DETERMINATION REPORT

LLC NARYANMARNEFTEGAS

DETERMINATION OF THE ASSOCIATED PETROLEUM GAS TREATMENT FOR FURTHER USE AT YUZHNO-KHYLCHUYUSKOE FIELD OF LLC "NARYANMARNEFTEGAS", RUSSIAN FEDERATION

REPORT NO. RUSSIA-DET/0168/2011

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BUREAU VERITAS CERTIFICATION

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DETERMINATION REPORT OF THE PROJECT "ASSOCIATED PETROLEUM GAS TREATMENT FOR FURTHER USE AT YUZHNO-KHYLCHUYUSKOE FIELD OF LLC "NARYANMARNEFTEGAS", RUSSIAN FEDERATION"

Date of first issue:	Organizational unit:
31/01/2012	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Climate Change Global Services	Mr. Mikhail Yulkin

Summary:

Bureau Veritas Certification has made the determination of the "Associated petroleum gas treatment for further use at Yuzhno-Khylchuyuskoe field of LLC "Naryanmarneftegas", Russian Federation" project of LLC Naryanmarneftegas, Arkhangelsk region, Nenets Autonomous Okrug on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project applies the appropriate baseline and monitoring methodology and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
Russia-det/168/2011	JI
Project title: "Associated petroleum gas treatment for further use at Yuzhno-Khylchuyuskoe field of LLC "Naryanmarneftegas", Russian Federation"	
Work carried out by: Daniil Ukhanov – Lead verifier, Team Leader Elena Mazlova - Specialist	
Work reviewed by: Leonid Yaskin – Internal Technical Reviewer	
Work approved by: Leonid Yaskin - Operational Manager	

Date of this revision:	Rev. No.:	Number of pages:
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Indexing terms

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Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification
CAR	Corrective Action Request
CCGT	Combined Cycle Gas Turbine
CL	Clarification Request
CO2	Carbon Dioxide
DDR	Draft Determination Report
DR	Document Review
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ERU	Emission Reduction Unit
GHG	Greenhouse House Gas(es)
GTP	Gas Treatment Plant
GWP	Global Warming Potential
IE	Independent Entity
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
NGO	Non Governmental Organization
NPV	Net Present Value
PDD	Project Design Document
PP	Project Participant
RF	Russian Federation
tCO2e	Tonnes CO2 equivalent
UNFCCC	United Nations Framework Convention for Climate Change

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1 INTRODUCTION

The company Climate Change Global Services (hereafter called "the company") has commissioned Bureau Veritas Certification to determine the JI project "Associated petroleum gas treatment for further use at Yuzhno-Khylchuyuskoe field of LLC "Naryanmarneftegas", Russian Federation" (hereafter called "the project") at Arkhangelsk region, Nenets Autonomous Okrug.

This report summarizes the findings of the determination of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emissions reductions units (ERUs).

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

The determination 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 project design.

1.3 Determination team

The determination team consists of the following personnel:

Daniil Ukhanov
Bureau Veritas Certification, Team Leader, Climate Change Lead Verifier

Elena Mazlova

Bureau Veritas Certification, Specialist

This determination report was reviewed by:

Leonid Yaskin
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a determination protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where the determiner will document how a particular requirement has been determined and the result of the determination.

The completed determination protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Project Design Document (PDD) submitted by Climate Change Global Services (thereafter 'CCGS') and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, CCGS revised the PDD and resubmitted it on 26/01/2012.

The determination findings presented in this report relate to the project as described in the PDD version(s) 1.0, 1.1, 1.2, 1.3 and 1.4 /1/.

2.2 Follow-up Interviews

On 18/01/2012 Bureau Veritas Certification performed off-site interviews with project stakeholders to confirm selected information and to resolve

issues identified in the document review. CCGS representative was interviewed (see References) as it has had necessary authorization in accordance with /15/. The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
LLC Naryanmarneftegas	➢ Reasoning for project implementation ➢ Project management organization ➢ Project history and Implementation schedule ➢ Baseline scenario ➢ Common practice ➢ Project scenario ➢ Emission calculation ➢ Investment issues ➢ Commissioning and proven trials ➢ Capacity issues ➢ Environmental permissions ➢ Environmental Impact Assessment
(LOCAL Stakeholders)	N/A
CONSULTANT CCGS	➢ Ditto

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

If the determination team, in assessing the PDD and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to JI project requirements, it will raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake in the published PDD that is not in accordance with the (technical) process used for the project or relevant JI project requirement or that shows any other logical flaw;

(b) Clarification request (CL), requesting the project participants to provide additional information for the determination team to assess compliance with the JI project requirement in question;

(c) Forward action request (FAR), informing the project participants of an issue, relating to project implementation but not project design, that needs to be reviewed during the first verification of the project.

The determination team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the determination.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the determination protocol in Appendix A.

3 PROJECT DESCRIPTION (QUOTED BY PDD SECTION A.2)

The project is implemented at Yuzhno-Khylchuyuskoe oilfield in the Nenets Autonomous Okrug (NAO), Russian Federation. The field is developed by LLC "Naryanmarneftegas" (a joint venture between OJSC "LUKOIL" and ConocoPhillips) which started its development in February 2006. Commercial oil production at Yuzhno-Khylchuyuskoe field started in June 2008.

The distinctive feature of Yuzhno-Khylchuyuskoe field is the high content of hydrogen sulfide in crude oil and associated petroleum gas (APG). The volumetric fraction of hydrogen sulfide in APG is about 2.5%. Without pre-removal of hydrogen sulfide APG cannot be used for process needs of the field and so the only acceptable alternative for APG handling is its combustion in flare units.

The project involves removal of hydrogen sulfide from APG for the purpose of using treated APG for the field needs, producing elemental sulfur and reducing emissions of pollutants and greenhouse gases (GHG) into the atmosphere.

The main facilities to be put into operation under the project are a gas treatment plant and a sulfur recovery plant with a sulfur storage facility. An absorption method is used for removal of hydrogen sulfide and carbon dioxide from gas. The Claus process is used for sulfur recovery. The design gas treatment capacity of the plant is 586 million m3 of APG per year. The design output of the sulfur recovery plant is 22.4 thousand tonnes of sulfur per year. The equipment was designed and supplied by OJSC "Giprogazoochistka".

Commissioning of the gas treatment plant allowed utilization of APG as a fuel for the needs of the Energy Center and also as a stripping agent for hydrogen sulfide removal from crude oil at the production site of Yuzhno-Khylchuyuskoe field. Part of treated APG is used for auxiliary needs of the project facilities (in desulfurization boiler house).

Up until that time natural gas from the neighbouring Yareyuskoe gas condensate field that is situated approximately 28 km south of the Central Oil Gathering Station of Yuzhno-Khylchuyuskoe field also developed by LLC "Naryanmarneftegas" had been used as fuel for the Energy Center and also for crude oil stripping. All of APG was flared. The baseline scenario assumes continuation of the APG flaring practice and use of natural gas for the needs of Yuzhno-Khylchuyuskoe field. It should be noted that since Yareyuskoe field is remote from the gas transmission system the company cannot sell natural gas to third-party consumers.

The GHG emission reduction is achieved through reduction in natural gas consumption and also due to far more complete oxidation of methane when APG is used as fuel than when it is flared. The field flare units serve to ensure the so-called soot combustion of gas characterized by a high unburnt carbon factor which leads to significant methane emissions. The expected GHG emission reductions over 2009-2012 are estimated at an average of 404 ktCO2e per year.

On November 22, 2005 OJSC "LUKOIL" held the meeting on discussion of the Corporate Strategy for establishing an innovative investment promotion mechanism using the Kyoto mechanisms, where it was decided to approve the APG utilization project at Yuzhno-Khylchuyuskoe field. At that point in time the joint implementation plans envisaged APG utilization in the Energy Center (whose capacity at the first stage is 125 MW and after completion from 2010 onwards it was supposed to reach 250 MW) and also injection of APG surpluses to the Yareyu underground gas reservoir. The report of proceedings at the meeting also states that in the absence of the project electricity would be generated using natural gas and APG would be flared. The proposed APG handling was technically feasible given that gas treatment plants were available and such were planned to be commissioned in two stages: the 1st line and the 2nd line.

In practice the project has not been and will never be implemented in full because of a slump in crude oil and APG production volumes against the original projections. The company took a decision to implement the joint implementation project partially. The company dropped its plans for the Energy Center expansion, APG injection into the underground gas reservoir and gas treatment capacity enhancement.

The contract for supply of the equipment of the 1st gas treatment and sulfur recovery line was signed on June 19, 2006 which is considered the starting date of this project. The equipment of the 1st line started its pre-commissioning operation in October 2008 (order No.594 dated October 15, 2008).

4 DETERMINATION CONCLUSIONS

In the following sections, the conclusions of the determination are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Determination Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 23 Corrective Action Requests and 2 Clarification Requests.

The number between brackets at the end of each section correspond to the DVM paragraph.

4.1 Project approvals by Parties involved (19-20)

The project has no approvals by the Parties involved, therefore CAR 06 remains pending.

A written project approval by Party B should be provided to the AIE and made available to the secretariat by the AIE when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines. It has not been provided to AIE at the determination stage.

Outstanding issues related to Project approvals by Parties involved (19-20), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 06).
The raised CAR concerns:
CAR 06 – the project approval of the Host Party.

4.2 Authorization of project participants by Parties involved (21)

The participation for each of the legal entities listed as project participants in the PDD is not authorized by the Host Party because the project approval by the Host Party was not received.

The authorization is deemed to be carried out through the issuance of the project approvals.

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline.

JI specific approach

The PDD provides a detailed theoretical description in a complete and transparent manner, as well as justification, that the baseline is established:

(a) By listing and describing the following plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one:

1-st group:

a. Venting of APG;
b. Further flaring of APG;
c. Reduction of APG flaring volume by gas injection
d. Transportation, processing and distribution of gas between end-users
e. APG consumption for process needs of the field without hydrogen sulphide removal from APG.

2-d group:

a. Hydrogen sulphide removal from crude oil by stripping with chemical agents;
b. Hydrogen sulphide removal from crude oil by stripping with natural gas;
c. The project activity without JI.

(b) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account: sectoral polices, description of economic situation and common practice, local availability of technologies, fuel prices and availability, possibility of gas injections into the bed.

All explanations, descriptions and analyses pertaining to the baseline in the PDD are made in accordance with the described approach and the baseline is identified appropriately.

Outstanding issues related to Baseline setting (22-26), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 07 – CAR 13).

