

**CDM Executive Board**

Our / Your Reference  
10\_300/1896

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**Request for Revision of Monitoring Plan**  
"Jincheng Sihe Coal Mine CMM Generation Project" (1896)

Dear Chair and Honourable Members of the CDM Executive Board,

Please find below the validation opinion of TÜV NORD JI/CDM Certification Program to the revision of the monitoring plan for the above mentioned project.

If you have any questions do not hesitate to contact us.

Yours sincerely,



**Dipl.-Ing. Rainer Winter**

Head of TÜV NORD JI/CDM Certification Program

## Request for Revision of the Monitoring Plan, acc. to EB 49, Annex 28

For the following changes a revision of the monitoring plan is requested:

Requested Change #1	
Type of revision:	
<input type="checkbox"/>	<i>Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods</i>
<input checked="" type="checkbox"/>	<i>Due to a deviation from the registered Monitoring Plan</i>
A. Description of requested change	
<p>In the revised monitoring plan, information in "Source of data to be used", "Description of measurement methods and procedures to be applied" and "QA/QC procedures to be applied" and "Any comment" for parameters "MM<sub>ELEC</sub>" "MM<sub>total,y</sub>" and "MM<sub>release,y</sub>" have been revised, the details are as follows:</p>	
<b>Data / Parameter:</b>	MM <sub>ELEC</sub>
Data unit:	tCH <sub>4</sub>
Description:	Methane measured delivered to power plant in year y
Source of data to be used:	Measurements by project participants using gas flow meters, temperature & pressure transmitters and gas concentration meters.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	121,588
Description of measurement methods and procedures to be applied:	Continuous monitoring, meters in compliance with relevant standards and requirements will be used, and gas volumes, pressure, temperature and methane concentration will be read and consolidated by a digital control system (DCS).
QA/QC procedures to be applied:	Flow meters, temperature & pressure transmitters and gas concentration meters are to be checked monthly and calibrated annually to ensure accuracy.
Any comment:	The meters are indicated as points F, A and C on Figure 3.
<b>Data / Parameter:</b>	MM <sub>total,y</sub>
Data unit:	tCH <sub>4</sub>
Description:	Total methane extracted in Sihe Coal Mine in year y
Source of data to be used:	Measurements by project participants using gas flow meters, temperature & pressure transmitters and gas concentration meters.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	-

Description of measurement methods and procedures to be applied:	Continuous monitoring, flow meters in compliance with relevant standards and requirements will be used. Gas volumes, pressure, temperature and concentration will be read and consolidated by a digital control system (DCS).
QA/QC procedures to be applied:	Flow meters, temperature & pressure transmitters and gas concentration meters are to be checked monthly and calibrated annually to ensure accuracy
Any comment:	The meters are indicated as points $F_{EX}$ , $A_{EX}$ and $C_{EX}$ on Figure 3. The readings of these meters are not used for ER calculation, but for cross-checking only.

<b>Data / Parameter:</b>	$MM_{release,y}$
Data unit:	$tCH_4$
Description:	Total methane still released to the atmosphere in Sihe Coal Mine in year y
Source of data to be used:	Measurements by project participants using gas flow meters, temperature & pressure transmitters and gas concentration meters.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	-
Description of measurement methods and procedures to be applied:	Continuous monitoring, flow meters in compliance with relevant standards and requirements will be used. Gas volumes, pressure, temperature and concentration will be read and consolidated by a digital control system (DCS).
QA/QC procedures to be applied:	Flow meters, temperature & pressure transmitters and gas concentration meters are to be checked monthly and calibrated annually to ensure accuracy.
Any comment:	The meters are indicated as points $F_{EX}$ , $A_{EX}$ and $C_{EX}$ on Figure 3. The readings of these meters are not used for ER calculation, but for cross-checking only.

## B. Assessment of requested change

The registered MP states “source of data to be used” for “ $MM_{ELEC}$ ” “ $MM_{total,v}$ ” and “ $MM_{release,v}$ ” is from “a flow meter”, and according to the applied methodology ACM0008 (version 03) page 35, “Comment” for “ $MM_{ELEC}$ ” states that: “Flow meters will record gas volumes, pressure and temperature. Density of methane under normal condition of temperature and pressure is 0.67gk/m3 (Revised 1996 IPP Reference Manual p1.24 and 1.16)”.

However, during verification onsite visit, the verification team identifies that, the “flow meters” installed at the project site for measuring coal mine gas flows, are only measuring values for the total volume of coal mine gas extracted from the extraction stations, delivered to the 120MW power plant, or released to the atmosphere. The measured gas also includes, in general, certain amount of  $N_2$ ,  $O_2$ ,  $CO_2$  and very minor portion of NMHC. While at the same time,  $CH_4$  concentration meters, temperature & pressure transmitters have been installed to simultaneously measure the methane concentration values, instant temperature and pressure values. Therefore,

the “MM<sub>ELEC</sub>”, “MM<sub>total,y</sub>” and “MM<sub>release,y</sub>” are consolidated values from a Digital Control System (DCS), which compiles values from gas flow meters, temperature & pressure transmitters and CH<sub>4</sub> concentration meters rather than “a flow meter”.

During onsite visit and document review, the verification team confirms that the DCS consolidates values taken from flow meters, temperature & pressure transmitters and CH<sub>4</sub> concentration meters, and normalized the values into “pure methane amount in volume (m<sup>3</sup>)” and “pure methane amount in mass (t)” under standardized condition, i.e., 20 °C (293.15K) and 1atm (100kPa), which is fully in accordance with the applied methodology ACM0008 version 03.

Accordingly, information in “Description of measurement methods and procedures to be applied” and “QA/QC procedures to be applied” are also revised to be consistent with information of “Source of data to be used” and the actual situation.

Furthermore, in “Any comment”, the locations of these meters have been indicated on Figure 3 in section B.7.2 of the PDD, which is deemed more precise and complete. The function of “MM<sub>total,y</sub>” and “MM<sub>release,y</sub>” have been also included in “Any comment” as not used for ER calculation, but only for crosschecking. Since the methodology does not contain requirements for “MM<sub>total,y</sub>” and “MM<sub>release,y</sub>”, these changes are deemed appropriate and sufficient.

#### C. Validation Opinion

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.

