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Determination Report

YARA AB, YARA International ASA

N.serve Environmental Services GmbH

DETERMINATION OF THE JI TRACK-2 PROJECT:

"YARA KÖPING S2 N2O ABATEMENT PROJECT IN SWEDEN"

REPORT NO. 600500445

October 28th 2011

TÜV SÜD Industrie Service GmbH

Carbon Management Service
Westendstr. 199 - 80686 Munich – GERMANY

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Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
600500425	20-08-2010	5	28-10-2011	-

Subject: Determination of a JI Track-2 project

Accredited TÜV SÜD Unit:	**TÜV SÜD Contract Partner:**
TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany	TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 80686 Munich Germany
Project Participants: YARA AB N.serve Environmental Services GmbH	Project Site(s): YARA Köping S3 plant Köping Sweden

Project Title: YARA Köping S2 N2O abatement project in Sweden

Applied Methodology / Version:	**Scope(s):**
JI specific approach (using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines). AM0034 / version 3.4 (with deviations) AM0028 / version 4.2 (for monitoring of project emissions)	5

First PDD Version:		**Final PDD version:**	
Date of issuance:	11-02-2010	Date of issuance:	02-09-2011
Version No.:	03	Version No.:	08
Starting Date of GSP	17-02-2010		

Estimated Annual Emission Reduction: 159,070 tCO2e (average 2009 to 2012)

Assessment Team Leader:	**Technical Reviewer:**
Nikolaus Kröger	Thomas Kleiser
Further Assessment Team Members:	**Certification Body responsible:**
Olena Maslova, Martin Hammer	Thomas Kleiser

Summary of the Determination Opinion:

☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the JI as well as all the requirements set by host country (Sweden) for approving projects under JI – Track 2. Hence, TÜV SÜD will recommend the project for further approval and registration by the JISC.

☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence, TÜV SÜD will not recommend the project for registration by the JISC as a JI Track-2 project and will inform the project participants and the JI Supervisory committee on this decision.

Abbreviations

AM	Approved Methodology
AMS	Automated Measuring System
AOR	Ammonia Oxidation Reactor
CAR	Corrective Action Request
CR	Clarification Request
DFP	Designated Focal Point
DVM	Determination and Verification Manual
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
ERUs	Emission Reduction Unit(s)
FAR	Forward Action Request
GHG	Greenhouse gas(s)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
KP	Kyoto Protocol
MP	Monitoring Plan
NDIR	Non-Dispersive Infrared Spectroscopy
NGO	Non Governmental Organisation
PDD	Project Design Document
PP	Project Participant
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual, IETA/World Bank

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1 INTRODUCTION

1.1 Objective

The determination objective is an independent assessment by a Third Party (Accredited Independent Entity, AIE) of a proposed project activity against all defined criteria set for the registration under the Joint Implementation scheme (JI).

The assessment involves the evaluation of the project basis and design identified in the Project Design Document (PDD) using the defined criteria outlined by the registration under the Joint Implementation scheme (JI). Determination is part of the JI project cycle and results in a conclusion by the executing AIE on whether or not a project activity is valid to be submitted for registration to the Joint Implementation Supervisory Committee (JISC). The ultimate decision on the registration of a proposed project activity rests with the JISC and the Parties involved.

The project activity discussed by this determination report has been submitted under the project title:

YARA Köping S2 N2O abatement project in Sweden

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of JI project activities the scope is set by:

- The Kyoto Protocol, in particular § 6
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Further COP/MOP decisions with reference to the JI (e.g. decisions 9/CMP.1)
- Decisions by the JI-SC published under http://ji.unfccc.int
- Specific guidance by the JI-SC published under http://ji.unfccc.int
- Guidelines for Completing the Project Design Document (JI-PDD)
- The applied approved CDM methodology(s)
- The technical environment of the project (technical scope)
- Internal and national standards on monitoring and QA/QC
- Technical guideline and information on best practice

The Determination is not meant to provide any consultancy towards the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Once TÜV SÜD receives an initial PDD version, it is made publicly available on the UNFCCC JI website and on TÜV SÜD's website. In case of any request a PDD might be revised and the final PDD will form the basis for the final evaluation as presented in this report. Information on the initial and on the final PDD version is presented on page 1.

The only purpose of a Determination is its use during the registration process as part of the JI project cycle. Hence, TÜV SÜD cannot be held liable by any party for decisions made or not made based on the Determination opinion, which will go beyond that purpose.

2 METHODOLOGY

The project assessment applies standard auditing techniques to assess the correctness of the information provided by the PPs. The assessment is based on the latest version of Joint Implementation Determination and Verification Manual. The work starts with appointment of team covering the technical scope(s), sectoral scope(s) and relevant host country experience for evaluating the JI project activity. Once the project is made public available, members of the team carry out the desk review, follow-up actions, resolution of issues identified and finally preparation of the determination report. The prepared determination report and other supporting documents then undergo an internal quality control by the CB "climate and energy" before submission to the JISC.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. TÜV SÜD has developed a methodology-specific protocol customized for the project. The protocol demonstrates, in a transparent manner, the project criteria (requirements), discussion on each criterion by the assessment team, and the results from determining the identified criteria.

The determination protocol serves the following purposes:

- To organize the details and provision of clarifications on the requirements of which a JI project is expected to meet
- To elucidate how a particular requirement has been determined as well as to document the results of the determination and any adjustments made to the project design document.

The determination protocol consists of three tables. The different columns in these tables are described in the figure below. The completed determination protocol is enclosed in Annex 1 to this report.

Determination Protocol Table 1: Conformity of Project activity and PDD				
Checklist Topic / Question	**Reference**	**Comments**	**PDD in GSP**	**Final PDD**
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further sub-divided. The lowest level constitutes a checklist question / criterion.	*Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to documents other than the PDD.*	*The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any* ***Request*** *has to be substantiated within this column.*	*Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (☑),* ***or a Corrective Action Request (CAR)*** *due to non-compliance with the checklist question (see below).* ***Clarification Request (CR)*** *is used when the determination team has identified a need for further clarification.* ***Forward action request*** *to highlight issues related to project implementation that require review during the first verification.*	*Conclusions are presented in the same manner based on the assessment of the final PDD version and further documents including assumptions presented in the documentation.*

Determination Protocol Table 2: Resolution of Corrective Action and Clarification Requests			
Clarifications and corrective action requests	**Ref. to table 1**	**Summary of project owner response**	**Determination team conclusion**
If the conclusions from table 1 are either a Corrective Action, a Clarification or a Forward action Request, these should be listed in this section.* ** In the latest revision of this Report **Table 4** serves for summurising of Forward Action Requests that require review during the first verification.*	*Reference to the checklist question number in Table 1 where the issue is explained.*	*The responses given by the client or other project participants during the communications with the determination team should be summarised in this section.*	*This section should summarise the discussion on and revision to project documentation together with the determination team's responses and final conclusions. The conclusions should be reflected in Table 1, under "Final PDD".*

If any forward action request (FAR) raised they are stated in table 3. FARs highlight issues related to project implementation that require review during the first verification

Determination Protocol Table 3: Forward action request		
Forward action request **Id. of FAR 1**	**Ref. to table 1**	**Explanation**
Request has to be substantiated within this column	*Reference to the checklist question number in Table 1 where the issue is explained.*	*If necessary this section should present a detail explanation..*

In case of a denial of the project activity more detailed information on this decision will be presented in table 4.

Determination Protocol Table 4: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	**Id. of CAR/CR 1**	**Explanation of the Conclusion for Denial**
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	*Identifier of the Request.*	*This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion with a clear reference to the requirement which is not complied with.*

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body (CB) ensuring that the required skills are covered by the team. The CB

TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL)
- Greenhouse Gas Auditor (GHG-A): Determiner/ Verifier
- Greenhouse Gas Auditor Trainee (T)
- Experts (E)

It is required that the sectoral scope and technical area linked to the methodology as well as host country expertise are covered by the assessment team.

The Determination team was consisting of the following experts (the responsible Assessment Team Leader in written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of technical area	Host country experience
Nikolaus Kröger	**ATL**	☑	☑	☑
Olena Maslova	GHG-A	☑	☑	☑
Martin Hammer	T	☑	-	☑

Nikolaus Kröger is environmental engineer and expert for emissions monitoring and quality assurance at the department "TÜV SÜD Carbon Management Service". He is heading the TÜV SÜD Carbon Management Hamburg office and is also engaged as personally accredited verifier in the EU-ETS serving the Northern German market, Scope Manager for Industrial Gases worldwide and Regional Manager for carbon business development in the Middle East (MENA region) and Central Asia. Being ghg auditor and assessment team leader for CDM, JI and voluntary carbon standard projects he has already been involved in several of CDM and JI activities with a special focus on industrial non-CO2 projects. Constitutive on 13 years experience at the department "Environmental Service" he verified many metallurgical plants, refineries, chemical plants, waste treatment and power plants and process engineering in many types of facilities. One of his former focal points had been implementation and calibration of complex automatic Environment-Data-Systems.

Olena Maslova is auditor in the "Carbon Management Service" department of TÜV SÜD Industrie Service GmbH in Munich, Germany. She is chemical engineer and host country expert for projects in Ukraine and Commonwealth of Independent States. Due to her further master degree at the university of applied science in the Federal Republic of Germany she is also familiar with Germany's environmental legislation. Being GHG auditor and assessment team leader for JI projects Olena Maslova has already been involved in several JI activities with a special focus on projects in the sector of chemical industries and waste handling and disposal. In this project she functioned as lead auditor and project manager.

Martin Hammer is environmental and mechanical engineer and is working as GHG Determiner/Validator/Verifier with a special focus on the scope "Industrial Gases" at the Carbon Management Service Department of TUEV Sued Industry Service GmbH in Munich, Germany. He has more than six years experience in JI/CDM projects with special focus on industrial gases. Additionally he gained extensive experience in renewable energies working on various consulting

projects (wind, hydro, biomass, biogas, geothermal) and working as operator of a small hydro power plant in Austria.

Technical Reviewer: Thomas Kleiser.

2.2 Review of Documents

A first version of the PDD was submitted to the AIE December 2009. Editorial corrections were required therefore PDD version 03 was submitted for publishing. The PDD and additional background documents related to the project design and baseline were reviewed to verify the correctness, credibility and interpretation of the presented information, furthermore a cross-check between information provided and information from other sources have been done as initial step of the determination process. A complete list of all documents and proofs reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

On 17th and 18th February 2010 TÜV SÜD performed interviews and physical site inspection with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in this context.

Name	Organisation
Mr. Gilles Raskopf	YARA AB, Plant Manager
Mr. Axel Pallin	YARA AB, Process Engineer
Mr. Pär Höök	YARA AB, Production Manager
Mr. Lars Häkan Karlsson	YARA AB, HESQ-Manager
Mr. Jozef Meglic	YARA AB, Automation Engineer
Mr. Albrecht von Ruffer	N-Serve, Managing Director
Ms. Rebecca Cardani-Strange	N-Serve, Project Manager

2.4 Cross-check

During the determination process, the team has made reference to the available information related to similar projects or technologies as the proposed JI Track-2 project activity. Project documentation has also been reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD`s conclusion on the project design. The CARs and CRs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the determination process, the concerns raised and responses that have been given are documented in more detail in the determination protocol in Annex 1.

The final PDD version submitted 06th October 2010 serves as the basis for the final assessment presented.

2.6 Internal Quality Control

Internal quality control is the final step of the determination process and is conducted by the CB “climate and energy” who checks the final documentation, which includes the determination report and annexes. The completion of the quality control indicates that each report submitted has been approved either by the head of the CB or the deputy (a veto person is used if necessary). In projects where either the Head of the CB or his/her deputy is part of the assessment team, the approval is given by the one not serving on the project team.

After confirmation by the PP, the determination opinion and relevant documents are submitted to the JISC through the UNFCCC web-platform.

3 SUMMARY

The assessment work and the main results are described below in accordance with the latest DVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2.

3.1 Approval

The dedicated project participants are YARA AB authorized by Sweden and N.serve Environmental Services GmbH authorized by Netherlands. The host Party Sweden meets the requirements to participate in the JI.

The Swedish DFP, issued a LoE (IRL 36) indicating its support to further development of this project activity. Subsequently the LoA (IRL36) was issued on the 15th of September 2011 by the Swedish DFP. This LoA authorizes Yara AB as project participant in this project.

Beneath the host country (Sweden), Netherlands is party involved in this project. The LoA was issued by the DFP of Netherlands on 31st of August 2011 (IRL47). This LoA authorizes N.serve Environmental Services GmbH as project participant in this project.

TÜV SÜD has received those Letters of Approval from the project participants directly and considers the provided letters as authentic.

3.2 Participation

The dedicated project participants are YARA AB authorized by Sweden and N.serve Environmental Services GmbH authorized by Netherlands. The participation of all project proponents as well as their roles in this JI project is confirmed with JI project Master Agreement (IRL 5).

3.3 Project design document

The PDD is compliant with relevant form and guidance as provided by the UNFCCC JISC.

TÜV SÜD concludes that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information has been provided by the participants in the applying PDD sections. Completeness was assessed through the checklist included to Annex 1.

3.4 Project description

The following description of the project as per PDD could be verified during the on-site mission:

Project is going to be implemented at the existing facility of YARA's nitric acid plant Syra 2 (S2) in Köping, Sweden. The plant is an atmospheric pressure plant with 6 Ammonia Oxidation Reactors (AORs), arranged in three sets of two. . All 3 'systems' lead jointly into 9 absorption columns and subsequently into one stack. Commercial nitric acid production started in 1955 with four ammonia oxidation reactors. A further two reactors were added in 1969. The project activity aims a GHG emissions reduction of nitrous oxide, N_2O, which is an unwanted by-product by the industrial production of nitric acid and at the same time is a green house gas with GWP of 310.

In particular, the installation of the secondary N_2O abatement catalyst system directly in the ammonia oxidation reactor (AOR) underneath the ammonia oxidation catalyst (Pt-Rh catalyst gauze) is envisaged. A secondary catalyst is employed which has an expected abatement efficiency of about 90% (IRL 03).

In order to implement the project, the nitric acid plant will be equipped with a state of the art AMS according to DIN EN 14181 for continuous monitoring of the project key parameters.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity as confirmed by:

- Review of data and information (see annex 2) using sectoral knowledge and expertise of the assessment team, cross check the same with other sources available in the respective technical literature, official publications, etc.
- The on-site visit has been performed and relevant stakeholders and personnel with knowledge of the project were interviewed, in case of doubt further cross checks through additional interviews have been done.
- Finally information related to similar technologies or projects as the JI project activity have been used if available to confirm the accuracy and completeness of the project description.

In light of the above, TÜV SÜD confirms that the project description as included to the PDD is sufficiently accurate and complete in order to comply with the requirements of the JI Track-2.

3.5 Baseline and monitoring methodology

3.5.1 Applicability of the selected methodology

A methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) is used. The JI approach is based on the selected elements of the AM0034 version 03.4 and AM0028 v.04.2. As the plant is an atmospheric pressure plant with several AORs but only one absorption line and tail gas stack, AM0034 is not applicable in its totality because continuous real-time measurements of N2O concentration and total gas volume flow cannot be carried out in the stack prior to the installation of the secondary catalyst for one campaign. The main deviation from the AM0034 is the determination of baseline emissions. Because of the plant layout it is not possible to measure the quantity of N2O for one production campaign, as there are several AORs with shifted primary catalyst installation and therefore different production campaigns. Thus it is not possible to define a baseline campaign and establish a baseline emission factor.

The JI specific approach foresees the determination of the baseline emissions by using a the IPCC default emission factor for N2O from nitric acid plants which have not installed N2O destruction measures (4.5 kg-N2O/t HNO3, which is also defined in AM0034 version 03.4 as default value). The conservativeness of this value has been confirmed by a N2O measurement done from 04th to 10th of June 2010 (IRL 46). The data obtained during those 7 days of operation is considered as representative because of following (IRL 46):

- The plan records provided show that the daily design capacity of the plant was not exceeded at those days,

- The measurements have been conducted using the QAL 2 tested AMS,

- the PPs submitted latest available measured data for N2O from May to August (3 months), those data confirm the result of the 7 days measuring period, i.e. that the factual emission factor is above 4,5 kg-N2O/t HNO3.

- The plant specific operating parameters (OT, OP, AFR, AIFR) were analyzed for the period from May to August 2010 and don't show any peculiarity. Thus it is concluded that the plant was operated

within the normal operating ranges from 4th to 10th 2010, so that any plant manipulation resulting in higher N2O emissions can be excluded.

- The confidential documents provided confirm that the primary gauze composition has not been changed compared to the one used in the previous campaign (IRL 46).

- New set of the primary gauzes was installed in one of the 3 AOR systems (each AOR system consists of 2 AORs) immediately before the measurements were conducted, the primary gauzes installed in another 2 AOR systems are comfortably before the end of their expected lifetime as per the gauze change history provided by Yara (IRL 46).

Therefore the use of a default baseline emission factor of 4.5 kg-N2O/t HNO3 is considered as properly justified and accepted by the assessment team.

Due to the reasons described in above sections of this report, the project emissions will be monitored according to the relevant provisions of AM0028 version 04.2. Please see section 3.5.4.2 of this report for details.

