

19 May 2009

Thomas Kerr  
Senior Energy Analyst  
International Energy Agency (IEA)  
9, rue de la Fédération  
75739 Paris Cedex 15, France

Dear Mr. Kerr:

As representatives of two companies that develop coal mine methane projects in China, Green Gas International and Sindicatum Carbon Capital wish to thank the IEA for sharing its Information Paper, *Coal Mine Methane in China: A Budding Asset with the Potential to Bloom*. The report correctly characterizes much of the potential for developing this resource and thus realizing a variety of energy and environmental benefits.

Both of our companies are committed to the safe development of coal mine methane projects in China, and we hope this letter will be constructive in clarifying Chinese and international safety issue of transporting and using “low quality” coal mine methane. Both Sindicatum and Green Gas employ methane control experts who work on all coal mine methane projects we assess, and develop in China. Maintaining international mine safety standards is a prerequisite for our coal mine methane activities.

The principal issue we wish to clarify, and hope you will publicize, is that in all nations with coal mining, mine safety standards prohibit the transport/use of methane at or near the explosive concentration envelope (approximately 5 – 15% methane in air at standard temperature and pressure). Indeed, while some (commercial or environmental) Chinese governmental and private bodies implicitly accept that mines may use gas in these ranges, China’s State Administration for Worker Safety explicitly prohibits its use, in line with all other national mine safety authorities world-wide. The regulation specifically states that “It is not allowed to use methane at concentration lower than 30%. When used, the utilization system has to be equipped with safety measures including flame arrestors, check valves and explosion prevention devices. If the gas is not utilized and a dry pump is used for extraction, the drained gas concentration is not allowed to be lower than 25%.”<sup>1</sup>

There is nothing special about Chinese geology that forces its mines to produce gas “low quality” as established, basic technologies have been put in practice around the world to prevent its propagation. And the resulting methane releases from these methane drainage practices is of a higher quality that affords greater opportunities to safely harness the methane and prevent methane emissions to the atmosphere.

Attached to this letter is some background on the issue of mine safety and “low concentration” methane and a listing of specific comments to the paper’s text regarding this issue. It is our hope that you will agree with us that it is not helpful for the IEA or any other international organization to seem to endorse the transport and use of gases at these concentrations. We shall be most happy to further discuss how this information may be best communicated; a preliminary suggestion is to post this letter and the supporting information on IEA’s China Page ( [http://www.iea.org/Textbase/country/n\\_country.asp?COUNTRY\\_CODE=CN](http://www.iea.org/Textbase/country/n_country.asp?COUNTRY_CODE=CN) ) and at Methane Recovery - Analysis and Opportunities ( <http://www.iea.org/textbase/subjectqueries/methane.asp> ). In addition, we would also recommend that we jointly solicit the Methane to Markets program to suggest that they also post this letter on the Coal subcommittee section as the report was funded by the U.S. EPA for Methane to Markets (M2M).

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<sup>1</sup> Peoples Republic of China, Coal Mine Safety Regulation (updated 29 September 2006, effective 1 January 2007), Chapter 2. Ventilation, Article 148.

Finally I want to inform you of a new initiative to improve mine safety globally with a special focus on emerging economies. The World Coal Institute, the UN Economic Commission for Europe, and M2M are jointly sponsoring the development of a best-practice guidance for effective methane capture and use. The guidelines will be principal-based to provide broad guidance on methane management and abatement practices that can be adapted to local conditions. Although the draft is still in development, we expect that it will address the growing issue of transport and use of lower concentration methane.

We look forward to working toward the same goal of a safe and productive coal industry, and one with a lower carbon footprint.

Sincerely,

For Green Gas International:

A handwritten signature in black ink, appearing to read 'Roland Mader', with a long, sweeping flourish extending to the right.

Roland Mader  
Executive Director, China

For Sindicatum Carbon Capital:

A handwritten signature in black ink, appearing to read 'D P Creedy', with a long, sweeping flourish extending to the right.

