THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #1 – OCTOBER 16, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Remove:	APPENDIX C2 AIR EMISSION CRITERIA, Page 122 of RFP document.
Replace With Revised:	APPENDIX C2 AIR EMISSION CRITERIA, Page 122 (Revised) attached to this addendum.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

33. APPENDIX C2 AIR EMISSION CRITERA

THE REGIONS' AIR EMISSION CRITERIA BASED UPON THE PROVINCE OF ONTARIO AND EUROPEAN UNION AIR EMISSION REQUIREMENTS

Pollutant	Units (1)	YD EFW Stack Emission Limits	Measurement Basis (see notes)
Total Particulate Matter	mg/Rm3	9	(2)
Sulphur Dioxide (SO2)	mg/Rm3	35	(3)
Hydrogen Chloride (HCl)	mg/Rm3	9	(4)
Hydrogen Flouride (HF)	mg/Rm3	0.92	(4)
Nitrogen Oxides (NOx)	mg/Rm3	180	(4)
Carbon Monoxide (CO)	mg/Rm3	45	(4)
Mercury (Hg)	µ g/Rm3	15	(2)
Cadmium (Cd)	µ g/Rm3	7	(2)
Cadmium + Thallium (Cd + Th)	µ g/Rm3	46	(2)
Lead (Pb)	µ g/Rm3	50	(2)
Sum of (As, Ni, Co, Pb, Cr, Cu, V, Mn, Sb)	µ g/Rm3	460	(2)
Dioxins	pg/Rm3	60	(2)
Organic Matter (as CH4)	mg/Rm3	49	(2)

NOTES:

(1) = All units corrected to 11% O2 and adjusted to Reference Temperature and Pressure

mg/Rm3 = Milligrams per Reference Cubic Metre (25oC, 101.3 kPa)

µ g/Rm3= Micrograms per Reference Cubic Metre (25ºC, 101.3 kPa)

pg/Rm3 = Picograms per Reference Cubic Metre (25oC, 101.3 kPa)

(2) Calculated as the arithmetic average of 3 stack tests conducted in accordance with standard methods

(3) Calculated as the geometric average of 24 hours of data from a continuous emission monitoring system

(4) Calculated as the arithmetic average of 24 hours of data from a continuous emission monitoring system

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REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #2 – OCTOBER 16, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

The following shall be removed from Page 13 of the RFP document:

3.3.10 The Preferred Proponent shall provide a dual unit system for the base bid. In addition, the Preferred Proponent may propose a single unit alternative.

The following shall replace the above removed text in the RFP document:

3.3.10 The Preferred Proponent shall bid either a single or dual line system, as they see fit, provided either option satisfies the overall technical and commercial requirements of the Regions, including the capability to accommodate implementation of future district heating as will be described in an addendum to be issued shortly.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #3 – OCTOBER 17, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The Geotechnical Reports supplied in the RFP documents and contained within the Data Room as performed by the Regions' Geotechnical Consultants, titled PROJECT NO. 1009497.01, is the only geotechnical information that will be supplied to the Proponents. Any further information required shall be the responsibility of the Proponent to obtain at their own risk and cost.

The Regions may permit the Proponents to perform additional geotechnical site investigations by requesting approval to access the site through the RFP Contact Person. Permission from the Regions shall be granted in the sole discretion of the Regions as communicated to the proponent by the RFP Contact Person. Any Proponent requesting such permission must do so in writing identifying:

(a) the nature of the additional site investigations proposed;
(b) the party conducting such investigations and
(c) the requested dates of access.

Permission from the Regions shall be contingent upon the following requirements:

(1) The Proponent providing satisfactory evidence of the following insurance coverages:

(a) **Comprehensive General Liability and Automobile Insurance**
The Insurance Coverage shall be $5,000,000 inclusive per occurrence for general liability and $2,000,000 for automobile insurance. The Proponent shall provide the Region with proof (certified copy of such policy or certificate) of Comprehensive General Liability and Automobile Insurance (Inclusive Limits) for both owned and non-owned vehicles. The policy shall include the Region as an additional named insured in respect of all operations performed on site by or on behalf of the Proponent.

(b) **Professional Liability Insurance**
The Insurance Coverage shall be in the amount of $1,000,000 per claim.

It is understood and agreed that the coverage provided by these policies will not be changed or amended in any way nor cancelled by the Proponent until 60 days after written notice of such change or cancellations has been personally delivered to the Region.

(2) The Proponent agreeing to indemnify and hold the Regions harmless from any and all claims, costs, damages costs or expenses which they incur as a result of the exercise by the Proponent or those for whom they are in law responsible, of the investigations proposed on the site; and

(3) The Proponent agreeing to provide the Regions with a copy of all such additional geotechnical site investigations data and reports prepared by or for the Proponent.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
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REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #4 – OCTOBER 20, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Additional details regarding the Airport Zoning Regulations are contained in the following link:

http://www.tc.gc.ca/acts-regulations/GENERAL/A/aa/regulations/170/aa170/aa170.htm

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #5 – OCTOBER 20, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Waste Composition Data

Attached are two waste audit reports completed in 2007 by the Region's EA consultant. These audits are individual 'snapshots' in time and are not necessarily indicative of current conditions or intended to present a representation of future waste composition. These reports are provided in addition to the general overview information provided in RFP Sections 3.1.2 and 3.2.2 further defining that the waste stream being brought to the EFW facility from both Durham and York is post-diversion waste.

Proponents are advised that the attached waste audit reports are provided by the Regions for information purposes only and are not to be relied upon or treated as a representation or guarantee of the condition, character or caloric value of the Regions' waste stream as it may exist from time to time during the term of the operations phase of the Project Agreement. These analyses are provided solely for the purposes of being indicative of the Regions' waste characteristics on the date and time that the analysis was undertaken.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

MEMORANDUM

TO: Durham/York Project Team

DATE: **June 8, 2007**

FROM: Jim McKay, Jacques Whitford Limited
Carl Van Rooyen, Jacques Whitford Limited

RE: Region of Durham Waste Audit – Town of Whitby's Post-Diversion Residual Waste Materials Collected at Curbside

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The following memo has been prepared to document the results of the residual waste materials audit performed between the dates of April 16, 2007 and April 19, 2007 on a sample of the Town of Whitby's post-diversion residual waste.

Methodology

The following outlines the methodology for undertaking the audit of the residual waste material that remains after at-source diversion from single-family residential neighbourhoods in the Town of Whitby. This audit was completed to determine the detailed waste composition, characteristics and corresponding energy values.

WASTE COLLECTION:

The method for identifying sample areas and collecting materials was as follows:

Step 1 – Identify routes within the subject municipality that are deemed representative of the greater area.
Step 2 – Collect waste samples utilizing a 16 foot cube van and deliver to transfer station for sorting.

Only post-diversion residual waste was collected and analyzed as part of this audit.

WASTE SORTING:

The waste sorting methodology is consistent with that used by Stewardship Ontario in the auditing of single family residential waste streams and is as follows:

Step 1 – Place residual waste onto a "sort table" and sort material by material type into blue box bins and garbage pails each identified according to a specific waste stream/material type. Waste categories used for sorting were consistent with those outlined in Stewardship Ontario's Single Family Residential Waste Audit Protocol.

Step 2 - As containers fill, weight measurements were taken using a digital scale and recorded according to material type. Once all waste has been sorted, each container was weighed, recorded and emptied.

Step 3 – Following the audit, data was entered into a Microsoft Excel 2000 Spreadsheet for analysis.

