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Dave Hunsaker, State Director
Lynn E. Rust, Deputy State Director, Energy, Lands & Minerals
Bureau of Land Management, Colorado State Office
2850 Youngfield Street
Lakewood, CO 80215

Re: Additional Information and Analysis That Is Needed to Evaluate Mountain Coal Company's Economic Feasibility Analysis of Methane Capture and Use at the West Elk Mine

Dear Mr. Hunsaker and Mr. Rust:

On September 24, 2009, Mountain Coal Company (MCC) submitted an analysis ("MCC's Report") to the Bureau of Land Management (BLM) in response to the agency's March 25 request that the company evaluate the economic feasibility of mitigating the impacts of methane pollution emitted from the West Elk Mine. We submit the following comments on this analysis to the BLM.

In order to evaluate the reliability of MCC's conclusion that no processes to capture and use the methane being release by the West Elk Mine are economically feasible, additional information and analyses are needed. Ideally this additional work would be done by MCC and its consultants and submitted to BLM. Alternatively, at some cost, it may be possible for BLM or other parties to try to develop that information and carry out that needed additional analysis. Listed below are the high priority data and analyses needed for an accurate and rational evaluation of MCC's conclusion that there are no economically feasible opportunities for methane capture and use at the West Elk Mine. We request that BLM solicit any information necessary from MCC to assist the agency in its own independent analysis and scrutinize MCC's analysis as appropriate.

Please note that we intend to provide a more thorough review of MCC's Report by about November 2, and our independent analysis of at least one of the methane pollution mitigation measures by about December 4.

1. Net Present Value / Internal Rate of Return Analysis Done by Burns & McDonnell Engineering and the Verdeo Group

The net present value (NPV) and internal rate of return (IRR) analysis done by Burns & McDonnell are presented by showing a screen shot of a summary page from the spreadsheet modeling that their consultants did. See MCC Report, Exh. G at ES-4. MCC proposes to use the calculation of the internal rate of return to determine whether a particular CMM capture and use project is economically feasible or not. If the IRR is 10.99 percent or greater, MCC would deem it to be economically feasible. Burns & McDonnell also use net present value analysis to indicate CMM projects that are clearly not economically feasible because the NPV is negative. There are a dozen or more assumptions about the handling of expenses and revenues in these economic analyses that can dramatically impact the calculated IRR or NPV and, therefore, the apparent economic feasibility of each MCC project analyzed. All of these assumptions must be critically reviewed in order to evaluate MCC's and Burns & McDonnell's conclusions about economic feasibility.

We understand it may take quite a bit of time to try to recreate that spreadsheet modeling by working back from the assumptions provided in Burns & McDonnell's report. It would be much more efficient to obtain "live" (all formulae active) versions of those spreadsheets for evaluation. While disclosing such information would reveal the individual components of the weighted cost of capital and the weights, it would *not* require that MCC reveal what analysis led it to conclude that these were the right financial parameters to use. That is, this information could be released without requiring disclosure of detailed internal financial analysis of MCC or Arch Coal.

Burns & McDonnell's description of this spreadsheet modeling underlines why access to the spreadsheets themselves is important. At least twice Burns & McDonnell stated that they included the principle and interest on debt in their NPV and IRR analysis. MCC Report, Exh. G at ES. 4 and 5-2. This suggests that they assumed project finance for their analysis, effectively assuming that money was borrowed explicitly for these CMM capture and use projects. In that setting, changing the mix of debt and equity financing of a project does change the actual financial cost of the project since increased debt financing reduces the financial cost and would tend to increase the cost-effectiveness of the project. In that setting, without knowing exactly what the elements of the cost of capital that were used, we can not critically evaluate the accuracy of the analysis of the economic feasibility of CMM capture and use provided by MCC.

It is not clear that for projects of the size being considered ($12 to $33 million capital cost) and for a company the size of Arch Coal ($679 million in cash provided by operating activities in 2008; $3.0 billion in sales revenue) that project financing would make sense. Projects of this size could be funded out of Arch's cash flow. The opportunity cost of that would be indicated by the weighted cost of capital and simple cash flow analysis such as Verdeo Group used would be appropriate without distinguishing a debt and equity component. See MCC Report, Exh. H at 12 (Verdeo Group assumptions). The BLM should question the basis for the proposed project financing and ensure that alternative financing scenarios that could make any CMM capture project more cost effective be analyzed and assessed.

