CDM: Proposed New Methodology
Meth Panel recommendation to the Executive Board
(version 06)
(To be used by the Meth Panel to make a recommendation to the Board regarding a proposed new methodology)

Date of Meth Panel meeting:	04 - 07 April 2006
Related F-CDM-NM document ID number (electronically available to EB members)	F-CDM-NM0117-rev: "Nanjing Chemical Industries Co Ltd (NCIC) Nitrous Oxide Abatement Project"
Related F-CDM-NMex document ID number(s) (electronically available to EB members)	F-CDM-NM0117-rev: Not applicable
Related F-CDM-NMpu document ID number(s) (electronically available to EB members)	F-CDM-NM0117-rev: Not applicable

Note to those completing this form, as applicable: Please provide recommendations on the proposed new baseline and monitoring methodologies based on an assessment of CDM-NMB and CDM-NMM and of their application in sections A to E of the draft CDM-PDD, desk reviews and public input. Please ensure that the form is entirely filled and that arguments and expert judgements are substantiated.

A. Final recommendations by the Meth Panel

(1) History of submission *(to be communicated by UNFCCC Secretariat):*

>> Previously submitted as NM0117.

I. Recommendation on the proposed new baseline methodology: *(checkmark the choice made)*

Title of proposed new baseline methodology:>> Baseline Methodology for catalytic N_2O destruction in the Reactor/Burner gas of Nitric Acid Plants.

a. To approve this proposed methodology with minor changes

☐

i. Conditions under which this proposed methodology is applicable to other potential CDM project activities (e.g. project type, region, data availability):

>>

ii. Minor changes:

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b. To reconsider this proposed methodology, subject to required changes

☐

i. Conditions under which the proposed methodology is applicable to other potential projects (e.g. project type, region, data availability):

>>

ii. Required changes:

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(Project participants shall make required changes to the proposed new methodology and send it back to the Meth Panel. The proposed new methodology will be reconsidered by the Meth Panel if changes required are made by the project participants. The Executive Board will only consider this proposed new methodology after the revised proposed

methodology has been reconsidered by the Meth Panel.)

c. Not to approve the proposed methodology

☒

i. Reasons for non-approval:

>> The current version is a definite improvement from the previous submission of NM0117rev, and much of the recommendations are answered. However, The following points are major flaws with respect to the current version of the methodolgy:

1. Temperature, pressure and catalyst composition needs to be within the "permitted range". However, it is not clear how this permitted range may be obtained (from historical data or specification of equipment).
2. The relationship and role of the three monitoring points upon estimation of baseline and project emission is unclear, and is not reflected in the monitoring methodology. If, as the developer suggests, post-catalyst decomposition of N_2O is insignificant for ammonia burners with short distance after the cooling bundle, then this methodology can limit its application to those facilities which bear such characteristics, and use a simpler comparison between the measured value of N_2O amount before and after the destruction facility, with reasonable provision regarding uncertainty assessment and calibration.
3. It needs to be demonstrated that, during the project activity, composition of ammonia oxidation catalyst is not changed in a way to enhance N_2O production in the baseline, as follows:
   a) The plant operator is allowed to use compositions of ammonia oxidation catalysts during the baseline campaign that are common practice in the region or have been used in the nitric acid plant during the last three campaigns without limitation of N_2O baseline emissions.
   b) In case the nitric acid plant operator has changed the composition of the ammonia oxidation catalyst during the last three campaigns or wishes to change for the baseline campaign to a composition not used during the last three campaigns, but is common practice in the region and supplied by a reputable manufacturer, or if it corresponds to a composition that is reported as being in use in the relevant literature, the plant operator is allowed to use these ammonia oxidation catalysts without limitation of N_2O baseline emissions.
   c) In case the nitric acid plant operator changes the composition of ammonia oxidation catalysts for the baseline campaign and the composition is not common practice in the region and not reported as being in use in the relevant literature, the project applicant has to demonstrate (either by economic or other arguments) that the choice of the new composition was based on considerations other than an attempt to increase the rate of N_2O production. If the project applicant can demonstrate appropriate and verifiable reasons, the plant operator is allowed to use new ammonia oxidation catalysts without limitation of N_2O baseline emissions.

