Project Title	**N2O Emission Reduction in Onsan, Republic of Korea**
ERM CVS Reference	**1780.V7**
CDM Project Reference Number	**0099**
Client Name	**Rhodia Energy GHG**

Request for Approval of Changes

Validation Opinion

ERM Certification and Verification Services
2nd Floor, Exchequer Court
33 St Mary Axe
London, EC3A 8AA

Version Control	**Date**
Version 01	25 June 2012

Table of Contents

Abbreviations

CAR	Corrective Action Request
CDM	Clean Development Mechanism
EB	Executive Board
CER	Certified Emission Reduction(s)
CL	Clarification Request
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
UNFCCC	United Nations Framework Convention for Climate Change
VVS	CDM Validation and Verification Standard

Project/Host Party specific abbreviations

AA	Adipic Acid
DCS	Distributed Control System
PIMS	Plant Information Management System
SAP	System, Applications and Products for Data processing

1. Project information

Project Title	"N2O Emission Reduction in Onsan, Republic of Korea"
CDM Project reference	0099
Project Location	City of Onsan, Republic of Korea
Host Party	Republic of Korea
Methodology	AM0021, Baseline Methodology for decomposition of N2O from existing adipic acid production plants
Methodology version number	Version 1
Sectoral Scope(s) (as per http://cdm.unfccc.int/DOE/scopes.html)	Sectoral Scope 5, Chemical industries

Monitoring report version made publicly available	Monitoring Report Version 1.1 dated 03 May 2012 Published on UNFCCC website on 9 May 2012
Monitoring Period	Monitoring Period #59 01 April 2012 to 30 April 2012
Date(s) of Site Visit	29 to 31 May 2012

Registered PDD and monitoring plan	PDD Version 8, dated 01 September 2005
Revised PDD	PDD Version 9, dated 13th June 2012
Date of Registration	27 November 2005
Crediting Period	01 September 2006 to 31 August 2013 (renewable)

2. ERM CVS Opinion - Request for Approval of Changes

ERM Certification and Verification Services (ERMCVS) was commissioned by Rhodia Energy GHG to verify and certify the emissions reductions reported for the period 01 April 2012 to 30 April 2012 as set out in the monitoring report of the CDM project activity N2O Emission Reduction in Onsan, Republic of Korea, Registration Reference 0099.

It has been identified that a change occurred during the monitoring period that impacts the both project design in the registered PDD and the monitoring plan.

Basis of verification	ERM CVS based its verification work on: ▪ the approved methodology applied in the project design document (PDD) ▪ the registered PDD ▪ previous verification reports ▪ the CDM Validation and Verification Standard (VVS) ▪ the CDM Project Standard (PS) and Project Cycle Procedure (PCP) ▪ UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords ▪ Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions ▪ Relevant guidance and clarification of the Executive Board applicable to this project: o EB 36 - Annex 8 o EB 39 - Annex 8 o EB 45 - Annex 13 o EB 48 - Meeting Report paragraph 24 and Annex 67 o EB 52 - Annex 60 o EB 54 – Annex 34 o Final ruling regarding the request for issuance of CERs " N_2O decomposition project of PetroChina Company Limited Liaoyang Petrochemical Company" o EB61 – Annex 11 – "Tool to determine the mass flow from GHG gaseous streams" version 2, 03/06/2011
Responsibilities of ERM CVS	ERM CVS is responsible to provide an independent conclusion on the impact of the changes that have occurred in accordance with the CDM Validation and Verification Standard.
Responsibilities of Project Participants	The Project Participants (PPs) are responsible for the preparation of the revised PDD and monitoring plan.
ERM CVS Opinion	ERM CVS assessed the post registration changes described in the revised PDD (including the updated Monitoring Plan). **1. Change to the project design of the registered project activity** Based on the validation activities undertaken, ERM CVS confirms that the post registration changes described and assessed in the present report do not adversely impact: a) Additionality of the project activity; b) Scale of the project activity; c) Applicability and application of approved baseline methodology under which the project activity has been registered or the later version of the applied methodology; d) The compliance of the monitoring plan with applied monitoring methodology; or e) The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. Since there is no adverse impact on a) b) or c) above, ERM CVS concludes that the change does not need prior approval of the Board as described in the Project Standard Appendix 1(IV).

