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December 21, 2017

VIA EDGAR

Mr. Rufus Decker
Accounting Branch Chief
Office of Beverages, Apparel & 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 the Year Ended December 31, 2016
Filed February 24, 2017
Form 8-K Filed October 31, 2017
File No. 1-13105**

Dear Mr. Decker:

On behalf of our client Arch Coal, Inc., we are submitting this letter in response to the comments of the staff (the "Staff") of the Division of Corporation Finance of the Securities and Exchange Commission concerning the Annual Report on Form 10-K and Current Report on Form 8-K referenced above as set forth in the letter dated December 11, 2017. For your convenience, we have set forth the Staff's original comments immediately preceding our responses.

Form 10-K for the Year Ended December 31, 2016

Item 1. Business

Our Mining Operations, page 14

- We note your disclosure of mineral reserves for your Leer Mining Complex. Please forward to our engineer as supplemental information and not as part of your filing, your technical report or Weir International, Inc. review, or the information that establishes the legal, technical and economic feasibility of the materials designated as reserves, as required by paragraph (c) of Industry Guide 7. Please discuss your process for assessing the economic viability of your mineral reserves in your response.**

Response:

The Company acknowledges the Staff's comment. The supplemental information requested is being provided to the Staff engineer under separate cover, on a confidential, supplemental basis pursuant to Rule 12b-4 under the Securities Exchange Act of 1934, as amended. In accordance with Rule 12b-4, the Company requests that such material be returned promptly following completion of the Staff's review. The Company is also requesting confidential treatment of such material, in accordance with the Freedom of Information Act (5 U.S.C. § 552) and the Commission's Rule 83 (17 C.F.R. 200.83).

December 21, 2017

Page 2

LATHAM & WATKINS^{LLP}

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

Operational Performance — Successor

Period from October 2 through December 31, 2016, page 57

Operational Performance — Predecessor, page 62

2. You present certain non-GAAP measures, such as coal sales per ton sold, cash cost per ton sold and cash margin per ton sold for each of your reportable segments. However, your reconciliations of the inputs used in determining these measures to the most comparable GAAP measures, such as reported segment coal sales revenues and reported segment cost of coal sales are only presented on a consolidated basis. Please revise to provide reconciliations of the inputs used to compute each of these non-GAAP measures to the most comparable GAAP measures on both a segmental and consolidated basis. Refer to Item 10(e) of Regulation S-K.

Response:

The Company acknowledges the Staff's comment. In future filings the Company will provide reconciliations for non-GAAP measures used on both a segmental and consolidated basis in substantially the same format as the reconciliations provided below.

Reconciliation of Non-GAAP measures

Non-GAAP Segment coal sales per ton sold

Non-GAAP Segment coal sales per ton sold is calculated as segment coal sales revenues divided by segment tons sold. Segment coal sales revenues are adjusted for transportation costs, and may be adjusted for other items that, due to generally accepted accounting principles, are classified in "other income" on the statement of operations, but relate to price protection on the sale of coal. Segment coal sales per ton sold is not a measure of financial performance in accordance with generally accepted accounting principles. We believe segment coal sales per ton sold provides useful information to investors as it better reflects our revenue for the quality of coal sold and our operating results by including all income from coal sales. The adjustments made to arrive at these measures are significant in understanding and assessing our financial condition. Therefore, segment coal sales revenues should not be considered in isolation, nor as an alternative to coal sales revenues under generally accepted accounting principles.

December 21, 2017

Page 3

LATHAM & WATKINS^{LLP}

October 2 through December 31, 2016 (In thousands)	Successor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Revenues in the consolidated statements of operations	\$ 275,703	\$ 200,377	\$ 97,382	\$ 2,226	\$ 575,688
Other revenues	—	—	—	—	—
Coal Sales	\$ 275,703	\$ 200,377	\$ 97,382	\$ 2,226	\$ 575,688
Less: Adjustments to reconcile to Non-GAAP Segment coal sales revenue					
Coal risk management derivative settlements classified in "other income"	—	—	(112)	—	(112)
Coal sales revenues from idled or otherwise disposed operations not included in segments	—	—	—	2,181	2,181
Transportation costs	4,826	40,170	12,130	45	57,171
Non-GAAP Segment coal sales revenues	\$ 270,877	\$ 160,207	\$ 85,364	\$ —	\$ 516,448
Tons sold	21,824	2,442	2,510		
Coal sales per ton sold	\$ 12.41	\$ 65.61	\$ 34.01		
January 1 through October 1, 2016 (In thousands)	Predecessor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Revenues in the consolidated statements of operations	\$ 726,747	\$ 437,069	\$ 213,052	\$ 21,841	\$ 1,398,709
Other revenues	—	—	—	—	—
Coal Sales	\$ 726,747	\$ 437,069	\$ 213,052	\$ 21,841	\$ 1,398,709
Less: Adjustments to reconcile to Non-GAAP Segment coal sales revenue					
Coal risk management derivative settlements classified in "other income"	—	—	448	—	448
Coal sales revenues from idled or otherwise disposed operations not included in segments	—	—	—	19,368	19,368
Transportation costs	12,559	81,390	25,252	2,473	121,674
Non-GAAP Segment coal sales revenues	\$ 714,188	\$ 355,679	\$ 187,352	\$ —	\$ 1,257,219
Tons sold	54,911	6,692	5,181		
Coal sales per ton sold	\$ 13.01	\$ 53.15	\$ 36.16		