The assessment was carried out for each applicability criterion according to AM0034 version 03.4 and included, among other checks, a compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources to demonstrate the compliance with applicability conditions. Furthermore AIE confirms that all relevant applicability criteria are fulfilled.

The methodology-specific protocol, included in Annex 1, documents the assessment process. The results of the compliance check as well as relevant evidence are detailed in the protocol and the information reference list.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

Emission sources, not addressed by the applied methodology and expected to contribute more than 1% of the overall expected average annual emission reductions, have not been identified.

3.5.2 Project boundary

The project boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the project.

Project boundary set in PDD is in accordance with CDM methodology AM0034, version 3.4. Hence, Yara plant industrial process covered by the project activity is nitric acid production serving by the existing AOR (s). The project boundary comprises the complete production process from the inlet to the AORs to the stack, including all compressors, SCR DeNOx unit and tail gas expander turbines installed.

The most relevant documentation assessed in order to confirm the project boundary is the following: HNO_3 production process scheme (IRL 5) collected during the on-site mission performed by the audit team, etc.

The same have been validated during the determination process using standard audit techniques. For furhter details on TÜV SÜD observations on-site refer to the annexes 1 and 2.

Therefore, TÜV SÜD confirms that the project boundary defined in the PDD encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are under the control of the project participants, reasonably attributable to the project; and significant.

TÜV SÜD also confirms that the identified project boundary, the selected sources, and gases as documented in the PDD are justified for the project activity and are fully in line with the requirements for JI specific baseline approach and requirements set by the approved CDM methodology AM0034 version 03.4.

3.5.3 Baseline identification

The baseline is identified in accordance to the procedure for identification of the baseline scenario described the latest version of the approved methodology AM0028 "Catalytic N2O destruction in the tail gas of nitric acid plants". This is also applicable for CDM methodology AM0034 version 03.4. This procedure is applied in the PDD and provides for a step-wise approach to identify the baseline scenario. Furthermore the last version of the "Combined Tool to identify the baseline scenario and demonstrate additionality" was used, too.

The list of plausible alternative scenarios to the project activity is complete and no reasonable alternative scenarios have been excluded.

Therefore the following baseline scenario has been defined in the PDD:

- The continuation of the current situation without installing any N2O abatement technology until 2012. Any BAT value for atmospheric plants available in 2013 will provide a regulative emission limit for the plant from 2013 onwards according to the environmental permit issued in June 2010 (IRL 44, 45).

This is found to be reasonable under the current regulative framework. During time of onsite visit the plant was in process of renewal of environmental permit. In June 2010 the new permit was issued. According to the Swedish Environmental Protection Agency - Implementation and Enforcement Department - Industry Unit – the plant has to fulfill any relevant BAT from 2013. Before 2013, there are no requirements to reduce N2O emissions (IRL 44, 45).

The information presented in the PDD has been validated by an initial document review of all data. Further confirmation has been made based on the on-site visit and a review of information from similar projects and/or technologies. The sources referenced in the PDD have been quoted correctly. The information was verified against credible sources (IRL 03, 15, 26, 27).

Transparent and documented evidences were provided to the assessment team within on-site visit. Based on conservative interpretation of collected audit evidences, TÜV SÜD considers that the identified baseline scenario is reasonable until the end of the first commitment period. The validity of JI project status after 2012 has to be determined according to relevant agreement under the UNFCCC and is subject to approval of the host country.

TÜV SÜD confirms that all relevant JI requirements, including relevant national and / or sectoral policies and circumstances, have been identified correctly taken into account in the definition of the baseline scenario.

A verifiable description of the baseline scenario has been included to the PDD.

In conclusion TÜV SÜD confirms that:

1. All the assumptions and data used by the project participants are listed in the PDD, including their references and sources;
2. All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD;

3. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable;
4. Relevant national and/or sectoral policies and circumstances are considered and listed in the PDD;
5. The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed JI project activity.

3.5.4 Algorithm and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions and emission reductions. There are no leakage emissions. Corresponding calculations were carried out based on calculation spreadsheets as presented via Emissions reductions calculation sheet (IRL41).

The assumptions and data used to determine the emission reductions are listed in the PDD and all the sources have been checked and confirmed.

Based on the information reviewed it can be confirmed that the sources used are correctly quoted and interpreted in the PDD. The values presented in the PDD are considered reasonable based on the documentation and references reviewed, as well as, the result of the interviews. Detailed information on the verification of the parameters used in the equations can be found in Annex 1. The algorithms for the determination of the baseline, project, and leakage are discussed in the following sections.

3.5.4.1 Baseline Emissions

The baseline emissions estimated in the PDD are calculated by the budgeted future nitric acid production and the IPCC default emission factor of 4.5 kg-N2O/t HNO3 for N2O from nitric acid plants which have not installed N2O destruction measures. Conservativeness of this default value for the project is confirmed by a N2O measurement done from 04th to 10th of June 2010 (IRL 46). Please see section 3.5.1 of this report for details.

3.5.4.2 Project emissions

The project scenario is the installation and operation of a secondary abatement catalyst. In order to estimate a project emission factor, the measurements which were taken in the tail gas of the plant from 4th to 10th June 2010 by the QAL 2 tested equipment were used (for details please refer to the chapter 3.5.1 of this report). Based on the spot measurements' results and the predicted abatement efficiency of 90% (IRL 03) a preliminary project emission factor was estimated.

The project emission factor and the nitric acid production for the project campaign will be determined from the data monitored ex-post. In order to monitor project emissions the relevant provisions defined in CDM methodology AM0028 v.04.2 are used. This is considered to be applicable as the project is independent from production campaigns due to the specific plant design and the benchmark approach used for baseline emission determination. Hence, in order to become also independent in respect of project emissions determination and to verify the project during production periods, the AM0028 is applied. Project emissions will be calculated on an hourly basis, using hourly average values for NCSG and VSG.

3.5.4.3 Leakage

No leakages are identified this is also in accordance to the AM0034 methodology.

3.5.4.4 Emission Reductions

Chapter E.5 of the final PDD demonstrates emission reductions ERs calculated based on

1. IPCC default value as baseline emission factor

2. Project emission factor derived from assumed baseline emission factor and estimated destruction rate of secondary catalyst.

3. Budgeted future nitric acid production as defined in the plant specific road map (IRL12).

Furthermore the Swedish Environmental Protection Agency (EPA) in communication with the assessment team and project proponents made clear that the Syra 2 plant has to comply with any applicable BAT reference value from the 1st January 2013 on. Since there is currently no such applicable BAT reference value for atmospheric pressure nitric acid plants available, the PDD states to take this into account once any reference value is available.

In summary, the calculation of the baseline emissions, project emissions, and the emission reductions, respectively, can be considered as correct. The baseline and project emissions are calculated in the PDD in transparent manner.

The PDD also shows emission reductions for the years beyond 2012. An extended crediting period beyond the first commitment period is subject to the host country approval and has to be evaluated on the regulative framework under UNFCCC existing post 2012.

3.6 Additionality

Simple cost analysis has been used for demonstrating additionality according to the "Tool for the demonstration and assessment of additionality" (Version 05.1) as it is clearly shown that that there is no economical benefit by the reduction of the nitrous oxide concentration other than the JI revenues.

The approach used in the PDD has been assessed based on a document review and interviews on-site with plant representatives. Furthermore some documents have been reviewed on-site (for details see annex 2). All audit evidences have been checked using sectoral knowledge and expertise as well as public available information published in the internet and technical literature.

Based on this determination steps, the AIE can confirm that the documentation assessed is appropriate for this project.

3.7 Monitoring plan

The assessment team has checked all the parameters presented in the MP against the requirements of the methodology. The monitoring plan (MP) presented in the PDD complies with the requirements of the methodology updated to the project case (JI approach). The changes introduced in the updated CDM methodology were taken into account by the final determination of the provided project documentation. There are following project specific modification:

- The project is not based on measurement of a baseline campaign and determination of a baseline emission factor as it is required by the CDM methodology AM0034. Rather a default value will be used for calculation of the ERUs. Therefore parameters to monitor operating conditions (AFR, AIFR, OT_h, OP_h) are excluded from the MP. Furthermore, the benchmark approach does not require monitoring of the campaign length (CL_n) as there is no baseline

campaign length (CL_{BL}) to compare with. Also the overall measurement uncertainty of the monitoring system (UNC) which is deducted from the baseline emission factor (EF_{BL}) in the CDM methodology is excluded from the monitoring plan, because of the benchmark approach.

- The parameters to monitor primary gauze supplier and compositions ($GS_{project}$ and $GC_{project}$) are also excluded from the MP. The methodology AM0034 which selected elements have been applied in this project foresees the monitoring of primary gauze supplier and composition whether the gauzes used for the project campaign are identical to the ones used in the baseline campaign. Due to the fact that no baseline measurement is taking place in this project, but the IPCC value is applied for the baseline emission factor, the parameters $GS_{project}$ and $GC_{project}$ can be omitted.
- The CDM methodology implies a moving average for the calculation of the project emission factor. The moving average is also capped at the level of the lowest campaign specific emissions factor observed during the first 10 campaigns. These procedures aim to account for the N2O emission reductions that may occur anyway as a consequence of potential platinum deposit build up inside the plant. A baseline emission factor determined by measuring a baseline campaign in front of abatement catalyst installation is not considering this long term effect. However, it is not reasonable to account for this long term effect in case of a default value approach. Therefore neither a moving average calculation nor a cap on the moving average is implied in the project emission factor determination of the MP of this project.
- In order to monitor project emissions the relevant provisions of AM0028 will be used. This allows verifying the project independently from production campaigns. It can be confirmed that the project is applicable to use AM0028 for monitoring of the project emissions. Also refer to section 3.5.4.2 of this report.
- The requirement of the CDM methodology that during downtime of the automated measuring system the highest measured value in the campaign will be applied for the downtime period for the campaign emission factor is modified due to the project specific conditions, thus the missing data from the relevant hour during downtime periods should be replaced with either a) the highest value measured during the whole of the relevant verification period or b) the highest value measured during the whole of the previous complete verification period, whichever is the higher. The assessment should be based on values measured during periods of standard AMS operation and recording after elimination of mavericks. This replacement of missing data will be done on the basis of hourly average values. This is conservative and applicable for the project specific case. Routine calibration of the automatic measuring system is not considered as downtime. Procedures on data handling during such periods are included in the MP.

The quality assurance procedures have been audited by the assessment team through document review and interviews with the relevant personnel; this information together with a physical inspection allows the assessment team to confirm that the proposed MP is feasible within the project design. The major parameters to be monitored have been discussed with the PPs especially regarding the location of the meters, the data management, and in general the quality assurance and quality control procedures to be implemented in the context of the project.

All the audit evidences proving the appropriateness of monitoring provisions undertaken by the PPs were provided to the AIE and have been considered as sufficient. For details please refer to Annex 2 of this report.

Hence, it is expected that the PPs will be able to implement the monitoring plan and the emission reductions achieved can be reported ex-post and verified.

3.8 Local stakeholder consultation

Swedish DFP informed TÜV SÜD that in accordance with Swedish Law, it has to conduct a stakeholder consultation in order to gather the views of the public and relevant stakeholders on the specific project activity.

In the email from October 26, 2011 Ms. Marie Karlberg from the Swedish Energy Agency confirms that the publication of information regarding the stakeholder consultation through a local newspaper was carried out for this project along with sending out the project documents to the identified stakeholders. No comments were received during the duration of the consultation period (IRL48).

3.9 Environmental impacts

No contaminants are released during the operation of the project activity so no negative transboundary environmental impacts occur. The BREF (IRL 38) confirms this view by stating that catalytic N2O decomposition does not induce cross-media effects. TÜV SÜD assessment team remarks that the project has a strong positive environmental impact, since the primary object of the project is reduction of N2O emissions.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOs

TÜV SÜD published the project documents on TÜV SÜD's own website and invited comments by the Parties, stakeholders and non-governmental organisations during a period of 30 days.

The following table presents all key information on this process:

Webpage: http://www.netinform.net/KE/Wegweiser/Guide2_3.aspx?ID=6158&Ebene1_ID=26&Ebene2_ID=1988&mode=0	
Starting date of the global stakeholder consultation process: 2010-02-17	
Comment submitted by: Dr. Karsten Karschunke Federal Environment Agency German Emissions Trading Authority	**Issues raised:** ...reviewing preliminarily the PDD presented for public consultation at the TÜV-Süd-netinform Web Site under the JI Track 2 procedure, the following questions with respect to the baseline determination arise: Since Sweden is a member state of the European Union, the "Acquis Communautaire" should be reflected in the reference scenario of any proposed project activities according to Article 11b of the Emission Trading Directive (2003/87/EC). In the documents presented, we are missing an appropriate reflection of the IPPC-Directive (2008/1/EC). Nitric acid plants are listed in Annex I Nr. 4.2 b) of the IPPC-directive and nitrous oxide (N2O) is listed as an air pollutant in Annex III Nr. 2. Therefore according to article 9 of the IPPC-Directive, BAT based emission limit values should be set in the permit by the competent authority. The production of nitric acid is dealt with in detail in Chapter 3 of the BAT Reference Document "Large Volume Inorganic Chemicals - Ammonia, Acids, Fertilizers" (BREF LVIC-AAF), prepared by the European Integrated Pollution Prevention and Control Bureau (EIPPCB) of the European Commission. The technology to be used in the project is described in detail in chapter 3.4.6 of the BAT Reference document. It is classified as BAT and linked with emission level of 1.85 kg N2O / t HNO3 (100%) produced (table 3.14). As the application of BAT in existing plants is mandatory in Europe since October 2007, this should be the appropriate baseline for a JI project in the EU. Obviously, these developments have not been implemented yet in the plant's permit dated 1989. We kindly ask you to consult during your determination activities with the host country's authorities about the implementation of the IPPC directive in Sweden. An unjustified selection of a baseline may lead to a severe distortion of the market and the competition in Europe, especially with regard to member states which have implemented BAT without using JI or have opted-in voluntarily according to article 24 of the EU ETS directive (2003/87/EC) and apply an benchmark for the allocation of the EU allowances.
Response by TÜV SÜD: TÜV SÜD has contacted Swedish host country authorities. In June 2010 the plant received its new environmental permit. Hence, according to the Swedish Environmental Protection Agency - Implementation and Enforcement Department - Industry Unit – the plant has to fulfill BAT (according to this new permit) from 2013. Before 2013, there are no requirements to reduce N2O emissions (IRL 44, 45).	

Industrie Service

5 DETERMINATION OPINION

TÜV SÜD has performed a determination of the following proposed JI project activity:

"YARA Köping S2 N2O abatement project in Sweden"

Standard auditing techniques have been used for the determination of the project. A methodology-specific protocol for the project has been prepared to conduct the audit in a transparent and comprehensive manner.

The review of the project design documentation, subsequent follow-up interviews, and further verification references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In our opinion, the project meets all relevant UNFCCC requirements for the JI for approving projects under JI – Track 2. Hence, TÜV SÜD can recommend the project for registration under JI Track 2.

An analysis, as provided by the applied methodology, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The determination is based on the information made available to TÜV SÜD, as well as the engagement conditions detailed in this report. The determination has been performed following the JI requirements. The single purpose of this report is its use during the registration process as part of the JI Track 2 project cycle. TÜV SÜD cannot be held liable by any party for decisions made, or not made, based on the validation opinion beyond this purpose.