#### Requested Change #2

Type of revision:

- ☐ Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods
- ☒ Due to a deviation from the registered Monitoring Plan

#### A. Description of requested change

In the revised monitoring plan, information in the “Description of measurement methods and procedures to be applied” and “Any comment” for parameter “PC<sub>CH<sub>4</sub>,y</sub>” have been revised, the details are as follows:

<b>Data / Parameter:</b>	<b>PC<sub>CH<sub>4</sub>,y</sub></b>
<b>Data unit:</b>	%
<b>Description:</b>	Concentration of methane (in mass) in extracted gas (%), measured on wet basis

Source of data to be used:	Daily monitoring by JMC
Value of data applied for the purpose of calculating expected emission reductions in section B.5	-
Description of measurement methods and procedures to be applied:	Concentration meters, optical and calorific, with accuracy in compliance with relevant national standards
QA/QC procedures to be applied:	Concentration meters will be checked monthly and calibrated annually to ensure accuracy
Any comment:	The meters are indicated as point C on Figure 3.

#### B. Assessment of requested change

The registered Monitoring Plan includes information that the methane concentration meters will have “an accuracy of  $\pm 1.5\%$  for full range scale, multiplicity of  $\pm 1.0\%$  for full range scale, sensitivity of  $0.2\%$  for full range scale”.

However, during verification onsite visit, PP has approached to the verification team, and clarified that the methane concentration meters installed at the project site do not have an accuracy of  $\pm 1.5\%$  as indicated in the registered MP. This has been also crosschecked by the verification team, and the highest accuracy of all methane concentration meters installed onsite and used for ER calculation is identified as  $\pm 2.0\%$  of full scale (not incl. calibration gas accuracy) as per page 31 of the concentration meter manufacturer’s Operation Manual /GMOM/ (Guardian Plus Infra-Red Gas Monitor Operating Manual, Issue: 1.4, Edinburgh Instruments Limited, UK).

PP has explained that even though at the stage of project design and PDD preparation, the project entity (JMC) assumed that concentration meters with the level of accuracy of  $\pm 1.5\%$  (1.5S) would be readily available on the market, further market assessments at the stage of project implementation, indicated that the measurement with the accuracy level of  $\pm 1.5\%$  was not feasible in practice. Thus, in accordance with the requirements by the methodology and the VVM, the relevant national standards and regulation are followed by the project entity in selecting, operating and maintaining the concentration meters.

The accuracy level of  $\pm 1.5\%$  is not feasible in practice can be substantiated with supporting documents as follows (details please see supporting document/CRMP/ (PP Clarification on MP Revision for Project 1896):

- 1) There is no company or institute in China with technical capacity to inspect and/or calibrate concentration meters with an accuracy level of  $\pm 1.5\%$ . This is supported by several accredited independent organizations and institutions:
  - a. The Chongqing Branch of China Coal Research Institute (CBCCRI) indicated that according to the current national standard and regulation, the accuracy requirement for the thermal-conduction methane concentration meter is of  $\pm 10\%$  and for the infrared methane concentration meter is of  $\pm 7\%$ . Also, the highest

accuracy level for inspection and calibration of the methane concentration meter is limited up to  $\pm 2\%$  -  $\pm 3\%$ . The CBCCR is an independent accredited organization and the developer of the feasibility study report for the Jincheng Sihe CMM Utilization project (August 2004). /SCCR/ (Statement of Chongqing Branch of China Coal Research Institute)

- b. The Jincheng Qiantai Safety Technology Company Ltd., an accredited company specialized in calibration and inspection services for metering equipment, including concentration meters, confirms that  $\pm 2\%$  -  $\pm 3\%$  is the highest accuracy level for calibration of concentration meters in China and the accuracy level of the domestically produced metering equipment ranges from  $\pm 7\%$  to  $\pm 10\%$ . /SJST/ (Statement of Jincheng Qiantai Safety Technology Company Ltd)
- 2) No concentration meters with accuracy level of  $\pm 1.5\%$  are available in the Chinese market. This can be confirmed by the following:
- a. As the result of the procurement process conducted by the Equipment Supply Station of JMC, no proposals matched the required accuracy of  $\pm 1.5\%$ . /LJMC/ (Letter from JMC Equipment Supply Department)
  - b. The Beijing Shidai Taoyuan Environment Technology Company Ltd. (BSTETC) states that the  $\pm 2\%$  is the highest accuracy level for concentration meters available in the Chinese market considering both domestic products and products imported from overseas. BSTETC is one of the largest five companies who conduct dealer business on environmental monitoring meters. The company is supplying the meters to JMC. /SSTE/ (Statement of Beijing Shidai Taoyuan Environment Technology Company Ltd)

Due to the abovementioned reasons, the project owner (JMC) was only able to purchase and install concentration meters with the highest accuracy  $\pm 2.0\%$  of full scale for the project activity.

During onsite visit, the verification team has crosschecked all supporting documents provided by the PP, interviewed with the project owner, and confirmed with the technical expert in the verification team, Dr. Heribert Meiners, who has been working directly in the coal mine industry for more than 20 years, that even in German or Europe the best practice of methane concentration meters do not have accuracy of  $\pm 1.5\%$ . Thus, the verification team considers the proposed revision of information for parameter "**PC<sub>CH4,v</sub>**" to have an accuracy "in compliance with relevant national standards" is appropriate and in accordance with the applied methodology.

The revision presents the real application of the methane concentration monitoring equipment for the project activity, and does not reduce the level of accuracy and completeness in the monitoring and verification process. Further assessment are as follows:

1. There is no relevant CDM rules requiring monitoring parameters in the monitoring plan to include exact accuracy of the measurement equipment.

As per VVM (version 1.2, EB55 Annex 1) paragraph 205: "The DOE shall confirm that: ... (c) The accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and is controlled and calibrated in accordance with the monitoring plan". As per the "Guidelines for Assessing Compliance with the Calibration Frequency Requirements (Version 01, EB 52 Annex 60)" paragraph 8: "In cases where neither the monitoring methodology, nor the monitoring plan specify any requirements for calibration frequency for measuring equipments, the DOE shall ensure that the equipments are calibrated either in accordance with the specifications of the

local/national standards, or as per the manufacturer specification...”.

Since the applied methodology ACM0008 (Version 03) does not contain any requirements in terms of the accuracy or calibration frequency of the gas concentration meter, and the registered Monitoring Plan has indicated that the “Concentration meters will be checked monthly and calibrated annually to ensure accuracy”, which is in accordance with the manufacturer specification, the verification team deems that the revision addressing the accuracy of concentration meters installed for the project activity will be “in compliance with relevant national standards” as appropriate and in accordance with the relevant guidance provided by the CDM Executive Board.