December 21, 2017

Page 4

LATHAM & WATKINS^{LLP}

Year ended December 31, 2015 (In thousands)	Predecessor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Revenues in the consolidated statements of operations	\$ 1,448,440	\$ 637,941	\$ 428,809	\$ 58,070	\$ 2,573,260
Other revenues	—	—	—	—	—
Coal Sales	\$ 1,448,440	\$ 637,941	\$ 428,809	\$ 58,070	\$ 2,573,260
Less: Adjustments to reconcile to Non-GAAP Segment coal sales revenue					
Coal risk management derivative settlements classified in "other income"	—	—	(3,231)	—	(3,231)
Coal sales revenues from idled or otherwise disposed operations not included in segments	—	—	—	48,126	48,126
Transportation costs	22,137	81,554	67,598	9,944	181,233
Non-GAAP Segment coal sales revenues	\$ 1,426,303	\$ 556,387	\$ 364,442	\$ —	\$ 2,347,132
Tons sold	108,481	8,352	9,764		
Coal sales per ton sold	\$ 13.15	\$ 66.62	\$ 37.32		

Year ended December 31, 2014 (In thousands)	Predecessor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Revenues in the consolidated statements of operations	\$ 1,490,377	\$ 743,973	\$ 535,783	\$ 166,986	\$ 2,937,119
Other revenues	—	—	—	1,938	1,938
Coal Sales	\$ 1,490,377	\$ 743,973	\$ 535,783	\$ 165,048	\$ 2,935,181
Less: Adjustments to reconcile to Non-GAAP Segment coal sales revenue					
Coal risk management derivative settlements classified in "other income"	—	—	(5,958)	—	(5,958)
Coal sales revenues from idled or otherwise disposed operations not included in segments	—	—	—	146,823	146,823
Transportation costs	60,953	89,674	78,389	18,225	247,241
Non-GAAP Segment coal sales revenues	\$ 1,429,424	\$ 654,299	\$ 463,352	\$ —	\$ 2,547,075
Tons sold	111,156	8,421	12,201		
Coal sales per ton sold	\$ 12.86	\$ 77.70	\$ 37.98		

December 21, 2017

Page 5

LATHAM & WATKINS LLP

Non-GAAP Segment cash cost per ton sold

Non-GAAP Segment cash cost per ton sold is calculated as segment cash cost of coal sales divided by segment tons sold. Segment cash cost of coal sales is adjusted for transportation costs, and may be adjusted for other items that, due to generally accepted accounting principles, are classified in "other income" on the statement of operations, but relate directly to the costs incurred to produce coal. Segment cash cost per ton sold is not a measure of financial performance in accordance with generally accepted accounting principles. We believe segment cash cost per ton sold better reflects our controllable costs and our operating results by including all costs incurred to produce coal. The adjustments made to arrive at these measures are significant in understanding and assessing our financial condition. Therefore, segment cash cost of coal sales should not be considered in isolation, nor as an alternative to cost of sales under generally accepted accounting principles.

October 2 through December 31, 2016 (In thousands)	Successor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Cost of sales in the consolidated statements of operations	\$ 220,699	\$ 180,375	\$ 63,221	\$ 6,349	\$ 470,644
Less: Adjustments to reconcile to Non-GAAP Segment cash cost of coal sales					
Diesel fuel risk management derivative settlements classified in "other income"	363	—	—	—	363
Transportation costs	4,825	40,171	12,130	45	57,171
Cost of coal sales from idled or otherwise disposed operations not included in segments	—	—	—	5,853	5,853
Fresh start coal inventory fair value adjustment	(15)	10,843	(3,590)	107	7,345
Other (operating overhead, certain actuarial, etc.)	—	—	—	344	344
Non-GAAP Segment cash cost of coal sales	\$ 215,526	\$ 129,361	\$ 54,681	\$ —	\$ 399,568
Tons sold	21,824	2,442	2,510		
Cash Cost Per Ton Sold	\$ 9.88	\$ 52.98	\$ 21.79		