The raised CARs concern:

CAR 07 – the detailed theoretical description of the baseline;
CAR 08 – the oil balance;
CAR 09 – the electricity consumption by booster compressor stations;
CAR 10 – the representativeness of net calorific value;
CAR 11 – the application of incomplete flaring factor;
CAR 12 – the composition protocols referenced in Section B.1;
CAR 13 – the application of NII Atmosphere methodology.

4.4 Additionality (27-31)

JI specific approach

Traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of anthropogenic emissions by sources of GHGs was provided in PDD Section B.2.

Additionality proofs were provided. To demonstrate the additionality of the project three steps were implemented:
Step 1: Indication and description of the alternatives applied (provided in Section B.1);
Step 2: Investment analysis (including the sensitivity analysis);
Step 3: Common practice analysis.

Investment analysis includes the evaluation of the project's financial efficiency. The investment analysis was based on calculation of NPV for the Project, taking into account investment costs, savings of payment for emissions, depreciation and other parameters referring to expenses, as well as revenues from APG sale. Discount rate was taken 13%.

The common practice analysis has shown that the project activity is not the common practice in Russian oil industry for the time of project decision making.

Additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

Outstanding issues related to Additionality (27-31), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 14 – 16 and CL 01).
The raised CARs and CL concern:
CAR 14 – the initial data for investment analysis;
CAR 15 – the discount rate justification;
CAR 16 – the calculation of sensitivity analysis;
CL 01 – the time horizon applied in investment analysis.

4.5 Project boundary (32-33)

JI specific approach

The project boundary defined in the PDD, which is in Section B.3 and Table B.3-1, encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

(i) Under the control of the project participants (APG combustion in the Energy Center and desulphurization boiler house, use of backup fuel (natural gas) in the Energy Center);

(ii) Reasonably attributable to the project (APG combustion in flare units, combustion of contaminated natural gas in flare unit after hydrogen sulfide stripping columns for crude oil); and

(iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 per cent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO2 equivalent, whichever is lower.

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD, Section B.3.

Based on the above assessment, the AIE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

Outstanding issues related to Project boundary (32-33), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 17 – CAR 18).
The raised CARs concern:
CAR 17 – the emissions of APG flaring after the stripping columns;
CAR 18 – the emission sources indication.

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began, and the starting date is 19/06/2006, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 20 years and 240 months.

The PDD states the length of the crediting period in years and months, which is 4 years, and its starting date as 01/01/2009, which is on the date the first emission reductions or enhancements of net removals are generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that JI specific approach was selected.

JI specific approach

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance, such as:

- Volumetric consumption of natural gas in the Energy Centre under the project in the month *m* of the year *y*;
- Net calorific value of natural gas in the month *m* of the year *y*;
- Volumetric consumption of APG in the Energy Centre in the month *m* of the year *y*;
- Volumetric consumption of APG in the desulphurization boiler house in month m of the year y;
- Volumetric fraction of i-hydrocarbon in treated APG in the month *m* of the year *y*;
- Electricity generation by the Energy Centre under the project during the year *y*;
- Volume of untreated APG supplied to the gas treatment plant during the year y;
- Net calorific value of treated APG in the month *m* of the *y*;
- Volume of APG supplied to the hydrogen sulfide stripping columns for crude oil in the month m of the year y;
- Volumetric fraction of methane in natural gas in the month *m* of the year *y*.

The monitoring plan specifies the indicators, constants and variables that are reliable, valid, and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored such as those listed in the PDD, Section B.1.

The monitoring plan draws on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring" developed by the JISC.

The monitoring plan explicitly and clearly distinguishes:

(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as:

- Specific electricity consumption by the gas treatment and sulfur recovery plants during the year *y*;
- Incomplete flaring factor;
- Carbon fraction of i-component;
- Density of i-component at standard conditions.

(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination (there are no such parameters).

(iii) Data and parameters that are monitored throughout the crediting period, such as:

- Volumetric consumption of natural gas in the Energy Centre under the project in the month *m* of the year *y*;
- Net calorific value of natural gas in the month *m* of the year *y*;
- Volumetric consumption of APG in the Energy Centre in the month *m* of the year *y*;
- Volumetric consumption of APG in the desulphurization boiler house in month m of the year y;
- Volumetric fraction of i-hydrocarbon in treated APG in the month *m* of the year *y*;
- Electricity generation by the Energy Centre under the project during the year *y*;
- Volume of untreated APG supplied to the gas treatment plant during the year y;
- Net calorific value of treated APG in the month *m* of the *y*;
- Volume of APG supplied to the hydrogen sulfide stripping columns for crude oil in the month m of the year y;
- Volumetric fraction of methane in natural gas in the month *m* of the year *y*.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording; please refer to PDD, Section D.2.

The monitoring plan elaborates all algorithms and formulae used for the calculation of baseline emissions and project emissions, such as formulae in Section D.1.1.4 for baseline emissions (formulae D.1-5 – D.1-15), Section D.1.1.2 for project emissions (formulae D.1-1 – D.1-4), Section D.1.4 (formulae D.1-13).

The monitoring plan presents the quality assurance and control procedures for the monitoring process. All the QC/QA procedures are specified in PDD Section D.3.This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. The operating and management structure for GHG monitoring is described in PDD Section D.3, Figure D.3-2.

On the whole, the monitoring report reflects good monitoring practices appropriate to the project type.

The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled but not including data that are calculated with equations.

The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.

Outstanding issues related to Monitoring plan (35-39), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 19 – CAR 22 and CL02).
The raised CARs concern:
CAR 19 – the composition of contaminated APG and treated APG;
CAR 20 – the volumetric fraction of methane;
CAR 21 – the operational and management structure;
CAR 22 – the keeping of data for 2 years after the last transfer of ERUs;
CL 02 – the net calorific value measurement of natural gas.

4.8 Leakage (40-41)

JI specific approach

The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains that the estimation of leakage is reasonably neglected by conservative reasons.

4.9 Estimation of emission reductions (42-47)

JI specific approach

The PDD indicates assessment of emissions in the baseline scenario and in the project scenario as the approach chosen to estimate the emission reductions generated by the project.

The PDD provides the ex ante estimates of:

(a) Emissions for the project scenario (within the project boundary), which are 144,662 tons of CO2eq;

(b) Leakage are considered to be zero;

(c) Emissions for the baseline scenario (within the project boundary), which are 1,759,773 tons of CO2eq;

(d) Emission reductions or enhancements of net removals adjusted by leakage (based on (a)-(c) above), which are 1,615,111 tons of CO2eq.

The estimates referred to above are given:

(a) On a yearly basis;

(b) From 01/01/2009 to 31/12/2012, covering the whole crediting period;

(c) On a source-by-source/sink-by-sink basis;

(d) For each GHG gas, which are CO2 and CH4;

(e) In tonnes of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol;

The formula used for calculating the estimates referred above (see Section D.1.1.2, D.1.1.4, D.1.4), are consistent throughout the PDD.

For calculating the estimates referred to above, key factors, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project, were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above are clearly identified, reliable and transparent.

Emission factor, such as emission factor for natural gas, was selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The estimation referred to above is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions or enhancements of net removals over the crediting period is calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period, and multiplying by twelve.

The PDD, in Section E, includes an illustrative ex ante emissions calculation.

Outstanding issues related to Estimation of emission reductions (42-47), PP's response and the AIE conclusion are summarized in Appendix A (refer to CAR 23).
The raised CAR concerns:
CAR 23 – the emission factor for natural gas.

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party, such as by the Federal Laws #174 "On ecological expertise", #7 "On environmental protection" and State Committee for Ecology and Natural Resources of the Russian Federation Decree #372 "On compliance with regulations regarding the planned economics (and other) actions and their ecological impact".

The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party, if the analysis referred to above indicates that the environmental impacts are considered significant by the project participants or the host Party.

4.11 Stakeholder consultation (49)

Public hearings were organized and no negative comments were received.

4.12 Determination regarding small scale projects (50-57)

Not applicable.

4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)

Not applicable.

4.14 Determination regarding programmes of activities (65-73)

Not applicable.

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES

No comments, pursuant to paragraph 32 of the JI Guidelines, were received.

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the "Associated petroleum gas treatment for further use at Yuzhno-Khylchuyuskoe field of LLC Naryanmarneftegas, Russian Federation" Project in Russia. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participants used the JI specific approach for demonstration of the additionality. In line with this tool PDD provides the investment analysis and common practice analysis, to determine that the project activity itself is not the baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria.

The determination revealed two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party. If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 1.4 dated 26.01.2012 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The determination is based on the information made available to us and the engagement conditions detailed in this report.

7 REFERENCES

Category 1 Documents:
Documents provided by Type the name of the company that relate directly to the GHG components of the project.

/1/ Associated petroleum gas treatment for further use at Yuzhno-Khylchuyuskoe field of LLC "Naryanmarneftegas", Russian Federation, PDD Version 1.0 dated 18.01.2012, Version 1.1 dated 22.11.11, Version 1.2 dated 19.12.11, Version 1.3 dated 19.01.12, Version 1.4 dated 26.01.12.
/2/ Excel spreadsheet with calculation of emission reductions and investments "NMNG_en_v 1.3"

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/1/ Project of air emissions permissible level limits dd.03.08.09;
/2/ Permission #16 on hazardous air emissions dd. 03.08.09;
/3/ Protocol of public hearings dd. 22.09.05;
/4/ General Technical Note 06021-PZ Volume 1, Book 1;
/5/ Permission #115 on hazardous air emissions by stationary combustion sources dd.27.06.06;
/6/ Report on research of VNIIGas, 2005;
/7/ Conclusion of State Expertisa #2611 on construction of oil wells on Yuzhnoe-Khylchuyu oilfield;
/8/ Protocols of APG, NG composition from the laboratory;
/9/ Gas and oil balance provided by NMNG for 2009-2012;
/10/ Extract from the construction budget for 1-st stage objects;
/11/ Electricity consumption extract ##1-4 for 2008-2011;
/12/ Requirements specification for Gas Sweetening Unit Design and Supply.
/13/ Exploitation passport on flare unit SFNR-600/900 XL;
/14/ Graff scheme of natural gas and associated petroleum gas flows on Yuzhnoe-Khylchuyu oilfield.
/15/ Except from Agent agreement with the project participant #05/2011-A;

Persons interviewed:

/1/ A. Samorodov –Director, Project Development, CCGS;
/2/ D. Voevodkin – Consultant, Project Development, CCGS;
/3/ E. Ershov – Consultant, Project Development, CCGS.

