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Att: CDM Executive Board

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Your ref.:	Our ref.:	Date:
CDM Ref 1238	TRIKA/MLEH	11 November 2007

Response to request for review
N2O decomposition project of PetroChina Company Limited Liaoyang Petrochemical Company (1238)

Dear Members of the CDM Executive Board,

We refer to the requests for review raised by three Board members concerning DNV's request for registration of the project activity 1238 entitled "N2O decomposition project of PetroChina Company Limited Liaoyang Petrochemical Company", and we would like to provide the following response to the issues raised by these requests for review.

1. The PP shall further clarify which is the production capacity of the adipic acid production plant of LYPC, "constructed in the end of 1981 with two technological transformations reaching the installed capacity 140,000 tons per year in 2004. To the end of 2004, the maximum adipic acid production capacity is 477 tons per day." In addition, the DOE shall further clarify how the data related to the production record of the plant was checked and validated and how they have assessed and validated when the installed capacity of the adipic acid plant used to calculate and claim emissions reductions was established.

DNV Response:

DNV reviewed the relevant design documents onsite, as referenced in the validation report, and based on the documentation DNV was able to validate that at the end of 2004, the installed capacity of the adipic acid production plant was 140,000 tons per year, and pursuant to the relevant production record, it was also validated that at the end of 2004, maximum achieved daily production level of the adipic acid production plant is 477 tons per day (as Annex [A] attached hereto).

2. The PP states in the PDD (page 8 of 51) that "No public funding from Parties included in Annex I is likely to be involved". Further clarification is required. In addition, the DOE shall further explain on how they assessed and validated the evidence related to the issue of ODA.

DNV Response:

DNV has assessed all relevant documentation (feasibility study and financial documentation, as referenced in the validation report) and there was no indication that public funding from an Annex I Party is used. The two Annex I Parties included in the PDD (Annex 1) of the proposed project

are both private entities and statements are received affirming that no ODA or other public funding is involved, (as Annex [B] attached hereto).

…

3. The PDD states that "Based on the data provided by BASF, the decomposition efficiency is 98.5%, the non decomposed N2O is 1.5%, and LYPC chooses 5% to estimate the non-decomposed N2O out of conservation". The DOE shall further clarify on how they have assessed and validated the efficiency of the catalytic process for the decomposition of the N2O by-product of adipic acid production on the basis of data from technology provider and industry standards.

DNV Response:

DNV has assessed the efficiency of the catalytic process based on the information given in the agreement between LYPC and BASF (reference 19 in the validation report), the technological document regarding the decomposition efficiency provided by BASF, and the written response made by BASF regarding the efficiency. From these sources of information a decomposition efficiency of 98.5% for the decomposition facility was verified. The minimum guaranteed efficiency given by BASF is 95%, hence in order to be in compliance with the principle of conservation, LYPC's is using an efficiency of 95% to estimate the non-decomposed N2O.

It must be noted that the decomposition efficiency is only relevant for the ex-ante estimation of emissions reduction. For this purpose, DNV considers a decomposition efficiency appropriate for determining the project's emission reduction forecast. The actual decomposition efficiency will be monitored ex-post.

4. Further substantiation of additionality and CDM consideration is required.

DNV Response:

The PP has further clarified and demonstrated the additionality and CDM consideration of the project activity. DNV has received and assessed this documentation and can further verify that the project is not financial viable without the income from CER's. This is evidenced even when applying a range of discount rates as applied in the benchmark analysis. For the assessment of common practice we refer to the below explanation.

5. The DOE shall further clarify how they have validated that the project activity is not common practice in relevant sector and region, as:

- *a. The data source for the information of four existing facilities in Non-Annex I countries is the Chemical Week, published more than four years ago (Adipic acid, April 23, 2003: Vol.165. Iss. 15). In addition, the DOE shall further clarify how they have checked the reliability of the information source.*
- *b. One of the existing four plants, a plant in Singapore, which was constructed in 1997 and is operated by INVISTA abates the N2O emissions resulting from the adipic acid production.*

DNV Response:

The Chemical Week is regarded a valid source for this industry. Chemical Week is part of the Chemical Business Media, the world's leading provider of technical and business information to the chemical and process industries. The article referenced in the PDD (Adipic acid, April 23, 2003: Vol.165. Iss. 15) is the most recent publication by the end of 2004 by this source on this topic. The common practice was further assessed from the information about the other adipic acid production facilities in the actual region. Actually there are only two large adipic acid production plants in China (representing about 80% of the Chinese adipic acid production capacity, the rest of

the capacity being small producers), the other adipic acid production plant being Henan Shenma Nylon Chemical Co., Ltd, located in Pingdingshan, Henan Province, China. This producer started a N2O decomposition project as a CDM project, and this project has now been registered. Therefore, the proposed project activity is regarded not to be common practice in relevant sector and region.

INVISTA initiated its worldwide voluntary GHG mitigation initiative in 1991. As a part of this initiative N2O emission reductions were pursued by INVISTA also in its Singapore plant in 1997. As this is a voluntary intiative by one company only, the proposed project activity is not as a consequence of this initiative regarded common practice in the relevant sector and region.

