VERIFICATION REPORT
AZOMURES SA

VERIFICATION OF THE
JI PROJECT AIMED AT N2O EMISSION REDUCTION BY INSTALLATION OF SECONDARY CATALYST INSIDE AMMONIA OXIDATION REACTORS AT 3 NITRIC ACID PRODUCTION PLANTS NA2, NA3, NA4 OF AZOMURES SA, COMPANY SITUATED IN TARGU MURES, ROMANIA

MONITORING PERIOD:
05 APRIL 2011 TO 13 JULY 2012

LINE NA4: 05/04/2011 - 13/07/2012

REPORT NO. POLAND-VER3/4090732/2012
REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Report No: POLAND- VER3/4090732/2012

VERIFICATION REPORT

Date of first issue: 18/10/2012	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Azomures S.A.	Client ref.: Mr. Ioan Soleriu

Summary:
Bureau Veritas Certification has made the 3rd periodic verification of the JI Track II Project "JI project aimed at N2O emissions reduction by installation of secondary catalyst inside ammonia oxidation reactors at 3 nitric acid production plants NA2, NA3 and NA4 of Azomures SA, company situated in Targu Mures, Romania", JI Registration Reference Number 0137, project of S.C. Azomures S.A. located in Targu Mures city, Mures County, Romania and applying the AM0034 "Catalyst reduction of N2O inside the ammonia burner of nitric acid plants" v03, methodology, on the basis of UNFCCC criteria for the JI, as well as the criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited Entity of the monitored reductions in GHG emissions during the defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Action Requests, Forward Action Requests (CR, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in the approved project design documents. The installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and is total **748 763** tons of CO2eq for the monitoring period.

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

Report No.: POLAND-VER3/4090732/2012	Subject Group: JI	
Project title: JI project aimed at N2O emissions reduction by installation of secondary catalyst inside ammonia oxidation reactors at 3 nitric acid production plants NA2, NA3 and NA4 of Azomures SA, company situated in Targu Mures, Romania		
Work carried out by: Tomas Paulaitis: Lead Verifier Liliana Voicu: Verifier		
Work reviewed by: Zsolt Bácskai		
Work approved by: Witold Dzugan		
Date of this revision: 14/11/2012	Rev. No.: 02	Number of pages: 26

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1 INTRODUCTION

S.C. Azomures S.A. has commissioned Bureau Veritas Certification to verify the emission reductions of its JI project, the „JI project aimed at N2O emissions reduction by installation of secondary catalyst inside ammonia oxidation reactors at 3 nitric acid production plants NA2, NA3 and NA4 of Azomures SA Company, situated in Targu Mures, Romania") located at Targu Mures city, Mures county, Romania, JI Registration Reference Number 0137.

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

The order includes the third periodic verification of the project for the monitoring periods, respectively:

- LINE NA2: is not included;
- LINE NA3: is not included;
- LINE NA4: 05/04/2011 - 13/07/2012.

1.1 Objective

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

The objective of verification can be divided in Initial Verification and Periodic Verification.

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

1.2 Scope

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Accredited Independent Entity. The verification is based on the submitted monitoring report, the determined project design documents including its monitoring plan and determination report, previous verification reports, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the JISC and any other information and references relevant to emission reductions resulting from the project activity. These documents are reviewed against the requirements of the Kyoto Protocol, the JI modalities and procedures and related rules and guidance and also against Romanian national JI guidelines (ref /50/)

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarification, corrective and/or forward actions may provide input for improvement of the project monitoring towards reductions in GHG emissions.

1.3 Verification Team

The verification team consists of the following personnel:

Bureau Veritas Certification Team Leader, Climate Change Verifier
Tomas Paulaitis is a lead auditor for the environment and quality management systems with over 10 years of experience and a lead GHG verifier (EU ETS, JI, CDM) with over 6 years of experience in energy, oil refinery, chemistry and cement industry sectors, he was/is involved in the determination/verification of more than 50 JI/CDM projects. Tomas Paulaitis holds a Master's degree in chemical engineering.

Bureau Veritas Certification, Climate Change Verifier
Liliana Voicu is QMS/EMS lead auditor and GHG verifier (JI, CDM)with 6 years of experience in EMS certification. She was/is involved in the determination/verification of 2 JI projects.

