



UNFCCC Secretariat
Att: CDM Executive

Martin-Luther-King-Strasse 8
D-53153 Bonn
Germany

23.12.2008

Response to request for review: CDM Ref 0490

“Catalytic N₂O Destruction Project in the Tail Gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.”

Dear Members of the Executive Board,

Please find below our response to the request of review for the above mentioned project No. 0490, Catalytic N₂O Destruction Project in the Tail Gas of the Nitric Acid Plant of Abu Qir Fertilizer Co.

Request 1:

The DOE is requested to clarify that on 10th April, and 15th –20th April 2008 when outlet analyser was out of operation and sent for calibration/maintenance activity respectively, how the PP demonstrated that the destruction facility was operational at normal efficiency.

Carbon response:

a) Introduction

On the 10 April 2008 the outlet analyzer didn't perform the automatic zero calibration. According to instructions by Emerson Germany Carbon Egypt disabled the calibration deviation check and executed a manual calibration. After the alarm at the control room disappeared Carbon Egypt enabled the automatic calibration deviation check again. This event lasted for about 6 hours.

From the 15 April 2008 to 20 April 2008 the outlet analyzer was out of operation for regular calibration/maintenance activities. This so called inspection check was performed by Emerson Germany. Following statements are to clarify the work carried out:

- The calibration/maintenance activities were carried out on-site
- The phase of outlet analyzer out of operation lasted only about 1 hour per day
- The work carried out at inspection visit was check and cleaning the filter, check the pressure regulator, check the sample handling system, check the solenoid valve, check

the analyzer with internal diagnostic menus, leak test at sample system, cleaning sample lines with distilled water, manual calibration at the analyzer with span gas;

In order to apply a conservative approach for the relevant period, the historical minimum N_2O removal rate and historical minimum methane oxidation factor for normal operating days of the previous campaigns have been taken for determination of emission reduction (98.12% N_2O removal and 88.34% methane oxidation factor respectively). Those recalculations were done for the complete days 15 April 2008 to 20 April 2008 (also for 10 April 2008) to ensure a two-fold conservative approach.

b) Destruction facility in normal operation

The destruction facility itself was operational at normal efficiency on 10 April 2008, and 15 – 20 April 2008, due to following conditions:

- I. Nitric Acid plant is in normal operation for the relevant period. This is demonstrated by the following parameters:

- (1) AOR temperature,
- (2) AOR pressure,
- (3) Ammonia Input,
- (4) Nitric acid production

Documents: (a) AFC Delta V daily reports – mdi files, (b) AFC HNO_3 daily production reports and (c) AFC NH_3 log sheets. The pdf documents as such and the summarized Excel Sheets were already submitted for verification.

- II. The EnviNOx system is in normal operation for the relevant periods (about one hour per day during calibration/maintenance activities performed by Emerson Germany) and achieves normal efficiency. This is demonstrated and documented by the following parameters:

- (1) No significant variations in the EnviNOx inlet parameters (a) tail gas flow rate, (b) N_2O inlet concentration, (c) NO_x inlet concentration.

Documents: AFC Delta V daily reports – mdi files April 2008 were already submitted for verification

(2) Ammonia input required for NO_x reduction: The EnviNOx system was supplied with the optimum amount of ammonia for the whole period.

Document: Delta V Chart: CH₄_NH₃_April 2008.mdi

(3) Natural gas input required for high efficient N₂O reduction. The algorithm for calculation of the required methane input is based on inlet parameter and the natural gas set point values according to the Delta V systems guarantees the most efficient N₂O reduction. Natural gas valve is normally on cascade/automatic mode and the EnviNOx system is feed with the optimum amount of natural gas. For these days recalculation is based on the minimum historical efficiency (N₂O removal rate; methane oxidation factor) of the EnviNOx system and guarantees a conservative determination of project emissions (under-estimation of emission reductions).

Document: Delta V Chart: CH₄_NH₃_April 2008.mdi

III. Temperature increase over the EnviNOx reactor. As the N₂O reduction taking place in the EnviNOx® reactor is exothermic and causes a temperature rise, this temperature increase over the EnviNOx reactor provides evidence that the reactions have taken place and the EnviNOx system has reached normal performance.

Document: Delta V Chart: TG_Temp_April.mdi

Based on the documents described above it is clearly demonstrated by correlation to the missing parameter that the nitric acid plant and the EnviNOx system have been operated under normal conditions and have reached normal efficiency. The applied approach is fully in compliance with AM0028 vers1 and the registered Monitoring Plan for the project activity.

