Reviewer's report

Title: Comparison of methods to assign chlorination by-product levels in drinking water for population exposure assessment purposes

Version: 2 Date: 21 May 2010

Reviewer: Cristina M Villanueva

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This manuscript describes different methodologies to assess personal exposure to trihalomethanes, with epidemiological purposes. The general recommendations may be useful for future studies to evaluate exposure in some settings.

The objectives are well stated and the methodology is appropriate. However, it is very dense and the authors should make an effort to simplify the reading. There are some repetitive sentences and messages that could be simplified or removed. There is an overuse of some expressions such as “in fact”. The main message in some paragraphs is lost in the text. And a final conclusion or message of the work, expressed in a synthetic way, would be very useful.

Some specific comments:
- add page numbers
- second page of the background:
  o Line 12. change “others” for “other”
  o Line 20. “potential” is not necessary
  o Line 21. “In fact is not necessary
  o Line 22 “might” is not necessary
- Methods. “Description of data” paragraph
  2.2.1. Population under study.
  - line 9 “and exposure period”. Is this necessary?
  - The second paragraph, “This paper focuses (...) last column of Table 1” needs rewording. It is not clear what exactly you have treated trimesters of pregnancy. It needs also simplify and stick to the main idea.

2.2.2. If you measure CBP in 2006, 2007 and 2008, why figures 2 and 3 are limited to 2007-2008?

2.3.1. The difference between SpC and SpE methods is not clear
- Methods. “Data analysis”.
  o You mention some statistical tests that later do not appear in the results.
Consider remove this paragraph or indicating in the results the p-values of the statistical tests.

- The paragraph in general needs to synthesised, to make the reading easier.
- There is confusion between “CBP species” and “CBP classes” and “CBP categories”. Use appropriate terminology.

- Results and discussion.

- 3.1. CBP Occurrence. All the paragraph could be reduced by 1/2. There is no need to replicate exactly the content of each table. For example, it is enough to mention the maximum (DE) average and the minimum (QC and STF).

- 3.2. Comparison of methods. This is the most important point of the manuscript, and the reading makes very difficult a proper understanding of the bottom line. The text should be reviewed and reworded with new eyes.

- Tables. There are too many tables and figures. Table 3, 4 and 5 could be put into 1 single table.

**Level of interest:** An article of importance in its field

**Quality of written English:** Not suitable for publication unless extensively edited

**Statistical review:** No, the manuscript does not need to be seen by a statistician.