



Industrie Service

TÜV SÜD Industrie Service GmbH · 80684 Munich · Germany

**Choose certainty.
Add value.**



DAP-PL-2885.99
DAP-IS-2886.00
DAP-PL-3089.00
DAP-PL-2722
DAP-IS-3516.01
DPT-ZE-3510.02
ZLS-ZE-219/99
ZLS-ZE-246/99

Your reference/letter of	Our reference/name	Tel. extension/E-mail	Fax extension	Date/Document	Page
	IS-CMS-MUC/TK Thomas Kleiser	+49 89 5791-1186 Thomas.kleiser@tuev-sued.de	+49 89 5791-2756	2009-01-20	1 of 5

Dear Sir or Madam,

Please find below the response to the request for review for the CDM project "Jiangxi Fengcheng Mining Administration CMM Utilization Project", with the registration number 1135. In case you have any further inquiries please let us know as we kindly assist you.

Best regards

Thomas Kleiser
Carbon Management Service

Headquarters: Munich
Trade Register: Munich HRB 96 869

Supervisory Board:
Dr.-Ing. Manfred Bayerlein (Chairman)
Board of Management:
Dr. Peter Langer (Spokesman)
Dipl.-Ing. (FH) Ferdinand Neuwieser

Telefon: +49 89 5791-3038
Telefax: +49 89 5791-2756
www.tuev-sued.de/is

TÜV®

TÜV SÜD Industrie Service GmbH
Niederlassung München
Umwelt Service
Westendstrasse 199
80686 Munich
Germany

Response to the CDM Executive Board

Request 1:

The monitoring report shows that 6,502,358.50 m³ of CH₄ was consumed to produce 16,735.08 MWh of electricity during this monitoring period. However, the PDD indicates that in order to produce the same quantity of the electricity (16,735.08 MWh) the power plant requires less than the methane consumption reported in the monitoring report. Further clarification is required, since this discrepancy raises questions on either the efficiency of power production or on a possible venting or flaring of surplus methane.

Response from PP:

According to the latest version of the monitoring report (Version 03, dated 4th December 2008), the net power supplied to the grid is 16,642.80 MWh, but not 16,735.08 MWh. Please refer to: <http://cdm.unfccc.int/UserManagement/FileStorage/7ZDF1MAJ4CXEVBSIN8O0K5G2L396RY>.

The proposed project is CMM power generation which is a quite new industry in China. Power engines adopted are homemade technology of Shengli Oilfield Shengli Power Machinery Co., Ltd. which is the first CMM power engine producer in China. When the proposed project implemented feasibility study in 2005, there was little CMM utilization in China with even less power generation using CMM. Annex 1 to this response shows the CMM situation in China when the FSR was conducted.

Few of CMM power generation experience could be obtained when the FSR of the proposed project was finished in 2005. At that time, installation capacities were mainly designed based on the estimation of the producers of engines. Actually, no industrial practical operation data were available to prove whether the theoretic estimation could be achieved or not.

For the proposed project, 16,642.80 MWh of power supplied and the corresponding CH₄ consumption (6,502,358.50 m³) were both verified by the DOE within the monitoring period from 24th September 2007 to 24th March 2008 without any venting or flaring. All methane measured was directly sent to the engines. There was no by-pass option installed after the monitoring meters. Besides, the installation of monitoring instruments, the whole measurement process, data monitoring and handling were all implemented as per the requirement of ACM0008 which could guarantee the quality of data adopted in the monitoring report.

According to the FSR of the proposed project, it was estimated in the PDD that the annual power generation of the project would be 40,500 MWh, with a 6.7% of self consumption, meaning the annual power supply would be 37,787 MWh (Page 29 of the PDD). It was estimated that to achieve 37,787 MWh of annual power supplied, it would require 12,471,000 m³ of CH₄. This means that 3.03 kWh of power would be supplied by consuming 1 m³ of CH₄. However, the CH₄ conversion efficiency can not achieve 3.03 kWh/m³ according to the actual operation records. Alike the proposed project, the domestic engines from the same producer were adopted in the issued project 0840 "*Pansan Coal Mine Methane Utilization and Destruction Project*". The following table shows CH₄ Conversion Efficiency data of Pansan project compared to the proposed project.

