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Verification Report

Second Periodic Verification

of the JI track 1 project:
“Reduction of GHG by Gasification of the towns Veliko
Tarnovo, Gorna Oryahovitsa and Lyaskovets”

Monitoring period 2:

01-01-2008 to 31-12-2008

Report No. 600500087-1

27 March 2009

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstr. 199 - 80686 Munich - GERMANY

Second Periodic Verification of the JI track 1 Project:**“Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets” in Bulgaria**

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Report No.	Date of first issue	Version	Date of this revision	Certificate No.
600500087-1	24 February 2009	02	27 March 2009	-
Subject:		Second Periodic Verification of a JI track 1 Project		
Executing Operational Unit:		TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 - 80686 Munich, GERMANY		
Client:		Overgas Inc. AD Philip Kutev Str. 5 1407 Sofia		
Contract approved by:		Javier Castro		
Report Title:		Second Periodic Verification of the “Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets”		
Number of pages		16 (excluding cover page and annexes)		
Summary: The certification body “Climate and Energy” of TÜV SÜD Industrie Service GmbH has been ordered by Overgas Inc. AD to carry out the second periodic verification of the determined JI track 1 project “Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets”. http://www.moew.government.bg/recent_doc/international/climate/Approved%20projects_tablica_EN_publikuvane.pdf The verifier confirms that the project is implemented as planned and described in determined project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project does generate GHG emission reductions. The verifier can confirm that the GHG emission reduction for the whole monitoring period is calculated without material misstatements. Our opinion relates to the project’s GHG emissions and resulting GHG emissions reductions reported and related to the valid project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated we confirm the following statement: Reporting period: from 01-01-2008 to 31-12-2008. Verified emission reductions in the above reporting period: 38 418 t CO _{2e} Issues indicated by the verification team as “Forward Action Request” should be submitted as indispensable information to the verification team of the next periodic verification.				
Work carried out by:	Thomas Kleiser (Assessment Team Leader) Robert Mitterwallner (GHG Auditor) Nelly Gromkova (GHG Auditor trainee) Imme Deecke (GHG Auditor trainee)			Internal Quality Control by: Rachel Zhang



Abbreviations

Abbreviations that have been used in the report here:

AIE	Accredited Independent Entity
CAR	Corrective Action Request
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CO_{2e}	Carbon dioxide equivalent
CR / CL	Clarification Request
DFP	Designated Focal Point
EF	Emission Factor
ER	Emission Reduction
ERU	Emission Reduction Unit
FAR	Forward Action Request
FSERF	Fuel Switch Emission Reduction Factor
GDN	Gas Distribution Network
GHG	Greenhouse Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
JI	Joint Implementation
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual



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1 INTRODUCTION

Overgas Inc. AD has commissioned an independent verification by TÜV SÜD Industrie Service GmbH of its determined JI track 1 project “Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets”. The determination of the project was conducted by KPMG and finalized on 28 May 2004. The order includes the second periodic verification of the project.

Verification is the periodic independent review and ex post determination by the Independent Entity of the monitored reductions in GHG emissions during the defined verification period.

This report summarizes the findings of the second periodic verification. It is based on the CDM Validation and Verification Manual (VVM) published by the UNFCCC in 2008.

The second periodic verification consisted of a desk review of the project documents including PDD from July 2003, monitoring report for 2008, workbook, verification report of TÜV SÜD for 2006 and further documentations.

This last verification report indicates remaining issues (see chapter 3.1).

The verification team consists of the following personnel:

Thomas Kleiser	TÜV SÜD, Munich	Assessment Team Leader
Robert Mitterwallner	TÜV SÜD, Munich	GHG Auditor
Nelly Gromkova	Freelancer	GHG Auditor trainee
Imme Deecke	TÜV SÜD, Hamburg	GHG Auditor trainee

1.1 Objective

The objective of the periodic verification is to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan; further more the periodic verification evaluates the GHG emission reduction data and express a conclusion with a high, but not absolute, level of assurance about whether the reported GHG emission reduction data is free of material misstatements; and verifies that the reported GHG emission data is sufficiently supported by evidence, i.e. monitoring records.

The verification shall consider both quantitative and qualitative information on emission reductions.

Quantitative data comprises the monitoring reports submitted to the verifier by the project entity. Qualitative data comprises information on internal management controls, calculation procedures, and procedures for transfer, frequency of emissions reports, review and internal audit of calculations/data transfers.

The verification is based on criteria set by UNFCCC, the Kyoto Protocol and modalities for JI projects.



1.2 Scope

Verification scope is defined as an independent and objective review and ex post determination by the Independent Entity of the monitored reductions in GHG emissions. The verification is based on the submitted monitoring report and the determined project design documents including its monitoring plan. The monitoring report and associated documents are reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. TÜV SÜD has, based on the recommendations in the VVM employed a risk-based approach in the verification, focusing on the identification of significant risks of the project implementation and the generation of ERUs.

The verification is not meant to provide any consulting towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

The audit team has been provided with a Monitoring Report and underlying data records (workbook) from January 2009, covering the period 01-01-2008 until 31-12-2008. These documents serve as the basis for the assessment presented herewith. The verified crediting period will start 01-01-2008.

Studying the existing documentation belonging to this project, it was obvious that the competence and capability of the audit team performing the verification have to cover at least the following aspects:

- Knowledge of Kyoto Protocol and the Marrakech Accords
- Skills in environmental auditing (ISO 14000)
- Quality assurance
- Technical aspects of delivery and use of natural gas
- Monitoring concepts
- Political, economical and technical random conditions in host country

According to these requirements TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body “climate and energy”.

In order to have an internal quality control of the project, a team of the following person has been composed by the certification body “climate and energy”:

- Rachel Zhang (deputy head of the certification body “climate and energy”)

1.3 GHG Project Description

The project aims at the reduction of greenhouse gases on the territory of the three towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets by switching to natural gas from liquid and solid fuels, and electricity used by the industry, public and administrative sites and households and increasing the energy efficiency of their combustion installations.

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The project foresees construction of a of steel and polyethylene gas distribution network (50 km main gas branch and 200 km GDN until 2012), more than 9 000 relevant devices in towns of Veliko Tarnovo, Gorna Gorna Oryahovitsa and Lyaskovets, re-equipment of the installations of the end user installations and construction of indoor installations for 43 industrial sites, 83 public and administrative sites, and more than 17 000 households.

By the end of 2008, 51.4km gas main branch and 112 km GDN of steel and polyethylene gas pipelines with the respective facilities were constructed in Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets. 39 industrial users and 157 end users in the public and administrative sector, as well as 1 652 households have been gasified. In 2008 the amount of natural gas delivered to the end users reached 31 530.6 thousand sm³.¹

In 2007 GDC owned by Overgas Inc. AD (including Rahovetsgas 96 AD) have been merged in the company Dunavgas EAD.

¹ As per power point presentation of the MR in January 2009.

2 METHODOLOGY

Starting the second periodic verification the verifier's first task has been to familiarize with the project and its progress of installation rate (see chapter 1.3). Based on the received documents (see Annex 1) a Periodic Verification Checklist (PVC) has been prepared according to the VVM from 2008.

During the verification a special focus was given to:

- the correct implementation of the project (installations, monitoring equipment and procedures, quality assurance procedures)
- the correctness of assumptions with impacts on the monitoring and verification process (e.g. baseline assumptions)
- training programs
- allocation of responsibilities
- the day-to-day operation of the system
- the data flow, data storage and security measures against mistakes

After the document review the audit team conducted

- an on-site inspection at the installations of the gas network, checking the data flow, data storage and security measures against mistakes
- interviews with the members of the owner and the operator in their offices

The findings are the essential part of the verification checklists, which is based on the verification protocols of the VVM. Those checklists consist of three tables from the PVC. The completed checklists are enclosed in Annex 1 and Annex 2 to this report. The structure of the tables is shown in the following:

Periodic Verification Checklist		
Table 1: Data Management System/Controls		
Expectations for GHG data management system/controls	Score	Verifiers Comments (including <i>Forward Action Requests</i>)
The project operator's data management system/controls are assessed to identify reporting risks and to assess the data management system's/control's ability to mitigate reporting risks. The GHG data management system/controls are assessed against the expectations detailed in the table.	A score is assigned as follows: Full all best-practice expectations are implemented. Partial a proportion of the best practice expectations is implemented Limited this should be given if little or none of the system component is in place.	Description of circumstances and further commendation to the conclusion. This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) of risk or non-compliance with stated requirements. The corrective action requests are numbered and presented to the client in the Verification report. The Initial Verification has additional Forward Action Requests (FAR). FAR indicates essential risks for further periodic verifications