	2. Change to the monitoring plan Based on the validation activities undertaken, ERM CVS confirms that the changes in the monitoring plan do not impact either: a) The compliance of the monitoring plan with applied monitoring methodology; or b) The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. However, since the permanent change to the monitoring plan is not of a type described in the Project Standard Appendix 1(III), ERM CVS concludes that the post registration changes requires prior approval by the Board. ERM CVS therefore requests approval of these changes prior to submission of the Request for Issuance for the monitoring period 01 April 2012 to 30 April 2012.

Request approved by		**Signature**
Name: **Melanie Eddis**		
Date: **26 June 2012**		

3. Introduction

This report sets out the methodology and conclusions of the validation of temporary or permanent changes to the operation, implementation and/or monitoring of the registered CDM project activity compared with the registered PDD and Monitoring Plan in accordance with the Project Cycle Procedure and Validation and Verification Standard (VVS)

ERM CVS conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team and our work does not provide any consulting or recommendations for the client.

3.1. Appointment of Team Members and Technical Reviewer

Based on ERM CVS's review of the project, a verification team was established that takes into account the coverage of the technical area(s), sectoral scope(s) and relevant host country experience for verifying the emission reductions achieved by the project activity in the relevant monitoring period for this verification

Personnel who undertook this verification were:

Verification Team	Role	CDM Knowledge	Technical Area	Participated in site visit?
Ying Li	Lead Verifier	Full	Partial	Yes
Alice Correa	Verifier	Full	Partial	No
Jeff Peng	Technical Expert	-	Full	Yes

Technical Review	Role	CDM Knowledge	Knowledge relevant to the Technical Area
Braulio Pikman	Technical Reviewer	Full	Full

Ying Li is an environmental engineer with extensive practical experience in the carbon market. She has worked in carbon markets since 2006 and gained extensive experience in the development and implementation of CDM projects, working in the area of project-based mechanisms. Her background includes both project validation and verification, in different sectoral scopes, including renewable energy, waste heat and gas recovery from iron and steel plants or cement plants, landfill gas combustion and utilization projects, coal mine methane, natural gas. She has developed and managed the validation/verification of number of CDM project activities, including experiences in CDM Project Design Document (PDD) development, the monitoring system building, data QA/QC, emission reduction calculation review and documentation review, where she has obtained a good understanding of technical aspects in these sectoral scopes as well as their specific CDM aspects.

Alice Correa has been working in the Climate Change field since 2010 and has more than and 20 years of professional experience in the environmental area. She has been involved in environmental audits and is experienced in developing documents and management system compatible with ISO 14001, OSHAS 18001, Ecuador Principles among others. She has conducted more than 100 projects associated to environmental audits/assessments for companies in diverse business sectors including chemical industries and has developed of GHG inventory for tobacco industry, which included the agricultural and processing activities. She has training as Lead Assessor for Mergers & Acquisitions, Auditing, Foundation Course in Environmental Auditing (EARA registered) and Advanced Environmental Management System Auditor. She is a civil engineer and has a Ph.D. in Engineering from the University of São Paulo and M.Sc. Environmental Sanitation (Chemical Engineering) from the University of Gent, Belgium.

Jeff Peng is a sector expert with 20 years of experience in the Chemical Industry. Mr Peng has acted as lead assessor on over 30 large-scale EIAs (environmental impact assessments) in the Chemical Industry, Petrochemical Industry and Pharmaceutical Industry and 50 small-scale EIAs for multinational clients. As Vice-chief engineer in SINOPEC, Jeff gained extensive experience working in industrial facilities which manufactured chemical fertilizer. Jeff also has experience in environmental aspects of the chemical industry such as pollution source investigation, pollution control and EIA, as mentioned above.

