

**Canadian Council of Ministers of the Environment**

***CANADA-WIDE STANDARDS***

***for***

***DIOXINS AND FURANS:***

***Conical Waste Combustion of Municipal Waste***

# **CANADA-WIDE STANDARDS**

## **for**

## **Dioxins and Furans**

### **PREAMBLE**

#### Dioxins and Furans

Polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzofurans (PCDFs), commonly known as dioxins and furans, are toxic, persistent, bioaccumulative, and result predominantly from human activity. Due to their extraordinary environmental persistence and capacity to accumulate in biological tissues, dioxins and furans are slated for virtual elimination under the *Canadian Environmental Protection Act (CEPA)*, the federal *Toxic Substances Management Policy (TSMP)* and the Canadian Council of Ministers of the Environment's (CCME) *Policy for the Management of Toxic Substances (PMTS)*.

The presence of dioxins and furans in the Canadian environment can be attributed to three principal sources: point source discharges (to water, air and soil), contamination from *in situ* dioxins and furans, and loadings from long-range transboundary air pollution (LRTAP).

Canada has signed and ratified (December, 1998) the United Nations Economic Commission for Europe's (UNECE) Protocol on Persistent Organic Pollutants under the Convention on Long-Range Transboundary Air Pollution. This international Protocol has as its objective, "to control, reduce or eliminate discharges, emissions and losses of persistent organic pollutants (POPs)." As well as obligations for other specified POPs, it specifically obliges Parties "to reduce their emissions of dioxins, furans, polycyclic aromatic hydrocarbons (PAHs) and hexachlorobenzene (HCB) below their levels in 1990 (or an alternative year between 1985 and 1995)." Waste incineration, including co-incineration is included in this Protocol as Major Stationary Sources of these contaminants.

Canada has also signed and ratified (May 2001) the Stockholm Convention on POPs under the United Nations Environment Programme (UNEP). The Convention aims to protect human health and the environment from persistent organic pollutants. Among other obligations, Parties are required to take measures to reduce total releases from anthropogenic sources of dioxins, furans, (as well as hexachlorobenzene and co-planar PCBs), with the goal of their continuing minimization and where feasible (technically and socio-economically), ultimate elimination.

Dioxin and furan contamination found in soil, water, sediments, and tissues (*in situ* contamination), is the subject of national guidelines for dioxins and furans. These guidelines outline ambient or "alert levels" which may be used by jurisdictions as benchmarks for the management and monitoring of dioxins and furans already present in the environment.

Point source discharges to water have been the target of aggressive federal and provincial regulation, as well as industry innovation and change. Discharges of dioxins & furans to the aquatic environment reached non-measurable levels in 1995.

### Development of the Canada-wide Standard

The Canada-wide Standards process has focussed on anthropogenic sources that are releasing dioxins and furans to the atmosphere and soil in a continuous process.

In January 1999, the Federal/Provincial Task Force on Dioxins and Furans released the first *Dioxins and Furans and Hexachlorobenzene Inventory of Releases*, followed by a draft Update issued by Environment Canada in October 2000 and a revised Update published in February 2001. The latest Update documented the current understanding of anthropogenic sources in Canada releasing dioxins and furans. The *Inventory of Releases* and the Updates list emissions from over 20 sectors by province and territory, and provides national summaries for each sector.

Initial efforts have focused on atmospheric releases, the most complete component of the Inventory. Six priority sectors, varying from regional to national in scope, accounting for about 80% of national emissions in the 1999 inventory have been identified as priorities for early action. These are waste incineration (municipal solid waste, hazardous waste, sewage sludge and medical waste); burning salt laden wood in coastal pulp and paper boilers in British Columbia; residential wood combustion; iron sintering; electric arc furnace steel manufacturing; and conical municipal waste combustion in Newfoundland and Labrador.

CCME has taken a CWS approach for priority sectors such as coastal pulp and paper boilers, waste incineration (municipal solid waste, biomedical waste, hazardous waste, sewage sludge incineration, conical waste combustion), iron sintering and steel-making electric arc furnaces. Reductions from additional source sectors, many of which contribute very small amounts of dioxins and furans emissions, will continue to be pursued through a variety of mechanisms including co-benefits resulting from other processes, action by individual jurisdictions, and public education.

Development of CWSs for dioxins and furans has taken into consideration environmental benefits, available technologies, socio-economic impacts, opportunities for pollution prevention and collateral benefits from reductions in other pollutants.

In recognition of the ultimate goal of virtual elimination, pollution prevention is being encouraged as the preferred method for avoiding the creation of dioxins and furans or reducing the releases of those substances to the environment.

Wherever possible, work on the dioxins and furans CWSs has been coordinated with other ongoing processes (e.g. Mercury CWS and the Strategic Options Process). A multi-pollutant approach will be carried forward to the remaining sectors while ensuring that dioxins and furans issues are addressed and that the ultimate goal of virtual elimination is kept clearly in mind. Opportunities for a multi-pollutant approach will also be pursued as part of the implementation of the Dioxins and Furans Canada-wide Standard.