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APPENDIX A: COMPANY PROJECT DETERMINATION PROTOCOL

DETERMINATION PROTOCOL

Table 1

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	The title of the project is "Associated petroleum gas treatment for further use at Yuzhno-Khylchuyuskoe field of LLC "Naryanmarneftegas", Russian Federation".		OK
-	Is the sectoral scope to which the project pertains presented?	Sectoral scope: 1. Energy industries (renewable/non-renewable sources); 10. Fugitive emissions from fuels (solid, oil and gas).		OK
-	Is the current version number of the document presented?	PDD Version: 1.0		OK
-	Is the date when the document was completed presented?	The date of PDD completion: 22.09.2011.		OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome,	Requirements a), b), c) to the description of the project are met including its purpose. PDD reads: "The project involves removal of hydrogen sulphide from APG for the purpose of using treated APG for the field needs, producing elemental sulphur and reducing emissions of pollutants and greenhouse gases (GHG) into the atmosphere".		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	including a technical description)?			
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the project including its JI component is briefly summarised as follows: "On November 22, 2005 OJSC "LUKOIL" held the meeting on discussion of the Corporate Strategy for establishing an innovative investment promotion mechanism using the Kyoto mechanisms, where it was decided to approve the APG utilization project at Yuzhno-Khylchuyuskoe field"		OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	Project participants are listed in Section A.3. Party A – Russian Federation with project participant Limited Liability Company "Naryanmarneftegas", Party B is not determined.		OK
-	Is the data of the project participants presented in tabular format?	The data of the project participants is presented in tabular format.		OK
-	Is contact information provided in Annex 1 of the PDD?	Contact information is provided in Annex 1 of the PDD.		OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	The indicated host party is the Russian Federation.		OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	The Russian Federation.		OK
-	Region/State/Province etc.	Arkhangelsk region, Nenets Autonomous okrug.		OK
-	City/Town/Community etc.	Yuzhno-Khylchuyuskoe field.		OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	Detail of the physical location of the project was provided. **CAR 01.** Please provide the source of information of Naryan-Mar coordinates.	CAR 01	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be	The project envisages the installation of a gas treatment plant for removal of hydrogen sulphide and carbon dioxide	CAR 02 CAR 03	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	implemented by the project, including all relevant technical data and the implementation schedule described?	and a sulphur recovery plant with a sulphur storage facility. Much of treated APG is used as fuel in the Energy Centre, some of it – in the desulfurization boiler house which is constructed under the project. Implementation schedule is described. **CAR 02.** Please include in Section A.4.2 a technical description of Yuzhno-Khylchuyuskoe oilfield infrastructure (including gas and oil pipelines, energy centre's characteristics, etc.). Please provide oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield. **CAR 03.** Please indicate on the Fig. A.4-3 two booster compression stations (BCS-1 and BCS-2) that necessary for APG compression for Energy Centre supply. **CAR 04.** Please indicate in Section A.4.2 the starting date of Energy Centre's work, its purpose and customers, annual output, efficiency of equipment depending on different types of fuel, annual consumption of fuel.	CAR 04	OK
Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	PDD states that due to the project the treated APG is used as fuel for the Energy Centre and also as an agent for removal of hydrogen oxide from crude oil. Without the project natural gas from nearby Yareyuskoe gas field would have been used for these purposes. Yareyuskoe gas field wouldn't supply gas to third-party consumers as it is located far from the gas transmission system. **CAR 05.** Please justify that Yareyuskoe gas field has enough amount of natural gas, during the crediting period, for the supply of Energy Centre and oil stripping at Yuzhno-	CAR 05	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Khylchuyuskoe oilfield and there are no obstacles for its mining and delivery.		
-	Is it provided the estimation of emission reductions over the crediting period?	The estimation of emission reductions over the crediting period (4 years) is provided: 1,692,135 tonnes of CO2 equivalent. In accordance with the final version of PDD, the estimation of emission reductions over the crediting period (4 years) is provided: 1,615,111 tonnes of CO2 equivalent.		OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	The estimated annual emission reduction for the chosen credit period is 423,034 tonnes of CO2 equivalent. In accordance with the final version of PDD, the estimated annual emission reduction for the chosen credit period is 403,778 tonnes of CO2 equivalent.		OK
-	Are the data from questions above presented in tabular format?	The data from the questions above is presented in tabular format. Please refer to Section A.4.3.1.		OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	The length of the crediting period is 4 years. Please refer to the section A.4.3.1.		OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	The estimates of total and annual emission reductions were provided in section A.4.3.1 in tonnes of CO2 equivalent.		OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	**CAR 06.** The project has no approval of the host Party. According to PDD the project approval by the other Party involved other than the Host Party will be received later.	CAR 06	OK
19	Does the PDD identify at least the host Party as a "Party involved"?	The host Party involved is the Russian Federation.		OK
19	Has the DFP of the host Party issued a written project approval?	No, pending a response to CAR 06.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
20	Are all the written project approvals by Parties involved unconditional?	Yes, the written project approvals are unconditional.		OK
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: – A written project approval by a Party involved, explicitly indicating the name of the legal entity? or – Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	The authorization of "Naryanmarneftegas" LLC is deemed to be received together with the project approval by the Host Party. Conclusion is pending a response to CAR 06.		OK
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? – JI specific approach – Approved CDM methodology approach	It is explicitly indicated that the JI specific approach was applied for identifying the baseline.		OK
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	**CAR 07.** Section B.1 does not contain a detailed theoretical description of the baseline; e.g. no formula for calculation of baseline emissions is given. The baseline is described by the approach resembling that in the "Tool for the demonstration and assessment of additionality" (version 05.2).	CAR 07	OK
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible	The baseline is established basically: (a) By listing and describing future scenarios available for the project owner "Naryanmarneftegas" LLC and selecting the least negatively influenced by the key data, factors and assumptions. Two groups of alternative scenarios for the	CAR 08 CAR 09 CAR 10 CAR 11 CAR 12	OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	one? (b) Taking into account relevant national and/or sectoral policies and circumstance? – Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors? (d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?	APG treatment and hydrogen sulphide removal from crude oil at the Yuzhno-Khylchuyuskoe oil field were listed and described as follows: Alternative H1: Venting of APG; Alternative H2: Further flaring of APG; Alternative H3: Reduction of APG flaring volume by gas injection; Alternative H4: Transportation, processing and distribution of gas between end-users; Alternative H5: APG consumption for process needs of the field without hydrogen sulphide removal from APG; Alternative H6: The project activity without the joint implementation mechanism (JI). Alternative R1: Hydrogen sulphide removal from crude oil by stripping with chemical agents; Alternative R2: Hydrogen sulphide removal from crude oil by stripping with natural gas; Alternative R3: The project activity without JI. Based on alternatives analysis with taking into account the key factors: sectoral reform policies and legislation, economic situation in oil&gas sector in terms of APG utilization and hydrogen sulphide removal from crude oil, the cost of different types of hydrogen sulphide removal from crude oil, a conclusion is made that alternative H2 and R2 is the baseline scenario. (b) By taking into account key factors that affect a baseline, such as sectoral reform policies and legislation, economic situation in oil&gas sector in terms of APG utilization and hydrogen sulphide removal from crude oil, availability and costs of technologies. (c) There is a lack of transparency with regard to the	CAR 13	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		baseline theoretical description and APG composition; refer to CAR 08, CAR 11, CAR 12 and CAR 13. (d) Taking into account of uncertainties and using conservative assumptions. (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure. Pending a response to CAR 05. (f) By drawing of the list of standard variables contained in appendix B to Guidance on criteria for baseline and monitoring. **CAR 08.** Please justify the values of: (i) produced crude oil at Y.-Kh. oilfield for the period 2009 – 2012; (ii) volumetric consumption of APG in the Energy Centre during for the period 2009 – 2012; (iii) untreated APG supply to the gas treatment plant in 2009 – 2012; (iv) volumetric consumption of natural gas in the Energy Centre (2009-2010); **CAR 09.** Please take into account, in the theoretical description of the baseline, the value of electricity consumption by booster compressor stations installed in the project at the Energy Centre. **CAR 10.** Please justify the representativeness of APG net calorific value, natural gas net calorific value based on "one of the results" of treated APG and natural gas (protocol No.641 dated 25.06.2011 and protocol No.642 dated 25.06.2011 respectively). Please take note: composition of associated petroleum gas (and, therefore, net calorific value)		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		changes considerably during the day and even an hour. The use of the result of one sample lacks representativeness. **CAR 11.** The application of incomplete flaring factor for the case of soot flaring should be justified by the methods described in "Guidelines for Calculation of Air Pollutant Emissions from APG Flaring" developed by the Scientific Research Institute for Atmospheric Air Protection in Saint-Petersburg, 1998. **CAR 12.** Tabular form in Section B.1 provides one set of data on the average volumetric fraction of i-hydrocarbon in treated APG for 2011 (based on protocol No. 641 dated 25.06.2011, though the month August 2011is erroneously indicated as the time of monitoring). Please extend the form by the data monitored in 2009 and 2010. The same pertains to the Net Calorific Value of APG in the relevant tabular form. **CAR 13.** PDD reads that methane emissions from APG combustion in flare units were calculated based on the "Guidelines for Calculation of Air Pollutant Emission from APG Flaring" developed by the Scientific Research Institute for Atmospheric Air Protection in Saint-Petersburg, therefore all the data for APG flaring technical conditions shall be used from the indicated methodology (i.e. carbon fraction of i-hydrocarbon, molecular weight of hydrocarbons, density of i-hydrocarbon at standard conditions, etc.). This, however, did not take place. Please take note: the consolidation of hydrocarbons higher than hexane with the hexane together should be justified.		
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are	N/A		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	used, are the selected elements or combinations together with the elements supplementary developed by the project participants in line with 23 above?			
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	N/A		OK
Approved CDM methodology approach only_Paragraphs 26(a) – 26(d)_Not applicable				
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".	The PDD states that for this purpose provision (a) is chosen defined in paragraph 2 of the Annex I to the Guidance on criteria for baseline setting and monitoring version 03.		OK
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and	The chosen approach is based on alternatives analysis, the investment analysis and the common practice analysis.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	transparent description?			
29 (b)	Are additionality proofs provided?	To demonstrate the additionality of the project three steps were implemented: - Step 1: Indication and description of the alternatives applied (provided in Section B.1); - Step 2: Investment analysis; - Step 3: Common practise analysis. Investment analysis includes the evaluation of the project's financial efficiency. The investment analysis was based on calculation of NPV for the Project, taking into account investment costs, savings of payment for emissions, depreciation and other parameters referring to expenses, as well as revenues from APG sale. Discount rate was taken 13%. The common practice analysis has shown that the project activity is not the common practice in Russian oil industry. **CAR 14.** Please provide transparent justifications for: (i) capital investment (1.8 billion RUR); (ii) untreated gas intake volume 586 million m^3/year; (iii) initial data used in investment analysis (payments for pollutants, taxes, characteristics of APG, staff on the payroll, gas factor, specific consumption for oil stripping columns, etc.) Please take note: supply of untreated APG to gas treatment plant in calculation spreadsheet and in Section B.1 is 253,016 thous. m^3/year, however in investment analysis untreated APG (input) is 585,978 thous. m^3/year. **CAR 15.** Please provide transparent definition of risk-free discount rate R_{real}. Please take note: the choice of 5% in the range 4%-6% is not conservative.	CAR 14 CAR 15 CAR 16 CL 01	OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		CAR 16. Please provide the calculation of sensitivity analysis in the spreadsheet. **CL 01.** Please clarify why the time horizon in investment analysis is limited to 2020?		
29 (c)	Is the additionality demonstrated appropriately as a result?	With the unresolved CARs 14-16 the additionality of the project is not appropriately demonstrated.		OK
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	N/A		OK
Approved CDM methodology approach only_ Paragraphs 31(a) – 31(e)_Not applicable **Project boundary (applicable except for JI LULUCF projects** **JI specific approach only**				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	The project boundary defined in the PDD encompasses the anthropogenic emissions by sources of GHGs in the baseline scenario (refer to Section B.3): that is CO2 from APG flaring and CH4 from methane incomplete combustion, CO2 and CH4 emissions from combustion of contaminated natural gas in flare unit after hydrogen sulphide stripping columns for crude oil, CO2 emissions from combustion of natural gas in the Energy Centre. N2O emissions from flaring, combustion of contaminated natural gas in flare unit after hydrogen sulphide stripping columns for crude oil, CH4 and N2O emissions from combustion of natural gas in the Energy Centre were reasonably excluded from consideration. Sources of project emissions: CO2 emissions from APG combustion in the Energy Centre and desulfurization boiler house and due to use of backup fuel (natural gas) in the Energy Centre.	CAR 17	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Sources of leakage are reasonably excluded from consideration. AIE observes that PDD treats leakage in the most conservative way since related leakage under baseline is not considered. It also should be noted that under the AM0009 Version 04 "Recovery and utilization of gas from oil wells that would otherwise be flared or vented" leakage is not considered. **CAR 17.** Emissions of CO2 from flaring of APG contaminated in the stripping process are excluded without justification.		
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	Conclusion is pending a response to CAR 17 and CAR 18.		OK
