



## Memorandum

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**Cc:** Gioseph Anello; Greg Borchuk (Region of Durham)  
 Dave Gordon (Region of York)

**From:** Jim McKay, HDR

**Date:** November 23, 2010

**Re:** **EA Conditions of Approval and Requirements to Ensure Compliance**

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### Background

On November 19, 2010, the Regions of Durham and York received approval under the Environmental Assessment Act to implement the Durham/York Residual Waste Study EFW undertaking. Included with this approval were a number of conditions with respect to the design, operation, and monitoring of the facility. The Regions requested that HDR provide information regarding the potential impacts of the EA Conditions of Approval provided in the Notice of Approval to the Regions by the Ministry of the Environment. The following provides an overview of the EA Conditions of Approval, the potential impacts to the Regions waste management systems, and the project agreement with Covanta. The following sections also outline the requirements of the Regions and its Contractor (Covanta Durham York Renewable Energy Ltd.) to ensure compliance with said conditions. Now that EA approval has been granted, the Regions will meet with MOE staff to ensure a common understanding of each EA condition and the requirement to ensure compliance. The following assessment is based on our current understanding of the EA conditions as presented by the MOE to the Regions.

### Conditions related to the Regions Integrated Waste Management Systems

#### Discussion

There are a number of conditions that are related to (and impact) the Regions broader integrated waste management systems that, to ensure compliance at the facility, will require system enhancement, modifications and/or additional infrastructure. These conditions include:

EA Condition	Comments
<b>Definitions:</b> Non-hazardous municipal solid waste is waste that is generated within the municipalities of Durham and York and collected as part of the proponents municipal collection process.	The Regions will need to ensure that the only materials received at the facility are those under the control of the Region of Durham and York.

EA Condition	Comments
<p><b>Waste diversion program</b> monitoring to ensure targets are being met.</p>	<p>The Regions will need to demonstrate that waste diversion remains the priority in the Regions and the steps the Regions are taking to continuously improve their waste reduction and diversion programs. They will also need to demonstrate that any materials being delivered to the EFW facility for processing are being delivered from sources that have been provided full access to the Regions comprehensive waste diversion program. For materials being delivered by public or private haulers to Regional transfer facilities, the Regions will need to ensure that there are diversion opportunities at the receiving facility consistent with the Regions waste diversion programs.</p>
<p><b>Daily site inspections</b> to ensure that only non-hazardous municipal solid waste is being received at the EFW requires Regional control of the waste prior to its delivery to the site.</p>	<p>The Regions will need to ensure that the only materials received at the facility are those under the control of the Region of Durham and York and will need to verify this on a daily basis.</p>
<p><b>Types of Waste and Service Area</b> further supports the requirement for Regional control of waste.</p>	<p>The Regions will need to ensure that the only materials received at the facility are those under the control of the Region of Durham and York.</p>
<p><b>Amount of Waste</b> requires Regional control to ensure total annual quantities are managed. The efficient operation of the EFW will require daily control to ensure that the waste pit does not empty.</p>	<p>Given the nature of the waste supply contract with Covanta, the Regions will need to ensure they have complete control over the quantities and accounting of the materials received at the facility to avoid non-compliance issues with respect to the EA approval.</p>

**Conclusion**

In order to ensure compliance with these conditions, the Regions will need to:

- Have some degree of control over all materials being delivered to the facility prior to there being “received” as per the definition in conditions;
- Ensure all materials being delivered to the facility comes from sources that have been provided full access to the Regions comprehensive waste diversion programs;
- Verify the location from which the waste was generated; and,
- Verify the quantity being processed by the facility in accordance with approved processing capacity and contractual guarantees/commitments with Covanta.

**In essence, the Regions will need to take full responsibility for the flow and accounting of all waste materials being delivered to, and processed at, the facility prior to their receipt.**

## Administrative Requirements

### Discussion

There are several administrative requirements detailed in the EA conditions. The majority of the conditions require the Regions to develop a specific plan for approval by the MOE. Once the plan is approved, the Regions will need to implement and then report the outcome to the public and the MOE.