This verification report was reviewed by:

Zsolt Bácskai
Bureau Veritas Certification, Internal Technical Reviewer
Zsolt Bácskai is a lead auditor for environment, safety and quality management systems and a lead verifier for GHG projects. He has been involved in more than 150 days of work for GHG related projects.

2 METHODOLOGY

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

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

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

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

2.1 Review of Documents

The Monitoring Report (MR) version 1 dated 05/09/2012 submitted by S.C. AZOMURES S.A. and additional background documents related to the project design and baseline, i.e. the country Law, Project Design Document (PDD), Approved CDM methodology and guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on verification requirements to be checked by an accredited independent entity, were reviewed.

The verification findings presented in this report relate to the project as described in the PDD version 1.6 (dated 17/08/2010) and revised Monitoring report version 2 dated 14/11/2012.

2.2 Follow-up Interviews

On 14/09/2012 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of S.C. AZOMURES S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
S.C. AZOMURES S.A.	Organizational structure, responsibilities and authorities Project implementation and technology Training of personnel Quality management procedures Metering equipment control Monitoring record keeping system Environmental requirements
Vertis Finance Kft.	Monitoring plan Monitoring report Emission Reduction Calculation Model

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

If the Verification Team assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;

(b) Clarification request (CL), requesting the project participants to provide additional information for the Verification Team to assess compliance with the monitoring plan;

(c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

The Verification Team will make an objective assessment whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the verification.

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

3 VERIFICATION CONCLUSIONS

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

The findings from the desk review of the original monitoring documents and the findings from interviews during the follow-up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 0 Corrective Action Requests, 0 Clarification Requests, and 0 Forward Action Requests.

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

3.1 Remaining issues and FARs from previous verifications

There are no remaining issues and FARs from previous verifications.

3.2 Project approval by Parties involved (90-91)

The written project approval was issued by France on 18/07/2010 by the DFP of that Party (Ministry of Ecology, Energy, Sustainable Development and Sea NL Agency) when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest.

The above mentioned written approval and approval issued by Romania on 10/05/2010 by the DFP of that Party (Ministry of Environment and Forests Romania) are unconditional.

3.3 Project implementation (92-93)

The purpose of the project is the reduction of nitrous oxide (N2O) emissions from nitric acid production Lines at the nitric acid plant of AZOMURES SA. The Company is situated in Targu Mures, Romania.
AZOMURES operates three production Lines: NA2, NA3, NA4. AZOMURES production lines use a dual pressure technology operating at 2.6-4 bars ammonia oxidation pressure and 8 bar absorption pressure. Nameplate capacity for the plants is in total 2200 metric tons of nitric acid per day (725 metric tons per day in NA2 and NA3 and 750 metric tons per day in NA4).

Installation of secondary N2O reduction catalyst underneath the primary catalyst precious metal catching and catalytic gauzes package in the ammonium burner as a N2O abatement technology and additional monitoring system was applied at three production lines NA2, NA3, NA4 of AZOMURES plant according to the PDD version 1.6, dated 17 of August 2010 and the Monitoring Plan, described in the PDD version 1.6. Secondary catalysts were installed in all 4 ammonia oxidation reactors of production lines NA2, NA3 and NA4. The secondary catalysts were placed in the appropriate support structure. The gap between the edge of the support structure and inside wall of the ammonia burner was sealed to prevent the process gas by-passing the secondary catalyst. In this way the technology ensures that all gases which pass through the primary catalyst also will pass through the secondary catalyst.

An N2O emission monitoring system is installed in 3 nitric acid lines of the plant, each with its own burner, absorption column and expansion turbine. Each production Line represents a separate nitric acid production unit, independent from each other.
AMS installed at the operating plant is in compliance with the European norm EN14181, which assumes three levels of quality assurance of the measurement systems - QAL1, QAL2 and QAL3.

The current (3rd) project campaign contains only line NA 4 last from 05/04/2011 to 13/07/2012.

The actual operation of the proposed project is carried out in line with the specified arrangements, meaning defined procedures for data transfer for Emission Reductions calculation. Standard maintenance operations were carried out, the equipment and monitoring system operates reliably. The project activity is completely operational and this has been confirmed during an on-site audit.