(A new proposal should be submitted in accordance with the procedures for submission and consideration of proposed new methodologies of the Executive Board.)

II. Recommendation on the proposed new monitoring methodology: *(checkmark the choice made)*

Title of proposed new monitoring methodology: >> Monitoring Methodology for catalytic N_2O destruction in the Reactor/Burner gas of Nitric Acid Plants.

a. To approve this proposed methodology with minor changes

☐

i. Conditions under which methodology is applicable to other potential projects (e.g. project type, region, data availability):

>> See above

ii. Minor changes:

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b. To reconsider this proposed methodology, subjected to required changes

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i. Conditions under which the proposed methodology is applicable to other potential projects (e.g. project type, region, data availability.):

>> See above

ii. Required changes:

>> Monitoring requirements of each parameter, their role in the calculation of emission reduction, and their uncertainty aspects need to be clearly classified and identified.

Remove all project-related descriptions, in order to ensure applicability to similar projects.

(Project participants shall make required changes in the proposed new methodology and send it back to the Meth Panel. The proposed new methodology will be reconsidered by the Meth Panel if changes required are correctly made by the project participants. The Executive Board will only consider this proposed new methodology after required changes proposed have been made and the revised proposed methodology has been reconsidered by the Meth Panel.)

c. Not to approve the proposed methodology

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i. Reasons for non-approval:

>> The monitoring methodology does not refer to many of the measurements described in the baseline methodology, as described above.

(A new proposal should be submitted in accordance with the procedures for submission and consideration of proposed new methodologies of the Executive Board.)

B. General information on submitted proposed new methodology

(1) Title of proposed new baseline methodology:

>> Baseline Methodology for catalytic N_2O destruction in the Reactor/Burner gas of Nitric Acid Plants.

(2) One sentence describing the purpose of the methodology.

>> This methodology is designed for projects that reduce N_2O emitted as a byproduct of nitric acid production, through insertion of additional catalytic devices just after the ammonia burner (i.e. secondary destruction method).

(3) Summary description of baseline methodology.

Short statements on each on how the proposed methodology: chooses the baseline scenario, demonstrates additionality, calculates baseline emissions, calculates project emissions, calculates leakage, calculates emission reductions.

>>

The baseline methodology is as follows:

- Baseline Scenario: Baseline scenario is a simple comparison of project / no project, based on the assertion that conceivable alternatives such as N_2O stripping, recycle, and NSCR are unrealistic
- Demonstration of Additionality: Demonstration of additionality is a modified version of the additionality tool, which consists in confirming and providing evidence to support each of the following four conditions:
    a) Condition 1: At the starting date of the project activity the nitric acid plant complies with national regulations regarding N_2O emissions.
    b) Condition 2: The project activity is not common practice at nitric acid plants in the region.
    c) Condition 3: The project activity would not be commercially viable even taking into account the market value of any potential by-product of the N_2O destruction technology without the revenues from the sales of the CERs.
    d) Condition 4: The financial benefits of the revenues obtained by selling CERs from the project activity will lead to the implementation of the project activity.
- Calculation of baseline emissions: The baseline emissions are calculated by multiplying the volume flow rate of the reactor gas at the inlet of the destruction facility by the N_2O concentration of the gas. Contrary to the initial submission, subsequent destruction is assumed not to occur. If regulations restricting N_2O emission is imposed (either through the form of absolute quantity, maximum permitted byproduct rate, stack gas concentration, such regulation automatically serves as the baseline emission level.
- Calculation of project emissions: Project emissions include the non destroyed N_2O at the outlet (again volume flow rate times N_2O concentration). Measurement is taken at multiple points, though their role is not clear.
- Calculation of leakage: Leakage is assumed not to occur since the secondary catalyst (project activity) will result in no measurable increase in utility usage in the plant.
- Calculation of emission reductions: Emission reduction is calculated by subtracting project activity and leakage emissions from baseline emissions.

(4) Title of proposed new monitoring methodology:

>> Monitoring Methodology for catalytic N_2O destruction in the Reactor gas of Nitric Acid Plants.