Munich, 28-10-2011

Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Munich, 28-10-2011

Assessment Team Leader

Industrie Service

Annex 1: Determination Protocol

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
A. General description of project activity				
A.1. Title of the project activity				
A.1.1. Does the used project title clearly enable identification of the unique JI activity?		The project title clearly enables the identification of the JI activity. "YARA Köping S2 N2O abatement project in Sweden". No second JI activity exists with a similar title or at the same site.	☑	☑
A.1.2. Are there any indication concerning the revision number and the date of the revision?		The date of the issuance of this revision is correctly indicated PDD dated January 25th, 2010. The revision number is 2.	☑	☑
A.1.3. Is this consistent with the time line of the project's history?	36	Yes, it is. The project proponents submitted on 12th October 2009 a Project Idea Note (PIN), to the Swedish DFP (Swedish Energy Agency) and requested a Letter of Endorsement (LoE). The DFP issued a LoE for the project on 11th November 2009.	☑	☑
A.2. Description of the project activity				
A.2.1. Is the description delivering a transparent overview of the project activities?		**Corrective Action Request 1.** According to PDD Guidelines Chapter A.2 of the PDD should contain a description on the purpose of the project with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description). Please provide more information especially on the project scenario, which includes the installation of secondary abatement catalyst at each of 6 existing AORs. Please also include information on the operation of the AOR´s. (Two parallel AORs, cycle of gauze change)	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		Additionally there are some inconsistencies in PDD (e.g. it is stated that abatement efficiency tend to be much lower while an abatement efficiency of 90% is assumed; or it is stated that the catalyst material has no influence on production level while on the next page it is described that there is a small reduction of nitric acid output.		
A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	37, 24, 25, 43, 05, 11, 06	1. Design capacity of the nitric acid plant **Clarification Request 1.** The PDD states that daily design capacity of Syra 2 nitric acid plant is 420 metric tons of HNO3 (100% conc.) per day. Clarification is requested as different information was gathered by the on-site audit team (e.g. UHDE, "Study concerning Improvement of Existing Nitric Acid Plant with Increase of Total Capacity by additional Investment." which shows 400 t/day HNO3 capacity.) 2. Commercial production start in 1982, **Clarification Request 2.** The PDD states that commercial production started in 1955. However, as observed by the audit team there was an extension of the plant by two AORs in 1969. This fact should be reflected in the general description of the plant. 3. Swedish requirements for the threshold emissions values of NOx for the nitric acid plant During communication with Swedish environmental authorities the audit team got informed that YARA AB is currently in a renewal process of the environmental permit. This was confirmed during	**CR** **CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		onsite audit. Several existing permits for each single plant should be replaced by one permit for the whole site. The plant proposed NOx threshold values to the authority and it expects this new permit during summer 2010. **Clarification Request 3.** During the on-site determination assessment team noticed that the Syra 2 plant is currently in the process of renewal of its operating permit and therefore applies for new NOx limit values. The proposed new NOx limit values subject to the approval by the responsible local environmental authority. Any new N2O limit values are not expected as per PPs statement. However, the plant has already to report the N2O emissions to the authority. Please include information on this regulation and plant´s compliance in the PDD. Clarification is also requested on whether the PPs is going to include the proposed however not yet approved NOx emission limits in PDD in order to lower the risk of a re-assessment of the baseline scenario which is requested according to the applied methodology in case of change of NOx emission regulations during crediting period. In case of inclusion the PPs are requested to modify the relevant sections in the PDD. 4. IPPC permit An IPPC report from March 2005 is available at the plant. 5. Annual reports for NOx and N2O The plant reports NOx and N2O emissions on monthly basis to the authority. The reported figures were inspected during onsite		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		audit. 6. Estimation of the future ERs- e.g. periodically N2O measurements with analyzer- hard proofs During onsite audit the installed N2O analyser was inspected which shows a value of 785 ppm. 7. Calculations of ERs Please refer also to Chapter A.4.3.2. 8. Investment agreement between the parties involved A JI MasterAgreement is available between the PPs. 9. Project Implementation Plan A project implementation plan was presented during onsite audit and provided to the audit team. 10. Is the line operational? The nitric acid plant was operational during onsite audit. DCS print screen was collected as evidence. 11. Contract with provider of AMS The AMS supplier is Dr Födisch. As evidence PPs provided a purchase order which was inspected by the onsite audit team. 12. Installation of AMS AMS was not installed during onsite audit. It´s installation was scheduled in April 2010 during plant shut down.		
A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD?		Yes, it is.	☑	☑
A.2.4. Is all information presented consistent with details provided by further chapters of the		Yes, all information presented is consistent with details provided by further chapters of the PDD.	CAR	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
PDD?		**Corrective Action Request 2.** Editorial improvements of the PDD shall be done. (table format in Chapter A.4.3.1. and E.6.) The PDD template shall not be altered. Baseline emissions have not been entitled as baseline emissions and the baseline scenario not as baseline scenario. Please correctly use the terms baseline scenario and baseline emissions, in doing so please refer to the Glossary of JI terms v. 02. Please improve table 4 in Chapter B.3. Additionally correct number of tables, as the PDD contains another table 4 in Chapter E.1.		
A.3. Project participants and project approvals by Parties involved				
A.3.1. Is the form required for the indication of project participants correctly applied?		Yes, the form is correctly applied.	☑	☑
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	3	Following PPs are identified in this project: YARA AB (Sweden), YARA International ASA, Oslo (Norway), N.serve Environmental Services GmbH (Germany) An agreement between N.serve Environmental Services GmbH (Germany) and YARA International ASA was provided to the audit team.	☑	☑
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?		Yes, the information on PPs is consistent throughout the PDD and Annex 1.	☑	☑
A.3.4. Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through:	36	The project proponents submitted on 12th October 2009 a Project Idea Note (PIN), to the Swedish DFP (Swedish Energy Agency) and requested a Letter of Endorsement (LoE). The DFP issued a LoE for the project on 11th November 2009.	**CR10**	**CR**

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
- A written project approval by a Party involved, explicitly indicating the name of the legal entity? Or - Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?		Letters of Approval from the host and investment parties will be applied for after the determination of the project will be finalized. It is required to submit Letter of Approvals from the host and investment (if applicable) parties before the submission of the final determination report to the JISC for registration of the particular project (refer to CR10).		
A.3.5. Have the DFPs of all parties listed as involved in the PDD provided written project approvals?		Please refer to CR10 (A.3.4.).	**CR10**	**CR**
A.3.6. Does the PDD identify at least the host Party as a "Party involved"?		Yes, the host party- Sweden- is identified in the PDD.	☑	☑
A.3.7. Has the DFP of the host Party issued a written project approval?		Please refer to CR10 (A.3.4.).	**CR10**	**CR**
A.3.8. Are all the written project approvals by Parties involved unconditional?		Please refer to CR10 (A.3.4.).	**CR10**	**CR**
A.4. Technical description of the project activity				
A.4.1. **Location of the project activity**				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?		Yes, it does. The information provided on the location of the project activity allows for a clear identification of the site.	☑	☑
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?		The N.serve Environmental Services GmbH (Germany) and YARA International ASA have already gained experience in implementing secondary N2O abatement projects at YARA plants also in respect of JI. Efficient evidence was provided that YARA AB is the owner of the Syra 2 nitric acid plant.	☑	☑
A.4.2. **Technology(ies) to be employed, or measures, operations or actions to be implemented by the project activity**				