2. The revision reflects the actual implementation, which is in line with the relevant national standards.

During verification process, the verification team has crosschecked the most relevant national standards for methane concentration meters as follows:

- AQ 6204-2006 – China Industrial Standard of Production Safety for Thermal-Conduction High Concentration Methane Transducer (Methane Concentration Meter): required accuracy level for Concentration meter with measuring range for 40.00% - 100% CH<sub>4</sub>, is to be within ±10% of the full range. / AQ 6204-2006/
- AQ 6211-2008 China Industrial Standard of Production Safety for Coal Mine Non-dispersive Infrared Methane Transducer (Methane Concentration Meter): required accuracy level for Concentration meter with measuring range for 1.00% - 100% CH<sub>4</sub>, is to be within ±7.0% of the real value. /AQ 6211-2008/

Relevant information from these two standards has been provided in summary with English translation /SNIS/. All methane concentration meters installed for the project activity are confirmed as in accordance with both national standards and presents good practice.

3. Similar registered CDM projects applying methodology ACM0008 also provide the same information for the parameter “**PC<sub>CH<sub>4</sub>,y</sub>**” regarding “Description of measurement methods and procedures to be applied” as in the revised MP for this project activity.

During background research, the verification team has confirmed that several other registered CDM projects in China also indicates no exact accuracy requirement for parameter “**PC<sub>CH<sub>4</sub>,y</sub>**”, but mentions that “accuracy will be in compliance with relevant national standards”, e.g., AQ 6204-2006. These projects are as follows:

- Yangquan Coal Mine Methane (CMM) Utilization for Power Generation Project (0892);
- Huaibei Haizi and Luling Coal Mine Methane Utilization Project (0770);
- Shanxi Datuhe Coal Mine Methane Utilization Project (1801);
- Shanxi Liulin Coal Mine Methane Utilization Project (1230).

Project 0892 and 0770 have been also successfully issued CERs. These evidences confirm that the revision is in accordance with the applied methodology and have been approved by the CDM EB in other cases as good operation practice.

Furthermore, the parameter “**PC<sub>CH<sub>4</sub>,y</sub>**” is not used as pure methane concentration value delivered to the 120MW power plant for emission reduction calculation, but for deriving the “r” value ( $r = PC_{NMHC,y} / PC_{CH_4,y}$ ), in case  $PC_{NMHC,y}$  value tested from dedicated laboratory is confirmed as higher than 1% by volume of the extracted coal mine gas. The “r” value is then used for calculating  $PE_{MD,y}$  ( $PE_{MD,y} = MMELEC,y \times Eff_{ELEC} \times (CE_{FCH_4} + r \times CE_{FNMHC})$ ). Since the actually



installed concentration meters are in accordance with the methodology, the relevant national standards and with the best available accuracy in market, it is confirmed by the verification team that there is no real material change on the measured values by the actually installed methane concentration meters compare to the theoretically anticipated monitoring equipment in the registered MP. Therefore, there is also no significant impacts on the emission reductions due to the revision of the information for parameter “PC<sub>CH4,v</sub>” in the MP.

#### C. Validation Opinion

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.

#### Requested Change #3

Type of revision:

- ☐ Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods
- ☒ Due to a deviation from the registered Monitoring Plan

#### A. Description of requested change

In the revised monitoring plan, information in “Description of measurement methods and procedures to be applied” and “QA/QC procedures to be applied” for monitoring parameter “PC<sub>NMHC,v</sub>” has been revised, the details are as follows:

<b>Data / Parameter:</b>	<b>PC<sub>NMHC,v</sub></b>
Data unit:	%
Description:	NMHC concentration in coal mine gas
Source of data to be used:	To be obtained through annual analysis of the fractional composition of captured gas
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0
Description of measurement methods and procedures to be applied:	Gas samples will be extracted annually in accordance with relevant industry standard and procedures. The samples will be analyzed by a qualified laboratory.



QA/QC procedures to be applied:	A minimum of 3 samples will be collected in secure gas sample vessels, suitable for storage and transport to the laboratory. If one sample is found to be faulty (i.e. gas leakage), the replacement sample will be taken.
Any comment:	Used to check if more than 1% of emissions and to calculate r

Correspondingly, in point 5 “Consistency with the monitoring methodology in monitoring of methane fraction in CMM gas” of section B.7.2 of the MP, minor editorial changes are made regarding “such as Shanxi Coal Research Institute”, “leaking gas sample vessel” and “after the crediting period” in order to be consistent with the revision.

**B. Assessment of requested change**

The registered Monitoring Plan states in “Description of measurement methods and procedures to be applied” of parameter “PC<sub>NMHC,y</sub>” as “concentration meters, optical and calorific”, which is not consistent with the statement on page 39 and 40 of the registered PDD regarding “the monitoring of the PC<sub>NMHC</sub>”. The revision reflects the consistent description as per page 39 and 40 of the registered PDD, and the actual implementation of measurement methods applied to parameter “PC<sub>NMHC,y</sub>”.

The verification team has observed that there is no concentration meters installed onsite to measure “PC<sub>NMHC,y</sub>”, and the monitoring activity implemented by JMC is to send 3 samples to a qualified laboratory, such as Shanxi Coal Research Institute, to conduct gas analysis for the concentration value of NMHC in the extracted coal mine gas.

Accordingly, the revisions in “QA/QC procedures to be applied” and point 5 “Consistency with the monitoring methodology in monitoring of methane fraction in CMM gas” of section B.7.2 are deemed consistent with page 39 and 40 of the registered PDD, and reflecting the actual monitoring activity. Besides, the applied methodology requires annual recording of the value of “PC<sub>NMHC,y</sub>”, which is fulfilled by the proposed revision.

**C. Validation Opinion**

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.