In sum, in order to evaluate the Burns & McDonnell analysis and conclusions, the live spreadsheet modeling should be made available for critical review. That includes the modeling behind Table 5-2: Economic Model Summary Results and the modeling behind Figures 5-1 through 5-8. See MCC Report, Exh. G at 5-5 – 5-9. The same should be disclosed for Verdeo Group's VAM modeling that was summarized in Appendix A: Mountain Coal VAM Feasibility Study. MCC Report, Exh. H at 11-12.

2. Detailed Data on the Day-to-Day Fluctuations in Aggregate CMM Production

One of the key determinants of the value of the electricity that could be generated from CMM is the reliability of that generation. Arista Midstream Services was commissioned to characterize the CMM production from the E Seam. See MCC Report, Exh. F, at 3-5. From its analysis, Arista appears to have concluded that the within-the-day and the day-to-day fluctuations in the aggregate CMM production are so large that no particular level of electric generation could be assured and, therefore, the electric generation would have no capacity value, only value as energy, when and if available. That was MCC's interpretation of the Arista analysis and the conclusion Burns & McDonnell drew from the information provided to them. MCC Report at 15 (MCC comments on the overall feasibility of methane use); id., Exh. F at 3 (Arista report which only discusses CMM gas, not electricity; see also id., Exh. G at 5-2 (Burns & McDonnell report stating "plant operation *may* be intermittent, so capacity cannot be guaranteed." (emphasis added)).

But in the reports themselves, there is no data supporting these conclusions. Arista does indicate that "day-to-day" gas production from *individua*l mine drainage wells (MDW) can vary a lot[1]. There is no discussion of how the aggregate production from 6 to 8 MDWs over both the active mining and the CMM from several MDWs over sealed panels fluctuates as opposed to the fluctuation from any given MDW. One would expect much less variability than found at an individual MDW. In addition there is still gas being produced by MDWs over previously mined areas. Could collection of methane from these areas be used to stabilize the supply of methane? Finally, could compression and storage of a reserve supply of methane be used to stabilize the methane supply for electric generation? At times, Burns & McDonnell expects more gas to be supplied than can be used for electric generation and that excess gas will have to be flared or released into the atmosphere. Storage of a limited amount of that gas during over-production could compensate for under-production at other times.

Finally, Arista also points out that unexpected changes in the geology of the seam being mined and/or changes in economic conditions can lead to dramatic reductions in coal

[1] "Based upon long term experience at West Elk, we expect that volume will be highest generally when the longwall is located at the beginning of a panel (East side) and generally decrease as the longwall moves west through the panel. Both historically and currently in the E Seam, there is significant day-to-day variation in MDW volumes, with total MDW flows during normal operations ranging from a low of 1.5 MMCF/day to peak flows approaching 5.0 MMCF/day." MCC Report, Exh. F at 3.

production and accompanying reductions in CMM production. These impacts of changes in coal production on CMM production have to be considered separately from those associated with the normal operation of the mine.[2]

It is important to have the actual data on the fluctuations in aggregate CMM production under normal mine operations from the combination of MDWs over the active mining site and from the MDWs over sealed panels. The MCC analysis does not provide that information. Arista also cites "the Schlumberger reserve study." MCC Report, Exh. F at 2. It would be important for BLM to review that CMM analysis too.

3. Economic-Geological Basis of the 10-Year Life of the CMM Capture and Use Investments

The economic analysis assumes a ten-year life for the CMM capture and use projects. The BLM must question the basis for this assumption. For investments in electric generation, this is short compared to the life of the engines and generators. A longer assumed operating life would increase the cost effectiveness of the investments.

The language in the reports does not make clear whether this time period was dictated by a pay-back period MCC chose for investments of this sort or whether it is tied to the expected remaining life of the mine. Arch Coal's 2008 10-K filing with the SEC, at PDF page 18 of 94, stated that: "The West Elk mining complex had approximately 70.9 million tons of proven and probable reserves at December 31, 2008. **Without the addition of more coal reserves**, the current reserves will sustain current production until 2019 before annual output starts to significantly decline."[3] Arch Coal also reported in that document that production at West Elk averaged 5.5 million tons for the three-year period 2006-2008. Arch Coal 2008 10-K filing at PDF page 15 of 94. At that rate of mining, the existing reserves would support about 13 years of additional mining, ending in 2021, if no more reserves are added.

