



## CLIMATE ACTION RESERVE

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October 23, 2013

Chairman Mary Nichols  
Air Resources Board  
1001 I Street  
Sacramento, California 95812

Re: Support for and Comments on the Proposed Compliance Offset Protocol  
for Mine Methane Capture Projects

Dear Chairman Nichols and Members of the Air Resources Board,

The Climate Action Reserve (the "Reserve") applauds the Air Resources Board and its staff's efforts to amend the cap-and-trade regulation and, in particular, to expand the potential supply of carbon offsets through the adoption of a protocol for Mine Methane Capture (MMC) projects. We strongly support the adoption of this protocol and are pleased to note that the proposed MMC protocol mirrors and incorporates many significant elements of the Reserve's Coal Mine Methane (CMM) Project Protocol Version 1.1. Like the Reserve's CMM protocol, we believe the MMC protocol will ensure that offsets generated from mine methane projects are rigorously and conservatively quantified, and meet criteria for being real, additional, permanent, verifiable, and enforceable.

### Development of the Reserve's CMM Protocol

The Reserve's Board of Directors adopted Version 1.0 of the CMM protocol in October 2009. The protocol provides a standardized approach for quantifying, monitoring and verifying the greenhouse gas (GHG) reductions from methane destruction projects at active underground coal and Category III gassy trona mines in the United States and its territories. It was developed in a public process involving intensive consultation with a stakeholder workgroup consisting of industry representatives, project developers, project verifiers, consultants, academics, and U.S. EPA staff. The process culminated with a 30-day public comment period and a public workshop, following which the Reserve received and responded to numerous stakeholder comments. In 2012, the Reserve made technical revisions to the protocol, resulting in Version 1.1. The revisions were reviewed by stakeholders in another 30-day comment period, and Version 1.1 of the



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protocol was adopted by the Reserve's Board of Directors in October of that year. This development process resulted in a comprehensively rigorous protocol for determining the eligibility and additionality of projects at active underground mines, and for quantifying and verifying the GHG reductions they generate through methane destruction. We believe the core of ARB's proposed MMC protocol is equally sound and rigorous.

### **Real, Additional Reduction Opportunities**

As ARB staff's analysis suggests, there are substantial opportunities for reducing methane emissions from U.S. coal mining operations. In 2011, nearly 70 million tons of CO<sub>2</sub>-equivalent were released from mining operations nationwide – almost 12 percent of total U.S. methane emissions. These emissions are an attractive target for carbon offsets because they can be reduced in ways that fully satisfy offset quality criteria:

1. Reductions in mine methane emissions can be accurately measured, quantified, and verified in a standardized fashion. It is easy to determine destroyed methane volumes through metering technologies.
2. Reducing methane emissions results in permanent reductions that cannot be reversed.
3. Notwithstanding complications around mineral rights, it is relatively easy to establish clear ownership for mine methane reductions and avoid double-counting or double-claiming.
4. There is a large potential for additional emission reductions and additionality for specific project types can be clearly established using standardized methods.

Currently, only about 22 percent of methane liberated from mines in the United States is captured and utilized. In developing the CMM protocol, the Reserve's analysis (affirmed by separate analysis by ARB staff) indicated that such capture and utilization happens overwhelmingly at mines that send the methane to natural gas pipelines.<sup>1</sup> Although not all mines do this that could, we determined that sending mine methane to a pipeline was effectively business-as-usual and should not qualify as an additional project activity. The same analysis, however, indicated that capturing and destroying

<sup>1</sup> See Appendix A of the Climate Action Reserve's Coal Mine Methane Project Protocol, available at <http://www.climateactionreserve.org/how/protocols/coal-mine-methane/>.



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methane at active underground mines that would otherwise be vented from drainage systems is extremely rare. Likewise, capturing and destroying ventilation air methane (VAM) has been non-existent when not undertaken for carbon offsetting purposes. Finally, the analysis showed that these kinds of projects are rare or non-existent because they are likely to be uneconomical (and not, for example, simply more costly options than pipeline injection). For these reasons, we concluded that these kinds of activities should be considered additional, provided they meet certain eligibility conditions.