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
A.4.2.1. Does the technical design of the project activity reflect current good practices?	1, 2	Yes, it does.	☑	☑
A.4.2.2. Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	03, 38, 15	Yes, it does. The project activity aims to reduce the amount of N2O emitted by catalytically decomposing the N2O produced in the undesired side reaction during ammonia oxidation. PPs provided a letter from catalyst supplier regarding the installation of Yara N2O abatement catalyst in Syra 2 confirming an guaranteed abatement of 80% and an expected abatement of >93% at full load. The composition of catalyst material is the same as the standard material of catalyst system Yara 58-Y1 for medium pressure plants. The description of the technology to be applied provides sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance. EIA is not required according to the PP. The BREF (August 2007, p. 123) confirms that secondary N2O decomposition does not have any cross- media effects. Please refer to section F. of this protocol **Clarification Request 4.** Clarification is requested as the PDD states the material of the catalyst used in Syra 2 is with the same material as the Y8-51, while a letter from catalyst supplier states that the composition of catalyst material is the same as the standard material of catalyst system Yara 58-Y1.	**CR**	☑
A.4.2.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(s)?	3	Yes, the implementation of the project activity requires technology transfer from annex-I-countries and includes secondary catalyst system and monitoring equipment.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
A.4.2.4. Is the technology implemented by the project activity environmentally safe?	03, 10	Yes, it is. The additional catalyst is made of non- precious metals and does not create significant negative environmental effect directly or indirectly. Obsolete catalyst is to be recycled. PPs provide safety data sheet of 58-Y1 N2O abatement catalyst. As confirmed by catalyst supplier the same material is used as for standard Yara 58-Y1 but with modified shape.	☑	☑
A.4.2.5. Is the information provided in compliance with actual situation or planning?		Yes it is.	☑	☑
A.4.2.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?		Yes, it is a state of art technology providing significant N_2O emission reduction.	☑	☑
A.4.2.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?		Not planned currently; however if any significantly more efficient secondary technology is introduced within the project period it's possible for it to be applied to the project.	☑	☑
A.4.2.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?		Yes, it does. Every need for training and maintenance efforts will be followed. Extensive training is required in the context of monitoring.	☑	☑
A.4.2.9. Is information available on the demand and requirements for training and maintenance?	31, 32	Standards will be ensured by thorough and regularly repeated training sessions for the YARA employees involved. Training on the AMS was already conducted by AMS supplier Dr. Födisch.	☑	☑
A.4.2.10. Is a schedule available for the implementation of the project and are there any risks for delays?	6	An implementation schedule was provided by the PPs. The schedule was found to be realistic.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
A.4.3. **Brief Explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reduction would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances**				
A.4.3.1. Is there a brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reduction would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances?		Yes, a brief explanation on how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project is presented in the PDD.	☑	☑
A.4.3.2. Is the explanation transparent, feasible and – if based on calculations – mathematical correct calculated?		Yes, it is. The explanations are transparent and feasible. **Clarification Request 5.** PPs are requested to provide calculation of ERs (Excel Sheet) to the audit team.	**CR**	☑
A.4.4. **Estimated amount of emission reductions over the chosen crediting period**				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?		Please refer to CAR (A.2.4).	**CAR**	
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?		All figures which are presented in the PDD are consistent with other data. See finding under A.4.3.2.	☑	☑
A.4.4.3. Is the annual average of estimated emission reductions calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve?		Yes, the annual average of estimated emission reductions presented in the PDD is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
B. Baseline				
B.1. Description and justification of the baseline chosen				
B.1.1. Does the PDD explicitly indicate which of the following approaches is used for indentifying the baseline? - JI specific approach - Approved CDM methodology approach		During onsite visit the methodological approach was discussed. The published PDD states that the project apply AM0034 version 3.4. However during the on-site visit assessment team noticed several deviations from the methodology due to plant design, e.g. the nitric acid plant consists of one production line equipped with several AORs and several absorption columns. Consequently the applicability of AM0034 version 3.4 is not fully given as continuous real-time measurements of N2O concentration and total gas volume flow cannot be carried out in the stack prior to the installation of the secondary catalyst for one campaign. Additionally the nitric acid production cannot be measured for each single AOR. Therefore the campaign cannot be defined as per methodology applied; furthermore campaign length cannot be determined for each single AOR. PPs indicated during onsite audit that they want to apply a JI specific approach, as section of baseline emission determination should be modified compared to approved CDM methodology. **Corrective Action Request 3.** JI provides the possibility to apply a JI specific approach for baseline setting and monitoring. The PDD needs to be modified in compliance with GUIDANCE ON CRITERIA FOR BASELINE SETTING AND MONITORING Version 02 and the baseline and monitoring approach needs to be clearly described and justified in the PDD. The above mentioned guidance on criteria for baseline setting and monitoring shall be applied to all projects that apply a JI-specific approach, including projects that use selected elements or combinations of approved CDM baseline and monitoring	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		methodologies or approved CDM methodological tools. In Chapter D.1 the PDD states that ERUs will be monitored with AM0034 ver 3.04. This is not correct as PPs intend to apply a JI specific approach using parts of approved methodologies. Please improve and include all methodologies that are party used in the project specific approach.		
B.1.2. If JI specific approach is used, does the PDD provide a detailed theoretical description and justification of the baseline chosen in a complete and transparent manner taking into account §23 of DVM v.1?		Yes, the PDD provides a detailed theoretical description and justification of the baseline chosen in complete and transparent manner taking into account the DVM requirements. The identification of the baseline scenario was conducted acc. to AM0028 as suggested by the AM0034 v. 03.4.	☑	☑
B.1.3. If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements supplementary developed by the project proponents in line with §23 of DVM v.1?		See CAR in B.1.1.	**CAR**	☑
B.1.4. Does the PDD provide a justification of the applicability of the methodological approach chosen with a clear and transparent description?		Yes, the PDD provides a justification of the applicability of the methodological approach chosen. Please refer to sections B.1.12. - B.1.19. below in this checklist.		
Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)				
B.1.5. Is there any indication of a date when the baseline was determined?		Not applicable. Please refer to finding under B.1.1. According to the final PDD baseline campaign will not be conducted (JI specific approach).	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
B.1.6. Is this consistent with the time line of the PDD history?		Not applicable. See B.1.5 above.	☑	☑
B.1.7. Is the information on the person(s) / entity (ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?		Yes, it is. The information is consistent with the actual situation.	☑	☑
B.1.8. Is information provided whether this person / entity is also considered a project participant?		Yes it is. N.serve Environmental Services GmbH (Germany) is PP in this project.	☑	☑
Approved CDM methodology : justification of the choice of the methodology and why it is applicable to the project activity				
B.1.9. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?		N/A	☑	☑
B.1.10. Is the applied version the most recent one and / or is this version still applicable (within the grace period) when the PDD is submitted for publication?		N/A	☑	☑
B.1.11. Does the PDD provide a description of why the approved CDM methodology is applicable to the project?		N/A	☑	☑
Integrate the required amount of sub-checklists on **the applicability criteria** as given by the applied methodology and comment on at least every line answered with “No”;				
B.1.12. Criterion 1: The applicability is limited to the existing production capacity measured in tonnes of nitric acid, where the commercial production had began no later than 31 December 2005. Defi-		Applicability checklist / Yes / No Criterion discussed in the PDD? / Yes Compliance provable? /	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
nition of "existing" production capacity is applied for the process with the existing ammonia oxidization reactor where N2O is generated and not for the process with new ammonia oxidizer. Existing production "capacity" is defined as the designed capacity, measured in tons of nitric acid per year.		Compliance verified? See finding under B.1.1. The commercial production had begun no later than 31 December 2005. See finding under A.2.2. **Corrective Action Request 4.** The applicability of the methodology is limited to the existing production capacity measured in tonnes of nitric acid, where the commercial production had began no later than 31 December 2005. Definition of existing production capacity is applied for the process with the existing ammonia oxidization reactor where N2O is generated and not for the process with new ammonia oxidizer. Existing production capacity is defined as the designed capacity, measured in tons of nitric acid per year. The discussion on this criterion in section B.1. of the PDD must include project specific information. The annual cap in tHNO3 has to be defined and explicitly stated in the PDD. Appropriate evidence has to be provided to the audit team. Please substantiate the number of operating days and provide more details on how this figure has been defined in the PDD. Evidences should be provided.		
B.1.13. Criterion 2: The project activity will not result in the shutdown of any existing N2O destruction or abatement facility or equipment in the plant.		Applicability checklist / Yes / No Criterion discussed in the PDD? / Yes Compliance provable? / Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
		Compliance verified? — Yes		
B.1.14. Criterion 3: The project activity shall not affect the level of nitric acid production		Applicability checklist — Yes / No Criterion discussed in the PDD? — Yes Compliance provable? — Yes Compliance verified? — Yes Due the catalyst installation in the AOR a pressure drop may occur. However, this will have a minor effect on the nitric acid production level.	☑	☑
B.1.15. Criterion 4: There are currently no regulatory requirements or incentives to reduce levels of N2O emissions from nitric acid plants in the host country.	37 44 45	Applicability checklist — Yes / No Criterion discussed in the PDD? — Yes Compliance provable? — Yes Compliance verified? — Yes The audit team contacted Swedish Environmental Protection Agency which confirmed that companies have only to report N2O emissions exceeding 10 000 kg N2O per year. In June 2010 a new environmental permit was issued hence according to swedish environmental protection agency it is stated (in summary) that Yara has to: “undertake to fulfil BAT for Syra 3, and as far as there is BAT for atmospheric plants at that time, also fulfil BAT for Syra 2, both year 2013.	**CAR**	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td><u>Corrective Action Request 5.</u>
A new environmental permit No M 481-09, dated 17th June 2010 was issued by the Swedish environmental authorities to the plant. According to SWEDISH ENVIRONMENTAL PROTECTION AGENCY (Email from EPA on 28.06.10) it is stated in the permit that Yara has to complete the measures which were undertaken during the permit process. Yara did undertake some improve-ments for Syra 2, which means that there is a requirement in the permit on N2O, although it is not stated as a “limit value”.
The PDD must be revised by addressing the requirements of the new permit. It is requested to update the description of the legal situation and the baseline identification section and to revise the ERs estimation if necessary.</td><td></td><td></td></tr>
<tr><td>B.1.16. Criterion 5:
The project activity will not increase NOx emissions.</td><td>3</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.17. Criterion 6:
NOx abatement catalyst installed, if any, prior to the start of the project activity is not a Non-Selective Catalytic Reduction (NSCR) DeNOx unit.</td><td>21</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>PPs provided evidence on the type of existing NOx abatement catalyst which is a SCR DeNOx unit.</td><td>☑</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>B.1.18. Criterion 7:
Operation of the secondary N2O abatement catalyst installed under the project activity does not lead to any process emissions of greenhouse gases, directly or indirectly.</td><td>38</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>There is no further impact on greenhouse gas emissions by this kind of technology.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.1.19. Criterion 8:
Continuous real-time measurements of N2O concentration and total gas volume flow can be carried out in the stack:
- Prior to 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</td><td></td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>See B.1.1</td><td>CAR</td><td>☑</td></tr>
<tr><td colspan="5">The baseline scenario shall be identified using procedure for Identification of the baseline scenario described in the approved methodology AM0028 “Catalytic N_2O destruction in the tail gas of Nitric Acid Plants” version 05.</td></tr>
<tr><td>B.1.20. Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?</td><td></td><td>As mentioned above this project activity is based on the selected elements of the approved CDM methodology AM0034 v.03.4 and AM0028 v.4.2. The identification of the baseline scenario therefore was conducted according to the baseline identification procedure described in the AM0028 v. 4. Hence following checklist’s</td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		questions are also relevant for this project. Furthermore the procedure is also based on "Combined Tool to identify the baseline scenario and demonstrate additionality" (Version 02.2).		
B.1.21. Have all technically feasible baseline scenario alternatives (at least all scenarios listed under step 1a in AM0028, vers.5) to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete?		Yes, all technically feasible baseline scenario alternatives been identified and discussed in the PDD. The list can be considered as being complete because all options available from known methodologies have been reviewed.	☑	☑
B.1.22. Have all technically feasible alternatives (at least all scenarios listed under step 1b in AM0028, vers.4.2) to handle NOx emissions been identified and discussed by the PDD?		Step 1b of AM0028, ver. 4.2. is discussed in PDD in Chapter B.1. under Step 1.4: According to AM0028 applied for baseline identification, following options need to be discussed. • The continuation of the current situation, where either a DeNOx-unit is installed or not; • Installation of a new Selective Catalytic Reduction (SCR) DeNOx unit; • Installation of a new Non-Selective Catalytic Reduction (NSCR) DeNOx unit; • Installation of a new tertiary measure that combines NOX and N2O emission reduction. **Corrective Action Request 6.** It is required that all possible options that are technically feasible to handle NOx emissions should be considered. Section 1.4 does not include all options listed in CDM methodology applied. At least reference to other sections needs to be given, if the discussion is done in another part of the PDD.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
B.1.23. Does the project identify correctly and exclude those options not in line with regulatory or legal requirements (Step 2)?		Yes, it does. However see CAR in B.1.22 above.	CAR	☑
B.1.24. Have applicable regulatory or legal requirements been identified?	26, 25 44 45	The existing regulation in Sweden does not require implementation of any technologies for N_2O abatement until 2012. From 2013 ongoing the plant has to comply with BAT. NOX-emissions are regulated by an operational permit for the YARA Köping S2 plant. According to the relevant Environmental permit ('BESLUT nr 72/89', dated 8th June 1989), the permitted level since 1994 is 200ppm. According to readings taken with the Rosemount Gaslog analyser during 2008 and 200927, the plant is in compliance with these requirements. The measurements during this period show an average concentration of 128ppm. Figures of reported NOx emissions have been provided to the audit team. Please refer to Finding stated under A.2.2.	☑	☑
B.1.25. Is a complete list of barriers developed that prevent alternatives to occur (step 3a)?		Yes, it does. A complete list of barriers was developed.	☑	☑
B.1.26. Is transparent and documented evidence provided on the existence and significance of these barriers?	43	Yes, it does. The existence and significance of these barriers is discussed in the PDD in transparent manner as it is obvious that the installation of the secondary catalyst and AMS is related to significant investment costs.	☑	☑
B.1.27. Is it transparently shown that at least one of the alternatives (except the proposed JI project activity) is not prevented by the identified barriers (step 3b)?		Yes, it is. Continuation of the status quo (absence of any N2O reduction technology) is the only baseline scenario not prevented by the identified barriers.	☑	☑
B.1.28. Does the PDD include an appropriate		Yes, it does.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
discussion if and how any alternatives generate financial or economic benefits (step 4)?		There is an appropriate discussion on this question. It can be concluded that no alternatives would generate financial or economic benefits.		
B.1.29. In case of Option I: Is the least costly alternative clearly identified?		The continuation of of the status quo is clearly identified as the least costly option.	☑	☑
B.1.30. In case of Option II: Is the most suitable financial indicator clearly identified?		N/A	☑	☑
B.1.31. In case of Option II: Is the calculation of financial figures for this indicator correctly done for all remaining alternatives?		N/A	☑	☑
B.1.32. In case of Option II: Is the investment analysis presented in a transparent manner providing public available proofs for data?		N/A	☑	☑
B.1.33. In case of Option II: Is the sensitivity analysis evidencing the robustness of the financial attractiveness of the selected baseline scenario?		N/A	☑	☑
B.1.34. In case of Option II: Have reasonable variations been applied in critical assumptions?		N/A	☑	☑
B.1.35. In case of a re-assessment in the course of the project's lifetime: Are there any new or modified NOx-emission regulations, which may address the project baseline?		The plant is expecting a new environmental permit including new or modified NOx regulations. **Corrective Action Request 7.** The PDD does not include any discussion on the sub steps 5a and b of AM0028. Please include a discussion on that issue in order to comply with methodological requirements. The procedure included in PDD in Step 5 should not deviate from	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		methodology without any reasonable explanation.		
B.1.36. In case of a re-assessment in the course of the project's lifetime: Have new base-line scenarios been properly discussed reflecting the altered situation?		N/A	☑	☑
B.1.37. In case of a re-assessment in the course of the project's lifetime: Are there any new or modified N2O-emission regulations, which may address the project baseline?		N/A	☑	☑
B.1.38. In case of a re-assessment in the course of the project's lifetime: Have new base-line scenarios been properly discussed reflecting the altered situation?		N/A	☑	☑
B.1.39. Is the baseline identified appropriately as a result?		**Clarification Request 6.** Please provide a transparent description of the baseline scenario over crediting time in the PDD.	CR	☑
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project (assessment and demonstration of additionality):				
B.2.1. Does the PDD indicate which of the following approaches for demonstrating additionality is used? a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to ERs; b) Provision of traceable and transparent informa-		The additionality of the project activity is demonstrated and assessed using the "Tool for demonstration and assessment of additionality" version 5.1.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
tion that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality" or any other method for proving additionality approved by the CDM Executive Board.				
B.2.2. Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?		Yes, it does. Furthermore the AM0034, which elements have been applied in this project activity, requires using the additionality tool for additionality assessment and demonstration.	☑	☑
B.2.3. If the approach (c) was chosen (additionality tool), are all explanations, descriptions and analyses made in accordance with the selected tool/method?		Because of the similarity of both approaches used to determine the baseline scenario and the additionality tool, Step 1 of the "Tool for the demonstration and assessment of additionality" was omitted while assessing the additionality. Consistency was ensured between the determination of the baseline scenario and the demonstration of additionality. Furthermore acc. to AM0034 the baseline scenario alternative selected in the previous section shall be used when applying Steps 2 to 5 of the "Tool for the demonstration and assessment of additionality".	☑	☑
B.2.4. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately (step 2a)?		As in chapter B.2 the investment analysis has been selected as the appropriate choice of possible methods.	☑	☑
B.2.5. In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than JI income?		It is clearly shown that there is no economical benefit by the reduction of N_2O concentration other than the JI revenues.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
B.2.6. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?		Not applicable as the installation of a secondary catalyst in the absence of the JI is less financially attractive than the status quo.	☑	☑
B.2.7. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)?		N/A	☑	☑
B.2.8. In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives and the project activity?		N/A	☑	☑
B.2.9. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?		N/A	☑	☑
B.2.10. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?		N/A	☑	☑
B.2.11. In case of applying step 3 (barrier analysis): Is transparent and documented evidence provided on the existence and significance of these barriers?		N/A	☑	☑
B.2.12. In case of applying step 3 (barrier analysis): Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?		N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
B.2.13. Have other activities in the host country / region similar to the project activity been identified and are these activities appropriately analyzed by the PDD ?		No similar project activity has been identified in the host country. N2O abatement technologies at atmospheric nitric acid are very rare.	☑	☑
B.2.14. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM component (step 4b)?		Please refer to B.2.13.	☑	☑
B.2.15. Is it appropriately explained how the approval of the project activity will help to overcome the economic and financial hurdles or other identified barriers (step 5)?		As there is no other incentive than the JI this criterion is fulfilled.	☑	☑
B.2.16. Are sufficient additionality proofs provided?		Yes, sufficient proofs have been provided to justify the simple const analysis conducted in order to demonstrate additionality.	☑	☑
B.2.17. Is the additionality demonstrated appropriately as a result?		Yes, additionality was demonstrated appropriately as a result.	☑	☑
B.3. Description of how the definition of the project boundary is applied to the project				
Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with “No”				
B.3.1. If the JI specific approach is used: Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: a) Under the control of the project participants? b) Reasonably attributable to the project?		<table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Is a definition of the boundary based on case-by-case assessment acc. to §32 (a) of DVM?</td><td>Yes</td></tr></table>	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
c) Significant?		Is the delineation of the boundary described by using a figure/flow chart? — Yes Inclusion / exclusion justified? — Yes Explanation / Justification sufficient? — Yes Consistency with monitoring plan? — Yes		
B.3.2. If the approved CDM methodology is used: Is the project boundary defined in accordance with the approved CDM methodology?		N/A	☑	☑
B.3.3. Source: Waste stream exiting the stack of the Nitric Acid plant (Burner inlet to stack) Gas(es): N2O Type: Baseline Emissions and Project Emissions	1, 2, 21	Boundary checklist — Yes / No Source and gas(es) discussed in the PDD? — Yes Inclusion / exclusion justified? — Yes Explanation / Justification sufficient? — Yes Consistency with monitoring plan? — Yes	☑	☑
B.3.4. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD (plant specific flow diagram)?		The project boundary entails all parts of the nitric acid plant in so far as they are needed for the nitric acid production process itself. With regard to the process sequence, the project boundary begins at the ammonia burner inlets and ends at the tail gas stack A project flow chart is included in the PDD.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline:				
B.4.1. Are the name(s) of the person(s)/entity(ies) whom setting the baseline available?		**Corrective Action Request 8.** Section B.4 refers only to preliminary baseline emissions factor, which has been calculated by Mrs Rebecca Cardani-Strange of N.serve Environmental Services GmbH on the 9th December 2009. Please state the name(s) of the person(s)/entity(ies) who sets the baseline scenario defined under B.1. of the PDD.	CAR	☑
B.4.2. Is the date of baseline setting available?		**Corrective Action Request 9.** The baseline was identified in the PDD in section B.1. Please provide date of baseline setting (DD/MM/YYYY) in section B.4. as required by the GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM	CAR	☑
C. Duration of the project activity / crediting period				
C.1. Starting date of the project:				
C.1.1. Is the project's starting date clearly defined in the PDD and reasonable?		**Clarification Request 7.** The project's starting date is not unambiguously stated. Project starting date should be clearly identified in section C.1. Project starting date is defined as "… the date on which the implementation or construction or real action of the project begins…", refer to the Glossary of JI terms v. 1 JISC 13	CR	☑
C.1.2. Is the starting date of the project after the beginning of 2000?		Yes, the project started after the beginning of 2000. However see CR in C.1.1 above.	CR	☑
C.2. Expected operational lifetime of the project:				
C.2.1. Is the expected operational lifetime of the project clearly defined in the PDD in years		The lifetime of the secondary catalyst is expected to be 3 years. Replacement of the catalyst will be done if crediting period of the	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
and months and reasonable?		JI project exceeded the 2012.		
C.3. Length of the crediting period:				
C.3.1. Is the assumed crediting period clearly defined in the PDD in years and months and reasonable?		**Corrective Action Request 10.** PP´s should mention the crediting period on the basis of existing regulations in Chapter C.3. Additionally they can include the statement for applying to a crediting period of 10 years as the end of the crediting period can be after 2012 if the relevant additional host country approval will be available (acc. to JI Glossary). The status of ERs generated by the project after the end of the fist commitment period may be then determined by any relevant agreement under the UNFCCC.	**CAR**	☑
C.3.2. Is the starting date of the crediting period on or after the date of the first emission reductions generated by the project?		See CAR in C.3.1 above.	**CAR**	☑
C.3.3. Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and doesn't extend beyond the operational lifetime of the project?		See CAR in C.3.1 above.	**CAR**	☑
C.3.4. If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of ERs presented separately for those until 2012 and those after 2012?		See CAR in C.3.1 above.	**CAR**	☑
D. Monitoring plan				
D.1. Description of monitoring plan chosen:				
D.1.1. Does the PDD explicitly indicate which		The first version of the PDD mentions the approved CDM methodology AM0034 v. 03.4 to be used as a basis for this project activ-	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
of the following approaches is used? - JI specific approach - Approved CDM methodology approach		ity. AM0034 is solely addressing the destruction of nitrous oxide by secondary measures. Hence it is considered that AM0034 is the appropriate choice for this project activity fitting to the baseline and project scenario of this project. Nevertheless it is not directly applicable due to various distinctions between the assumptions of the methodology and the real situation at Yara S2 plant. Therefore please refer to CAR in section B.1.1 of this checklist.		
D.1.2. If the monitoring plan indicates overlapping monitoring periods during the crediting period, is the underlying project composed of clearly identifiable components for which emission reductions can be calculated independently?		The PDD does not indicate any overlapping of the monitoring period.	☑	☑
D.1.3. If the monitoring plan indicates overlapping monitoring period during the crediting period, can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)?		N/A, see D.1.2.	☑	☑
D.1.4. If the monitoring plan indicates overlapping monitoring periods during the crediting period, does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met?		N/A, see D.1.2.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
D.1.5. If the monitoring plan indicates overlapping monitoring period during the crediting period, does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned above are met?		N/A, see D.1.2.	☑	☑
D.1.6. Is the uncertainty of key parameters described and, where possible, is in uncertainty range at 95% confidence level for key parameters for the calculation of ERs provided?		Please refer to CAR in section B.1.1 of this checklist.	**CAR**	☑
D.1.7. Does the monitoring plan identify a national or international monitoring standard incl. a reference to its detailed description, if such applied to the project?		Yes, the monitoring plan identifies all applicable national and international monitoring standards (section D and Annex 3 of the PDD).	☑	☑
D.1.8. Are the statistical techniques used in a conservative manner?		The statistical techniques used follow the approved CDM methodologies AM0034 v.03.4 and AM0028 v.4.2.	☑	☑
D.1.9. Does the monitoring plan present the QA/QC procedures for the monitoring process (e.g. QA for AMS acc. to EN14181)?		On the day of on-site audit the AMS has not been installed yet. Operation, maintenance and calibration intervals are being carried out by staff from the instrument department according to the vendor's specifications and under the guidance of internationally relevant environmental standards, in particular EN 14181 (2004). **Clarification Request 8.** Please provide QAL 1 certificates for Dr, Födisch N2O analyzer and flow meter installed. **Forward Action Requests 01**: QAL1 certificate for analyser have to be available at 1st verifica-	**CR**	**FAR**