3.4 Compliance of the monitoring plan with the monitoring methodology (94-98)

The monitoring occurred in accordance with the monitoring plan included in the PDD version 1.6 regarding which the determination has been deemed final and is so listed on the UNFCCC JI website: http://ji.unfccc.int/UserManagement/FileStorage/8TCXFP1AU7EMGK5J0VQNYDSRO9IWLH

For calculating the emission reductions, key factors, such as: NH3 Flow, Air flow, N2O concentration in the tail gas, Volume of the tail gas flow, Nitric acid flow; Tail gas temperature; Tail gas pressure, Oxidation reactor temperature and pressure influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project, such as reliable operation of the AMS, were taken into account, as appropriate.

Baseline emission factors and project emission factors for emission reduction calculations for Lines NA2, NA3, NA4 has been established on the line-specific basis. The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner. In particular conservative approach has been used in the statistical evaluation, which is applied to the complete data series of N2O concentration as well as to the data series for gas volume flow on every production line on AZOMURES plant. Detailed calculations are correct and described transparently in the Monitoring Report and Calculation models.

3.5 Revision of monitoring plan (99-100)

Not applicable.

3.6 Data management (101)

All data collection procedures are implemented in accordance with the monitoring plan, including the quality control and quality assurance procedures. These procedures are listed in the section “References” of this report.
After the end of the project campaign all raw data are being sent to consultancy company Vertis Environmental Finance which is responsible to carry out final emission reduction calculations using Excel based calculation models. Formulas and assumptions were verified and no discrepancies or mistakes found, except of CAR1. CAR1 was resolved in the revised Monitoring report version 2, refer Table 2.

The Measurement equipment (including the Automatic measurement system and the Measurement system) is controlled and calibrated according to the requirements of internal procedures.

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 3rd periodic verification of the JI Track II Project "JI project aimed at N2O emissions reduction by installation of secondary catalyst inside ammonia oxidation reactors at 3 nitric acid production plants NA2, NA3 and NA4 of Azomures SA, company situated in Targu Mures, Romania", located in Romania which applies the AM0034 "Catalyst reduction of N2O inside the ammonia burner of nitric acid plants" v03. The verification was performed on the basis of UNFCCC criteria and the host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

The management of S.C. AZOMURES S.A. is responsible for the preparation of the data on GHG emission and the reported GHG emission reductions of the project on the basis set out within the project Monitoring and Verification Plan indicated in the final PDD version 1.6 issued on 17/08/2010. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 2 dated 14/11/2012 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in the approved project design documents. The installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is accurately calculated and is free of material errors, omissions or misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Based on the information we have seen and evaluated, we confirm, with a reasonable level of assurance, the following statement:

Reporting period: From 05/04/2011 to 13/07/2012

Line NA4
Emission Reductions (2011): 451 236 t CO2 equivalents
Emission Reductions (2012): 297 527 t CO2 equivalents

Total: 748 763 t CO2 equivalents.

5 REFERENCES

Category 1 Documents:
Documents provided by S.C. AZOMURES S.A. that relate directly to the GHG components of the project.

/1/ Project Design Document, version 1.6 dated 17 of August 2010
/2/ Determination Report by Det Norske Veritas Certification AS (DNV), No 2009-1241, revision 02 dated 27 August 2010
/3/ 1st Verification report, issued by Bureau Veritas Certification, No POLAND-VER1/4090732/2010, rev. 06 dated 19/02/2011
/4/ 2nd Verification report, issued by Bureau Veritas Certification, No POLAND-VER2/4090732/2011, rev. 02 dated 16/02/2012
/5/ 3rd Monitoring Report version 1 dated 05/09/2012
/6/ 3rd Monitoring Report version 2 dated 14/11/2012
/7/ CALCULATION MODEL: AzoMures L4 EmissionReduction vB_Overlap_P3_22, last modified 14/09/2012
/8/ CALCULATION MODEL: AzoMures L4 EmissionReduction vB_Overlap_P3_22, last modified 14/09/2012