Braulio Pikman has over 25 years of experience in GHG, energy and air quality related initiatives. He has extensive experience with the oil and gas and energy sectors. He is an expert in thermal measurements, combustion, energy efficiency, Climate Change, CDM Methodologies related to adipic acid, nitric acid and caprolactam production and EN 14181 uses. He has coordinated the Thermal Measurements Laboratory of the Technological Research Institute of Sao Paulo for 10 years, working with Combustion & Gasification Experimental Diagnostics, Air Emissions Monitoring & Control, development of instrumentation for measurements in flames and Energy Conservation Projects to the Oil & Gas Sector, Petrochemical and also Pulp &Paper. He has been responsible for the energy conservation program of the National Petroleum Agency of Brazil from 2000 to 2002 regarding the industrial and Transportation Sectors. Finally he is a member of the Methodological Panel of the United Nations Framework Convention on Climate Change since June 2005.

4. Post registration changes

4.1. Approval of changes

With reference to the Project Standard, Project Cycle Procedure and the Validation and Verification Standard, during the verification a change to the project design (source of steam supply) was identified that does not impact additionality, scale or methodology applicability of the project activity. In accordance with the Project Standard Appendix 1, prior approval is therefore not required. However the same change has led to a permanent revision of the monitoring plan in the registered PDD that is not of a type listed in the Project Standard, Appendix I and therefore approval from the CDM Executive Board (EB) is required before the Request for Issuance for this monitoring period can be made.

These changes are described in detail below together with the validation by ERM CVS in accordance with the VVS.

4.2. Changes approved prior to the start of verification

No changes have already been approved prior to the start of the verification..

4.3. Temporary deviations from the registered monitoring plan or applied methodology

No temporary deviations from the registered monitoring plan and/or methodology were identified during the verification.

4.4. Corrections

No corrections to project information or parameters fixed at validation, as described in the registered PDD have been made.

4.5. Changes to the start date of the crediting period

No changes to the start of the crediting period have been made.

4.6. Permanent changes from the registered monitoring plan or monitoring methodology

The following permanent changes from registered monitoring plan and/or methodology were identified during the verification since this monitoring period.

4.6.1. Description of changes

During the verification activities of the monitoring period #59 it was noted that the source of steam was different from that primarily set out in the registered PDD:

- Before 17/04/2012, the steam consumed by the N2O unit was sourced from the existing plant boilers using natural gas (as primarily described in the registered PDD and monitoring plan and used as the basis of ex ante emission calculations).

- After 17/04/2012, the steam consumed by the N2O unit was sourced from an external supplier using different fuel types (a scenario referred to inconsistently in the registered PDD and monitoring plan)

This change only affects the calculation of the leakage value L through the determination of the E_Steam_c factor. There has been no change in the monitoring equipment of the CDM project which measures the steam flow (Q_steam_c). The parameter E_Steam_c is used in the calculation of the leakage L which is less than 0.01% of the total emission reduction ER in this project.

The Monitoring Plan in the registered PDD describes in details the determination of E_Steam_c for the case of steam sourced from internal plant boilers but not for the sourcing of steam from an external supplier.

Change #	PDD para	Monitoring Plan in the registered PDD	Description of the change
#1	Section 6.4 of Annex 4 – monitoring plan	E_Steam_c will need to be calculated ex-post at the point of time of preparation of the monitoring report for the period covering the starting date of the crediting period until the date of submission (maximum one year). **Calculation of E_Steam_c follows the rationale and the procedure outlined below.** The steam inlet of the decomposition facility will be connected to the 6 bar steam network at the Rhodia Polyamide plant. Hence, all steam consumed in the decomposition facility will be generated by the existing plant boilers which are fired by natural gas. The gas volume QNG_tsteam (Nm^3/ t of steam) required for generating one ton of steam at 6 bars is obtained by dividing the consumption of natural gas in the boiler QNG (Nm^3) by the production of steam of those boilers Qsteam (t) as shown in the following formula: $Q_{NG\_tsteam,\,t}$ (Nm^3/ t of steam) = $Q_{NG,\,t}$ (Nm^3) / $Q_{steam,\,t}$ (t) Where t is the period covering the starting date of the crediting period until the date of submission of the monitoring report (maximum one year). E_Steam_c can then be calculated taking into account the CO_2 emission factor	The proposed changes in the monitoring plan in the registered PDD allow for an external supplier of steam: Three options are presented: a) using the steam network at the Rhodia Polyamide plant: b) importing steam from an external supplier or c) using steam imported from both an external supplier and from the steam network at the Rhodia Polyamide plant. E_Steam_c is calculated ex-post at the point of time of preparation of the monitoring report. The proposed revision to the monitoring plan presents methods how to determine E_Steam_c within each of these scenarios, while the monitoring plan in the registered PDD only includes the method to calculate E_steam_c from importing steam from the Rhodia Polyamide plant boilers. Details for updates in the monitoring plan are described as below. **Calculation of E_Steam_c follows the rationale and the procedure outlined below.** The steam consumed by the decomposition facility can be supplied as a 6