Requested Change #4

Type of revision:

<input type="checkbox"/>	Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods
<input checked="" type="checkbox"/>	Due to a deviation from the registered Monitoring Plan
<b>A. Description of requested change</b>	
<p>In the revised monitoring plan, information in “QA/QC procedures to be applied” for monitoring parameter “GEN<sub>1,y</sub>” and GEN<sub>2,y</sub> have been revised, the details are as follows:</p>	
<b>Data / Parameter:</b>	GEN <sub>1,y</sub>
Data unit:	MWh
Description:	Electricity supplied by project activity in year y to North China Grid
Source of data to be used:	Monitored with power meter to be installed by the electric grid company
Value of data applied for the purpose of calculating expected emission reductions in section B.5	823,200
Description of measurement methods and procedures to be applied:	Continuous monitoring
QA/QC procedures to be applied:	<p>The electricity delivered to the grid will be recorded in the power settlement notice issued by the grid company based on the readings of the power meters installed at the Qinchu transformer station in accordance with relevant national and sectoral standards (indicated as point E<sub>GRID</sub> on Figure 3).</p> <p>The amount of electricity delivered to the grid will be double-checked by the readings of the power meters installed at the project 120MW power plant (indicated as point E<sub>PP</sub> on Figure 3).</p>
Any comment:	-
<b>Data / Parameter:</b>	GEN <sub>2,y</sub>
Data unit:	MWh
Description:	Electricity consumed by project activity in year y which is supplied by North China Grid in case of emergency
Source of data to be used:	Monitored with power meter to be installed by the electric grid company
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0
Description of measurement methods and procedures to be applied:	Continuous monitoring

QA/QC procedures to be applied:	<p>The electricity imported from the grid will be recorded in the power settlement notice issued by the grid company based on the readings of the power meters installed at the Qinchu transformer station in accordance with relevant national and sectoral standards (indicated as point E<sub>GRID</sub> on Figure 3).</p> <p>The amount of electricity imported to the grid will be double-checked by the readings of the power meters installed at the project 120 MW power plant (indicated as point E<sub>PP</sub> on Figure 3).</p>
Any comment:	-

Accordingly, information in point 6 “Monitoring of electricity to be supplied to and imported from the grid for the project activity” of section B.7.2 of the MP has also be revised consistently as follows:

“The readings from the E<sub>GRID</sub> meters will be used by the Grid Company to issue the power settlement notice every month.

The power amounts in the power settlement notice will be cross-checked by JMC using the readings from meters installed at the project 120MW power plant, in cupboard #1 (point E<sub>PP</sub> on Figure 3).

Usually, the difference of the readings between meters in points E<sub>GRID</sub> and E<sub>PP</sub> represents the transmission loss. Thus, the power amounts in the power settlement notice (readings from E<sub>GRID</sub> meters) will be used for calculation of the emission reductions, which is conservative.”

#### B. Assessment of requested change

In the registered Monitoring Plan, the information in “QA/QC procedures” for both “GEN<sub>1,y</sub>” and “GEN<sub>2,y</sub>” is that “the electricity delivered to the grid will be double checked by electricity sales receipts. The kilowatt-hour meter(s) used will be installed by the electric grid company and will meet relevant national and sectoral standards”, which is considered as a typo mistake for “GEN<sub>2,y</sub>”, since it is a parameter to monitor the amount of electricity consumed by the project from the grid rather than “generated by the project and delivered to the grid”.

During verification onsite visit, the verification team has noticed that the values applied for “GEN<sub>1,y</sub>” and “GEN<sub>2,y</sub>” for emission reduction calculation are directly derived from the power settlement notice issued by the grid company, based on readings of power meters installed at the Qinchu 220KV transformer station. This approach is also consistent with last paragraph in point 6 of section B.7.2 of the registered PDD.

The verification team deems that the requested revision presents a more conservative procedure than the “QA/QC procedures” of “GEN<sub>1,y</sub>” and “GEN<sub>2,y</sub>” stated in the registered MP. Since the readings from power meters installed at Qinchu 220KV transformer station for “GEN<sub>1,y</sub>” have deducted the transmission loss from the project site to the Qinchu station, the applied values for “GEN<sub>1,y</sub>” will be lower than the readings from power meters at project site. Accordingly, the readings from power meters installed at Qinchu 220KV transformer station for “GEN<sub>2,y</sub>” will include the transmission loss from the Qinchu station to project site, thus the applied values for “GEN<sub>2,y</sub>” will be higher than the readings from power meters at project site. As per the formula used to calculate baseline emissions ( $BE_{Use,y} = (GEN_{1,y} - GEN_{2,y}) \times EF_{ELEC,y}$ ), which is comparing reading from power meters installed at the project site, the revised approach will ensure more conservative values to be used for baseline emission calculation.

Nevertheless, in order to double-check the values and ensure the readings from the Qinchi 220KV transformer station do not include other power sources, readings from power meters directly installed at the 120MW power plant are also recorded and compared with the readings at Qinchi station.

Besides, the revised information for “GEN1,y” and “GEN2,y” also included exact locations of meters in Figure 3 of the monitoring plan as EGRID (for “GEN1,y” and “GEN2,y”) and EPP (for cross-checking meters at the 120MW power plant), and changed “kilowatt-hour meter” to “power meter”, which is deemed more precise.

The applied methodology ACM0008 version 03 does not require any specific QA/QC procedures for parameter  $GEN_y$ , which in the project case,  $GEN_y = GEN_{1,y} - GEN_{2,y}$ , thus the verification team concludes that the revision of information for parameter “GEN<sub>1,y</sub>” and “GEN<sub>2,y</sub>” is appropriate and in accordance with the methodology.

#### C. Validation Opinion

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.