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

/1/ AM0034 “Catalyst reduction of N2O inside the ammonia burner of nitric acid plants” v03
/2/ Clarification regarding overlapping monitoring periods under the verification procedure under the joint implementation supervisory committee (version 01)
/3/ EN 14181:2004 Stationary source emissions - Quality assurance of automated measuring systems
/4/ QAL1 Report according to EN ISO 14956 MIR 9000 (N2O) Automated Measuring System, v.0/17 March 2008 issued by Environment SA
/5/ QAL1 Evaluation acc. to DIN EN 14956 fro D-FL 100 flow-meters, issued by DURAG Group on 01 March 2007
/6/ QAL 2 report issued by AIRTEC on 22/01/2009 (NA Line 4)
/7/ AST report issued by SGS on October 2009 (NA Lines 2,3,4)
/8/ AST report issued by SGS on December 2010 (NA Lines 2,3,4)
/9/ AST report issued by SGS on November 2011 (NA Lines 2,3,4)
/10/ Certificate of Accreditation for AIRTEC Laboratory regarding confirmation with Standards DINEN ISO/IEC DIN17025 and EN ISO/IEC 17011, registration number DAP-PL-4170.00, valid until 2012-04-01
/11/ Certificate of Accreditation for SGS Laboratory regarding confirmation with Standard ISO, registration number L- 092, valid until 2013-01-05
/12/ Calibration Report according to EN 14181 no. IS-US1-MUC/th/1134941/22.01.2009 for the AMS in line NA2, NA3 and NA4, issued by AIRTEC (QAL2)
/13/ Calibration, verification and maintenance sheet for MIR 9000 N2O Analyzer (in line NA4), s/n 1918, July 2007 to August 2012
/14/ Calibration procedure for MIR 9000 Serie 1917, NA Line 4
/15/ Calibration records of MIR 9000 Serie 1917, NA Line 4
/16/ Maintenance sheets for MIR 9000 Series 1917,1918,1919 according to calibration procedure.
/17/ N2O analyzer monitoring procedure
/18/ Operation Manual for D-FL 100 flow-meters issued by DURAG Group
/19/ Copies of the maintenance sheets for production line NA4
/20/ List of monitoring equipment NA2/NA3/NA4
/21/ Azomures N2O REDUCTION PROJECT – Emission Model DATABOOK – Compliant with AM0034, Version 03.2
/22/ Integrated Environmental Authorization no. Sb 84/30.10.2007, revised with 20.03.2012, valid until 31.12.2015
/23/ Quality Assurance Manual – The Validation of the monitoring of the data according to QAL3 under EN 14181, dated 21 March 2008
/24/ Government Ordinance no. 152/10.11.2005, related to Prevention and integrated Control of Pollution Law
/25/ General maintenance program – 2011, 2012
/26/ Metrological confirmation bulletin no.00785/25.07.2012 for Pt-Rh 10%-Pt thermocouples with s/n 1486, 1697, 1492, 61, 1680, 35, 1490 and 1492 (for sieves A, B, C and D)