December 21, 2017

LATHAM & WATKINS^{LLP}

January 1 through October 1, 2016 (In thousands)	Predecessor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Cost of sales in the consolidated statements of operations	\$ 610,734	\$ 425,345	\$ 181,872	\$ 46,513	\$ 1,264,464
Less: Adjustments to reconcile to Non-GAAP Segment cash cost of coal sales					
Diesel fuel risk management derivative settlements classified in "other income"	(3,361)	—	(276)	(59)	(3,696)
Transportation costs	12,560	81,389	25,253	2,472	121,674
Cost of coal sales from idled or otherwise disposed operations not included in segments	—	—	—	42,513	42,513
Fresh start coal inventory fair value adjustment	—	—	—	—	—
Other (operating overhead, certain actuarial, etc.)	—	—	—	1,587	1,587
Non-GAAP Segment cash cost of coal sales	\$ 601,535	\$ 343,956	\$ 156,895	\$ —	\$ 1,102,386
Tons sold	54,911	6,692	5,181		
Cash Cost Per Ton Sold	\$ 10.95	\$ 51.41	\$ 30.28		

Year ended December 31, 2015 (In thousands)	Predecessor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Cost of sales in the consolidated statements of operations	\$ 1,157,258	\$ 568,971	\$ 340,738	\$ 105,785	\$ 2,172,753
Less: Adjustments to reconcile to Non-GAAP Segment cash cost of coal sales					
Diesel fuel risk management derivative settlements classified in "other income"	(7,750)	—	(332)	(80)	(8,162)
Transportation costs	22,137	81,553	67,598	9,945	181,233
Cost of coal sales from idled or otherwise disposed operations not included in segments	—	—	—	79,290	79,290
Fresh start coal inventory fair value adjustment	—	—	—	—	—
Other (operating overhead, certain actuarial, etc.)	—	—	—	16,630	16,630
Non-GAAP Segment cash cost of coal sales	\$ 1,142,871	\$ 487,418	\$ 273,472	\$ —	\$ 1,903,762
Tons sold	108,481	8,352	9,764		
Cash Cost Per Ton Sold	\$ 10.54	\$ 58.36	\$ 28.01		

December 21, 2017

Page 7

LATHAM & WATKINS^{LLP}

Year ended December 31, 2014 (In thousands)	Predecessor				Consolidated
	Powder River Basin	Metallurgical	Other Thermal	Idle and Other	
GAAP Cost of sales in the consolidated statements of operations	\$ 1,263,501	\$ 632,266	\$ 433,805	\$ 203,712	\$ 2,533,284
Less: Adjustments to reconcile to Non-GAAP Segment cash cost of coal sales					
Diesel fuel risk management derivative settlements classified in "other income"	(5,536)	—	(899)	(354)	(6,789)
Transportation costs	60,954	89,675	78,387	18,225	247,241
Cost of coal sales from idled or otherwise disposed operations not included in segments	—	—	—	190,220	190,220
Fresh start coal inventory fair value adjustment	—	—	—	—	—
Other (operating overhead, certain actuarial, etc.)	—	—	—	(4,379)	(4,379)
Non-GAAP Segment cash cost of coal sales	\$ 1,208,083	\$ 542,591	\$ 356,317	\$ —	\$ 2,106,991
Tons sold	111,156	8,421	12,201		
Cash Cost Per Ton Sold	\$ 10.87	\$ 64.43	\$ 29.20		

Form 8-K Filed October 31, 2017

Item 2.02 Results of Operations and Financial Condition

Company Outlook, page 6

3. Please include quantitative reconciliations of the differences between your forward-looking non-GAAP measures (e.g., average cash cost ranges for Metallurgical, Powder River Basin and Other Thermal) and the comparable GAAP measures. If the GAAP measure is not accessible on a forward-looking basis, disclose that fact and provide reconciling information that is available without an unreasonable effort. Furthermore, identify the specific information that is unavailable and disclose its probable significance. Refer to Item 10(e)(1)(i) (B) of Regulation S-K and Section II.B.2 of SEC Release No. 33-8176.

Response:

The Company acknowledges the Staff's comment. The Company does not present a quantitative reconciliation of its forward-looking non-GAAP per ton financial measures to the most directly

December 21, 2017

Page 8

LATHAM & WATKINS^{LLP}

comparable GAAP measures due to the inherent difficulty, without unreasonable efforts, in forecasting and quantifying with reasonable accuracy significant items required for the reconciliation. These items include, but are not limited to, transportation costs and the impact of hedging activity related to commodity and coal purchases and sales that does not receive hedge accounting, the amounts of which, based on historical experience, could be significant. For example, transportation costs are unable to be predicted due to uncertainty as to the end market and FOB point for uncommitted sales volumes and the final shipping point for export shipments. The timing and amount of any of these items could have a significant effect on our future GAAP results.

The Company will provide the following disclosure in future filings:

“The Company does not present a quantitative reconciliation of its forward-looking non-GAAP per ton financial measures to the most directly comparable GAAP measures due to the inherent difficulty, without unreasonable efforts, in forecasting and quantifying with reasonable accuracy significant items required for the reconciliation.”

* * * * *

We appreciate the Staff's time and attention to this matter. If you have any questions or comments or require further information, please do not hesitate to telephone the undersigned at (212) 906-1761.

Sincerely,

/s/ Keith L. Halverstam

Keith L. Halverstam

of LATHAM & WATKINS LLP

cc: John Coleman
Linda Cvrkel
John T. Drexler, Arch Coal, Inc.