Table 1 CH₄ Conversion Efficiency of currently verified projects in China

Monitoring Report	Power supplied (kWh)	CH ₄ Consumption (m ³)	CH ₄ Conversion Efficiency	Reference
-------------------	----------------------	---	---------------------------------------	-----------

			(kWh/m ³)	
0840 Pan-san CMM Project 1st (1 Oct. 2004 to 30 Jun. 2006)	13,041,900	5,560,298.5	2.35	http://cdm.unfccc.int/UserManagement/FileStorage/008TQXTGHUABKBZSH32SWKOIJTIR2L
0840 Pan-san CMM Project 2nd (1 Jul. 2006 to 31 Mar. 2007)	10,084,600	5,116,417.9	1.97	http://cdm.unfccc.int/UserManagement/FileStorage/2IAFQC89239XQXXWHXD4RSSJ96D8TX
0840 Pan-san CMM Project 3rd (1 Apr. 2007 to 30 Sep. 2007)	4,876,800	2,235,820.9	2.18	http://cdm.unfccc.int/UserManagement/FileStorage/8VO03HAL0FDP86IA9GLAZFJOPBM07W
The proposed project	16,642,800	6,502,358.5	2.56	http://cdm.unfccc.int/UserManagement/FileStorage/7ZDF1MAJ4CXEVBSIN8O0K5G2L396RY

From the above table, it can be seen that the actual efficiency of power production is lower than that estimated. Therefore, it can be concluded that the values adopted in the monitoring report authentically reflect the emission reductions of the proposed project.

Jiangxi Coal Mine Designing Institute has undertaken a survey on the performance of domestic CMM engines and finds out that the efficiency of power production is usually between 2.2 and 2.6 kWh/m³ which is lower than the designed value of 3.0 kWh/m³. Annex 2 to this response shows the detailed demonstration of this fact.

From the above clarification, a conclusion can be made that the more methane consumption in the monitoring report of the project than that in PDD is due to reduced efficiency of power production compared to the expectation, not venting or flaring.

The following documents are translated and provided as the PDF documents attached to this response.

Annex 1 – CMM situation in China quoted from “*Proceedings of the 6th International Workshop on CBM/CMM in China, 2006*”

Annex 2 – A survey on power generation efficiency of domestic CMM engines

Response from DOE:

During the verification process, the ratio of the power supplied and the CH₄ consumption has been checked by the DOE (please refer to section 4.5 Reliability and Plausibility of the Annex1 of the verification report). The ratio for this project activity is about 2.57. In order to verify the plausibility of this issue, the following steps have been conducted by the audit team:

- The monitoring system relating to the power generation part is confirmed to be in compliance with the Methodology (ACM0008 version 03) and the monitoring plan in the registered PDD. Please refer to section 3 monitoring plan implementation of the Annex1 of

the verification report. The relevant calibration records of the monitoring devices were submitted to the verification team at the time of on-site visit. Hence it can be concluded that the system is working in a proper way and the measurements taken in an appropriate way.

- The data management system is transparently reflecting the monitoring process from the raw data to the useable data adopted in the emission reduction tool. After the CARs and CRs were resolved, the data recording, archiving as well as the data transfer implementations are in line with the requirement of the methodology. Furthermore, the detailed managing procedure was carried out in the CDM monitoring manual and is well implemented by the operational staff. The DOE therefore concludes that the monitored data are found to be complete and reliable.
- TÜV-SÜD confirms that gas sensors monitoring the gas flux (e.g. measuring volume flow and concentration) are installed in the gas pipeline after the gas tank and before the engines. There is no flaring system installed on-site and no venting option behind the meter.

For safety reasons, there is only one pipe installed before the gas tank. Other venting possibilities within the project boundary have not been found. These issues have been checked by the DOE during the on-site visit..

Given the fact that the CMM power generation technology is still not commonly adopted among the Chinese coalmines, and the domestic producers lack of experience from the technology aspects lower CH₄ conversion efficiency is considered as reasonable and acceptable¹.