The West Elk Logical Mining Unit has been regularly modified over the years as the mining company has moved from one seam to another. An important question for the analysis of the economic viability of methane capture and use is whether the mining of the E Seam is the last mining activity that will take place at the West Elk Mine or whether the geology of the area indicates that additional reserves may be added to the mine in coming years, likely extending its life beyond the mining of the E Seam.

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[2] To a certain extent, reductions in coal production are planned in reaction to both changes in geological conditions and costs as well changes in conditions in coal markets. These are not unpredictable "fluctuations" in the same way CMM production at a single MDW may be. In addition, if the electricity produced were used at the mine, the demand for electricity would decline when coal production declined and less CMM would be needed for generation.

[3] Emphasis added. Arch Coal's 10-K for fiscal year 2008 is available at http://files.shareholder.com/downloads/ACI/624585422x0xS950137-09-2276/1255895/filing.pdf.

The boundaries of BLM coal leases appear to extend a considerable distance south of the E Seam.[4] It is our understanding that MCC is currently actively negotiating with BLM to lease and mine this coal south of the E Seam. In addition, MCC and other North Fork coal companies have sought to keep Colorado's Roadless Rule from limiting the expansion of coal mining activity into potential new coal reserves in the Flatiron, Sunset roadless areas to the east and south of the current West Elk Mine as well as other roadless areas in the North Fork area.[5] This suggests that mining at the West Elk Mine may well continue beyond the 10 year period that MCC's economic analysis assumed.

One important question about the economic analysis of CMM capture and use relates to the West Elk Mine's current expectations with respect to additional reserves and the potential for extending the life of the mine beyond 2021. The longer the time period for which the equipment associated with the capture and use of the methane, the more cost effective it is likely to be.

In addition, even after the mine shuts down, assumedly gas will continue to be produced so that electricity could continue to be generated. Some significant activity will continue at the mine as "reclamation and remediation" proceed. Electric infrastructure could stay in place and the electricity could continue to be sold. What would be the gas volumes and electricity production after active mining ceases?

Finally, the engines and electric generators as well as the exhausters and compressors would still have operational value at the end of the ten year period even if coal mining operations were to cease at the West Elk Mine. That equipment could be shifted to other mines for use in capturing and using CMM. That residual value of the equipment needs to be included in the economic analysis.

4. Self-Generation Versus Generation for Sale Off-Mine

The economic analysis of the use of CMM to generate electricity assumes that the electricity would be sold to other parties away from the mine. An obvious alternative would be to use the generated electricity at the mine site to displace electricity that is currently purchased. That has some potential advantages:

i. It would appear that the 12.5 percent royalty would not apply for use of CMM to generate electricity for use in the mine operation, just as the use of CMM to

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[4] See Map 51-E Seam Mine Plan, West Elk Mine, Mountain Coal Company, last revision date 03-28-08, Revision Number PR-12 GBG; date stamped by the Colorado Division of Reclamation, Mining and Safety: March 27, 2008; hand written numbering: "MR-345 3/31/08." Coal Lease Boundary C-1362 is shown extending about 2.5 miles south of the southern end of the E Seam panels to Section 22, T 14 S, R 90 W.

[5] See http://fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5053180.pdf (map of roadless areas and coal leases);
andhttp://fs.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1K1M?ss=119930&navtype=BROWSEBYSUBJECT&cid=null&navid=111110000000000&pnavid=111000000000000&position=BROWSEBYSUBJECT&ttype=roaddocument&pname=Roadless-%20Proposed%20Rule%20Documents (USFS Colorado roadless rule site).

operate exhausters and compressors or to heat the intake air are not subject to that royalty.

ii. By displacing some of the purchased electricity, Burns & McDonnell's use of West Elk's purchase price of the electricity to value the generation from CMM would be more plausible since self-generation would reduce both energy and capacity costs.

iii. When CMM production falls because of declines in coal production in the mine due to economic, geological, or other reasons, the mine's demand for electricity would also likely decline. Such fluctuations in generation would actually be an advantage as electric production from CMM moved in tandem with the mine's need for electricity. This could also reduce fluctuations in the net demand placed on the current electric supplier's system.

