DETERMINATION REPORT

Donauchem Nitrous Oxide Abatement Project in Romania

REPORT NO. 2008-1335

REVISION NO. 01

DET NORSKE VERITAS

DETERMINATION REPORT

DET NORSKE VERITAS
CERTIFICATION AS

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Approved by Street Michael Lehmann	Organisational unit: Climate Change Services
Client: MGM International	Client ref.: Nuria Zanzottera

Project Name: Donauchem Nitrous Oxide Abatement Project
Country: Romania
GHG reducing Measure/Technology: AM0034 version 03.2
ER estimate: 532 477 tCO_2e/year (average)
Size
☒ Large Scale
☐ Small Scale

Determination Phases:
☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues
Determination Status
☐ Corrective Actions Requested
☐ Clarifications Requested
☒ Full Approval and final determination
☐ Rejected

In summary, it is DNV's opinion that, the "Donauchem Nitrous Oxide Abatement Project" in Romania, as described in the PDD Version 2.1 of 28 January 2010 meets all relevant UNFCCC requirements for the JI and all relevant host Party criteria and correctly applies the CDM baseline and monitoring methodology AM0034 version 3.4. However, the required Letters of Approval from the involved parties will be issued only after issue of this report.

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Report title: Donauchem Nitrous Oxide Abatement Project in Romania		
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Abbreviations

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AIE	Accredited Independent Entity
AMS	Automated Measuring System
AST	Annual Surveillance Test
CAR	Corrective Action Request
CL	Clarification request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
EB	Executive Board
ERU	Emission Reduction Unit
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
LoA	Letter of Approval
LoE	Letter of Endorsement
MP	Monitoring Plan
PDD	Project Design Document
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
PDD	Project Design Document
PP	Project Participant
QAL	Quality Assurance Levels
UNFCCC	United Nations Framework Convention on Climate Change

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1 EXECUTIVE SUMMARY – DETERMINATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a determination of the "DonauChem Nitrous Oxide Abatement Project", situated in Turnu Magurele in Teleorman region in Romania. The determination was performed on the basis of UNFCCC criteria for the Joint Implementation and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host Party is Romania and the other participating Annex I Party is Sweden. Both Parties fulfil the participation criteria. The required Letters of Approval from the involved parties will be issued after issuance of this report. The involved Parties have published their Procedures and Guidelines for the JI projects.

By installing a new secondary catalyst below the primary oxidation gauze for decomposition of N_2O into nitrogen and oxygen , the project results in reductions of N_2O emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be 1 728 852 t CO_2e during the first Kyoto commitment period 2009-2012. The crediting period can be extended beyond 2012 subject to the approval by the host party. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The monitoring plan provides for monitoring the project's emission reductions in accordance with AM0034. Adequate training and monitoring procedures have been implemented.

In summary, it is DNV's opinion that "DonauChem Nitrous Oxide Abatement Project", as described in the PDD of 28 January 2010, version 2.1, meets all relevant UNFCCC requirements for the JI and correctly applies the CDM baseline and monitoring methodology AM0034. However, the focal point of Romania and Sweden have not yet provided letters of approval.

2 INTRODUCTION

MGM International has commissioned Det Norske Veritas Certification AS (DNV) to perform a determination of the "DonauChem Nitrous Oxide Abatement Project" in Romania (hereafter called "the project"). This report summarises the findings of the determination of the project, performed 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 Guidelines for the implementation of Article 6 of the Kyoto Protocol and the subsequent decisions by the JI Supervisory Committee.

2.1 Objective

The purpose of a determination is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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 emission reduction units (ERUs).

DNV is an Independent Entity accredited by the Joint Implementation Supervisory Committee (JISC) for all sectoral scopes.

2.2 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 based on the recommendations in the Determination and Verification Manual /5/.

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.

3 METHODOLOGY

The determination consisted of the following three phases:

I a desk review of the project design documents

II follow-up interviews with project stakeholders

III the resolution of outstanding issues and the issuance of the final determination report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the determination:

/1/ MGM International: Project design document for the "DonauChem Nitrous Oxide Abatement Project", version 2.1, 28 January 2010 (previous version 01, 7 April 2008 and version 02, 17 June 2009).

/2/ CDM-EB: *Approved Baseline and Monitoring Methodology AM0034 - "Catalytic reduction of N_2O inside the ammonia burner of nitric acid plants"*, Version 3.2, 14 March 2008.

/3/ CDM-EB: *Approved Baseline and Monitoring Methodology AM0028 - "Catalytic N2O destruction in the tail gas of Nitric Acid or Caprolactam Production Plants"*, Version 4.1

/4/ CDM-EB: "Tool for demonstration and assessment of additionality", version 5.2

/5/ JISC: Determination and Verification Manual (Version 1) adopted at annex4 of JISC19: http://ji.unfccc.int/Sup_Committee/Meetings/019/Reports/Annex4.pdf

/6/ UNFCCC: *Decision 9/CMP1 APPENDIX B Criteria for baseline setting and monitoring to Guidelines for the implementation of Article 6 of the Kyoto Protocol* 30 March 2006

/7/ Feasibility study, IPRAN design Institute for Inorganic Chemistry and non ferrous metals. Approval of feasibility study. Licence No. 135 date of issue 5 Feb. 1966

/8/ IPPC Permit (Nr.157 from 29.10.2007) - N2O reduction via JI project Appendix 10.8 and Action plan (Valid until 31.12.2013).

/9/ S.C. DonauChem SRL: Working procedure for monitoring data regarding the greenhouse gas emissions (N_2O) of the nitric acid plant**.** Code: P.Ld.-05-01. Edition 2008/1.

/10/ Aeroq: ISO 9001:2000 certificate dated 15 January 2008 (valid until 14 January 2011)

/11/ Sidor Multi-Component Extractive Gas Analyser. Manual for installation, operation and maintenance.

/12/ Linde AG. Certificates of calibration gas for N_2O 1200 ppm. Bottle no. D335693

/13/ Letter of Endorsement No. 2937 / AK / 01.10.2007 dated on 1 October 2007

/14/ Environmental impact assessment (EIA) approval from 20 February 2009

/15/ Permitted operating ranges and calculation of normal campaign length (Historical Data-Donau-040110.xls)

/16/ SGS Environmental Services: QAL2 report. Investigation period October 2008.

/17/ Emissions reduction calculation (baseline EF calculation Donau-20-04-10.xls)

UNC calculations - Donau-03-05-10.xls

/18/ QAL 1 certificates according to En 14181 and ISO 14956:

-TÜV Rheinland Group: QAL 1 for Flowsick 100-USD (tail gas flow meter)

- TÜV Nord Umweltschutz GmbH & Co. KG for Sidor N_2O analyser.

/19/ PIN dated on 15 August 2007 (in Romania language) + English version

/20/ S.C. DonauChem SRL: Simple investment analysis-Donau-26-01-10.xlsx

/21/ S.C. DonauChem SRL: Emergency Plan

/22/ Catalyst invoices and gauzes information

/23/ S.C. DonauChem SRL: Productoin logbook scanned copies

/24/ User manual – MEAC 2000 PC software

/25/ Stakeholders comments from public discussion related to project dated 6 January 2009 with official decision on 23 January 2009 Romanian original (also available in English translation).

/26/ Service agreement between MGM International Group LLC and S.C. DonauChem S.R.L. dated 6 February 2007.

/27/ JI Supervisory Committee, Guidance on criteria for baseline setting and monitoring, version 02 adopted at JISC18

/28/ S.C. DonauChem SRL: NOx measurements December 2009.

/29/ BASF: Catalyst supply agreement for N2O abatement JI-project. Signed 17 November 2007.

Main changes between the version of the PDD published for the 30 days stakeholder commenting period and the final version of the PDD:

- Annual average emission reduction estimate has been updated from 440 668 tonnes of CO_2e /year to 532 477 tonnes of CO_2e /year in Table A.4.3.1. The estimate in the first version of the PDD was based on an N_2O emission factor from IPCC of 7 kg N_2O/t HNO_3 (according to the operating pressure of the plant). In the updated PDD the estimate is based on preliminary verified baseline data (see Annex 2 of revised PDD).
- Starting date of the project activity has been changed from 1 March 2008 to 6 February 2007 in section C.1, which is date of signing the contract with the project developer /26/.

- Section D.1.1 of the PDD has been updated with more detailed description of the parameters to monitoring during the project and the baseline scenarios. Thus, the time of determination/monitoring, source of the data used, justification of the choice of the data or description of the measurement method, and QA/QC procedures have been added in the monitoring plan.
- In section D.1.1.3, information on the relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, has been provided in a more detailed format mentioning the time of determination/monitoring, source of the data used, justification of the choice of the data or description of the measurement method, and QA/QC procedures.
- Table D.1.2.1 and D.1.3.1 have been deleted since these are not applicable.
- Estimations of ERs have been deleted from section D.1.4.
- QA/QC procedures mentioned in section D.2 have been removed since these procedures are now described in the tables for each of data and parameter.
- Project emission estimate in section E.1 has been updated from 77 768 tCO_2e/year to 99 861 tCO_2e/year in section E.1. The baseline emission estimate in section E.4 has been updated from 518 456 tCO_2e/year to 632 083 tCO_2e/year with changes made to overall emission in section E.6.
- Contact information for MGM International Group LLC has been added in Annex 1.
- Baseline information has been updated in Annex 2.

