



May 23, 2013

Ms. Tia L. Jenkins
Senior Assistant Chief Accountant
Office of Beverages, Apparel, and Mining
Division of Corporation Finance
Securities and Exchange Commission
100 F Street, N.E.
Washington, DC 20549

Re: Arch Coal, Inc.
Form 10-K for Fiscal Year Ended December 31, 2012
Filed March 1, 2013
Response Submitted April 12, 2013
File No. 001-13105

Dear Ms. Jenkins:

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 May 9, 2013 regarding the Annual Report on Form 10-K filed by Arch Coal, Inc. ("Arch Coal") for Arch Coal's fiscal year ended December 31, 2012 (the "Form 10-K"). Set forth below are the Staff's comments and our responses.

Pursuant to Rule 12b-4 of the Securities Exchange Act of 1934, as amended, Arch Coal requests that, upon completion of this review, the Staff return to us all supplemental materials provided in connection with this review.

Form 10-K for Fiscal Year Ended December 31, 2012

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations, page 58

Critical Accounting Policies, page 74

Goodwill, page 75

COMMENT NO. 1:

We note your response to our prior comment two. With regard to your purchase of ICG in June 2011, please provide the following:

- a) The amounts of reserves and assets acquired and what amounts were capitalized for the mining complex in development (Leer) and the development opportunity (Tygart 2) as of the acquisition date;

RESPONSE:

In the purchase price accounting for the ICG acquisition, we assigned \$457.8 million to the 34.9 million tons of proven and probable coal reserves assigned to Leer and \$564.6 million to the 115.2 million tons of proven and probable coal reserves associated with Tygart 2. In addition to the reserves, real property, construction in progress and surface land totaling \$3.1 million was capitalized at Leer. No other assets were capitalized as part of Tygart 2.

- b) Further clarify the benefits you expect to derive from your strategic considerations on which you based your allocation of goodwill to properties only in the higher quality metallurgical market, see ASC 350-20-35-41;

RESPONSE:

The primary target of Arch Coal's acquisition of ICG was the higher quality metallurgical coals that ICG controlled. Strategically, we wanted a larger presence in the metallurgical markets both domestically and worldwide in order to fully benefit from projected market conditions. From 2008 through early 2011, shortages of metallurgical coal — and specifically high quality coals — led to significant price volatility for those products and record high prices. While Arch Coal had benefitted from these trends with its existing footprint of primarily lower quality metallurgical coals, opportunities to fully take advantage of these market conditions were limited without access to the higher quality products. Arch Coal's market projections at the acquisition date indicated that seaborne metallurgical coal demand would continue to outpace supply for an extended period. Specifically, we saw the following strategic benefits from acquiring ICG's high quality metallurgical coals:

- Our market analysis indicated that the highest quality coals were in shortest supply and that opportunities to develop new high quality metallurgical production were limited. Because of this, it was expected that the higher quality products would benefit disproportionately from the overall projected supply deficits.
- By controlling the higher quality coals, Arch Coal would gain access to markets and customers that were not available prior to acquisition, both domestically and globally. These customers and markets were not available to either party prior to acquisition as Arch Coal lacked a full suite of products to offer customers, and ICG lacked sufficient resources to invest in the necessary marketing and logistics infrastructure. The access to international customers was especially desirable as much of the projected supply deficits

related to international markets and neither Arch Coal nor ICG had a significant presence in many of those markets prior to the acquisition.

- c) The amount, methodology and assumptions used to allocate the excess fair value of the acquisition assigned to each of the four reporting units: Beckley, Sentinel, Leer and Tygart 2. You state that these were expected to be the four most profitable operations. Please discuss your consideration of producing mines compared to those still in development.

RESPONSE:

In order to determine the specific allocation to the four reporting units, we utilized several financial metrics from the acquisition economic model that was used in the mineral reserve valuation and purchase price allocation of the acquired operations (net present value, life of mine EBITDA, EBITDA margin, and internal rate of return). In addition to the profitability measures, we utilized the net present value and internal rate of return metrics to account for the capital investment and timing of the units in development. The operations were ranked and weighted accordingly based on each operation's contribution to the respective metric to determine the allocation.

The final allocation of goodwill was as follows (in 000's):

Beckley	\$	111,433
Leer	\$	139,734
Sentinel	\$	103,456
Tygart 2	\$	125,689

COMMENT NO. 2:

We note your response to our prior comment three. With regard to your impairment testing at October 1, 2012, please address the following:

- a) Tell us whether you consistently applied the methodology and basis used in the initial assignment of goodwill in your impairment analysis. If there were changes, please discuss each change and why it was appropriate.

RESPONSE:

We have consistently relied upon discounted cash flow analysis over the life of the mineral reserves as the basis for our assignment of goodwill and our impairment analysis.

- b) Please compare the impairment analysis assumptions provided in your response (i.e. sales volumes, coal price, costs to produce or discount rate) to those used at acquisition date.