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
		tion.		
D.1.10. Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?		Yes, the monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities	☑	☑
D.1.11. Is the inclusion of external accredited services providers for calibration and function tests foreseen in the planning of the project?		The inclusion of external accredited services providers for calibration and function tests according to the EN14181 is foreseen in the planning of the project. The monitoring equipment used to derive the N2O emissions data for this project will be made part of the ISO 9001 procedures.	☑	☑
D.1.12. Are the specific performance characteristics of the monitoring system chosen by the project listed in the PDD		The specific performance characteristics of the monitoring system chosen by the PPs are listed in the PDD. From the next plant shutdown in spring 2010, YARA Köping S2 plant will be equipped with an EN-14181 compliant state-of-the-art AMS consisting of a Dr. Födisch MCA 04 Continuous Emissions Analyser, a sample probe, heated filter and heated sample-line connected directly to the analyzer, and a Dr. Födisch FMD 99 Stack Gas Flow meter. Operation, maintenance and calibration intervals are being carried out by staff from the instrument department according to the vendor's specifications and under the guidance of internationally relevant environmental standards, in particular EN 14181 (2004). However see D.1.9.	**CR**	**FAR**
D.1.13. Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type?		Yes, the monitoring plan provides current good monitoring practice. However please also refer to CARs (B.1.1.).	**CAR**	☑
D.1.14. Does the monitoring plan provide, in tabular form, a complete compilation of the data to be collected for its application incl. data that are measured / sampled and data col-		Yes the monitoring plan provided the relevant data in tabular form (section D of the PDD), however please refer to the CARs below: **Corrective Action Request 11.** The list of monitoring parameters does not address the real moni-	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
lected from other sources, but not including data that are calculated with equations?		toring situation on-site as there are several AORs with several instruments. E.g. As there are six AORs the gauze composition have to be monitored for each of them. Additionally clarification is requested on the measurement of HNO3, which is described as coriolis flow measurement in the PDD. However, during onsite audit information was gathered that it is a differential pressure instrument.		
D.1.15. Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?		Yes, the monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.	☑	☑
JI specific approach *(project specific methodology or selected elements or combinations of approved CDM methodologies or methodological tools)*				
D.1.16. Does the monitoring plan describe all relevant factors/ key characteristics to be monitored, all decisive factors for the control and reporting of project performance and the period in which they will be monitored?		Yes, the monitoring plan describes all relevant factors/ key characteristics to be monitored, all decisive factors for the control and reporting of project performance and the period in which they will be monitored. However please refer to the CAR in B.1.1 and D.1.14.	**CAR**	☑
D.1.17. If default values are used: - Are accuracy and reasonableness carefully balanced in their selection? - Do the default values originate from recognized sources? - Are the default values supported by statistical analyses providing reasonable confidence levels? - Are the default values presented in a transparent manner?		Initially no default values were applied in this project. Therefore assessment team requested some additional information regarding the project specific approach as several inconsistencies have been noticed during the on-site determination (CAR in B.1.1.). The PPs then elaborated the project specific methodology based on the selected elements of AM0034 v.03.4 and AM0028 v.4.2. In doing so they are applying a default value (4,5 kg N2O/ tHNO3. Source: 2006 IPCC Guidelines for National Greenhouse Gas Inventories, the specified value if 5 kg N2O/ tHNO3, but there is 10% variability which was deducted) for the baseline emission	**CR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		factor. This is eligible in case factual baseline emissions are higher than the default value applied. Please refer to CR in D.2.1. Furthermore the methodology applied requires a parameter EFreg to be monitored throughout the crediting period. Since the value of this parameter is/ will be set by the host country, it will be another possible default value which can be applied during the project duration. The final PDD demonstrates clearly and transparently the provisions for any default values which can eventually be applied during the crediting period.		
D.1.18. For those default values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?		The PDD clearly specify EFreg- emissions level set by incoming policies or regulations- to be monitored continuously monitored throughout the crediting period.	☑	☑
D.1.19. For other default values: - Does the monitoring plan clearly indicate the precise references from which these values are taken? - Is the conservativeness of the values provided justified?		N/A	☑	☑
D.1.20. For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?		Yes, the PDD describes procedures to be followed if the monitoring data are unavailable.	☑	☑
D.1.21. Does the monitoring plan draw on the list of standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring”?		Yes, it does.	☑	☑
D.1.22. Does the monitoring plan explicitly and		Yes, it does. The monitoring plan explicitly and clearly distin-	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
clearly distinguish: a) Data and parameters that are not monitored throughout the crediting period, but are determined only once and thus remain fixed throughout the crediting period, and that are available already at the stage of determination? b) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? c) Data and parameters that are monitored throughout the crediting period?		guishes such data and parameter as required by the AM0034 v.03.4 which elements have been applied.		
D.1.23. Does the monitoring plan describe the methods employed for data monitoring (incl. its frequency) and recording?		Yes, the monitoring plan describes the monitoring methods, frequency and recording in complete manner. However pls. see CAR in B.1.1 and further issues below.	**CAR**	☑
D.1.24. Is information on the margins of errors and the cumulative error for the complete measurement system provided in the PDD?		The AMS has not been installed yet. Uncertainty level of measurement system is stated as “low” in section D.2. in PDD. QAL 2 report shall be available at verification and the level of uncertainty has to be check by the verifier.	☑	☑
D.1.25. Are the requirements on the treatment of downtime of the AMS clearly reflected in the envisioned calculation routines?		The PDD published states in case of malfunction of the AMS during the baseline campaign, either the conservative IPCC default factor of 4.5kg N2O/tHNO3 or the last valid measured value (whichever is the lowest) will be applied for calculating the baseline emissions factor. In the case of malfunction of the AMS during	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		the project campaigns, the highest measured value in the campaign will be applied for calculating the campaign emissions factor. However, please refer to finding stated under B.1.1. AMS downtime is only relevant for project emissions. Baseline emissions are determined with default value. Treatment of downtime of the AMS is clearly reflected as it is stated in final PDD that, in the case of a period of AMS downtime that constitutes a malfunction of the AMS, the missing data from the relevant hour should be replaced with either a) the highest value measured during the whole of the relevant verification period or b) the highest value measured during the whole of the previous complete verification period, whichever is the higher. The assessment should be based on values measured during periods of standard AMS operation and recording after elimination of mavericks. This replacement of missing data will be done on the basis of hourly average values. AMS downtime is only relevant for project emissions. Baseline emissions are determined with default value.		
D.1.26. Is the monitoring plan established appropriately as a result?		Yes, the monitoring plan is established appropriately. However please refer to CAR in B.1.1.	**CAR**	☑
Approved CDM methodology approach				
D.1.27. Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with referenced approved CDM methodology?		N/A	☑	☑
D.1.28. Is it explained how the procedures provided in the methodology are applied by the		N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
proposed project activity?				
D.1.29. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?		N/A	☑	☑
D.1.30. Is the operational and management structure clearly described and in compliance with the envisioned situation?		N/A	☑	☑
D.1.31. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?		N/A	☑	☑
D.1.32. Has the monitoring system installed using the European Norm 14181 (2004)?		N/A	☑	☑
D.1.33. Will the three quality assurance levels been met by the planned Automated Measuring System (AMS) according to the EN14181?		N/A	☑	☑
D.1.34. Are the specific performance characteristics of the monitoring system chosen by the project listed in the PDD?		N/A	☑	☑
D.1.35. Is information on the margins of errors and the cumulative error for the complete measurement system provided in the PDD?		N/A	☑	☑
D.1.36. Are the requirements on the treatment of downtime of the AMS clearly reflected in the envisioned calculation routines?		N/A	☑	☑
D.1.37. Is the monitoring plan established appropriately as a result?		N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
D.2. Data and parameters not monitored- determination of the permitted ranges for the operating parameters				
D.2.1. Does the PDD explicitly indicate which of following sources were used for determination of the permitted ranges for the operating parameters: (a) Historical data from the immediately previous five campaigns. (or fewer, if the plant has not been operating for five campaigns). (b) If no data on historical data is available, the range stipulated in the operating manual for the existing equipment; or (c) If no operating manual is available or the operating manual gives insufficient information, from an appropriate technical literature source?		Initially the PPs were going to establish permitted operating ranges using the available historical data of the plant. However at the on-site determination the audit team noticed several deviations from the approved CDM methodology AM0034 applied in the first PDD version. Therefore a CAR was issued with a request for clear and transparent presentation of the methodological approach (see B.1.1). In the final PDD the PPs described the project specific methodological approach where no baseline campaign is measured, but the conservative IPCC default value is used in order to set the baseline emission factor. The final PDD states that in this case there is no possibility for any manipulation of the baseline emissions and therefore no permitted rage of operational parameters is established. It is eligible if IPCC default value applied to the baseline emission factor is lower than factual emission factor. **Clarification Request 9.** PPs intend to use IPCC default value as baseline emission factor. This is eligible if factual emissions are higher than the default value. PPs altered factual emissions of the plant in the revised PDD. Clarification is requested on why measurements taken from October 2006 to October 2007 are not considered. In any case evidence (+ raw data) on the factual emission factor must be provided to DOE in a complete and transparent manner. Moreover, EN ISO/IEC 17025 accredited testing laboratory shall confirm N2O emission factor. Measurements shall be done when new gauzes are installed in at least one AOR-set to consider low N2O emissions with new gauzes. Furthermore evidence on uncertainty	**CAR CR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		of measurement device has to be provided and this uncertainty has to be considered in a conservative bias.		
D.2.2. In case option (a) is selected is has a proper statistical analysis of the historical data has been conducted as required by AM0034 v.4?		Please refer to the comments in D.2.1.	**CAR CR**	☑
D.2.3. Once the permitted ranges of the operating parameters are determined, is it demonstrated that those ranges are within the specifications of the facility?		Please refer to the comments in D.2.1.	**CAR CR**	☑
D.2.4. Parameter: OT_{normal} Normal operating temperature (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.2.5. Parameter: OP_{normal} Normal operating pressure (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.2.6. Parameter: $AFR_{max,i}$ Maximum ammonia gas flow rate to the AOR (of line i)		<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>No</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr></table>	**CAR CR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		QA/QC procedures described? — No QA/QC procedures appropriate? — No Please refer to the comments in D.2.1. The value is to be verified later by the verifying entity.		
D.2.7. Parameter: $AIFR_{max}$ Maximum ammonia to air ratio		Monitoring Checklist / Yes / No Title in line with methodology? — Yes Data unit correctly expressed? — Yes Appropriate description of parameter? — No Source clearly referenced? — Yes Correct value provided for estimation? — N/A Has this value been verified? — N/A Measurement method correctly described? — No Correct reference to standards? — Yes Indication of accuracy provided? — Yes QA/QC procedures described? — No QA/QC procedures appropriate? — No Please refer to the comments in D.2.1. The value is to be verified later by the verifying entity.	**CAR CR**	☑
D.2.8. Parameter: GS_{normal} Normal gauze supplier for the operation condition campaigns (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.2.9. Parameter: GC_{normal} Gauze composition during the operation		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
campaign				
D.2.10. Parameter: CL_{normal} Normal campaign length (of campaign n of line i)		See Finding B.1.1. Not applicable..	CAR	☑
D.2.11. Does the PDD explicitly state the design capacity of the plant? By nameplate (design) implies the total yearly capacity (considering 365 days of operation per year) as per the documentation of the plant technology provider (such as the Operation Manual).		See comments in A.2.2.	CAR	☑
D.3. Monitoring of the emissions in the project scenario and the baseline scenario:				
D.3.1. **Data to be collected in order to monitor emissions from the project and how these data will be archived:**				
D.3.1.1. Is the list of parameters collected in order to monitor emissions from the project in chapter D.1.1. considered to be complete with regard to the requirements of the applied methodology?		No, it is not. See comments in D.1.14.	CAR	☑
D.3.1.2. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?		No, there are several inconsistencies noticed by the assessment team. Please refer to the CARs and CRs in the above sections of this report.	CAR CR	☑
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with “No”				