Monitoring plan has been updated in Annex 3.

3.2 Follow-up Interviews with Project Stakeholders

Date	Name	Organization	Topic
10 June 2008	Dr. Constantin Neagoe General Director	S.C. Donauchem S.R.L.	• Project activity • Legal requirements for nitric acid plants in Romania • Technology employed
10 June 2008	Dr. Octavian Tabara Technical Director	S.C. Donauchem S.R.L.	• Evidence to demonstrate additionality of the project • Monitoring plan
10 June 2008	Jezze Uzzell	MGM International	• Ammonia oxidation primary catalyst information
10 June 2008	Nuria Zanzottera	MGM International	• Permitted operating conditions and baseline campaign data
10 June 2008	Dr. Vladimir	MGM	• Ex-ante emission

	Ivashchenko Senior Technical Expert	International	reduction estimation • Environmental licenses and legal compliance • Stakeholders consultation process • Quality Management system
10 June 2008	Vladyslav Zhezherin Commercial Director	MGM International	
10 June 2008	Sergey Klibus Project Manager	MGM International	
10 June 2008	Yastremskin Oleksandr	Translator	

3.3 Resolution of Outstanding Issues

The objective of this phase of the determination was to resolve any outstanding issues which needed be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a determination protocol was customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:

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

The determination protocol consists of four tables. The different columns in these tables are described in the figure below. The completed determination protocol for DonauChem Nitrous Oxide Abatement Project is enclosed in Appendix A to this report.

Findings established during the determination can either be seen as a non-fulfilment of JI criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions
ii) JI and/or methodology specific requirements have not been met; or
iii) There is a risk that the project would not be accepted as a JI project or that emission reductions cannot be monitored or calculated.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

A forward action request (FAR) is raised during determination to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the JI requirements for final determination.

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Determination Protocol Table 1: Mandatory Requirements for JI Project Activities		
Requirement	***Reference***	***Conclusion***
The requirements the project must meet.	*Gives reference to the legislation or agreement where the requirement is found.*	*This is either acceptable based on evidence provided (**OK**) or a **corrective action request (CAR)** if a requirement is not met.*

Determination Protocol Table 2: Requirement Checklist *This table documents the findings from the desk review of the initial version of the PDD and the follow-up interviews with project stakeholders. For ensuring a transparent determination process, this table is not updated in case the PDD is revised during the process of the determination.*				
Checklist question	***Reference***	***Means of verification (MoV)***	***Assessment by DNV***	***Draft and/or Final Conclusion***
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the JI-PDD	*Gives reference to documents where the answer to the checklist question or item is found.*	*Means of verification (MoV) are **document review (DR)**, **interview (I)** or any other follow-up actions (e.g., on site visit and telephone or email interviews) and **cross-checking (CC)** with available information relating to projects or technologies similar to the proposed JI project activity under determination.*	*The discussion on how the conclusion is arrived at and the conclusion on the compliance with the checklist question so far.*	*OK is used if the information and evidence provided is adequate to demonstrate compliance with JI requirements. A **corrective action request (CAR)** is raised when project participants have made mistakes, the JI requirements have not been met or there is a risk that emission reductions cannot be monitored or calculated. A **clarification request (CL)** is raised if information is insufficient or not clear enough to determine whether the applicable JI requirements have been met. A **forward action request (FAR)** during determination is raised to highlight issues related to project implementation that require review during the first verification of the project activity.*

Determination Protocol Table 3: Resolution of Corrective Action and Clarification Requests *This table lists the corrective action requests and clarification requests indentified in Table 2 and documents how these issues raised were resolved. All the issues raised shall be closed before finalising the determination.*			
Corrective action and/ or clarification requests	***Ref. to checklist question in table 2***	***Response by project participants***	***Determination conclusion***
*The **CARs** and/ or **CLs** raised in Table 2 are repeated here.*	*Reference to the checklist question number in Table 2 where the CAR or CL is explained.*	*The responses given by the project participants to address the CARs and/or CLs.*	*The determination team's assessment and final conclusions of the CARs and/or CLs.*

Determination Protocol Table 4: Forward Action Requests		
Forward action request	***Ref. to checklist question in table 2***	***Response by project participants***
The FARs raised in Table 2 are repeated here.	*Reference to the checklist question number in Table 2 where the FAR is explained.*	*Response by project participants on how forward action request will be addressed prior to first verification.*

Figure 1 Determination protocol tables

3.4 Internal Quality Control

The determination report underwent a technical review. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for JI determination and verification.

3.5 Determination Team

				Type of involvement					
Role/Qualification	***Last Name***	***First Name***	***Country***	Desk review	Site visit / Interviews	Reporting	Supervision of work	Technical review	Expert input
Technical team leader / Sector and methodology expert	Kopperud	Trine	Norway	✓	✓	✓	✓		✓
GHG auditor	Andrtová	Zuzana	Czech republic	✓	✓	✓			
Technical reviewer	Khawaja	Rafi-ud-Din	Norway					✓	

4 DETERMINATION FINDINGS

The findings of the determination are stated in the following sections. The determination criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the determination protocol in Appendix A.
The final determination findings relate to the project design document version 2.1 dated 28 January 2010.

4.1 Participation Requirements

S.C. DonauChem S.R.L. participates in this project as a private entity and a project developer. The MGM International Group LLC is the project participant from Sweden. The project's host Party is Romania. Romania has designated a focal point and has submitted its national guidelines and procedures for the approval of JI projects, and thus meets the participation requirements (Marrakech Accords, JI Modalities, §20). Sweden ratified the Kyoto Protocol on 31 May 2002 and has established its Designated Focal Point as the Ministry of Environment. The DNA of Romania and Sweden have not yet issued Letters of Approval (LoAs) authorising S.C. DonauChem S.R.L. as a project participant and confirming that the project assists in achieving sustainable development.

Prior to the submission of the determination report to the JI supervisory Committee, DNV will have to receive the written approval of voluntary participation and approval from DNA of Romania and Sweden.

4.2 Project Design

The purpose of this project is the reduction of nitrous oxide (N_2O) emissions from the nitric acid plant at S.C. DonauChem S.R.L.

Nitrous oxide is an undesired by-product from the manufacture of nitric acid. The common practise is to release nitrous oxide (N_2O) to atmosphere without any restriction from legislation in Romania.

N_2O is generated during the catalytic oxidation of ammonia oxidation to form the desired nitric oxide (NO) during so-called Ostwald process.

This process includes 3 chemical steps:

1) Catalytic oxidation of ammonia with air, to yield nitrogen monoxide (NO);

2) Oxidation of nitrogen monoxide to nitrogen dioxide (NO_2) or dinitrogen tetroxide (N_2O_4) and

3) Absorption of the nitrogen oxides in water to yield nitric acid (HNO_3)

Nitrous oxide is formed during the catalytic oxidation of ammonia. Over a suitable catalyst, a maximum 98% (typically 92-96%) of the fed ammonia is converted to NO. The remainder participates in undesirable side reactions that lead to N_2O, among other compounds.

The project activity involves installation of a secondary catalyst which decomposes N_2O into nitrogen and oxygen. The technology provider for the secondary catalyst system will be

BASF. The technology was tested in several industrial trials and it proves the reduction of N_2O. The expected abatement efficiency is 85-90%. The technology is relatively simple without any requirements to redesign the existing technology (only the reactor baskets need some modification). Further no additional energy is necessary and the technology is safe for environment.

S.C. DonauChem production comprises 4 ammonia oxidation burners operating at medium pressure 2.4 bar (abs). Nameplate capacity of the plant is 725 metric tons of 100% nitric acid in total (for 4 ammonia oxidation reactors) /7/. This corresponds to approximately 240 000 metric tons per year (330 days x 725 tons) and 264 625 metric tons per year (365 x 725 tons).

The starting date of the project activity is given to be 6 February 2007, which is date of contract with the project developer /26/. The contract with BASF for supplying the secondary catalyst was signed on 17 November 2007 /29/. The starting date of the crediting period is 17 July 2009. The overall crediting period is 3 years and 13 days (i.e. from 17 July 2009 to 31 December 2012. The crediting period could be extended beyond 2012 until 2020 subject to the approval by the host Party.

The expected life time of this project is 10 years.