RESPONSE:

We have reviewed our impairment analysis assumptions and compared them to those used at the acquisition date. For the Beckley and Sentinel units, the only significant change to the assumptions is the decline in coal pricing in the near term periods. For the Leer and Tygart 2 units, there were changes in the assumptions based on (i) an increase in the percentage of the mines' output that could be sold in metallurgical markets based on modifications to the design of a preparation plant, (ii) changes in the methods of mining in those units that increase annual production capacity; and (iii) a delay in development based on current coal market conditions.

- c) We note your analysis on sensitivity to near-term pricing and demand of coal. We also note that you produce or plan to produce primarily high volatile type A metallurgical coal at Sentinel, Leer and Tygart 2. We further note that the Leer mine is expected to be completed in 2013. Please discuss what factors led you to conclude that the Sentinel mine was impaired while goodwill allocated to Leer was not impaired. Discuss how the assumptions in your analysis differed between Leer and Sentinel.

RESPONSE:

In the impairment analysis, we utilized the same base met pricing assumptions for Sentinel, Leer and Tygart 2, with small differences for expected quality. Forecasted pricing for 2013 reflected weak conditions in the first half of the year, with some recovery in the latter half of the year. As Sentinel was the only operation of the three with any meaningful volumes before the fourth quarter of 2013, the weakness in near-term pricing had a more significant impact on its fair value. Additionally, the assumptions used for Sentinel in the impairment analysis were largely consistent with the acquisition valuation, with the exception of coal prices. For Leer, we changed the assumptions regarding the percentage of the mine's production that could be sold into metallurgical markets. Based on modifications in design of Leer's coal preparation plant and testing of the plant, we determined that a higher percentage of the mine's production would meet the quality specifications to be sold into metallurgical markets. The impact of this change offset the impact of lower near-term pricing.

- d) Tell us whether you are using any market data to determine your forecasted prices and how your forecasts have compared to the actual realized prices. Explain to us whether or not historical trends are indicative of future forecasts, and provide the basis for your conclusions.

RESPONSE:

Coal markets do not provide an observable metallurgical coal price for use in our forecasts. While third-party industry and investment analysts may provide estimates of future prices, they do not represent a transaction price at which we could sell coal under the guidance of ASC 820-10-35-3. We extensively analyze market data to make assumptions about supply and demand trends that are the basis for developing our price forecasts. The market data we use includes:

- Recent historical data regarding coal production, consumption and trade volumes (including government and industry data).
- Forecasts of general economic conditions.
- Various industry analyst forecasts of future demand trends (e.g., projections of steel consumption); future supply trends; stockpile levels; cost and capital investment trends.
- Publicly reported production and sales volumes, pricing and cost data.
- Public announcements of mine expansions, curtailments and new mine projects.

In addition to utilizing market data in our supply and demand forecast, we also monitor the public filings and commentary of other coal mining companies. We believe these companies would be the most likely marketplace participants, and consider their views of future market conditions along with our own.

Because the pricing of metallurgical coal has historically been volatile (and is expected to remain so), we would not expect that the forecasted price representing the fair value at a particular date would necessarily be reflective of the actual realized price in the respective future period. This has been the case with our historical price forecasts as actual prices have been more volatile than those forecasts (both on the upside and downside). Our price forecast would represent the estimated amount at which we could transact for the future period on the date the fair value is determined. Likewise due to volatility, historical pricing is not necessarily indicative of future pricing.

- e) We note that Leer and Tygart 2 are in very different stages of development. Tell us what facts and assumptions you considered in determining the discount rate you used in regard to the additional risks associated with a project that is still in the process of obtaining permits and regulatory approval.

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RESPONSE:

In determination of the fair value of the Tygart 2 unit, we have estimated the amount of time necessary to obtain permits and other regulatory approvals based on our experience with underground permitting in the region and our knowledge of the permitting process for other mining companies in the area. These estimates have considered the likelihood of public comment and challenges to the permits. The Tygart 2 reserves will be mined by underground mining techniques, and we have not experienced or observed any underground mines in the region being unable to obtain the necessary permits. Additionally, we have not experienced any delays or challenges in our permitting efforts to date. However, the timing of receiving the final permits is an additional uncertainty. Because this uncertainty would be difficult to adequately model using different scenarios in a weighted cash flow approach, we have instead reflected the additional uncertainty by utilizing a higher discount rate.

COMMENT NO. 3:

We note your response to prior comment five and your disclosure in your March 31, 2013 Form 10-Q. Please provide us with draft disclosures related to ASC 450-20-50-3 that you plan to include in future filings.

RESPONSE:

We plan to include the following disclosure under the "Summary of Significant Accounting Policies" in future filings to describe Arch Coal's existing accounting policy on this topic:

Summary of Significant Accounting Policies footnote: Contingencies

The Company accrues for cost related to contingencies when a loss is probable and the amount is reasonably determinable. Disclosure of contingencies is included in the financial statements when it is at least reasonably possible that a material loss or an additional material loss in excess of amounts already accrued may be incurred.

* * *

Arch Coal acknowledges that:

- Arch Coal 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

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- Arch Coal 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, 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