Waste Composition Results

The following provides results of the audit completed between April 16, 2007 and April 19, 2007 on the Town of Whitby's post-diversion residual waste.

TABLE 1: WASTE AUDIT RESULTS

Waste Categories	Current Diversion Opportunity	Quantity per Tonne of Waste (kg)	Percentage of Total Waste Stream (%)	Garbage (%)	Potential Additional Diversion (Recycling) (%)	Potential Additional Diversion (Organics) (%)
1. PAPER						
Newspaper – Dailys and Weeklys	Recycling	5.28	0.53%		0.53%	
Newspaper – Other	Recycling	3.10	0.31%		0.31%	
Telephone Books / Directories	Recycling	0.00	0.00%		0.00%	
Magazines & Catalogues	Recycling	8.58	0.86%		0.86%	
Mixed Fine Paper	Recycling	32.92	3.29%		3.29%	
Books	Recycling	1.93	0.19%		0.19%	
Other Paper	Organics	1.60	0.16%			0.16%
Total Paper		**53.41**	**5.34%**	**0.00%**	**5.18%**	**0.16%**
2. PAPER PACKAGING						
Corrugated Wine Bag in Box	Recycling	0.00	0.00%		0.00%	
Other Corrugated	Recycling	5.83	0.58%		0.58%	
Corrugated Total		**5.83**	**0.58%**	**0.00%**	**0.58%**	**0.00%**
Kraft Paper	Recycling	13.24	1.32%		1.32%	
Boxboard / Cores	Recycling	28.26	2.83%		2.83%	
Molded Pulp	Organics	4.56	0.46%			0.46%
Paper Cups and Paper Ice-Cream Containers	Organics	4.94	0.49%			0.49%
Laminated Paper Packaging		3.68	0.37%	0.37%		
Composite Cans		1.16	0.12%	0.12%		
Gable Top Cartons	Recycling	0.81	0.08%		0.08%	
Aseptic Alcohol 750 ml and Over		0.00	0.00%	0.00%		
Aseptic Alcohol <750 ml		0.00	0.00%	0.00%		
Aseptic Other Containers		2.12	0.21%	0.21%		
Aseptic Containers Total		**2.12**	**0.21%**	**0.21%**	**0.00%**	**0.00%**
Tissue/Toweling	Organics	34.66	3.47%			3.47%
Total Paper Packaging		**99.28**	**9.93%**	**0.70%**	**4.81%**	**4.42%**
3. PLASTICS						
PET Beer Bottles 750 ml and Over	Recycling	0.00	0.00%		0.00%	

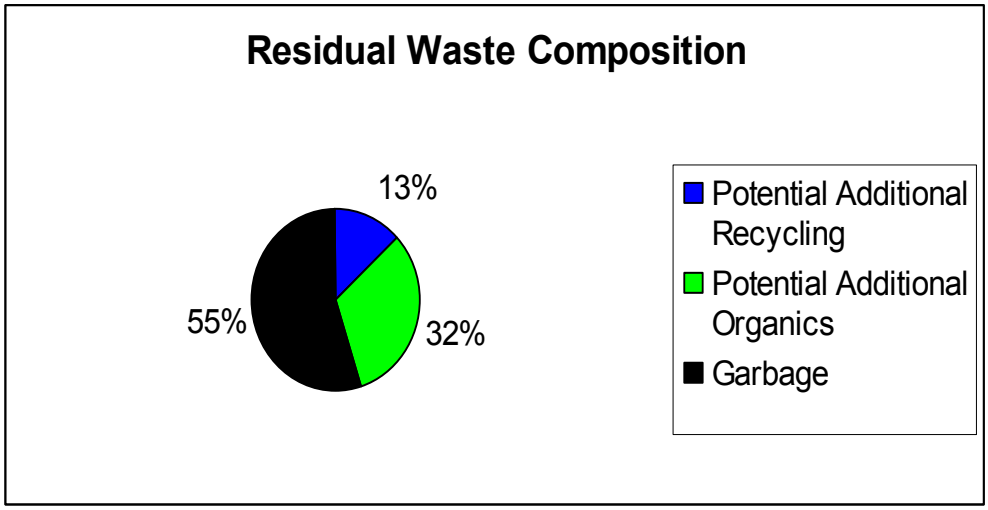
	Current Diversion Opportunity	Quantity per Tonne of Waste	Percentage of Total Waste Stream	Garbage	Potential Additional Diversion (Recycling)	Potential Additional Diversion (Organics)
PET Beer Bottles <750 ml	Recycling	0.00	0.00%		0.00%	
PET Other Alcohol Bottles 750 ml and Over	Recycling	0.00	0.00%		0.00%	
PET Other Alcohol Bottles <750 ml	Recycling	0.00	0.00%		0.00%	
PET Other Beverage Bottles	Recycling	2.63	0.26%		0.26%	
PET Beverage Bottles Total		**2.63**	**0.26%**	**0.00%**	**0.26%**	**0.00%**
PET Other Bottles & Jars	Recycling	2.59	0.26%		0.26%	
PET Other Packaging	Recycling	3.44	0.34%		0.34%	
HDPE Beverage Bottles	Recycling	0.31	0.03%		0.03%	
HDPE Other Bottles & Jugs	Recycling	4.59	0.46%		0.46%	
PVC Bottles & Jars	Recycling	0.18	0.02%		0.02%	
Other Bottles, Jars & Jugs		0.91	0.09%	0.09%		
Polystyrene Packaging		16.89	1.69%	1.69%		
Wide Mouth Tubs & Lids		2.15	0.22%	0.22%		
Large HDPE & PP Pails & Lids		0.00	0.00%	0.00%		
Polyethylene Plastic Bags & Film – Packaging		28.80	2.88%	2.88%		
Polyethylene Plastic Bags & Film - Non-Packaging		19.40	1.94%	1.94%		
Laminated Pouches & Bag in Box Liners for Alcohol		0.00	0.00%	0.00%		
Laminated/Other Plastic Film and Bags		49.45	4.94%	4.94%		
Laminated/Other Plastic Film and Bags Total		**49.45**	**4.94%**	**4.94%**	**0.00%**	**0.00%**
Other Rigid Plastic Packaging		20.11	2.01%	2.01%		
Durable Plastic Products		36.70	3.67%	3.67%		
Total Plastics		**188.16**	**18.82%**	**17.44%**	**1.37%**	**0.00%**
4. METALS						
Aluminum Alcohol Cans	Recycling	0.65	0.07%		0.07%	
Aluminum Food & Other Beverage Cans	Recycling	0.75	0.08%		0.08%	
Aluminum Food & Beverage Cans Total		**1.40**	**0.14%**	**0.00%**	**0.14%**	**0.00%**
Aluminum Foil & Foil Trays	Recycling	6.41	0.64%		0.64%	
Other Aluminum Containers	Recycling	0.16	0.02%		0.02%	
Steel Alcohol Cans	Recycling	0.00	0.00%		0.00%	
Steel Food & Other Beverage Cans	Recycling	4.57	0.46%		0.46%	
Steel Food & Beverage Cans Total		**4.57**	**0.46%**	**0.00%**	**0.46%**	**0.00%**
Steel Aerosol Cans	Recycling	2.32	0.23%		0.23%	
Steel Paint Cans	Recycling	0.00	0.00%		0.00%	