/27/ Metrological confirmation bulletin no.00780/19.07.2012 for Pt-Rh 10%-Pt thermocouples with s/n 1681, 1682, 1683, 1684, 1685, 1686
/28/ Metrological confirmation bulletin no.00784/28.07.2012 for digital thermometer of sieves with s/n 000111, 000211, 000411, 000511
/29/ Metrological confirmation bulletin no.00938/03.08.2012 for electromechanical flow-meter s/n 73728950 (NH3 flow)
/30/ Metrological confirmation bulletin no.00939/03.08.2012 for electromagnetic flow-meter s/n 6201B819000 (HNO3 flow)
/31/ Metrological confirmation bulletin no. 00940/03.08.2012 for electromagnetic flow-meter s/n 430346 (tail gas flow)
/32/ Metrological confirmation bulletin no. 00943/11.08.2012 for gas analyzer MIR 9000 s/n 1917
/33/ Certificate ISO 6141 dated 16.05.2012 (valid 16.05.2013) for N2O tank replaced in installation on 22.08.2012, with serial 1917
/34/ Maintenance Sheet foe MIR 9000 Analyzer (weekly verification and calibration on 22.08.2012)
/35/ Metrological confirmation bulletin no. 00554/03.08.2012 for universal digital indicator Endress-Hauser s/n 6200 AF02 00 (measurement of HNO3 density and temperature)
/36/ Metrological confirmation bulletin no. 00553/10.08.2012 for indicator ISU-MMC-24C s/n 53280
/37/ Metrological confirmation bulletin no. 00781/01.08.2012 for thermo-resistance s/n 1397 (temperature of tail gases)
/38/ Metrological verification bulletin no. 0136253/05.03.2012 for ABB pressure transducer s/n 93077501020 (pressure of residual gases)
/39/ Metrological verification bulletin no. 0136296/01.03.2012 for differential pressure transducer Rosemount s/n 7411156 (main air flow)
/40/ Metrological verification bulletin no. 0136297/01.03.2012 for Foxboro differential pressure transducer s/n 16320351 (secondary air flow)
/41/ Reproducibility graphic for NA4 Span for period 19.05.2010 till 12.09.2012
/42/ Reproducibility graphic for NA4 Zero for period 19.05.2010 till 12.09.2012
/43/ Repeatability graphic NA4 Zero for period 19.05.2010 till 12.09.2012
/44/ Repeatability graphic NA4 Span for period 19.05.2010 till 12.09.2012
/45/ Procedure PO-49-001, ed.4, rev.0/14.05.2012 “Metrological laboratory activity”
/46/ Procedure PO-49-004, ed.2, rev.0/28.06.2011 “Monitoring of N2O gases emissions at HNO3 installation” – revision.1 is in draft to modify chapters 4.5 “Data acquisition” and chapter 4.6 “Data preservation”
/47/ Quarterly maintenance sheet for residual gases flow-meter
/48/ Annual maintenance sheet for residual gases flow-meter
/49/ Primary catalyst invoices
/50/ **National Romanian JI guidelines (PROCEDURE FOR APPROVING A JI PROJECT), http://ji.unfccc.int/UserManagement/FileStorage/PROYCLIYG7EURNSJMOW174IR88NMPW**

Persons interviewed:
List of persons interviewed during the verification or persons that contributed with other information that are not included in the documents listed above.

/1/ Ioan Soleriu, Azomures SA / Technical Director
/2/ Mircea Dudici, Azomures SA / Chief of Automation Section
/3/ Marius Gliga, Azomures SA / IT responsible
/4/ Steliana Petras, Azomures SA / Chief of Environment Office
/5/ Daniel Domanovsky Vertis Finance Kft. / Consultant

APPENDIX A: PROJECT VERIFICATION PROTOCOL

Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The written project approval was issued by France on 18/07/2010 by the DFP of that Party (Ministry of Ecology, Energy, Sustainable Development and Sea NL Agency) when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest. This Letter of Approval has been submitted to the secretariat during the determination process already.	O.K.	O.K.
91	Are all the written project approvals by Parties involved unconditional?	Yes, The above mentioned written approval and approval issued by Romania on 10/05/2010 by the DFP of that Party (Ministry of Environment and Forests Romania) are unconditional.	O.K.	O.K.
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Installation of secondary N2O reduction catalyst underneath the primary catalyst precious metal catching and catalytic gauzes package in the ammonium burner as a N2O abatement technology and additional monitoring system was applied at three production lines NA2, NA3, NA4 of AZOMURES plant according to the PDD version 1.6, dated 17 of August 2010 and the Monitoring Plan, described in the PDD version 1.6, as well as Monitoring Report version 2, issued on 14/11/2012. Secondary catalysts were installed in all 4 ammonia oxidation reactors of production lines NA2, NA3 and NA4. The secondary catalysts were placed in the appropriate support structure. The gap between the edge of the support structure and inside wall of the ammonia burner was sealed to prevent the process gas by-passing the secondary catalyst. In this way the technology ensures that all gases which pass through the primary catalyst also will pass through the secondary catalyst.	O.K.	O.K.