		of natural gas as shown in E.1.: E_ Steam_c t (t CO_2/ t steam) = $Q_{NG\_tsteam,\ t}$ (Nm^3/ t of steam) × E_NGy (CO_2/Nm^3) Where t is the period covering the starting date of the crediting period until the date of submission of the monitoring report (maximum one year).	bar steam network by the Rhodia Polyamide plant or by an external supplier. Hence, all steam consumed in the decomposition facility will be generated by the existing plant boilers which are fired by natural gas or provided by external steam supplier using different fuels. In both cases the quantity of steam consumed Q_Steam_c remains measured by the same instrument, only the emission factor E_Steam_c calculation can change. <u>Case of the steam supplied by Rhodia Polyamide plant boilers</u> For the case of steam supplied by Rhodia Polyamide plant boilers, the calculation method is the same as the registered monitoring plan, except a clearer definition on the period of 't' has been added. In the updated monitoring plan, t is the "period covering the starting date of the crediting period until end of the current monitoring period for the first year of the crediting period (when less than one year data is available), and the last 12 months of available data for the second and next years of the crediting period". <u>Case of the steam supplied from an external supplier</u> For the case of steam supplied from an external supplier, the determination approach for E_Steam_c is: The external supplier follows the guidelines from the Korean regulations to calculate the emission factor, and has to report CO2 emissions on an annual basis after validation by an accredited independent third party. The latest available annual data from the external steam supplier will be used to determine E_Steam_c. In order to be conservative and to account for possible variations of the fuel mix used, the highest of the latest published annual values will be taken as the value of E_Steam_c. <u>Case of the steam supplied both by the external supplier and the existing plant boilers:</u> For the case of the steam supplied both by the external supplier and the existing plant boilers, the determination method for E_Steam_c is: If part of the steam consumed by the decomposition facility in a monitoring period comes from the existing plant boilers and the external supplier, in order to be conservative, the maximum value between the two will be chosen as the value for E_Steam_c.

4.6.2. Validation of the changes and conclusion

		ERM CVS validation activities and conclusion		
Change #	**PDD para**	**Impact of the change on methodology compliance** (*The DOE shall determine whether the changes to the monitoring plan contained in the registered PDD proposed by the project participants are in compliance with the applied methodology.)*	**Impact of the change on data accuracy** (*The DOE shall determine whether the changes to the monitoring plan contained in the registered PDD proposed by the project participants do not reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan)*	**CDM Executive Board prior approval required?** (*Note whether the changes are included in Appendix 1 of the project standard which lists the changes that do NOT need prior Board approval*)
#1	Section 6.4 of Annex 4 – Monitoring Plan	The methodology AM0021 Version 1 requires calculating and recording E_Steam_c yearly. By reviewing the revisions in the updated PDD, ERM CVS was able to confirm that the proposed revisions are in compliance with the applied methodology.	ERM CVS reviewed the proposed changes to the monitoring plan and compared these with the monitoring plan in the registered PDD to determine whether the changes to the monitoring plan contained in the registered PDD proposed by the project participants could reduce the level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan. • In the case of the steam supplied by Rhodia Polyamide Plant boilers, the definition of the period to calculate E_Steam_c has been clarified in the updated monitoring plan, which is the latest 12 months available data. That is in line with the methodology and will not impact the accuracy of the reported data. • In the case of the steam supplied from an external supplier, the annual CO2 emission factor from the external steam supplier will be used. The external steam supplier must follow the guidelines from the Korean regulations to calculate the emission factor and has to report CO2 emissions yearly to comply with requirements of the Korean Framework Act on Low Carbon Green Growth published by the South Korea Ministry of Government Legislation in 2010/4/. The data for CO2 emission will have been validated by an accredited independent third party and managed by the government. The Korean Framework Act on Low Carbon Green Growth/4/ and the certification reports for the GHG emission /5/ issued by the accredited company have been reviewed by ERM CVS verification team. The data will therefore be based on information validated by	Although there is no impact on methodology compliance or data accuracy, these changes are not of a type included in the Appendix 1 (III) of the Project Standard (Changes that do not require prior approval by the board), and therefore it is considered that prior Board approval is needed.