	Current Diversion Opportunity	Quantity per Tonne of Waste	Percentage of Total Waste Stream	Garbage	Potential Additional Diversion (Recycling)	Potential Additional Diversion (Organics)
Other Metal		6.66	0.67%	0.67%		
Total Metals		**21.52**	**2.15%**	**0.67%**	**1.49%**	**0.00%**
5. GLASS						
Clear Glass Beer 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Clear Glass Beer <750 ml	Recycling	0.00	0.00%		0.00%	
Clear Glass Other Alcohol 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Clear Glass Other Alcohol <750 ml	Recycling	0.00	0.00%		0.00%	
Clear Glass Alcohol Beverage Total		**0.00**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Coloured Glass Beer 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Coloured Glass Beer <750 ml	Recycling	0.00	0.00%		0.00%	
Coloured Glass Other Alcohol 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Coloured Glass Other Alcohol <750 ml	Recycling	0.00	0.00%		0.00%	
Coloured Glass Alcohol Beverage Total		**0.00**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Clear Glass Other Beverage and Food	Recycling	3.12	0.31%		0.31%	
Coloured Glass Other Beverage and Food	Recycling	0.62	0.06%		0.06%	
Other Glass		8.88	0.89%	0.89%		
Total Glass		**12.62**	**1.26%**	**0.89%**	**0.37%**	**0.00%**
6. HOUSEHOLD SPECIAL WASTE						
Batteries		1.05	0.10%	0.10%		
Paint & Stain		0.00	0.00%	0.00%		
Motor Oil		0.07	0.01%	0.01%		
Other HSW liquids		0.00	0.00%	0.00%		
Other HSW		13.18	1.32%	1.32%		
Total HSW		**14.30**	**1.43%**	**1.43%**	**0.00%**	**0.00%**
7. ORGANICS						
Food Waste	Organics	233.26	23.33%			23.33%
Yard Waste	Organics	38.64	3.86%			3.86%
Pet waste		80.22	8.02%	8.02%		
Total Organics		**352.12**	**35.21%**	**8.02%**	**0.00%**	**27.19%**
8. OTHER MATERIALS						
Diapers and Sanitary Products		141.88	14.19%	14.19%		
Textiles		64.50	6.45%	6.45%		
Carpeting		1.81	0.18%	0.18%		

	Current Diversion Opportunity	Quantity per Tonne of Waste	Percentage of Total Waste Stream	Garbage	Potential Additional Diversion (Recycling)	Potential Additional Diversion (Organics)
Construction & Renovation		4.66	0.47%	0.47%		
Computer / IT Equipment		0.00	0.00%	0.00%		
Telecom Equipment		0.88	0.09%	0.09%		
TV & Audio Equipment		0.00	0.00%	0.00%		
Small Kitchen Appliances		0.40	0.04%	0.04%		
Other Electronics		9.02	0.90%	0.90%		
Tires and Other Rubber		0.00	0.00%	0.00%		
Ceramics		4.70	0.47%	0.47%		
Furniture		0.00	0.00%	0.00%		
Mattresses		0.00	0.00%	0.00%		
Other Large Bulky Items		0.00	0.00%	0.00%		
Other Waste		30.74	3.07%	3.07%		
Total Other Materials		**258.59**	**25.86%**	**25.86%**	**0.00%**	**0.00%**
Grand Total		**1000.00**	**100.00%**	**55.00%**	**13.23%**	**31.77%**

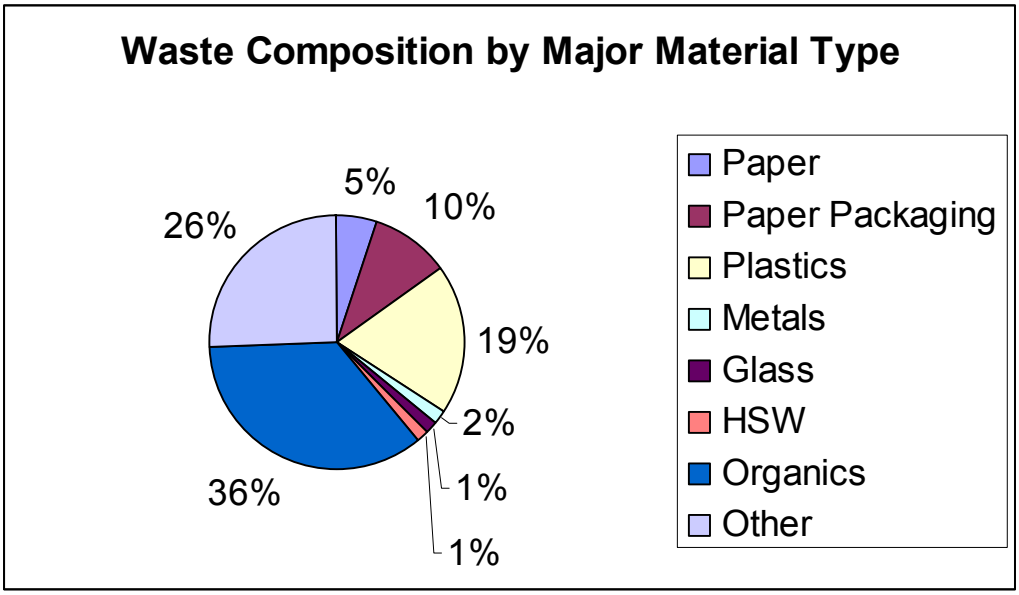
The audited waste represents only the residual waste stream (Post Diversion). According to this waste audit 45% of the post diversion waste could have been diverted through current diversion programs (32% of the waste is organic material and 13% is recyclable material). This is shown in the following graph.

FIGURE 1: WHITBY RESIDUAL WASTE COMPOSITION AND POTENTIAL ADDITIONAL DIVERSION



The following figure shows Whitby's Post Diversion Garbage composition by material type.

FIGURE 2: COMPOSITION BY MAJOR MATERIAL TYPE



MEMORANDUM

TO: Durham/York Project Team

DATE: January 2, 2007

FROM: Jim McKay, Jacques Whitford Limited
Carl VanRooyen, Jacques Whitford Limited

RE: York Region – Audit of Town of Markham's Post-Diversion Residual Waste Materials collected at Curbside

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The following memo has been prepared to document the results of the residual waste materials audit performed between the dates of December 5, 2006 and December 8, 2006 on the Town of Markham's post-diversion residual waste.

Methodology

The following outlines the methodology for undertaking an audit of the residual waste material that remains after at-source diversion from single-family residential neighbourhoods in the Town of Markham to determine the detailed waste composition and characteristics and corresponding energy values.

WASTE COLLECTION:

The method for identifying sample areas and collecting materials was as follows:

Step 1 – Identify routes within the subject municipality that is deemed representative of the greater area.
Step 2 – Have collection vehicles collect waste as they normally would during a routine day and deliver to transfer station.
Step 3 – Isolate the load of residual waste at the transfer station.
Step 4 – Sort as much waste as possible within the given time frame for auditing (3 days).

Only post-diversion residual waste was collected and analyzed as part of this audit.

WASTE SORTING:

The waste sorting methodology is consistent with that used by Stewardship Ontario in the auditing of single family residential waste streams and is as follows:

Step 1 – Place residual waste onto a "sort table" and sort material by material type into blue box bins and garbage pails each identified according to a specific waste stream/material type. Waste categories used for sorting were consistent with those outlined in Stewardship Ontario's Single Family Residential Waste Audit Protocol.

Step 2 - As containers fill, weight measurements were taken using a digital scale and recorded according to material type. Once all waste has been sorted, each container was weighed, recorded and emptied.