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Periodic Verification Checklist		
Table 2: GHG calculation procedures and management control testing		
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks
<p>Identification of potential reporting risks based on an assessment of the emission estimation procedures.</p> <p>Identification of key source data. Focus on those risks that impact the accuracy, completeness and consistency of the reported data.</p>	<p>Identification of the key controls for each area with potential reporting risks. Assessment of adequacy of the key controls and eventually test that the key controls are actually in operation.</p> <p>Internal controls include, Understanding of responsibilities and roles, Reporting, reviewing and formal management approval of data; Procedures for ensuring data completeness, conformance with reporting guidelines, maintenance of data trails etc.</p>	<p>Identification of areas of residual risks, i.e. areas of potential reporting risks where there are no adequate management controls to mitigate potential reporting risks</p> <p>Areas where data accuracy, completeness and consistency could be improved are highlighted.</p>

Periodic Verification Checklist		
Table 3: Detailed audit testing of residual risk areas and random testing		
Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including FARs)
<p>List of residual areas of risks of Periodic Verification Checklist Table 2 where detailed audit testing is necessary.</p> <p>In addition, other material areas may be selected for detailed audit testing.</p>	<p>The additional verification testing performed is described. Testing may include:</p> <ul style="list-style-type: none"> Sample cross checking of manual transfers of data Recalculation Spreadsheet 'walk throughs' to check links and equations Inspection of calibration and maintenance records for key equipment Check sampling analysis results <p>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</p>	<p>Having investigated the residual risks, the conclusions are noted here. Errors and uncertainties are highlighted.</p>

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CARs were encountered during the verification process, which were resolved by additional information; nevertheless adjustments of the Monitoring Report were not necessary.

Further, the verification team has defined FARs, whenever

- the current status requires a special focus on this item for the next consecutive verification, or
- an adjustment of the MVP is recommended.

All FARs have to be reported to the verification team of the next Periodic Verification, which has to take into account all such findings.

Duration of the verification

Preparation including desk review: from 12-01-2009 to 16-01-2009

On-site verification: from January 26 to January 30, 2009

2.1 Review of Documentation and Site Visits

The verification was performed as a desk review of the project documents including PDD, monitoring report (published version 01 from 23 January 2009 and final version 02 from February 2009) and further documentations.

The site visit included an on-site inspection of one gas regulation station, one industrial client with metering system and two institutional clients with metering system, the control systems and interviews with the relevant project partners.

2.2 Resolution of Corrective and Forward Action Requests

The objective of this phase of the verification was to resolve the requests for corrective actions and any other outstanding issues which needed to be clarified for TÜV SÜD's positive conclusion on the GHG emission reduction calculation. Quality and accuracy of the data and documents presented during the on site visit was high, despite of the fact that two CARs and one CL have been reported. Three Forward Action Requests are defined for issues which do not effect the generation of emission reduction in the verified period, but shall be improved in order to ensure the reliability of future data. To guarantee the transparency of the verification process, the FARs raised and responses that have been given are summarized in chapter 3 below and documented in more detail in the verification protocol in annex 1 and 2.

3 PERIODIC VERIFICATION FINDINGS

In the following sections the findings of the periodic verification are stated. The verification findings for each verification subject are presented as follows:

The findings from the desk review of the final monitoring report, excel sheet calculation and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Periodic Verification Checklist in annex 2.

3.1 Remaining issues, FARs from previous verification

The task of verification is to check the remaining issues from the previous verification. Five of seven FARs that have been raised during the previous verification are closed. FAR 3 resulted in a new FAR 1 and FAR 7 resulted in CAR 2 (see protocol in Annex 1). The closed FARs are listed in the following table:

COMMENTS	Concl.
<u>Forward Action Request FAR#1:</u> Some of the gas meters and also few of the volume correctors were not re-calibrated on the due date. For the future it should be better organized so that the re-calibration or the exchange of meters is carried out punctual.	FAR#1
<u>Forward Action Request FAR#2:</u> The monitoring plan with its main principles, the responsibilities etc. is described in the PDD and also in the current Monitoring Report. The whole procedure from measuring, collecting the data up to the point of gaining the data from the Billing Module and carrying out the Monitoring Report should be described in a separate instruction as a kind of Monitoring Manual.	FAR#2
<u>Forward Action Request FAR#4:</u> Internal control procedures have to be included into appropriate documents (e.g. the Monitoring Manual).	FAR#4
<u>Forward Action Request FAR#5:</u> An overall flow diagram, describing the yearly monitoring and reporting process has to be included in the Monitoring Manual or another appropriate document.	FAR#5
<u>Forward Action Request FAR#6:</u> Test and documentation of the IT system used for GHG monitoring as well as data protection measures have to be demonstrated to the audit team during the next verification audit.	FAR#6



3.2 Project Implementation

3.2.1 Discussion

As outlined in chapter 1.3 not all consumers that have been projected in the determined are connected to the GDC until end of 2008, but this is in line with the PDD.

3.2.2 Findings

OBJECTIVE	COMMENTS	Concl.
Methods used (PVC 1.4)	<u>Clarification Request CL#1:</u> The GPS coordinates of each municipalities of the sites of <ul style="list-style-type: none"> - Veliko Tarnovo - Lyaskovets / Gorna Oryahovitsa need to be provided to the Audit team.	CL#1
Methods used (PVC 1.4)	<u>Corrective Action Request CAR#1:</u> Since it is a project with 3 cities, the completion rate of every single city has to be demonstrated.	CAR#1
Project Implementation (PVC 1.1)	<u>Forward Action Request FAR#1:</u> An updated timeline of the project implementation during the whole crediting period has to be presented for the next verification audit.	FAR#1

3.2.3 Conclusion

The GPS coordinates are indicated as following:

- Veliko Tarnovo municipality are: N 43° 04' 57"; E 25° 37' 56"
- Gorna Orjahovitsa municipality are: N 43° 07' 20"; E 25° 41' 24"
- of Lyaskovets municipality are: N 43° 06' 20"; E 25° 42' 54"

The implementation rate of GDN for the municipalities are min. 37% (Gorna Orjahovitsa) and max. 88% (Veliko Tarnovo) as indicated in Annex 1.

A map of the area including the project boundaries and the constructed GDN has been demonstrated to the audit team during the on-site audit.

The project complies with the requirements.

3.3 Completeness of Monitoring

3.3.1 Discussion

The reporting procedures reflect the monitoring plan completely. Apart from the EF of the electricity grid of Bulgaria, all parameters were determined as prescribed.

As for the EF of the electricity grid of Bulgaria, amendment of the monitoring plan is required.

3.3.2 Findings

OBJECTIVE	COMMENTS	Concl.
Methods used (PVC 1.4)	<u>Corrective Action Request CAR#2:</u> IT has to be proved by the PP that the power grid emission factors of Bulgaria published as Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System for http://www2.moew.government.bg/recent_doc/climate/Baseline%20CEF%20Summary.pdf have been calculated according to the rules of the UNFCCC and are more recent and conservative than those given by the ERUPT 4 and 5. If so, the most conservative MOEW EF for the appropriate demand scenario has to be taken into account for the calculation of the EF instead of the EF of SenterNovem Erupt 4 and 5. Furthermore, the manual “instruction” has to be revised following this approach for this project and all other gasification projects of Overgas Inc. AD.	CAR#2

3.3.3 Conclusion

The Monitoring report and the *Instruction for elaboration of monitoring reports on the JI projects of Overgas Inc.* are revised considering the Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System

((http://www2.moew.government.bg/recent_doc/climate/Baseline%20CEF%20Summary.pdf).

After these amendments the project complies with the requirements.

3.4 Accuracy of Emission Reduction Calculations

3.4.1 Discussion

Due to the determined methodology there is no need to make corrections for data uncertainty. The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan and to the calculation methodology reported in the Monitoring Report.



3.4.2 Findings

non

3.4.3 Conclusion

The project complies with the requirements. No significant uncertainties linked to the project which could lead to a miscalculation of emission reductions have been identified. All data -as far as possible- have been crosschecked and could be confirmed onsite.

3.5. Quality of Evidence to Determine Emission Reductions

3.5.1 Discussion

Concerning verification the calculation of emission reductions is based on internal data (the external fuel switch emission reduction factor was calculated agreeing with the determined PDD and the belonging excel sheet). The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was cross-checked, where predefined algorithms compute the annual value of the emission reductions. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.

The manual transfer of data was cross-checked on a random basis. Gas consumption for three consumers were cross-checked against meter values and the invoices and monthly acts.

