Clause 11 in Report No. 13 of Committee of the Whole was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting held on October 19, 2017.

11

Durham York Energy Centre 2016 Operations Summary

Committee of the Whole recommends adoption of the following recommendation contained in the report dated September 20, 2017 from the Commissioner of Environmental Services:

1. Council receive this report for information.

Report dated September 20, 2017 from the Commissioner of Environmental Services now follows:

1. Recommendation

It is recommended that Council receive this report for information.

2. Purpose

This report provides a summary of the first year of the Durham York Energy Centre operations contract. Additional details on facility performance are available in the annual report submitted to the Ministry of the Environment and Climate Change (the Ministry), which is available on the project website www.durhamyorkwaste.ca

3. Background

Durham York Energy Centre makes important contribution to Region's achievement of 91 per cent diversion from landfill

In 2016, York Region achieved 91 per cent diversion from landfill, exceeding the 90 per cent target established in the Regional Official Plan for the first time. Meeting this target in future years will continue to be a challenge as tonnages

increase and create additional pressure on diversion programs. The Durham York Energy Centre is a key piece of York Region's overall energy-from-waste contract portfolio managing about one-third of the total residual waste tonnage destined for energy-from-waste facilities in 2016 as summarized in Table 1. An aerial photograph of the Durham York Energy Centre is provided in Figure 1.

Table 1
Summary of York Region Energy-from-Waste Tonnages in 2016[1]

Facility	Location	Tonnes	Percentage
Durham York Energy Centre	Courtice, Ontario	32,202	29%
Emerald Energy-from-Waste	Brampton, Ontario	30,737	27%
Covanta Niagara	Niagara Falls, NY	48,910	44%
Total		**111,849**	**100%**

1. Tonnages as recorded by York Region's transfer station scales, or, for direct deliveries, the Emerald Energy-from-Waste facility scale.

Figure 1
Durham York Energy Centre

Successful stack test results realized after restarting Boiler #1

The Durham York Energy Centre completes one mandatory stack test and one voluntary stack test per year to demonstrate compliance with air emissions standards that are among the most stringent in the world. During a stack test, air emissions samples are collected and sent to an accredited independent laboratory for analysis. In addition to the two stack tests, several key emissions parameters are monitored on a continuous basis with hourly average data being made available to the public on the project website.

As reported to Council on December 1, 2016, Boiler #1 shut down from May 26, 2016 through August 5, 2016 after exceeding the in-stack limit for dioxins and furans during the spring 2016 voluntary stack test. After receiving approval to restart Boiler #1 from the Ministry, Covanta completed additional diagnostic tests followed by a successful stack test conducted from October 24 through November 3, 2016.

Extended outage prevents Durham York Energy Centre from achieving performance targets in first year of operation

Although the facility performed satisfactorily for much of the year, Covanta was unable to meet its 2016 contractual guarantees for emissions performance, electricity generation, and tonnes processed due primarily to the 10-week Boiler #1 outage. Covanta's 2016 performance relative to the contractual guarantees is reviewed in the following section.

4. Analysis and Implications

Air emissions results comply with regulatory standards

The Durham York Energy Centre has successfully completed two stack tests since restarting Boiler #1 in August 2016. All air emissions results were compliant with applicable regulatory standards. Stack test results for October 2016 and May 2017 are summarized in Table 2.

Table 2
Summary of Stack Test Results for October 2016 and May 2017

Parameter	Limit	Unit	Concentration[1]		
			Maximum	Minimum	Average
Dioxins and Furans	60.0	pg/m^3	9.4	5.3	7.2
Filterable Particulate Matter	9.0	mg/m^3	1.2	1.0	1.1
Mercury	15.0	µg/m^3	0.2	0.03	0.1
Lead	50.0	µg/m^3	0.4	0.3	0.3
Cadmium	7.0	µg/m^3	0.1	0.1	0.1

1. Stack test results reported in Table 2 represent the maximum, minimum, and average of the values reported for the individual boilers in stack tests completed in October 2016 and May 2017. The results in the table have been rounded to one decimal place.

Environmental Compliance Approval provides transitional period for carbon monoxide limit

In addition to stack tests each May and October, several key emissions parameters are monitored on a continuous basis. The continuous emissions monitoring results are summarized in Table 3.

Table 3
2016 Continuous Emissions Monitoring Results

Emissions Parameter	Limit	Units	Concentration			
			Boiler #1		Boiler #2	
			Average	Maximum	Average	Maximum
Carbon Monoxide	40	mg/Rm^3	13	36	16	56
Sulphur Dioxide	35	mg/Rm^3	<1	13	<1	9
Nitrogen Oxides	121	µg/Rm^3	109	118	110	120
Hydrochloric Acid	9	µg/Rm^3	3	8	3	9

The Durham York Energy Centre is required to comply with an extremely stringent carbon monoxide emission limit of 40 mg/m^3 on a four-hour rolling average basis. When the Ministry of Environment and Climate Change established this limit as a standard for new facilities in 2010, there were no

facilities in existence with experience maintaining 40 mg/m^3 or less on a continuous basis over such a short averaging period. To allow for this, the Ministry agreed to treat the carbon monoxide standard as an operational target as opposed to a compliance limit until October 2, 2016 (one year after completion of the first stack test on October 2, 2015.)