Step 3 – Following the audit, data was entered into a Microsoft Excel 2000 Spreadsheet for analysis.

Waste Composition Results

The following provides results of the audit completed between December 5, 2006 and December 8, 2006 on the Town of Markham's post-diversion residual waste.

TABLE 1: WASTE AUDIT RESULTS

Waste Categories	Current Diversion Opportunity	Quantity per Tonne of Waste (kg)	Percentage of Total Waste Stream (%)	Garbage %	Potential Additional Diversion (Recycling) %	Potential Additional Diversion (Organics) %
1. PAPER						
Newspaper – Dailys and Weeklys	Recycling	7.30	0.73%		0.73%	
Newspaper – Other	Recycling	10.00	1.00%		1.00%	
Telephone Books / Directories	Recycling	0.00	0.00%		0.00%	
Magazines & Catalogues	Recycling	10.60	1.06%		1.06%	
Mixed Fine Paper	Recycling	34.60	3.46%		3.46%	
Books	Recycling	2.20	0.22%		0.22%	
Other Paper	Organics	0.00	0.00%			
Total Paper		**64.70**	**6.48%**	**0.00%**	**6.48%**	**0.00%**
2. PAPER PACKAGING						
Corrugated Wine Bag in Box	Recycling	0.00	0.00%		0.00%	
Other Corrugated	Recycling	9.80	0.98%		0.98%	
Corrugated Total		**9.80**	**0.98%**	**0.00%**	**0.98%**	**0.00%**
Kraft Paper	Recycling	6.10	0.61%		0.61%	
Boxboard / Cores	Recycling	27.50	2.75%		2.75%	
Molded Pulp	Organics	1.00	0.10%			0.10%
Paper Cups and Paper Ice-Cream Containers	Organics	1.90	0.19%			0.19%
Laminated Paper Packaging		5.30	0.53%	0.53%		
Composite Cans		1.50	0.15%	0.15%		
Gable Top Cartons	Recycling	1.50	0.15%		0.15%	
Aseptic Alcohol 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Aseptic Alcohol <750 ml	Recycling	0.00	0.00%		0.00%	
Aseptic Other Containers	Recycling	1.00	0.10%		0.10%	
Aseptic Containers Total		**1.00**	**0.10%**	**0.00%**	**0.10%**	**0.00%**
Tissue/Toweling	Organics	36.10	3.61%			3.61%
Total Paper Packaging		**91.70**	**9.16%**	**0.68%**	**4.59%**	**3.89%**
3. PLASTICS						
PET Beer Bottles 750 ml and Over	Recycling	0.00	0.00%		0.00%	
PET Beer Bottles <750 ml	Recycling	0.00	0.00%		0.00%	
PET Other Alcohol Bottles 750 ml and Over	Recycling	0.00	0.00%		0.00%	

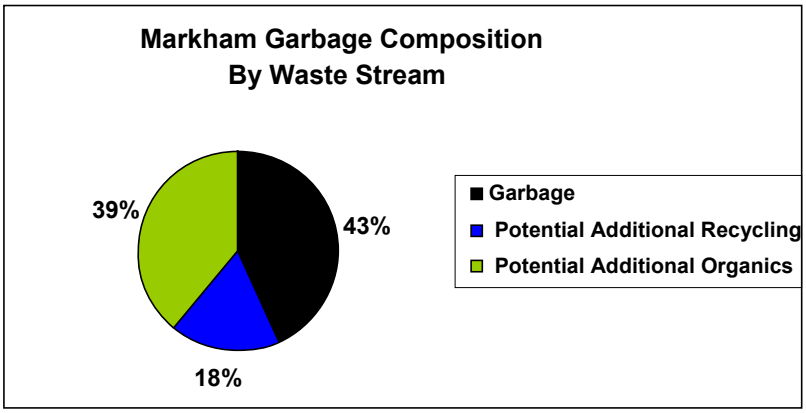
Waste Categories	Current Diversion Opportunity	Quantity per Tonne of Waste (kg)	Percentage of Total Waste Stream (%)	Garbage %	Potential Additional Diversion (Recycling) %	Potential Additional Diversion (Organics) %
PET Other Alcohol Bottles <750 ml	Recycling	0.00	0.00%		0.00%	
PET Other Beverage Bottles	Recycling	1.90	0.19%		0.19%	
PET Beverage Bottles Total		**1.90**	**0.19%**	**0.00%**	**0.19%**	**0.00%**
PET Other Bottles & Jars	Recycling	2.30	0.23%		0.23%	
PET Other Packaging	Recycling	1.50	0.15%		0.15%	
HDPE Beverage Bottles	Recycling	0.50	0.05%		0.05%	
HDPE Other Bottles & Jugs	Recycling	3.10	0.31%		0.31%	
PVC Bottles & Jars	Recycling	0.00	0.00%		0.00%	
Other Bottles, Jars & Jugs	Recycling	1.90	0.19%		0.19%	
Polystyrene Packaging	Recycling	12.40	1.24%		1.24%	
Wide Mouth Tubs & Lids	Recycling	2.00	0.20%		0.20%	
Large HDPE & PP Pails & Lids	Recycling	0.70	0.07%		0.07%	
Polyethylene Plastic Bags & Film – Packaging		46.50	4.65%	4.65%		
Polyethylene Plastic Bags & Film - Non-Packaging		12.70	1.27%	1.27%		
Laminated Pouches & Bag in Box Liners for Alcohol		0.30	0.03%	0.03%		
Laminated/Other Plastic Film and Bags		18.00	1.80%	1.80%		
Laminated/Other Plastic Film and Bags Total		**18.30**	**1.83%**	**1.83%**	**0.00%**	**0.00%**
Other Rigid Plastic Packaging		11.90	1.19%	1.19%		
Durable Plastic Products		41.90	4.19%	4.19%		
Total Plastics		**157.60**	**15.77%**	**13.13%**	**2.64%**	**0.00%**
4. METALS						
Aluminum Alcohol Cans	Recycling	0.00	0.00%		0.00%	
Aluminum Food & Other Beverage Cans	Recycling	1.10	0.11%		0.11%	
Aluminum Food & Beverage Cans Total		**1.10**	**0.11%**	**0.00%**	**0.11%**	**0.00%**
Aluminum Foil & Foil Trays	Recycling	3.50	0.35%		0.35%	
Other Aluminum Containers	Recycling	0.00	0.00%		0.00%	
Steel Alcohol Cans	Recycling	0.00	0.00%		0.00%	
Steel Food & Other Beverage Cans	Recycling	5.70	0.57%		0.57%	
Steel Food & Beverage Cans Total		**5.70**	**0.57%**	**0.00%**	**0.57%**	**0.00%**
Steel Aerosol Cans	Recycling	1.20	0.12%		0.12%	
Steel Paint Cans	Recycling	0.00	0.00%		0.00%	
Other Metal		20.40	2.04%		2.04%	
Total Metals		**31.90**	**3.18%**	**0.00%**	**3.18%**	**0.00%**
5. GLASS						
Clear Glass Beer 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Clear Glass Beer <750 ml	Recycling	0.00	0.00%		0.00%	