(5) Summary description of the monitoring methodology.

Short statements on each on how the proposed methodology monitors the baseline and project scenario and calculates leakage and emission reductions.

>> As follows:

- Baseline emissions: All relevant parameters are either measured or calculated continuously
- Project emissions: All relevant parameters are either measured or calculated continuously
- Leakage emissions: Leakage is assumed not to occur.
- Emission reductions: Emission reduction is calculated by subtracting project activity and leakage emissions (which is zero) from baseline emissions.

(6) Relationship with approved or pending baseline and monitoring methodologies (if applicable).

a) Does the proposed new methodology include part of an already-approved methodology or a methodology pending approval (see recent EB reports)? If so, please briefly note the relevant methodology reference numbers (AMXXXX or ACMXXXX), titles, and parts included.

>> NM0111 "Baseline Methodology for catalytic N_2O destruction in the tail gas of Nitric Acid Plants".

b) In particular, is the proposed new methodology largely an amendment or extension of an approved methodology? (i.e. the methodology largely consists of expanding an approved methodology to cover additional project contexts, applicability conditions, etc., and is thus largely comprised of text from an existing methodology) If so, indicate whether the amendments or extensions are appropriate, and explain why.

>> The methodology is similar to NM0111, which is applicable to project activities reducing N_2O emitted as a byproduct of HNO3 production, through installation of tertiary methods (end-of-pipe catalysts). It remains to be seen whether amendments and extension is possible, since monitoring points are different, and there were earlier claim of post-measurement decomposition of N_2O in the baseline, which does not occur in the tertiary method. However, consolidation would be possible.

c) Indicate whether , and explain how, any other approved methodology (not noted in response to the previous question) could currently, or with minor modifications, be used to calculate emission reductions from the project activity associated with the proposed new methodology. If so, please indicate the reference number and the parts of the methodology that would need modification.

>> Both AM0001 (HFC) and AM0021 (N_2O from adipic acid) deal with conceptually similar projects, whereas GHG in question is emitted as a byproduct, which is subsequently recovered and destroyed. In both methodologies, baseline emission is calculated by multiplying the amount of the intended substance produced, multiplied by a byproduct rate. In this methodology, such an approach is not taken, though this should be feasible. NM0143 takes this approach.

d) Please briefly note any significant differences or inconsistencies (baseline emission calculations, leakage methods, and boundary definitions, etc.) between the proposed new methodology and already-approved methodology of similar scope.

>> Addressed in c).

e) To avoid potential repetition, feel free to provide one comprehensive answer here that covers questions a through d.

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C. Details of the evaluation of the proposed new methodology by the Meth Panel:

I. Proposed new baseline methodology: >> Baseline Methodology for catalytic N_2O destruction in the Reactor/Burner gas of Nitric Acid Plants.

(1) Determining the baseline scenario and demonstrating additionality:

a) Explain the methodological basis for determining the baseline scenario, and whether this basis is appropriate and adequate.

>> Basis are as follows: a) no post-catalyst decomposition occurs during the baseline and intentional manipulation would not be possible so long as pressure and temperature conditions are within a permitted range. This is appropriate, though the effect of potential change in the compositions ammonia oxidation catalyst needs mentioning.

b) Explain whether the application of the methodology could result in a baseline scenario that reasonably represents the anthropogenic emissions by sources of greenhouse gases that would occur in the absence of the proposed project activity.

>> It is expected that the application would result in such a baseline scenario when temperature, pressure, and catalyst composition is not intentionally manipulated.

c) State whether the documentation explains how, through the use of the methodology, it can

be demonstrated that a project activity is additional and therefore not the baseline scenario. If so, what are the tools provided by the project participants?

>> It does explain the additionality of the project, through a demonstrative flowchart which incorporates the elements of the additionality tool. Various alternatives which are theoretically possible but deemed practically impossible are not considered as baseline alternatives, resulting in a simple comparison of "with-project" and "without-project" scenarios.

d) Explain whether the basis for assessing additionality is appropriate and adequate:

>> It is appropriate and adequate, given the situation of the technology and practicability of alternatives. Under the applicability condition, it would be reasonable to suppose that the only alternative to the project activity is to not to implement the project activity.