David Creedy  
Senior Vice President, Coal Mine Methane Group

## **Background:**

Methane concentrations in air between 5% and 15% are explosive and mine safety laws in most mining countries require that there should be a margin of safety for transporting and using gas to minimise the risk of explosions.

National safety legislation in China allows coal mine methane at a concentration of 30% or more to be utilised. Mines that have effective gas drainage systems generally adhere to this regulation. Where CMM is piped for domestic use it is stringently adhered to. Mines struggling to achieve good gas drainage performance and those unwilling to make the necessary investment are draining low quality CMM. Government policy encouraging gas utilisation has driven these mines to look for new utilisation solutions rather than solve the real problem of poor gas drainage.

Standard safety practice in coal mines is to reduce explosion risk by preventing the occurrence of explosive mixtures wherever possible and ensuring isolation of explosive mixtures from potential ignition sources. The gas which occurs naturally in coal seams generally contains more than 95% methane and this is the general case in China. The methane becomes diluted as a result of air being drawn into the system as the gas is “sucked” out of gas drainage boreholes. Some dilution is inevitable but in a well designed and managed system (for which there are many examples in China) the concentration of the drained gas can be kept at concentrations of 30% and higher.

Low concentration CMM does not arise as a result of local geological conditions (as some PDDs claim) but because of inadequate gas drainage which allows excessive volumes of air to be drawn into the system to dilute the methane. Gas drainage even in the most difficult of geotechnical situations is possible at concentrations exceeding 30% and the technologies to deploy this exist in China. If indeed gas drainage at safe concentrations is not possible, and the result is a mine with unsafe levels of methane in either the working areas or in gas being transported to and on the surface, then the mine is not in conformity with safety rules and cannot operate safely.

## **Comments on IEA Information Paper:**

Overall, the report makes several references to the use of “low quality” CMM with implied endorsement, in one case using the term “innovative” to describe developments in this area. This is very unhelpful, given the power of publications by influential bodies like the IEA to undermine the efforts of the international community to persuade China to align its laws with the rest of the world. Secondly, the report takes at face value the assertion that Chinese mines naturally produce three distinct streams of CMM, including the explosive-range one.

In detail, then;

1. Executive summary, para 4. “beneficial use of lower-quality CMM” Strong implied endorsement.
2. Page 14, CMM Drainage Technologies and Practices, para 1. “Mines with CMM having methane concentrations above 30% must .....” missed opportunity to point out that ALL mines have starting CMM concentrations of 100%, but some allow leakage to dilute to less than 30%.
3. Page 15, last para starting “In addition, the concentration.....” Is a missed opportunity to state “poor standards of sealing in Chinese degasification systems result in most recovered CMM being less than 30%, this is not permitted in other countries”, instead of only stating that international project developers “do not want to get involved”.
4. Page 18, last para starting “Low-concentration.....” Is a missed opportunity to state “Transporting explosive-range CMM underground is unlawful in the developed world and is not endorsed by international project developers.”

5. Page 19, numbered para 2, “Use of.....” The report authors failed to notice that the water vapour injection system begins and ends on the surface, and therefore does not protect the main part of the pipe system, i.e. the underground part. Also the authors do not question the effectiveness of this technology.
6. Page 27, para 3 “In contrast.....” A missed opportunity to criticise badly-formulated legislation that has no equivalent anywhere else in the world.
7. Page 29, last para “Most Chinese .....” This is a weak condemnation of the low-concentration issue, includes unhelpful comments like “innovated to recover and use.....” and the comment “nearly universally viewed as unsafe”. This para should condemn much more robustly.
8. Page 32, last para “It is clear.....” This para endorses use of low quality CMM, with words like “tailor international technologies...” that will be interpreted as “lower the safety-requirements bar”, and more problematic is the comment “show promise, including use of lower-quality.....”: this is overt endorsement of the use of these dangerous gases.

**Conclusion:**

The international community should take every opportunity to communicate to government officials in China on the importance of improving degasification leakage standards and enforcement of existing mine safety laws. We hope that the IEA will publish this letter and acknowledge that it does not implicitly or explicitly endorse explosive-range gas transport and use.