

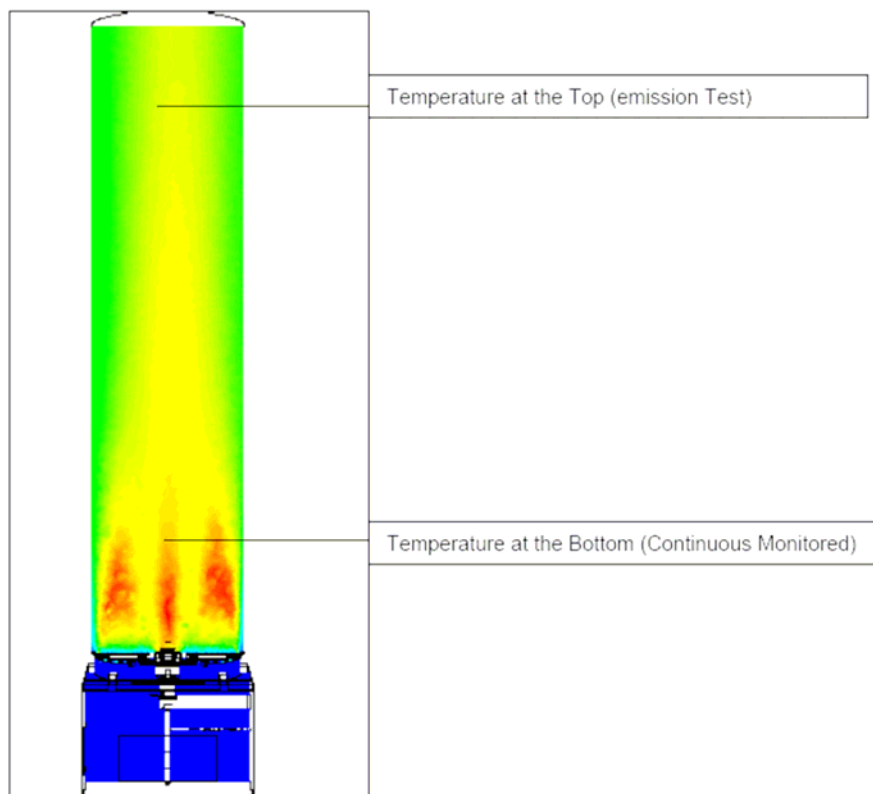


**CDM: Response form for request for clarification on
Approved Methodologies
(version 01.1)**

<i>Date of Meth Panel meeting:</i>	9 - 13 July 2007
<i>Title and number of request for clarification</i>	Temperature of the exhaust gases at the sampling point inside the flare / AM_CLA_0047
Summary of the query:	
Please use the space below to summarize the request for clarification on the related approved methodologies.	
Request for clarification refers to the sampling zone temperature limit. The DOE requests guidance on how to proceed when temperature is above the limit mentioned in the monitoring section comments of the Methodological “Tool to determine project emissions from flaring gases containing methane”, Annex 13, EB28.	
Recommendation by the Meth Panel:	
Please use the space below to provide amendments /changes (in your expert view, if necessary).	
No changes are deemed necessary. Guidance is provided to clarify the referred section.	
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	
<p>The guidance is as follows:</p> <ol style="list-style-type: none"> 1. Consider the enclosed flare should contain a reaction zone and a “mixing and cooling” zone as demonstrated in the picture provided by one of the references provided by the DOE. Consider that in the reaction zone (bottom zone) a very high temperature may be locally achieved (around 1000 °C or above) as per the comment provided by the DOE: “the “Guidance on Landfill Gas Flaring” from UK Environment Agency is included in the Annex, which recommends a combustion temperature of 1,000 °C for landfill gas flares to ensure high levels of methane destruction (pages 7, 15, 29).”. 2. Consider this reaction temperature is non-uniform through the transversal section. Some points may be well above 1000 °C and some points may be well below this temperature (see attached picture below). 3. Once combustion is completed (all or most of methane is destroyed), the mixing and cooling process will take place up to “the test zone” even if the flare is isolated. 4. The degree of cooling is highly dependent on factors such as amount of air provided, combustion efficiency, heat transfer through the walls and height of the flare. 5. The overall height of the flare should be designed to provide maximum draft (unless there is a forced draft fan), complete combustion and some cooling before releasing the gas into the atmosphere. <p>Under these conditions, a temperature greater than 700 °C (which means combustion is likely to be still taking place) in the test zone may occur due to many different reasons:</p> <ol style="list-style-type: none"> 1. The flare capacity is not adequate to the gas flow. Please verify if measured flow values are compatible with design flow rates. 2. Air mixing or/and quantity inside the flare is not adequate and combustion may be taking place in the cooling zone or even in the exhaust (staged combustion - using atmospheric air entrained from the top). Please, check for visible flame at the top of the flare (visual inspection) and for methane content and possibly very high temperatures in the cooling zone. 	

There is a possibility that the temperature in the cooling zone may be above 700 °C due a specific design (low height flares – usually forced draft configuration – or isolated flares). This will not represent a limitation provided that:

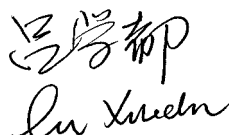
1. The operational capacity is in the range of the flare capacity.
2. In case of low height flares (less than 10 internal diameters), the methane composition throughout the sampling section is uniform. The methane composition profile should be measured once a year (traversing measuring procedure) at maximum stable flare capacity observed during that year and used to calculate flare efficiency instead of a single point measurement. The traversing method should result in the same methane concentration as obtained with the single point measurement (mean value with less than 10% variation from the single point measurement). Traversing procedure can be implemented in only one axis and at least 8 points defined as the centre of 4 equal area concentric circle crowns. The sampling probe shall remain at least 5 minutes in each point.





Signature of Meth Panel Chair

Date: 17/07/2007 (Akihiro Kuroki)



Signature of Meth Panel Vice-Chair

Date: 17/07/2007 (Xuedu Lu)

Information to be completed by the secretariat

F-CDM-AM	AM_CLA_0047
Name of the authors of the query:	DNV-CUK
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