4.3 Baseline Determination

The CDM methodology AM0034 version 3.2 /2/ is chosen for baseline and monitoring methodology. The proposed project meets all required applicability condition as follows:

- There are currently no regulatory requirements or incentives to reduce levels of N_2O emissions from nitric acid plants in Romania /8/.
- The project activity will not increase NO_x emissions /1/.
- DonauChem's plant limits the application of this project activity to the existing nitric acid production installed no later than 31 December 2005. The definition of "existing" production capacity is applied to the process with the existing ammonia oxidation reactor where N_2O is generated and not for a process with a new ammonia oxidizer. Existing production "capacity" is defined as the designed capacity, measured in tonnes of nitric acid per year. DNV was able to confirm the permitted production of 725 metric tones per day /7/.
- The project activity will not affect the level of nitric acid production /1/.

Donauchem's plant has no non-selective catalytic reduction (NSCR) $DeNO_x$ abatement system installed – the NO_x emissions are within the requirements. Installation of NO_x abatement technology (not NSCR) is planned in future in order to meet the requirements of the environmental permit /8/.[1] S.C. DonauChem shall reduce NO_x emissions in accordance to an agreed schedule as follows:

[1] The Environmental Protection Ministry of Romania made public in 1993 an ordinance (No. 462, din 1.07) which set a cap on total emissions of nitrogen oxides (NO_x), although such regulation was never enforced. In 2005, and as a consequence of Romania's negotiations to become a member of the European Union, DonauChem was granted a grace (or transition) period before having to comply with EU regulations on NO_x. This period ends December 31, 2013 (Official Diary of Romania, Part 1 No. 1.078/30.XI.2005). DonauChem plans to take corrective actions (the installation of a $DeNO_x$ system) during 2009-2013 to be prepared for this future legal requirement. This plan of action is included in Integrated

- from 01.01.2008 to 31.12.2010 the limit is 1,140 mg/m^3
- from 01.01.2011 to 30.09.2011 the limit is 1,020 mg/m^3
- starting with 01.10.2011 the limit will be 300 mg/m^3

Present level of NO_x emissions (December 2009) were in the range 940-1050 mg/m^3 /28/. S.C. DonauChem is not at present reporting the current NOx emissions to local authorities. However it will be compulsory to report it after 01.10.2011, when $DeNO_x$ system will be in place.

- Operation of the secondary N_2O abatement catalyst installed under the project activity does not lead to any process emissions of greenhouse gases, directly or indirectly /1/ /7/ /14/.
- Continuous real-time measurements of N_2O concentration and total gas volume flow were carried out in the stack: Before the installation of the secondary catalyst for one campaign, and after the installation of the secondary catalyst throughout the chosen crediting period of the project activity.

The baseline scenario was selected according to AM0028 "Catalytic N_2O destruction in the tail gas of Nitric Acid and Caprolactam Production Plants" version 4.1, which is specified in AM0034. The determination of the baseline scenario consists of steps 1 to 5 that have been discussed below.

Step 1 – Identification of technically feasible baseline scenario alternatives to the project activity

Step 1a - Identified possible scenarios were:

- Continuation of current situation
- Switch to an alternative production method not involving the ammonia oxidation process.
- Alternative use of N_2O, such as:
    1. Recycling N_2O as a feedstock
    2. Use of N_2O for external purposes.
- The installation of an N_2O destruction or abatement technology:
    1. Primary approach
    2. Secondary approach
    3. Tertiary approach, including NSCR De NO_x

The options include the JI project activity not implemented as a JI project.

Environmental Permit #157 from 29.10.2007 which is issued by the Agency of Environmental Protection and valid until 31.12.2013.

Step 1b - In addition to the baseline scenario alternatives of Step 1a, all possible options that are technically feasible to handle NO_x emissions should also be considered. Thus, the alternatives include:

- The continuation of the current situation, whether a $DeNO_X$ unit is installed or not;
- Installation of a selective catalytic reduction (SCR) $DeNO_X$ unit;
- Installation of a new non-selective catalytic reduction (NSCR) De NO_X unit;
- Installation of a combined NO_x /N_2O abatement unit (e.g. UHDE's Envinox process).

The methodology application first involves an identification of possible baseline scenarios as discussed above, and then the elimination of the ones that are not plausible. As a result, the only feasible baseline was found to be the continuation of the status quo, which meets current regulations and requires neither additional investments nor additional running costs.

Step 2 – elimination of scenarios, which do not comply with legal or regulatory requirements:

It was confirmed that present legislation in Romania is without any requirements related to N_2O emission. Although requirements exist related to NO_x, these requirements will be fulfilled during a transition period (see foot note page 14) /8/.

None of the baseline alternatives can be eliminated in this step because they are all in compliance with legal and regulatory requirements.

Step 3 – Eliminate baseline alternatives that face prohibitive barriers (barrier analysis:

The discussion on the barrier analysis provided in the PDD has been discussed during site visit. The identified barriers include: investment barriers, technological barriers, and the barriers due to prevailing practices.

Switch to an alternative production method not involving the ammonia oxidation process is not an option since there is no other commercially available alternative to produce nitric acid.

The recycling N_2O as a feedstock is not a feasible option since the nitrous oxide is not a feedstock for nitric acid production. Nitrous oxide is not recycled at nitric acid plants in Romania or anywhere else.

The alternative use of N_2O is also not feasible at the project plant, as the quantity of gas to be treated is extremely high compared to the amount of nitrous oxide that could be recovered. The use of N_2O for external purposes is practiced neither in Romania nor anywhere else.

DNV confirms that there is no technology from the primary approach group that reaches high enough removal efficiency so as to represent a potential N_2O abatement solution in itself. Tertiary abatement technologies have also been excluded due to investment barriers and technological barriers.

Therefore the baseline alternatives that are not eliminated in this step are:

- The continuation of the *status quo;*
- Installation of a new selective catalytic reduction (SCR) $DeNO_x$ unit;
- Installation of a secondary catalytic DeN_2O system.

Step 4 - Identify the most economically attractive baseline scenario alternative

In this step it is determined which of the remaining above project alternatives that are not prevented by any barrier is the most economically or financially attractive. This could be done by conducting an investment analysis. This has been explained further in section 4.4 below under Step 2 of the additionality tool.

Steps 4c) and 4d) are not applied in respect of application of simple cost analysis.

The explanation of methodological choices for determining the baseline is clearly described i the PDD.

Step 5 – re-assessment of baseline scenario in course of proposed activity lifetime:

Re-assessment of baseline scenario in relation to legislation and regulations in Romania will be required if there is a change in NO_X or N_2O regulation. If legal regulations on N_2O emissions are introduced or changed during the crediting period, the baseline emissions will be adjusted at the time the legislation will be legally implemented. This has been sufficiently described in the PDD.

As a result of this methodology the only feasible baseline is given to be the continuation of the *status quo*, which meets current regulations, and requires neither additional investments nor additional running costs. Therefore the continuation of the current situation can be selected as the baseline scenario.

The baseline emission factor (kg N_2O/tonne HNO_3) is determined from the continuous measurements of N_2O concentration and volume flow in the stack gas.

To assure that the data obtained during the baseline campaigns are representative for the actual GHG emissions from the source plant, a set of process parameters known to affect N_2O generation (that are under the control of the plant operator) shall be defined as required according to AM0034. These “permitted operating ranges” are defined from the data from the previous 4 historical campaigns from 17 May 2005 to 29 May 2008 /15/. The campaign operated in the period from 10 February 2006 to 28 August 2008 was abnormal (low production levels due to major maintenance stop) and hence excluded from the calculation of permitted operational ranges and normal campaign length. This approach is regarded reasonable.

The baseline campaign, which will be used for setting the baseline, are using flow measurement and all necessary monitoring equipment is installed and in operation. The baseline emission rates will be determined by measuring the N_2O emission factor (kg N_2O/tonne HNO_3) during a complete production campaign prior to the installation of the secondary catalyst. Preliminary data has been provided for the baseline campaign that started on 31 May 2008 and finalized on 30 May 2009.

The PDD, Annex 2 contains an estimate of the baseline emissions factors representing the average N_2O emissions per tone of nitric acid and is based on data from the baseline campaign mentioned above. The N_2O emission measurements from the baseline campaign, the determination of the permitted operational ranges and normal campaign length, and thus the actual baseline emissions factors to be used to determine the baseline emissions will

however be subject to final verification by the verifying AIE (see also sections 4.5 and 4.6 below).[2]

The project boundary encompasses the physical, geographical site of the Donauchem nitric acid plant and equipment for the complete nitric acid production process from the inlet to the ammonia burner to the stack. The only GHG emission relevant to the project activity is N_2O contained in the waste stream exiting the stack. The abatement of N_2O is the only GHG emission under the control of the project participant. The system boundaries are presented in the following table:

Overview of emission sources included or excluded from the project boundary:

	GHGs involved	*Description*
Baseline emissions	N_2O	The source is the ammonia oxidation burner inlet to the stack in the nitric acid plant. The project does not influence the CO_2 or CH_4 emissions and these are thus excluded.
Project emissions	N_2O	The source is the ammonia oxidation burner inlet to stack in nitric acid plant. The project does not have influence to CO_2 or CH_4 emissions and they are excluded
Leakage		No leakage emissions are expected.