Many of the plan requirements are already covered by the EFW Project Agreement: Complaint Protocol (EMS), Air Emissions Monitoring Plan, Daily inspections and record keeping, third party audits (EMS), spill contingency and emergency response plans, odour management and mitigation plans and noise monitoring plans.

Several EA conditions will become administrative requirements handled by regional staff. These would include: EA compliance monitoring and reporting, complaints follow-up (service level adjustments), community communications plan, support to the advisory committee (\$20K annually), consultation with aboriginal communities, daily site inspections and record keeping.

The Regions will also be responsible to demonstrate their due diligence regarding the efficient operation of the EFW facility. Towards this end, annual third-party audits must be conducted by a qualified independent professional engineer (approximately \$75K/year). Covanta will also require EMS auditing once their EMS has been registered. However, the Regions will need to obtain the services of a professional engineer specializing in EFW operations to conduct annual audits of the operation.

Responsibility	Requirement	Implementation Requirement	Estimate
Durham/York	EFW Site Liaison Committee	Staff Time and Budget	\$20,000 per year
Durham/York	EA Compliance/ Reporting	Staff Time	Staffing requirements will be evaluated on an annual basis and reflected in the waste management staffing section of the service and financing report and annual budget report to Council.
Durham/York	Community Communication Plan	Staff Time	Staffing requirements will be evaluated on an annual basis and reflected in the waste management staffing section of the service and financing report

Responsibility	Requirement	Implementation Requirement	Estimate
			and annual budget report to Council.
Durham/York	Aboriginal Dialogue	Staff Time	Staffing requirements will be evaluated on an annual basis and reflected in the waste management staffing section of the service and financing report and annual budget report to Council.
Durham/York	Waste Diversion Reporting	Staff Time	Staffing requirements will be evaluated on an annual basis and reflected in the waste management staffing section of the service and financing report and annual budget report to Council.
Durham/York, Third Party Independent Professional Engineer	Plant Performance (3rd party audits)	Budget/Contract: implement and maintain an environmental management system at the Facility and consistent with the ISO 14001:2004 standard or such updated standard as may be amended from time to time, and provide Owner with External Auditor's report on the Environmental Management System performance on a bi-annual basis.	Approx. \$75,000 per year
Durham/York & Covanta	Operations Reporting Site Inspections (Durham)  Operations Reporting Service Level (Covanta)	Staff/Contract Administration	Staffing requirements will be evaluated on an annual basis and reflected in the waste management staffing section of the service and financing report and annual budget report to Council.
Covanta	Complaints Protocol	Contract: Part of the ISO 14001 Environmental	N/A – Part of Project Agreement

Responsibility	Requirement	Implementation Requirement	Estimate
	(service level)	Management System	
Covanta	Spills/Emergency Response	Contract: DBO Contractor to supply prior to Facility Substantial Completion	N/A – Part of Project Agreement

Note: To ensure compliance with the conditions identified above where staff time is required to implement, Durham Region Staff have estimated the need for two (2) additional full-time equivalent staff positions.

### Conclusion

The administrative requirements to be imposed by the conditions of approval are not unexpected. Items for which the Regions are responsible were anticipated and have already been included in the annual operating budget estimates and in many cases already discussed publicly as part of commitments made by the Regions in the EA Document. Items for which Covanta will be responsible are addressed through the current project agreement.

### Monitoring Requirements

#### Discussion

The EA conditions detail several monitoring requirements. The details to fulfill these obligations will be included in the plans to be developed and submitted to the MOE for approval. The EFW Project Agreement facilitates the requirements for odour, noise and air emissions monitoring. The Region of Durham anticipated the requirement for ambient air and soil monitoring in the annual operating cost budget (\$250K annually for three years). The groundwater and surface water monitoring was not anticipated. It is estimated that approximately \$50K annually will be required for this task.