Waste Categories	Current Diversion Opportunity	Quantity per Tonne of Waste (kg)	Percentage of Total Waste Stream (%)	Garbage %	Potential Additional Diversion (Recycling) %	Potential Additional Diversion (Organics) %
Clear Glass Other Alcohol 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Clear Glass Other Alcohol <750 ml	Recycling	0.00	0.00%		0.00%	
Clear Glass Alcohol Beverage Total		**0.00**	**0.00%**	**0.00%**	**0.00%**	**0.00%**
Coloured Glass Beer 750 ml and Over	Recycling	0.00	0.00%		0.00%	
Coloured Glass Beer <750 ml	Recycling	0.00	0.00%		0.00%	
Coloured Glass Other Alcohol 750 ml and Over	Recycling	2.60	0.26%		0.26%	
Coloured Glass Other Alcohol <750 ml	Recycling	0.00	0.00%		0.00%	
Coloured Glass Alcohol Beverage Total		**2.60**	**0.26%**	**0.00%**	**0.26%**	**0.00%**
Clear Glass Other Beverage and Food	Recycling	4.90	0.49%		0.49%	
Coloured Glass Other Beverage and Food	Recycling	0.00	0.00%		0.00%	
Other Glass		7.80	0.78%	0.78%		
Total Glass		**15.30**	**1.53%**	**0.78%**	**0.74%**	**0.00%**
6. HOUSEHOLD SPECIAL WASTE						
Batteries		1.00	0.10%	0.10%		
Paint & Stain		0.00	0.00%	0.00%		
Motor Oil		0.10	0.01%	0.01%		
Other HSW liquids		2.50	0.25%	0.25%		
Other HSW		5.10	0.51%	0.51%		
Total HSW		**8.70**	**0.87%**	**0.87%**	**0.00%**	**0.00%**
7. ORGANICS						
Food Waste	Organics	327.00	32.70%			32.70%
Yard Waste	Organics	3.60	0.36%			0.36%
Pet waste	Organics	3.00	0.30%			0.30%
Total Organics		**333.60**	**33.36%**	**0.00%**	**0.00%**	**33.36%**
8. OTHER MATERIALS						
Diapers and Sanitary Products	Organics	19.70	1.97%			1.97%
Textiles		80.10	8.01%	8.01%		
Carpeting		9.40	0.94%	0.94%		
Construction & Renovation		25.80	2.58%	2.58%		
Computer / IT Equipment		2.90	0.29%	0.29%		
Telecom Equipment		1.00	0.10%	0.10%		
TV & Audio Equipment		0.00	0.00%	0.00%		
Small Kitchen Appliances		1.90	0.19%	0.19%		
Other Electronics		9.70	0.97%	0.97%		
Tires and Other Rubber		3.60	0.36%	0.36%		
Ceramics		6.80	0.68%	0.68%		
Furniture		0.00	0.00%	0.00%		

Waste Categories	Current Diversion Opportunity	Quantity per Tonne of Waste (kg)	Percentage of Total Waste Stream (%)	Garbage %	Potential Additional Diversion (Recycling) %	Potential Additional Diversion (Organics) %
Mattresses		92.10	9.21%	9.21%		
Other Large Bulky Items		26.30	2.63%	2.63%		
Other Waste		17.10	1.71%	1.71%		
Total Other Materials		**296.40**	**29.65%**	**27.68%**	**0.00%**	**1.97%**
Grand Total		**1000.00**	**100.00%**	**43.14%**	**17.64%**	**39.22%**

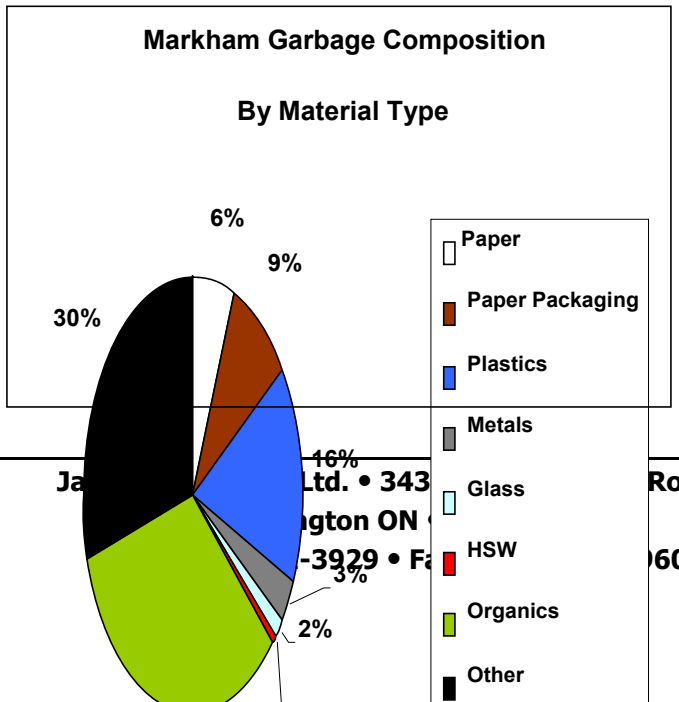
The audited waste represents only the residual waste stream (Post Diversion). According to this waste audit 57% of the post diverted waste could have been diverted through current diversion programs (39% of the waste is organic material and 18% is recyclable material).

FIGURE 1: MARKHAM RESIDUAL WASTE COMPOSITION AND POTENTIAL ADDITIONAL DIVERSION



The following figure shows Markham's Post Diversion Garbage composition by material type.

FIGURE 2: COMPOSITION BY MAJOR MATERIAL TYPE



THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #6 – OCTOBER 23, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Change to RFP-604-2008 Closing Date as follows:

RFP-604-2008, Page 5, Section 2.6.9
Delete “January 15, 2009” and insert in its place “February 19, 2009”.

RFP-604-2008, Page 5, Section 2.6.10
Delete “January 15, 2009” and insert in its place “February 19, 2009”.

RFP-604-2008, Page 11, Section 2.12
Delete “January 15, 2009” and insert in its place “February 19, 2009”.

RFP-604-2008, Page 11, Section 2.14
Delete “January 15, 2009” and insert in its place “February 19, 2009”.

RFP-604-2008, Page 45, Proposal Submission Label
Delete “January 15, 2009” and insert in its place “February 19, 2009”.
A new Proposal Submission Label has been provided with this addendum, Page 45 (Revised).

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

11. FORM 1 PROPOSAL SUBMISSION LABEL

PROPOSAL SUBMISSION LABEL

REQUEST FOR PROPOSAL NUMBER RFP-604-2008

Ms. P.M. Madill, Regional Clerk
The Regional Municipality of Durham,
605 Rossland Road, East, Main Level,
Whitby, Ontario.
L1N 6A3

DESCRIPTION: Request for Proposals to Design, Build, Operate and Maintain an Energy from Waste Facility

CLOSING DATE AND TIME: 2:00 p.m., Local Time, Thursday, February 19, 2009

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #7 – OCTOBER 29, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The purpose of this addendum is to provide additional clarity regarding the Regions' intentions and the requirements of the RFP related to Facility capacity and potential future expansion(s).

Remove: **Page 13, Section 3.3.9**

The Facility shall be operational by the end of 2012 and shall have an initial per-year processing capacity of one hundred and fourty thousand (140,000) metric tonnes, with the ability to accommodate expansions up to a maximum processing capacity of four hundred thousand (400,000) metric tonnes per year. It is anticipated that the initial expansion will take the Facility's total processing capacity to two hundred and fifty thousand (250,000) metric tonnes per year.

Replace With: **Page 13, Section 3.3.9**

The Facility shall be operational by the end of 2013 and shall have an initial per-year processing capacity of one hundred and fourty thousand (140,000) metric tonnes. It is anticipated that the first future expansion will take the

Facility's total processing capacity to a minimum of two hundred and fifty thousand (250,000) metric tonnes per year.