4.4 Additionality

Additionality was demonstrated according to Tool for the demonstration and assessment of additionality, version 5.2. The tool is used as a methodology for proving that the project is not economically attractive in absence of JI benefits:

Step 1

Identification of alternatives to the project activity consistent with current laws and regulations: This has been discussed in detail in section 4.3 above..

Step 2Investment analysis

There is no economic benefit for the installation of a nitrous oxide abatement system except for the revenue from the sale of Emission Reduction Units within the JI framework a simple cost analysis was chosen for the additionally demonstration. The provided excel file with this analysis /20/ was evaluated and all cost was confirmed as reasonable by DNV.

[2] According to the CDM-EB 31 Report, paragraph 28: "The Board clarified that either validating or verifying DOE could undertake the task of determination of the permitted operating conditions for project activities using approved methodology AM0034. The determination of the permitted operating conditions, if done at verification, should be as per the approved methodology". For this project the monitoring of the permitted operating conditions shall be verified and signed off by the verifying AIE during the first periodic verification

Step 3Barrier analysis

Step 3 was omitted as Step 2 was used to demonstrate the project's additionally.

Step 4 Common practice analysis

This step allows to double check the previous demonstration of the project additionally, demonstrating that besides being the only plausible alternative from a financial point of view the project also introduces an innovative practice in the industry of the region regarding greenhouse gas abatement activity.

It is not business as usual to install nitrous oxide abatement systems in Romania. Further there is no legal obligation to install such a system, as Romanian law does not require any abatement of N_2O and the IPPC permit for the DonauChem plant does not require any abatement of nitrous oxide /8/.

From the above the proposed project activity is deemed additional by DNV.

4.5 Monitoring

N_2O is the only GHG indicator that is to be accounted. According to the methodology, all data for this indicator are on a project specific basis; and these data are recorded from the monitoring system planned to comply with EN 14181.

All three levels of quality assurance are clearly described in the PDD comprising the following:

QAL 1: Suitability of the AMS for the specific measuring task /18/

QAL 2: Validation of AMS following installation /16/

QAL 3: Ongoing quality assurance during operation

The QAL 1 suitability test is according to ISO 14956 /18/ and the QAL 2 tests, including measurements with a standard reference method was performed prior to finalisation of the baseline campaign by a laboratory which has an accredited quality assurance system according to EN ISO/IEC 17025 /16/. Any data collected prior to the QAL 2 test was corrected through a proper application of the calibration function.

The tail gas from the production line after expansion turbine is vented through the stack. The monitoring equipment (Ultra-sound Flowsick FLSE 100 gas volume flow meter) is installed to measure the tail gas flow. N_2O concentration is measured by a Sidor on-line analyzer (non dispersive infrared principle). A gas stream is continuously drawn from the stack by the sampling system under proper conditions, and driven to the infrared cell. In addition, the operating conditions are continuously monitored and the data recorded. Daily nitric acid production (100% concentrated) during each project campaign or vintage year is measured by tank level method (float-type level indicator in storage tank).

S.C. DonauChem has provided DNV with documentation related the training of the monitoring equipment, control and operation personnel. The monitoring plan in Annex 3 of the updated PDD reflects the JI guidance to baseline setting and monitoring /27/. Furthermore, working procedures /9/ has been developed for the project activity. These procedures include description of QAL3 of EN 14181: 2004 for checks of drift and precision, in order to demonstrate that the AMS is in control during its operations, so that it continues to

function within the required specification for uncertainty. The implementation and performance of the QAL3 procedures are the responsibility of the plant (or AMS) owner. The QAL 3 data is used to monitor that the differences between measured values and true values of zero and span reference materials are equal to or smaller than the combined drift and precision value of the AMS multiplied by a coverage factor of 2 (2 times standard deviation of AMS, as described in QAL3 section of EN14181) on a weekly basis, with the aid of Shewart charts. Documented calibration procedure for weekly zero and span checks is described in the working procedures /9/ and will be available on site for future verifications.

Relevant data, necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary and to monitor emissions from the project, are presented in Table D 1.1.3 and table D.1.1.1 of the PDD. This is in line with the methodology AM0034 v.03.2. Further the recording frequency for the parameters are according to AM0034 v.3.2. The description of monitoring equipment (specification, maintenance and calibration routines) for the parameters nitric acid, ammonia flow rate, ammonia to air ratio are described in the PDD Annex 3). Further details are provided in sections 4.5.1 and 4.5.2.

According to paragraph 37 of the JI guidelines, data monitored and required for determination will be kept for two years after the last transfer of ERUs for the project activity.

The monitoring procedures required by The AM0034 version 3.2 are included in current procedures, which are documented in S.C. DonauChem in connection with ISO 9001 requirements /9/ /10/.

The operating personnel is trained according to description in working procedures /9/ in order to reliably supervise the effective operation of the catalyst technology, applying the installed monitoring system to measure the emission levels and collect the data in a manner that allows the successful completion of each verification procedure.

4.5.1 Historical data for determination of the normal operating conditions

DNV has performed a preliminary verification of the data provided for defining the permitted operating conditions. The final determination of the permitted operating conditions, however, will have to be verified by the verifying AIE during the first verification (see FAR 1)[3].

The design capacity of nitric acid is 240 000 t 100% nitric acid per year and the plant production will be varied in follows years (according to DonauChem production plan): 2009 – 168 000 t, 2010 – 216 000 t, 2011 – 2018 – 235 000 t.

The normal length of the primary catalyst campaign in the ammonia oxidation reactors are based on the length of 4 previous campaigns, which is determined to be 92 293 tons HNO_3

[3] According to the CDM-EB 31 Report, paragraph 28: "The Board clarified that either validating or verifying DOE could undertake the task of determination of the permitted operating conditions for project activities using approved methodology AM0034. The determination of the permitted operating conditions, if done at verification, should be as per the approved methodology". For this project the monitoring of the permitted operating conditions shall be verified and signed off by the verifying AIE during the first periodic verification.

corresponding to approximately 3 233 hours operation (the design capacity of 725 metric tonnes of nitric acid per day).
The details about individual parameters are included in PDD and these are in accordance with AM0034 version 3.2 /2/

Spreadsheets for the historical data for the 4 campaigns from have been provided /15/, and DNV has performed a preliminary review of the data during determination of the project. The permitted operating conditions that have been preliminarily assessed by DNV are given in the following table:

Parameter	Unit	Applied value
Normal operating temperature (OT_{normal})	°C	806 - 838
Normal operating pressure (OP_{normal})	bar	2.5 – 2.9
Maximum Ammonia flow rate (AFR_{max})	kg NH_3/h	10 500
Maximum Ammonia to air flow ratio ($AIFR_{max}$)	kg NH_3/kg air	0.0864
Normal campaign length (CL_{normal})	t 100% HNO_3	92 293
Normal gauze supplier (GC_{normal})		Umicore
Normal gauze composition (GC_{normal})	%	Pt 95%, Rh 5%

4.5.2 Data monitored to determine the baseline emissions

DNV has performed a preliminary review of the data for the N_2O emissions during the baseline campaign. The final verification of the baseline campaign data, however, will be verified by the verifying AIE during the first verification (see FAR 1 and FAR 2). See also footnote in page 20. A spreadsheet for the baseline campaign for the period from 31 May 2008 to 30 May 2009 /17/ has been provided. During the check of the data provided, DNV observed some strange development of N_2O concentration during the baseline campaign, specifically after the shutdown period from 22 December 2008 to 1 March 2009 the N_2O concentration increased considerably. It should be ensured that this period of monitoring is especially checked during verification and that incorrect measured values are excluded from the determination of the baseline emission factor (FAR 1).

Data and parameters that have been monitored for the baseline campaign and have been preliminarily assessed by DNV are listed in the following table:

Parameter	Unit	Applied value
Baseline N_2O concentration in the stack gas ($NCSG_{BC}$)	mg N_2O/m^3	2 843
Baseline volume flow of the stack gas (VSG_{BC})	m^3/h	88 238

TSG Temperature of the Stack Gas	ºC	Not Available Used for VSG_{BC} normalization
PSG Pressure of Stack gas	bar	Not Available Used for VSG_{BC} normalization
Baseline operating hours (OH_{BC})	h	3 225
Nitric Acid production (NAP_{BC})	t 100% HNO_3	88 516
Overall uncertainty of the monitoring system (UNC)	%	4.94
Baseline campaign length (CL_{BL})	t 100% HNO_3	88 516
Gauze supplier (GC_{BL})		Umicore
Gauze composition (GC_{BL})	%	Pt 95%, Rh 5%
Ammonia gas flow rate to the AOR (AFR)	kg NH_3/h	Used to exclude NCSG and VSG values monitored during periods were AFR was outside permitted max. value (AFR_{max})
Ammonia to air ratio (AIFR)	kg NH_3/kg air	Used to exclude NCSG and VSG values monitored during periods were AIFR was outside permitted max. value ($AIFR_{max}$)
Oxidation temperature (OT)	ºC	Used to exclude NCSG and VSG values monitored during periods were OT was outside permitted range (OT_{normal}).
Oxidation temperature (OP)	bar	Used to exclude NCSG and VSG values monitored during periods were OT was outside permitted range (OP_{normal}).