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	The delineation of the project boundary is shown on the flow chart presented on the Figure B.3-2.		OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	**CAR 18.** Please indicate all sources of emissions on Figures B.3-1 and B.3-2.	CAR 18	OK
Approved CDM methodology approach only_Paragraph 33_ Not applicable				
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The starting date of the project is indicated as: 19.06.2006. This date corresponds to the date of the contract for designing and supply of the gas treatment and sulphur recovery plants.		OK
34 (a)	Is the starting date after the beginning of 2000?	Yes, it is.		OK
34 (b)	Does the PDD state the expected operational	The expected operational lifetime of the project is 20 years,		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	lifetime of the project in years and months?	240 months.		
34 (c)	Does the PDD state the length of the crediting period in years and months?	The length of crediting period is defined as 4 years (48 months) from 01.01.2009 to 31.12.2012.		OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	Starting date of crediting period is on the date when the first emission reductions are generated by the project.		OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	As follows from the PDD, the crediting period for issuance of ERUs starts after the beginning of 2008 and does not extend beyond 2012.		OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	N/A		OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? - JI specific approach - Approved CDM methodology approach	PDD explicitly indicates that for description and justification of the monitoring plan a JI specific approach was used.		OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: - All relevant factors and key characteristics that will be monitored? - The period in which they will be monitored? - All decisive factors for the control and reporting of project performance?	The monitoring plan describes: - the relevant factors that will be monitored: (1) Volumetric consumption of natural gas in the Energy Centre under the project in the month *m* of the year *y*; (2) Net calorific value of natural gas in the month *m* of the year *y*;	CL 02	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		(3) Volumetric consumption of APG in the Energy Centre in the month *m* of the year *y*; (4) Volumetric consumption of APG in the desulfurization boiler house in month *m* of the year *y*; (5) Volumetric fraction of i-hydrocarbon in treated APG in the month *m* of the year *y*. (6) Electricity generation by the Energy Centre under the project during the year *y*; (7) Volume of untreated APG supplied to the gas treatment plant during the year *y*; (8) Net calorific value of treated APG in the month *m* of the *y*; (9) Volume of APG supplied to the hydrogen sulfide stripping columns for crude oil in the month *m* of the year *y*; (10) Volumetric fraction of methane in natural gas in the month *m* of the year *y*; - the periods in which they will be monitored: monthly (net calorific value of natural gas in the month *m* of the year *y*, volumetric fraction of i-hydrocarbon in treated APG in the month *m* of the year *y*, net calorific value of treated of treated APG in the month *m* of the year *y*, volumetric fraction of methane in natural gas in the month *m* of the year *y*), continuously (volumetric consumption of natural gas in the Energy Centre under the project in the month *m* of the year *y*, volumetric consumption of APG in the Energy Centre in the month *m* of the year *y*, electricity generation by the Energy Centre under the project during the year y, volume of untreated APG supplied to the gas treatment plant during the year *y*, volume of APG supplied to the hydrogen sulfide stripping columns for crude oil in the month *m* of the *y*);		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		- all decisive factors for the control and reporting of project performance: ecological reporting, quality control (QC) and quality assurance (QA) procedures; the operational and management structure that will be applied in implementing the monitoring plan. **CL 02.** Please clarify how the net calorific value of natural gas in month *m* of year *y* will be measured monthly, if it is used as the backup fuel only on emergencies and it may not be available monthly.		
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	The monitoring plan specifies the indicators, constants and variables used that are basically reliable, valid and provide transparent picture of the emission reductions to be monitored. Conclusion is pending a response to CL 02.		OK
36 (b)	If default values are used: – Are accuracy and reasonableness carefully balanced in their selection? – Do the default values originate from recognized sources? – Are the default values supported by statistical analyses providing reasonable confidence levels? – Are the default values presented in a transparent manner?	Conclusion is pending a response to CAR 11, 12, 13.		OK
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	N/A		OK
36 (b) (ii)	For other values, – Does the monitoring plan clearly indicate the precise references from which these values are	Refer to 36 (b).		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	taken? – Is the conservativeness of the values provided justified?			
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	The necessary procedures on emergency cases are indicated in Section D.3.		OK
36 (b) (iv)	Are International System Unit (SI units) used?	International System Units (SI units) are used.		OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?	Refer to PDD Section D.1.1.1 and Section D.1.1.3.		OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	Yes, they are consistent.		OK
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	Yes.		OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored	Description of the monitoring plan in Section D.1 explicitly and clearly distinguishes: (i) Refer to 36 (b). (ii) N/A. iii) Refer to 36 (a): parameters marked (1) - (10).		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	throughout the crediting period?			
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	All the methods employed for data monitoring (including its frequency) and recording are described in Section D.1.1.1 and Section D.1.1.3.		OK
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	Formulae are indicated and numbered in Sections D.1.1.2, D.1.1.4, D.1.4. **CAR 19.** Project and baseline emissions are calculated based on the volume of treated APG (90 489,73 th.m3 for 2009) combusted in energy centre and boiler in the project. Volume of treated APG passed through stripping column is not taken into account. In this connection, please justify that the neglect of the difference between composition of contaminated APG after stripping in the project and composition of untreated APG in the baseline is conservative.	CAR 19	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	Conclusion is pending a response to CAR 19.		OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	Please refer to 36 (f).		OK
36 (f) (iii)	Are all equations numbered?	Yes, they are numbered.		OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes, they are.		OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	Conclusion is pending a response to CAR 19.		OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	N/A		OK
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	**CAR 20.** The application of the volumetric fraction of the methane in treated APG (89.96%) in the formula D.1-11 for baseline emissions due to soot flaring is incorrect as there is no treated APG in the baseline and here the untreated APG	CAR 20	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		should be considered. Please take note: volumetric fraction of methane in untreated APG is 82.2%.		
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	N/A		OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	Please refer to 36 (f) (vii) below.		OK
36 (f) (vii)	Are references provided as necessary?	Reference is made to "Methodology of calculation of emissions of hazardous substances into the atmosphere due to the flaring of the associated petroleum gas at flaring stacks" developed by the Saint-Petersburg Scientific Research Institute for Protection of Atmosphere and endorsed by State Committee for Environmental Protection (GosKomEcologiya)".		OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Conclusion is pending a response to CAR 19.		OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	N/A		OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	The uncertainty level of measured parameters is provided; please refer to D.2. It is in the range at 95% confidence level.		OK
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the	The quality of treated APG is monitored by regular taking of samples. The analyses are carried out by the chemical and analytical laboratory of the Yuzhnoe Khylchuyu. All analyses are carried out in accordance with GOST 23781, GOST 22667, GOST 22387.2.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	standard can be found?			
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	N/A		OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	QC/QA procedures are oulined in PDD Section D.2. They include basic information about the calibration procedures for gas flow meters, electric meters, and chromatograph.		OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	**CAR 21.** The operational and management structure that the project participant(s) will implement in order to monitor emission reduction generated by the project is not described in PDD Section D.3. Responsibilities and the authority regarding the monitoring activities are not indicated. Please correct.	CAR 21	OK
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	Conclusion is pending a response to CAR 21.		OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected.		OK
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of	**CAR 22.** Please indicate that the data monitored and required for verification are to be kept for two years after the last transfer (not issue as stated in PDD) of ERUs for the	CAR 22	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	ERUs for the project?	project.		
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	N/A		OK
Approved CDM methodology approach only_Paragraphs 38(a) – 38(d)_Not applicable Applicable to both JI specific approach and approved CDM methodology approach				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently? (b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)? (c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met? (d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?	N/A		OK
Leakage				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	PDD describes that leakage is avoided for simplification. Please refer to Section B.3.		OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	N/A		OK
Approved CDM methodology approach only_Paragraph 41_Not applicable				
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	PDD assess emissions in the baseline scenario and in the project. Hence, approach (a) is chosen.		OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	PDD provides ex ante estimates of: ○ Emissions for the project scenario (within the project boundary): 146,849 tCO2e; ○ Leakage is assumed to be zero; ○ Emissions for the baseline scenario (within the project boundary): 1,838,984 tCO2e; ○ Emission reductions adjusted by leakage: 1,692,135 tCO2e. In accordance with the final version of PDD: ○ Emissions for the project scenario (within the project boundary): 144,662 tCO2e; ○ Leakage is assumed to be zero; ○ Emissions for the baseline scenario (within the project boundary): 1,759,773 tCO2e;		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		○ Emission reductions adjusted by leakage: 1,615,111 tCO2e.		
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	N/A		OK
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (v) In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the	(a) Estimates in 43 are given on the periodic basis, from the beginning until the end of the crediting period, in tones of CO2 equivalent. (b) The formulae used in PDD are consistent throughout PDD (for the formulae refer to Section D and E). (c) Key factors influencing the baseline emissions and the activity level of the project and the emissions are taken into account, as appropriate. (d) Data sources used for calculating the estimates are basically clearly identified, reliable and transparent. (e) Emission factors for (including default emission factors) selected by carefully balancing accuracy. Refer to CAR 24. (f) Estimation in 43 is based on the most plausible scenario in a transparent manner. (g) Estimates in 43 are consistent throughout the PDD. (h) The annual average of estimated emission reductions calculated virtually by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve. **CAR 23.** Please justify that emission factor for natural gas from the IPCC Guidelines 2006 (0.0561 tCO2/GJ) is appropriate for natural gas with NCV_{NG}= 32.8 GJ/thousand	CAR 23	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	estimates in 43 or 44 clearly identified, reliable and transparent? (e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?	m^3 (measured by chemical and analytical laboratory of LLC Naryanmarneftegas).		
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	Illustrative ex-ante estimation of baseline emissions is presented on the spreadsheet made available to AIE.		OK
Approved CDM methodology approach only_Paragraphs 47(a) – 47(b)_Not applicable				
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	According to the State Committee for Ecology and Natural Resources of the Russian Federation Decree dated 15.04.2000 #372 "On compliance with regulations regarding the planned economics (and other) actions and their ecological impact", developers must include environmental issues into the project design documentation. In accordance with the Urban Construction Code the Design		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Documentation should contain Section "Measures on Environment Protection" which includes paragraph (a) Environmental Impact Assessment (EIA). The whole Design Documentation including the environmental part is subject to the formal state expertise. The section "Environmental Protection" is integrated into the design documentation of this project. The design documentation was prepared in 2006 (section #11 of the technical documentation "Construction and completion of wells of Yuzhno-Khylchuyuskoe oil and gas field. Gas treatment plant. Sulfur recovery and storage facility" OJSC "GIPROGAZOOCHISTKA", 2006"). Based on the outcomes of the environmental section the permission on emissions of polluting substances by stationary sources was issued for the period of 27.06.2006 – 01.07. 2011 and for the period 03.08.2009 – 31.12.2011. Transboundary impacts are irrelevant for the project due to the tremendous distance to the nearest border.		
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	Russian legislation does not use the term "significant environmental impacts". The company is permitted to operate on the basis on permission of air emission issued by the state authority Rostekhnadzor.		OK
Stakeholder consultation				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom	Public hearings were organized and no negative comments were received.		OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?			
Determination regarding small-scale projects (additional elements for assessment)_Paragraphs 50 - 57_Not applicable				
Determination regarding land use, land-use change and forestry projects _Paragraphs 58 – 64(d)_Not applicable				
Determination regarding programmes of activities_Paragraphs 66 – 73_Not applicable				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CAR 01. Please provide the source of information of Naryan-Mar coordinates.	A.4.1.4	Response 1 from 16/11/2011 Please see the link below: http://ru.wikipedia.org/wiki/%D0%9D%D0%B0%D1%80%D1%8C%D1%8F%D0%BD-%D0%9C%D0%B0%D1%80 The new version of the PDD (ver. 1.1.) was corrected.	Conclusion on Response 1 CAR is closed based on due corrections made to PDD.
CAR 02. Please include in Section A.4.2 a technical description of Yuzhno-Khylchuyuskoe oilfield infrastructure (including gas and oil pipelines, energy centre's characteristics, etc.). Please provide oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield.	A.4.2	Response 1 from 16/11/2011 The new version of the PDD (ver. 1.1.) was corrected. Please see Section A.4.2. Please see oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield in the following Background document: • Oil and gas balance 2006-2010 [10].	Conclusion on Response 1 Please include in the description the pipeline infrastructure of the oilfield (how far is the Energy Centre from the Gas Treatment plant, what is the distance between the Yareyuskoe field, etc.) Please provide official oil and gas