During development of the inventory, it was realized that the data on dioxins and furans is limited. The information in the dioxins and furans inventory will be refined and updated on a regular basis through a variety of sources including the National Pollutants Release Inventory (NPRI) as a means of tracking progress and as a means of identifying any future sources of releases that must be addressed.

## **PART 1:**

### **Conical Waste Combustion of Municipal Waste**

#### Rationale for standard

Unique to Newfoundland and Labrador, the burning of municipal waste in conical waste combustors results in an estimated annual release of 44.0 g TEQ/year to the atmosphere based on best available emission factors and volumes of waste burned. This corresponds to 27 percent of the national total of dioxins and furans emissions to the atmosphere documented in the 2001 inventory of releases prepared under the *Canadian Environmental Protection Act (CEPA)*. As of June 30, 2003, there are 41 conical waste combustors still operating in Newfoundland and Labrador.

In recognition of the rugged topography, scarcity of overburden, and the isolated nature of many of its communities, the government of Newfoundland and Labrador has historically approved the construction and use of conical waste combustors. Compared to landfilling, these combustors conserve soil which would otherwise be required as cover material in landfills and which is in limited supply in the province. Since the 1990's, conical waste combustors were approved for use only where alternative methods of waste disposal were not feasible.

While modern municipal waste incinerators employ sophisticated and effective emission controls, conical waste combustors have only screens to retain some of the larger particulate matter.

#### Nature and application:

Due to the design of conical waste combustors, emission controls are not a feasible option for reducing releases of dioxins and furans from conical waste combustors. Therefore, this standard proposes to phase out the operation of conical waste combustors in Newfoundland and Labrador, and prevent the operation of new conical waste combustors anywhere in Canada. Conical waste combustors were also a sector of concern in CCME's process to develop Canada-wide Standards for mercury emissions. The phase-out strategy will also result in reduced mercury emissions from these combustors.

The waste management strategy developed by Newfoundland and Labrador will be the vehicle for achieving the phase out of existing conical waste combustors in the province. The strategy has a strong emphasis on identifying and implementing pollution prevention opportunities as well as minimizing overall environmental impacts. The goals of the waste management strategy include waste diversion, large scale composting facilities and province-wide modern waste management, which will ensure reduced dioxin and furan emissions. Any new incinerators will comply with the Canada-wide Standards for Mercury Emissions and the Canada-wide Standard for dioxins and furans emissions from incinerators.

#### Targets and Timeframes

The government of Newfoundland and Labrador is committed to phasing out existing conical waste combustors within the Province by 2008.

Prohibition of new conical waste combustors in all jurisdictions in Canada where conical waste combustors are a sector of concern will be the objective when Ministers sign this standard.

Anticipated Environmental Benefits

Based on the emission estimates in the February 2001 national inventory, achievement of this standard will result in reductions of 44 grams TEQ/year of dioxins and furans releases to the atmosphere.

**PART 2:**

Reporting on Progress:

Ministers will receive reports on progress in achieving the Dioxins & Furans CWSs by jurisdictions in Spring 2005 and Spring 2009. Ministers will ensure that a single public report is prepared and posted on the CCME web site for public access. The report in 2004 will reflect interim progress on achieving the CWSs. The 2009 report will evaluate whether targets have been met.

Each jurisdiction will detail the means of ensuring achievement of the CWS in a manner consistent with the typical or desired programs for the affected facility/sector, so as not to impose an unnecessary level of reporting duplication.

With a view to continuous improvement towards the goal of virtual elimination, an evaluation of the Dioxin and Furan Canada-wide Standards will be presented to Ministers in Spring 2006. The evaluation will consider new scientific, technical and economic information and provide an assessment of the need to develop the next set of CWS targets and timelines to continue progress toward virtual elimination.

Administration:

Jurisdictions will review and renew Part 2 five years from coming into effect.

Any party may withdraw from this Canada-wide Standard upon three month's notice.

This Canada-Wide Standard comes into effect for each jurisdiction on the date of signature by the jurisdiction.

**Canada-wide Standard for Dioxins and Furans:  
Conical Waste Combustion of Municipal Waste**

Signed by:

British Columbia	Honourable Bill Barisoff
Alberta	Honourable Lorne Taylor
Saskatchewan	Honourable David Forbes
Manitoba	Honourable Stan Struthers
Ontario	Honourable Leona Dombrowsky
Environment Canada	Honourable Stéphane Dion
New Brunswick	Honourable Brenda Fowle
Nova Scotia	Honourable Kerry Morash
Prince Edward Island	Honourable Jamie Ballem
Newfoundland and Labrador	Honourable Tom Osborne Honourable Daniel Williams
Yukon	Honourable Jim Kenyon
Northwest Territories	Honourable Brendan Bell
Nunavut	Honourable Olayuk Akesuk

Note: Québec has not endorsed the Canada-wide Accord on Environmental Harmonization or the Canada-wide Environmental Standards Sub-agreement.