Catalyst supplier and composition used in the baseline campaign is the same as used in the historical campaigns /22/.

4.5.3 Data monitored to determine the project emissions

Details of the data to be collected, the frequency of data recording, its certainty, and format are described in the PDD section D.1.1.3.

- NCSG: N_2O concentration in the stack gas. Measured continuously and recorded every 2 second. Measured by by a URAS26 -EL3020 online analyzer (non dispersive infrared principle).

- VSG: Volume flow rate of the stack gas. Measured continuously and recorded every 2 second. Measured by Ultra-sound Flowsick FLSE 100 gas volume flow meter.
- TSG: Temperature of the stack gas during the project campaign. Recorded every 2 second.
- PSG: Pressure of the stack gas during the project campaign. Recorded every 2 second.
- $GS_{project}$: Gauze supplier for the project campaigns. Monitored for each campaign. Supplier's contract or invoice is available for verification.
- $GC_{project}$: Gauze composition for the project campaign. Monitored for each project campaign. Supplier's certificate of analysis or similar documentation is available for verification.
- EF_{reg}: Emissions level set by incoming policies or regulations in Poland. Monitored occasional. ZAK has personnel that verify changes in the Polish Legislation.
- PE_n: Total N_2O emissions during the n^{th} project campaign. To be calculated by equation: $PE_n = VSG * NCSG * 10^{-9} * OH$.
- OH: Operating hours of AOR in the specific monitoring period. Daily measured during a complete campaign. Data Acquisition System will record plant effective operating hours.
- NAP: Nitric acid production during a specific project campaign. Daily production is measured by mass balance calculations
- EF_n: Emission factor calculated for a specific project campaign. Calculated at the end of each project campaign. Calculated by equation: $EF_n = PE_n / NAP_n$.
- EF_{ma}: Moving average emission factor of after n^{th} campaigns, including the current campaign. End of each project campaign. Calculated by equation:

  $$EF_{ma} = (EF_1 + EF_2 + \ldots + EF_n) / n \quad (tN_2O/tHNO_3).$$

- EF_p: Emissions factor to be applied to calculate the emissions reductions from the specific campaign. End of each project campaign. If $EF_{ma} \geq EF_n$ then $EF_p = EF_{ma}$. If $EF_{ma} < EF_n$ then $EF_p = EF_n$.
- EF_{min}: Lowest EF_n observed during the first 10 project campaigns. End of each project campaign. Equal to the lowest EFn observed during the first 10 campaigns of the project. crediting period ($t N_2O/tHNO_3$).

Details of the data to be collected, the frequency of data recording, its certainty, and format are described. The format for data archiving seems appropriate for the project. The data storage length is indicated in the PDD to be at least 2 years and is hence in accordance to the requirements of AM0034. Data monitored and required for determination according to paragraph 37 of the JI guidelines are to be kept for two years after the last transfer of ERUs for the project. The data storage length was amended to comply with this requirement.

4.6 Management system and quality assurance

The authority and responsibility of the project management are described in the PDD /1/ as well as in working procedure for JI /9/, which demonstrate implementation of the JI processes to established management system /10/.

Data management for all parameters is in accordance with AM0034. Data storage length is included in PDD/1/ as well as in Working procedure /9/ to be least 2 years as it is in accordance with AM0034 methodology and further the data will be stored 2 years after the crediting period according to paragraph 37 of the JI quidelines.

4.7 Estimate of GHG Emissions

The project activity only comprises the GHG N_2O. No leakage calculations are required according to the methodology AM0034.

Used assumptions:

- Nitric acid production will be varied in follows years (according to DonauChem production plan): 2009 – 168 000 t, 2010 – 216 000 t, 2011 – 2018 – 235 000 t
- An abatement efficiency of 85% as provided from potential technology providers was used to estimate the emissions reductions.
- Other conditions were measured and calculated according to methodology on the basis of historical /15/ and baseline /17/ campaign data

The estimated average annual amount of GHG emission reductions from the project is 532 477 t CO_2e/year.

The baseline emission factor, to be used for calculation of emission reduction during the crediting period, was established on the basis baseline campaign data and it was adjusted in accordance with the results of the QAL2 tests. The calculation was follow:

$$EF_{BL} = ((VSG_{BC} \times NCSG_{BC} \times OH_{BC}) \times (1 - UNC/100)) / (NAP_{BC} \times 10^9)$$

$$EF_{BL} = 0.00868\ tN_2O/tHNO_3$$

4.8 Environmental Impacts

The EIA was performed and approved on 20 February 2009 /14/ for the project including the installation of NO_x SCR. No effect for environment was investigated for the project as general conclusion of the EIA except positive impact related to quality of air.

4.9 Comments by Local Stakeholders

The comments by stakeholders are included in EIA /14/ process. Information about project was publically presented, however no comments were received.

4.10 Comments by Parties, Stakeholders and NGOs

The PDD of 07 April 2008 was made publicly available on JI website (http://ji.unfccc.int/JI_Projects/DeterAndVerif/Verification/PDD/index.html) and Parties,

stakeholders and NGOs were through the JI website invited to provide comments during a 30 days period from 29 Apr 2008 - 28 May 2008.

No comments were received.

APPENDIX A

JI DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Project Activities

Requirement	Reference	Conclusion
The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	CAR 1
Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	OK
The sponsor Party shall not aquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	CAR 1
The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3	Kyoto Protocol Article 6.1 (d)	OK
Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20	CAR 1
The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24	OK
The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	OK
The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24	OK
Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	OK
The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	OK
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host	Marrakech Accords, JI Modalities, §33(d)	~~CAR 2~~ OK

Requirement	Reference	Conclusion
Party shall be carried out		
The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project	Marrakech Accords, JI Modalities, Appendix B	OK
A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities, Appendix B	OK
The baseline methodology shall exclude to earn emission reductions for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	OK
The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	OK

Table 2 Requirements Checklist

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity *The project design is assessed.*					
A.1. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
1. Are the project's spatial boundaries (geographical) clearly defined?	/1/	DR	Yes. The project is located in the City of Turnu Magurele, County of Teleorman on the bank of the Danube River, the natural boundary between Romania and Bulgaria.	OK	
2. Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/	DR	Yes. It is described as physical boundaries of Donauchem nitric acid plant and in detail it is in section B3, Figure 4 of PDD.	OK	
A.2. Participation Requirements *Referring to Part A and Annex 1 of the PDD as well as the JI glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.*					
1. Which Parties and project participants are participating in the project?	/1/	DR	Romania, S.C. Donauchem S.R.L. as private entity and project developer	OK	
2. Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/1/	DR	No	CAR1	
A.3. Technology to be employed					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Determination of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The AIE should ensure that environmentally safe and sound technology and know-how is used.					
1. Does the project design engineering reflect current good practices?	/1/	DR I	The secondary abatement technology has been tested in several industrial trials and evidence about they results shall be checked during the site visit.	OK	
2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/	DR	Yes. The present common practise is to release N_2O emissions to atmosphere.	OK	
3. Does the project make provisions for meeting training and maintenance needs?	/1/	DR	Yes. Donauchem employees will be trained with project participants for the effective operation of the catalyst technology, apply the installed monitoring system to measure the emission levels and collect the data (with automated measuring system – AMS)	OK	
B. Project Baseline *The determination of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
B.1. Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
1. Is the discussion and selection of the baseline methodology transparent?	/1/ /2/ /6/	DR I	Yes. The baseline methodology is chosen and discussed according to AM0034. Evidence about applicability will be checked during the site visit.	OK	
2. Does the baseline methodology specify data sources and assumptions?	/1/ /2/	DR	Yes. It was used data from one campaign before installation of secondary catalyst and next data will be measured during the crediting period.	OK	
3. Does the baseline methodology sufficiently describe the underlying rationale for the algorithm/formulae used to determine baseline emissions (e.g. marginal vs. average, etc.)	/1/ /2/ /3/	DR I	The baseline methodology is described sufficiently with formulae described in methodologies AM0034 and AM0028. During the site visit was checked individual results of evaluation for chosen of baseline scenario and the simple cost analysis was provided after site visit.	~~CL1~~	OK
4. Does the baseline methodology specify types of variables used (e.g. fuels used, fuel consumption rates, etc)?	/1/ /2/ /3/	DR I	The baseline emission factor will be calculated from measured parameters during a campaign prior to the project implementation (1 campaign). The determinations of normal operating conditions (permitted operating ranges) are based on historical operating conditions and plant designed data. Excel sheet should be made available for the determination of permitted operating ranges and maximum operating values. The clarification of measurements related the	~~CL 11~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			oxidation temperatures in the 4 burners is required	~~CL 12~~	OK
5. Does the baseline methodology specify the spatial level of data (local, regional, national)?	/1/	DR	All data was or will be measured on site.	OK	
B.2. Baseline Scenario Determination *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*					
1. What is the baseline scenario?	/1/	DR	The baseline scenario is the continuation of N_2O emission to the atmosphere, without the installation of N_2O destruction or abatement technologies, including technologies that indirectly reduce N_2O emissions (e.g., NSCR DeNO$_x$ units)	OK	
2. What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/ /2/ /3/	DR I	The procedures followed for baseline scenario selection correspond to AM0028 "Catalytic N_2O destruction in the tail gas of Nitric Acid and Caprolactam Production Plants" version 04.1 (EB 28) as it is specified in the selected AM0034 version 03 Alternatives are defined as follows (except baseline): - Switch to an alternative production method not involving the ammonia oxidation process. - Alternative use of N_2O, such as: o Recycling N_2O as a feedstock	~~CL2~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			o Use of N_2O for external purposes. - The installation of an N_2O destruction or abatement technology: o Primary approach o Secondary approach o Tertiary approach, including NSCR De NO_x. The technically feasible is : • The continuation of the current situation, whether a $DeNO_x$ unit is installed or not; • Installation of a selective catalytic reduction (SCR) $DeNO_x$ unit; • Installation of a new non-selective catalytic reduction (NSCR) $DeNO_x$ unit; • Installation of a combined NO_x/N_2O abatement unit (e.g., Uhde's EnviNOx process). All scenarios are feasible in light of legal requirements. Comments related barriers: - Switch to an alternative production method not involving the ammonia oxidation process –not viable commercial technology yet. - Alternative use of N_2O, such as: o Recycling N_2O as a feedstock		