The observations of the auditing team left no doubt that the monitoring process, defined in the Monitoring Plan and the Monitoring Report, has been followed and is being followed.

3.5.2 Findings

None.

3.5.3 Conclusion

The project complies with the requirements.

3.6 Management System and Quality Assurance

3.6.1 Discussion

Due to the straightforward approach for calculating GHG emission reductions the existing management system is appropriate and quality assurance is guaranteed. There are some areas where improvement is needed.

3.6.2 Findings

OBJECTIVE	COMMENTS	Concl.
Methods used (PVC 1.4)	<u>Forward Action Request FAR#2:</u> More detailed information about the data archiving has to be added to the instruction, e.g. the availability of a server for data storage and a back-up hard disk.	FAR#2
Methods used (PVC 4.2)	<u>Forward Action Request FAR#3:</u> The procedure for the occurrence of events category a) or b) generally has to be added to the instruction. In such case the MR must include this information.	FAR#3
Methods used (PVC 4.5)	<u>Forward Action Request FAR#4:</u> Elaborate and add in the project specific monitoring manual a new instruction for cases where a difference of more than 2% in measurements appears.	FAR#4

3.6.3 Conclusion

For all FARs the *Instruction for elaboration of monitoring reports on the JI projects of Overgas Inc.* will be revised.

The project complies with the requirements, assuming appropriate handling of FAR #2, FAR #3 and FAR#4 in the ongoing verification period.



4. PROJECT SCORECARD

The conclusions on this scorecard are based on the monitoring report.

Risk Areas		Conclusions			Summary of findings and comments
		Baseline Emissions	Project Emissions	Emission Reductions	
Completeness	Source coverage/ boundary definition	✓	✓	✓	All relevant sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently.
Accuracy	Physical Measurement and Analysis	✓	✓	✓	State-of-the-art technology is applied in an appropriate manner. Appropriate back-up solutions are provided. Correction of the actual Heat Content should be applied for the next verification periods.
	Data calculations	✓	✓	✓	Emission reductions are calculated correctly.
	Data management & reporting	✓	✓	✓	Data management and reporting were found to be satisfying. Potential for improvement is indicated by FARs 1 – 7.
Consistency	Changes in the project	✓	✓	✓	Results are consistent to underlying raw data.



5 VERIFICATION STATEMENT

TÜV SÜD Industrie Service GmbH has performed a second periodic verification of the determined JI track 1 project: "**Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets**" in Bulgaria. The verification is based on requirements of the UN Framework Convention on Climate Change (UNFCCC). In this context, the relevant documents are the "Marrakech Accords".

The management of Overgas Inc. AD is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the document "Monitoring Report on the emission reductions in 2008 for the project '**Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets**' under the track 1 Joint Implementation mechanism" (final version 02, February 2009).

The verifier confirms that the project is implemented as planned and described in the determined project design document. Some changes concerning timing of connected end-users have no impact on the method to calculate emission reductions. Installed equipment being essential for generating emission reduction and for metering the data defined in the monitoring plan runs reliably and is calibrated appropriately. The monitoring system is in place and the project generates GHG emission reductions according to the validated methodology.

The verifier can confirm that the GHG emission reduction is calculated without material misstatements for the whole monitoring period.

Our opinion relates to the project's GHG emissions reductions reported and related to the valid project baseline and monitoring, and its associated documents.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: 01-01-2008 to 31-12-2008.

Verified emission reductions in the above reporting period: 38 418 t CO_{2e}

The verification team also determined some areas of risks for the project in the context of the management system. Those issues indicated as "Forward Action Request" and should be submitted as indispensable information to the verification team of the next periodic verification.

Munich, 27-03-2009

Munich, 27-03-2009

A handwritten signature in blue ink, appearing to read 'Thomas Kleiser'.

Thomas Kleiser
Assessment Team Leader

A handwritten signature in blue ink, appearing to read 'Rachel Zhang'.

Rachel Zhang
Deputy head of certification body „Climate and Energy“

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Annex 1: Periodic Verification Checklist

Verification Protocol

Project Title: **Reduction of GHG by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets – 2. Periodic Verification**

Date of Completion: 2009-03-26

Number of Pages: 1 of 40



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Input by audit team for this second periodic verification in blue colour
Old text from previous verification (unchanged situation) in black colour

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Verification Protocol

Project Title: **Reduction of GHG by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets – 2. Periodic Verification**

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4 Data Verification

4.1 Internal Review

4.2 Usage of default values

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4.5 Reliability and Plausibility

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5 Additional requirements

6 Data Reporting

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Verification Protocol

Project Title: **Reduction of GHG by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets – 2. Periodic Verification**

Date of Completion: 2009-03-26

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1. Project Activity Implementation

1.1. Technology

PDD	Verified Situation	Conclusion
Location (s) <i>add additional sites if necessary</i>		
<i>Description / Address:</i>	<i>The PP is still Overgas Inc. AD as indicated in the PDD of July 2003. The sites indicated in this PDD are still the same, being:</i> <ul style="list-style-type: none">- Veliko Tarnovo- Lyaskovets- Gorna Oryahovitsa	<input checked="" type="checkbox"/>
<i>GPS coordinates:</i>	<i>CL No. 1 The GPS coordinates of each municipalities of the sites of</i> <ul style="list-style-type: none">- Veliko Tarnovo- Lyaskovets / Gorna Oryahovitsa <i>need to be provided to the Audit team.</i>	CL No. 1
Technical Equipment – Main Components <i>add additional components if necessary</i>		
<i>Reconstruction of installation or construction of new installation of end user:</i>	<i>The kind of technical equipment depends on the kind of end user. For every new user that has been connected to the Gas Distribution Network (GDN) in 2008 appropriate technical equipment has been implemented. The implementation rate is stated below.</i>	<input checked="" type="checkbox"/>

Verification Protocol

Project Title: **Reduction of GHG by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets – 2. Periodic Verification**

Date of Completion: 2009-03-26

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PDD	Verified Situation	Conclusion
<i>Description</i>	<i>Spot checks of gas distribution installations of several users have been done (see chapter 4.3).</i>	
<i>Reconstruction of installation or construction of new installation of end user:</i> <i>Technical Features</i>	<i>See above</i>	<input checked="" type="checkbox"/>
<i>Gas Distribution Network (including all equipment necessary for the operation of the GDN) to all users from the three consumer sectors:</i> <i>Description</i>	<p>The Gas main branch is of steel with DN 300. The gas distribution network includes steel and polyethylene gas pipelines under pressure up to 4 bar, 10 bar and 16 bar. The diameters of the pipes in the GDN are DN 50,150,200,250, 300, for the steel pipes and DN32, 63, 110, 160, 200, 250 for the polyethylene gas pipelines.</p> <p><i>Spot checks of the Automatic Gas Distribution Station (AGDS) for:</i></p> <ul style="list-style-type: none"> - <i>Veliko Tarnovo and</i> - <i>Gorna Oryahovitsa/Lyaskovets (one combined AGDS)</i> <p><i>has been performed during the Audit. These stations that have not been changed during the last verification period are equipped with calibrated gas meters. The measured standardized gas consumption is automatically transmitted to the OVERCOM server in an hourly frequency.</i></p>	<input checked="" type="checkbox"/>

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PDD	Verified Situation	Conclusion
<i>Gas Distribution Network (including all equipment necessary for the operation of the GDN) to all users from the three consumer sectors: Technical Features</i>	<i>See above</i>	<input checked="" type="checkbox"/>
Operation Status during verification <i>add additional sites if necessary</i>		
Approvals / Licenses N/A	<i>This subject has been verified during the first periodic verification. Licenses for gas distribution and public supply with natural gas for Rahovetsgas 96 AD (project partner during the first verification) have been replaced by licenses for Dunavgas EAD after the merge of both companies in summer 2008.</i>	<input checked="" type="checkbox"/>
Actual Operation Status N/A	Under construction <input checked="" type="checkbox"/> see below In operation <input checked="" type="checkbox"/> Out of operation <input type="checkbox"/> Reason (when out of operation):	<input checked="" type="checkbox"/>
Remarks to Special Operational Status During the Verification Period	<i>According to the Overgas presentation "Joint implementation projects of Overgas" that has been handed over during the on-site Audit in Sofia (IRL- 9), 163.6 km of Gas Distribution Network has been constructed until the end of 2008, representing 65% of the planned Network until 2012- IRL- 26</i> <i>Corrective Action Request No. 1: Since it is a project with 3 cities, the completion rate of every single city has to be demonstrated.</i>	<input checked="" type="checkbox"/> CAR No. 1