Eligible project activities, which involve installing devices to collect and either flare methane or use it to generate usable energy, typically have high capital costs and long payback periods, and face numerous implementation barriers.<sup>2</sup> The revenue they generate is generally a small fraction of the overall revenue generated from a typical coal mining operation.<sup>3</sup> Because of these factors, offset projects are most frequently undertaken by an independent project developer specializing in the installation and operation of the required equipment. Four out of the five CMM projects currently listed or registered on the Reserve's system involve these independent operators. As a result, the coal mines themselves rarely profit directly from these kinds of projects and when they do, the net revenue they receive from the projects is quite small relative to their overall revenues.

One concern raised by some stakeholders is whether profits generated from carbon offset projects might enable coal mining companies to maintain or expand their operations, leading to "leakage" in the form of increased GHG emissions from additional coal extraction. We believe these concerns are misplaced for at least two reasons. First, as explained immediately above, project revenues going to mine operators are likely to be nominal relative to

<sup>2</sup> See, for example, the U.S. EPA Coalbed Methane Outreach Program (2008). *Identifying Opportunities for Methane Recovery at U.S. Coal Mines: Profiles of Selected Gassy Underground Coal Mines 2002-2006*, available at:

[http://www.epa.gov/cmop/docs/profiles\\_2008\\_final.pdf](http://www.epa.gov/cmop/docs/profiles_2008_final.pdf). It should be noted that although this report sought to identify nominally cost-effective opportunities for methane capture and utilization at U.S. coal mines, very few of these opportunities were actually undertaken, even during historical periods of higher natural gas prices.

<sup>3</sup> On average less than 1.2 percent at current California carbon offset prices – see Stanford Law School public comments on the draft Mine Methane Capture Compliance Offset Protocol, submitted July 1, 2013, Appendix C, Table 2, page C-4.



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overall revenue streams. Second and more importantly, leakage would only be a risk in situations where profitable opportunities for coal extraction are going unrealized due to severe capital constraints. If a mining option does not make sense under current market conditions, then regardless of profits or cash reserves, a coal mining company will not exercise that option; it would not make sense to use extra profits to subsidize uneconomical activity. Conversely, if a cost-effective option does exist, the nominal amount of additional revenue from a carbon offset project is not likely to materially affect a company's ability to invest in its development (other sources of capital would be necessary, to which U.S. coal mining companies would have ready access even if they did not receive any offset project revenues). Our assessment, therefore, is that the risk of leakage from CMM offset projects is very low.

The Climate Action Reserve encourages the ARB to adopt this protocol and offers additional comments on the draft in Attachment 1 to provide clarity and improve the protocol overall. We commend the staff for its work and look forward to working together on its implementation.

Sincerely,

Gary Gero  
President

Attachment: Detailed Comments on the Mine Methane Capture Protocol



## Attachment 1 – Detailed Comments on the Mine Methane Capture (MMC) Protocol

### **Specific Comments on MMC Protocol**

Although ARB's proposed MMC protocol mirrors the Reserve's Coal Mine Methane (CMM) protocol in important ways, it also expands the scope of eligible project activities beyond those covered in the Reserve's CMM protocol. Specifically, the MMC would allow crediting of projects that capture and destroy methane at surface mines and abandoned underground mines. The Reserve supports the expansion of the protocol to other project types when such projects are similarly additional and quantifiable. We offer the following comments and questions in the spirit of constructively assisting ARB to clarify the terms the MMC protocol with respect to these project types to ensure the most robust, yet conservative, offsets program possible.

### Sections 2.2(d), 2.2(e), 2.3(d) and 2.4 (f) – Project Expansion vs. New Project

#### ***Issue: Lack of clarity on eligibility of destruction devices***

These four sections describe under what circumstances an Offset Project Operator may choose to classify certain activities as either an offset project expansion or a new project. While those circumstances are clear, what is not clear is if the "existing destruction device" referenced in each section needs to be a qualifying destruction device. We assume it does, but for clarity, it would be helpful to revise the language in each section to state "an existing **qualifying** or new destruction device."