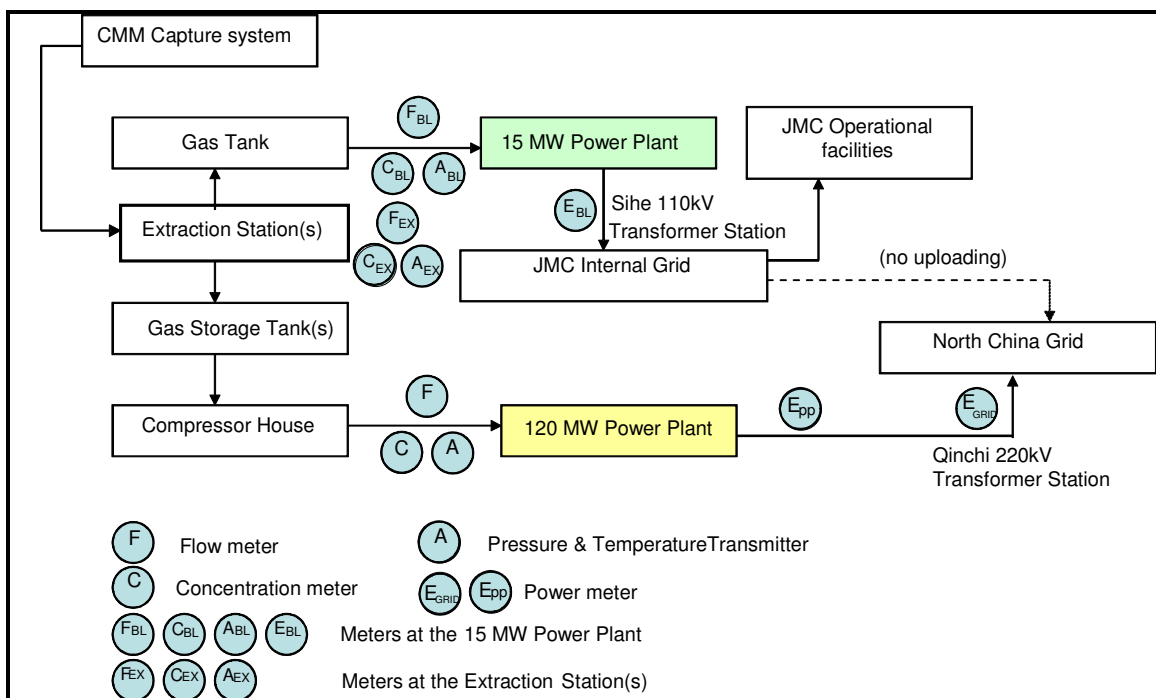
#### Requested Change #5

Type of revision:

- ☐ Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods
- ☒ Due to a deviation from the registered Monitoring Plan

#### A. Description of requested change

In the revised monitoring plan, section B.7.2 has revised some details regarding the location of installed meters and references in Figure 3, to provide a clear and complete picture of the monitoring system of the project activity. The new Figure 3 is as follows:



Corresponding details have been also included in point 3 “Monitoring of power generation and CMM consumption of the existing experimental 15MW power plant” and 6 “Monitoring of electricity to be supplied to and imported from the grid for the project activity” of section B.7.2.

Besides, in point 3 “Monitoring of power generation and CMM consumption of the existing experimental 15MW power plant” of section B.7.2, the following paragraph has been added:

“Monitoring of power generation and CMM consumption of the existing experimental 15MW power station is intended to demonstrate that the project 120MW power plant does not impose any limitations on the availability of CMM gas and the 15MW power plant remains to be in normal operation as part of the baseline gas usage.”

Furthermore, upon clarification requested by the UNFCCC secretariat:

*“For the proposed change 5: the methodology requires the parameter MMi-methane sent to different consumers to be monitored. How has the DOE validated that the monitoring is complete given that 1) the methane sent to the on-site heating and cooking is not monitored (thus MMtotal can not be balanced), and 2) the parameters for monitoring of the existing power plant are not included in section B.7.1 of the monitoring plan even, and 3) the pre-project consumption of methane by the plant and annual generation are not included in the list of parameters available at the validation stage (section B.6.2) for the post-project monitoring of changes.”,*

PP has provided responses as follows:

#### 1. “Answer to Question 1)

*As per the registered project design document (PDD), the project utilizes the coal mine methane (CMM) that was originally vented to the atmosphere for the purpose of grid-connected power generation.*

*In section A.2 of the PDD (pg.2), the situation prior to the project activity is described as follows:*

*"In accordance with relevant Chinese laws and regulations, the Shanxi Jincheng Anthracite Mining Group Co. Ltd. (JMC) has installed a gas collection system in Sihe Coal Mine to capture a certain portion of the methane, with the aim of ensuring safe production. The captured gas is vented directly to the atmosphere except that a very small part is currently used for residential purpose and power generation test purpose." Validation Report Page 2 confirms that "In the baseline scenario, a small part of CMM was being utilized for a) heat purpose in the mine complex (cooking and hot water) and b) experimental power generation of 15 MW (since 2002)."*

*It is therefore clear that the use of the gas for on-site heating and cooking existed prior to the project activity and thus has been accounted for in the baseline scenario.*

*From the applied methodology ACM0008 / Version 03, the parameter  $MM_i$  is defined as: "Methane measured sent to use  $i$  (tCH<sub>4</sub>)" under Project Emissions from Un-combusted Methane. In this project context,  $MM_i$  refers to the methane measured sent to the project 120MW power plant, namely  $MM_{ELEC}$  in the PDD.*

*$MM_i$  therefore doesn't apply to the methane sent to the 15MW power plant or the methane used for heating and cooking as they existed prior to the project and are not originated by the project activity, thus they are not part of the Project Emissions.*

*Therefore, monitoring of the methane used for heating and cooking is not required under the methodology's requirement for monitoring of  $MM_i$ .*

*Furthermore, no leakage or overlapping between residential gas usage (through cooking and heating) and power generation gas use (project activity) was demonstrated at the validation stage with the validation of CMM availability under the project activity.*

*In this context, the validator DOE's response to the request for review raised at registration, which was accepted by the CDM EB and resulted in the registration of the project, explained the validation of the baseline scenario and confirmed that "In summary, the availability of CMM is projected to be 250 million m<sup>3</sup> per year by 2018. The CMM demand from the 120 MW power plant and the baseline CMM utilization for boiler, cooking and existing power plant will total about 215 million m<sup>3</sup> per year. Thus, DNV finds it justified that the CMM available will be sufficient for the consumption of CMM by the project at its full capacity, in addition to the baseline." (Response document Page 5, Validation Report Page 10). Thus, it has been validated that there is no expected overlap between residential gas usage and power generation in the project, and therefore baseline emissions from methane destroyed in the baseline are considered as zero,  $BE_{MD,y} = 0$ . Please see registered PDD page 24, validation report page 10, and DOE's response to request for review page 5 for complete details.*

*Further, the Validation Report (page 2) provides that "It has been demonstrated that the utilized CMM was negligible when compared to the vented CMM".*

*It is noted that as part of the monitoring plan,  $MM_{release,y}$  is monitored and the ongoing verifications will prove that there is still significant amount of methane released to the air ( $MM_{release,y} >> 0$ ). This will assure that there is no ER leakage and the project 120MW power plant does not impose any limitations on the availability of CMM gas for heating and cooking.*

## **2. Answer to Question 2) and 3)**

*The response to request for review at registration clarified that monitoring of the volume of CMM supplied to the 15MW power plant and annual generation were included in the monitoring plan "to ensure that no CERs will be claimed for power generated in the existing 15 MW power plant.", as can be seen in the response document (page 6) and PDD (page 38). These two parameters however had not been included in sections B.6.2 or B.7.1, as they are for cross*

checking only and not related to the calculations of the emission reductions. For clarity, we have now explicitly included them in both sections B.6.2 or B.7.1. in the revised version of the monitoring plan attached to this submission.