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		Response 2 from 19/12/2011 The new version of the PDD (ver. 1.2.) was corrected. Please see Section A2 and A.4.2. Please see oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield in the following Background document: • Official oil and gas balance 2009-2012.	balance for the whole crediting period 2009 – 2012 authorised by the responsible person. Take note: this is important supporting document and should not be modified by the project developer. CAR is not closed. Conclusion on Response 2 CAR is closed based on review of documents.
CAR 03. Please indicate on the Fig. A.4-3 two booster compression stations (BCS-1 and BCS-2) that necessary for APG compression for Energy Centre supply.	A.4.2	Response 1 from 16/11/2011 In practice the project has not been and will never be implemented in full because of a slump in crude oil and APG production volumes against the original projections. The company took a decision to implement the joint implementation project partially. BSC-2 was supposed to be used for APG reinjection into the bed. This part of the project is not relevant because it will never be used. Only one BCS-1 was used for gas compression for Energy Centre supply. BCS-1 is shown on Fig. A.4-3. The new version of the PDD (ver. 1.1.) was corrected.	Conclusion on Response 1 CAR is closed based on due amendments made to the PDD.
CAR 04. Please indicate in Section A.4.2 the	A.4.2	Response 1 from 16/11/2011	Conclusion on Response 1

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
starting date of Energy Centre's work, its purpose and customers, annual output, efficiency of equipment depending on different types of fuel, annual consumption of fuel.		The new version of the PDD (ver. 1.1.) was corrected. Please see Section A.4.2. Please also see oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield in the following Background document: • Oil and gas balance 2006-2010 [10]. Response 2 from 19/12/2011 Information on installed units including the recovery heat boilers, electricity and heat output of Energy Centre was included in the new version of the PDD (ver. 1.2.). Please see oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield in the following Background document: • Official oil and gas balance 2009-2012.	Please indicate electricity and heat output of Energy Centre. Please provide more information of installed units including the recovery heat boilers. Please provide official oil and gas balance for the whole crediting period 2009 – 2012 authorised by the responsible person. This will enable the AIE to determine the provided data. CAR is not closed. Conclusion on Response 2 CAR is closed based on review of documents.
CAR 05. Please justify that Yareyuskoe gas field has enough amount of natural gas, during the crediting period, for the supply of Energy Centre and oil stripping at Yuzhno-Khylchuyuskoe oilfield and there are no obstacles for its mining and delivery.	A.4.3	Response 1 from 16/11/2011 Please see oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield in the following Background document: • Scientific Research Report (LLC "VNIIGAZ", 2005), p.11 [11]. Response 2 from 19/12/2011 The provided documents justify that Yareyuskoe gas field has enough amount of natural gas, during the crediting period, for the supply of	Conclusion on Response 1 The provided document doesn't contain oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield. CAR is not closed. Conclusion on Response 2 CAR is closed based on review of documents.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		Energy Centre and oil stripping at Yuzhno-Khylchuyuskoe oilfield. Please see page 11 of the Scientific Research Report (LLC "VNIIGAZ", 2005). Please also see the official oil and gas balance of the Yuzhno-Khylchuyuskoe 2009-2012.	
CAR 06. The project has no approval of the host Party.	19	N/A	Conclusion on Response 1 CAR is not closed.
CAR 07. Section B.1 does not contain a detailed theoretical description of the baseline; e.g. no formula for calculation of baseline emissions is given.	23	Response 1 from 16/11/2011 The new version of the PDD (Ver. 1.1.) was corrected. Please see Section B.1.	Conclusion on Response 1 CAR is closed based on due corrections made to PDD.
CAR 08. Please justify the values of: (i) produced crude oil at Y.-Kh. oilfield for the period 2009 – 2012; (ii) volumetric consumption of APG in the Energy Centre during for the period 2009 – 2012; (iii) untreated APG supply to the gas treatment plant in 2009 – 2012; (iv) volumetric consumption of natural gas in the Energy Centre (2009-2010);	23	Response 1 from 16/11/2011 Please see the following Background documents: • Oil and gas balance 2006-2010 [10] • Use of natural gas at the Yuzhno-Khylchuyuskoe oilfield over the period of 2008-2010 [12] • APG projections for 2011-2020 [26] Response 2 from 19/12/2011 Please see, instead of the earlier furnished documents, the oil and gas balance of the Yuzhno-Khylchuyuskoe oilfield in the following Background document:	Conclusion on Response 1 The document [26] was not received by the AIE. Please provide official oil and gas balance for the whole crediting period 2009 – 2012 authorised by the responsible person. This will enable the AIE to determine the provided data. Refer to CAR 04. Please provide the source of the documents "Приложение 2" referred in [12], [26]. Please refer in the PDD and provide the

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		• Official oil and gas balance 2009-2012; • Annex 2 to the reply to the request of 04.07.2011 ref no. 143.	AIE the source of the data as follows: (i) produced crude oil at Y.-Kh. oilfield for the period 2009 – 2012; (ii) volumetric consumption of APG in the Energy Centre during for the period 2009 – 2012; (iii) untreated APG supply to the gas treatment plant in 2009 – 2012; (iv) volumetric consumption of natural gas in the Energy Centre (2009-2010); CAR is not closed. Conclusion on Response 2 CAR is closed based on documents review.
CAR 09. Please take into account, in the theoretical description of the baseline, the value of electricity consumption by booster compressor stations installed in the project at the Energy Centre.	23	Response 1 from 16/11/2011 The necessary information was added to the corresponding section of the new version of the PDD (Ver. 1.1.) Response 2 from 19/12/2011 Please see the following Background document: • Electricity consumption by gas booster compressor; • "NMNG_en_v 1.2_19.12.2011" spreadsheet.	Conclusion on Response 1 Please indicate the exact sections and pages where the necessary information is added. Please include the electricity consumption by booster compressor stations in calculation of consumption of natural gas in the Energy Centre under the baseline scenario during the year y in