As a follow up to this suggestion, it is our interpretation that an active surface mine or abandoned underground mine currently sending drained methane to a pipeline could not connect a newly drilled well to that existing pipeline (i.e. destruction device) as an eligible activity. Furthermore, it is also our interpretation that extending or somehow modifying the existing pipeline would not make it eligible as a new qualifying device. In other words, we believe it is the protocol's intent that no active surface or abandoned underground mine that has sent methane to a pipeline (or other destruction device) operating at the mine prior to project commencement will be eligible for crediting for any methane sent into that pipeline or other destruction device at any point in the future. It may be helpful to add some additional language to clarify this.

### Section 2.3 Active Surface Mine Methane Drainage Activities

#### ***Issue: Eligibility of drainage activities at a surface mine is only limited by timing and not by existing recovery activities at the mine/in the region.***

The protocol limits qualifying devices to those destruction devices that were not operating at the mine prior to offset project commencement. What the protocol does not yet appear to address is what other methane recovery activities were occurring at the surface mine prior to project commencement. We note that the U.S. EPA released a report in 2008 on U.S. surface coal mine recovery opportunities<sup>1</sup> and identified the Powder River Basin (PRB) as the most promising coal

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<sup>1</sup> U.S. EPA, *U.S. Surface Coal Mine Methane Recovery Project Opportunities* (July 2008); available at [http://www.epa.gov/cmop/resources/active\\_surface\\_mines.html](http://www.epa.gov/cmop/resources/active_surface_mines.html).

basin for potential mine-specific methane recovery project opportunities. The report describes how, generally, surface mines are not a large source of methane emissions because of the relatively low gas content of coal that is mined. However, the PRB is an exception and has been the focus of very significant coalbed methane development efforts since the 1990s, with estimated methane reserves of 25 trillion cubic feet. The number of producing coalbed methane wells climbed to 21,000 by the end of 2004, while in the mid-1990s, the basin had only 4,000 wells. As these numbers illustrate, coalbed methane development in the PRB has significantly grown. Thus, one might expect the industry in this region to continue to grow even without the incentive provided by the offset market. We would suggest a deeper analysis of this issue.

The EPA report profiles the ten gassiest surface mines in the U.S., all of which are located in the PRB. About half of these surface mines have estimated CMM emission rates in the same range as active underground mines that are currently recovering CMM and sending it to pipeline and are thus ineligible under the both the Reserve's CMM protocol and under ARB proposed MMC protocol.

#### Ten Gassiest U.S. Surface Mines

Mine Name	2007 Estimated CMM Emissions (million cf/day)
Rosebud	1.38
Eagle Butte	2.74
Buckskin	2.77
Belle Ayr	2.92
Caballo	3.42
Antelope	3.78
Jacobs Ranch	4.18
Cordero Rojo Complex	4.44
Black Thunder	9.45
North Antelope Rochelle	10.03

#### Active Underground Mines with Pipeline Projects<sup>2</sup>

Mine Name	2006 Estimated CMM Emissions (million cf/day)
Shoal Creek	4.7
Loveridge No. 22	7.1
Emerald	7.4
Oak Grove Mine	7.5
Blue Creek No. 5	9.4
Blacksville No. 2	9.7
Pinnacle	9.8
Cumberland	10.1
West Elk Mine	18.2
VP 8	19

<sup>2</sup> U.S. EPA, *Identifying Opportunities for Methane Recovery at U. S. Coal Mines: Profiles of Selected Underground Coal Mines 2002-2006* (January 2009); available at [http://www.epa.gov/cmop/resources/active\\_underground.html](http://www.epa.gov/cmop/resources/active_underground.html).

Blue Creek No. 4	23.2
Blue Creek No. 7	31.6
Buchanan Mine	72.3

The protocol states that pipeline injection of mine methane extracted from methane drainage systems at active underground mines is common practice and considered business-as-usual, and, therefore, ineligible for crediting under this protocol. Based on the data above, existing recovery activities that are occurring at gassy surface mines would seem to raise concerns similar to those for recovery activities that are occurring at gassy active underground mines. In particular, existing CBM and CMM recovery in the PRB raises concerns that some recovery activities within the PRB and/or at gassy surface mines could be financially viable without the incentive from the offset market and therefore non-additional, despite being a relatively uncommon practice when viewed across the entire United States.