For conservativeness, the ex-ante values in section B.6.2 for both parameters are taken from the maximum of the four years period prior to project implementation (year 2005-2008) and will be used for post-project monitoring to ensure that the 15MW power plant remains to be in normal operation as part of the baseline gas usage and that no CERs are claimed for the power generated by the 15MW power plant."

Accordingly, PP has added respectively two parameters in section B.6.2 and two monitoring parameters in section B.7.1 to clarify point 2) and 3) as follows:

#### In section B.6.2:

Data / Parameter:	MM <sub>BL</sub>
Data unit:	tCH <sub>4</sub>
Description:	Amount of methane consumed by the 15MW power plant
Source of data to be used:	Measured in m <sup>3</sup> and recorded in the log sheets and converted into tCH <sub>4</sub> using IPCC value of 0.00067t/m <sup>3</sup>
Value applied:	24,139.73
Justification of the choice of data or description of measurement methods and procedures actually applied:	Maximum annual value of the four years period prior to project implementation (year 2005-2008) is taken.
Any comment:	

Data / Parameter:	GEN <sub>BL</sub>
Data unit:	MWh
Description:	Electricity generated by the 15MW power plant
Source of data to be used:	Measured
Value applied:	86,089.234
Justification of the choice of data or description of measurement methods and procedures actually applied:	Maximum annual value of the four years period prior to project implementation (year 2005-2008) is taken.
Any comment:	

#### In section B.7.1:



<b>Data / Parameter:</b>	$MM_{BL,y}$
Data unit:	tCH <sub>4</sub>
Description:	Amount of methane consumed by the 15MW power plant in year y or during the monitoring period
Source of data to be used:	Measured and recorded in log sheets
Value of data applied for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	Continuous monitoring, flow meters in compliance with relevant standards and requirements will be used. Gas volumes, pressure, temperature and concentration will be read and consolidated by a digital control system.
QA/QC procedures to be applied:	Flow meters, temperature & pressure transmitters and gas concentration meters are to be checked monthly and calibrated annually to ensure accuracy
Any comment:	The meters are indicated as points F <sub>BL</sub> , A <sub>BL</sub> and C <sub>BL</sub> on Figure 3. The readings of these meters are not used for ER calculation, but for cross-checking only. $MM_{BL,y}$ value will be compared against $MM_{BL}$ to ensure no leakage ( $MM_{BL,y} \geq MM_{BL}$ ). In case $MM_{BL,y} < MM_{BL}$ , the difference will be calculated in terms of the contributing emission reductions, which will be deducted from the total claimed emission reductions.

<b>Data / Parameter:</b>	$GEN_{BL,y}$
Data unit:	MWh
Description:	Electricity generated by the 15MW power plant in year y or during the monitoring period
Source of data to be used:	Measured
Value of data applied for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	Continuous monitoring
QA/QC procedures to be applied:	The power meter will be calibrated in accordance with relevant national standard.
Any comment:	The meter is indicated as point E <sub>BL</sub> on Figure 3. The readings of the meter are not used for ER calculation, but for reference only. $GEN_{BL,y}$ value will be compared against $GEN_{BL}$ to ensure no leakage

	(GEN <sub>BL,y</sub> ≥ GEN <sub>BL</sub> ). In case GEN <sub>BL,y</sub> < GEN <sub>BL</sub> , the difference will be calculated in terms of the contributing emission reductions, which will be deducted from the total claimed emission reductions.
B. Assessment of requested change	
Compared to the Figure 3 in the registered MP, the revised Figure 3 has mainly the following changes:	
<ul style="list-style-type: none"> <li>• changed the wording for “Extraction Pump” to “Extraction Station(s)” to be more precise on description of the extraction stations;</li> <li>• changed legend “A” from “Composition analyzer” to “Pressure &amp; Temperature Transmitter”, which is in accordance with the revision for “MM<sub>ELEC</sub>” “MM<sub>total,y</sub>” and “MM<sub>release,y</sub>” ;</li> <li>• included F<sub>EX</sub>, C<sub>EX</sub> and A<sub>EX</sub> at the “Extraction Station(s)” to describe meters locations for “MM<sub>total,y</sub>” and “MM<sub>release,y</sub>” ;</li> <li>• changed the legend F<sub>BL</sub>, C<sub>BL</sub>, A<sub>BL</sub> and E<sub>BL</sub> from “Meters for the existing facilities” to “Meters at the 15 MW Power Plant”</li> <li>• divided legend “E” to “E<sub>GRID</sub>” and “E<sub>PP</sub>”, to better distinguish the invoicing meters at the Qinchi 220KV Transformer station and the crosschecking meters at project site;</li> <li>• deleted “E<sub>BL,GRID</sub>”, since there is no uploading of electricity to the North China Grid from the existing 15MW power station.</li> </ul>	
<p>Besides, the added paragraph in point 3 “Monitoring of power generation and CMM consumption of the existing experimental 15MW power plant” of section B.7.2 addresses the function of monitoring the existing 15MW power plant is to keep track on the baseline usage of coal mine gas, in order to ensure that the project activity does not game with the availability of CMM gas for baseline usage, which is deemed appropriate, conservative and in accordance with the methodology.</p>	
<p>All Changes in Figure 3 have been confirmed with the project actual monitoring activity during onsite visit by the verification team, and are deemed more complete and precise. There is also no deviation from the applied methodology from all changes made.</p>	
<p>Furthermore, upon clarification requested by the UNFCCC secretariat:</p>	
<p><i>“For the proposed change 5: the methodology requires the parameter MMi-methane sent to different consumers to be monitored. How has the DOE validated that the monitoring is complete given that 1) the methane sent to the on-site heating and cooking is not monitored (thus MMtotal can not be balanced), and 2) the parameters for monitoring of the existing power plant are not included in section B.7.1 of the monitoring plan even, and 3) the pre-project consumption of methane by the plant and annual generation are not included in the list of parameters available at the validation stage (section B.6.2) for the post-project monitoring of changes.”,</i></p>	
<p>the Verification team has further validated the responses and changes made by the PP in the monitoring plan. Detailed assessment are as follows:</p>	

The applied methodology ACM0008 version 03 page 11 and 12 defines the  $MM_i$  as “Methane measured sent to use  $i$  ( $tCH_4$ )” and “ $i$ ” as “Use of methane (power generation, heat generation, supply to gas grid to various combustion end uses)”.  $MM_i$  is exclusively used in the equation below

$$PE_{UM} = [GWP_{CH_4} \times \sum_i MM_i \times (1 - Eff_i)] + PE_{flare}$$

and  $PE_{UM}$  is defined as “Project emissions from un-combusted methane ( $tCO_2e$ )”.