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		The necessary information was added to the corresponding section of the new version of the PDD (Ver. 1.2.). Please see p.8, p.14, p.24, p.41 Response 3 from 19/01/2012 Necessary corrections were made in the Section B.1. Please see the new version of PDD (Ver. 1.3.).	appropriate sections of PDD and in calculation spreadsheet also. CAR is not closed. Conclusion on Response 2 Please include $EC_{BCS,y}$ in $FC^{NG}_{GTPP,BL,y}$ calculation formulae indicated in the table of Section B.1 CAR is not closed. Conclusion on Response 3 CAR is closed based on due corrections made to PDD.
CAR 10. Please justify the representativeness of APG net calorific value, natural gas net calorific value based on "one of the results" of treated APG and natural gas (protocol No.641 dated 25.06.2011 and protocol No.642 dated 25.06.2011 respectively). Please take note: composition of associated petroleum gas (and, therefore, net calorific value) changes considerably during the day and even an hour. The use of the result of one sample lacks representativeness.	23	Response 1 from 16/11/2011 Since APG and natural gas composition does not change very much with the time, at the PDD development stage protocol No. 641 dated 25.06.2011 and protocol No.642 dated 25.06.2011 respectively were taken as the baseline data sources. For emission reduction estimation such accuracy is sufficient. In the course of the project monitoring the gas composition is analyzed on a monthly basis. At the stage of verification all monthly protocols of APG compositional analysis will be used. Please see the following Background	Conclusion on Response 1 Documents [27] and [28] need validation by the responsible person. The AIE observes: the provided results in [27] for June 2011 differ from the values in protocol N624 dated 25.06.2011. The use of separate samples of measurements is an approximation used at baseline setting. Please justify conservativeness of this assumption. CAR is not closed. Conclusion on Response 2

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		documents: • Protocols of treated APG compositional analysis over the period of 2009-2010 [27] • Protocols of natural gas compositional analysis over the period of 2009-2010 [28] Response 2 from 19/12/2011 The inaccuracies in the earlier furnished documents [27] and [28] were eliminated. The compositional analysis data were certified by a representative of NMNG. To demonstrate that our approach is conservative, the average content of i-component and average NCV of APG and natural gas (in 2010) were calculated. These values were put into the calculation model. When this was done, the difference in the GHG emission reductions when using the average values was about 1%. So, whereas the difference is quite negligible, the choice of these protocols can be deemed conservative. In the course of the project monitoring the gas composition is analyzed on a monthly basis. At the stage of verification all monthly protocols of APG and natural gas compositional analysis will be used. Please see the following Background document:	CAR is closed based on review of provided documents.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		• Certified treated APG and natural gas compositional analysis over the period of 2010 (2011).	
CAR 11. The application of incomplete flaring factor for the case of soot flaring should be justified by the methods described in "Guidelines for Calculation of Air Pollutant Emissions from APG Flaring" developed by the Scientific Research Institute for Atmospheric Air Protection in Saint-Petersburg, 1998.	23	Response 1 from 16/11/2011 Please see the following Background document: • Quantitative Estimates of Maximum Permissible Emissions [13] Response 2 from 19/12/2011 When the sound velocity in gas is calculated an adjustment is made for the temperature (See Annex G of the "Guidelines for Calculation of Air Pollutant Emissions from APG Flaring" developed by the Scientific Research Institute for Atmospheric Air Protection in Saint-Petersburg, 1998.). Please also see the Quantitative Estimates of Maximum Permissible Emissions [13], p.216. All calculations in this document were made in full compliance with the Guidelines. Response 3 from 19/01/2012 Please see the new Background documents and calculations made according to "Guidelines for Calculation of Air Pollutant Emissions from APG Flaring" developed by the Scientific	Conclusion on Response 1 Please specify the calculation of U_{sound} in Quantitative Estimates of Maximum Permissible Emissions for: (i) adiabatic index (K); (ii) conditional molecular mass of combusted APG (μAPG); Take note: these parameters are based on average volumetric fraction of gas at standard conditions (20^{0}C). However, the temperature of APG in the formula for calculation of U_{sound} is 35^{0}C. Please provide consistency in the calculation. CAR is not closed. Conclusion on Response 2 AIE observes that provided file "Quantitative Estimates of Maximum Permissible Emissions" [13] lacks transparency: it doesn't have a date of its preparation, validity period, any stamps signs, etc. The provided document is the sum of different pages that could be

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		Research Institute for Atmospheric Air Protection in Saint-Petersburg, 1998. The velocity of gas flow from the flare nozzle in baseline would be practically two times lower than critical velocity. <u>Response 4 from 20/01/2012</u> In order to prove soot flaring conditions a model has been developed relying on the most conservative gas composition records (please see background documents) and a number of other conservative assumptions. File "CAR_11 DU.xls" was corrected taking into account the aforesaid. To the total APG volume flared under the baseline scenario we also added the volume of contaminated natural gas which under the baseline scenario would be also combusted in flare units together with APG. The model also takes in account the volume of gas that will be sent directly to the high-pressure flare unit, for which, strictly speaking, this calculation was made. For this purpose a coefficient is applied in cell D24:	originated from anywhere (other company, draft calculations and so on). The provided in [13] composition of APG (p.215) is not transparent. It is not clear why such figures were taken for the whole amount of APG flared (they differ considerably from the figures applied in emissions calculation), it is not clear under what temperature it was measured and by whom. In formulae for sound velocity calculation (in Annex G of the Methodology as soon as in any other parts of it) should be applied values under equal conditions (temperature, pressure). In PDD the volume of gas is adjusted to standard conditions (20^0C, 101.3 kPa). Therefore, please apply the same value of temperature for U_{sound} calculation. CAR is not closed. <u>Conclusion on Response 3</u> The provided calculation model is performed in accordance with the NII Atmosphere methodology. It operates with the values from the Official gas balance provided and authorized by the NMNG (see file "Баланс.pdf"). However,

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		18.74/(18.74+6.37), where 18.74 is the volumetric flow of APG to the high-pressure flare, m3/s (please see p.215 of Quantitative Estimates of Maximum Permissible Emissions); 6.37 is the volumetric flow of APG to the low-pressure flare, m3/s (please see p.236 of Quantitative Estimates of Maximum Permissible Emissions). The calculations are basing on the volume of gas in 2009, this year being the year of maximum gas production over the period from 2008 to 2012, which also confirms the conservativeness of the calculations. The geometrical characteristics of the flare units are also confirmed by the data furnished in addition by LLC "Naryanmarneftegas" (please see background documents). Thus the last model takes into account all the above comments and is very conservative. Soot flaring of APG does take place and it is confirmed by the recently provided documents. Response 5 from 24/01/2012 Please see the background documents for Yuzhno-Khylchuyuskoe field given by LLC "Naryanmarneftegas": "Графовая схема потоков газа НП-1,3.jpg", "Баланс ЦПС	the volume of flared APG under the baseline taken from the wrong row. In the calculation should be used volumes of all APG mined by the NNMG (second row) instead of the volumes of transferred APG to the GTP (third row), as in the baseline all APG is flared and application of APG transferred to GTP "isolated" from the rest volume of flared APG is incorrect (physically in the baseline it would be flared united). Please see the file "CAR_11 DU.xls" where applied the right values of flared APG. It explicitly and clearly demonstrates that APG flaring is without soot, therefore application of under-flaring factor 3.5% is wrong and should be corrected. Moreover, the applied value of flare unit diameter is not justified. Please provide justification (passport on the flare unit) of the applied value of flare outlet diameter (0.6 m). CAR is not closed. Conclusion on Response 4 The provided reference to Quantitative Estimates of Maximum Permissible

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		2009г_оперативный учет.xlsx" and "экспл.паспорта факелов.pdf". It is seen from the flowchart that under the project only high-pressure APG can be subjected to treatment. Part of it is fed to the gas treatment plant and the rest is directed to high-pressure flare. The whole volume of low- pressure APG is directed to low-pressure flare in any case. Also contaminated gas from stripping columns is directed to the same low- pressure flare. It is seen from "Баланс ЦПС 2009г_оперативный учет.xlsx" that the amount of gas burnt in the low-pressure flare in 2009 was equal to 246 617.31 thousand m3 including 76 156.64 thousand m3 from stripping columns. The volume equal to 246 617.31-76 156.64 =170 460.67 thousand m3 is APG from low-pressure oil separation levels (flared in any case). It was shown previously that total production of APG at the field in 2009 (maximum) amounted to 804 763.27 thousand m3. (see "Баланс.pdf") Thus the volume equal to 804 763.27-170 460.67 = 634 302.33 thousand m3 is high-pressure APG which would be fully flared in the baseline in 2009.	Emissions is irrelevant as this document was developed in 2009 when the project was implemented and it considers the APG volumes that are flared without those APG that is efficiently utilized. Moreover, the definition of volumetric flow of APG to the high-pressure flare and to the low-pressure flare is not transparent. Please provide exact information concerning the volumes of APG from the all levels of separation (in order to define the quantity of APG flared in the low- and high-pressure flares). Please take note: the information shall be official and transparent. Moreover, please justify that the provided passports on the flare units concern the equipment installed on the Yuzhno-Khylchuyuskoe oil field as it is not clear from the provided documents. CAR is not closed. Conclusion on Response 5 The statement that the volume of APG transferred to the low-pressure flare in 2009 is 246617.31 thousand of m^3 in the absence of the project activity is irrelevant as this is the consequence of

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		As was shown previously in the file "CAR_11_final.xlsx" that even if the volume of APG would be of more value (657 444.81 thousand m3) the speed of gas flow would be lower than critical speed (assuming a pretty conservative gas composition). Additional information about flares is presented in the file "экспл.паспорта факелов.pdf". Response 6 from 24/01/2012 Unfortunately we have not special documents about ratio of APG sent to high-pressure and low-pressure flare units. And is not relevant to consider 2007 and 2008 because the Yuzhno-Khylchuyuskoe field was put into operation only in August 2008 (see http://www.nmng.ru/About.aspx?Lang=ru). Oil production in the whole LLC "Naryanmarneftegas" was only 2.2 million tons in 2008 (see http://www.nmng.ru/News.aspx?Lang=ru&nid=88). The real peak year for the Yuzhno-Khylchuyuskoe field in terms of oil and APG production was the year 2009 (when 6.96 million tons of oil and 804.76 million m3 of APG were produced, see "Баланс.pdf" sent previously). In 2010 and further it was (will be) lower. So, proving soot flaring for the baseline it is rather conservative to consider	project implementation (it is not obvious that the same amount of APG would be flared in low-pressure flare unit under the baseline). AIE observes: in the project scenario part of APG with high pressure would be used in stripping columns, BRTG, after that the pressure of APG falls and sent to the low-pressure flare unit (under the baseline this high pressure APG would be flared in the high pressure flare unit). Please provide the ratio of APG sent to high-pressure and low-pressure flare units for the period before the start of the project activity (i.e. 2008, 2007). Be aware, these should be official documents provided by the NMNG. Also, please take note: that calculation of velocity of APG flow in flare unit presented in "CAR_11_final.xlsx" is incorrect (see cell D27). The applied formula (this is formula 8.3 from NII Atmosphere) is to be used for calculation of average velocity of burning products flow into the atmosphere. Take note: it includes "flare diameter" parameter that is not the "diameter of flare nozzle". Please apply the right formula(e) from NII