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		An N2O emission automatic monitoring system (AMS) is installed in 3 nitric acid lines of the plant, each with its own burner, absorption column and expansion turbine. Each production Line represents a separate nitric acid production unit, independent from each other. QAL1 and QAL2 certificates issued for AMS have been reviewed during the previous verification and was found acceptable to recognise that AMS measurement system is installed and is in compliance with European norm EN14181.		
93	What is the status of operation of the project during the monitoring period?	The project was fully operational during the 3rd monitoring period. The dates of the project campaign starting and end were verified accordingly to the records of daily event log and are not overlap with monitoring periods of the previous project campaigns which are already deemed final in accordance with paragraph 39 of the JI guidelines". LINE NA2 Is not included in the 3rd monitoring period LINE NA3 Is not included in the 3rd monitoring period LINE NA4 Project campaign 3 FROM: 05/04/2011 TO: 13/07/2012	O.K.	O.K.
Compliance with monitoring plan				

<table>
<tr><th>DVM Paragraph</th><th>Check Item</th><th>Initial finding</th><th>Draft Conclusion</th><th>Final Conclusion</th></tr>
<tr><td>94</td><td>Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?</td><td>The Excel based calculation tool “THE N2O EMISSION REDUCTION CALCULATION MODEL (CALCULATION MODEL) is developed to comply with the methodology AM0034 for “Catalytic reduction of N2O inside the ammonia burner of nitric acid plants” and the monitoring plan.

CALCULATION MODEL was analyzed to ensure that the requirements of the AM0034 and the monitoring plan are fulfilled. The results of this analysis are described in the table below:

<table>
<tr><th>Requirement</th><th>Results</th></tr>
<tr><td>Determination of the permitted operating conditions of the nitric acid plant to avoid overestimation of baseline emissions</td><td></td></tr>
<tr><td>- oxidation temperature and pressure (permitted range from PDD)</td><td>O.K.</td></tr>
<tr><td>- ammonia gas flow rates and ammonia to air ratio input into the ammonia oxidation reactor (permitted range from PDD)</td><td>O.K.</td></tr>
<tr><td colspan="2">Determination of baseline emission factor:</td></tr>
<tr><td>- the monitoring system is to be installed using the European Norm 14181 (2004)</td><td>O.K.</td></tr>
<tr><td>- error readings (e.g. downtime or malfunction) and extreme values are to be automatically eliminated from the output data series by the monitoring system</td><td>O.K.</td></tr>
<tr><td>$BE_{BC} = VSG_{BC} * NCSG_{BC} * 10^{-9} * OH_{BC}$</td><td>O.K.</td></tr>
<tr><td>$EF_{BL} = (BE_{BC} / NAP_{BC}) (1 – UNC/100)$</td><td>O.K.</td></tr>
<tr><td>- any N_2O baseline data that are measured during the hours when the operating conditions are outside the permitted range must be eliminated from the calculation of the baseline emission factor.</td><td>O.K.</td></tr>
<tr><td>- the baseline campaign operated inside the permitted range for more than 50% of the duration of the baseline campaign</td><td>O.K.</td></tr>
<tr><td>- concluded with 95% confidence level, that average values of the permitted operating conditions are not different from average values obtained during the baseline determination period</td><td>O.K.</td></tr>
</table>
</td><td>O.K.</td><td>O.K.</td></tr>
</table>

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		-impact of regulations: O.K.* - the composition of the ammonia oxidation catalyst: O.K. - campaign length: O.K. - historic campaign length: O.K. - baseline campaign length (CLBL): O.K. *Project Emissions:* - the monitoring system is to be installed using the guidance document EN 14181: O.K. - project campaign length (CLBL): O.K. - the composition of the ammonia oxidation catalyst: O.K. - error readings (e.g. downtime or malfunction) and extreme values are to be automatically eliminated from the output data series by the monitoring system.: O.K. PEn = VSG * NCSG * 10-9 * OH: O.K. - derivation of a moving average emission factor: O.K. - minimum project emission factor: N.A. * no specific limits for N2O emissions (no legal requirement in Romania), not yet specific requirements to monitor N2O emissions; it is expected that starting with December 2012 (new legal requirement in draft to implement EC Reg. 601/2012) to be compulsory to monitor N2O emissions.		
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project	See 94 above.	O.K.	O.K.

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	taken into account, as appropriate?			
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	The CALCULATION MODEL is designed in such a way, that all automatic links are implemented inside the spreadsheet and the model performs emission reduction calculations automatically. All assumptions and references to the original data sources are clearly demonstrated, e.g. monitoring data, calibration parameters, nameplate capacity, and the limit of extreme values.	O.K.	O.K.
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	Emission factors are calculated using CALCULATION MODEL. Formulas and assumptions were verified and no discrepancies or mistakes found. Default emission reduction factors are not used.	O.K.	O.K.
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	See 94 above.	O.K.	O.K.
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	Not applicable.	O.K.	O.K.
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	Not applicable.	O.K.	O.K.
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	Not applicable.	O.K.	O.K.
98	If the monitoring is based on a monitoring plan that	Not applicable.	O.K.	O.K.

