



May 10, 2007

Ms. France Jacovella  
Director, Chemicals Sector Division  
Pollution Prevention  
Department of the Environment  
Ottawa, Ontario K1A 0H3.

Dear Ms. Jacovella,

**Re: Notice of Objection**

Raincoast Conservation Society is writing to support the Notice of Objection filed by the Sierra Legal Defence Fund dated Feb 14, 2007 on behalf of the David Suzuki Foundation, Environmental Defence and the Canadian Environmental Law Association pursuant to sections 332(2) and 333 of the *Canadian Environmental Protection Act*.

The Objection addresses the proposed regulation of Polybrominated Diphenyl Ethers. We support this Objection because we believe that important scientific information is available on the toxicity and persistence of high congener BDEs that has not been considered by Environment Canada in the screening assessment. Specifically, the toxicity, persistence and bioaccumulation of deca-BDE cannot be dismissed using a narrow interpretation of these definitions and processes.

Raincoast Conservation Society and colleagues have published two papers that document the presence of BDE-209 (the principal component of the commercial decaBDE formulation) in a high trophic level Canadian mammal. Findings from these two papers (Christensen et al. 2005 and Christensen et al. 2007) along with papers published since 2006 support the following understanding of deca-BDE:

- While the optimal log  $k_{ow}$  range for partitioning and bioaccumulation of persistent organic contaminants in aquatic food webs lies between 5.8 -7.4, congeners with higher log  $k_{ow}$  values are readily taken up from their food sources, as exemplified by the high levels in our terrestrial-feeding interior grizzly bears. BDE-209 readily moves through the environment via atmospheric processes and partitions into terrestrial food webs in part by binding to plants. In our study, interior terrestrial grizzly bears (non-fish eating) showed 20 times higher BDE-209 concentrations (10.4 ug/kg lipid weight) than coastal maritime grizzlies (fish-eating; 0.5ug/kg lw). Almost all of the BDE-209 in bears came from their terrestrial (non salmon) diets. Terrestrial wildlife can accumulate, and be considered at risk from, deca-BDE.
- While we found BDE-209 to accumulate in terrestrial food webs as documented in grizzlies and other mammals, the debromination of this congener into more bioaccumulative and more toxic (lower congener) PBDE congeners represents another significant concern. This has been clearly demonstrated in numerous recent scientific studies. By banning penta and octa- formulations, but retaining the deca product, we are creating an environmental source of bioaccumulative and toxic penta and octa-like congeners.

- The lack of ready detection of high concentrations of BDE 209 in aquatic food webs is not surprising, and recent studies shed light on where the deca BDE is going: bound to particles and sediments in water and air, and taken up by scavengers and filter feeders. Debromination of 209 in these compartments will lead to subsequent accumulation in aquatic food webs.
- While there is a clear need for more toxicological information on PBDEs, their structural similarity to PCBs and recent research highlights the risk that PBDEs present to the Canadian environment. While PBDEs are typically 'heavier' and less stable than the PCBs, it is clear that they and their breakdown products are bioaccumulative and toxic.

The intent of CEPA legislation subsection 77(4) is to protect Canadians and Canadian environments from substances that are persistent, bioaccumulative and toxic. Environment Canada's narrow interpretation of criteria for bioaccumulation and persistence has put Canadian wildlife and human health at unnecessary risk.

We support the establishment of a Review Board as requested by Sierra Legal Defence Fund to update the definitions and criteria to be in accordance with current scientific understanding and apply the CEPA legislation in the spirit it was intended. This would entail a ruling that bans the use, sale, offer for sale and import of higher congener BDEs (hepta, octa, nona and deca).

Please do not hesitate to contact me if you have any questions regarding this letter.

Sincerely,

Misty MacDuffee  
Raincoast Conservation Foundation

Cited references:

Christensen, J.R., MacDuffee, M., Macdonald, R.W., Whitticar, M., and Ross, P.S. 2005. Persistent Organic Pollutants in British Columbia grizzly bears: Consequence of divergent diets. *Environ.Sci.Technol.* 39: 6952-6960.

Christensen, J.R., MacDuffee, M., Yunker, M.B., and Ross, P.S. 2007: Hibernation associated changes in persistent organic pollutants (POP) levels and patterns in British Columbia grizzly bears. *Environ.Sci.Technol.* 41: 1834 - 1840;