CDM: Response form for request for clarification on Approved Methodologies (version 01.1)

Date of Meth Panel meeting:	9 – 13 August 2010
Title and number of request for clarification	Clarification for calculation of average historic campaign length (CLnormal) and application of N_2O concentration over the upper limit of QAL 2 valid Range AM_CLA_0187

Summary of the query:

Please use the space below to summarize the request for clarification on the related approved methodologies.

AM0034 "Catalytic reduction of N_2O inside the ammonia burner of nitric acid plants". The methodology is applicable to project activities that install a secondary N_2O abatement catalyst inside the ammonia burner of a nitric acid plant, underneath the precious metal gauze pack.

Project participants ask for clarification regarding the following issues:

1. Use of alternative to estimate CLnormal

If CLnormal for the project activity had not been directly measured due to other nitric acid production facilities share Nitric Acid Storage Tank, the CLnormal can be calculated based on Ammonia inputs ratio and total Nitric Acid Production measured from the Storage Tank. For conservative approach, the calculated CLnormal should be compared with the expected value from design manual and nameplate of the reactor and the lower value should be selected.

Oxidation rate of Ammonia Reactor for each nitric acid production lines should be same with ±5% margin and composition and manufacturer of primary catalyst of each ammonia reactor should be the same. Equation for CLnormal calculation is as follows:

Step 1 : ri = ai / Mi
Step2 : r1 = a1 / M1
Step3 : A1 = r1 X P1
Step4 : CLnormal = Average(A1:A5)

Where;

i = Number of Campaign Period(#1~#5, 5 historical campaign period)
A = Nitric Acid production for Line1 for each campaign period [ton of Nitric Acid]
r = The ratio of Ammonia input for Line 1 to total Ammonia input for Line 1, 2 and 3 for each campaign period [0~1]
a = Ammonia input for Line1 for each campaign period [ton of Ammonia]
M = Total Ammonia input for Line1, 2 and 3 for each campaign period [ton of Ammonia]
P = Total Nitric Acid production for Line 1, 2 and 3 for each campaign period [ton Nitric Acid]

CLnormal calculated as above will be compared to the standard production which is expected from design manual and nameplate of the reactor(40ktonHNO3/year) and the conservative value is used for CLnormal

2. N_2O concentration (NCSG) over the QAL2(EN14181:2004) Valid Range

In case N_2O concentration is measured over the upper limit of the valid calibration range of QAL 2 and the software application range of analyzer, PP should use the upper limit of the valid calibration range determined by QAL2 for N_2O concentration even though the actual displayed value is over the upper limit and logged record by software shows maximum application range. In this case, all the parameters should be within the permitted range and Gauze composition and Gauze Supplier are also the same with the historical practice.

For example,

- Actual N_2O concentration displayed in analyzer is 3,072ppm
- Software logged value is 3,000ppm (application range : 0~3,000ppm)
- The upper limit of the valid calibration range determined by QAL2 is 2,855ppm. Physical range of the analyzer is up to 10,000ppm but the software only records 3,000ppm which is the maximum application range of the software for the analyzer
- All the parameters (temperature, pressure, Ammonia input and Ammonia-Air ratio) are within the permitted range and Gauze composition and Gauze Supplier are also the same with the historical practice
- According to inspection on the analyzer from the equipment supplier, it concluded that the analyzer has no problem and is operating in normal condition.

In the case, PP should use the upper limit of the valid calibration range determined by QAL2 (2,855ppm) for N_2O concentration when calculating emission reduction from the project as a conservative approach.

Recommendation by the Meth Panel:

Please use the space below to provide amendments /changes (in your expert view, if necessary).

Not applicable.

Answer to authors of the request for clarification by the Meth Panel :

Please use the space below to provide an answer to the authors of the above query

1. Use of alternative method to estimate CLnormal

The Meth Panel proposes that nitric acid production from the reactor in question (reactor #1) should be calculated as the lowest of the following:

a. Outcome of the approach proposed in the request for clarification (i.e. proportional allocation according to ammonia input to respective reactors).

b. Calculated nitric acid production from reactor #1 under the assumption that 90% of ammonia fed to reactor #1 is subsequently transformed into HNO3.

c. Calculated nitric acid production from reactor #1 under the assumption that 100% of ammonia fed to other reactors different than reactor #1 are subsequently transformed into HNO3.

The Meth Panel further points out that such calculation is valid only when other requirements for operating conditions campaign are met (i.e. oxidation temperature and pressure are properly monitored).

2. N_2O concentration (NCSG) over the QAL2(EN14181:2004) Valid Range

The Meth Panel determines that the proposed approach can be considered suitable to determine baseline emissions, since the use of the upper limit of the valid calibration range determined by QAL2 for N_2O concentration is conservative when the actual value is above the upper limit. However for estimating project emissions, the use of the upper limit is not conservative because it will lead to an underestimation of project emissions.

Therefore, the proposed approach is not valid for the purpose of estimating project emissions. In view of this, the Meth Panel further recommends that the project proponents improve monitoring equipments (especially software).

Signed by the Chair, Mr. Lex de Jonge
Date: 13/08/2010

Signed by the Vice-Chair, Mr. Philip Gwage
Date: 13/08/2010

Information to be completed by the secretariat	
F-CDM-AM	AM_CLA_0187
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