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		exactly 2009. Fortunately we can do necessary calculations on the basis of operational data (see attached "Баланс ЦПС 2009г_оперативный учет_доб.xlsx"). More precise value of low-pressure APG volume from low-pressure oil separation levels (which is independent on the project) for 2009 is the following: 246 617.31-76 156.64-816.17-0.00= =169 644.50 thousand m3, Where: 246 617.31 thousand m3 is the total volume of gas burnt in the low-pressure flare in 2009; 76 156.64 thousand m3 is the APG from stripping columns in 2009 (directed to the low-pressure flare); 816.17 thousand m3 is the APG called "Затвор ФНД" directed from BRTG-1 to the low-pressure flare; 0.00 thousand m3 is the APG called "Запал ФНД" directed from BRTG-1 to the low-pressure flare. Thus the volume equal to 804 763.27-169 644.50 = 635 118.77 thousand m3 is APG from high-pressure oil separation level which is independent on the project but would be	Atmosphere. CAR is not closed. Conclusion on Response 6 CAR is closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		fully flared in the baseline. The formula in calculation was corrected. Now the formula 5.1.1. (instead of 8.3) from NII Atmosphere is used. See "CAR_11_cor.xlsx". The speed of gas flow would be lower than critical speed (and this takes place at a pretty conservative gas composition assumed).	
CAR 12. Tabular form in Section B.1 provides one set of data on the average volumetric fraction of i-hydrocarbon in treated APG for 2011 (based on protocol No. 641 dated 25.06.2011, though the month August 2011is erroneously indicated as the time of monitoring). Please extend the form by the data monitored in 2009 and 2010. The same pertains to the Net Calorific Value of APG in the relevant tabular form.	23	Response 1 from 16/11/2011 Since APG composition does not change very much with the time, at the PDD development stage protocol No. 641 dated 25.06.2011 was taken as the baseline data source. In the course of the project monitoring the gas composition is analyzed on a monthly basis. At the verification stage all monthly protocols of APG compositional analysis will be used. The new version of the PDD (Ver. 1.1.) was corrected. Please see Section B.1. Response 2 from 19/12/2011 The inaccuracies in the earlier furnished documents [27] and [28] were eliminated. The compositional analysis data were certified by a representative of NMNG. To demonstrate that our approach is conservative, average content of i-component and average NCV of APG and natural gas (in	Conclusion on Response 1 One separate sample of measured APG composition is an approximation used at baseline setting. Please justify conservativeness of this assumption. Please take note this CAR pertains also to the Net Calorific Value of APG in the relevant tabular form. CAR is not closed. Conclusion on Response 2 CAR is closed based on review of provided documents.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		2010) were calculated. These values were put into the calculation model. When this was done, the difference in the GHG emission reductions when using the average values was about 1%. So, whereas the difference is quite negligible, the choice of these protocols can be deemed conservative. In the course of the project monitoring the gas composition is analyzed on a monthly basis. At the stage of verification all monthly protocols of APG and natural gas compositional analysis will be used. Please see the following Background document: • Certified treated APG and natural gas compositional analysis over the period of 2010 (2011). For NCV please see CAR10.	
CAR 13. PDD reads that methane emissions from APG combustion in flare units were calculated based on the "Guidelines for Calculation of Air Pollutant Emission from APG Flaring" developed by the Scientific Research Institute for Atmospheric Air Protection in Saint-Petersburg, therefore all the data for APG flaring technical conditions shall be used from the indicated methodology (i.e. carbon fraction of i-hydrocarbon, molecular weight of	23	Response 1 from 16/11/2011 The project uses only some elements of the methodology "Guidelines for Calculation of Air Pollutant Emission from APG Flaring", namely approach to calculation of hydrocarbons emissions (Formula 6.3. of the "Guidelines...") and the value of unburned carbon factor (incomplete burning). The values of other parameters were taken from other no less reliable sources, including "Thermal design of boilers" (Norm-based method), NPO CKTI, St.-	Conclusion on Response 1 Please be aware, PDD explicitly states that Methane emissions from APG combustion in flare units were calculated basing on the NII Atmosphere methodology. Hence values of relevant variables shall be taken from the original source. CAR is not closed.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
hydrocarbons, density of i-hydrocarbon at standard conditions, etc.). This, however, did not take place. Please take note: the consolidation of hydrocarbons higher than hexane with the hexane together should be justified.		P, 1998. The consolidation of hydrocarbons higher than hexane with the hexane is justified, because this does not have any considerable or significant impact on the value of GHG emission reductions. Please see the following Background document: • Consolidation of hydrocarbons [19] Response 2 from 19/12/2011 Emissions from APG combustion in flare units were calculated basing on the NII Atmosphere methodology. All the data for APG flaring technical conditions are used from the indicated methodology (i.e. carbon fraction of i-hydrocarbon, molecular weight of hydrocarbons, density of i-hydrocarbon at standard conditions, etc.). The new version of the PDD (Ver. 1.2.) was corrected.	Conclusion on Response 2 CAR is closed based on due corrections made to PDD.
CAR 14. Please provide transparent justifications for: (i) capital investment (1.8 billion RUR); (ii) untreated gas intake volume 586 million m^3/year; (iii) initial data used in investment analysis (payments for pollutants, taxes, characteristics of APG, staff on the payroll,	29 (b)	Response 1 from 16/11/2011 All necessary references have been added to the economics spreadsheet (see version 1.1). Apart from the documents referenced in the PDD and mentioned above, the following additional documents have been furnished to the auditor: • Power center at the CPC "South Khylchuyu",	Conclusion on Response 1 The AIE accept justifications for the values in investment analysis except: (i) Capital investments are not justified as the document "Construction and completion of wells of Yuzhno-Khylchuyuskoe oil and gas field,

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
gas factor, specific consumption for oil stripping columns, etc.) Please take note: supply of untreated APG to gas treatment plant in calculation spreadsheet and in Section B.1 is 253,016 thous. m^3/year, however in investment analysis untreated APG (input) is 585,978 thous. m^3/year.		Working design, Volume 12. Investments effectiveness. "Naryanmarne-ftegaz" Ltd., Moscow 2006 [21]; • Attachment #4 to the Contract #0621 dated 19/06/2006 [22]; • Construction and completion of wells of Yuzhno-Khylchuyuskoe oil and gas field, Estimate documents, OJSC "Gipro-vostokneft", 2009 [23]. In fact there is a slump in crude oil and APG production volumes against the original projections, therefore in the investment analysis (which was made on basis of data available before the project implementation) untreated APG (input) is 585,978 thou. m^3/year (design parameter), but in practice it is significantly lower. Response 2 from 19/12/2011 (i) Please see the proper Background document; (ii) Official oil and gas balance 2009-2012. Actual data on Yuzhno-Khylchuyu field for 2010 (2009); (iii) Corrected; (iv) Please see CAR 12. It is reasonable to use a fixed gas composition for the purpose of economic analysis;	Estimate documents, OJSC "Gipro-vostokneft", 2009" contains different values of investment costs; (ii) "Gas factor" and "Specific consumption of gas for oil stripping columns" should be justified by the documents; (iii) Values of H2S and CH4 density are taken from NPO CKTI, St.-P, 1998 instead of NII Atmosphere methodology. Please refer to CAR 13. (iv) Values of NCV_{APG} and NCV_{NG} based on one sample of measurements are not representative. Refer to CAR 12. (v) Ex-factory price of commercial sulfur is not justified. (vi) The document Power Center at the CPC "South Khylchuyu" Working design, volume 12. Investment effectiveness. "Naryanmarneftegaz" Ltd. Moscow 2006 para 12.2.4 contains information on Depreciation Charge 3.2% and Depreciation period from 17 to 50 years. Therefore values indicated in the spreadsheet are not justified.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		(v) Please see the official confirmation from the enterprise; (vi) Attachment #4 to the Contract #0621 dated 19/06/2006, p.8. The document Power Center at the CPC "South Khylchuyu" Working design, volume 12. Investment effectiveness has an indirect relation to our project.	CAR is not closed. Conclusion on Response 2 CAR is closed based on review of the provided documents.
CAR 15. Please provide transparent definition of risk-free discount rate R_{real}. Please take note: the choice of 5% in the range 4%-6% is not conservative.	29 (b)	Response 1 from 16/11/2011 The minimum value of real risk-free discount rate was assumed at 4% in version 1.1 of the PDD. The final discount rate was assumed at 12%. Necessary recalculations of the economics have been done. Response 2 from 19/12/2011 Please see "NMNG_en_v 1.2_19.12.2011".	Conclusion on Response1 Please delete the previous variant of investment analysis from "NMNG_en_v 1 1". CAR is not closed. Conclusion on Response 2 CAR is closed based on due corrections made to PDD.
CAR 16. Please provide the calculation of sensitivity analysis in the spreadsheet.	29 (b)	Response 1 from 16/11/2011 Calculation of sensitivity analysis in the spreadsheet has been provided. Please see the following Background document: • Sensitivity analysis [29]	Conclusion on Response 1 CAR is closed based on due documents provided.
CAR 17. Emissions of CO2 from flaring of APG contaminated in the stripping process are excluded without justification.	32 (a)	Response 1 from 16/11/2011 All APG under the baseline scenario and the project is sent to the flare unit for combustion.	Conclusion on Response 1 In the baseline contaminated natural gas after stripping column is burnt on the

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		This component does not affect the volume of GHG emission reductions, since the volume of flaring under the baseline and the project scenario is the same. Response 2 from 19/12/2011 That is correct, after the stripping columns natural gas (or treated associated gas) contains a little amount of light fractions of oil, as well as CO2 and H2S. Since gas captures a small amount of light hydrocarbons from oil, the gas emission factor after the stripping columns will be higher than the factor of the corresponding gas at the inlet to the column. Therefore it is conservative to use the gas composition recorded at the inlet to the column. Please see the following Background documents: (i) Spreadsheet; (ii) Gas test protocols.	flare (this is indicated as source in the baseline). The contaminated APG after stripping process has different composition than untreated APG burnt in the baseline. Under stripping, the APG absorbs light fractions of oil, CO2 and H2S. Please justify the conservativeness of the assumption of the equality of the two APG compositions in consideration. CAR is not closed. Conclusion on Response 2 The provided gas test protocols describe composition of treated APG (after gas treatment plant) and of composition of contaminated APG after the stripping column. However, in baseline untreated APG is burnt. Having reviewed gas test protocols of contaminated APG after oil stripping columns and untreated APG composition for April 2011 AIE observes that they are almost identical. CAR is closed.
CAR 18. Please indicate all sources of emissions on Figures B.3-1 and B.3-2.	32 (a)	Response 1 from 16/11/2011 The new version of the PDD (ver. 1.1.) was corrected. Response 2 from 19/12/2011	Conclusion on Response 1 Please indicate all the emission sources of CO2 and CH4 on Figures B.3-1 and B.3-2 including flare units, gas treatment

