

Sept. 29, 2009

Ms. Minnie de Jong
Manager, Human Toxicology and Air Standards Section
Standards Development Branch
Ministry of the Environment
40 St. Clair Avenue West, 7th Floor
Toronto Ontario M4V 1M2

Re: ON Reg. 419 Dioxin, Dioxin-Like Compounds Air Standard EBR 010-7193

Dear Ms. de Jong:

This letter contains input from the Canadian Petroleum Products Institute (CPPI) in response to the EBR Posting 010-7193.

CPPI is the national association representing the interests of the downstream petroleum industry for all aspects of petroleum refining, distribution, transportation and marketing of petroleum products. In the province of Ontario, CPPI members include Imperial Oil, NOVA Chemicals, Shell Canada, Suncor and Ultramar. This includes operation of the 6 petroleum refineries processing about 380,000 barrels per day of crude oil, and as well, the operation of a substantial portion of the distribution and marketing infrastructure in the province.

CPPI members have maintained and demonstrated a long-standing commitment to improving environmental performance and helping protect Ontarians from being exposed to toxic substances from their operations, as well, in partnering with MOE to provide meaningful input on new developments.

From reviewing the proposed Dioxin 24-hour air standard of $0.1 \text{ pg/m}^3 \text{ WHO}_{2005}\text{-TEQ}$, it appears that the substantial science based input and arguments made by CPPI in our March 27, 2009 submission to the science consultation document, that would credibly support a higher air standard were not accepted. This is disappointing. Rather than restate the extensive input that CPPI earlier provided, we draw your attention to that March 27th input and in particular, would like to reinforce some particularly significant points for the MOE to reconsider.

Dioxins ½ hour and 24 hour AAQC

- TDI's (TCDD equivalents) of different organisations average 2.5 pg/kg/d (ranging from 1 – 4 pg/kg/d) and MOE uses this range to calculate an AAQC using route-to-route extrapolation. It should be noted that, whereas the tolerable daily intake has been calculated with the utmost precision using toxicokinetic information and body burden models, a simple application of route-to-route extrapolation negates the accuracy of the oral value.
- Whereas the the tolerable daily intake has been calculated meticulously accurate, the less accurately estimated allocation factor to air has an unreasonable large impact on the AAQC. The allocation factor to air has been reduced from 10% in the Science Document for Stakeholder review to 3% in the current version. The allocation to air is based on a few studies determining dioxin exposure to the general population. However, media-allocation strongly depends on the food and living habits of the exposed population. Data from Nauman *et al.* (1987) show that significant dioxin exposure occurs through fish and inhalation. These data support a higher allocation factor than 3%. In addition, a study investigating dioxin exposure in an UK worker population with a relatively high inhalation exposure showed that the estimated daily intake via inhalation was 0.35 pg WHO-TEQ kg⁽⁻¹⁾ body weight (bw) in the worst case scenario (Aries *et al.*, 2008). Considering that the average UK adult exposure to dioxins from the diet is 1.8 pg WHO-TEQ kg⁽⁻¹⁾ bw day⁽⁻¹⁾, this may account for nearly 20% of the average daily intake. It is therefore well possible that the allocation factor to air of an urban or industrialized area is rather closer to 20% than to 3%. CPPI strongly recommends to revise the media allocation factor to air to a more realistic number, such as 10%. The resulting 24-hour standard would then be 0.4 pg/m³ WHO₂₀₀₅-TEQ.
- **Based on the above scientific basis, CPPI recommends that the Dioxin 24-hour standard be changed to be 0.4 pg/m³ WHO₂₀₀₅-TEQ (0.000004 µg/m³ WHO₂₀₀₅-TEQ). The half-hour standard should be adjusted accordingly, resulting in a ½ hour standard of 1.2 pg/m³ (0.000012 µg/m³ WHO₂₀₀₅-TEQ).**

Upper Risk Threshold

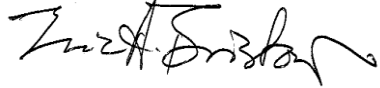
- **The Upper Risk Threshold should be adjusted according the proposed ½-hour and 24-hour standards above and should be 0.000012 µg/m³ WHO₂₀₀₅-TEQ for the ½-hour URT and 0.000004 µg/m³ WHO₂₀₀₅-TEQ for the 24-hour URT.**

References

- Aries E., Anderson D.R., and Fisher R. (2008) Exposure assessment of workers to airborne PCDD/Fs, PCBs and PAHs at an electric arc furnace steelmaking plant in the UK. *Ann Occup Hyg.* 52(4): 213-225.
- Nauman C.H., and Schaum J.L. (1987) Human Exposure Estimation for 2,3,7,8-TCDD. *Chemosphere* 16(8/9): 1851-1856

We welcome the opportunity to meet with you for further discussion in order to ensure an appropriate science based air standard for Dioxin.

Sincerely,



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Cc Mr. Carl Griffith, ADM, Environmental Sciences and Standards Division, MOE
Mr. Dale Henry, Director, Standards Development Branch, MOE
Ms. Faith Goodman, Vice-President Ontario Division, CPPI