(2) Methodological basis for calculating baseline emissions and emission reductions

a) Explain how the methodology calculates baseline emissions and whether the basis for calculating baseline emissions is appropriate and adequate:

>> The baseline emissions are calculated by multiplying the volume flow rate of the reactor gas at the inlet of the destruction facility by the N_2O concentration of the gas. If regulation to limit N_2O (by means of limiting its absolute quantity, byproduct rate, or concentration in tail gas) is implemented, baseline emission is the emission limit of N_2O. This is appropriate and adequate (see C.I.(1).a above).

In principle it should be appropriate, but the whole methodology is marred by inconsistencies and missing links. It is noted that the temperature and pressure at the gauzes should be within the permitted range. However, how such range may be derived is not clear (analysis of historical data as stipulated in NM0143 or specification of equipment?) An elaborate measurement scheme is provided whereby three sample points are located, but their role is not clear since the equations which provide baseline and project activity emissions do not take this into account.

If, as the methodology and clarification suggest, post-catalyst decomposition is minimal for certain type of ammonia burners, this can be reflected in the applicability condition and such measurement scheme (for whatever purpose) may not be necessary..

b) Explain how the methodology calculates project emissions and whether the basis for calculating project emissions is appropriate and adequate.

>> See above.

(3) Definition of the project boundary related to the baseline methodology:

a) State how the project boundary is defined in terms of:

i) Gases and sources

>> Only N_2O is put to question, on the ground that no other greenhouse gas emissions are known to occur in significant quantity from the application of currently available catalysts.

ii) Physical delineation

>> The project boundary covers the whole individual nitric acid plant.

b) Indicate whether this project boundary is appropriate:

>> It is appropriate.

***(4)* State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context** *(described in Sections A - E of the draft CDM-PDD and submitted along with CDM-NMB):*

>> Yes, it is generally appropriate. If the project activity is limited to those facilities involving ammonia burners with short distance after the cooling bundle, then it may be argued that consideration of post-catalyst decomposition is not necessary.

(5) Key assumptions/parameters (including emission factors and activity levels), rationale, data sources and uncertainties:

a) List the implicit and explicit key assumptions, and rationale for the methodology. Identify those, if any, which are problematic and explain:

>> Key assumption is that there will be no room for gaming in calculating the baseline emissions through volume of reactor gas and concentration of N_2O in the gas, if parameters such as pressure, temperature stay within a certain range. This is welcome. However, composition of ammonia oxidation catalyst is not mentioned, and merits discussion (an example of which can be found in NM0143).

b) Give your expert judgement on whether the assumptions/parameters are adequate:

>> They are appropriate, but does not address the question on how to deal with thse case when the composition of catalyst to oxidize ammonia is changed.

c) Indicate which data sources are used and how the data are obtained (e.g. official statistics, expert judgement):

>> Most data are site-specific. Exceptions are data used for the purpose of projection, which is taken from IPCC Guidelines (1996) & Good Practice Guidance (2000).

d) Explain the vintage of data recommended (in relation to the duration of the project crediting period) and whether the vintage of data is appropriate, indicating the period covered by the data:

>> Most data are measured or calculated real time, and are therefore adequate.

e) Give your expert judgement on whether the data used are adequate, consistent, accurate and reliable:

>>They are mostly adequate.

f) State possible data gaps:

>> No data gaps are perceived though there are inconsistencies and uncertainties with respect to what data is necessary and how they should be monitored.

(6) Assessment of uncertainties:

a) *Provide an assessment of uncertainties given (e.g. in determining baseline scenario, data sources, key assumptions)*

>> See above.

(7) Leakage:

a) State how the baseline methodology addresses any potential leakage due to the project activity:

>> Leakage is assumed to not occur, since the secondary catalyst installed in the Reactor Basket underneath the noble metal gauzes will result in no measurable increase in utility usage in the nitric acid plant.

b) Indicate whether the treatment for leakage is appropriate and adequate:

>> It is appropriate, since the above limitation of the methodology is stated in the applicability condition..