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>D.3.1.3. Parameter Title:
$NCSG_{PC, i}$
N2O concentration in the stack gas (of line i)</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>Please refer to B.1.1.
The value is to be verified later by the verifying entity.</td><td>CAR</td><td>☑</td></tr>
<tr><td>D.3.1.4. Parameter Title:
$VSG_{PC, i}$
Volume flow rate of the stack gas in project campaign (of line i)</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table></td><td>CAR</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>Please refer to B.1.1.
The value is to be verified later by the verifying entity.</td><td></td><td></td></tr>
<tr><td>D.3.1.5. Is the application of the methodological requirements for re- calculation of the $EF_{baseline}$ when the project campaign length is shorter than normal campaign length (EB 51 Annex 12) correctly described in the PDD?</td><td></td><td>Yes, the application of the methodological requirements for re-calculation of the $EF_{baseline}$ when the project campaign length is shorter than normal campaign length is correctly described in the PDD. However see comments in B.1.1.</td><td>CAR</td><td>☑</td></tr>
<tr><td>D.3.1.6. Parameter Title:
$OH_{PC, i}$
Operating hours
in project campaign (of line i)</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>Please refer to B.1.1.
The value is to be verified later by the verifying entity.</td><td>CAR</td><td>☑</td></tr>
<tr><td>D.3.1.7. Parameter Title:
NAP_{PC}
Nitric acid (100% concentrated) over the project campaign</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr></table></td><td>CAR</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>(of line i)</td><td></td><td>
<table>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>N/A</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
<tr><td>Indication of accuracy provided?</td><td>N/A</td></tr>
<tr><td>QA/QC procedures described?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr>
</table>
Please refer to B.1.1.
The value is to be verified later by the verifying entity.</td><td></td><td></td></tr>
<tr><td>D.3.1.8. Parameter Title:
TSG
Temperature of stack gas
(of line i)</td><td></td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td>N/A</td></tr>
<tr><td>Has this value been verified?</td><td>N/A</td></tr>
<tr><td>Measurement method correctly described?</td><td>N/A</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
<tr><td>Indication of accuracy provided?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures described?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr>
</table>
AM0028 approach is used to determine project emissions. Therefore this parameter is checked against AM0028 version 04.2.
Please refer to B.1.1.
The value is to be verified later by the verifying entity.</td><td>**CAR**</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>D.3.1.9. Parameter Title:
PSG
Pressure of stack gas
(of line i)</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>N/A</td></tr><tr><td>Has this value been verified?</td><td>N/A</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>Yes</td></tr><tr><td>Indication of accuracy provided?</td><td>Yes</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>AM0028 approach is used to determine project emissions. Therefore this parameter is checked against AM0028 version 04.2.
Please refer to B.1.1.
The value is to be verified later by the verifying entity.</td><td>CAR</td><td>☑</td></tr>
<tr><td>D.3.1.10. Parameter Title:
AFR
Ammonia gas flow rate to the AOR
(of line i)</td><td></td><td>See Finding B.1.1.
Not applicable acc. to the project specific approach.</td><td>CAR</td><td>☑</td></tr>
<tr><td>D.3.1.11. Parameter Title:
AIFR
Ammonia to Air ratio
(of line i)</td><td></td><td>See Finding B.1.1.
Not applicable acc. to the project specific approach.
However, data of AIFR will be used to determine if plant was operating outside of the trip point value AIFRtrip.</td><td>CAR</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td>N/A</td></tr>
<tr><td>Has this value been verified?</td><td>N/A</td></tr>
<tr><td>Measurement method correctly described?</td><td>N/A</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
<tr><td>Indication of accuracy provided?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures described?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr>
</table>
</td><td></td><td></td></tr>
<tr><td>D.3.1.12. Parameter Title:
OT_h
Oxidation temperature for each hour
(of line i)</td><td></td><td>See Finding B.1.1.
Not applicable acc. to the project specific approach.
However, data of OTh (Hourly value for each one of the 6 AORs, calculated as an average of the 3 thermocouples in each AOR) will be used to determine if the plant was operating outside of the trip point range (OTrange)
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td>N/A</td></tr>
<tr><td>Has this value been verified?</td><td>N/A</td></tr>
<tr><td>Measurement method correctly described?</td><td>N/A</td></tr>
<tr><td>Correct reference to standards?</td><td>Yes</td></tr>
</table>
</td><td>CAR</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		Indication of accuracy provided? Yes QA/QC procedures described? Yes QA/QC procedures appropriate? Yes		
D.3.1.13. Parameter Title: OP_h Oxidation Pressure for each hour (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.1.14. Parameter Title: $GS_{Project}$ Gauze supplier for project campaign (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.1.15. Parameter Title: $GC_{Project}$, Gauze composition during project campaign (of campaign n of of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.1.16. Parameter Title EF_{reg} Emissions level set by incoming policies or regulations		Monitoring Checklist — Yes / No Title in line with methodology? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided for estimation? Yes Has this value been verified? Yes QA/QC procedures described? N/A QA/QC procedures appropriate? N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
		The value is to be verified later by the verifying entity.		
D.3.2. **Description of formulae used to estimate <u>project</u> emissions (for each gas, source etc.; emissions in units of CO_2 equivalent**				
JI specific approach				
D.3.2.1. Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of project emissions?		See Finding B.1.1. According to final PDD AM0028 version 04.2 is applied for determination of the project emissions. The formulae required for the determination of project emissions are correctly presented enabling a complete identification of parameter to be used and monitored: The formula given in the methodology: $PE_{N2O,y} = \sum F_{TE,i} \times CO_{N2O,i} \times M_i$ (t N_2O) The formula in the PDD: $PE_n = \sum_{x=1}^{x=vmp} NCSG_x \times VSG_x \times 10^{-9} \times M_x$ (t N_2O) It is confirmed that AM0028 version 04.2 is applied, but using monitoring paramters according to AM0034 version 03.4. An emission factor of the monitoring period is calculated using the monitored nitric acid production in this period.	☑	☑
D.3.2.2. Is the underlying rationale for the algorithms/formulae explained?		Yes, the underlying rationale for the formulae is explained. However see B.1.1.	**CAR**	☑
D.3.2.3. For the equations presented: - Are consistent variables, equation formats, subscripts etc. used? - Are all equations numbered?		See B.1.1.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
- Are all variables, with units indicated defined?				
D.3.2.4. Is the conservativeness of the algorithms/procedures justified?		See B.1.1.	**CAR**	☑
D.3.2.5. To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?		See B.1.1.	**CAR**	☑
D.3.2.6. Is it justified that the procedure is consistent with standard technical procedures in the sector?		Yes, it is justified. The procedure for estimation/ calculation of the project emissions is based on the one proposed by the AM0028.	☑	☑
D.3.2.7. Are the formulae required for the derivation of a moving average emission factor correctly presented, enabling a complete identification of parameter to be used and / or monitored?		See Finding B.1.1. Not applicable. AM0034 version 03.4 is applied with deviation (JI-approach). Hence baseline emissions are not determined via baseline campaign it is rather determined using a default value.	**CAR**	☑
D.3.2.8. Are implicit and explicit key assumptions explained in a transparent manner?		Yes, all key assumptions are described in a transparent and complete manner. However pls. refer to B.1.1.	**CAR**	☑
D.3.2.9. Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?		See above.	**CAR**	☑
Approved CDM methodology approach				
D.3.2.10. Are the formulae required for the determination of project emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?		N/A	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
D.3.2.11. Are the formulae required for the derivation of a moving average emission factor correctly presented, enabling a complete identification of parameter to be used and / or monitored?		N/A	☑	☑
D.3.3. **Relevant data necessary for determining the <u>baseline</u> of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and achieved:**				
D.3.3.1. Is the list of parameters monitored in chapter D.1.3. considered to be complete with regard to the requirements of the applied methodology?		Yes, it is. The list of parameters considers being complete with regard to the requirements of AM0034 version 3.04. However, according to final PDD a JI specific approach is used based on AM0034 version 03.4. Hence not all parameters are applicable.	☑	☑
D.3.3.2. Is the data provided in this section in consistency with data as presented in other chapters of the PDD?		The data provided in this section are in consistency with data as presented in other chapters of the PDD.	☑	☑
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with “No”				
D.3.3.3. Parameter Title: $NCSG_{BC, i}$ N2O concentration in the stack gas in baseline campaign (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.4. Parameter Title: $VSG_{BC, i}$ Volume flow rate of the stack gas in baseline campaign (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.5. Parameter Title: $CL_{BC, i}$		See Finding B.1.1.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
Baseline campaign length (of line i)		Not applicable acc. to the project specific approach.		
D.3.3.6. Is the application of the methodological requirements to calculate the EFbaseline when the baseline campaign length is longer/shorter than normal campaign length (EB 51 Annex 12) correctly described in the PDD?		Yes, the application of the methodological requirements to calculate the EFbaseline when the baseline campaign length is longer/shorter than normal campaign length is correctly described in the PDD. However see B.1.1.	**CAR**	☑
D.3.3.7. Parameter Title: $OH_{BC, i}$ Operating hours in baseline campaign (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.8. Parameter Title: $NAP_{BC, i}$ Nitric Acid production (100% concentrated) over baseline campaign (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.9. Parameter Title: TSG_i Temperature of stack gas (of line i)		See D.3.1.8. The value is to be verified later by the verifying entity.	☑	☑
Parameter Title: PSG_i Pressure of stack gas (of line i)		See D.3.1.9. The value is to be verified later by the verifying entity.	☑	☑
D.3.3.10. Parameter Title: $GS_{BC, i}$ Gauze supplier for the baseline campaign		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
(of line i)				
D.3.3.11. Parameter Title: $GC_{BC, i}$ Gauze composition during baseline cam-paign (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.12. Parameter Title: $OP_{h, i}$ Oxidation Pressure for each hour (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.13. Parameter Title: $OT_{h, i}$ Oxidation Temperature for each hour (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑
D.3.3.14. Parameter Title: AFR_{i} Ammonia gas flow rate (of line i)		See Finding B.1.1. Not applicable acc. to the project specific approach.	**CAR**	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>Pub-lished PDD</th><th>Final PDD</th></tr>
<tr><td>D.3.3.15. Parameter Title:
$AIFR_i$
Ammonia to Air Flow Ratio
(of line i)</td><td></td><td>Pls. refer to D.3.1.11.
The value is to be verified later by the verifying entity.</td><td>☑</td><td>☑</td></tr>
<tr><td>D.3.3.16. Parameter Title:
EF_{reg}
Emissions level set by incoming policies or regulations</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>N/A</td></tr><tr><td>Correct reference to standards?</td><td>N/A</td></tr><tr><td>Indication of accuracy provided?</td><td>N/A</td></tr><tr><td>QA/QC procedures described?</td><td>N/A</td></tr><tr><td>QA/QC procedures appropriate?</td><td>N/A</td></tr></table>The value is to be verified later by the verifying entity.</td><td>☑</td><td>☑</td></tr>
<tr><td>D.3.3.17. Parameter Title:
UNC_i
Overall measurement uncertainty of the monitoring system
(of line i)</td><td></td><td>See Finding B.1.1.
Not applicable. AM0034 version 03.4 is applied with deviation (JI-approach). Hence baseline emissions are not determined via baseline campaign it is rather determined using a default value.</td><td>CAR</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
D.3.4. **Description of formulae used to estimate <u>baseline</u> emissions (for each gas, source etc.; emissions in units of CO_2 equivalent)**				
JI specific approach				
D.3.4.1. Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions?		The baseline emissions are not determined via baseline campaign but using a default value for the baseline emission factor.	☑	☑
D.3.4.2. Is the underlying rationale for the algorithms/formulae explained?		Yes, the underlying rationale for the formulae is explained.	☑	☑
D.3.4.3. For the equations presented: - Are consistent variables, equation formats, subscripts etc. used? - Are all equations numbered? - Are all variables, with units indicated defined?		Pls. refer to D.3.4.1.	☑	☑
D.3.4.4. Is the conservativeness of the algorithms/procedures justified?		Yes, the conservativeness of the algorithms is justified in the PDD.	☑	☑
D.3.4.5. To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?		See B.1.1.	**CAR**	☑
D.3.4.6. Is it justified that the procedure is consistent with standard technical procedures in the sector?		See B.1.1.	☑	☑
D.3.4.7. Are implicit and explicit key assumptions explained in a transparent manner?		See B.1.1.	☑	☑
D.3.4.8. Is it clearly stated which assumptions and procedures have significant uncertainty		See B.1.1.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
associated with them, and how such uncer-tainty is to be addressed?				
D.3.4.9. Is consistency between the elaboration of the baseline scenario and the procedure for calculating the ERs of the baseline ensured?		Yes, it is ensured. However see B.1.1.	☑	☑
Approved CDM methodology approach				
D.3.4.10. Is consistency between the elaboration of the baseline scenario and the procedure for calculating the ERs of the baseline ensured?		N/A	☑	☑
D.3.4.11. Are the formulae required for the de-termination of baseline emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?		N/A	☑	☑
D.3.4.12. Are the formulae required for the de-termination of leakage emissions correctly presented, enabling a complete identification of parameter to be used and / or monitored?		N/A	☑	☑
E. **Estimation of greenhouse gas emission reductions**				
E.1. Estimation of baseline and project emissions, leakage and emission reductions as a result				
E.1.1. Does the PDD provide ex ante esti-mates of - Project emissions - Leakage - Baseline emissions - Emission reductions		Yes, the PDD (section E and Annex 2) provides ex ante estimates of the baseline and project emissions and emission reductions. Leakage emissions do not occur.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
E.1.2. Are the estimates given - On a periodic basis? - At least from the beginning until the end of the crediting period? - On a source-by-source basis? - In tones of CO2 equivalent using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?		The estimates are given from the beginning until the end of the crediting period on monthly basis in tones of CO2 equivalent using global warming potential of N2O defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol.	☑	☑
E.1.3. Are key factors influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project taken into account, as appropriate?		Yes. The project emission forecast in the PDD is derived from estimated factual emission factor based on historical N2O concentration measurements and estimated abatement efficiency.	☑	☑
E.1.4. Are data sources used for calculating the estimates clearly identified, reliable and transparent?		Yes, they are.	☑	☑
E.1.5. Are emissions factors (incl. default emission factors) used for calculating the estimates selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?		Yes, they are. In doing so project developers were guided by the AM0034 v.03.	☑	☑
E.1.6. Is the estimation based on conservative assumptions and the most plausible scenarios in a transparent manner?		Yes they are.	☑	☑
E.1.7. Are the estimates of project emissions, baseline emissions and leakage consistent throughout the PDD?		The data provided in this section is consistent with data as presented in other chapters of the PDD.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
E.1.8. Are the estimates of project emissions, baseline emissions and leakage transparent, feasible and mathematical correct calculated?		Yes, they are.	☑	☑
E.1.9. If the calculation of the baseline emission is to be performed ex post, does the PDD include an illustrative ex ante emissions calculation?		Yes, the baseline emissions are calculated ex-ante by the PPs in order to estimate ERs.	☑	☑
E.1.10. Is the projection of estimated project emissions, baseline emissions and leakage based on the same procedures as used for future monitoring?		No. The project emission forecast in the PDD is derived from estimated factual emission factor based on historical N2O concentration measurements and estimated abatement efficiency.	☑	☑
E.1.11. Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?		As established in the approved methodology AM0034 which elements have been used in this project, no leakage calculations are necessary for this type of secondary catalyst.	☑	☑
E.1.12. If approved CDM methodology approach is used, is the estimation of ERs made in accordance with the approved CDM methodology?		N/A	☑	☑
E.1.13. Are the formulae required for the determination of emission reductions correctly presented?		Yes, it is correctly presented in the PDD.	☑	☑
E.1.14. Will the project result in fewer GHG emissions than the baseline scenario?		The project activity will result in emission reductions.	☑	☑
E.1.15. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?		Yes, the projection is in line with the project implementation plan.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Published PDD	Final PDD
E.1.16. Is the form/table required for the indication of projected emission reductions correctly applied?		The form used in the PDD differs slightly. Please correct to comply completely JI PDD Form. See also A.2.4.	**CAR**	☑
F. Environmental impacts				
F.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
F.1.1. Does the PDD list and attach documentation on the analysis of the environmental impacts (e.g. EIA) of the project, including transboundary impacts, in accordance with procedure as determined by the host Party?		Yes, in doing so no environmental impacts had been identified. The project involves the installation of a N_2O catalyst. No contaminants are released during the operation of the project activity so no negative transboundary environmental impacts occur. The BREF confirms this view by stating that catalytic N_2O decomposition does not induce cross-media effects. TÜV SÜD assessment team remarks that the project has a strong positive environmental impact, since the primary object of the project is reduction of N_2O emissions.	☑	☑
F.1.2. Are the respective host Party requirements for an Environmental Impact Assessment (EIA) clearly referenced in the PDD?		No requirement identified. The site had already been equipped with a secondary N2O abatement catalyst for industrial trial testing in S3. The Swedish authorities have not requested any EIA for his installation.	☑	☑
F.1.3. Has the EIA conducted been approved by the host Party?		Please refer F.1.1. and F.1.2.	☑	☑
F.1.4. If the EIA indicates that the environmental impacts are considered significant by the project participants or/and the host party, does the PDD provide conclusion and all references to supporting documentation of an EIA undertaken in accordance with the procedures as		Please refer F.1.1. and F.1.2.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
required by the host Party?				
G. Stakeholders' comments				
G.1. Brief description how comments by <u>local</u> stakeholders have been invited and compiled				
G.1.1. Have relevant stakeholders been consulted?		As the project activity is an invisible technical installation at the production site without any negative environmental or social impact, no stakeholders can be identified. A stakeholder consultation at the local level has not been carried out by the PPs. However, the Swedish DFP needs to conduct a public consultation before issuing a LoA. **<u>Corrective Action Request 12.</u>** A statement on the requirement on stakeholder consultation of the Swedish DFP should be provided in the Chapter G.1. of the PDD.	**CAR**	☑
G.1.2. Have appropriate media been used to invite comments by local stakeholders?		See G.1.1.	**CAR**	☑
G.1.3. 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?		See G.1.1.	**CAR**	☑
G.2. Summary of the comments received				
G.2.1. If stakeholder consultation was undertaken in accordance with procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any?		See G.1.1.	**CAR**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
(b) The nature of the comments? (c) A description on whether and how the comments have been addressed?				
G.3. Report on how due account was taken of any comments received				
G.3.1. Has due account been taken of any stakeholder comments received?		See G.1.1.	**CAR**	☑
G.3.2. If the AIE received comments on the PDD and any supporting information from Parties, stakeholders and UNFCCC accredited observers within the 30-day period, did the AIE promptly acknowledge the receipts of the comments?		One comment has been received. Please refer to Determination Report, where it is described in detail.	☑	☑
H. Annexes 1 – 3				
H.1. Annex 1: Contact Information				
H.1.1. Is the information provided consistent with the one given under section A.3?		Yes, it is.	☑	☑
H.1.2. Is the information on all private participants and directly involved Parties presented?		Yes, it is.	☑	☑
H.2. Annex 2: Baseline information				
H.2.1. Does Annex 2 of the PDD provide key elements of the baseline and any supporting documentation/information?		Yes, Annex 2 provides ex-ante assumptions made by the PPs prior to the implementation of the project activity.	☑	☑
H.2.2. If additional background information on baseline data is provided: Is this information consistent with data presented by other sec-		Yes, it is.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	Pub-lished PDD	Final PDD
tions of the PDD?				
H.2.3. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?		See CR	☑	☑
H.3. Annex 3: Monitoring information				
H.3.1. If applicable: Does Annex 3 provide useful information enabling a better understanding of the envisioned monitoring provisions?	1, 2	Yes, it does. However please refer to CAR (D.1.23 and B.1.1).	**CAR**	☑
H.3.2. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	1, 2	Please refer to CARs (D.3.1.2) and (A.4.3.2).	**CAR**	☑
H.3.3. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	10, 11, 36	Please refer to comments in D.1.9.	**CR**	☑
H.3.4. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	1, 2	Yes, it does.	☑	☑

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
Clarification Request 1. The PDD states that daily design capacity of Syra 2 nitric acid plant is 420 metric tons of HNO3 (100% conc.) per day. Clarification is requested as different information was gathered by the onsite audit team (e.g. UHDE, "Study concerning Improvement of Existing Nitric Acid Plant with Increase of Total Capacity by additional Investment.." which shows 400 t/day HNO3 capacity.)	A.2.2.	The information gathered by the audit team on-site (UHDE, "Study concerning Improvement of Existing Nitric Acid Plant with Increase of Total Capacity by additional Investment.") is more accurate than the original information contained in the PDD. The daily design capacity of the plant has therefore now been reduced to 400t/day in section A.2 of the PDD. Please find attached a copy of the above-mentioned document.	The PDD has been revised. The design production output of 400 metric tons is stated according to UHDE document (IRL 12). This finding is closed. ☑
Clarification Request 2. The PDD states that commercial production started in 1955. However, as observed by the audit team there was an extension of the plant by two AORs in 1969. This fact should be reflected in the general description of the plant.	A.2.2.	The fact that the plant began operation with four reactors, but that two were added in 1969, has now been stated in section A.2 of the PDD.	The revised PDD Chapter A.2 provides the information. This finding is closed. ☑
Clarification Request 3. During the on-site determination assessment team noticed that the Syra 2 plant is currently in the process of renewal of its operating permit and therefore applies for new NOx limit values. The proposed new NOx limit	A.2.2.	Paragraphs have now been added to the PDD concerning the possible new environmental permit: see point 1.4 under Step 1a of 'identification of the baseline scenario' in section B.1 and Step 2 of the same section.	The relevant section has been modified in the PDD. It is stated that a new environmental permit is expected to be introduced in summer 2010 and the application of a lower limit for NOx emissions at the

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
values subject to the approval by the responsible local environmental authority. Any new N2O limit values are not expected as per PPs statement. However, the plant has already to report the N2O emissions to the authority. Please include information on this regulation and plant´s compliance in the PDD. Clarification is also requested on whether the PPs is going to include the proposed however not yet approved NOx emission limits in PDD in order to lower the risk of a re-assessment of the baseline scenario which is requested according to the applied methodology in case of change of NOx emission regulations during crediting period. In case of inclusion the PPs are requested to modify the relevant sections in the PDD.		*The procedure included in PDD Step 5 has been adjusted to reflect the exact wording of the methodology AM0028 ver 04.2.*	Syra 2 plant of 130ppm has been proposed. PPs will reassess the baseline scenario in case of changed NOx regulations. This finding is closed. ☑
Clarification Request 4. Clarification is requested as the PDD states the material of the catalyst used in Syra 2 is with the same material as the Y8-51, while a letter from catalyst supplier states that the composition of catalyst material is the same as the standard material of catalyst system Yara 58-Y1	A.4.2.2.	This was just a typing error. There is currently only one standard Yara catalyst and that is indeed the 58-Y1. However, the project proponents have decided that they would rather not state the catalyst type so specifically in the PDD and have removed the catalyst type number.	PPs clarified that the Yara standard catalyst is 58-Y1 and that there was a typo in the PDD. Anyway the catalyst type number has been removed from the revised PDD which is referring to Yara standard catalyst now. This finding is closed. ☑
Clarification Request 5. PPs are requested to provide calculation of ERs (Excel Sheet) to the audit team.	A.4.3.2.	Please find attached the ERU calculation spreadsheet.	PPs provided an Excel Sheet including the ERU calculation of the project.