6. The DOE shall further clarify their statement that "The Parties involved are China as a host country and UK as a host I country" and "The approval documents from the DNA of England are not received" in their CDM Validation Protocol (Appendix A).

DNV Response:
The comment refers to a Corrective Action Request which was addressed by the PP before the validation process was concluded. The Letter of Approval from the UK DNA has been issued and was made available to DNV prior to the request for registration. For the sake of transparency, the validation protocol documents the initial validation findings. As shown in Table 3 of the validation protocol, this issue has been resolved and Table 3 confirms that the approval by the DNA of the UK was received.

7. The DOE shall further clarify their statement that "The operational cost is stated to be "taken out of convenient" in their CDM Validation Protocol (Appendix A).

DNV Response:
This statement is meant to reflect that the market prices are variable, and hence it is difficult to exactly estimate the cost of the operation for the proposed project during the investment analysis. However, it should be noted that DNV has validated the relevant assumptions and operational cost data provided by the PP as referenced in the validation report (reference 14, 15, 17 and 19). Since the methodology is applicable for installed capacity that exists by the end of the year 2004, the investment analysis is based on the data of 2004.

8. The MK Calculation Sheet.xls, provided in Appendix 1 - MK Cal sheet should be further clarified in order to provide clear variable definition for analysis.

DNV Response:
During the validation, there was sufficient communication with the PP to clarify the variable definition for analysis. Now the PP has updated the MK Cal sheet as attached in responding to the request for review. Reference is made to issue 9 below.

9. The DOE shall further clarify how they have verified, assessed and validated data, documentation and spreadsheets that aim to demonstrate the additionality of the project activity and in particular those related to benchmark analysis. The attached spreadsheet (MK Calculation Sheet.xls) does not suffice to fully explain the financial circumstances related to the proposed project activity.

DNV Response:
DNV validated the data, documentation and spreadsheets that aim to demonstrate the additionality of the project activity and in particular those related to benchmark analysis during the onsite review, and carried out the verification calculations. Meanwhile, the PP provided the relevant support documents (as referenced to in Section 3.1 in the validation report, "China Petrochemical Engineering Liaoyang Division, Supplement statement for the parameter value used in NPV calculation", reference no. 15) during the follow up validation, which supplemented the financial circumstances of the proposed project activity. Without the proposed project being registered as a CDM project, it is not economic feasible to install and operate the decomposition facility, and there is no economic incentive to operate the proposed project, therefore the proposed project is regarded additional. In order to further explain the financial circumstances related to the proposed project activity, the PP updated the MK Cal sheet (as Annex [E] attached hereto).

10. The discount rate applied in the NPV calculation is not what was quoted in the PDD. The DOE should therefore further substantiate the statement that "figures presented in the PDD for the calculation for NPV has been provided for verification … and are found to be correct".

DNV Response:
Pursuant to the information provided by the PP, the PP calculated the NPVs at a discount rate ranging from 0% to 15% (0%, 5%, 10%, 15%), the calculations of NPV are found to be correct through re-calculation. The discount rate generally used by financial institutions in China ranges from 2%-4%. This range of discount rates has been covered by the selected range of 0% to 15%. The additionality of the proposed project has thus been sufficiently demonstrated.

11. The DOE shall further clarify if according to their systems implementation and qualification requirements it is technically sound and appropriate that the validation team leader has no specific competencies in the industry to which the project activity being validated belongs, according to their certificate of competence in Appendix B of their Validation Report.

DNV Response:

The validation team leader selected for the validation of this project holds an environmental engineering master degree and has seventeen years working and auditing experience in the relevant chemical engineering industry sector. Also he is a qualified ISO 14001 and GHG auditor according to DNV's qualification requirements. Qualification of validation team members are according to DNV's procedure which has been assessed as part of DNV's accreditation. In addition, it must be noted that DNV conducted the validation process by a competence team that covers the required qualification. This team included a qualified Sector Expert and Technical Reviewer according to DNV's qualification requirement.
It should be noted that DNV fails to see that this is an issue associated with the validation requirements in accordance with paragraphs 37 and 40 of the CDM modalities and procedures. This issue has been addressed as part of the accreditation of DNV and will be revisited during DNV's upcoming reaccreditation process.

12. The step-by-step application of the methodology for calculating emissions should be documented in a transparent manner to show how the formulae were applied.

DNV Response:

DNV had asked the PP to demonstrate the step-by-step application of the methodology for calculating the emission reductions in a spreadsheet in addition to Section B.6.3 and Section B.7.2 of the PDD *(*as Annex F attached hereto*)*.

The project proponent has provided all the necessary evidences, and will submit their separate response to the request for review. DNV has verified all the evidences and confirm that they are reliable and in accordance with the requirements.

We sincerely hope that the Board accepts our above explanations.

Yours faithfully
for DET NORSKE VERITAS CERTIFICATION AS

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