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PDD	Verified Situation	Conclusion
	<i>Forward Action Request FAR#1: An updated timeline of the project implementation during the whole crediting period has to be presented for the next verification audit.</i>	FAR #1

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1.2. Organization

PDD	Verified Situation	Conclusion
Project Participant (s) <i>add additional participants if necessary</i>		
Entity / Responsible person:	<i>Mr. Svetoslav Ivanov the Deputy Executive Director of Overgas Inc. AD is still in charge for the final approval of the MR.</i>	<input checked="" type="checkbox"/>
Jl Project management:	<i>The project management of the Jl project is still performed by Overgas Inc. AD.</i>	<input checked="" type="checkbox"/>

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1.3. Quality Management System

PDD	Verified Situation	Conclusion
Quality Management Manual:	<i>A QMS of Overgas Inc. AD is implemented but not yet certified. Project related procedures are in place, one of them is: “Instruction for elaboration of MRs on the JI projects of Overgas Inc. AD” from January 2009 which has been approved by Mr. Svetoslav Ivanov the Deputy Executive Director of Overgas Inc. AD. This document is treated as project and location specific monitoring manual – IRL-27. The manual is regarded to be suitable to ensure the quality of the Monitoring System.</i>	<input checked="" type="checkbox"/>
Responsibilities:	<i>Directorat for QMS in Overgas Inc. AD. and Ecology and Sustainable Development Department of Overgas Inc. AD for the instruction. The ongoing validity can be confirmed by the Audit team.</i>	<input checked="" type="checkbox"/>
Qualification and Training:	<i>The key personal of Ecology and Sustainable Development Department of Overgas Inc. AD have passed trainings in the areas of EIA, QMS and Environment Management Systems and Carbon Trade. Thus, the key personal is deemed to be sufficiently qualified. Evidence for the training of the staff performing reading of gas meters has been demonstrated - IRL-25.</i>	<input checked="" type="checkbox"/>
Implementation of QM-system	<i>see above for the “Quality Management Manual”</i>	<input checked="" type="checkbox"/>

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1.4. Remaining FARs from first periodic Verification

Remaining Requests from first periodic Verification	Summary of project owner response	Audit team conclusion
<p><i>Forward action request No. 1:</i></p> <p><i>Some of the gas meters and also few of the volume correctors were not re-calibrated on the due date. For the future it should be better organized so that the re-calibration or the exchange of meters is carried out punctual.</i></p>	<p><i>An organisation for the re-calibration of the correctors and gas meters is in place, annual schedules are prepared which are accorded and approved by the Gas Distribution Company and the company responsible for the metrological checks. Crosschecks have been performed by comparing the amount of natural gas fed to the grid with the total amount delivered to the end users. The difference is negligible and the figures are plausible.</i></p>	<p><i>Evidences for annual schedules have been checked - IRL-11</i></p>
<p><i>Forward action request No. 2:</i></p> <p><i>The monitoring plan with its main principles, the responsibilities etc. is described in the PDD and also in the current Monitoring Report. The whole procedure from measuring, collecting the data up to the point of gaining the data from the Billing Module and carrying out the Monitoring Report should be described in a separate instruction as a kind of Monitoring Manual.</i></p>	<p><i>Following this FAR an "Instruction for elaboration of MRs on the JI projects of Overgas Inc. AD" from January 2009 (see above) has been implemented.</i></p>	<p><i>Closed, the instruction is available and suitable for the task.</i></p>

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Remaining Requests from first periodic Verification	Summary of project owner response	Audit team conclusion
<p><i>Forward action request No. 3:</i></p> <p><i>The system of archiving should be in general also described in the Monitoring Manual. See FAR#2</i></p>	<p><i>A general description of the data archiving system has been added to the instruction.</i></p>	<p><i>FAR No.2:</i> <i>More detailed information about the data archiving has to be added to the instruction, e.g. the availability of a server for data storage and a back-up hard disk.</i></p>
<p><i>Forward action request No. 4:</i></p> <p><i>Internal control procedures have to be included into appropriate documents (e.g. the Monitoring Manual).</i></p>	<p><i>See answer to FAR 2.</i></p>	<p><i>Closed</i></p>
<p><i>Forward action request No. 5:</i></p> <p><i>An overall flow diagram, describing the yearly monitoring and reporting process has to be included in the Monitoring Manual or another appropriate document.</i></p>	<p><i>A description of the process is given in the instruction.</i></p>	<p><i>Closed</i></p>
<p><i>Forward action request No. 6:</i></p> <p><i>Test and documentation of the IT system used for GHG monitoring as well as data protection measures have to be demonstrated to the audit team during the next verification audit.</i></p>	<p><i>The IT system consists of the modules: Customers Relationship Management (CRM), Equipment lifecycle management (ELM), Reports, Billing and Information</i></p>	<p><i>The different modules of the IT and the data protection measures have been presented to the Audit team.</i></p>

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Remaining Requests from first periodic Verification	Summary of project owner response	Audit team conclusion
	<i>The data protection measures are in place (for archiving see comment to FAR 2).</i>	
<p><i>Forward action request No. 7:</i></p> <p><i>Despite of the fact that a correction of the measured gas quantity due to the actual heat content was not required of the determinate PDD, we strongly recommend in order to be conservative (inaccuracy can be bigger than 1%) to implement the correction analogue to the determined PDD "Reduction of GHG by Gasification of Sofia Municipality".</i></p>	<p><i>Due to the change of the LHV of NG a recalculation of NG quantities delivered to the end users has been performed according to the Sofia PDD.</i></p> <p><i>The EF stated in the PDD for VT has been changed for the whole period up from 2008 by using more recent electricity EF from SenterNovem (ERUPT 4 and 5)</i></p>	<p><i>The correction of the measured gas quantity by the LHV has been implemented in the excel sheet calculation and MR analogous to the PDD "Reduction of GHG by Gasification of Sofia Municipality".</i></p> <p><i>CAR No. 2</i></p> <p><i>IT has to be proved by the PP that the power grid emission factors of Bulgaria published as Baseline Carbon Emission Factor of It Bulgarian Electricity and Heat Power System for</i> http://www2.moew.government.bg/recent_doc/climate/Baseline%20CEF%20Summary.pdf <i>have been calculated according to the rules of the UNFCCC and are more recent and conservative than those given by the ERUPT 4 and 5. If so, the most conservative MOEW EF for the appropriate demand scenario has to be taken into account for the calculation of the EF instead of the EF of SenterNo-</i></p>

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Remaining Requests from first periodic Verification	Summary of project owner response	Audit team conclusion
		<i>ven Erupt 4 and 5. Furthermore, the manual "instruction" has to be revised following this approach for this project and all other gasification projects of Overgas Inc. AD.</i>

2. Data Management System

2.1. Description

Structure of raw data archiving				
Describe all the different data collection systems				
Type	Name	Responsible	Procedures	Comments
<i>Paper</i>	<i>MR</i>	<i>Ecology and Sustainable Development (ESD) Department</i>	<i>Instruction</i>	<i>Unchanged since the last verification</i>
<i>Accounting</i>	<i>Invoice</i>	<i>Gas Distribution Company (GDC)</i>	<i>No procedure required since the invoices are automatically generated by the IT system.</i>	<i>Unchanged since the last verification</i>
<i>Laboratory results</i>	<i>Certificates</i>	<i>Bulgargas EAD</i>	<i>No procedure required since the certificate is an annex to the Monthly statement for delivery from Bulgargas</i>	<i>Unchanged since the last verification</i>
<i>PC network</i>	<i>Back up Server</i>	<i>Overgas Holding</i>	<i>Automatically storage of data</i>	<i>Unchanged since the last verification</i>

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				<i>tion</i>
<i>Hard Disc</i>	<i>Hard disk</i>	<i>Overgas Holding</i>	<i>Automatically storage of data</i>	<i>Unchanged since the last verification</i>
Key Reporting Risks: <i>Risk assessment was part of last verification.</i> Risk Classification: <i>Not Applicable</i> Further Remarks: <i>Non</i>				

2.2. Raw Data Archiving and Protection measures

Name	Description of data archiving and protection measures	Risks and comments	Concl.
<i>MR</i>	<i>Describe how the data will be archived. Is there any redundancy and / or IT solution of data protection measure As protection measure paper and digital copies of the MR are stored in the ESD department.</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<i>Certificate</i>	<i>As protection measure paper copies are stored in the GDC.</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<i>Invoices</i>	<i>As protection measure paper copies are stored in the GDC</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<i>Server</i>	<i>All monitoring relevant electronical data is automatically stored on the back-up server.</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<i>Hard Disc</i>	<i>As back-up system all monitoring relevant data is stored on a hard disc.</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
			<input checked="" type="checkbox"/>
			<input checked="" type="checkbox"/>