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
			This finding is closed. ☑
Clarification Request 6. Please provide a transparent description of the baseline scenario over crediting time in the PDD.	B.1.39	*An additional explanation has been added to section A.4.3 to explain what may happen in a business-as-usual scenario for the whole of the 10-year crediting period.* A clearer approach to identification of the baseline scenario has now been added to the first paragraph of section B.1.	This finding is closed. ☑
Clarification Request 7. The project's starting date is not unambiguously stated. Project starting date should be clearly identified in section C.1. Project starting date is defined as "… the date on which the implementation or construction or real action of the project begins…", refer to the Glossary of JI terms v. 1 JISC 13	C.1.1.	The starting date of the project has now been clearly stated in section C.1. *The wording of section C.1 has been improved to clarify the starting date of the project. This is of course different to the start of the crediting period, which is also indicated here for a clearer overall picture of the project implementation timeline.*	The PDD has been revised as requested. This finding is closed. ☑
Clarification Request 8. Please provide QAL 1 certificates for Dr, Födisch N2O analyzer and flow meter installed.	D.1.9.	The QAL1 certificate for the Dr Foedsich N2O analyser is not yet available. It will be provided to the Tuev Sued audit team as soon as it becomes available. The QAL1 certificate for the FMD99 flow meter was emailed to the Tuev Sued team on 23rd March.	PPs provided the QAL 1 certificate for the FMD99 flow meter. As the QAL1 certificate for the Dr Foedsich N2O analyser FAR is stated below. This finding is closed. ☑
Clarification Request 9. PPs intend to use IPCC default value as	D.2.1.	A new set of primary catalyst gauzes was installed in one of the AOR systems (2 reactors) at	PPs have not provided an confirmation of emission factor from EN

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
baseline emission factor. This is eligible if factual emissions are higher than the default value. PPs altered factual emissions of the plant in the revised PDD. Clarification is requested on why measurements taken from October 2006 to October 2007 are not considered. In any case evidence (+ raw data) on the factual emission factor must be provided to DOE in a complete and transparent manner. Moreover, EN ISO/IEC 17025 accredited testing laboratory shall confirm N2O emission factor. Measurements shall be done when new gauzes are installed in at least one AOR-set to consider low N2O emissions with new gauzes. Furthermore evidence on uncertainty of measurement device has to be provided and this uncertainty has to be considered in a conservative bias.		the beginning of June 2010. Complete tail gas flow, N2O concentration and HNO3 flow data was measured during the first 7 days (4th to 10th June) with the new QAL2-tested AMS. Hourly average data was used to calculate daily average N2O values, with an average of 7.27kg/tHNO3. The lowest daily value was 6.96kg and therefore considerably above the 4.5kg default emissions factor. Although the full QAL2 report with the AMS uncertainty has not yet been received from Mueller BBM, it is clear that the uncertainty would have to be more than 35% in order to bring this value below the default factor. The PDD has been updated accordingly in section A.4.3.1 and all tables have also now been amended to take into account this new Business as Usual emissions factor (which is used to calculate the estimated project emissions factor). References to any previous (less accurate) measurements have been removed. Please find attached pdf files for each day from 4th to 10th June showing the hourly average data, plus a summary excel sheet of the results, with the final N2O calculations in kg/tHNO3.	ISO/IEC 17025 accredited testing laboratory. However, PPs provided measurement data from installed AMS which is QAL 2 tested. QAL2 report of the measurement equipment is not yet available according to PPs. A FAR has been stated. This finding is closed. ☑
Clarification Request 10. It is necessary to provide a LoAs from the	A.4.5.1.	The LoAs were provided to the auditors.	The respective Letters of Approval have been provided to the assess-

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
parties involved before the final submission of the project to the JISC for approval.			ment team (IRL36, 47). This finding is closed. ☑
Corrective Action Request 1. According to PDD Guidelines Chapter A.2 of the PDD should contain a description on the purpose of the project with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description). Please provide more information especially on the project scenario, which includes the installation of secondary abatement catalyst at each of 6 existing AORs. Please also include information on the operation of the AOR´s. (Two parallel AORs, cycle of gauze change) Additionally there are some inconsistencies in PDD (e.g. it is stated that abatement efficiency tend to be much lower while an abatement efficiency of 90% is assumed; or it is stated that the catalyst material has no influence on production level while on the next page it is described that there is a small reduction of	A.2.1.	A little more detail has now been added to the section describing the project scenario in A.2. Firstly, more complete information on the AOR operation has been included in section A.2. Secondly, regarding the inconsistencies: It is explained in the PDD that abatement efficiencies at atmospheric plants TEND to be much lower, which means that this is a generally applicable rule. It is then explained that a new secondary catalyst is under development specifically to address this general problem at atmospheric plants, and that this new catalyst is expected to successfully reduce emissions by around 90%. This technology has not yet been applied on an industrial scale. Both statements are therefore completely correct and do not conflict with one another. With regard to the catalyst's influence on plant production levels, the PDD has been very slightly adjusted to state that there is no significant influence on production levels. The same thing has been stated in the following section with regard to	The revised PDD includes a clear description of the project scenario including information on operation of AORs and expected performance of secondary catalyst. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
nitric acid output.		the possible reduction of nitric acid output. These sentences now no longer contradict one another.	
Corrective Action Request 2. Editorial improvements of the PDD shall be done. (table format in Chapter A.4.3.1. and E.6.) The PDD template shall not be altered. Baseline emissions have not been entitled as baseline emissions and the baseline scenario not as baseline scenario. Please correctly use the terms baseline scenario and baseline emissions, in doing so please refer to the Glossary of JI terms v. 02. Please improve table 4 in Chapter B.3. Additionally correct number of tables, as the PDD contains another table 4 in Chapter E.1.	A.2.4.	The tables 2 & 3 in section A.4.3.1, tables 4 & 5 in section E.1, tables 6 & 7 in section E.4, tables 8 & 9 in section E.5 and tables 10 & 11 in section E.6 have all been changed to adhere to the tabular format specified in the UNFCCC JI PDD guidelines. *The correct reference to 'baseline' emissions has now been added to tables 6 & 7 in section E.4 and tables 10 & 11 in section E.6* Table 4 in Chapter B.3 has now been changed to more accurately reflect the table in the methodology AM0034. The table numbers in the PDD (from section E.1 onwards) have now all been changed accordingly.	The PDD has been revised. This finding is closed. ☑
During onsite visit the methodological approach was discussed. The published PDD states that the project apply AM0034 version 3.4. However during the on-site visit assessment team noticed several deviations from the methodology due to plant design, e.g. the nitric acid plant consists of one production line equipped with several AORs and several absorption columns. Consequently the applicability of AM0034 version 3.4 is not fully given as continuous real-time measurements of N2O concentration and total gas volume flow	B.1.1.	Due to the difficulties posed by the complicated layout of the plant and the problems that exist with establishing the definition of one 'campaign', the project proponents have chosen to take a JI project-specific approach for this plant. The basic approach and reasons for it are initially presented in section A.4.3.1, while more detail regarding the resultant project-specific deviations from AM0034 ver 03.04 are listed in section B.1 under 'Explanation and Justification for deviations from AM0034'.	A project specific baseline approach is applied. AM0034 version 3.04 with following deviations will be applied (deviations are listed in Chapter B.1. in PDD). 1. No continuous measurement of N2O concentration & total gas volume flow prior to the installation of the secondary catalyst as IPCC default value is used as baseline emission factor.

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
cannot be carried out in the stack prior to the installation of the secondary catalyst for one campaign. Additionally the nitric acid production cannot be measured for each single AOR. Therefore the campaign cannot be defined as per methodology applied; furthermore campaign length cannot be determined for each single AOR. PPs indicated during onsite audit that they want to apply a JI specific approach, as section of baseline emission determination should be modified compared to approved CDM methodology. **Corrective Action Request 3.** JI provides the possibility to apply a JI specific approach for baseline setting and monitoring. The PDD needs to be modified in compliance with GUIDANCE ON CRITERIA FOR BASELINE SETTING AND MONITORING Version 02 and the baseline and monitoring approach needs to be clearly described and justified in the PDD. The above mentioned guidance on criteria for baseline setting and monitoring shall be applied to all projects that apply a JI-specific approach, including projects that use selected elements or combinations of approved CDM baseline and monitoring methodologies or approved CDM methodological tools.		*Re points 1 & 2: the wording has been changed in the PDD to reflect that fact that the general approach of using a baseline and project emissions factor for ERU calculations will not be altered and that the baseline emissions factor will be project-specifically determined. Other parts of the PDD have also been changed to make this approach clearer.* *Re point 3: PDF files and a summary excel sheet of plant data have now been provided to the audit team to prove that N2O emissions at the plant are above the 4.5kg default emissions factor.* *Re point 6: Tuev Sued states that reference to the methodology AM0028 under 'Regulatory Framework' is missing, while in fact a whole sentence regarding the use of this methodology is to be found directly after the sentence regarding the application of methodology AM0034.* *Regarding Tuev Sued's final comment in this section, additional information has now been added to the beginning of section D.1 regarding the use of methodologies to determine the monitoring approach.* 6. It has now been additionally stated under 'regulatory framework' that AM0028 will also be used for calculating the project emissions. A clearer statement on the use of methodologies has now been added at the very beginning of Section B.1. 12. The indices of the project emissions factors in	2. No baseline is measured: the IPCC default emissions factor for N2O emissions from nitric acid plants is used for determining baseline emission factor. 3. IPCC default value will be used as EFBL to calculate baseline emission. PPs describes that this value is lower than factual emissions of the plant. However, clear and transparent evidence on this must be provided to the verification team. See CR 09 on this issue. 4. No permitted range of operational parameters is established. This is eligible if IPCC default value is applied and this IPCC factor is lower than factual emission factor. 5. No statistical analysis of baseline and project emissions is undertaken. This is eligible as IPCC default value is used for baseline emission factor and AM0028 approach is applied for monitoring of project emissions. 6. AM0028 approach for determination of project emissions

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
		formulas 7 &10 (now formulas 5 & 6) have been corrected. Furthermore, the correct formula numbers have now been inserted.	is applied. In conjunction with IPCC default value as baseline emission factor this is eligible for this JI project. However, please mention this methodology beneath other tools/methodologies which are applied (e.g. under "regulatory framwork" it is missing) Currently available PDD refers to the AM0028 in case of the baseline scenario identification" but not in the case of project emissions determination. Furthermore per JISC requirements (Determination and Verification Manual) please explicitly state (Chapter B) that a JI specific approach (*using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines*) is applied. Include a description of the approach including the applied methodologies/tools. 7. "*Cap on baseline campaign length*". As baseline emission factor is not determined via a baseline campaign measurement, parameter baseline cam-

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
			paign length can be omitted. 8. "Deduction of AMS uncertainty from baseline emissions factor". Baseline emission factor is not determined via baseline campaign measurement, therefore a deduction of uncertainty of measurement equipment is not applicable. 9. "*Recalculation of EFBL-value in case of shorter project campaign*". Baseline emission factor is not determined via measuring a baseline campaign prior the project implementation. Instead a fixed default value is used. Hence recalculation of the baseline emission factor in case of shorter project campaign is not applicable. 10. "*Monitoring Periods based on campaigns*". Because of the default value as baseline emission factor and the determination of project emissions according to AM0028, the emission reductions can be verified independently from production campaigns. 11. *"Moving Average Emissions*

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
			Factor". *" Minimum project emissions factor after 10th campaign* "The CDM methodology implies a moving average for the calculation of the project emission factor. The moving average is also capped at the level of the lowest campaign specific emissions factor observed during the first 10 campaigns. These procedures aim to account for the N2O emission reductions that may occur anyway as a consequence of potential platinum deposit build up inside the plant. A baseline emission factor determined by measuring a baseline campaign in front of abatement catalyst installation is not considering this long term effect. However, it is not reasonable to account for this long term effect in case of a default value approach. Therefore neither a moving average calculation nor a cap on the moving average is implied in the project emission factor determination of the MP of this project. 12. "*AMS downtime*". The requirement of the CDM metho-

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
			dology that during downtime of the automated measuring system the highest measured value in the campaign will be applied for the downtime period for the campaign emission factor is modified due to the project specific conditions, thus the missing data from the relevant hour during downtime periods should be replaced with either a) the highest value measured during the whole of the relevant verification period or b) the highest value measured during the whole of the previous complete verification period, whichever is the higher. This is conservative and applicable for the project specific case. Routine calibration of the automatic measuring system is not considered as downtime. Procedures on data handling during such periods are included in the MP. Please correct indices of project emission factor in formula (7) and (10). Furthermore correct numbers of formulae. This finding is closed.

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
			☑
Corrective Action Request 4. The applicability of the methodology is limited to the existing production capacity measured in tons of nitric acid, where the commercial production had began no later than 31 December 2005. Definition of existing production capacity is applied for the process with the existing ammonia oxidization reactor where N2O is generated and not for the process with new ammonia oxidizer. Existing production capacity is defined as the designed capacity, measured in tons of nitric acid per year. The discussion on this criterion in section B.1. of the PDD must include project specific information. The annual cap in tHNO3 has to be defined and explicitly stated in the PDD. Appropriate evidence has to be provided to the audit team. Please substantiate the number of operating days and provide more details on how this figure has been defined in the PDD. Evidences should be provided.	B.1.12.	A sentence regarding the specific situation at S2 has been added under point 1 of 'Applicability of AM0034' in section B.1. The annual cap on HNO3 production that will be eligible to receive ERUs has been stated in section E.5 of the PDD. The specified cap is only slightly above the maximum factual annual production figure of the plant in the past few years (137Kt in 2005) and so is not considered unrealistic. Evidence on the daily design capacity has been provided in response to CR1 above. Please see the attached excel spreadsheet 'Historic operating hours S2', which details the number of stoppage hours per year, the total number of operating days and annual nitric acid production: 1) Worksheet 'operation 2005' shows a summary sheet provided by the plant with the number of stoppage hours 2) Worksheet 'operation 2006-2009' shows more detailed data, but the only data of relevance to this subject is the final column (highlighted in yellow for ease of assessment). N.B: The rest of the data on this sheet is not to be used for analysis of any other	A definition of the annual cap has been included in the PDD (chapter E.5.) as follows: In the case of Syra 2, the daily design capacity of 400t/day multiplied by the annual number of operating days (348) results in 139,200 t HNO3. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
		parameters since this data has not been subjected to the statistical analysis required by AM0034. The final worksheet provides a clear summary of all previous data.	
Corrective Action Request 5. A new environmental permit No M 481-09, dated 17th June 2010 was issued by the Swedish environmental authorities to the plant. According to SWEDISH ENVIRONMENTAL PROTECTION AGENCY (Email from EPA on 28.06.10) it is stated in the permit that Yara has to complete the measures which were undertaken during the permit process. Yara did undertake some improvements for Syra 2, which means that there is a requirement in the permit on N2O, although it is not stated as a "limit value". The PDD must be revised by addressing the requirements of the new permit. It is requested to update the description of the legal situation and the baseline identification section and to revise the ERs estimation if necessary.		The new environmental permit issued on the 17th June 2010 does not set any limits on N2O and gives neither an obligation nor an incentive for the plant to reduce its emissions before the end of 2012. However, in discussions between the environmental authorities and the plant prior to the issuance of the permit, the plant agreed to undertake to achieve the IPPC BAT reference value in the year 2013 (in so far as there is a BAT value applicable for atmospheric plants at that time). This understanding was confirmed in an email from Emma Hakansson from the Swedish Environmental Protection Agency on the 14th July 2010: *"In the so called 'general condition' in the permit from the Court, it is stated (in summary) that Yara has to: "undertake to fulfil BAT for Syra 3, and as far as there is BAT for atmospheric plants at that time, also fulfil BAT for Syra 2, **both year 2013**".* In her email, she also goes on to state, for the purposes of clarification: "*I can also repeat what I have mentioned earlier: As a consequence of Yara's future participation in the European Union Emissions Trading Scheme year 2013, there are*	The revised PDD was reviewed by the audit team. An official letter from EPA confirmed the statement regarding BAT fulfillment from 2013 onwards. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
		no conditions with limit values on N2O in the permit". The baseline scenario would therefore be not to install any N2O abatement catalyst in the S2 plant before the end of 2012 and thereafter to install enough catalyst to meet any applicable IPPC BAT reference value for atmospheric plants, should there be one in place at that time. The following sections of the PDD have been modified to reflect the above points: Section A.4.3 Section B.1, step 2, 3rd paragraph Section E.4 The following sections of the PDD have been modified to reflect the new NOx emissions limit applicable at the plant since 17th June 2010: Section B.1, Step 1a, 1.4 Section B.1, Step 2, 4th paragraph Footnotes 20 & 23	
According to AM0028 applied for baseline identification, following options need to be discussed. • The continuation of the current situation,	B.1.2.2.	Step 1b under 'identification of the baseline scenario' in section B.1 of the PDD now addresses all possible options that are technically feasible to handle NOx emissions. In order not to repeat the same points more than once, reference is made	The PDD has been revised accordingly and all options listed in CDM methodology are discussed in step 1b.