In order to evaluate this alternative, BLM would need to know some of the details of West Elk Mine's current use of electricity and the contractual terms under which it currently receives electric service and the likelihood of modifying any restrictions on self-generation. In particular BLM must request information regarding:

i. The level of electric demand and energy use associated with the West Elk Mine under normal operations.
ii. The terms under which West Elk Mine purchases its electricity, including demand, energy, and customer charges.
iii. The cost of West Elk Mine remaining a customer of Delta-Montrose Electric Association (DMEA) for electric load beyond its self-generation.
iv. What backup generation does West Elk Mine currently have in place to provide electricity for mine ventilation and lighting when DMEA fails to be able to deliver electricity and whether self-generation could displace this, saving those back up costs?
v. Whether compression and storage of methane allow both a smoothing out of the available methane and support backup generation when either DMEA or the methane collection system is interrupted?
vi. Any restrictions on self-generation and the likelihood of relaxing those.
vii. Information on how electric load varies with the level of mining and coal production.

The MCC analysis suggests that the current average cost of electricity per mwh purchased from DMEA ($71) is a significant overstatement of the value of the electricity that generation from CMM could produce because there would be no capacity value associated with the local generation due to fluctuations in methane supply. MCC Report, Exh. G at 5-4. There are several assumption in this suggestion that need to be critically analyzed by the BLM. First, the methane supply and electric generation is not expected to go to zero. Therefore there will be a substantial capacity value associated with the expected minimum generation. Second, if MCC uses on-site the electricity it produces ("self-generation"), the company will reduce the demand charges it has to pay DMEA which are tied to its peak consumption during a given time period. Self-generation will reduce the demands West Elk will place on the DMEA system. Self-generation should also smooth out the load West Elk places on the DMEA system, reducing the stress it places on that system.

Evaluation of the alternative that MCC analyzed, sale for use away from the mine, would also depend on much of the same information. DMEA has been seeking to somewhat decrease its dependence on the Tri-State Generation and Transmission Cooperative on which it has relied for its electricity. This has led to proposals to add generation on the DMEA system. Generation at West Elk Mine could contribute to this and provide electricity cheaper than electricity from local renewable alternatives (wind and solar) with *less* variability but with the same "green" characteristics. As a result, DMEA may be willing to pay a premium for electricity generated at West Elk. BLM could determine whether this is true by discussing these issues with DMEA.

5. Pollution Control Costs for the Electric Generators

Given the high cost of the pollution controls that are assumed to be required on the electric generators[6], it is important to understand how certain it is that those controls would be required.

The Burns & McDonnell report statements on this do not appear to be very definitive: "Although not a specific regulatory limit, acquisition of an operating permit…typically includes review of the application by Federal Land Management agencies. The Forest Service has historically been concerned about the potential for visibility impacts…If an operating permit is required, it is expected that the project will need to demonstrate that Best Available Control Technology is applied to control potential emissions of precursors to $PM_{2.5}$ (i.e. NOx, SO2,…)." MCC Report, Exh. G at 4-3. In addition, Burns & McDonnell list the Selective Catalytic Reduction (SCR) emissions control equipment for the control of nitrous oxide emissions as "optional." Id. at 3-2 and 3-9.

Burns & McDonnell also seem to say that if the CMM is used on site for the operation of the mine (e.g. self-generation of electricity for use in the mine), Gunnison County regulations would not be applicable. State air quality regulations are not mentioned.

More detail is needed as to the likelihood that the assumed Best Available Control Technology standard would be imposed by the US Forest Service or other regulators. Further, BLM should request that MCC assess the cost and efficacy of other, potentially less costly pollution control measures.

6. Incorporating Carbon Offset Credits into the Analysis

MCC and its consultants did not include the value of carbon offset credits in their analysis of the feasibility of CMM capture and use. The Burns & McDonnell economic analysis was carried out ignoring any potential revenues from carbon offsets credits. At the end of the Burns & McDonnell report, however, a "sensitivity analysis" was carried out to see how much various important economic parameters would have to change in order for various CMM capture and use projects to meet the 10.99 percent rate of return

[6] The emission control capital costs are 40 to 50 percent of the engine or turbine package costs.

MCC says it must earn on investments. MCC Report, Exh. G at 5-4 – 5-9. In the last part of this sensitivity analysis Burns & McDonnell model how the value of carbon offset credits might change the economic feasibility of a CMM capture and use project. MCC Report, Exh. G at 5-6. Burns & McDonnell finds that with the value of carbon offset credits in the range of $14 per ton of CO_2 equivalent, one CMM flaring option would be economically feasible and for values in the $15.50 range electric generation (with supplemental flaring) could be economically feasible, too.