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			– it id not used in Romania and it is not technically feasible o Use of N_2O for external purposes – it is not pacticaly feasible and it is not used in Romania. - The installation of an N_2O destruction or abatement technology: o Primary approach – it is not feasible now reach to the effective remove of N_2O concentration o Secondary approach o Tertiary approach, including NSCR De NO_x. – it is exacting to place and condition and operation cost are high Thus only two scenario is feasible after evaluation of technical barriers: • Installation of a selective catalytic reduction (SCR) DeNO_X unit; • Installation of a secondary catalytic DeN_2O plus a (SCR) DeNO_X unit. And finally after economic evaluation:		
3. Has the baseline scenario been determined according to the	/1/	DR	Yes.	OK	

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
methodology?	/2/ /3/				
4. Has the baseline scenario been determined using conservative assumptions where possible?	/1/ /2/ /3/	DR	Yes.	OK	
5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?	/1/ /8/	DR I	There is no national or international legislation regarding N_2O emissions. The IPPC permit describes that the BAT (best available technology) level of emissions should be implemented though JI project by gradually decreasing the emissions of N_2O. . In 2005, and as a consequence of Romania's negotiations to become a member of the European Union, Donauchem was granted a grace (or transition) period before having to comply with EU regulations on NO_x. This period ends December 31, 2013 (Official Diary of Romania, Part 1 No. 1.078/ 30.XI.2005). Donauchem plans to take corrective actions (the installation of a $DeNO_x$ system) during 2008-09 to be prepared well in advance of this future legal requirement. The requirement related to NOx emissions will be gradually enforced and by 1 October 2001 the level should be below 300 ppm. Present level of NOx is approx. 1200 ppm. The guaranteed level	~~CL 16~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			(based on suppliers quotations) of the planned SCR de-NOx units to be installed is 200 ppm.		
6. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR	All literature sources are clearly referenced. But investment analysis is not available. The results are presented but without calculations and references. The investment analysis was obtained.	~~CL 1~~	OK
7. Have the major risks to the baseline been identified?	/1/	DR	The applicability of future EU legislation as a result of Romania's accession to the EU is identified and discussed. No legal requirements on N_2O emissions are expected.	OK	
B.3. Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*					
1. What is the methodology selected to demonstrate additionality?	/1/ /4/	DR	Additionality was demonstrated according to Tool for the demonstration and assessment of additionality, version 5.2.	~~CL 17~~	OK
2. Is the project additionality assessed according to the methodology?	/1/ /4/	DR	Yes.	~~CL 1~~	OK
3. Are all assumptions stated in a transparent and conservative manner?	/1/ /4/	DR	Yes.	OK	

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
4. Is sufficient evidence provided to support the relevance of the arguments made?	/1/ /4/	DR I	Yes, exclude note mentioned above. Common practice was elaborated during the site visit	OK	
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					
1. Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/	DR	The starting date is March 1st, 2008 and lifetime is supposed to be 21 years. But evidence about it shall be checked during the site visit.	~~CL3~~	OK
2. Is the start of the crediting period clearly defined and reasonable?	/1/	DR I	The starting date of the crediting period was planned to be 1 March 2008 and the length of the crediting period is 10 years.	~~CL3~~	OK
D. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
1. Is the monitoring plan documented according to the chosen methodology and in a complete and transparent manner?	/1/	DR I	Yes, the monitored data are in compliance with methodology AM0034.	OK	
2. Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of ERUs, for this project activity, whichever occurs later?	/1/	DR	It is not included correctly in the PDD.	~~CL4~~	
D.1. Monitoring of Project Emissions					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
It is established whether the monitoring plan provides for reliable and complete project emission data over time.					
1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	Yes, it is specified in section D and Annex 3 of the PDD. However $GC_{project}$ - Gauze composition during project campaign is missing. This parameter needs to be included. The parameter was included	~~CL 13~~	OK
2. Are the choices of project GHG indicators reasonable and conservative?	/1/	DR	Yes, N_2O is the only GHG indicator that is to be accounted for. This is according to AM0034.	OK	
3. Is the measurement *method* clearly stated for each GHG value to be monitored and deemed appropriate?	/1/	DR	Yes, it is according to AM0034.	OK	
4. Is the measurement *equipment* described and deemed appropriate?	/1/	DR I	Yes, it is specified in section D of the PDD and planned to meet the En14181 requirements.	OK	
5. Is the measurement *accuracy* addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/ /17/	DR I	Yes, The accuracy of the N_2O analyser and stack gas flow meter is given in QAL 1 certificates /17/. A QAL 2 test is to be conducted and the overall uncertainty (UNC as described in AM0034) will be determined after the finalisation of the QAL 2 test. Further the uncertainty of nitric acid measurements should be described.	~~CL 6~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
6. Is the measurement *interval* identified and deemed appropriate?	/1/ /24/ /26/	DR I	Yes, it is specified in section D of the PDD. However the frequency of monitoring N_2O concentration, stack gas flow, temperature and pressure is 1 minute, the frequency should be every 2 seconds according to AM0034. Data are polled at a rate of 10 Hz and averaged providing 1 minute raw values. The software standard does an hourly average of these 1 minute raw values.	~~CL 14~~	OK
7. Is the *registration, monitoring, measurement* and *reporting* procedure defined?	/1/ /9/	DR I	Yes. It is sufficiently included in the Monitoring plan in PDD and in Working procedure JI P.Ld. -05-01.	~~CL5~~	OK
8. Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /9/	DR I	Yes. It is sufficiently included in the Monitoring plan in PDD and in Working procedure JI P.Ld. -05-01.	~~CL5~~	OK
9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /9/	DR I	Yes. It is not sufficiently included in the Monitoring plan. But a working procedure for JI P.Ld. -05-01 is developed and made available during site visit. This procedure contains required procedures. A small requirement is for data keeping in CL4 is still open.	~~CL 15~~ (~~CL4~~)	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
D.2. Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.*					
1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?	/1/	DR	Yes it is included in section D and Annex 3 in the PDD.	OK	
2. Are the choices of baseline GHG indicators reasonable and conservative?	/1/	DR	Yes, it is according to AM0034. But it is required to update the excel sheet using data obtained from baseline campaign and the excel sheet for the calculation of overall uncertainty (including uncertainty of nitric acid produced).	~~CL6~~	OK
3. Is the measurement *method* clearly stated for each baseline indicator to be monitored and also deemed appropriate?	/1/	DR	As in D.1.	OK	
4. Is the measurement *equipment* described and deemed appropriate?	/1/	DR	As in D.1.	OK	
5. Is the measurement *accuracy* addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR	As in D.1.	~~CL 6~~	OK
6. Is the measurement *interval* for baseline data identified and deemed appropriate?	/1/ /24/ /26/	DR	As in D.1.	~~CL 14~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
7. Is the *registration, monitoring, measurement* and *reporting* procedure defined?	/1/ /9/	DR	As in D.1.	~~CL5~~	OK
8. Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?	/1/ /9/	DR	As in D.1.	~~CL5~~	OK
9. Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/ /9/	DR	As in D.1.	~~CL 15~~	OK
D.3. Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
1. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/ /2/	DR	The project does not include leakage. This is according to the AM0034 method.	OK	
2. Are the choices of project leakage indicators reasonable and conservative?				N.A.	
3. Is the measurement *method* clearly stated for each leakage value to be monitored and deemed appropriate?				N.A.	
D.4. Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
1. Is the authority and responsibility of overall project management clearly described?	/1/ /9/	DR	It is briefly described in monitoring plan and in other documents in terms of ISO 9001 preparation.	OK	
2. Are procedures identified for training of monitoring personnel?	/1/ /9/	DR	Yes. the training needs are described in work procedure JI P.Ld. -05-01	~~CL7~~	OK
3. Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/ /21/	DR	Yes. The emergency plan exits and it is stamped by responsible government agency.	~~CL8~~	OK
4. Are procedures identified for review of reported results/data?	/1/ /9/	DR	See D.1.	~~CL5~~	OK
5. Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?	/1/	DR	No.	~~CL9~~	OK
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
E.1. Calculation of GHG Emission Reductions – Project emissions *It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
– where applicable – is justified.					
1. Are the calculations documented according to the chosen methodology and in a complete and transparent manner?	/1/ /2/	DR	Yes, it is according to AM0034. The expected project N_2O emissions are calculated in a complete and transparent manner. But it is required to update the excel sheet using data obtained from baseline campaign and the excel sheet for the calculation of overall uncertainty (including uncertainty of nitric acid produced).	~~CL6~~	OK
2. Have conservative assumptions been used when calculating the project emissions?	/1/ /2/	DR	The expected project N_2O emissions are calculated with the following assumptions: • Nitric acid production is assumed to be constant, so that project emissions do not vary from year to year (211 500 tHNO_3/yr). • An N_2O emission factor from IPCC (7 kg N_2O/t HNO_3, according to the operating pressure of the plant) is used to estimate baseline emissions. • The potential technology providers (BASF, Heraeus) indicate that the estimated reduction efficiency to be achieved as a consequence of project implementation is 85%. Thus, in order to present estimated values in this PDD, we consider the project emission factor to be equal to 15% of baseline emission factor ($EF_P = 0.15 * EF_{BL}$)	~~CL 6~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			Formulae used in PDD for project emissions reduction are followed: $ER_n = (0.0070 - 0.00105) \cdot 238{,}920 \cdot 310 = 440{,}688\, tCO_2e / year$ An excel sheet should be made available including all assumptions for the calculations.		
3. Are uncertainties in the project emission estimates properly addressed?	/1/ /2/	DR I	The AMS installed in Donauchem contain continuous gas analyzer model SIDOR-A6 supplied Sick Maihak and a flow meter using ultrasound principle unit model Flowsick 100 manufactured by Sick AG. Requirements of EN 14181:2004 were applied for QA/QC and all three Quality Assurance Levels (QAL) and one Annual Surveillance Test (AST) is described in the monitoring plan. The short protocol from QAL1 is included in PDD. Full version of QAL1, QAL2 were checked during the site visit QAL3 and AST shall be checked during the verification (including verification that third parties or suppliers have required accreditation or other required standards).	OK	
E.2. Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
– where applicable – is justified.					
1. Are the calculations documented according to the chosen methodology and in a complete and transparent manner?	/1/ /2/	DR	Yes, it is according to AM0034. The project N_2O emissions are calculated in a complete and transparent manner. However see CL6.	OK	
2. Have conservative assumptions been used when calculating the baseline emissions?	/1/ /2/	DR I	See comment in section E.1.2	~~CL 6~~	OK
3. Are uncertainties in the baseline emission estimates properly addressed?	/1/ /2/	DR I	See comment in section E.1.3. However the overall uncertainty should be determined after the finalisation of the QAL 2 test.	~~CL 6~~	OK
E.3. Calculation of GHG Emission Reductions – Leakage *It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
1. Are the leakage calculations documented according to the chosen methodology and in a complete and transparent manner?	/1/ /2/	DR	No leakages were calculated. This is in accordance to AM0034.	OK	
2. Have conservative assumptions been used when calculating the leakage emissions?				N.A.	
3. Are uncertainties in the leakage emission estimates properly addressed?				N.A.	