On page 32 of the registered PDD,  $PE_{UM}$  has been clearly included in the equation to determine project emissions as

$$PE_y = PE_{ME,y} + PE_{MD,y} + PE_{UM,y} = PE_{ME,y} + MM_{ELEC} \times Eff_{ELEC} \times (CEF_{CH_4} + r \times CEF_{NMHC}) + GWP_{CH_4} \times MM_{ELEC,y} \times (1 - Eff_{ELEC})$$

Thus in the case of the registered project,  $MM_i$  has been identified as  $MM_{ELEC}$ , which is the only use of methane (power generation) due to the project activity. It has been also confirmed by the verification team during onsite visit.

Point 1): “the methane sent to the on-site heating and cooking” is not monitored as project emissions in the monitoring plan is deemed correct, because the “on-site heating and cooking” mentioned in the registered PDD on page 13, 14 and 25 is the baseline usage of methane prior to the project activity, which is not the use of methane due to the project activity. The use of methane in project activity has been clearly identified in the registered PDD as for “the Jincheng Sihe CMM Project 120 MW power plant”, thus  $MM_i = MM_{ELEC}$  and no other usage of methane  $i$  has been identified. The situation has been also confirmed by the verification team during onsite visit. Besides, the methodology neither requires monitoring  $MM_{total,y}$  nor requires a balance for  $MM_{total,y}$ . The registered PDD provides two monitoring parameters  $MM_{total,y}$  and  $MM_{release,y}$  to ensure that there are sufficient methane covering the need of the project activity as well as the baseline usage of the methane, e.g., the onsite heating and cooking and the existing experimental 15MW power plant. Hence, there is no necessity to balance the parameter  $MM_{total,y}$ . Instead,  $MM_{total,y}$  will be used to compare with  $MM_{ELEC}$  to ensure that methane from the Sihe coal mine extraction station is sufficient for the project activity. Furthermore,  $MM_{release,y}$  is used to confirm that even after satisfying the onsite heating and cooking, the 15MW power plant ( $MM_{BL,y}$ ) and the project activity ( $MM_{ELEC}$ ), there are still methane released to the atmosphere, which double assured the methane sufficiency. Besides, the verification team has crosschecked the validation report by DNV and response to request for review before the project registration, and has identified the following statements in the validation report:

*“The remaining waste heat generated is recovered in waste heat recovery system and utilized for domestic heating, however, CERs are not being claimed for this component. In the baseline scenario, a small part of CMM was being utilized for a) heat purpose in the mine complex (cooking and hot water) and b) experimental power generation of 15 MW (since 2002). It has been demonstrated by a gas balance /22/ that the utilized CMM was negligible when compared to the vented CMM.” (page 6)*

*“The baseline conditions of the mines and the baseline usage of the CMM were verified by the DNV during the validation process. CMM utilization in the baseline scenario includes 4 boilers for cooking and heating purposes and a 15 MW experimental power plant. Based on the statistics data by the JMC the CMM utilization for the boiler, cooking and power plant during the baseline condition is 34.17 million  $m^3$ .” (page 13)*

Furthermore, the verification team has checked during the monitoring period (01 Sep 2009 - 31 Dec 2009), the 15MW power station has consumed 10,782.29  $tCH_4$  or 16,092,962.69  $m^3$   $CH_4$  during the four months, which can be converted to an yearly amount of 48,278,888.06  $m^3$

CH<sub>4</sub> consumption. This value is already far beyond the identified value of 34.17 million m<sup>3</sup> CH<sub>4</sub> for both 15MW power station and the methane used for cooking and heating specified in the registered PDD and the validation report. Meanwhile, MM<sub>release,y</sub> is measured as 12,372.29 tCH<sub>4</sub> during the monitoring period (01 Sep 2009 - 31 Dec 2009), which indicates that after all existing usage of methane, there is still a significant amount of redundant methane released to the atmosphere.

In addition, besides the 15MW power station and the 120MW power plant, there are no measuring devices specifically installed for other usage of the methane, due to the reason that the project owner is not claiming emission reductions from those activities, which is also deemed conservative for the project activity.

Hence, the verification team has concluded that it is not necessary to monitor the methane used for onsite heating and cooking.

Point 2): The volume of CMM supplied to the 15MW power plant and annual generation was to be monitored in the original monitoring plan (PDD, Page 38). This was further clarified in the response to request for review at project registration to “ensure that no CERs will be claimed for power generated in the 15MW power plant”. For further clarity, two parameters have been included in section B.7.1 of the monitoring plan as MM<sub>BL,y</sub> and GEN<sub>BL,y</sub>. These two monitoring parameters are to be monitored during each monitoring period, and will be compared with the two added parameters MM<sub>BL</sub> and GEN<sub>BL</sub> in section B.6.2 of the PDD, in order to ensure that no CERs are claimed for the power generated by the 15MW power plant, and in addition, no leakage occurs during project implementation, i.e., the revision further specifies that MM<sub>BL,y</sub> value and GEN<sub>BL,y</sub> value will be compared against MM<sub>BL</sub> and GEN<sub>BL</sub> to ensure no leakage (MM<sub>BL,y</sub> ≥ MM<sub>BL</sub> and GEN<sub>BL,y</sub> ≥ GEN<sub>BL</sub>), in case MM<sub>BL,y</sub> < MM<sub>BL</sub> and/or GEN<sub>BL,y</sub> < GEN<sub>BL</sub>, “the difference will be calculated in terms of the contributing emission reductions, which will be deducted from the total claimed emission reductions”. Thus the revision is deemed appropriate and the approach taken is deemed conservative.