			an accredited independent 3rd party. Where more than one fuel has been used to generate the steam, the proposed revision applies a conservative approach to use only the highest emission factor within the fuel mix. The emission factor of the steam provided by the external supplier changes slightly from one year to another, so that the maximum value of the latest available three years will be taken for E_Steam_c. Therefore ERM CVS concludes that this approach will not compromise the accuracy of the data. • In the case of the steam supplied both by the external supplier and the existing plant boilers during the monitoring period, the higher value between CO2 emission factor from the existing plant boilers and that from the external steam supplier will be chosen as the value for E_Steam_c. ERM CVs concludes that this approach is conservative and does not compromise the accuracy of the monitoring. Therefore, ERM CVS was able to confirm the changes to the monitoring plan contained in the registered PDD proposed by the project participants do not reduce the level of accuracy of the monitoring plan compared with the requirements contained in the registered monitoring plan. ERM CVS reviewed the proposed revised monitoring plan and confirmed that the proposed changes are complete and have no impact on the frequency of measurements, the quality of monitoring equipment (e.g. calibration requirements), or the quality assurance and quality control procedures.	

By reviewing the verification reports for the previous period #58 and #57/3/, it is confirmed that there are no relevant findings that need to be taken account of in reaching our conclusions.

4.7. Changes to the project design of a registered project activity

Changes to the project design of a registered CDM project activity have been identified during this verification period.

4.7.1. Description of changes

The registered PDD contains a provision for the supply of steam by an external supplier but the description of such a case was found to be inconsistent. The PP has revised the PDD to clarify the description and ensure consistency.

Change #	PDD para	Project design in the registered PDD	Revised PDD
#1	Section A.4.4 in PDD	The decomposition facility requires a steady supply of steam that will be delivered by the existing boilers at the plant.	The decomposition facility requires a steady supply of steam that will be delivered by the existing boilers at the plant or by an external supplier.
	Section E.2 in PDD	The CO2 intensity E_Steam_c is that of the steam at a pressure of 6 bars produced by the existing plant boilers.	The CO2 intensity E_Steam_c is that of the steam at a pressure of 6 bars produced by existing plant boilers for estimation (Steam can be delivered either by existing internal boilers or external supplier or both as described in Monitoring Plan).

Based on the findings of the verification site visit, ERM CVS confirms that the description of the nature and extent of the above mentioned actual changes accurately reflect the implementation, operation and monitoring of the modified project activity. The verification team have assessed the impacts of the actual changes on the compliance of the monitoring plan, the applied monitoring methodology and tools and/or the level of accuracy of the monitoring activity during the site visit from 29 May to 30 May 2012. Please see detailed assessment as below.

4.7.2. Reasons for the changes and assessment of whether they would have been known prior to registration of the project activity

Until this monitoring period, according to the PP and confirmed in previous verification reports, the steam consumed by the decomposition facility was supplied by the existing Rhodia Polyamide plant boilers as described in the registered PDD. For a period between 18 April 2012 to 31 May 2012 (ie from 18 April 2012 to the end of this monitoring period, and also part of the next monitoring period, #60), steam was delivered by an external steam supplier in order to improve energy efficiency and reliability at the Rhodia Polyamide site (out of the CDM project boundary). The steam was imported from Korea Zinc Cooperation (KZC), and the facility now exists to switch between the external source and the internal boilers.