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
E.4. Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
1. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/ /2/	DR	See comment in section E.1.2	~~CL 6~~	OK
F. Environmental Impacts *Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the AIE.*					
1. Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/ /14/	DR I	The EIA was performed and it was approved on 20 February 2009. No significant impact to environment were identified by EIA process.	~~CAR 2~~	OK
2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/ /14/	DR I	Yes. Romania requires EIA. EIA was approved on 20 February 2009 for this project.	~~CAR 2~~	OK
3. Will the project create any adverse environmental effects?	/1/ /14/	DR I	It is improvement of air emission only.	~~CAR 2~~	OK
4. Are transboundary environmental impacts considered in the analysis?	/1/ /14/	DR I	The project doesn't have any transboundary impact	~~CAR 2~~	OK
5. Have identified environmental impacts been addressed in the project design?	/1/ /14/	DR I	Regarding to type of the project it is not need, see F. 3	~~CAR 2~~	OK
6. Does the project comply with environmental legislation in the	/1/	DR	Yes, it is confirmed by EIA approval.	~~CAR 2~~	OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
host country?	/14/	I			
G. Stakeholder Comments *If required by the host country, the AIE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*					
1. Have relevant stakeholders been consulted?	/1/ /14/	DR I	Yes. Stakeholders comments are part of the EIA process. The documentation of the project was available in competent environmental authority's headquarter and it was published on DonauChem website and in Turnu Magurele City hall.	~~CAR 2~~	OK
2. Have appropriate media been used to invite comments by local stakeholders?	/1/ /14/	DR I	Yes, it was confirmed by provided protocol from stakeholders meeting.	~~CAR 2~~	OK
3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	/1/ /14/	DR I	Yes, EIA approval confirmed that requirements were fulfilled.	~~CAR 2~~	OK
4. Is a summary of the stakeholder comments received provided?	/1/ /14/	DR I	No comments were obtained	~~CAR 2~~	OK
5. Has due account been taken of any stakeholder comments received?	/1/ /14/	DR I	See G.4	~~CAR 2~~	OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
CAR.1 The LoE is issued however a preliminary determination report is required to obtain the LoA A scanned copy of LoE and an English translated version should be provided. It should be clarified who is the sponsor party.	Table 1, A.2.2	Scanned copy of LoE and its English translation have been submitted. The sponsor party has been included in PDD. In order to obtain LoA Preliminary Determination Report shall be submitted to Romanian DFP. Sweden is the sponsor party,	The LoA's from Romania and Sweden is not yet provided. The CAR is still open. However the other part of this CAR1 is closed.
CAR 2 The EIA is not yet available. Evidence related EIA and questions in section F shall be checked. The comments related stakeholders shall be checked according to section G in table 2.	Table 1 F G	EIA has been provided. Sections F and G of PDD have been revised.	The EIA was performed and it was approved on 20 February 2009. No significant impact to environment was identified by EIA process. This CAR 2 is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
CL 1 **Investment analysis** Please provide updating of investment analysis. Further, the sources of data used in the investment analysis needs to be clarified for investment and variable costs.	B.1.3 B.2.6. B.3.2	Investment analysis has been updated and sent to DNV.	The investment analysis shows that the income from sales of ERUs mitigates the cost of investment and variable costs. The sources for investment were provided (basket expenses, measurement expenses) The CL is closed.
CL 2 The discussion about barriers show some lack of reasoning for the selection of project activity. Please include in the PDD a discussion of selection of secondary technology compared to tertiary technology Including the description of the planned installation of SCR de-NOx units.	B.2.2.	Relevant discussion has been included in PDD	The PDD is updated to include the required information. In 2005, and as a consequence of Romania's negotiations to become a member of the European Union, DonauChem was granted a grace (or transition) period before having to comply with EU regulations on NO_x. This period ends December 31, 2013 (Official Diary of Romania, Part 1 No.1.078/30.XI.2005). DonauChem plans to take corrective actions (the installation of a $DeNO_x$ system) during 2009-2013 to be prepared for this future legal requirement. This plan of action is included in Integrated Environmental Permit #157 from 29.10.2007 which is issued by the Agency of Environmental Protection and valid until 31.12.2013. The installation date and the achieved abatement level are updated in the PDD.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
			The present level of NOx emissions is approximately 950-1250 ppmv (December 2009). Thus the CL is closed.
CL 3 Please provide the correct starting date of project and the starting date of crediting period and relevant documentation.	C.1. C.2.	Relevant dates have been included in PDD and the contract was provided to DNV.	The contract between DonauChem and MGM dated 6 February 2007 was provided as evidence of starting date. The starting dates were adequately changed. The CL is closed
CL 4 Please include requirements for storage of data in the PDD and procedures. The archiving of the data should fulfil the requirement for a period of 2 years after the end of the crediting period or the last issuance of ERUs.	D.2.	A procedure of data storage has been described in PDD. JI project manual includes paragraph about data archiving and storage.	The PDD is updated to include the description of the archiving period as required. This CL is closed.
CL 5 Description of monitoring equipment should be described for all measurements including ammonia oxidation reactor (AOR) parameters and nitric acid produced. Further specific procedures of stack gas and AOR monitoring equipment should be developed clearly showing inspection, checks, calibration routines, maintenance, and spare parts availability.	D.1.(2.)7., D.1.(2.)8., D.4.4.	Description of monitoring equipment for all measured parameters has been included in PDD. Relevant specific procedures are described in JI manual and relevant ISO 9001 quality system instructions.	The description in PDD is sufficient. The CL is closed.
CL 6 Excel sheets need to be updated using the data obtained from baseline campaign. Please also	D.1.5, D. 2.2,	All excel sheets (baselineEF.xls, UNCcalculation.xls) have been updated. Overall uncertainty calculation has been	Excel sheet for the baseline campaign was provided.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
provide excel sheet for the calculation of overall uncertainty (including uncertainty of nitric acid produced). The design capacity of nitric acid is 240 000 t 100% nitric acid per year. The use of 211 500 t nitric acid per year should be clarified. The overall uncertainty should be finally determined and verified after the results of the QAL 2 test is available. Further clarification is needed for: CL_{normal}, is different in PDD and historical data. The reason for excluding one of the campaigns when calculating the average CL_{normal} value should be provided.	D.2.5, E.1.1, E.1.2, E.2.2, E.2.3, E.4.1	provided. Production figures are clarified. Annual production values have been checked and clarified In March 2009 new (repaired) N_2O analyser was installed and plant was started up. The AMS was properly maintained and calibrated and the process conditions of the plant were inside the permitted ranges, so observed behavior is part of normal (business as usual) operation. Although we cannot provide firm evidence, it appears that environmental conditions during the period in question are responsible for the deviation. Theoretically the process conditions are within normality, but oxidation temperature during March dropped approx 10 degrees from 820 to 810. Lower oxidation temperatures are known to cause increase on N_2O formation. This happened while ammonia and ammonia / air ratio show no variation, so it may be that March 09 was unusually cold or rainy and caused colder reactor temperatures (which as you know are outdoor with no insulation). These estimated amounts of nitric acid	-UNC calculation was provided in separate excel sheet as well as the QAL 2 report. The values in Excel file and PDD were confirmed. -Emissions reduction calculation in excel sheet provided was not consistent to ER in PDD page 10 and page 66. This needs to be updated. – This information is consistent in the updated version of the PDD. - The CL_{normal} is now consistent, and has been updated to 92 293 t 100% HNO_3 in new version of the PDD. -The reason for excluding one of the historical campaign was provided and is deemed reasonable. -The information about NAP was sufficiently explained in last version of PDD. The N_2O concentration after start up in March 2009 was considerably higher than observed values prior to this stop, this period of monitoring should be given special attention during the first verification (please refer to FAR 1). The CL is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
		are calculated on the base of DonauChem long-term production plan now: 2009 – 168,000 tonnes, 2010 – 216,000 tonnes, 2011-2018 – 235,000 tonnes,	
CL 7. Procedure for training should be developed for people involved in JI project on a continuous or yearly basis	D.4.2.	Training procedure has been added in JI manual	The training needs are described for individual positions. The CL is closed.
CL 8. Please provide scanned copy of the approval or permit for existing emergency plan as evidence.	D.4.3.	Copy of the document has been provided	The copy of the documents was obtained (original was checked on site) and included in the reference list /21/. The CL is closed.
CL 9 Procedure for non conformities, corrective actions and preventive actions shall be described. Linking into JI procedure or by other means.	D.4.5.	Relevant procedures are described in JI manual and relevant ISO 9001 quality system instructions	The JI manual, do describe solving problems with calibration and work of measurement devices. However other issues (as for example malfunctioning of measuring equipment, no signal etc.) is not sufficiently described. This part is described in PDD now. The CL is closed.
CL 10. Please provide electronic copy of PIN	E.1.2	Document has been provided	The PIN document is only in Romanian.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
document.			The English version of PIN was provided. This CL is closed
CL 11 **Permitted operating ranges** Ammonia flow: A failure in the calculation from volume flow to kg/h was observed during site visit. This should be clarified. Updated excel sheet for determination of permitted ranges should be provided. Please send scanned copies from log books of AOR parameters from historical campaigns (ammonia flow, primary air flow, reactor temperature and pressure) for 10 days randomly picked from the period of historical campaigns. Mass balance approach for the calculation of nitric acid produced is accepted for the determination of normal campaign length, However more information on no. of days in operation, plus justification of calculation of average campaign length from historical campaigns should be provided. The documentation in form of invoices from catalyst supplier should be provided for historical campaigns and the baseline campaign.	B.1.4	Ammonia flow has been properly calculated and converted. Excel sheet (HistoricalData.xls) for determination of permitted ranges has been provided. Copies of log books have been sent. Information about daily plant operation and proper calculations of historical campaign length has been added. All existed invoices from the catalyst supplier have been provided.	The conversion and calculation for ammonia flow and air normalized flow- the conversion has been clarified. Excel sheets with historical data has been provided. Logbooks with values for AOR parameters from operation manual were provided (OT, OP, AFR, AIFR). NAP – was included to the PDD. The catalyst information – the invoices included two type of catalyst – difference is in wire diameter (0,06 and 0,07 mm) – but the composition is the same thus the information confirm using the same catalyst in baseline and historical campaign is regarded sufficient. The CL is closed.
CL 12 It is not sufficiently described how the	B.1.4	Relevant information has been added in PDD.	The PDD describes sufficiently that the median of the 4 temperatures is used to