The ultimate processing capacity of four hundred thousand (400,000) metric tonnes is a long-term planning estimate for the purposes of completing the environmental assessment and should not be treated as a reflection of the Region's anticipated waste processing requirements during the initial term of the DBO Contract.

The information contained in this addendum is explicitly applicable to all articles and clauses noted in this addendum. In addition, this addendum is applicable to other related articles and clauses of the Request for Proposals not specifically noted herein, as may be required to in order to interpret the Request for Proposals in a fashion which is internally consistent with all addenda issued in relation thereto.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #8 – OCTOBER 29, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The purpose of this addendum is to provide additional clarification and specific revisions regarding heating values for municipal solid waste as the basis for design and guarantee requirements for throughput capacity for the energy from waste Facility.

Addendum #8, Revision 1

Remove: Appendix '1' to Project Agreement – Technical Requirements, Section 2, Page 2, Paragraph 3

Delete the following:

"The guaranteed initial processing rate of 426 tonnes per day will be required when firing municipal solid waste within the higher heating value (HHV) range of 11 – 15 MJ/kg and all processing systems designed accordingly. Economic evaluation of proposals and electrical power production will be based upon a HHV of 12.8 MJ/kg. Technical evaluation will include confirmation that equipment and systems have been designed for the HHV range. Besides providing a safe and environmentally acceptable method of waste disposal, this Facility is to efficiently generate electrical power as well as have the capability to provide hot water for a district energy system. These technical requirements discuss the minimum technical requirements and provide background information to be used as the basis for the design of the proposed Facility."

Replace With:

"The Facility must be capable of processing municipal solid waste with HHV in the range of 11 MJ/kg to 15 MJ/kg. DBO Contractor shall size the Facility to operate continuously at a minimum processing rate of 426 tonnes per day of municipal solid waste based on an average waste HHV of 13.0 MJ/kg, which shall be the basis for economic evaluation of proposals, electrical power production and will be the DBO Contractor's guaranteed initial phase processing rate. Technical evaluation will include confirmation that equipment and systems have been designed for the HHV range. Besides providing a safe and environmentally acceptable method of waste disposal, this Facility is to efficiently generate electrical power as well as have the capability to provide hot water for a district energy system. These technical requirements discuss the minimum technical requirements and provide background information to be used as the basis for the design of the proposed Facility."

Addendum #8, Revision 2

Remove: Appendix '1' To Project Agreement – Technical Requirements, Section 2, Page 5, Paragraphs 2 and 3

Delete the following:

"During any consecutive 12 month period, the DBO Contractor will attain a minimum annual Facility processing throughput of 140,000 Tonnes per Year (155,555 x 90%) based on a higher heating value of 12.8 MJ/kg.

The DBO Contractor will guarantee throughput capacity based on a range of higher heating values (11 to 15 MJ/kg)."

Replace With:

"During any consecutive 12 month period, the DBO Contractor will guarantee a minimum annual Facility processing capacity of 140,000 tonnes of municipal solid waste per year based on an average higher heating value of 13.0 MJ/kg. The Facility shall be capable of processing input waste having higher heating values within the range of 11 to 15 MJ/kg."

Addendum #8, Revision 3

Remove: Appendix '1' To Project Agreement – Technical Requirements, Section 4.1, Page 10, Paragraph 1

Delete the following:

"The Facility will be designed such that, aside from periods of scheduled and forced outages including shutdown and start-up and provided the availability of sufficient quantities of processible Waste, the Facility will operate continuously at a Guaranteed Processing Rate equal or exceeding 426 tonnes per day (140,000 tonnes per year/(365*0.90) across the HHV range of 11-15 MJ/kg."

Replace With:

"The Facility will be designed such that, aside from periods of scheduled and forced outages including shutdown and start-up and provided the availability of sufficient quantities of processible Waste, the Facility will operate continuously at a Guaranteed Processing Rate equal to or exceeding 426 tonnes per day (140,000 tonnes per year/(365*0.90)) based on an average HHV of MSW of 13.0 MJ/kg.. The Facility shall be capable of processing waste having heating values within the range of 11-15 MJ/kg."

Addendum #8, Revision 4

Remove: Appendix '1' To Project Agreement – Technical Requirements, Section 4.3, Page 11, Paragraph 1

Delete the following:

"The HHV value 12.8 MJ/kg will be used as the design value for the MCR capacity of the Facility and its individual furnace/ boiler processing lines. The steam generating units must be sized to process the design throughput at 15 MJ/kg and other systems and accessories must be sized to accommodate the air, flue gas and steam flows associated with that throughput. However, it must be understood that actual HHV values may fluctuate and throughput is to be guaranteed across the range of 11 – 15 MJ/kg. Economic evaluations will be made based on an HHV of 12.8 MJ/Kg."

Replace With:

"The HHV value 13.0 MJ/kg will be used as the design value for the MCR capacity of the Facility and its individual furnace/ boiler processing lines (i.e. "design HHV"). The steam generating units must be sized to process the design throughput at 13 MJ/kg. and other systems and accessories must be sized to accommodate the air, flue gas and steam flows associated with that throughput. However, it must be understood that actual HHV values may fluctuate and throughput is to be guaranteed at an average MSW HHV of 13.0 MJ/kg. The Facility shall be capable of processing waste having heating values within the range of 11 – 15 MJ/kg. Economic evaluations will be made based on an HHV of 13.0 MJ/Kg."

Addendum #8, Revision 5

Remove: Appendix '1' to Project Agreement – Technical Requirements, Section 4.4.4, Page 12, Paragraph 1

Delete the following:

"The electrical generating capacity will be configured for a single turbine-generator which will be able to handle the steam equivalent of at least the full throughput capacity of processible waste (HHV of 12.8 MJ/kg), equivalent to two units online at 100% MCR (426 tonnes per day). The steam turbine room shall be sized to accommodate the additional turbine generator for the 110,000 tonne/year future expansion size (335 tpd). The transmission capacity for the EFW Facility will be designed for the ultimate processing capacity of 400,000 tonnes per year (1,218 tpd)."

Replace With:

"The electrical generating capacity will be configured for a single turbine-generator which will be able to handle the steam equivalent of at least the full throughput capacity of processible waste equivalent to one or two units online at 100% MCR (426 tonnes per day at an HHV of 13.0 MJ/kg.), The DBO Contractor shall incorporate sufficient margin into the design of the turbine (minimum 5% margin) to accommodate normal fluctuations and overfiring of the boilers. The steam turbine room shall be sized to accommodate the additional turbine generator for the minimum 110,000 tonne/year future expansion size (335 tpd). The transmission capacity for the EFW Facility will be designed for the ultimate processing capacity of 400,000 tonnes per year (1,218 tpd)."

Addendum #8, Revision 6

Remove: Appendix '1' to Project Agreement – Technical Requirements, Section 8.2.2.2, Page 49, Paragraphs 1 to 4

Delete the following:

"The gross heat release per plan area of grate: will not exceed 4,500,000 KJ/sq.m/hr.

The gross heat release of each furnace shall not exceed 470,000 KJ/hr-m3.

Maximum gross heat release equals the maximum higher heating value of the Processible Waste 12.8 MJ/kg times Facility capacity of 426 tonnes per day divided by 24, plus the heat added by preheated combustion air.

Maximum gross furnace heat liberation rate and volume basis equals the gross heat release divided by the furnace volume as defined below."

Replace With:

"The gross heat release per plan area of grate: will not exceed 4,500,000 KJ/sq.m/hr.