Responsibility	Requirement	Implementation Requirement	Estimate
Durham/York	Ambient Air Monitoring	Budget: The Region anticipated the requirement for ambient air and soil monitoring in the annual operating cost budget (\$250K annually for three years).	Durham operating budget already includes \$250,000 per year
Durham/York	Groundwater and Surface Water Monitoring	Budget: Implement and maintain a groundwater and surface water monitoring program. The Region already has ground water monitoring wells established in the area, therefore there should be limited additional monitoring infrastructure required. Additional costs will be associated with the sampling, analysis and reporting.	Less than \$50,000 per year

Responsibility	Requirement	Implementation Requirement	Estimate
		The plan for this monitoring will be developed following EA approval.	
Covanta	Odour Monitoring	Contract: Odour Control Plan: DBO Contractor to provide prior to Facility Substantial Completion	N/A – Part of Project Agreement
Covanta	Noise Monitoring	Contract: The DBO Contractor shall carry out acoustic audit measurements on the actual noise emissions due to the operation of the entire Facility at the design rating. The noise measurements shall be performed by an Independent Acoustic Consultant in accordance with the MOE requirements. Independent Acoustic Consultant shall prepare an acoustic audit report which will be included in the Emission Test Report.	N/A – Part of Project Agreement
Covanta	Emission Monitoring	Continuous and Stack Testing (includes dioxins & furans continuous sampling system). The DBO Contractor, at its cost and expense, shall arrange for a qualified independent and impartial testing agent approved by the Owner to conduct stack emissions testing. The testing agent shall submit the test report to the MOE.	N/A – Part of Project Agreement

### Conclusion

The administrative requirements to be imposed by the conditions of approval are not unexpected, with the exception of groundwater/surface water monitoring. The Region already has ground water monitoring wells established in the area, therefore there should be limited additional monitoring infrastructure required. Additional costs will be associated with the sampling, analysis and reporting, however, these costs will be borne by the Region as annual operating costs. The requirement to conduct ambient air monitoring has already been committed to by Regional Councils when the EA was approved by Councils for submission to the Ministry of the Environment. Items for which Covanta will be responsible are addressed through the current project agreement.

### Operational Requirements

The EA conditions of Approval also prescribe several operating requirements with respect to Waste Delivery and Emissions Limits

**Waste Delivery**

**Discussion**

The EA conditions impose restrictions which must be considered in the evaluation of the EFW operations. The amount of non-hazardous municipal solid waste that may be received at the site (excluding unacceptable waste) is 140,000 tonnes per year. The Regions will provide a minimum of 140,000 tonnes of waste per year to the EFW as stipulated in the project agreement.

The energy guarantees are tied to the energy value of the waste provided. The EFW facility was designed to operate efficiently given delivery of waste within a Higher Heating Value (HHV) range of 11 to 15 Mj/Kg. If the Region does not deliver at least ninety percent (90%) of Guaranteed Annual Throughput as defined in Exhibit 1 to Appendix 19 in any Calendar Year, the Owner shall relieve the DBO Contractor of its Electricity Production Guarantee for such Calendar Year. Based on information supplied by Covanta, the Region will meet this obligation as long the HHV of the 140,000 tonnes delivered on an annual basis is equal to or greater than 11.7 Mj/Kg. Waste composition audits to date conducted by the Region indicate that the HHV will be in the range of 13.0 Mj/Kg.

Notwithstanding the foregoing, the DBO Contractor shall continue to attempt to maximize electricity production from the Facility regardless of the tonnage of Acceptable Waste delivered by the Owner.

Responsibility	Requirement	Implementation Requirement	Estimate
Durham/York	Waste Delivery	The Owner will provide to the DBO Contractor a minimum of 140,000 tonnes of Acceptable Waste per calendar year during the Term. The Owner is entitled, but not obligated, to deliver additional Acceptable Waste to the Facility if capacity is available.	N/A – Part of Project Agreement

**Conclusion**

The EA Conditions of Approval will provide for up to 140,000 tonnes per year of “acceptable” waste to be processed at the facility. This tonnage is consistent with the project agreement.