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
where either a DeNOx-unit is installed or not; • Installation of a new Selective Catalytic Reduction (SCR) DeNOx unit; • Installation of a new Non-Selective Catalytic Reduction (NSCR) DeNOx unit; • Installation of a new tertiary measure that combines NOX and N2O emission reduction. **Corrective Action Request 6.** It is required that all possible options that are technically feasible to handle NOx emissions should be considered. Section 1.4 does not include all options listed in CDM methodology applied. At least reference to other sections needs to be given, if the discussion is done in another part of the PDD.		in this section to above sections of the PDD where these points have already been addressed.	This finding is closed. ☑
Corrective Action Request 7. The PDD does not include any discussion on the sub steps 5a and b of AM0028. Please include a discussion on that issue in order to comply with methodological requirements. As mentioned also in CR03: The procedure included in PDD in Step 5 should not deviate from methodology without any reasonable explanation.	B.1.35	The PDD now includes sub steps 5a and 5b of the methodology AM0028 regarding the re-assessment of the baseline scenario in the case of new or modified NOx or N2O regulations. Furthermore, the whole of section B.1 has been modified to accurately reflect the approach taken in AM0028 to the assessment of the baseline scenario. *The procedure included in PDD Step 5 has been adjusted to reflect the exact wording of the methodology AM0028 ver 04.2.*	The PDD has been revised to comply with sub steps 5a and b of AM0028. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
Corrective Action Request 8. Section B.4 refers only to preliminary baseline emissions factor, which has been calculated by Mrs Rebecca Cardani-Strange of N.serve Environmental Services GmbH on the 9th December 2009. Please state the name(s) of the person(s)/entity(ies) who sets the baseline scenario defined under B.1. of the PDD.	B.4.1.	The names of the people setting the baseline have now been defined in section B.4.	The PDD has been revised. Name of person who set the baseline has been included. This finding is closed. ☑
Corrective Action Request 9. The baseline was identified in the PDD in section B.1. Please provide date of baseline setting (DD/MM/YYYY) in section B.4. as required by the GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM	B.4.2.	The date of baseline setting has now been included in the PDD in section B.4. *The date of the baseline setting has now been changed to 01.03.2010 in section B.4.*	The PDD has been revised. Date of baseline setting has been included. This finding is closed. ☑
Corrective Action Request 10. PP´s should mention the crediting period on the basis of existing regulations in Chapter C.3. Additionally they can include the statement for applying to a crediting period of 10 years as the end of the crediting period can be after 2012 if the relevant additional host country approval will be available (acc. to JI Glossary). The status of ERs generated by the project after the end of the fist commitment period may be then determined by any	C.3.1.	The approach to the crediting period is now stated in more detail in section C.3. It has now been stated in section C.3 that an extension of the crediting period would be subject to host party approval.	The length of crediting period has been correctly stated in the revised PDD. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
relevant agreement under the UNFCCC. Further crediting period extension is subject to the host party approval as described in the Glossary of JI terms and JI Determination and verification manual, so please state so in the revised PDD.			
Corrective Action Request 11. The list of monitoring parameters does not address the real monitoring situation on-site as there are several AORs with several instruments. E.g. As there are six AORs the gauze composition have to be monitored for each of them. Additionally clarification is requested on the measurement of HNO3, which is described as coriolis flow measurement in the PDD. However, during onsite audit information was gathered that it is a differential pressure instrument.	D.1.14.	The measurement approach in general has now changed quite significantly as a result of the project-specific approach (as mentioned under CAR3 above). The remaining measurement approaches have been described in more detail (ex: P10 in table D.1.1.1). The description of the HNO3 flow measuring device has now been changed to reflect the fact that this is a differential pressure device and not a Coriolis flow meter.	The list of monitoring parameters has been revised. It includes all parameters which are necessary for monitoring of the projects. Moreover it includes also some trip point parameter. Information on the type of HNO3 measurement device has been corrected. This finding is closed. ☑
Corrective Action Request 12. A statement on the requirement on stakeholder consultation of the Swedish DFP should be provided in the Chapter G.1. of the PDD.	G.1.1.	A statement regarding the public consultation to be undertaken by the DFP has now been included in section G.1.	The revised PDD includes the information. This finding is closed. ☑
Additional Request 1 PDD Chapter A.2.: Please check the information provided in the 2nd clause of the chapter A.2 and ensure its compliance with the official		The project participants are confused by this request for three reasons. We also hope that the reasons provided below will help to answer the	The issue is clarified. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
homepage information.		additional request: 1) The wording of the request is extremely vague. The 2nd clause of chapter A.2 contains all the basic plant information, including daily design capacity, pressure, campaign length, annual production and start-up year of the Syra 2 plant. There is no specific mention on the official homepage of any of the above parameters, so it is therefore not possible to check its compliance. 2) After some internal discussion, we can only assume that the additional request refers specifically to the start of nitric acid production at Köping, since the homepage does make a very general statement that nitric acid was first produced at Köping from 1946.The subject of this PDD is specifically identified as being the Syra 2 plant and the production start date for Syra 2 is specified as 1955. This has nothing to do with the general start of production at Köping, which came from its earlier Syra 1 plant (since the plants are logically numbered in chronological order). Syra 1 is no longer in operation. 3) Hard evidence proving the start-up year of	

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
		the Syra 2 plant was provided to the Tüv Süd auditing team on-site and accepted with no problems.	
Additional Request 2 PDD Chapter A.4.2, sub chapter "Catalyst Technology": Please reconsider the statement given on page 6 that no other atmospheric plants in the world besides BASF in Ludwigshafen are undertaking JI or CDM projects, since there is at least one which undertakes CDM project.		The statement regarding atmospheric plants under "Catalyst Technology" in Chapter A.4.2 has now been amended to reflect the current situation.	Other CDM/JI projects undertaking a similar project activity have now been considered in the description given in the revised PDD. This finding is closed. ☑
Additional Request 3 Please correct the version of the approved CDM methodology AM0034 which selected elements have been applied (correct version is 03.4). Furthermore please correct the format of the header e.g. on page 10 and the following. Please include correct pages e.g. after the page 20 the new numbering begins.		All references to methodology AM0034 ver 03.04 have now been corrected in the PDD to 03.4. The header format from page 10 onwards has now been corrected. Correct page numbers have now been inserted after page 20.	The revised PDD now mentions a correct version of AM0034. The format was corrected as well. This finding is closed. ☑
Additional Request 4 PDD p.9: data recorded during the 7 days of the plant operation to show that the actual emission factor is above 4.5 kgN2O /tHNO3: Pls. amend the description given on the page 9. In doing so please mention whether the		The section regarding measurement of emissions during 7 days in June 2010 (page 9) has now been amended: - It is stated that the measurements were carried out with an analyser that has suc-	The documents provided show that the data obtained during the 7 days of the plant operation can be considered as representative and therefore can be used in order to demonstrate that the actual emission

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
measuring equipment used (AMS) was QAL 2 tested and its results were taking into account, whether the plant was operating within the normal operating ranges during those 7 days, whether the gauzes composition and supplier were the same as in the historical campaigns, whether the daily design cap was not exceeded during those 7 days of operation.		cessfully passed a QAL 2 test (amendments have also been made in D.1, sections 1, 3 & 8 in order to reflect this) - It is stated that the daily design capacity of the plant was not exceeded on any of the 7 days. - The PPs have included details of the statistical analysis that was conducted to determine that the plant was operating within normal operating ranges during the 7-day measurement period. *Please find attached the excel spreadsheet with details of this statistical analysis ('S2 Op. parameter overview May-August 2010').* - Details have also been included to demonstrate that the catalyst pack most recently installed in burner system 1 at S3 is the same composition as the previous gauze pack that was installed in system 1 in September 2008. Please see the confidential spreadsheet *'variation S2 new catalyst vs previous CONFIDENTIAL'* for more details, as well as the supporting document *'new & previous S2 gauze composition CONFIDENTIAL'.*	factor is above 4,5 kgN2O /tHNO3. This finding is closed. ☑
<u>Additional Request 5</u> Please amend the chapter A.5 of the PDD by		Section A.5 has been amended to state that an	The respective Letters of Approval have been provided to the assess-

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
including the information on the project approval by all parties involved as required by the §31 of JI Guidelines.		investor LoA will be applied for following receipt of the host LoA and both LoAs will subsequently be made available to Tüv Süd. Once the investor LoA has been received, the PDD will be amended to include more specific information on the investor country/ies. Thereafter, all documentation will be submitted to the JISC for final registration of the project.	ment team (IRL36, 47). The PDD was amended accordingly. This finding is closed. ☑
Additional Request 6 PDD Chapter B.1: Please mention explicitly the annual design capacity and relevant assumptions for its calculation (as only daily design capacity is available) when listing all the applicability criteria on p. 13 of the PDD or at least refer here to the relevant PDD section.		The annual design capacity and relevant assumptions for its calculation have now been included in point 1 of Chapter B.1 on page 13.	The annual design capacity was explicitly mentioned in the section B.1 of the revised PDD. This finding is closed. ☑
Additional Request 7 Simple cost analysis: please document the costs associated with JI project as required by the Additionality Tool.		A simple cost analysis table has now been included in the PDD in the 'investment barriers' section of Chapter B.1.	A table summarizing the project related costs has been included in revised PDD. The respective evidence confirming the costs has been provided for the confidential sight of the assessment team during the on-site visit. This finding is closed. ☑

Clarifications and corrective action requests by the assessment team	Reference to table 1	Summary of project owner's responses	Determination team conclusion
Additional Request 8 Please mention the control charts to be used for evaluation the zero/span drift in the sub-section QAL3.		It is now stated in this section that control charts will be used for evaluating the zero/span drift. However, the participants are reluctant to specify any particular type of chart in the PDD, since this could be restrictive if the plant decides to use a different type in the future.	The control charts are now mentioned to be used for evaluation of the zero and span drift. This finding is closed. ☑
Additional Request 9 PDD section 8 P. 40. AMS QA procedures- N_2O-Analyser Zero Calibration: Please correct the wording as zero and span check cannot be considered as a calibration. Please use check or adjustment in this respect.		The wording has now been amended accordingly in the PDD section 8 (page 40).	The wording has been amended. This finding is closed. ☑
Additional Request 10 The PDD includes emission reductions which can be achieved beyond 2013. Those ERUs are only applicable in case relevant post Kyoto regulations are in place and the plant is not in EU ETS after 2012. Please make sure that the figures presented consider the new environmental permit issued in June 2010 which requires fulfilment of BAT after 2012, the ERs should be recalculated if necessary.		Two paragraphs have now been added to the PDD (sections A.4.3.1 and E.4) to explain that there is currently no BAT reference value for atmospheric pressure nitric acid plants, but should one be introduced, S2 will be forced to comply with it from 2013 onwards and so the figures in the tables would be adjusted accordingly.	The additional explanation included in revised PDD is considered to be sufficient. This finding is closed. ☑

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

Table 4 Forward Action Requests

Forward Action Requests by validation team	Ref. to table 1	
Forward Action Requests 1: QAL1 certificate for analyser have to be available at 1st verification.	D.1.1.10.	

Industrie Service

Annex 2: Information Reference List

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
		Onsite interviews carried out on February 17-18th 2010 by TÜV SÜD: Onsite Validation Team: Ms. Olena Maslova — GHG Auditor — TÜV SÜD Mr. Martin Hammer — GHG Auditor-(T) — TÜV SÜD Interviewed Persons: Mr. Gilles Raskopf — Plant Manager — YARA AB Mr. Axel Pallin — Process Engineer — YARA AB Mr. Pär Höök — Production Manager — YARA AB Mr. Lars Häkan Karlsson — HESQ-Manager — YARA AB Mr. Jozef Meglic — Automation Engineer — YARA AB Mr. Albrecht von Ruffer — Managing Director — N-Serve Ms. Rebecca Cardani-Strange — Project Manager — N-Serve		
0.	UNFCCC Webpage	Project Design Document for JI track 2 project "YARA Köping S2 N2O abatement project in Sweden", dated February 11, 2010 version 3 as available at http://ji.unfccc.int/UserManagement/FileStorage/JZ2DIEAUYV5WM8O9TP3XSHR1QF6BK0	15/02/2010	Published PDD
1.	UNFCCC Webpage	CDM Methodology AM0034 version 3.4 and AM0028 version 4.2	15/02/2010	
2.	N-serve	FINAL Project Design Document for JI track2 project "YARA Köping S2 N2O abatement project in Sweden", dated September 2, 2011 version 8	19/09/2011	Final PDD
3.	YARA SA	Letter from Knut Bjørgo, Yara Catalyst department, concerning installation of Yara N2O	27/02/2010	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
		abatement catalyst 58-Y1 in Syra 2, dated on February 23, 2010		
4.	YARA AB	Process Flow Chart of Syra 2 nitric acid plant Nr I3-6002	18/02/2010	
5.	YARA SA, N-Serve	JI project master agreement between Yara and N.serve Environmental Services GmbH dated on April 2008	18/02/2010	
6.	YARA AB	Project Schedule from N.serve	18/02/2010	
7.	Det Norske Veritas	Det Norske Veritas – Management System Certificate for Yara AB ISO 9001:2008 dated on October 20, 2009	18/02/2010	
8.	Det Norske Veritas	Det Norske Veritas – Management System Certificate for Yara AB ISO 14001:2004 dated on March 04, 2008	18/02/2010	
9.	YARA AB	Procedure for N2O catalyst installation with Document ID: AGRI-26595 (S3 and S2)	18/02/2010	
10.	YARA SA	Safety data sheet for N2O Abatement Sheet 58-Y1, 58-Y1-S dated on May 15, 2009	18/02/2010	
11.	YARA AB	Print screen of control monitor for S2 printed in control room	18/02/2010	
12.	YARA AB	Print out “Koping plant business model analysis – Production Planning” with roadmap of HNO3 production until 2012 (S3 and S2)	18/02/2010	
13.	YARA AB	UHDE Study concerning improvement of the existing nitric acid plant with increase of total capacity, document Nr. 02-96-11767	18/02/2010	
14.	YARA AB	Print out of automatic notification list from SAP (S3 and S2) with notifications from 15.02.2010 to 18.02.2010	18/02/2010	
15.	County Administrative Board of	Email from Martin Wänerholm, County Administrative Board of Västmanland	12. Februar 2010	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
	Västmanland			
16.	YARA AB	Daily data (S3 and S2) for October and November 2009 from HNO3 measurement and HNO3 calculation via NH3 input for crosscheck	18/02/2010	
17.	YARA AB	Procedure for HNO3 density measurement for laboratory Koping with Document ID: AGRI-25565	18/02/2010	
18.	YARA AB	Accreditation certificate for laboratory Koping Organisation Number 556042-6792	18/02/2010	
19.	Swedac Ackreditering	Production shift report - Koping with Reference ID 2010-02-16-D (S3 and S2)	18/02/2010	
20.	YARA AB	Report to Environmental Authority Year 2006 dated on March 15, 2007 including notification on upgrading of SCR DeNOX unit (page 19)	18/02/2010	
21.	SUPRA	Page 2-4 of DeNOx installation manual	18/02/2010	
22.	YARA AB	Procedure on data extraction from DCS and transfer to n.serve, Document ID AGRI-26597	18/02/2010	
23.	YARA AB	Print out with formulae used for calculation of N2O emissions for reporting requirement to authority (S3 and S2)	18/02/2010	
24.	YARA AB	Page 12 to 20 of latest IPPC Report dated on March 10, 2005 (S3 and S2)	18/02/2010	
25.	YARA AB	Reporting tables showing NOx emissions for the years 2006 to 2009 (S3 and S2)	18/02/2010	
26.	Koncessions-nämnden för Miljöskydd	Permit BESLUT Nr 72/89 1 (91) with NOx emission limits (S3 and S2)	18/02/2010	
27.	Koncessions-nämnden för	Permit BESLUT Nr 80/93 1 (24) with HNO3 production capacity (S3 and S2)	18/02/2010	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
	Miljöskydd			
28.	YARA AB	Page 33 and 34 of Memo Report dated on August 2008 with HNO3 production figures for 2006 and 2007 (S3 and S2)	18/02/2010	
29.	YARA AB	Yara Production Reports with monthly data for the years 2008 and 2009 (S3 and S2)	18/02/2010	
30.	YARA AB	Figures on annual days in operation for the years 2005 to 2009 (S3 and S2)	18/02/2010	
31.	Dr. Födisch Umweltmess-technik AG	Dr Födisch Site acceptance protocol CEMS notifying operator´s training on CEMS dates on November 19, 2009	18/02/2010	
32.	YARA AB	Yara AB list of persons attended Dr. Födisch training on MCA04	18/02/2010	
33.	Dr. Födisch Umweltmess-technik AG	Quotation for QAL 2 dated on October 29, 2009	18/02/2010	
34.	TÜV Rheinland	Letter from TÜV Rheinland concerning MCA04 QAL 1 examination	18/02/2010	
35.	YARA AB	DCS print out of trip limits (S3 and S2)	18/02/2010	
36.	Swedish Energy Agency	Letter of endorsement issued from Swedish Energy Agency dated on November 11, 2009 Letter of Approval issued by Swedish Energy Agency dated on August 16, 2011 Letter of Approval issued by Swedish Energy Agency dated on September 15, 2011 (due to minor changes in the PDD)	04/02/2010 01/09/2011 19/09/2011	Host country approval
37.	Swedish Environmental Protection Agency	Email from Emma Håkansson, SWEDISH ENVIRONMENTAL PROTECTION AGENCY, dated on February 10, 2010	10/02/2010	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
38.	European Commission	Integrated Pollution Prevention and Control Reference Document on Best Available Techniques for the Manufacture of Large Volume Inorganic Chemicals - Ammonia, Acids and Fertilisers dated on August 2007	18/02/2010	
39.	YARA AB	Delta V Service Agreeement from Emerson for period 2008 to 2013 Nr. 46038400	18/02/2010	
40.	DEHST	DEHST- HANDBUCH FÜR JI-PROJEKTE MIT DEUTSCHLAND ALS INVESTORSTAAT – LEITFADEN FÜR ANTRAGSTELLER Version 1.2 dated on November 2009	18/02/2010	
41.	N-serve	ERU calculation sheet “S2 ERU calculations Tuev.xls” and “Swedish plant summary_100723.xls”	23/03/2010 23/07/2010	
42.	TÜV Rheinland	QAL 1 Certificate for FMD 99 issued	18/02/2010	
43.	YARA AB	Purchase for AMS PO Nr. 4500967574 dated on 13.10.2009	18/02/2010	
44.	SWEDISH ENVIRONMENTAL PROTECTION AGENCY Implementation and Enforcement Department Industry Unit	Email from Emma.Hakansson@Naturvardsverket.se Letter from Emma Hakannsson - Confirmation N2O regulation in the plant permit.	28/06/2010 13/08/2010	
45.	NACKA TINGSRÄTT Miljödomstolen	Environmental Permit M 481-09 dated on 17th of June 2010		
46.	YARA AB	Measurement data from 4th to 10th of June 2010 and respective evidence:	16/06/2010	

Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date(dd/mm/yyyy)	Additional Information (Relevance in JI Context)
		- Internal Order with primary gauze composition - Overview on operating parameters for the period from May to August 2010 - Analysis on composition variation of current and previous primary oxidation catalyst - Gauze change history S2		
47.	NL Agency	Letter of Approval issued by Netherlands' Ministry of Economic Affairs, Agriculture and Innovation, dated August 31, 2011	31/08/2011	Investor country approval
48.	Swedish Energy Agency	Email from Ms. Marie Karlberg [mailto:dna-dfp.sweden@energimyndigheten.se], dated October 26, 2011 confirming that no comments were received during the stakeholders' consultation process conducted by the Swedish Energy Agency.	27/10/2011	