Alpha Natural Resources

DATE: Sept 11, 2009

TO: **Rachel Tornek**

FROM: Joseph S. D'Amico PE

SUBJECT: **Coal Mine Methane Project Protocol Draft**
Version 1: VAM Version 2: Degas to Pipeline

Rachel,

Both VAM and Mine Degas have a useful place for GHG reductions depending on the application. CAR has an opportunity to become the premier Registry in the world for Coal Mine Methane if we can provide guidelines showing a phased approach as to the application sequence of Mine Degas Recovered to a pipeline 1st, with satisfactory additionality, followed by VAM or other CH4 destruction (Flare) 2nd. Subsequently, capturing of Gob gas from mined out areas can also be a source of methane release reductions that merit registration. It is important that CAR and its CMM Protocol intend to include VAM and Mine Degas and Gob gas capture as part of the same Protocol.

By way of illustration, the following data is a comparison, on a Mass Balance basis, of the relative CO2e differences of VAM & Degas for a typical gassy coal mine in the Appalachian region:

Ventilation Air Flow @ Exit	240,000 CFM Would require 3 VAM Units @ 40,000 CFM each
CH4 Concentration	0.9% CH4
CH4 / Day	3,110 MCFD
GHG Reduction Opportunity	VAM vs Degas CH4 Recovery

VAM:

1. A VAM unit can only take 50% of the available ventilation air due to back pressure safety concerns on the mine by MSHA.

2. VAM oxidation efficiency of CH4 is 96% which means that 4% of the 50% of CH4 in the slip stream sent to the VAM will still vent to the atmosphere.

3. The other 50% of ventilation air with its 0.9% CH4 vents to the atmosphere.

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Degas CH4 Recovery:

1. Ventilation air concentration has been reduced from 0.9% CH4 to 0.23% CH4 due to a degas program and recovery system in place.

2. Recovered methane of approximately 2.2 MMCFD must be compressed, gathered in field pipelines and brought to one location for Gas Processing to remove impurities and further compression to enter a gas transmission pipeline. All of which is an expensive proposition.

The following table includes a comparison of VAM to Degas to Venting CH4 as is the norm. The table is a result of running the mass balance calculations through our computer model. The results are in Tons of CO2e /Day.

VAM w/o Degas (0.9%CH4)	**Degas Only (0.23% CH4)**	**Baseline Venting (0.9% CH4)**
CH4 Oxidized in VAM = 78	CH4 Fuel, Field Compr = 6	0
4% CH4 through VAM = 25	Electricity, Proc Plant = 8	0
50% Ventil Air Vented = 628	100% Ventil Air Vented = 327	100% Ventil Air Vented = 1,257
Tons of CO2e / Day = **731**	Tons of CO2e / Day = **341**	Tons of CO2e / Day = **1,257**

Clearly one can see advantage of Degas vs VAM for reducing GHG emissions.

This is why I believe CAR's CMM Protocol has the opportunity to surpass all other protocols in the world if we include both VAM and Degas in the Protocol, which is CAR's objective. Somewhere in the Version 1 Protocol CAR may wish to consider language that says "*It is important to review the possibility of mine degas methane recovery or gas utilization prior to considering a methane destruction process for ventilation air and gob gas capture after mining in an area is completed*".

We at Alpha understand the fact that mine degas recovery into a pipeline adds additionality concerns. We also know that Alpha's project is not business as usual and we are not required by law or regulation to do so. It is a business that cannot compete with regional gas drilling into geologic formations.

We have not yet included the benefits of energy recovery of Mine Degas CH4 Recovery and should be prepared to discuss this subject openly at CAR to be good stewards of America's limited energy supply.

Let me know if you have any questions regarding the above as I am available to discuss them at any time.

Thank you,

Joseph S. D'Amico PE

Vice President Gas Technology & Marketing