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		<input checked="" type="checkbox"/>
Key Reporting Risks:	<i>Risk assessment was part of last verification.</i>	<input checked="" type="checkbox"/>
Risk Classification:	<i>Risk assessment was part of last verification.</i>	
Further Remarks:	<i>Non</i>	

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2.3. Data transfer

Description of data transfer from raw data archiving to calculation tool			
Name	Description and responsibilities	Risks and comments	Concl.
<i>Gas Meters</i>	<p><i>Manual or digital transfer and procedure, how is done and who does it</i></p> <p><i>Protection measures in the calculation tool to avoid unintentional errors or data losses</i></p> <p><i>Monthly readings from Gas Meters of every client to be transformed manually by an authorized person from the GDC in the report module of the IT system (GDC Information Management System).</i></p>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<i>Report Module</i>	<i>Summarized Table for gas consumption by sectors to be generated manually by one click in an Excel File called "Razhod-GasAll_2008.xls".</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<i>Excel File: "Razhod-GasAll_2008.xls"</i>	<i>The total annual consumption of each sector is manually transferred by an expert in the ESD department into the Excel File "Annex_6_Montioring_Trigradie.xls", for 2008 in a respective column for this year. These three figures (for each sector) are base for the MR.</i>	<i>No changes since last verification.</i>	<input checked="" type="checkbox"/>
<p>Key Reporting Risks: <i>Risk assessment was part of last verification.</i></p> <p>Risk Classification: <i>Risk assessment was part of last verification.</i></p> <p>Further Remarks: <i>Non</i></p>			

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Description of data processing from transferred data to final results in the calculation tool			
Step	Description	Risks and comments	Concl.
Consistency	See Conclusion	See conclusion	<i>The consistency of data processing has been initially verified for the last monitoring period (see Verification Report of TÜV SÜD Report No. 951 557-2, issued on March 30, 2007.</i>
Calculation Tool description	<p><i>The available calculation tool “Annex 6_Monitoring_Trigradie.xls” from January 19, 2009 is applicable for all years within the crediting period and has been initially verified for the last crediting period.</i></p> <p><i>The only upgrade compared to the calculation tool verified during the last verification period is:</i></p> <ul style="list-style-type: none"> - <i>the consideration of the EF for electricity of ERUPT 4 and 5 for the calculation of FSERF and</i> - <i>The application of the LHV correction factor.</i> <p><i>For both modifications see comment to FAR 7 of chapter 1.4 above.</i></p> <p><i>Hence, a description of all calculation steps is no more required</i></p>	See CAR 2	<div>☑</div> See CAR 2.

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Transformation from transferred data to useable data	<i>See conclusion</i>	<i>See conclusion</i>	<i>The consistency of data processing has been initially verified for the last monitoring period (see Verification Report of TÜV SÜD Report No. 951 557-2)</i>
Elimination of not plausible data	<i>See conclusion</i>	<i>See conclusion</i>	
Transformation from useable data to input data for further calculation	<i>See conclusion</i>	<i>See conclusion</i>	
Ex-ante data	<i>See conclusion</i>	<i>See conclusion</i>	
Default parameter	<i>See conclusion</i>	<i>See conclusion</i>	
Formulae check	<i>See conclusion</i>	<i>See conclusion</i>	
Rounding functions	<i>See conclusion</i>	<i>See conclusion</i>	
Calculation tool changes and protection measures	<i>See conclusion</i>	<i>See conclusion</i>	
Key Reporting Risks: <i>Risk assessment was part of last verification.</i> Risk Classification: <i>Risk assessment was part of last verification.</i> Further Remarks: <i>non</i>			

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2.5. Work Instruction out of protocol Algorithms

Description of data processing from transferred data to final results in the calculation tool			
Step	Description	Risks and comments	Concl.
Methodology formulae	<p><i>As per the determined project specific methodology the formula for the ERU calculation as following apart from the correction factor (see FAR 7).</i></p> $ER_i = NG_i (1000 \text{ m}^3) \times \text{Correction factor [-]} \times FSERFi [\text{t CO}_2/1000 \text{ m}^3]$ <p><i>NG_i is the measured annual gas consumption for the sector i</i></p> <p><i>Correction factor = LHV_{actual} / LHV_{default}</i></p> <p><i>LHV_{actual} is the arithmetical weighted average of the monthly-analysed LHVs of NG. (same for all sectors)</i></p> <p><i>LHV_{default} as for determined PDD is defined to be 34 MJ/m³</i></p> <p><i>FSERFi is the fuel switch emission reduction factor as per deter-</i></p>	<i>See comments to FAR 7 of chapter 1.4</i>	<input checked="" type="checkbox"/> <i>See CAR 2</i>

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	<i>mined PDD per sector i</i>		
Describe the use of each formula in the calculation tool	<i>see above</i>		<input checked="" type="checkbox"/>
Report any additional calculation use to obtain values use in the formulae	<i>NA</i>		
Key Reporting Risks: <i>no risk</i> Risk Classification: - Further Remarks: <i>non</i>			

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2.6. Monitoring Plan Implementation

2.7. List of Parameter to be monitored

ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
Instrumentation <i>insert all components that are metered by instruments as necessary due to PDD and applied methodology version</i>				
non	non*	non	NG consumption NG _i of each connected end user summarized for each sector	<input checked="" type="checkbox"/> Instrument_i
non	non*	non	NG amount fed into the two AGDS of Dunavgas EAD (for the territory of the 3 cities) that is the cross check parameter for the plausibility of the sum of NG consumption measured per sector and the monthly input to calculate the correction factor.	<input checked="" type="checkbox"/> Instrument_ii
	*project specific methodology			<input checked="" type="checkbox"/>
Sampling <i>insert all components that are sampled as necessary due to PDD and applied methodology version</i>				
non	non*	non	Calorific Heating Value of NG "LHV _{actual-monthly}	<input checked="" type="checkbox"/> Sampling Point_i
	*project specific methodology			<input checked="" type="checkbox"/>
Accounting <i>insert all components that are accounted as necessary due to PDD and applied methodology version</i>				
NA	NA	NA	NA	<input checked="" type="checkbox"/>
External Data <i>insert all components that are coming from external data sources as necessary due to PDD and applied methodology version</i>				
non	non*	non	Fuel Switch Emission Reduction Factor per 1000 m ³ of NG for industrial sector	<input checked="" type="checkbox"/>

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ID-PDD	ID-Meth.	ID-Internal	Description	Conclusion
<i>non</i>	<i>non*</i>	<i>non</i>	<i>Fuel Switch Emission Reduction Factor per 1000 m³ of NG for public and administrative sector</i>	<input checked="" type="checkbox"/>
<i>non</i>	<i>non*</i>	<i>non</i>	<i>Fuel Switch Emission Reduction Factor per 1000 m³ of NG for residential sector</i>	<input checked="" type="checkbox"/>
<i>non</i>	<i>non</i>	<i>non</i>	<i>LHVdefault</i>	<input checked="" type="checkbox"/>
<i>non</i>	<i>non</i>	<i>non</i>	<i>Correction factor for small users that do not have an electronic volume corrector installed</i>	<input checked="" type="checkbox"/>
	<i>*project specific methodology</i>			<input checked="" type="checkbox"/>
Others <i>insert all miscellaneous components as necessary due to PDD and applied methodology version</i>				
			NA	

2.8. Monitoring Instrumentation

2.8.1. Instrument i

PDD	Verified Situation	Conclusion
Instrumentation Information - <i>Detailed information about instrumentation has been initially verified during the last verification.</i>		

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2.9. Sampling Information

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PDD	Verified Situation	Conclusion
Sampling Information - <i>Detailed information about instrumentation has been initially verified during the last verification.</i>		

2.10. Accounting information

[Back to 3.1. List of Parameter to be monitored](#)

PDD	Verified Situation	Conclusion
Accounting Information - <i>Detailed information about instrumentation has been initially verified during the last verification.</i>		

2.11. External Data

PDD	Verified Situation	Conclusion
External Data - <i>Detailed information about instrumentation has been initially verified during the last verification.</i>		