The Verdeo Group analysis of the future value of carbon offset credits puts them in the range of $7 to $14 per ton of CO_2 equivalent in 2015 and in the $11 to $18 range in 2020 assuming that federal carbon control legislation passes in the near future. MCC Report, Exh. I at 17. These carbon offset values are in or close to the range where they could "swing" the economic analysis from non-economic to economic.

Further, since Verdeo Group submitted its report to MCC (September 2009), it made a presentation at the 2009 U.S. EPA Coal Mine Methane Conference in Boulder, Colorado (September 30-October 1). See http://www.verdeogroup.com/documents/pdf-verdeo-epa-cmop-ghg-policy-0909.pdf ("Verdeo CMOP 2009 Presentation"). In that conference presentation, Verdeo Group supplemented the EPA estimates of the value of carbon offset credits it used in its report to MCC with estimates that the Energy Information Administration developed for what carbon offsets would be worth if the American Climate and Energy Security Act passed in June by the U.S. House of Representatives became law.[7] Verdeo CMOP 2009 Presentation at 16. Those carbon values were 70 to 100 percent *higher* than the EPA estimates between 2012 and 2020. While the EPA value was $10 a ton in 2012, the EIA middle or "basic scenario" value was $18 per ton. Id. In 2015 the EIA "basic" value reported by Verdeo was $22 and the EPA value was $13. Id. Verdeo carried out its analysis for this late September EPA conference using a $12 to $20 per ton range of values. The EIA values, would, according to the Burns & McDonnell sensitivity analysis, make both electric generation (reciprocating engine) and flaring (over the E Seam) cost effective. MCC Report, Exh. G at 5-7 – 5-8. Verdeo, in its presentation to the EPA conference, estimated the internal rates of return on the capture and use of CMM to be in the 25 to 40 percent range and for VAM in the 12 to 35 percent range. Verdeo CMOP 2009 Presentation at 19. All of these IRRs would meet MCC's target for economic feasibility.

Given that MCC's consultant on the value of carbon offset credits is projecting a value that appears to make at least two CMM capture and use alternatives economically feasible, the BLM must ensure the Burns & McDonnell analysis is redone using those higher values.

In addition, within the pre-compliance voluntary market for carbon offset credits, there are Colorado businesses that are looking for reliable and publically "visible" GHG emission reduction projects that could be used through offsets to reduce their "carbon

[7] Energy Market and Economic Impacts of H.R. 2454, the American Clean Energy and Security Act of 2009, Energy Information Administration, August 2009, SR/OIAF/2009-05, available at http://www.eia.doe.gov/oiaf/servicerpt/hr2454/pdf/sroiaf(2009)05.pdf. Verdeo used EIA's middle scenario which EIA labeled its "basic" scenario. See Table ES-1, p. xi.

footprint." The Aspen Ski Corporation and the Holy Cross Electric Cooperative are two such businesses that have been exploring CMM reduction projects for the voluntary carbon offset credits. In the context of federal carbon regulation, MCC's electric supplier (DMEA and Tri-State G&T) may also be interested in purchasing carbon offset credits. MCC should report on what the potential is for negotiating carbon offset payments from businesses such as these.

The submitted economic analysis of CMM capture and use effectively assumes that carbon offset credits have near zero value because of the uncertainty. See MCC Report, Exh. G at 5-6. But the future values of all economic variables are uncertain, including future coal, electric, natural gas, etc. prices as well as the cost of operating a coal mine. MCC's is currently planning to invest $25 to $30 million to build a coal processing plant at the West Elk Mine to assure the quality of the coal that it sells. See D. Webb, Company plans West Elk mine improvement, G.J. Sentinel (Aug. 9, 2009) available at gjsentinel.com/search/content/news/stories/2009/08/09/081009_3A_Arch_Coal.html. That was an unexpected cost associated with a coal seam splitting and causing a deterioration of the quality of the coal being produced. Despite the currently depressed coal markets, excess coal supply, and impending carbon regulation that could depress the demand for coal further, MCC, in its decision to make this investment, focused on expected future economic conditions, not current market conditions and concluded that a major investment in protecting the quality of its product made economic sense. Similar investments in CMM capture and use based on reasonably expected carbon offset credit values may also make economic sense.

BLM must request an analysis that does not translate uncertainty about an economic parameter into an assumption that the appropriate value to use for that parameter is zero. A critical appraisal of the expected value of carbon offset credits should be carried out and that value should be incorporated into the economic analysis.

