

	<b>CDM: Response form for request for clarification on Approved Methodologies (version 01.1)</b>
<b>Date of Meth Panel meeting:</b>	23 - 27 June 2008
<b>Title and number of request for clarification</b>	Clarification on a conflict between ACM0001 and the 'Tool to determine project emissions from flaring gases containing methane' relating to the measurement of methane fraction and flow rate of landfill gas (wet or dry basis)  AM_CLA_0092
<b><u>Summary of the query:</u></b>	
Please use the space below to summarize the request for clarification on the related approved methodologies.	
<p>The request for clarification on the application of ACM0001 states that ACM0001 requires the methane fraction of the landfill gas to be measured on a wet basis. However, the "Tool to determine project emissions from flaring gases containing methane" states, that the flow rate of the residual gas and the volumetric fraction of methane in the residual gas shall be measured at the same reference condition - which may be on a dry or wet basis. Furthermore, the tool states that if the residual gas moisture is significant (defined as temperatures greater than 60°C), the measured flow rate of the residual gas that is usually referred to on a wet basis shall be corrected to a dry basis.</p> <p>Since the temperature of the residual gas may exceed 60°C, it is not clear whether the parameters must be provided on a wet basis (ACM0001) or a dry basis (Tool).</p> <p>CLA_TOOL_0003 relates to the same issue and points out that the tool does not provide guidance on the correction of the measured flow of the residual gas from wet to dry basis when residual gas moisture is significant. Therefore a general approach based on vapour pressure tables is proposed in the request for clarification.</p>	
<b><u>Recommendation by the Meth Panel:</u></b>	
Please use the space below to provide amendments /changes (in your expert view, if necessary).	
<ol style="list-style-type: none"> <li>1. The Tool to determine project emissions from flaring gases containing methane was developed based on the assumption that all parameters would be measured in dry basis regardless the moisture content of the residual gas. It is recommended that this is the approach to be adopted in all cases. However, for temperatures below 60 C, moisture could be neglected due to its very low influence on final results. In such cases, the basis adopted for measurements is not important. The rationale for adopting dry basis is linked to the fact that most gas analysers operate in dry basis and thus no corrections would be necessary;</li> <li>2. The need of consistency between the two sets of measurements is the most important. Either wet or dry basis could be adopted without any effect on the final result. This is applicable to gas phase composition as well as to gas flow. For instance, if flow is measured in wet basis and methane fraction is measured in dry basis, methane emissions will be overestimated (baseline emissions);</li> <li>3. ACM0001 should be revised to be consistent with the tool. This means that the moisture of the gas produced in the landfill shall have to be monitored whenever the tool is fully applied. While adopting default emission factors for flaring, the determination of residual gas flow and methane fraction in either way (dry or wet but both in same basis) will suffice;</li> <li>4. The simplest method to determine the moisture content of the gas is prescribed in the EPA stack sampling procedures (CF42) where the gravimetric method is proposed. A gas sample is collected for a definite period. The gas is cooled resulting moisture to condense and then condensed moisture is</li> </ol>	

weighed. The volume of the sample gas is then measured with a calibrated device (usually an orifice) and thus the water concentration can be determined avoiding theoretical and sometimes inaccurate calculations.

In response to requests for clarification the Meth Panel recommends:

- Only the methodology ACM0001 to be revised to include the guidance on how to determine the gas moisture when the methodology is applied in conjunction with the full calculations contained in the tool and when the gas is above 60 C. Moisture determination should follow the procedures provided by EPA CF 42 to determine water content in flue gases;
- To be conservative and accurate, it is suggested to keep the condition from the tool that if residual gas moisture is significant, the measured flow rate of the residual gas, if determined on a wet basis, shall be corrected to a dry basis (this is introduced in the methodology).

**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

The methodology ACM0001 has been revised to include the guidance on the issue.



Signature of Meth Panel Chair .....  
Date: 27/06/2008 (Akihiro Kuroki)



Signature of Meth Panel Vice-Chair .....  
Date: 27/06/2008 (Philip Gwage)

**Information to be completed by the secretariat**

F-CDM-AM	AM_CLA_0092
Name of the authors of the query:	TÜV-SÜD
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