2.12. Others

PDD	Verified Situation	Conclusion
Others - <i>Not Applicable</i>		

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4 Data Verification

4.1 Internal Review

Description and performance of internal review			
	Description	Comments	Concl.
Procedure	<p><i>Short description of the procedure for internal review of data consistency and correctness of data in the Monitoring Report, how is done and who does it</i></p> <p><i>The gas meter readings of the gas on-sites are performed by trained employees of Dunavgas EAD in presence of the client (only for institutional and industrial clients) as described in the instruction. The meter readings are recorded in a protocol per region for all users per month. Each institutional and industrial user receives a monthly statement about the amount of NG delivered which is signed by the user and Dunavgas EAD. The authorized person of Dunavgas enters the readings into the IT system where they are stored and archived as described in the instruction (and see above under 2.1 and 2.2 chapters). The procedure of signing includes already a cross check of the measured NG by the client. As for residential users the reading personal of Dunavgas EAD is experienced to ensure that the readings are plausible for these users of minor and rather constant consumptions.</i></p> <p><i>Another cross-check of the hourly measured NG consumptions is performed by comparing the sum of measured NG consumptions of all three sectors with the amount of NG entered in to the GDN</i></p>		<input checked="" type="checkbox"/>

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	<p><i>that is measured automatically in the AGDS on a monthly basis. Furthermore, skilled persons of the maintenance and exploitation department double check the plausibility of the AGDS figures with the figures in the monthly statements issued by the public supplier Bulgargas EAD.</i></p> <p><i>The corrections of the NG consumption measured are performed by electronic volume correctors or by fixed factor who's calculation is explained in the sub instruction I10-6.3-102 and in the rules for working with the users and in Annex 2 of the PDD</i></p>		
Documentation	<p><i>The evidences that are available to show the performance of this procedure are as following:</i></p> <ul style="list-style-type: none"> - <i>Instruction including the sub instructions and procedures that are part of the QMS is available.(e.g. I10-6.3-102 and P10-6.3-102,respectively)</i> - <i>Monthly information on the statement of the GDN covering all single reading protocols</i> - <i>Protocol for reading of monthly consumptions of the region</i> 	<p><i>Evidence for the plausibility of data measured have been demonstrated to the audit team IRL 12 -17</i></p>	<input checked="" type="checkbox"/>
Responsibilities	<p><i>The final internal approval of the Monitoring Report is made by the Deputy Executive Director of Overgas Inc. AD as described in the instruction.</i></p>		<input checked="" type="checkbox"/>

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Key Reporting Risks:	<i>Assess which risks for material misstatement are reduced by control measures and which risks are remaining</i>		
Risk Classification:	<i>Classify the remaining risks and justify/explain this classification</i>		
Further Remarks:	<i>Insert any further comments especially with relevance for future verifications</i>		

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4.2 Usage of default values

Description and performance of internal review			
	Description	Comments and Results	Concl.
Procedure	<p><i>The procedures for the internal review were part of the initial verification. In the following more detailed information gathered during the Audit is stated.</i></p> <p><i>a) The default values according to the determined PDD are listed in Chapter 3.1 of this protocol. In case of a meter failure or failure of correction device of one user, an average correction factor calculated from similar users are taken to estimate the monthly consumption since the last reading.</i></p> <p><i>b) If a metering device or corrector device without correct calibration has been identified, the device is disassembled and sent to a licensed laboratory for metrological check and in the same moment it will be replaced by a new calibrated device.</i></p>	<p><i>The procedures are credible and do reflect a conservative approach.</i></p> <p>FAR No. 3</p> <p><i>The procedure for the occurrence of peculiarity events category a) or b) generally has to be added to the instruction. In such case the MR must include this information.</i></p>	FAR No.3
Documentation	<p><i>For the replacement of the devices a protocol is issued by Dunavgas EAD and archived in the GDC. The protocol contains the ID-Number of the device as well as the actual readings.</i></p>	<p><i>These events are clearly indicated and traceable</i></p>	<input checked="" type="checkbox"/>

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Responsibilities	<i>The estimation of missing data (a) and the replacement of devices is performed by the personal in the Maintenance and Exploitation Department.</i>		<input checked="" type="checkbox"/>
Key Reporting Risks:		<i>Assess which risks for material misstatement are reduced by control measures and which risks are remaining</i>	
Risk Classification:		<i>Classify the remaining risks and justify/explain this classification</i>	
Further Remarks:		<i>Insert any further comments especially with relevance for future verifications</i>	

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4.3 Reproducibility

Description and performance of the assessment			
	Description	Comments and Results	Concl.
Procedure	<p><i>Describe how the assessment of all data used for the calculation of the Emission Reductions in the calculation tool was performed by the verifier. Are the values reproducible based on the raw data?</i></p> <p><i>Spot-check 1 of NG measured in the Gas Measuring Station (GMS) of a public user (User 2 IRL-14 and IRL 15) has been done by the Audit team.</i></p> <p><i>Two spot checks were performed, one industrial user (User 3 IRL-16 and IRL 17) and one administrative user (User 1 IRL-12 and IRL 13).</i></p>	<p><i>The counter indicated the figure of 106,347 standardized m³ (sm³). Taking into account the figures that have been recorded in the reporting module of the Data Management System for GDS (CRM) for the same client which was:</i></p> <p><i>- 18,319 sm³ consumption in December 2008</i></p> <p><i>-94,956 sm³ absolute counter displays during the reading performed at the end of December 2008.</i></p> <p><i>and the limited delivery of NG during the gas crises in January 2009, the reading for December 2008 is plausible. Furthermore, it can be confirmed that the devices were duly calibrated.</i></p>	<input checked="" type="checkbox"/>

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	<i>The calculation tool "Montioring_Trigradie.xls" has been cross-checked and assessed by the Audit team.</i>	<i>The devices were duly calibrated. The values are reproducible.</i>	
Key Reporting Risks:	<i>Assess which risks for material misstatement are reduced by control measures and which risks are remaining</i>		<input checked="" type="checkbox"/>
Risk Classification:	<i>Classify the remaining risks and justify/explain this classification</i>		
Further Remarks:	<i>Insert any further comments especially with relevance for future verifications</i>		

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4.4 Peculiarities

Description of Peculiarities and unexpected Daily Events during the verification period			
	Description	Comments and Results	Concl.
Performance	<p><i>The performance of the monitoring system is deemed to be state of the art; a statement about is given in the following:</i></p> <ul style="list-style-type: none"> <i>- Shut downs of consumers do not affect the monitoring system or the ERU calculation in principle. Only the consumption of this client is decreased for the respective month, but, this does not affect the readings of the devices.</i> <i>- In case of meter failure in the AGDS the NG meter of Bulgargas EAD can be used for the cross check of the monthly readings of the consumers.</i> <i>- As for leakages due to emergency cases see chapter 4.5.</i> 	<p><i>Peculiarities that occurred in 2008, e.g. leakages as stated in the MR, have no impact on the final results since the ERUs are calculated on the base of the measured NG consumption of end users.</i></p>	<input checked="" type="checkbox"/>
Documentation	<p><i>See Instruction И1-П8.6-015 for elaboration of monitoring report on the joint implementation projects of Overgas Inc. AD</i></p>	<p><i>All of the likely peculiarities have been clearly indicated and are traceable. The data treatment in such cases complies with the monitoring plan of the determined PDD and goes even beyond of it.</i></p>	<input checked="" type="checkbox"/>

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Measures	Are there measures initialized to stabilize the performance of the facility		<input checked="" type="checkbox"/>
Key Reporting Risks: Assess which risks for material misstatement are reduced by control measures and which risks are remaining			
Risk Classification: Classify the remaining risks and justify/explain this classification			
Further Remarks: Insert any further comments especially with relevance for future verifications			

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4.5 Reliability and Plausibility

Description of crosschecks and plausibility checks			
	Description	Comments and Results	Concl.
Performance	<p><i>Are the data in the calculation tool plausible (e.g. negative values, high/low values, implausible sequences of constant values)? Describe general the means of assessment.</i></p> <p><i>Are there any crosschecks applied to verify the provided emission reductions and/or the key parameter (e.g. mass balance)?</i></p> <p><i>Comment: These crosschecks should give the verifier a quick overview if the provided emission reductions are in a plausible range!</i></p> <p><i>As for the odorant agent that mandatorily has to be injected in the AGDS of Veliko Tarnovo, the estimated amount for 2008 was less than 1 m³.</i></p> <p><i>According to the determined PDD the NG consumption of end users and the NG quantities fed into the GDN have been measured. The procedure for cross-checking of the measured data for the end users by comparing them with the data of the AGDS is suitable according to the Regulation (IRL 24) of BG Act on Measurements that the difference of both figures is less than 2% from the quantities fed to the GDN. In case the difference is higher than 2% on a monthly level, the respective personnel in the GDC analyses the possible reasons, which can be different time of reading of consumer devices or meter failure in AGDS</i></p>	<p><i>Taking into account the purpose of this measure and the size of the agent bottle that is located in the AGDS, the estimation is plausible for the Audit team and it can be concluded that the volume of this agent is negligible regarding the calculation of the emission reduction units.</i></p> <p><i>Even in case of difference of more than 2% it can be concluded that there is no risk for the cross check procedure because the possible reasons do not impact the ER calculation.</i></p>	