Operation daily records on 18-19 April 2012 and 31 May 2012 /6/and the contract between South Korea Rhodia and KZC/7/have been offered for review. By desk review and on-site inspection, ERM CVS can confirm that the changes do not impact the overall operation and ability of the project activity to deliver emission reductions as stated in the PDD.

Given that there are inconsistent references to an external steam supplier in the PDD it is likely that this scenario was considered possible at the time of registration of the project activity. It has been explained by the PP that at a later stage of detailed design the external steam pressure at the point of delivery was found too low to be used by the N2O destruction unit; and the steam from the internal boilers was used. In April 2012 the external steam pressure was raised to the level required for the N2O unit and the external supply became available. Prior to this, the external steam supplier has not been used since the start of the crediting period on 01 September 2006. Based on the site visit and sectoral knowledge, ERM CVS is satisfied that this explanation is reasonable.

4.7.3. Validation of the changes and conclusion

a) Additionality

Change #	PDD paragraph	ERM CVS validation activities and conclusion
		If the proposed or actual changes affect the additionality of the project activity then the DOE shall confirm that: *(a) In the case of investment analysis, project participants have only modified the key parameters in the original spreadsheet calculations affected by the proposed or actual changes to the project activity;* *(b) In the case where only barriers have been claimed to demonstrate additionality, project participants have demonstrated that the barriers are still valid under the new circumstances.*)
#1	Section A.4.4 and Section E.2 in PDD	According to the methodology AM0021 Version 1 and the registered PDD, the additionality is assessed by the following three conditions: • Condition 1: There is currently no existing regulation that will require, as of the beginning of the crediting period, that facilities must undertake N2O abatement • Condition 2: The project activity is not common practice in relevant sector and region. • Condition 3: The project activity would not be commercially viable even taking into account the market value of any by-products of the decomposition plant. The changes are related to the supplier for the steam consumed by the decomposition facility (outside the CDM project boundary before and after the change), and have no effect on condition 1 and condition 2. As for condition 3, a net present value (NPV) has been chosen to be the financial indicator for the benchmark analysis. If the NPV is equivalent or lower than zero, the project is not commercially viable. Since the steam supplier has been changed, a NPV reassessment should be conducted by taking into account the price change for the consumed steam due to the changes, which related to the operational cost. The registered version of the NPV Excel Sheets (Ref. 3 --- NPV Excel Sheets received 25 May 2005 in the validation report issued by DNV/2/, Report No: 2005-0786, rev. 02)/8/ was reviewed by ERM CVS verification team. By checking this document, ERM CVS found that the price for the external steam was in fact used for the NPV analysis during the validation and registration stage, i.e. the additionality was evaluated based on the external steam price for the registration. This has been double checked by the steam price spreadsheet and the external steam supplier invoices of 2004/9/. ERM CVS therefore asked the PP to provide an evaluation of NPV based on the price for internal steam, and found that the steam price from the external supplier is higher than the cost for the steam produced by the existing boilers. This has been validated by reviewing the natural gas price and the cost calculation sheet/10/. ERM CVS confirmed that the PP had only modified the price of steam in the revised NPV Excel Sheet ERM CVS compared the NPV for both steam sources and found that in both cases the NPV is lower than zero– ie, when using the cost for the steam produced by the existing boilers and the cost for the steam imported from the external supplier. Thus, the NPV is always negative either using the price for external steam

		or that for internal steam. In addition, the total cost of steam consumed represents less than 3% of the overall operational costs of the unit even at the higher external supplier price, hence ERM CVS concludes that a change in the source of steam does not impact additionality. Therefore, ERM CVS was able to confirm that the change of steam supply does not compromise the additionality of the project activity.