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
measurements of the oxidation temperatures in the 4 burners in each of the production lines will be used to check for operation within the defined permitted operating ranges. Monitoring of the parameter VSG is not sufficiently described. It needs to be clarified how normal flow is arrived from the measurements in the stack gas. Ammonia oxidation reactor operating pressure: point of measurement should be included for this parameter. These issues should be clarified and included in the revised PDD.			check for operation within permitted operating ranges. This is acceptable and verified from excel sheet provided with baseline campaign data. Further VSG is sufficiently described and the point of measurement for operating pressure of ammonia oxidation reactor was included (point after compressor before mixer) in the updated PDD. The CL is closed
CL 13 $GC_{project}$ -Gauze composition during project campaign is missing in the monitoring plan. The monitoring plan is to be updated.	D.1.1	$GC_{project}$ information has been added in PDD. Monitoring plan has been updated.	The new version of the PDD was checked and the parameter is included. The CL is closed
CL 14 The frequency of monitoring N_2O concentration, stack gas flow, temperature and pressure is stated 1 minute in the PDD, the frequency should be every 2 seconds according to AM0034. This deviation needs to be clarified.	D.1.6 D.2.6	Relevant clarifications of AMS producer have been submitted.	Information is sufficient. The CL is closed.
CL 15 A working procedure for JI P.Ld. -05-01 is developed and made available during site visit. A copy (electronic) of this procedure should be provided.	D.1.9 D.2.9	Working procedure (JI manual) has been submitted.	The procedure was received and included to reference list. The CL is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
CL 16 **NOx legislation id Romania** The IPPC permit presented at the site visit is valid until 31.12.2013. The scanned electronic copy of relevant pages and stamped pages should be provides as evidence.	B.2.5	Relevant copies of documents have been provided	The IPPC permit was obtained, the information was compared with the notes from site visit, and included to list of references. This CL is closed
CL 17 Additionality was demonstrated according to Tool for the demonstration and assessment of additionality, version 4. The latest version of the tool should be used.	B.3.1	Relevant changes have been made in PDD	The PDD was updated correctly in this section. The CL is closed.

Table 4 Forward action requests

Forward action request	Reference to Table 2
FAR 1 The final verification of the permitted operating conditions that have been preliminarily determined by DNV from the data of 4 historical campaigns from 17 May 2005 to 29 May 2008 /15/ should be confirmed during the first verification by the verifying AIE. In addition, the final verification of the baseline campaign data from 2008 should be confirmed during the first verification by the verifying AIE. DNV observed some strange development of N_2O concentration during the baseline campaign, specifically after the shutdown period from 22 December 2008 to 1 March 2009 the N_2O concentration increased considerably. This period of monitoring should be especially checked during verification and any incorrect measured values are to be excluded from the determination of the baseline emission factor.	E.1.2 E.2.2
FAR 2 The PDD does not include the requirement of AM0034 stating: *In order to further ensure that operating conditions during the baseline campaign are representative of normal operating conditions, statistical tests should be performed to compare the average values of the permitted operating conditions with the average values obtained during the baseline determination period. If it can be concluded with 95% confidence level, in any of the tests, that the two values are different, then the baseline determination should be repeated.*" Since the final determination of the permitted operating conditions and the baseline campaign data would be verified by the verifying AIE during first verification, this needs to be confirmed during the first verification.	B.1.3 B.1.4 D. 2.2 E.1.1 E.2.1 E.4.1