**Emission Limits**

**Discussion**

Based on discussions with the MOE to date, the EA conditions emission limits will be utilized as operating requirements, not regulatory enforcement limits. It is anticipated that the enforcement limits will align with the guarantees provided by Covanta in the project agreement. There are three emission limits which are currently not in line with the EA conditions and will be considered operating targets during the CofA discussions.



These three emission limits relate to: carbon monoxide (CO); organic matter (measured as methane)(OM); and, opacity and are currently addressed in the project agreement.

The EFW Facility should be able to meet the lower CO limit under most operating conditions. The new A-7 Guideline provides flexibility for start-up, shutdown, or upset periods as does the project agreement. Fluctuations in fuel quality or quantity variability or any spike in CO emissions would likely be mitigated by firing auxiliary fuel (i.e., natural gas). The proposed EFW Facility already includes gas-fired auxiliary burners for starting up the boilers, so there should not be additional capital expenditures for this change. As well, the project agreement already includes an allowance for the firing of natural gas during these periods. The need (if any) and extent of additional gas usage required to be used on occasion to meet this lower CO limit (ie. during a spike) cannot be determined at this point and would need to be assessed on a year-by-year basis.

Based on HDR’s review of emissions data for OM at other EFW facilities, meeting the requirement as currently stated in the new A-7 Guideline (i.e., 33 mg/Rm<sup>3</sup> measured via a stack test) should not be an issue for the EFW Facility.

Based on our technical review of the Covanta submission, meeting the opacity standard does not present any technical concerns.

Responsibility	Requirement	Implementation Requirement	Estimate
Covanta	Carbon Monoxide 40 mg/Rm <sup>3</sup>	Continuous Emission Monitors (CEM) are part of contract. Potential operating costs if natural gas must be used is included as a flow-through cost in the contract	N/A – Part of Project Agreement
Covanta	Organic Matter 33 mg/Rm <sup>3</sup>	This is identified in the contract as a stack test limit. A7 indicates that if CO is continuously monitored then the organic matter can be a stack test.	N/A – Part of Project Agreement
Covanta	Opacity 10% (6-minute average)  5% (2-hour average)	Continuous opacity monitor is part of contract. The USEPA limit is 10% (6-minute average). The other A7 limit of 5% (2-hour average) should not be a problem to meet.	N/A – Part of Project Agreement

**Conclusion**

As stated above, the EFW Facility should be able to meet the lower CO limit under most operating conditions. The EA Conditions of Approval provides flexibility for start-up, shutdown, or upset periods as does the project agreement. Fluctuations in fuel quality or quantity variability or any spike in CO emissions would likely be mitigated by firing auxiliary



fuel (i.e., natural gas). The proposed EFW Facility already includes gas-fired auxiliary burners for starting up the boilers, so there should not be additional capital expenditures for this change. As well, the project agreement already includes an allowance for the firing of natural gas during these periods. The need (if any) and extent of additional gas usage required to be used on occasion to meet this lower CO limit (ie. during a spike) cannot be determined at this point and would need to be assessed on a year-by-year basis.

Based on EA Conditions of Approval and HDR's review of emissions data for OM at other EFW facilities, meeting the requirement as currently stated in the EA Conditions of Approval (i.e., 33 mg/Rm<sub>3</sub> measured via a stack test) should not be an issue for the EFW Facility.

Based on our technical review of the Covanta submission, meeting the opacity standard does not present any technical concerns.

## **Overall Conclusion**

Based on our review of the EA Conditions of Approval, our understanding of how they will be applied as part of the C of A, and the proposed Covanta Design and Operational procedures there are no technical reasons the proposed facility cannot be designed and operated in accordance with the EA Conditions of Approval with no impact on the current project agreement nor any impact on the capital cost projections. This statement is based on a purely technical opinion of the design and operation and does not include any speculation with respect to Covanta's view of the additional risks they may bear, if any, due to meeting operational requirements that varying slightly from their original proposal.

The majority of conditions for which Durham and York Regions will be responsible, were anticipated and have already been included in annual operating budget estimates (with the exception of groundwater and surface/water monitoring).