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 Benzene Proposed Air Standard EBR Posting # 010 - 7186

Dear Ms. de Jong:

This letter contains input from the Canadian Petroleum Products Institute (CPPI) in response to the proposed Benzene air standard, EBR Posting # 010 - 7186.

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 MOE proposed Benzene annual AAQC of 0.45 µg/m^3, it appears that the science based input and arguments made by CPPI in our March 26, 2009 submission to the science consultation document, that would credibly support a higher air standard were not accepted. This is disappointing. In addition to the March 26th input, CPPI has outlined further specific scientific input for the MOE to reconsider. Based on this science basis, CPPI has recommended different annual, short-term AAQC values, and URTs.

Benzene Annual AAQC

- The low-dose risk of acute myelogenous leukemia in humans is best described by a sub-linear model based on epidemiology data. Other evidence like genotoxicity and enzyme saturation do not support one simple mode of action, as the Rationale Document would like us to believe. MOE selectively cites a small number of studies to make a case for a linear (if not supralinear) dose-response, and fails to take a weight-of-evidence approach using the vast literature on benzene genotoxic potential and metabolism. Furthermore, MOE provides no basis, (e.g., a critical review), for excluding the mass of studies that do not support the Ministry's conclusions. This is not good science. Other jurisdictions have used the same cohort study to set higher standards for benzene. CPPI cited the ACGIH acceptance of a sub-linear model for an occupational exposure, at least until more conclusive evidence became available on effects in the low exposure range.
- As other jurisdictions set risk management objectives for lifetime cancer risks between 10^{-4} and 10^{-6}, by choosing the lowest of this range, the MOE takes the most conservative goal and compounds it by the conservatism in how it extrapolated risks from the Pliofilm cohort. The resulting annual AAQC based on linear models used by EPA (0.45 µg/m^3) may be below rural Canadian background levels (0.3-1.0 µg/m^3).

Based on the above scientific basis, CPPI recommends an annual AAQC for benzene no lower than 10 µg/m^3, using sub-linear extrapolation from relatively high exposure occupational epidemiology studies, with consideration given to molecular and genetic toxicology studies.

Benzene ½ hour and 24 hour AAQC

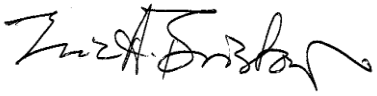
- MOE calculates a ½ hour and 24 hour AAQC based on carcinogenicity after long-term exposure. Calculating a short-term standard based on an effect that is the result of long-term exposure, is scientifically indefensible.
- However for short-term exposure, The Texas Commission on Environmental Quality based their 1-hour ESL of 178 µg/m^3 on acute haematotoxicity, which is an appropriate basis for a short-term standard.
- Given the variability of benzene emissions, if a facility were able to meet the ½-hour and 24-hour standards for an entire year, the actual annual emission value would likely achieve a population risk that is 1- or 2-orders of magnitude lower than the MOE's conservative objective.
- **Based on the above scientific basis, CPPI recommends that the Benzene half-hour standard be changed to 178 µg/m^3 and that the Benzene 24 hour standard be changed to 60 µg/m^3 (based on 178/3).**

Benzene Upper Risk Threshold (URT)

- By the MOE using the ATSDR MRL of 0.009 ppm (acute inhalation MRL, which is applicable for exposure up to 14 days!) as starting point, CPPI believes that the MOE then calculates the URT probably as follows: 0.009 ppm x 3.26 x 1000 = 30 µg/m^3. HQ=10, hence URT ½h is 300. A problem with this is that the MOE is not accounting for the fact that the acute MRL is applicable for exposures up to 14 days and is not a ½-hour standard! This is mixing apples and oranges.
- **Consistent with the science points above, the ½ hour URT should be based on acute health effects as presented by TCEQ and be based on the one hour ESL of 178 µg/m^3 (based on haematotoxicity). The half hour URT should be 10 times that value, or 1780 µg/m^3.**

We welcome the opportunity to meet with you for further discussion in order to develop appropriate air standards for benzene.

Sincerely,



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