The gross heat release of each furnace shall not exceed 470,000 KJ/hr-m3.

Maximum gross heat release equals the maximum higher heating value of the Processible Waste 13.0 MJ/kg times Facility capacity of 426 tonnes per day divided by 24, plus the heat added by preheated combustion air.

Maximum gross furnace heat liberation rate and volume basis equals the gross heat release divided by the furnace volume as defined below."

Addendum #8, Revision 7

Remove: Appendix 'A' To Project Agreement – Appendix 10, "Pre-Acceptance Testing Requirements and Acceptance Test Procedures" Section 1.3, Page 133, Paragraph 2

Delete the following:

"Throughput capacity will not be adjusted for any reason other than crane scale related adjustments, unless it is demonstrated that the HHV of the waste fired is outside acceptable range, whereas 10,500 to 15,000 kJ/kg shall constitute the acceptable range for the HHV and the Reference Waste HHV shall equal 12,600 kJ/kg."

Replace With:

"Throughput capacity will not be adjusted for any reason other than crane scale related adjustments, unless it is demonstrated that the HHV of the waste fired is outside the acceptable range, whereas 11,000 to 15,000 kJ/kg shall constitute the acceptable range for the HHV and the Reference Waste HHV shall equal 13,000 kJ/kg."

Addendum #8, Revision 8

Remove: Appendix 'A' To Project Agreement – Appendix 10, "Pre-Acceptance Testing Requirements and Acceptance Test Procedures" Section 1.14, Page 141, Paragraph 3

Delete the following:

"The Throughput Capacity Guarantee is demonstrated if the actual amount of waste (in tonne) processed during the 5-day test is 1,918 tonnes (or 959 tonnes per unit if DBO Contractor utilizes two units) of Reference Waste HHV of 12.6 MJ/kg."

Replace With:

"The Throughput Capacity Guarantee is demonstrated if the actual amount of waste (in tonne) processed during the 5-day test is 2,130 tonnes (or 1,065 tonnes per unit if DBO Contractor utilizes two units) of Reference Waste with average HHV of no less than 13.0 MJ/kg."

Addendum #8, Revision 9

Remove: RFP-604-2008, Appendices, Forms and Schedules, Form 5 Detailed Facility and Equipment Data, Paragraph 2

Delete the following:

"Unless otherwise specified in this Proposal form, variable quantities (i.e. temperature, pressures, mass and volumetric flows, gas and liquid velocities, heat duties, powers and efficiencies) are to be given for operating conditions which correspond with the Maximum Continuous Rating (MCR) operation of the unit of equipment assuming fuel HHV – 12.8 MJ/kg. The terms "design," and "maximum continuous rating (MCR)," are synonymous. Unless otherwise indicated, "percent" and "%" mean weight percent."

Replace With:

"Unless otherwise specified in this Proposal form, variable quantities (i.e. temperature, pressures, mass and volumetric flows, gas and liquid velocities, heat duties, powers and efficiencies) are to be given for operating conditions which correspond with the Maximum

Continuous Rating (MCR) operation of the unit of equipment assuming fuel HHV – 13.0 MJ/kg. The terms "design," and "maximum continuous rating (MCR)," are synonymous. Unless otherwise indicated, "percent" and "%" mean weight percent."

Addendum 8, Revision 10

Remove: RFP-604-2008, Appendices, Forms and Schedules, Form 5 Detailed Facility and Equipment Data, Part A, Item 4

Delete the following:

"4. Process Energy Balances:

Complete the following table for each column, corresponding to varying fuel HHV.

CASE A			
HHV, Processible Waste MJ/kg	11.2 **Low**	12.8 **MCR**	15.1 **High**
Furnace/Boiler Unit Feed Rate			
Excess air, %			
Furnace/boiler Losses per Unit (MJ/kg):			
Dry gas			
Sensible heat in dry gas			
H_2 and H_2O in fuel			
H_2O in combustion air			
H_2O from Residue pit & quench			
Unburned combustibles			
Radiation and convection			
Unaccounted (mfr.'s margin, max. 1.5%)			
Subtotal furnace/boiler losses			
(MJ/hr), per unit			
Total steam output:			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr (sum all units)			
Net efficiency of steam generating units, %			
Main Steam for each unit:			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Process Flow:			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Extractions:			
Feedwater Heater			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Dearator			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Plant Heat Rate			

Gross, HHV based			
Net, HHV based			
Turbine Heat Rate (average each unit)			
Energy Summary:			
Gross TG power output, MW, total			
In-plant electric consumption, MW			
Net Facility power output, MW			
Corresponding diagrams as described in Section 4.5.1 of the RFP Drawing Nos.:			
Furnace/Boiler MCR (each unit) in Tonne per hour of Processible Waste			

"

Replace with:

"4. Process Energy Balances:

Complete the following table for each column, corresponding to varying fuel HHV.

CASE A			
HHV, Processible Waste MJ/kg	11.0 **Low**	13.0 **MCR**	15.0 **High**
Furnace/Boiler Unit Feed Rate			
Excess air, %			
Furnace/boiler Losses per Unit (MJ/kg):			
Dry gas			
Sensible heat in dry gas			
H_2 and H_2O in fuel			
H_2O in combustion air			
H_2O from Residue pit & quench			
Unburned combustibles			
Radiation and convection			
Unaccounted (mfr.'s margin, max. 1.5%)			
Subtotal furnace/boiler losses			
(MJ/hr), per unit			
Total steam output:			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr (sum all units)			
Net efficiency of steam generating units, %			
Main Steam for each unit:			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Process Flow:			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			

Extractions:			
Feedwater Heater			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Dearator			
Pressure, bars			
Temperature, ^{O}C			
Mass flow, kg/hr			
Plant Heat Rate			
Gross, HHV based			
Net, HHV based			
Turbine Heat Rate (average each unit)			
Energy Summary:			
Gross TG power output, MW, total			
In-plant electric consumption, MW			
Net Facility power output, MW			
Corresponding diagrams as described in Section 4.5.1 of the RFP Drawing Nos.:			
Furnace/Boiler MCR (each unit) in Tonne per hour of Processible Waste			

"

Addendum #8, Revision 11

Remove: RFP-604-2008, Appendices, Forms and Schedules, Form 5 Detailed Facility and Equipment Data, Part A, Item 5

Delete the following:

"5. Facility Water Mass Balance Diagrams for: (a) average day and (b) peak day Facility Water Consumption conditions.

a. 426 tonne/day Facility Throughput, average day of year with respect to Facility water consumption. See attached Drawing No. _____.

b. 426 tonne/day Facility Throughput, peak summertime daily Facility Water Consumption for average climatological year. See Drawing No. _____.

Basis for both a) and b) above is HHV = 12.8 MJ/kg and 426 tonne/day Throughput."

Replace With:

"5. Facility Water Mass Balance Diagrams for: (a) average day and (b) peak day Facility Water Consumption Conditions.

a. 426 tonne/day Facility Throughput, average day of year with respect to Facility water consumption. See attached Drawing No. ___.

b. 426 tonne/day Facility Throughput, peak summertime daily Facility Water Consumption for average climatological year. See Drawing No.__.

Basis for both a) and b) above is HHV = 13.0 MJ/kg and 426 tonne/day Throughput."

