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Comments from the Cement Sustainability Initiative (CSI) on the UNEP Hg BEP/BAT guidance

"Draft guidance on cement clinker production facilities"

1. The most important comment is related to Section 5, *Best available techniques and best environmental practices*, paragraph 2. The document states that *"The performance level associated with best available techniques and best environmental practices in new and existing installations for control of mercury emissions to air is below 0.03 mg Hg/Nm3 as a daily average, or average over the sampling period, at reference conditions 273 K, 101,3 kPa, 10 per cent oxygen and dry gas."* We believe that the time period associated with BAT/BEP at a level of 0.03 should be a monthly or 30-day rolling average.
In paragraph 3 the authors cite data by Renzoni et al., 2010 as justification for this level – but the data used in this article comes from European reporting where companies do testing under "normal operating conditions", meaning with the raw mill running. As the raw mill down condition represents a small portion of the overall time, this data gives a reasonable accurate picture of the overall emissions of these plants, but on any single day where the raw mill is not running, this level may be exceeded. The authors have used the data out of context to justify an overly restrictive level of performance.

The Minimata convention is concerned with overall releases of mercury to the environment and its monitoring provisions specify yearly reporting; it would seem a longer timeframe (e.g. monthly/30 days) for determining BAT/BEP is appropriate, rather than a short time frame used in some regulatory regimes.

The possible increase in mercury release to the environment for exceeding the limit on a daily average but maintaining the limit on a monthly or 30-day rolling average is small compared to the cost of controls necessary to maintain this limit on a daily average. It is quite conceivable that plants that average less than 0.013 mg Hg/Nm3 on a monthly basis (approximate USA NESHAP limit, the most restrictive regulation world-wide) will at times exceed the 0.03 mg Hg/Nm3 if measured on a daily average.

2. The reported performance of some existing plants was used as the main justification that 0.03 mg Hg/Nm3 is the associated level of BAT. This data stems from US and European plants with a given set of raw materials and not a specific technique. There is no evidence that this same level is achievable in other areas of the world such as Latin America or parts of Asia where historical volcanic activity has left the raw materials with higher levels of mercury.

The justification for the 0.03 mg Hg/Nm3 is based on "cherry-picking" emissions from a sub-set of plants that can achieve this low emission level due to their raw materials rather an emission level that can be achieved with an associated technology.

3. In many places of the document there are discrepancies in the cost of installing abatement equipment, particularly bag filter/sorbent injection. For instance, in §3.2.2, sub-section "Cost", investment cost for a baghouse is listed as $50k-100k without reference; in §3.2.3 the costs for a baghouse is listed as $3.2m (2005) referencing US Cement 2010 which does not state have this number; the only published cost in the industry for sorbent injection followed by a bag filter is Ash Grove Cement Durkee whose published cost is $20M.
http://www.bakercityherald.com/Local-News/Ash-Grove-cautiously-optimistic-it-can-meet-2015-mercury-rules

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4. Wet scrubber achieved benefit: although the data submitted to the EPA probably showed at least one plant achieving 80% mercury removal with a wet scrubber, the wording implies all five plants achieved this level. There is no reference to other plants with high elemental mercury that achieved less than 20% mercury removal, but the results from these plants are not in publications.

5. §6 Monitoring: Monitoring of mercury emissions is required by the Minamata Protocol on a yearly basis. This can either be done by a mass balance approach or by an appropriate stack measurement. The mass balance is a method which the cement industry is using for other compounds for decades. Continuous emission monitoring is used in only very few countries worldwide (mainly Germany and US). It requires a relatively huge effort regarding maintenance and operational control. As the required technological support by the (mostly European or US) analyzer suppliers as well the specific expertise in the cement industry may be lacking especially in less industrialized countries, mass balance is the more appropriate approach in those countries.

6. The draft BAT/BEP guidelines are an excellent overview of the available control technology. In reviewing the guidance and that produced by the various groups, it appears that only the cement/clinker guidance has a recommended associated ELV. It would seem more appropriate that similar to other groups, the recommended ELV be left up to each member state to decide based on its own country level specifics, rather than incorrectly stating that the associated technologies can achieve this ELV in all parts of the world with many different specificities.