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		FAR No. 4 <i>Elaborate and add in project specific monitoring manual a new instruction for cases where more than 2% difference in measurements appears.</i>	FAR No. 4
Key Reporting Risks:	<i>Assess which risks for material misstatement are reduced by control measures and which risks are remaining</i>		
Risk Classification:	<i>Classify the remaining risks and justify/explain this classification</i>		
Further Remarks:	<i>Insert any further comments especially with relevance for future verifications</i>		

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4.5 Completeness and Correctness

Description of completeness and correctness			
	Description	Comments and Results	Concl.
Correctness	<p><i>Give a statement if all data provided are correct</i></p> <p><i>There are no leakages of the NG pipes according to the measurements that are performed frequently with corresponding measuring device - see IRL-18 till IRL-22</i></p> <p><i>The NG leakages due to the emergency events (e.g. car accidents or underground construction works) are estimated and protocolled. The sum of these NG leakages was about 2.38 thousand m³ in 2008 as stated in the slides of the presentation 0.008% and in the MR.</i></p>	<p><i>Anyway, the amount of leakages of the NG pipes have no impact on the calculation of the emission reductions because the emission reduction calculation is based on the NG consumption measured at the levels of the users of the different sectors.</i></p>	<input checked="" type="checkbox"/>
Completeness	<p><i>Give a statement if all data provided are complete.</i></p>		<input checked="" type="checkbox"/>
Further Remarks:			

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5 Additional requirements

Description of additional requirements to be checked			
	Description	Comments and Results	Concl.
<i>non</i>	<i>No additional requirements are applicable as for the PDD.</i>	-	<input checked="" type="checkbox"/>
Key Reporting Risks: <i>Assess which risks for material misstatement are reduced by control measures and which risks are remaining</i>			
Risk Classification: <i>Classify the remaining risks and justify/explain this classification</i>			
Further Remarks: <i>Insert any further comments especially with relevance for future verifications</i>			

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6 Data Reporting

Description of the Monitoring Report		
	Comments and Results	Concl.
Compliance with UNFCCC regulations	<i>Are all related regulations considered (e.g. requirements of the methodology and the monitoring report)</i> <i>Statement about a revised monitoring report (version number)</i> <i>Statement about the verification period</i>	<input checked="" type="checkbox"/>
Completeness and Transparency	<i>Give a statement</i>	<input checked="" type="checkbox"/>
Correctness	<i>Are all of the provided values correctly transferred from the related and assessed sources (e.g. calculation tool)?</i>	<input checked="" type="checkbox"/>
Key Reporting Risks: <i>Assess which risks for material misstatement are reduced by control measures and which risks are remaining</i>		
Risk Classification: <i>Classify the remaining risks and justify/explain this classification</i>		
Further Remarks: <i>Insert any further comments especially with relevance for future verifications</i>		

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7 Compilation and Resolutions of CARs, CLs and FARs

Corrective Action Requests by audit team	Summary of project owner response	Audit team conclusion																								
<p><u>Corrective Action Request #1:</u> <i>Since it is a project with 3 cities, the completion rate of every single city has to be demonstrated.</i></p>	<p><i>Gas distribution network constructed in Velico Tarnovo, Gorna Orjahovitsa and Ljaskovetz</i></p> <table><tr><td></td><td><i>PDD planned</i></td><td><i>Realised untill 2008</i></td><td><i>percentage</i></td></tr><tr><td><i>Main gas branch</i></td><td><i>50 980</i></td><td><i>51 414</i></td><td><i>101%</i></td></tr><tr><td><i>GDN in VT</i></td><td><i>68 788</i></td><td><i>60 255</i></td><td><i>88%</i></td></tr><tr><td><i>GDN in GO</i></td><td><i>101 258</i></td><td><i>37 787</i></td><td><i>37%</i></td></tr><tr><td><i>GDN in L</i></td><td><i>30 822</i></td><td><i>14 192</i></td><td><i>46%</i></td></tr><tr><td><i>Total</i></td><td><i>251 848</i></td><td><i>163 648</i></td><td><i>65%</i></td></tr></table>		<i>PDD planned</i>	<i>Realised untill 2008</i>	<i>percentage</i>	<i>Main gas branch</i>	<i>50 980</i>	<i>51 414</i>	<i>101%</i>	<i>GDN in VT</i>	<i>68 788</i>	<i>60 255</i>	<i>88%</i>	<i>GDN in GO</i>	<i>101 258</i>	<i>37 787</i>	<i>37%</i>	<i>GDN in L</i>	<i>30 822</i>	<i>14 192</i>	<i>46%</i>	<i>Total</i>	<i>251 848</i>	<i>163 648</i>	<i>65%</i>	<p><i>Closed</i></p> <p><i>Gas distribution network constructed in Velico Tarnovo, Gorna Orjahovitsa and Ljaskovetz for each municipality are shown in Table 1, added in MP and is referred as IRL-26</i></p>
	<i>PDD planned</i>	<i>Realised untill 2008</i>	<i>percentage</i>																							
<i>Main gas branch</i>	<i>50 980</i>	<i>51 414</i>	<i>101%</i>																							
<i>GDN in VT</i>	<i>68 788</i>	<i>60 255</i>	<i>88%</i>																							
<i>GDN in GO</i>	<i>101 258</i>	<i>37 787</i>	<i>37%</i>																							
<i>GDN in L</i>	<i>30 822</i>	<i>14 192</i>	<i>46%</i>																							
<i>Total</i>	<i>251 848</i>	<i>163 648</i>	<i>65%</i>																							
<p><u>Corrective Action Request #2:</u> <i>It has to be proved by the PP that the power grid emission factors of Bulgaria published as Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System</i></p>	<p><i>The Monitoring report and the Instruction for elaboration of monitoring reports on the JI projects of Overgas Inc. are revised considering the Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System ((http://www2.moew.government.bg/recent_do</i></p>	<p><i>Closed</i></p> <p><i>Applying maximum demand scenario the emission factors for component of grid-connected electricity generation from renew-</i></p>																								

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<p>http://www2.moew.government.bg/recent_doc/climate/Baseline%20CEF%20Summary.pdf) have been calculated according to the rules of the UNFCCC and are more recent and conservative than those given by the ERUPT 4. If so, the most conservative MOEW EF for the appropriate demand scenario has to be taken into account for the calculation of the EF. Furthermore, the manual “instruction” has to be revised following this approach for this project and all other gasification projects of Overgas Inc. AD.</p>	<p>c/climate/Baseline%20CEF%20Summary.pdf).</p> <p>The electricity emission factors used in the PDD are defined by SenterNovem in 2002 for the ERUPT 3 tender. The official MOEW factors are calculated by the National Electricity Company in 2005 by the request of the MOEW. The approved consolidated methodology ACM0002 of the UNFCCC Executive Board is used for these calculations. The official MOEW factors are the most recent at this time and show the effect of the development of the electricity producing sector in Bulgaria to the utmost extent.</p> <p>In both sources the factors are defined for every year in the period 2008 – 2012. At the beginning of the period the official MOEW factors are higher than those of SenterNovem for the ERUPT4 and ERUPT5 tenders, while at the end of the period they are lower. This fact makes them conservative enough for the purpose of calculation of the GHG emission reductions resulting from the project implementation.</p> <p>The official MOEW factors are calculated for a Maximum and a Minimum electricity demand scenarios. For the update of the FSERFs the</p>	<p>able sources in FSERF are corrected with the combined margin of Baseline Carbon Emission Factor of Bulgarian Electricity and Heat Power System (BEF) which are the official electricity emission factors for Bulgaria, published in web site of the Ministry of Environment and Waters (MOEW) for use in Joint Implementation projects under the Kyoto Protocol.</p> <p>Other parts of emission factors have not been changed in the recalculation of the FSERF.</p> <p>Recalculation is shown into Excel File “Monitoring_Trigradie_v2.xls”, for 2008. Compared with the excel calculation file that has been used for the last verification the amendments are correct and transparent.</p>
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	<i>factors for the Maximum demand scenario are used because they are more conservative.</i>	
Clarification Requests by audit team	Summary of project owner response	Audit team conclusion
<p><u>Clarification Request #1:</u></p> <p><i>The GPS coordinates of each municipalities of the sites of</i></p> <ul style="list-style-type: none"> - <i>Veliko Tarnovo</i> - <i>Lyaskovets / Gorna Oryahovitsa</i> <p><i>need to be provided to the Audit team.</i></p>	<p><i>The GPS coordinates of</i></p> <p><i>Veliko Tarnovo municipality are:</i> N 430 04' 57" E 250 37' 56"</p> <p><i>Gorna Orjahovitsa municipality are:</i> N 430 07' 20" E 250 41' 24"</p> <p><i>of Lyaskovets municipality are:</i> N 430 06' 20" E 250 42' 54"</p>	<p><i>Closed</i></p> <p><i>Google Earth shows that coordinates are in range of:</i></p> <p><i>V.Tyrnovo Municipality address : 2 Mayka Bulgaria square</i></p> <p><i>Gorna Orjahovitsa Municipality address: 5 Georgi Izmirliiev square</i></p> <p><i>Lyaskovets Municipality address: 1 Vyzraz-dane square</i></p>
Forward Action Requests by audit team	Summary of project owner response	Audit team conclusion
<p><u>Forward Action Request #1:</u></p> <p><i>An updated timeline of the project implementation during the whole crediting period has to be presented for the next verification audit.</i></p>	<i>No comments</i>	<i>Will be verified by next audit process</i>
<p><u>Forward Action Request #2:</u></p>	<i>The Instruction for elaboration of monitoring reports on the JI projects of Overgas Inc. will</i>	<i>Will be verified by next audit process</i>