(8) Transparency, "conservativeness" and consistency

a) Indicate whether the baseline methodology is presented in a transparent way, and if not, what changes are suggested:

>> It is transparent.

b) Explain whether the baseline methodology is conservative, and if so, how:

>> There is no indication as to whether the methodology is conservative (i.e. choosing the lowest possible baseline emission / highest possible project activity emission among a variety of choices). However, there is no indication as to whether the methodology is not conservative. Therefore, it can be said that conservatism is not an issue.

c) Explain whether the baseline methodology is internally consistent, and if not, highlight which sections are inconsistent:

>> The principle of the methodology is clear and consistent. However, it is badly reflected in the calculation and the monitoring methodology.

(9) If relevant, state whether the proposed changes required for the methodology implementation on 2nd and 3rd crediting periods are appropriate.

>> Changes in catalyst composition merits discussion.

(10) State the baseline approach selected, indicate whether this is appropriate, and why.

>> Paragraph 48 (a) of the CDM modalities and procedures was selected: "Existing actual or historical emissions". It is appropriate given the lack of "economically attractive course of action" due to the nature of the project.

(11) Any other comments:

a) State which other source(s) of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) have been used by you in evaluating this methodology. Please provide specific references:

>> None project specific descriptions are removed, which is a definite improvement.

b) Indicate any further comments:

>> No further comments.

II. Detailed recommendations on the proposed new monitoring methodology

Evaluate each section of CDM-NMM. Please provide your comments section by section:

(1) Indicate if this proposed monitoring methodology is compatible with the proposed baseline methodology described in CDM-NMB of the draft CDM-PDD, and if not, why.

>> It is compatible, subject to the revisions suggested above.

(2) Assessment of key assumptions/parameters:

a) List the implicit and explicit key assumptions. Identify those, if any, which are problematic and explain:

>> See relevant provision in the baseline methodology.

b) State whether the key assumptions are adequate, and whether they have been arrived at in a transparent manner:

>> Mostly adequate and transparent.

(3) Data sources and data quality:

a) Give your expert judgement on whether the data sources and data quality used are adequate, consistent, accurate and reliable. If not, please explain.

>> They are adequate. However, consistency, accuracy and reliability merits further discussion as well as comparison with approved methodologies (AM0001, AM0021, NM0111).

b) *State possible data gaps:*

>>

(4) Leakage *(please elaborate, if appropriate)*:

>> Leakage is assumed to not occur.

(5) Quality assurance and control procedures (please explain):

>> The correspondence between parameters subjected to QA/QC is improved. For some parameters, specifics are not made clear. It is desirable that they be more elaborated, within the bounds of ensuring reasonable comparison with other approved methodologies.

(6) Assessment of the description of the proposed methodology:

a) State whether the proposed methodology has been described in an adequate manner:

>> The methodology is mostly adequate; though it is not clear as to how the baseline estimation methodology as described in pages 15 to 17 of CDM-NMB is reflected in the eventual calculation of emission reductions. If each parameter is monitored in an accurate manner, then simple comparison between the amount of N_2O before and after the destruction facility seem to suffice for the purpose of obtaining the figure on emission reduction, subject to additionality and other concerns. However, this is not clear due to reasons more related to drafting.

b) State whether the proposed methodology is appropriate for the referred proposed project activity and the referred project context (described in Sections A - E of the draft CDM-PDD and submitted along with CDM-NMM):

>> It is generally appropriate, but in need of considerable simplification and clarification.

(7) Any other comments:

a) State whether any other source of information (i.e. other than documentation on this proposed methodology available on the UNFCCC CDM web site) has been used by you in evaluating this methodology. If so, please provide specific references:

>> None.

b) Indicate any further comments:

>> No further comments.

Signature of Meth Panel Chair ……..
Date: 13/04/2006 *(Rajesh Kumar Sethi)*

Signature of Meth Panel Vice-Chair ……..
Date: 13/04/2006 *(Jean-Jacques Becker)*

Information to be completed by the secretariat	
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