In the PDD a maximum efficiency of 3.0 kWh/m³ (considering electricity supplied to the grid) has been assumed. This assumptions are based on manufacturer data assuming best practice conditions for the project activity.

Based on our local experience and based on the above confirmed values, the audit team is of the opinion that lower conversion efficiencies are a normal fact. Especially when the project is newly build and the engines still need adjustments. This has also been confirmed by Jiangxi Coal Mine Desining Institute on 13th January 2009. This Desining Institute is accredited by the chinese government, which has been checked and verified by TÜV SÜD.

Furthermore, the DOE has cross-checked the project activity with a simiar project (0840 "*Pansan Coal Mine Methane Utilization and Destruction Project*").

Similar conversion efficencies appear for this project. It was even found that the CH₄ conversion efficiency of Fengcheng project is the highest among comparable projects with similar practices (please refer to table1 within the PP's response).

TÜEV-SÜED therefore concludes that the diviation to the registered PDD regarding the CH₄ conversion efficiency is reasonable and acceptable. Venting or flaring of gas has been excluded from the possible reasons to affect the CH₄ conversion efficiency.

Request 2:

Further clarification is required on how the DOE verified 0.98% and 0.985% of NMHC concentration conducted in August 2007 and April 2008.

Response from PP:

According to methodology ACM0008, the parameter PC_{NMHC} is required to be tested annually. In the proposed project, the gas sampling and the analysis on the content of NMHC were car-

¹ Proceedings of the 6th International Workshop on CBM and CMM in China, 2006

ried out in August 2007 and April 2008 respectively by Jiangsu Provincial Supervising & Testing Research Institute for Products Quality and Gas Detecting Center of Shanghai Jiliang Standard Gas Ltd. Both of the entities are accredited third parties to test the CMM composition.

The whole process was carried out by the professionals of the third parties. Methane samples were randomly taken at the inlet of power engines. The sampling and testing could meet the corresponding industrial requirement. The gas composition analysis was carried out in their independent laboratories. NMHC volume percentage was shown in the testing reports which were both chopped by the parties.

The testing report in August 2007 showing 0.98% of NMHC concentration was conducted by Jiangsu Provincial Supervising & Testing Research Institute for Products Quality. The testing report is scanned and translated as shown in Annex 3 to this response. The testing report in April 2008 showing less than 0.985% of NMHC concentration was conducted by Gas Detecting Center of Shanghai Jiliang Standard Gas Ltd. The testing report is scanned and translated as shown in Annex 4 to this response. Both institutes are qualified third parties to undertake NMHC concentration testing. The two testing reports are with Logo of "CMA" (*China Metrology Accreditation*) which indicates the qualification of the conducted party. The meaning of Logo of "CMA" can be found at the following link: <http://www.ebotest.cn/jigou/cma.htm>. The translation of the information is given in Annex 5.

All the documents mentioned above had been verified by the DOE and following documents are translated and provided as the PDF documents attached to this response:

Annex 3 – NMHC testing report in August 2007 by Jiangsu Provincial Supervising & Testing Research Institute for Products Quality

Annex 4 – NMHC testing report in April 2008 by Gas Detecting Center of Shanghai Jiliang Standard Gas Ltd.

Annex 5 – Meaning of Logo of CMA

Response from DOE:

The gas testing report of year 2007 and year 2008 were verified by the DOE during the verification process. The relevant accrediting certifications were also obtained. Please refer to IRL 17, 18, 19, 20. The NMHC concentration result of year 2007 was clearly indicated in the testing report as 0.98%, and the NMHC concentration result of year 2008 was shown as less than 0.985%. TUEV-SUED acknowledges that both the laboratories were accredited by China Metrology Accreditation, this was explained by the PP and evidenced by Annex 5 of the response.

Request 3:

Annex I of the verification report does not refer to this project activity but refer to the validation protocol of PA 1963. Further clarification is required.

Response from PP:

Response from DOE:

We apologize for the mis-uploading of the verification protocol, please find the correct one.