7. Combining VAM Destruction with CMM Capture and Use

Verdeo Group was hired by MCC to analyze the economic feasibility of capturing and destroying the Ventilation Air Methane (VAM) from the West Elk Mine. Because the methane content of the VAM at West Elk is often below the concentration required to keep a regenerative thermal oxidizer operating (0.2 percent), the lowest cost method of removing methane from the VAM was judged not to be feasible. MCC Report, Exh. H at 3. Verdeo also pointed out other problems with VAM oxidation such as lack of terrain in the mountains where the oxidizers could be located. Id. at 9.

Given that about half of the methane being released by the West Elk Mine is found in the VAM, it may be appropriate to ask MCC to look more carefully at the control of the VAM source of methane. Verdeo analyzed the VAM problem independent of the capture and use of CMM. If CMM is being captured for flaring and/or more CMM is being captured than can be used for electric generation, there may be methane available to assure that the VAM, supplemented with CMM, would have a high enough concentration of methane to make the oxidation of the VAM sustainable. In fact, it may

be possible that CMM supplementation of the VAM for oxidation could create enough heat for electric generation. In any case, an integrated analysis of both VAM and CMM capture and use should be requested by the BLM to ensure a complete economic analysis.

8. Details on the Cost of the Methane Collection and Use Systems

Overhead Costs Associated with Electric Generation:

The Burns & McDonnell economic analysis of electric generation assumes overhead costs that add 56 percent to the detailed costs (Tables 3.3 and 3.6). MCC Report, Exh. G at 3-7 and 3-13. Incredibly, those overhead costs are larger than the cost of the engine and generator packages themselves. Id. They include 20 percent for "owner's cost including contingency," 18 percent for "overhead," and 10 percent for "engineering and management costs." Id. The BLM must ensure the basis for these very large cost loadings are explained and their firmness discussed. Undocumented, unspecified cost loaders cannot dominate the economic analysis. Further, it is worth noting the "overhead" costs identified in other parts of the report differ from those assumed by Burns & McDonnell. Compare MCC Report, Exh. G at 3-13 (assuming a 20% "contingency" cost) with MCC Report, Exh. F at 15 (assuming a 15% "contingency" cost). The reason for the differing assumptions for contingency are nowhere explained.

The Electric Generation from the Combustion Turbine (CT) Alternative:

Burns & McDonnell estimate the electric generation from the CT alternative would be only 42 percent of the electric generation from the reciprocating engine alternative even though the same methane gas supply is assumed to be available to both generators. Some of that difference is associated with the assumed lower efficiency of the CT (higher heat rate). But some of appears to be due to the CT simply not making use of as much of the available gas supply. Yet Burns & McDonnell indicate that both the CT alternative and the reciprocating engine alternative destroy the same amount of methane (Table 5-2, p. 5-3), assumedly by burning it in the generation of electricity..The BLM must ensure these differences and this apparent contradiction are explained. In most settings, a CT is considered a superior alternative to a reciprocating engine for electric generation and is typically the technology chosen. The reasons why a CT in this particular setting is grossly inferior must be explained.

Compressors:

One of the important costs of the collection system is the cost of the compressors that would move the CMM from the exhausters through the collection system to a centralized location. The Arista analysis of these costs was carried out on a *per well* basis (MCC Report, Appendix F at 36). In the text of the report, however, Arista indicated that after the build-out of the collection system, each compressor could service up to four MDWs (MCC Report, Appendix F at 8). This would suggest that fewer than 8 compressors would be needed to service both the long wall panels and the

sealed panels. The BLM must request a more complete explanation from Arista as to why it assumed 8 compressors were necessary.

Personnel for Collection System:

Currently the mine has to maintain and periodically move the exhausters that are located at the MDWs for the duration of the period when methane production is high at each MWD. The West Elk Mine has 10 of these exhausters that would be incorporated into the collection system. A certain number of personnel currently are tending, maintaining, and moving this equipment. It is not clear that Arista's estimate of the O&M costs associated with the collection system takes into account these existing workers, vehicles, and monitoring equipment that are already deployed and could assist in maintaining the collection system. That is, it is not clear that the CMM collection O&M costs estimated are entirely incremental. The BLM must question the basis for the O&M costs.

Thank you for the opportunity to provide input on MCC's R2P2 analysis. If you have any questions in this matter, please do not hesitate to contact me.

Sincerely,

Thomas Michael Power

Cc: Edward B. Zukoski, Earthjustice
Jeremy Nichols, WildEarth Guardians