



JAPAN CONSULTING INSTITUTE

Sumitomo Fudosan Kudanshita Bldg 3F,
No. 5, Kanda-Jinbocho 3-chome,
Chiyoda-ku, Tokyo 101-0051, JAPAN

Telephone : +81-3-3222-8100
Facsimile : +81-3-3222-8101/2

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Ref. No. : JCI-CDM-C-11-094

CDM Executive Board

c/o Mr. John Kilani

Secretary to the CDM Executive Board

Subject : DOE's Response to the Request for Review

(Reference No.0933 : Jinan Landfill Gas to Energy Project)

Dear Sirs,

Please find the attached document which shows the JCI's response to the request for review for the CDM project with the reference number 0933.

In case you have any further question or request, please let us know by phone call or Email.

Yours sincerely,

A handwritten signature in black ink, appearing to be 'Hideyuki Sato', is written over a horizontal line. The signature is fluid and cursive, with the first letter 'H' being particularly large and stylized.

Hideyuki Sato

Manager of Assessment Group

JCI CDM Center

Tel: +81 3 3222 8100

Fax: +81 3 3222 8101/2

Email: sato-cdm@jci-plant.or.jp



DOE's Response to Request for Review

Project title: Jinan Landfill Gas to Energy Project
Reference No.: No. 0933
Project Participants: Shandong Shifang New Energy Co., Ltd
EcoSecurities Ltd
EcoSecurities Group Plc
(CDM consultant: EcoSecurities Group Plc)
DOE: Japan Consulting Institute, JCI

Issue

The methodology (page 7) and EB guidance (EB48, Annex 13) requires the calculation of the 95% confidence level for the measurements of the fraction of methane in the landfill gas ($w_{CH_4,y}$) with periodical measurements and the lower bound should be considered. Although the confidence level was calculated, it was not used in the calculation of emission reductions. The DOE shall confirm how the requirements of the methodology and EB guidelines to calculate the fraction of methane in the landfill gas regarding the periodic measurements of landfill gas using portable gas analyzer at 95% confidence level has been applied for emission reduction calculations.

Response of Project Participants:

The lower bound 95% confidence level of the methane concentration measurements were indeed calculated but unfortunately the final double check where it is applied to the landfill fill gas measurements was missed in the original calculations. This mistake has now been rectified and the missed step included in the updated spreadsheet, where the application of the lower bound 95% confidence level of the methane concentration measurements is transparently shown in the tab "Main(95%CL)". As can be seen, when the lower bound 95% confidence level is applied to the landfill gas measurements the influence on final emission reduction values is very limited, to by around 88 tCO₂e. None the less as the new value is slightly more conservative than those given by the periodic measurements, the Monitoring Report has been updated accordingly with the new emission reduction volume.

Response of JCI:

The applied Methodology stipulated as follows regarding monitoring methodology;

To determine these variables, the following parameters have to be monitored:

- The fraction of methane in the landfill gas ($w_{CH_4,y}$) should be measured with a continuous analyzer or, alternatively, with periodical measurements, at a 95% confidence level, using calibrated portable gas meters and taking a statistically valid number of samples and accordingly the amount of land fill gas from $LFG_{total,y}$, $LFG_{flare,y}$, $LFG_{electricity,y}$ and $LFG_{thermal,y}$ shall be monitored in the same frequency. - - - - -*



In the Monitoring Report Ver02 for the monitoring period 01/03/2010 – 31/01/2011 which has submitted for Request for CER Issuance, the 95% confidence interval of fraction of methane was calculated in the Spreadsheet for Emission Reduction calculation but its lower bound of the 95 % confidence interval is not applied for Emission Reduction calculation.

The Project Participants have revised the Spreadsheet and the Monitoring Report. The calculation procedure is conformed to the “Guideline to Calculate the Fraction of Methane in the Landfill Gas from Periodical Measurements, EB48 Annex 13” which provides a description on how to perform periodic monitoring of the fraction of methane in the landfill gas and how to use the results of these measurements in the methodology, especially regarding 95 % confidence level. Main parameters are as follows for 95 % confidence level of the project;

- Mean of the fraction of methane measured ; 58.13 %
- Number of measurement ; 884
- Standard deviation ; 0.00675
- 95 % confidence interval ; 58.08 % to 58.17 %
- Lower bound of the 95 % confidence interval ; 58.08 %

From its calculation result, the Emission Reduction calculation has revised using the lower bound of the 95 % confidence interval as follows;

- Original quantity of methane generated (crosschecked), $MD_{\text{project (crosschecked)}}$; 3,216 tCH₄
- Revised quantity of methane generated
(lower 95% confidence interval), $MD_{\text{project (lower 95% CL)}}$; 3,212 tCH₄
- Revised methane destroyed ; 67,454 tCO₂e
- Revised total baseline emission, BE_y ; 78,229 tCO₂e
- Revised total emission reductions, ER_y ; 78,229 tCO₂e

The revised ER_y is 88 tCO₂e lower than the original ER_y of 78, 317 tCO₂e.

JCI checked the calculations of 95 % confidence level and Emission Reduction in the Spreadsheet and concluded that those calculations were appropriate and conservative in accordance with the relevant Methodology and the Guideline. Therefore JCI submits the revised Verification Report and the revised Certification Report with the revised Monitoring Report.