Point 3): Two parameters MM<sub>BL</sub> and GEN<sub>BL</sub> have been included in the list of parameters in section B.6.2 to give conservative values of the pre-project consumption of methane and annual generation by the 15MW power station. These two parameters have taken respectively the largest annual value from the last four years period prior to project implementation (year 2005-2008), in order to compare with the corresponding two newly added monitoring parameters MM<sub>BL,y</sub> and GEN<sub>BL,y</sub> during each monitoring period for the post-project monitoring of changes. The revision ensures that no leakage occurs during project implementation. The verification team has crosschecked the evidences of 15MW power station production records from 2005 to 2008 and confirmed that the yearly data for electricity generation and methane consumption is as follows:

Power Generation and CMM Consumption for 15MW Power Plant			
Year	Power Generation (MWh)	CMM Gas (m <sup>3</sup> )	CMM Gas (tCH <sub>4</sub> )
2005	70,934.400	30,998,333	20,768.883
2006	64,272.645	27,650,146	18,525.598
2007	76,538.876	33,294,411	22,307.255
2008	<b>86,089.234</b>	36,029,448	<b>24,139.730</b>

Note: 1. 0.00067t/m<sup>3</sup>: Density of methane under normal condition (at 20 °C, a pressure of 1

atmosphere) (Methodology ACM0008, V03 p34, Revised 1996 IPCC Reference Manual p 1.24 and 1.16)

2. Data Source: 15MW power plant production records from 2005 to 2008

The proposed revision has taken the maximum annual value of 86,089.234MWh as the baseline value for  $GEN_{BL}$  and 24,139.730tCH<sub>4</sub> as the baseline value for  $MM_{BL}$ , which are deemed correct and conservative. Thus the revision is deemed appropriate and the approach taken is deemed conservative.

Given the above clarifications and further revisions to the monitoring plan, TÜV NORD confirms that the monitoring is complete.

#### C. Validation Opinion

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.

#### Requested Change #6

Type of revision:

- ☐ Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods
- ☒ Due to a deviation from the registered Monitoring Plan

#### A. Description of requested change

In the revised monitoring plan, section B.7.2 has included Table 1: "Monitoring meters and parameters", the details are as follows:

Table 1: Monitoring meters and parameters.

Symbol	Description	Monitored parameter	Installed location
<b>Main meters used for calculation of emission reductions</b>			
F	Gas Flow Meters	$MM_{ELEC}$	120MW power plant
A	Pressure & Temperature Transmitters	$MM_{ELEC}$	120MW power plant
C	Concentration Meters	$PC_{CH_4,y}$	120MW power plant
$E_{GRID}$	Power Meters (main and backup meter)	$GEN_{1,y}$ $GEN_{2,y}$	Grid Company Qinchi 220kV transformer station

Monitoring meters not used for calculation of emission reductions			
$E_{PP}$	Power Meters (main and backup meter) (used for cross-checking)	$GEN_{1,v.}$ $GEN_{2,y}$	120MW power plant
$F_{EX}, C_{EX}, A_{EX}$	Gas Flow Meters, Concentration Meters, Pressure & Temperature Transmitters	$MM_{total,y}$ $MM_{release,y}$	Extraction Station(s)
$F_{BL}, C_{BL}, A_{BL}$	Gas Flow Meters, Concentration Meters, Pressure & Temperature Transmitters	$MM_{BL,y}$	15MW Power Plant
$E_{BL}$	Power Meters	$GEN_{BL,y}$	15MW Power Plant

B. Assessment of requested change

The revision provides a list of monitoring meters, the corresponding parameters measured and the installed location, also indicates separately the meters used for calculation of ERs and other meters, e.g., used for cross-checking purposes.

This new Table 1 is consistent with all revised information in the MP and is deemed very precise on integrating all monitoring parameters and Figure 3 with exact metering locations, and has no deviation from the applied methodology.

C. Validation Opinion

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.

Requested Change #7

Type of revision:

- ☐ Due to a previously approved deviation from applied Methodology which continued in subsequent monitoring periods
- ☒ Due to a deviation from the registered Monitoring Plan

A. Description of requested change

At the end of the revised MP, point 8 has been added to section B.7.2, to clarify the

measurements of  $MM_{ELEC}$ ,  $MM_{total,y}$ ,  $MM_{release,y}$  are combining pre-mining CMM and post-mining CMM. Details are as follows:

### 8. Combined measurement of pre-mining and post-mining CMM

As stated in the registered PDD,  $MM_{ELEC}$ ,  $MM_{total,y}$ ,  $MM_{release,y}$  are the consolidated monitoring parameters, which combine pre-mining CMM and post-mining CMM flows given that a common extraction systems are used in the underground mine. This is in line with the decision of the CDM EB55 meeting (Paragraph 22 (i) of the Report), which allows project proponents to measure the pre-mining CMM together with the post-mining CMM.

### B. Assessment of requested change

During onsite visit, the verification team has identified the project is using coal mine gas from two extraction stations, and both extraction systems, incl. boreholes, drilling pipes, connection pipes, are used in the underground mines. Besides, according to the concentration of methane recorded for both extraction stations, it has been also confirmed by PP that one extraction station is actually measuring pre-mining and post-mining coal mine methane together; and another extraction station is at the stage of pre-mining, and post-mining methane will be measured together after the corresponding activities is finalized.

As per EB55 meeting report para 22 (i), and the latest version 7 of applied methodology ACM0008 page 24, " $CMM_{PJ,y}$ ,  $PMM_{PJ,y}$  can be measured together (only when the common extraction system is located in the underground mine)", in case of this project,  $MM_{ELEC}$ ,  $MM_{total,y}$  and  $MM_{release,y}$  are consolidated parameters for both  $CMM_{PJ,y}$ ,  $PMM_{PJ,y}$ , thus the revision is deemed in accordance with the latest version of applied methodology ACM0008. As per EB 49 Annex 28 para. 9 (b), even the "proposed revision refers to a later version of the applied methodology", the verification team can confirm that this application does not compromise the conservativeness in the monitoring and verification process, and of the emission reduction calculations.

### C. Validation Opinion

- ☒ TÜV NORD herewith confirms that the proposed change ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.
- ☒ TÜV NORD herewith confirms that the proposed change is in accordance with the applied approved monitoring methodology, or a later version of the same without compromising the conservativeness in the monitoring and verification process and of the emission reduction calculations.
- ☒ TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.