Note: The efficiency of the EnviNOx system has reached again the “normal” level of 99.5% after the about one hour per day during calibration/maintenance activities performed by Emerson Germany and the regular calibration/maintenance activities were finished (identical performance as prior to the measurement simulation). This provides evidence that the EnviNOx

system was working at “normal” efficiency during the period of measurement simulation, as the EnviNOx system is characterized by the stability of the catalyst performance. The manufacturer confirmed that after initial activation of the catalyst any change – if it takes place – occurs slowly and monotonically.

(Document: Statement Uhde on changes in EnviNOx performance)

c) Summary

- Nitric Acid plant in normal operation for the relevant period demonstrated by following parameters: AOR temperature; AOR pressure; Ammonia Input; Nitric acid production;
- EnviNOx system in normal operation for the relevant period demonstrated by following parameters: No significant variations in the EnviNOx inlet parameters; Ammonia input, Natural gas input; Temperature increase over the EnviNOx reactor;
- Recalculation with historic minimum N₂O removal rates of the complete days even though the outlet analyzer was just about one hour per day out of operation (twofold conservative approach)

Request 2:

The PP is requested to clarify what back up plans it has for such situation when the measuring equipments are out of service, to ensure that the quality of monitoring parameter is not affected.

Carbon response:

- EnviNOx – automatic DCS system: The EnviNOx system is designed for automatic operation, so that activities by the operation personnel are not required during normal operation. However, all alarms and any action taken by the operating personnel (events) are automatically logged at the engineering and the operation station (Alarm & Event List) of the DCS system. All log sheets for Alarm & Events are exported and therefore digital available (Excel Files) and can easily be analysed and evaluated.
Malfunction of system components is indicated on the operator (AFC) console in the control room as an alarm. Occurrence of such an alarm requires the operator to imme-

diately take measures to remedy the problem. This is done by informing AFC instrument department and Carbon Egypt. Carbon Egypt is then deciding whether the problem can be fixed immediately by themselves, or whether external support from Entrag/Emerson/Uhde is required.

- Back Up – EnviNOx support: Carbon Egypt has contracted the Egyptian ENTRAG Group – the Agent for EMERSON Process Management in Egypt - to execute (1) monthly on-site Health Checks. EMERSON Germany has been contracted to execute the (2) quarterly on-site **Inspection Visits**. Furthermore a **24 hours emergency service** and the **Delta V Guardian Support** are covered by the contract.

The monthly health checks and the quarterly inspection visits are to conduct observation of the EnviNOx® system, the monitoring equipment required for the CDM project and the automated monitoring system. The system components, measurement devices, calibration works and the automated monitoring system required for the monitoring of the CDM project are covered by the contracts. Health check reports and inspection visit reports are available.

The responsible project managers of Carbon Egypt are carrying out **on-site inspections** on a daily basis and AFC is carrying out a site check of the EnviNOx system once per shift. Furthermore AFC maintenance department is performing **weekly inspection** including an on-site check of the EnviNOx® system.

Supervision is done based on the daily reports by the technology provider Uhde and Emerson.

- Back Up – Spare Parts on Stock On-site: As a further important part of the back up plan to deal with events like measuring equipment out of service was that Carbon Egypt stocks a comprehensive range of spare part devices on-site. The spare part stock consists basically of 6-month consumables and for two year operation. It includes inter alia filter elements, valves and pressure controllers for the sample handling system and filter elements, **analysis cells (crucial part for analyzers)**, flow sensors and several electrical parts for the analyzers.

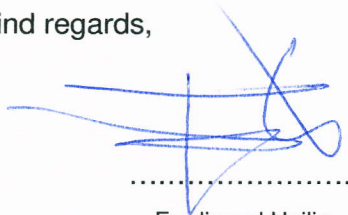
The service contracts with ENTRAG and EMERSON guarantee high quality troubleshooting with Emergency visits within 24 hours (as described above).

- Back Up – Procedures: In addition to the quality control and quality assurance procedures according to AFC quality management system and in order to avoid possible failures of the automated monitoring system several procedures are implemented for the project activity. The approach by Carbon Egypt was to ensure immediate response to such alarms/malfunctions respectively in the system.

In case you have any further inquiries please let us know as we kindly assist you.

Yours sincerely,

Kind regards,

A handwritten signature in blue ink, consisting of several overlapping loops and horizontal strokes, positioned above a dotted line.

Ferdinand Heilig
-Managing Director-