SGS

Mr. Hans Jürgen Stehr
Chair, CDM Executive Board
UNFCCC Secretariat
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December 3rd, 2007

Re Request for clarifications for the request for issuance for "Rang Dong Oil Field Associated Gas Recovery and Utilization Project" (0152)

Dear Mr. Stehr,

SGS has been informed that the request for issuance of the CDM project activity "Rang Dong Oil Field Associated Gas Recovery and Utilization Project" (Ref No. 0152) for the first monitoring period is under consideration for review because three requests for review have been received from members of the Board.

The requests for review are based on the reasons outlined below. SGS, following discussions with the Project Participant, would like to provide a response to the issue raised by the review team:

1. **The carbon content of April, May and June 2004 in the monthly gas composition data at the Rang dong oil field (appendix 9-1 of the monitoring report) shows 0.683, 0.796 and 0.682 respectively. Further clarification is required on how the DOE verified the value of May 2004.**

Question 1 refers to Parameter ($W_{carbon,A,y}$). During May 2004 the carbon content of Rang Dong (RD) gas (point A) was higher due to a failure of the process cooler between 10 – 28 May.
Under the normal operation condition, heavier components in the associated gas condense with temperature drop at the process cooler. During the period 10 – 28 May 2004, however, the process cooler failed and the associated gas remained hot. As a result heavier components were remained in the gas which causes the higher value in the data.
The compositional data has been monitored not only for the CDM but also for official purpose including gas sales. Thus, using the official data is considered appropriate because it enables to keep consistency in other official documents.
RD gas carbon content ($W_{carbon,A,y}$) was verified as detailed under Parameter 1.6 and only the results of verification are detailed within the SGS Verification Report.

2. **For the parameter "Gas composition of recovered gas at Point A" the monthly gas composition data at the Rang dong oil field (appendix 9-1) did not present the monthly data from October to December 2003. The values for the measurements prior to the gap are systematically higher (average 0.76 with deviations of less than 0.01) than those after the gap (average 0.71, except the April 2004 value of 0.796 all values are around 0.68 with deviations of less than 0.01). In the verification report, there is no convincing explanation about this systematic shift in carbon content of 7% (even 9% if the unusual value of April 2004 is not considered). The DOE shall provide evidence that the shift is not a consequence of two differing measurement techniques used before and after the gap and further clarify how the measurements were cross checked and verified.**

Question 2 refers to Parameter 1.6 (Wcarbon,A,y). As detailed within the Verification Report under NIR14, NIR16 and NIR24, and also as detailed within the Request for Deviation, the 7% decrease in carbon content after Oct 2003 is as a direct result of the process change associated with the modifications of the platform. The modifications included

installation of compressor and cooler because it was difficult to transport the associated gas as a result of reduced wellhead pressure at the time. The compressor enables the associate gas to transport by adding the pressure, and cooler lowers the temperature, both of which causes liquid drop-out of some heavier components. Such process change in Oct 2003 leads to the systematic change in gas composition.

From Oct to Dec 2003, there is no compositional data due to failure in sampling as it was commissioning period of the modification of the platform. Therefore, considering the situation, project participants took the conservative approach by using the data of lowest value from 2004 to 2005 as a proxy of the data during the above period.

There was indeed a change to the monitoring methodology, however the wording in the request for deviation may have been ambiguous in this respect.

For the period Dec 01 - Sep 2003, the export gas composition used for calculation of $W_{carbonA}$ was the actual well associated gas compositions for respective Lower Miocence and Basement wells. These were sampled manually from the off-gas leg during Sep 2001 well testing and the samples were analyzed at laboratory using ASTM 1945. As separator off-gas was exported without further process, the test separator sample point was representative of export gas. During this period the respective well compositions were flow weighted using monthly well flow rates to give a calculated monthly export composition and $W_{carbonA}$. This has been accepted by the EB in the request for deviation.

After Jan 2004 the gas composition in use was the export composition with sample point located at exit of compressor/ cooling system. This gas was subject to GC analysis using ASTM 1945, which is the same GC analysis method as was used during Dec 01 – Sep 03.

The shift is not therefore a consequence of different analysis techniques, but as explained, is due to actual composition change.

SGS reviewed the following evidence:

- Reservoir Fluids Study by Core Laboratories, dated 6 Mar 2001. Reservoir Fluids Study 8p and 8x show well test results at various separator pressures. Off-gas sampled during testing was analyzed by GC (8p Page 11) and modeled at various pressures and stages of separation (8x page 24).
- Ref A – Description of calculation of well compositions to export composition
- Ref B - Calculated flow weighted export compositions used during this period including the calculations, well composition and monthly well flow rate inputs.

3. The DOE states that that the composition of the recovered gas at point X (W carbon X,y) was stable (and thus 3-monthly measurement instead of the monthly measurement specified in the monitoring plan is sufficient) "since the average during the period 2001 until 2005 is 0.755 and standard deviation is 0.0131 corresponding to 1.74% of the average". However, thete are variations between one monitoring point [assume analysis] to the next of up to 5% (see p. 23 of the monitoring report, difference between March and June 2003). Appendix 9-1 of the monitoring report shows that carbon content of associated gas in the Rang Dong field varied by as much as 16.5% between one month and the next (April and May 2004). Further clarification is required.

Question 3 refers to Parameter 1.7 ($W_{carbonX}$). "P. 23 of the monitoring report, difference between March and June 2003" would be p. 25 of the monitoring report representing the point X ($W_{carbon\ X,\ y}$). The data of March and June has 3.5% in difference. The standard deviation during the period from 2001 to 2005 is 0.0131 corresponding to 1.74% of the average as can be calculated based on the data. Thus, it is stable.

Gas at Point X and A are supplied from different oil fields, and the compositional variation at Point A for April and May 2004 are actual data analyzed by RDCPP (Research and Development Centre for Petroleum Processing) - HoChiMinh City. The reason of variation is explained in the "1." above.

4. The DOE shall further clarify whether and how it has verified that the appropriate approved monitoring plan has been applied.

SGS has performed a detailed check of all parameters in the monitoring report not only against the requirements of the approved monitoring plan but also against the applicable monitoring methodology. Result of the check was the Request of a Deviation that was approved by the EB.

The verification account is detailed within the Initial Verification Checklist {AU4i} which contains the strategic review and risk assessment elements of the verification, and Verification Checklist {AU4} which defines the verification protocol and details findings. If the information provided in those documents is not regarded as sufficient, we apologize and provide in addition the following summary:

1. Team Member Selection: 4 members had been assigned as verification team with the lead assessor having the chemical and general CDM expertise, assessor having the petroleum expertise and a technical expert having the oil well related expertise especially with regard to uncertainty measurements and flow measurements.

2. Verification Schedule: Two site visits had been conducted as part of the verification. The first site visit had been done mainly inside the project boundary. The team visited the JVPC office, RD Oil Platform, Dinh Co Plant and PV Gas office to verify whether the approved monitoring plan had been applied in accordance with the applicable methodology at the process lines and shipping points. The second site visit had its focus on parameters outside the project boundary. The team visited in addition to a second visit to the above locations also the Thi Vai Terminal to verify whether the approved monitoring plan had been applied in accordance with the applicable methodology at the process lines and shipping points.

3. Collecting Evidences: We have copied and scanned numerous documents as the evidences for the verification to prepare the verification report including the deviation request.

Robert Dornau will be the contact person for the review process.

Yours sincerely,

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Attachements:
Ref A – WcarbonA calculation description.tif
Ref B – WcarbonA calculation Dec01-Sep03.xls