



## Durham/York Residual Waste Study

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### MEMORANDUM

TO: Joint Waste Management Group

FROM:

Mike Birett, Acting Director  
Solid Waste Management & Administration  
Environmental Services Department  
The Regional Municipality of York

and

Mirka Januszkiewicz, Director  
Waste Management Services  
Works Department  
The Regional Municipality of Durham

DATE: May 13, 2008

RE: Response to Durham Regional Council Direction on EFW Facility Air Emission Control System Updated

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#### Durham Council Resolutions

At its meeting of January 23, 2008 Durham Regional Council passed the following two resolutions:

- i) THAT the Joint Waste Management Group of the Regions of York and Durham be requested to agree to protect the health and safety of the residents of Clarington and Durham by incorporating into the design and installation of the EFW facility the most modern and state of the art emission control technologies that meet or exceed the European Union (EU) monitoring and measurement standards.
- ii) THAT the Joint Waste Management Group of the Regions of York and Durham be requested to commit to including in the Request for Proposals and Certificate of Approval, Maximum Achievable Control Technology (MACT) for the emission standards and monitoring of the EFW facility.

#### Meeting or Exceeding EU and Ontario Limits

In response to the above resolutions, a report was brought to the JWMG meeting of April 15, 2008 wherein it was proposed that the RFP for the EFW facility require vendors to guarantee the Operational Limits presented in an attached Table 1 for the specified contaminants of concern. This table also listed the corresponding limits specified in Ontario's Guideline A-7 and in the appropriate EU standards.

Table 1 has been revised and is attached as Table 2 of this report, with two of the Operational Limits having been amended to take into consideration commentary and discussion at both Joint Works/Health & Social Services Committee and Regional Council, that has taken place subsequent to the April 15, 2008 JWMG meeting.

The two parameters in question are Hydrogen Chloride (HCl) and Lead (Pb). In the case of Hydrogen Chloride the Operational Limit has been lowered from the 20mg/Rm<sup>3</sup> in the original Table 1, to 9 mg/Rm<sup>3</sup>. This latter value is exactly the same as the European limits in the EU Directive 2000/76/EC. In the case of lead the Operational Limit has been lowered from the 70µg/Rm<sup>3</sup> in the original Table 1, to 50µg/Rm<sup>3</sup> in order to match the CCME guidelines.

These Proposed Operational Limits as shown in the revised Table 2 are currently being discussed with the Ontario Ministry of the Environment (MOE). Following the March 14, 2008 meeting with senior ministry staff where the topic of limits was initially discussed, a letter dated March 25, 2008 was sent to Ms. Doris Dumais, Director Environmental Assessment and Approvals Branch requesting an indication of the suitability of the limits presented in Table 1. The response from Ms. Dumais dated April 25, 2008 is included in the package of materials for the May 13, 2008 JWMG meeting along with the March 25 submission. Regional Staff plan further meetings with the Ministry of the Environment to finalize Operational Limits and Targets.

The Proposed Operational Limits in Table 2 (revised May 13, 2008) are lower than those specified in Guideline A-7 for all contaminants and are equal to or lower than those specified in the EU limits for all contaminants.

Staff have also reviewed alternative methods of sampling for Dioxins and Furans and recommend using both a cartridge system similar to the Isle of Man System and semi-annual stack testing as a backup. Stack testing will allow calibration of the cartridge, continuous emission monitors and will provide data on a large suite of other chemicals of concern.

### Recommendation

Given the above information, it is recommended that, the JWMG rescind the previously approved April 15<sup>th</sup>, 2008, report and adopt the modified operating limits specified in Table 2 (revised May 13, 2008) of this report for inclusion in the RFP. In addition, the project team also recommends a cartridge system for continuous sampling of dioxins and furans.

**Table 1**

Pollutant	Units <sup>(1)</sup>	Ontario Guideline A-7	EU Directive 2000/76/EC EU Limits	Proposed Operational Limits
Particulate Matter	mg/Rm <sup>3</sup>	17	9	9
Sulfur Dioxide (SO <sub>2</sub> )	mg/Rm <sup>3</sup>	56	46	35
Hydrogen Chloride (HCl)	mg/Rm <sup>3</sup>	27	9	20
Nitrogen Oxides (NOx)	mg/Rm <sup>3</sup>	207	183	180
Carbon Monoxide (CO)	mg/Rm <sup>3</sup>	NS	46	45
Mercury (Hg)	µg/Rm <sup>3</sup>	20	NS	15
Cadmium (Cd)	µg/Rm <sup>3</sup>	14	NS	7
Lead (Pb)	µg/Rm <sup>3</sup>	142	NS	70
Dioxins/Furans (ITEQ)	ng/Rm <sup>3</sup>	0.08	0.092	0.06
Organic Matter (as Methane)	ppmv	100	NS	75
	mg/Rm <sup>3</sup>	66	NS	49

**NOTES:**

mg/Rm<sup>3</sup> = Milligrams per regular cubic meter.

µg/Rm<sup>3</sup> = Micrograms per regular cubic meter.

ng/Rm<sup>3</sup> = Nanograms per regular cubic meter.

ppmv = Parts per million on a dry volume basis.

NS = Not specified.

<sup>(1)</sup> = All concentrations corrected to 11% O<sub>2</sub>

**Table 2: Air Emission Limits (Revised May 13, 2008)**

Pollutant	Units <sup>(1)</sup>	Ontario Guideline A-7	EU Directive 2000/76/EC EU Limits	Proposed Operational Limits
Total Particulate Matter	mg/Rm <sup>3</sup>	17	9	9
Sulfur Dioxide (SO <sub>2</sub> )	mg/Rm <sup>3</sup>	56	46	35
Hydrogen Chloride (HCl)	mg/Rm <sup>3</sup>	27	9	9
Hydrogen Fluoride	mg/Rm <sup>3</sup>	Not Specified	0.92	0.92
Nitrogen Oxides (NOx)	mg/Rm <sup>3</sup>	207	183	180
Carbon Monoxide (CO)	mg/Rm <sup>3</sup>	NS	46	45
Mercury (Hg)	µg/Rm <sup>3</sup>	20	46	15
Cadmium (Cd)	µg/Rm <sup>3</sup>	14	Not Specified	7
Cadmium (Cd) + Thallium (Tl)	µg/Rm <sup>3</sup>	Not Specified	46	46
Lead (Pb)	µg/Rm <sup>3</sup>	142	Not Specified	50
Sum of (As, Ni, Co, Pb, Cr, Cu, V, Mn, Sb),	µg/Rm <sup>3</sup>	Not Specified	460	460
Dioxins/Furans (ITEQ)	ng/Rm <sup>3</sup>	0.08	0.092	0.06
Organic Matter (as Methane)	mg/Rm <sup>3</sup>	66	NS	49

## NOTES:

Shaded boxes represent changes from Table 1

Rm<sup>3</sup> = "Reference Cubic Metre" – i.e. 1 cubic metre at Standard Temperature and Pressure (298 °K, 1atm)All concentrations corrected to 11% O<sub>2</sub>

All values represent 24 hour averages

mg = milligrams = 10<sup>-3</sup> gramsµg = micrograms = 10<sup>-6</sup> gramsng = nanograms = 10<sup>-9</sup> grams