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<i>More detailed information about the data archiving has to be added to the instruction, e.g. the availability of a server for data storage and a back-up hard disk.</i>	<i>be revised and more detailed information about the data archiving will be added.</i>	
<p><u>Forward Action Request #3:</u></p> <p><i>The procedure for the occurrence of peculiarity events category a) or b) generally has to be added to the instruction. In such case the MR must include this information.</i></p>	<p><i>The Instruction for elaboration of monitoring reports on the JI projects of Overgas Inc. will be updated so as to consider the following events:</i></p> <ul style="list-style-type: none"> <i>a) identified meter or correction device failure;</i> <i>b) Identified metering device or corrector device without correct calibration.</i> <p><i>If such an event occurs the information will be included in the MR.</i></p>	<i>Will be verified by next audit process</i>
<p><u>Forward Action Request #4:</u></p> <p><i>Elaborate and add in project specific monitoring manual a new instruction for cases where more than 2% difference in measurements appears.</i></p>	<i>The Instruction for elaboration of monitoring reports on the JI projects of Overgas Inc. will be updated so as to cover the situation if more than 2% difference in measurements exist</i>	<i>Will be verified by next audit process</i>


Second Periodic Verification of the JI Project:

“Reduction of GHG by Gasification of the towns Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets” in Bulgaria



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Annex 2: Information Reference List

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
1.	02/2009	MONITORING REPORT for the period 1st January 2008 – 31st December 2008 of the project: Reduction of Greenhouse Gases by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets", version 2, with Annexes 1÷6	Nikola Delev, Expert Assessments and Analyses Overgas Inc. AD	Approved by Svetoslav Ivanov, Deputy Executive Director of Overgas Inc. AD
2.	26÷27/01/2009	Participant list of on-site interviews	TÜV SÜD	
3.	26÷27/01/2009	On-site interviews conducted by TÜV SÜD. Validation Team: Robert Mitterwallner ATL, TÜV SÜD Industrie Service GmbH Nelly Gromkova local expert Mrs. Imme Deecke trainee Interviewed Persions: Mr. M. Gospodinov Manager, Dunavgas EAD Mr. kalojan Traikov Head of Exploitation Department Mr. Nikola Delev Senior Expert Assessments and Analyses Overgas Inc. AD Miss Ivet Dimitrova Senior Expert, Emissions Trading, Ecology and Sustainable Development Dept, Overgas Inc AD	TÜV SÜD	
4.	07/2003	PDD "Reduction of Greenhouse Gases by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets", with Appendixes 1÷19	Overgas Inc. AD	PDD for GSP
5.	03/2007	MONITORING REPORT on the emission reductions in 2006 for the project "Reduction of Greenhouse Gases by Gasification of Sofia Municipality" under the Joint Implementation mechanism	Overgas Inc. AD	
6.	30/03/2007	Verification Report, Initial and First Periodic Verification of the " Reduction of Greenhouse Gases by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets "	TÜV SÜD	Report No. 951 557-2

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
7.	06/2003	Operational Guidelines for Project Design Documents of Joint Implementation Projects, Volume 1: General guidelines, Version 2.2	Ministry of Economic Affairs of Netherlands	Contains Emission factors for the replacement of electricity by natural gas
8.	-	Reduction of greenhouse gases by gasification, Contracted Projects ERU03/29 http://www.senternovem.nl/carboncredits/projects/eru0329.asp	SenterNovem	
9.	26.01.2009	Joint implementation projects of Overgas	Mrs. Ivet Dimitrova	Presentation
10.	26.01.2009	Monitoring report for 2008 of the project "Reduction of Greenhouse Gases by Gasification of the towns of Veliko Tarnovo, Gorna Oryahovitsa and Lyaskovets"	Mr Nikola Delev	Presentation
11.	14.03.2008	Schedule for the year 2008 for control of gas meters for the year 2008	Overgas service AD; Dunavgas EAD	The schedule was prepared by Overgas service AD on the request and in collaboration with DunavgasEAD
12.	31.12.2008	Invoice of <u>User 1</u> (administrative sector), Ljaskovets	Issued by Dunavgas EAD	The meter readings of the user were cross checked
13.	12/2008	Monthly act for delivery of natural gas to <u>User 1</u> , Ljaskovets in December 2008	Issued by Dunavgas EAD	
14.	31.12.2008	Invoice of <u>User 2</u> (public sector)	Issued by Dunavgas EAD	The meter readings of the user were cross checked
15.	12/2008	Monthly act for delivery of natural gas to <u>User 2</u> , Veliko Tarnovo in December 2008	Issued by Dunavgas EAD	
16.	31.12.2008	Invoice of <u>User 3</u> (industrial sector)	Issued by Dunavgas EAD	The meter readings of the user were cross checked
17.	12/2008	Monthly act for delivery of natural gas to <u>User 3</u> , Gorna Orjahivitsa in December 2008	Issued by Dunavgas EAD	

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
18.	22.08.2008	Statement for control performed to identify and localize breaks of underground pipes for Veliko Tarnovo	Dunavgas EAD	The checking was performed on the territory of Veliko Tarnovo by EX-TEC SR5
19.	18.08.2008	Test protocol for IRL-18	Overgas service AD	The protocol documents the status of the device EX-TEC SR5
20.	08.08.2008	Statement for control performed to identify and localize breaks of underground pipes for Gorna Oryahovitsa	Dunavgas EAD	The checking was performed on the territory of Gorna Oryahovitsa by EX-TEC HS-660
21.	06.08.2008	Statement for control performed to identify and localize breaks of underground pipes for Lyaskovets	Dunavgas EAD	The checking was performed on the territory of Lyaskovets by EX-TEC HS-660
22.	04/08/2008	Test protocol for IRL-20 and IRL-21	Overgas service AD	The protocol documents the status of the device EX-TEC HS-660
23.	28.01.2009	Technologies for leak detection - EX-TEC 660 – Technical specification http://www.sewerin.com/en/news/id_71.html	Hermann Sewerin GmbH	
24.	07/11/2003	Regulation on measurement devices that are subject to metrological control, article 475 for maximal range of admissible deviation of diaphragm gas meters and Article 479 for maximal range of admissible deviation for rotary and turbine gas meters.	State Agency for Metrology and Technical Surveillance	
25.	12.03.2008 r	Protocol for the results of examination	Dunavgas EAD	The protocol is documented evidence for the training of the employs of Sofiagas EAD concerning the reading of the

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Ref. No.	Issuance and/or submission date(dd/mm/yyyy)	Title/Type of Document	Author/Editor/Issuer	Additional Information (Relevance in CDM Context)
				gas meters
26.	30/01/2009	Gas distribution network constructed in Velico Tarnovo, Gorna Oryahovitsa and Lyaskovets - lengths of planned in PDD, realized and their ratio in percentage	Overgas Inc. AD	
27.	15.01.2009	I1-П8.6-015 Instruction for elaboration of monitoring report on the joint implementation projects of Overgas Inc. AD	Overgas Inc. AD	This Instruction is specific monitoring manual, referred in point 1.3 QM-Manual of Verification Protocol