ARB's staff report states that few active surface mines currently capture and destroy mine methane, and thus methane capture and destruction is deemed not to be business-as-usual, which implies that active surface mine methane drainage activities are additional. However, this may be too broad a characterization under certain circumstances. In particular, at surface mines where recovery of methane is already occurring, simply adding a new destruction device may not be enough to demonstrate additionality, especially for projects located at gassy surface mines like those found in the PRB.

Section 5.2 (b) of the MMC protocol excludes from eligibility methane from specific sources (e.g. pre-mine wells) at *active underground* mines that historically sent any methane from that source to a natural gas pipeline, or begins to inject methane from that source into a pipeline while the offset project is ongoing. The same approach may be warranted for surface mines to ensure the additionality of offsets from these projects.

#### Section 3.4.1 Legal Requirement Test

***Issue: The Legal Requirement Test allows for crediting of emission reductions that are "in excess" of what is required to comply with any legally required emission reductions.***

In principle, it may be appropriate to credit emission reductions in excess of what is required by law, but in practice, it may be difficult to determine what the effects of legal requirements are on baseline emissions. Different kinds of legal requirements could affect the baseline in different ways, and it is likely that legal mandates stemming from BACT determinations could be highly site-specific, making it difficult to provide standardized guidance for determining what is "in excess" of the legal requirement.

In particular, if a certain level of methane destruction is legally required, much of the capital investment needed to capture and destroy methane may be made to comply with this legal requirement. In this case, any "excess" reductions may not face the same barriers as capture and destruction activities at mines that are not legally required to reduce emissions. Any guarantee of

eligibility under the protocol should be contingent upon what ARB determines is “in excess” of the legal requirements, and not simply the legal requirement itself.

ARB staff has included language in the protocol that seeks to revise baseline emissions according to historical destruction levels achieved to meet a recent (less than three-year-old) legal requirement. It is not clear that this provision would sufficiently address situations where a new project is implemented immediately after a new legal requirement takes effect. ARB may wish to reserve the right to make determinations about what reductions are “in excess” of legal requirements on a case-by-case basis, or update the protocol once new requirements (e.g., BACT standards) are promulgated.

#### Section 3.4.2 (b)(4)(A) Performance Standard Evaluation for Abandoned Mine Methane Recovery Activities

***Issue: Destruction of extracted mine methane via any end-use from abandoned mines automatically meets the performance standard evaluation.***

The protocol states that pipeline injection of mine methane extracted from methane drainage systems at *active underground* mines is common practice and considered business-as-usual, and therefore ineligible for crediting under this protocol. Based on available data<sup>3</sup>, pipeline injection of mine methane extracted from methane drainage systems at *abandoned* underground mines is occurring at a similar rate. According to 2011 data, there were 16 AMM projects that recovered gas from 38 abandoned mines; 13 of those 16 projects inject into pipeline (over 80 percent). In other words, these data suggest that pipeline injection of mine methane extracted from abandoned mines may be similarly “business as usual,” as it is from underground mines. If so, this would raise similar additionality concerns.

#### **Miscellaneous**

- There are references throughout the protocol to performing tasks “on an annual basis.” Based on proposed changes to the regulation, it appears that ARB is moving away from the use of “annual” towards a “12-month period,” which we support. We have found in our program that “annual” can be interpreted as a calendar year, which we do not believe is the intent of the protocol requirements.
- Equation 5.15 (p.46): in the section of this equation that details how  $MM_{B,i}$  is calculated, there appear to be a number of unnecessary variables related to surface mines that should be deleted, namely  $ECW_{B,i}$ ,  $AWR_{B,i}$ , and  $CDW_{B,i}$ . Furthermore, the variable  $PGW_{B,i}$  has been left out of the equation.
- Equation 5.43: there appears to be an error in the equation; the variable  $MD_{B,i}$  appears twice, while the variable  $MD_{P,i}$  is missing.
- Section 6.7(f): there is a repeated phrase in the text – it currently states “Offset Project Operators...must adhere to ***adhere to*** the following:”.

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<sup>3</sup> Ruby Canyon Engineering, Inc., *Abandoned Coal Mine Methane Offset Protocol Background Information on Performance Standard and Additionality* (March 2013)