b) Scale

Change #	PDD para	ERM CVS validation activities and conclusion (*Describe the impact of the changes on the scale of the project*)
#1	Section A.4.4 and Section E.2 in PDD	The change is related to the supplier for the steam (from outside the project boundary) required by decomposition facility and the calculation method of the E_Steam_c. After the change, the project is still a large scale project activity. Therefore, the change does not impact the project scale.

c) Applicability and application of the approved baseline methodology

Change #	PDD para	ERM CVS verification activities and conclusion (Describe the impact of the change on the applicability and application of approved baseline methodology under which the project activity has been registered *or the later version of the applied methodology*)
#1	Section A.4.4 and Section E.2 in PDD	The project activity has been registered with the methodology AM0021 Version 1. As per the methodology AM0021 Version 1, it is applicable to projects which decomposes N2O from adipic acid production plants under the following conditions: • Either catalytic or thermal decomposition of the N2O by-product of adipic acid production at existing production plants; • The methodology is spatially generic, being applicable across regions where the data (both related to baseline and project activity as well) exist to undertake the assessments; • The methodology is applicable only for installed capacity (measured in tonnes of adipic acid per year) that exists by the end of the year 2004. Therefore, ERM CVS was able to confirm that the change of consumed steam supplier does not affect the applicability of the approved baseline methodology Since the methodology states that E_Steam_c is taken as the emission factor of the plant from which the steam is purchased (page 4) and calculated from the steam supplier data, ERM CVS also concludes that the application of the methodology is not compromised by the change.

d) Impact on compliance of monitoring plan with the applied monitoring methodology

Change #	PDD para	ERM CVS validation activities and conclusion (*Describe the impact of the change on compliance of monitoring plan with the applied monitoring methodology*)
#1	Section A.4.4 and Section E.2 in PDD	The changes are related to the supplier for the steam consumed by the decomposition facility, which have no impact on compliance of the monitoring plan with the applied monitoring methodology which does not define the source of steam. The supply of the steam consumed occurs outside the CDM project boundary.

e) Impact on the level of accuracy and completeness of the monitoring compared with the requirements contained in the registered monitoring plan

Change #	PDD para	ERM CVS validation activities and conclusion (*Describe the impact of the change on the accuracy and completeness of monitoring*)
#1	Section A.4.4 and Section E.2 in PDD	The changes of steam supplier will not cause changes in monitoring equipments and measurement frequency. As validated in section 5.6, the changes will not reduce the accuracy and completeness of the monitoring compared with the requirements contained in the registered monitoring plan.

f) CDM Executive Board Approval status

Change #	PDD para	ERM CVS validation activities and conclusion (*Note whether the changes are included in Appendix 1 of the project standard which lists the changes that do NOT need prior Board approval*)
#1	Section A.4.4 and Section E.2 in PDD	Since the changes do not adversely impact the applicability and application of the applied methodology, the additionality and the scale of the project activity as demonstrated above, it's included in Appendix 1 of the Project Standard which lists the changes that do not need prior Board approval.

A.1: **Reference Documents**

Reference	Title and version	Date
/1/	The updated Project Design Document (PDD) and monitoring plan, version 9	13 June 2012
/2/	Validation Report issued by DNV, Report No: 2005-0786, rev. 02	28 September 2005
/3/	Previous verification reports for period #57 and #58, issued by TUV Sud	
/4/	Korean Framework Act on Low Carbon Green Growth published by the South Korea Ministry of Government Legislation in 2010 Guideline of Target Management for greenhouse gas and energy announced by Ministry of Environment on 29th March 2011	
/5/	Target Management Validation Report for Korea Zinc Cooperation	20 March 2012
/6/	Daily Production Reports	18 April 2012 19 April 2012 31 May 2012
/7/	Contract on Additional Steam Supply signed between Rhodia and Korea Zinc Cooperation	
/8/	Original NPV Excel Sheet (confidential) NPV_comparison_confidential_v1	
/9/	External steam supplier invoices of year 2004 External steam price monthly 2004 spreadsheet provided by Rhodia	
/10/	Natural gas invoices 2004 Cost calculation for the steam generated by the existing boilers indexed on natural gas price	