Carbon monoxide within compliance limit since October 2016

Prior to becoming a compliance limit, there were three instances where carbon monoxide emissions from Boiler #2 exceeded 40 mg/m^3 in 2016. The highest concentration was 56 mg/m^3 on January 2, as noted in Table 3. The other instances occurred on January 18 (43 mg/m^3) and April 5 (44 mg/m^3). Carbon monoxide concentrations have remained below 40 mg/m^3 since the compliance limit came into effect on October 2, 2016. The other continuous emissions parameters were also in compliance throughout the year.

These brief exceedances of the operational target for carbon monoxide were well within the levels permissible under the previous standard, which allowed for a 24-hour averaging period. Ground-level carbon monoxide concentrations also remained well within regulatory limits that are protective of human health.

Covanta failed to achieve contractual guarantees for electricity production and tonnes processed due to prolonged boiler outage

The operations phase of the Durham York Energy Centre contract began on January 29, 2016 after the formal conclusion of construction and commissioning. Compliance with the operating contract is based on the time period from January 29 – December 31, 2016, and Covanta's normal annual guarantees are adjusted to account for the shortened year. As a result of the prolonged Boiler #1 outage, Covanta was not able to meet their full annual processing obligation to Durham and York in 2016, resulting in an electricity revenue shortfall of $1,426,589. Covanta's performance relative to the guarantees is summarized in Table 4.

Table 4
Summary of 2016 Guarantees vs. Actual Performance[1]

Scenario	Tonnes Processed	Megawatt-Hours per Tonne	Total Megawatt-Hours	Electricity Revenue
Guaranteed Performance[2]	129,290	0.767	99,165	$8,017,892
Actual Performance	117,461	0.694[3]	81,521	$6,591,303
Shortfall	**11,829**		**17,644**	**$1,426,589**

1. Performance guarantees are prorated to account for 11-month partial operating year.
2. Electricity revenue under the “guaranteed performance” scenario assumes that the Regions would have been paid for all electricity generation at the average rate received in 2016 for actual electricity generation.
3. Actual megawatt-hours per tonne have been rounded to three decimal places.

York Region receives full 2016 tonnage allocation

Despite the prolonged Boiler #1 outage, York Region delivered 32,202 tonnes to the Durham York Energy Centre in calendar year 2016, which exceeds its normal full-year allocation of 30,000 tonnes per year. This was made possible by diverting tonnage away from other processing contracts late in the year to compensate for time lost during the boiler outage, while continuing to satisfy minimum annual tonnage commitments to all facilities. This situation illustrates the benefit of having multiple processors, which gives York Region the flexibility to respond to disruptions in the system while continuing to provide uninterrupted service.

5. Financial Considerations

Staff have activated contractual remedies to recover revenue losses

Staff estimate that lost electricity revenue shown in Table 4 combined with additional lost revenue from sales of recyclable metals resulted in total losses of approximately $1,500,000 in 2016. Based on its proportional share of tonnage delivered, York Region’s share of this revenue loss is approximately $376,000.

To offset these losses, staff have withheld payment of Covanta’s final invoice for 2016 in addition to withholding all performance bonuses. Staff have entered into confidential discussions with Covanta under the dispute resolution provisions of the operating contract and will update Council on the outcome of these discussions when a resolution has been reached.

6. Local Municipal Impact

York Region is committed to waste reduction and diversion in providing sustainable, long-term waste management programs. York Region continues to partner with local municipalities through the integrated waste management system. Together with our local municipalities, we have achieved the number one ranking in residential diversion in the large urban category every year since 2012. York Region’s energy-from-waste contracts contribute to providing sustainable, long-term residual waste management services to all local municipalities.

7. Conclusion

This report provides a summary of Durham York Energy Centre operations in the first year of the operations contract. Operational performance in 2016 was negatively impacted by the 10-week shutdown of Boiler #1 from May 26 to August 5. Staff are currently pursuing recovery of 2016 financial losses through the dispute resolution provisions of the contract.

Despite these challenges, York Region received its full contractual allocation of processing capacity in 2016, and the facility was a key contributor to York Region's achievement of 91 per cent diversion from landfill. Year-to-date operational performance has improved in 2017.

For more information on this report, please contact Laura McDowell, Director, Environmental Promotion and Protection, Environmental Services at 1-877-464-9675 ext. 75077.

The Senior Management Group has reviewed this report.

September 20, 2017

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Accessible formats or communication supports are available upon request