMENT NO. 3:

Please confirm in writing that you will comply with the following comments relating to your proxy in all future filings, and provide us with an example of the disclosure you intend to use in each case. After our review of your responses, we may raise additional comments.

RESPONSE:

We acknowledge the Staff's comment and confirm that we will comply with the Staff's comments in future filings as described herein. Where requested, we are providing the Staff with an example of representative disclosure that we intend to use in each case.

COMMENT NO. 4:

We note that you have not included any disclosure in response to Item 402(s) of Regulation S-K. Please advise us of the basis for your conclusion that disclosure is not necessary and describe the process you undertook to reach that conclusion.

RESPONSE:

In connection with the preparation of the Proxy Statement, we determined that the risks arising from our compensation policies and practices are not reasonably likely to have a material adverse effect on us. Item 402(s) of Regulation S-K calls for disclosure "[t]o the extent that risk arising from the registrant's compensation policies and practices for its employees are reasonably likely to have a material adverse effect on the registrant . . ." The Staff noted in Release No. 33-9089, which adopted Item 402(s), that "a company may under appropriate circumstances conclude that its compensation policies and practices are not reasonably likely to have a material adverse effect on the company." The Staff also stated in Release No. 33-9089, "We believe an approach consistent with our prior practice is appropriate and the final rule does not require a company to make an affirmative statement that it has determined that the risks arising from its compensation policies and practices are not reasonably likely to have a material adverse effect on the company."

In determining that the risks arising from our compensation policies and practices are not reasonably likely to have a material adverse effect on us, our Personnel and Compensation Committee (the "Committee") reviewed the fundamental objectives of our compensation philosophy to determine whether any of the factors considered in our compensation processes encourage excessive or inappropriate risk-taking. In connection with its review, the Committee considered the following factors, among others, related to the Company's compensation policies and practices:

- The Committee has retained consultants to assist in the analysis of certain comparative market data and ultimately concluded that our overall compensation levels are competitive with those offered by peer companies.
- The Company offers our executive officers a balanced mix of cash, equity and longer-term incentive compensation.
- The overall compensation of our executive officers is not overly-weighted towards the achievement of performance criteria in a particular fiscal year.
- Our annual cash incentive program has payouts at multiple levels of performance rather than an "all-or-nothing" approach. The target opportunities available to our named executive officers as a percentage of their base salaries are capped to protect against disproportionately large shorter-term incentives.
- Payouts under our annual cash incentive program are based on our achievement of performance criteria based on measures such as EBITDA, earnings per share, safety and environmental performance and, for some employees, our production costs per ton. Payouts under performance units granted as part of our long-term incentive program are based on our achievement of performance criteria based on measures such as total shareholder return relative to a peer group consisting of our coal industry competitors and safety and environmental performance. The Committee believes the performance criteria to be challenging yet reasonable and attainable without excessive risk-taking. This promotes the alignment of the interests of our executive officers with those of our stockholders.
- Equity awards to our executive officers typically vest over three or four years.
- The Committee maintains a dialogue with the Company's management to track progress on performance-based goals with a view towards identifying situations reasonably likely to lead to excessive or inappropriate risk-taking that may be driven by a desire to maximize performance-based compensation to our longer-term interests.

Based on these and other factors, the Committee believed that our compensation policies and practices encourage behaviors that are aligned with our long-term interests. The Committee also believed that our compensation policies and practices that involve short-term incentives do not comprise a significant portion of the compensation of our executive officers and do not

encourage our employees to take undue risks for short-term gain. As a result, the Committee determined that any risks arising from our compensation policies and practices are not reasonably likely to have a material adverse effect on the Company.

On a going-forward basis, our Committee intends to conduct an annual evaluation of our compensation policies and procedures and we will include in appropriate future filings a disclosure indicating whether the Committee has determined if any risks arising from our compensation policies and practices for our employees are reasonably likely to have a material adverse effect on us.

Engineering Comments

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

Elements of Our Compensation Program, page 33

COMMENT NO. 5:

In your Definitive Proxy Statement we note you state “we generally establish safety and environmental performance targets based on our prior performance history with the objective of promoting improvements in those areas.” In an appropriate section of your Form 10-K filing, please include a discussion of your safety performance referencing capital expenditures, safety programs, and statistical measures such as those reported to the MSHA or any other measures that your organization utilizes to monitor performance.

RESPONSE:

We acknowledge the Staff’s comment and, on a going-forward basis, we intend to include, in the appropriate section of our future Annual Report on Form 10-K filings, a disclosure similar to the following:

Arch Coal is committed to the safety of our employees. In 2009 we spent approximately \$6-7 million on MINER Act compliance and other safety improvement matters. In addition, we expect to invest a total of \$14 million in new two-way communication and tracking systems at our underground mines.

Our 2009 safety record was our best year on record as measured by total incident rate for all of our operating subsidiaries, surpassing our previous company record set in 2008. Our underground mine total incident rate in 2009 was 1.94 and our surface mine total incident rate was 0.62 (each as measured per 200,000 employee-hours). In addition, in 2009 we earned 12 national and state awards for safety excellence, and four of our operations completed three-plus years without a lost-time injury.

One way we work towards meeting a zero injury rate is developing and maintaining strong safety programs. Our subsidiaries launched behavior-based safety programs in 2006, which expanded our employees' involvement in our prevention process and in identifying at-risk behaviors before accidents occur. Since adopting these programs, our rates for total incidents and lost-time incidents have improved by approximately 49%. In addition, we routinely conduct regular safety drills and exercises with state safety and MSHA officials.

* * *

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