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?			
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	Not applicable.	O.K.	O.K.
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	Not applicable.	O.K.	O.K.
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	All data collection procedures are implemented in accordance with the monitoring plan. The daily event register and N2O monitoring data (all raw data) are collected in an Excel file. After the end of the project campaign all campaign data are sent to Vertis Environmental Finance who prepares the CALCULATION MODEL. Formulas and assumptions were verified and no discrepancies or mistakes found, except of CAR1. CAR1: Calculation formula of the average historic campaign HNO3 production is not correct in CALCULATION MODEL, sheet 'CampaignLength' G10. Please correct formula and recalculate related cell H10 (average HNO3 production per day).	CAR1	O.K.
101 (b)	Is the function of the monitoring equipment, including its calibration status, in order?	The European Norm EN 14181 stipulates three levels of quality assurance tests (QAL) and one annual functional test for Automated Measuring Systems which are recommended to be used as guidance regarding the selection, installation and operation of	O.K.	O.K.

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		the Automated Measuring Systems under this Monitoring Methodology: 1. (QAL1). Application of tested Automated Measuring System (evaluation according to DIN EN ISO 14956). Calculation of Automated Measuring System uncertainty before installation according to EN ISO 14956. Findings: QAL 1 certificate for the AMS is issued on 17 March 2008 issued by Environment was reviewed and validated during the first verification already. 2. (QAL 2). Installation and Calibration of the Automated Measuring System according to the Standard Reference Measurement Method (SRM), determination of the measurement uncertainty/variability of the Automated Measuring System and inspection of the compliance with the prescribed measurement uncertainties. Findings: LINE NA4: QAL2 test providing regression lines and the combined uncertainty as further used in the model was performed in February 25 28, 2008 by company Airtec holding the ISO 17025 accreditation. During AST tests in August 3 – 6, 2009, October 28, 2010, November 2011 done by company SGS (holding the ISO 17025 accreditation) the NA4 measurements have passed the test. 3. (QAL 3). Continuous quality assurance through the local operator/manager (drift and accuracy of the Automated Measuring System, verification management and documentation). Findings: Monitoring maintenance procedure in the scope of QAL3 is implemented effectively, including checking according to CUSUM scheme in accordance with *Quality Assurance Manual – The Validation of the monitoring of the data according to QAL3 under EN 14181*, dated 21/05/2008.		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Other monitoring equipment is also controlled and calibrated according to *General maintenance programme*.		
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Raw data, entered to the CALCULATION MODEL was checked and compared with the data stored in the Data logger. It is validated that all data are used in traceable manner.	O.K.	O.K.
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	Yes, see 101 (a) above.	O.K.	O.K.
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	Not applicable.	O.K.	O.K.
103	Is the verification based on the monitoring reports of all JPAs to be verified?	Not applicable.	O.K.	O.K.
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	Not applicable.	O.K.	O.K.
104	Does the monitoring period not overlap with previous monitoring periods?	Not applicable.	O.K.	O.K.
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	Not applicable.	O.K.	O.K.
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as:	Not applicable.	O.K.	O.K.

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− The types of JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which emission reductions are being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	Not applicable.	O.K.	O.K.
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	Not applicable.	O.K.	O.K.
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	Not applicable.	O.K.	O.K.
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?	Not applicable.	O.K.	O.K.

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR1: Calculation formula of the average historic campaign HNO3 production is not correct in CALCULATION MODEL, sheet 'CampaignLength' G10. Please correct formula and recalculate related cell H10 (average HNO3 production per day).	101 (a)	CALCULATION MODEL was revised as requested. Average historic campaign HNO3 production value is provided as indicative values and therefore emission reduction results are not affected. Monitoring report version 2 is issued with revised Table T2, page 21.	Revised 3rd Monitoring Report version 2 (ref /6/) and CALCULATION MODEL (ref/8/) have been assessed and found correct, thus CAR1 is closed.