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		The new version of the PDD (ver. 1.2.) was corrected.	plant, sulphur recovery plant. CAR is not closed. Conclusion on Response 2 CAR is closed based on due corrections made to PDD.
CAR 19. Project and baseline emissions are calculated based on the volume of treated APG (90 489,73 th.m3 for 2009) combusted in energy centre and boiler in the project. Volume of treated APG passed through stripping column is not taken into account. In this connection, please justify that the neglect of the difference between composition of contaminated APG after stripping in the project and composition of untreated APG in the baseline is conservative.	36 (f)	Response 1 from 16/11/2011 Please see CAR 20. Response 2 from 19/12/2011 Please see the following Background documents: (iii) Spreadsheet; (iv) Gas test protocols.	Conclusion on Response 1 CAR 20 concerns the volumetric fraction of CH4 in treated and untreated APG in the process of baseline emissions calculation on the flare. CAR 19 concerns the composition of contaminated APG after stripping that is flared and the untreated APG that is supplied to gas treatment plant. CAR is not closed. Conclusion on Response 2 CAR is closed based on review of the provided documents.
CAR 20. The application of the volumetric fraction of the methane in treated APG (89.96%) in the formula D.1-11 for baseline emissions due to soot flaring is incorrect as there is no treated APG in the baseline and here the untreated APG should be	36 (f) (vi)	Response 1 from 16/11/2011 For comparison it is necessary to use protocols of treated APG and untreated APG composition for the same month. According to calculations after stripping of sour gases the design composition of treated APG became equal to	Conclusion on Response 1 The analysis of protocols of treated APG and untreated APG composition for the same month (and even for the same day) shows that compositions differ considerably, i.e. CH4%vol. for treated

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
considered. Please take note: volumetric fraction of methane in untreated APG is 82.2%.		the actual composition. The masses of methane and other components (except for sour gases) in the mixture do not change. The reproducibility of results is very high. Please see the results of comparison in the following Background document: • Gas composition [20]. Response 2 from 19/12/2011 It is conservative to use compositional analysis of treated APG in our calculations (See Spreadsheet). Response 3 from 19/01/2012 Let's turn to the weight balance: the weight of carbon in untreated APG (at the inlet to the gas treatment plant) is equal to the weight of carbon in treated APG taken together with the weight of carbon in sour gases. Although methane concentration in untreated APG is different from the methane concentration in treated APG (due to sour gases stripping), the weight balance will be maintained. Considering that sour gases contain traces of methane, the weight of carbon in treated APG will be lower than the weight of carbon in untreated APG at the inlet to the gas treatment plant. Therefore it is conservative to make	APG is 90.08 and for untreated is 79.90. Therefore, concentration of CH4 in the untreated APG (baseline APG, that is flared) is lower and the use of volumetric fraction of methane in treated APG is not conservative. CAR is not closed. Conclusion on Response 2 The spreadsheet with calculation has one important drawback: it compares different volumes of used APG taken from the General description note. PDD states that composition of treated APG and composition of untreated APG are interchangeable (they can be conservatively replaced), though the volume of used gas is the same. If the APG consumption is equal the use of compositional analysis of treated APG is not conservative. Therefore, calculation provided in Response 2 is not justified the application of treated composition APG in baseline emission calculations. CAR is not closed. Conclusion on Response 3 CAR is closed based on due

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		calculations basing on the treated APG data.	justifications received.
CAR 21. The operational and management structure that the project participant(s) will implement in order to monitor emission reduction generated by the project is not described in PDD Section D.3. Responsibilities and the authority regarding the monitoring activities are not indicated. Please correct.	36 (j)	Response 1 from 16/11/2011 Please see the following Background document: • Order No.128 dated March 26, 2009 [24]. Response 2 from 19/12/2011 Please see Section D.3. of the PDD (ver. 1.2.).	Conclusion on Response 1 Please describe the operational and management structure of monitoring of emissions reductions in PDD. The provided document is out of subject. CAR is not closed. Conclusion on Response 2 CAR is closed based on due corrections made to PDD.
CAR 22. Please indicate that the data monitored and required for verification are to be kept for two years after the last transfer (not issue as stated in PDD) of ERUs for the project.	36 (m)	Response 1 from 16/11/2011 The new version of the PDD (ver. 1.1.) was corrected. Please see Section D.1. and Section D.1.5.	Conclusion on Response 1 CAR is closed based on due corrections made to PDD.
CAR 23. Please justify that emission factor for natural gas from the IPCC Guidelines 2006 (0.0561 tCO2/GJ) is appropriate for natural gas with NCV_{NG}= 32.8 GJ/thousand m^3 (measured by chemical and analytical laboratory of LLC Naryanmarneftegas).	45	Response 1 from 16/11/2011 The new version of the PDD (ver. 1.1.) was corrected. In the new version of the PDD the calculations use emission factors for natural gas flaring and for natural gas combustion in the Energy Center. Response 2 from 19/12/2011 After the oil stripping columns the contaminated natural gas has a composition similar to the composition of untreated APG which is fed to	Conclusion on Response 1 In the new version of PDD, calculations of emission factors were presented. Please take note: application of the under-flaring factor 3.5% should be justified in accordance with the NII atmosphere methodology. AIE observes that contaminated natural gas has different U_{sound}, adiabatic index, etc. than associated petroleum gas.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		the flare devices under the baseline scenario. With allowance for the fact that geometrical features of a flaring device remain unchanged, the burning conditions of hydrocarbons in the burner remain the same. In the new version of the PDD the calculations use emission factors for natural gas flaring and for natural gas combustion in the Energy Center. As for the calculation of emission factor of natural gas flaring, the following can be ascertained. Under the baseline scenario when passing the stripping columns natural gas captures molecules of sour gases (SO_2 and H_2S), after which it is fed to the flare device for burning. When the captured sour gases are burned neither CO_2 nor any other greenhouse gas is released. Therefore these sour gases do not have any impact upon the value of the emission factor and so can be excluded from calculation, which was done. Therefore in the calculation of the emission factor for natural gas flaring, the composition of clean natural gas from Yareyu field was used. Response 3 from 19/01/2012 Please see the new Background documents and calculations made according to "Guidelines for Calculation of Air Pollutant Emissions from APG Flaring" developed by the Scientific	Also, in the calculation of emission factor of natural gas flaring, the composition of clean natural gas from Yareyu field was used. However, this natural gas actually was not flared. Flared was only the contaminated natural gas from stripping columns. CAR is not closed. Conclusion on Response 2 Please justify that the contaminated natural gas has a composition similar to the composition of untreated APG which is fed to the flare devices under the baseline scenario (provide appropriate gas test protocols by the independent laboratory). AIE observes: flaring of contaminated APG by the project scenario and flaring of contaminated natural gas under the baseline are similar processes. Under the project contaminated APG is not calculated (see discussion on CAR 17), the AIE observes it is correct. However, application of under-flaring factor 3.5% for contaminated natural gas should be justified in accordance with the NII atmosphere methodology.

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
		Research Institute for Atmospheric Air Protection in Saint-Petersburg, 1998. In any case (gas after stripping columns or even clean natural gas) the velocity of gas flow from the flare nozzle in baseline would be practically ten times lower than critical velocity. <u>Response 4 from 20/01/2012</u> Please see CAR 11. <u>Response 5 from 24/01/2012</u> Please see our response to CAR 11 and background document "Графовая схема потоков газа НП-1,3.jpg". <u>Response 6 from 24/01/2012</u> It should be taken into account that even under the project if it is necessary the striping columns can operate with natural gas. In this case the contaminated natural gas is mixed with low-pressure APG and directed to the low-pressure flare. It is seen from the flowchart "Графовая схема потоков газа НП-1,3.jpg". Sure, there is no necessity in a separate flare for gas from stripping columns and it would not become necessary in the baseline.	Take note: the processes of flaring of untreated APG under the baseline and of contaminated natural gas after stripping are different and happen in separate places, with different volumes of flared gases, in different geometrical features of flaring devices. In the Response 2 to CAR 17 is stated: "after the stripping columns natural gas (or treated associated gas) contains a little amount of light fractions of oil, as well as CO2 and H2S." Therefore, the calculation of the emission factor for natural gas flaring, with the use of composition of clean natural gas from Yareyu field is incorrect. CAR is not closed. <u>Conclusion on Response 3</u> The provided justifications are performed fully in compliance with the NII Atmosphere methodology. However, the applied value of flare unit diameter is not justified. AIE observes: this is technological flare and it cannot have the same diameter as main flare unit (that serves to utilize all APG under the baseline).

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
			CAR is not closed. Conclusion on Response 4 The CAR 11 reads: "the contaminated natural gas which under the baseline scenario would be also combusted in flare units together with APG". Is this the assumption or the fact? Please justify that under the baseline there were no separate flare unit after the stripping column for the contaminated NG flaring. CAR is not closed. Conclusion on Response 5 The provided Response 5 to CAR 11 includes the background document "Графовая схема потоков газа НП-1,3.jpg". that represents the situation under the project scenario. Therefore it cannot be used for justification of unite flaring of APG and contaminated NG under the baseline. It is still not justified that under the baseline there were no separate flare unit after the stripping column for the contaminated NG flaring. CAR is not closed. Conclusion on Response 6

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
			CAR is closed.
CL 01. Please clarify why the time horizon in investment analysis is limited to 2020?	29 (b)	Response 1 from 16/11/2011 According to the "Tool for the demonstration and assessment of additionality" (Version 05.2) NPV calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or - if a shorter period is chosen - include the fair value of the project activity assets at the end of the assessment period. In general a minimum period of 10 years and a maximum of 20 years will be appropriate. The period of 13 years was chosen and the fair value of the project activity assets at the end of the assessment period was included.	Conclusion on Response 1 CL is closed based on due clarifications made.
CL 02. Please clarify how the net calorific value of natural gas in month m of year y will be measured monthly, if it is used as the backup fuel only on emergencies and it may not be available monthly.	36 (a)	Response 1 from 16/11/2011 The samples of natural gas are taken from the natural gas pipeline Yareyu-Yuzhnoe Khulchuyu on a monthly basis. Apart from being supplied to consumers of the Yuzhnoe Khulchuyu field, natural gas is also constantly used for auxiliary needs of Yareyu – for the gas engine power plant (GEPP) for power generation. Thus, NMNG is able to analyze natural gas composition on a monthly basis.	Conclusion on Response 1 CL is closed based on due clarifications made.