The information contained in this addendum is explicitly applicable to all articles and clauses noted in this addendum. In addition, this addendum is applicable to other related articles and clauses of the Request for Proposals not specifically noted herein, as may be required in order to interpret the Request for Proposals in a fashion which is internally consistent with all addenda issued in relation thereto.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #9 – OCTOBER 29, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The Regions are not prepared to commit funds to, or otherwise assume the risks of, equipment orders made in advance of the issuance of the Notice to Proceed under the Project Agreement. The Regions are contemplating extending the target operational date in section 3.3.9 of the RFP which is currently the end of 2012 and may be revised to be the end of 2013. Further details will be forthcoming in regards to such an extension in the immediate future.

For clarification, Section 4.6.1.2.2 (v) of the RFP states that for computational and evaluation purposes only, Proponents should make the assumption that the start date, to be formally defined through the issuance of Notice to Proceed, should be assumed to be January 1, 2010. Furthermore, Section 4.6.1.2.2(iii) of the RFP states that the Model should include, in relation to the design and construction cost components of the Project, the Construction Milestone Payment Schedule clearly demonstrating how the milestone payments have been calculated in the relation to the construction schedule in Section 4.5.2.1. of the RFP.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #9A –NOVEMBER 12, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

This addendum will replace Addendum #9 issued on October 29, 2008 and will now read as follows:

> The Regions are not prepared to commit funds to, or otherwise assume the risks of, equipment orders made in advance of the issuance of the Notice to Proceed under the Project Agreement. The target operational date in Section 3.3.9 of the RFP is amended to read to the end of 2013.
>
> For clarification, Section 4.6.1.2.2 (v) of the RFP states that for computational and evaluation purposes only, Proponents should make the assumption that the start date, to be formally defined through the issuance of Notice to Proceed, should be assumed to be January 1, 2010. Furthermore, Section 4.6.1.2.2(iii) of the RFP states that the Model should include, in relation to the design and construction cost components of the Project, the Construction Milestone Payment Schedule clearly demonstrating how the milestone payments have been calculated in the relation to the construction schedule in Section 4.5.2.1. of the RFP.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #10 – OCTOBER 29, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The purpose of this addendum is to provide additional clarification and specific revisions regarding the Regions' intentions and the requirements of the RFP pertaining to utilization of the Facility as an energy source for a potential district heating system within the future Clarington Energy Park.

Addendum 10, Revision 1

Remove: RFP-604-2008, Section 4, Article 4.5.1.1

.5 An overview of the potential to recover thermal energy (e.g., steam, hot water) and potential impacts of thermal energy production on electricity output.

Replace With:

.5 a) An overview of the potential to recover thermal energy (e.g., steam, hot water) and potential impacts of thermal energy production on electricity output; and,

b) An implementation plan for a future district heating system capable of supplying hot water to customers located within the future Clarington Energy Park and to Durham's adjacent Courtice Water Pollution Control Plant (WPCP)

Addendum 10, Revision 2

Remove: Appendix '1' To Project Agreement – Technical Requirements, Section 2, Page 5, Paragraph 4

Delete the following sentence:

"Extraction temperatures and pressures for the steam source shall be sufficient to provide a hot water heat source for the Clarington Energy Park and a hot water heat exchanger."

Addendum 10, Revision 3

Add: Appendix '1' To Project Agreement – Technical Requirements, Section 6.2, Page 19

The DBO Contractor shall provide adequate space in their site design for the equipment required to implement the future district energy system. The space allotted for this purpose shall be clearly defined in the site layouts provided in the DBO Contractor's response to this RFP.

Addendum 10, Revision 4

Remove: Appendix '1' To Project Agreement – Technical Requirements, Article 8.18.1, Page 87, Paragraphs 1 and 2

Delete the following paragraphs:

"The DBO Contractor's turbine design package shall account for the future extraction of steam or other methods to supply hot water to a future district energy system. The district energy system will supply hot water heating and cooling to the nearby Clarington Energy Park and Courtice WPCP. The DBO Contractor's proposal shall describe the design features that will be implemented at the Facility to ensure the cost effective and efficient delivery of district energy via hot water with minimal impact to the electrical efficiency of the turbine-generator set. The potential energy needs of the future district energy system are provided below. This information below is an estimate of the future district energy customers needs and in no way constitutes the actual future energy requirements.

The Facility shall be capable of producing hot water to the Courtice WPCP via a steam to water heat exchanger or other method with the heat output and pressure of the hot water equal to the three existing boilers at the WPCP. Existing WPCP boiler characteristics are as follows:

- Boiler No's: 1471 kW, 1464 kW heat output, 861.87 KPa
- Boiler No 2: 2942.85 kW, 2928 kW heat output, 861.87 KPA
- Boiler No 3: 2942.85 kW, 2928 kW heat output, 861.87 KPA

In addition to hot water delivery to the Courtice WPCP, district energy in the form of hot water will also be needed to supply the future expansion of the Clarington energy park. It is estimated that the Clarington Energy Park will be comprised of 50 new industrial structures totalling 42,000 square meters. The total hot water heat output to the Clarington Energy Park shall be based on a peak hourly heating load of approximately 70 W/m2. The DBO Contractor shall provide hot water capable of producing the heat output necessary for both the WPCP and the Energy Park. It shall be noted that all heat outputs are based on the energy delivered at the end user, and that all transmission losses and boiler efficiencies need to be taken into

account.

Add: Appendix '1' To Project Agreement – Technical Requirements, Section 8.18.2,

Add the following Article:

"8.18.2 Future District Heating Capability

It is the Regions' intent that the initial phase of the energy from waste Facility includes the essential design, construction, and equipment selection required to support a future local district heating system. To the greatest extent feasible, the DBO Contractor's planning and concept development should minimize impacts on electrical energy output associated with anticipation of a future district heating system and cost–effectively defer capital investments until such time as the Regions may choose to implement district heating.

The DBO Contractor's facility design package shall include the necessary provisions and space to incorporate the future equipment that may be required to supply hot water to the Courtice WPCP and a future district heating system. The future district heating system would potentially supply hot water heating to customers in the surrounding Clarington Energy Park and the adjacent Courtice WPCP.

The DBO Contractor's proposal shall provide an overview of the Contractor's proposed concept to recover thermal energy, including a description of features that will be incorporated into the Facility to ensure that the future delivery of district energy via hot water may be implemented in a cost-effective and efficient manner with minimal impact to the electrical efficiency of the turbine-generator set.

The DBO Contractor's proposal must also provide an implementation plan describing the plant modifications and equipment that will be required for the future implementation of the district heating system. The following assumptions shall be used when developing the implementation plan:

- Supply hot water for:
  i. space heating of commercial buildings with the Energy Park totalling 50,000 m^2 with a seasonal peak heating requirement of 70 W/m^2; and,
  ii. process heating at the Courtice WPCP sufficient to provide a peak heating load (winter conditions) of 3.9 MW thermal;
- The Energy Park district heating customers will be located within a 2 km radius of the facility;
- The Courtice WPCP is adjacent to the proposed energy from waste Facility;
- The vendor's plan must take into account seasonal fluctuations in heating demand as well as line losses in delivery;
- The vendor must plan to allow for sufficient back-up in the implementation plan to ensure 100% commercial delivery capability of heat to the district heating system customers; and,
- The timing for potential activation of the future district heating plan is not known.

Consistent with Article 8.19.3, the DBO Contractor's overview and implementation plan must clearly describe and delineate:

a) all up-front design, equipment, and capital works elements that are essential for inclusion in the initial phase of the Facility to support future implementation of the district heating plan; versus,
b) remaining design, equipment, control and capital works elements which are required as part of the future activation of the district heating implementation plan.

DBO Contractor's price proposal must include all up-front costs associated with item a) above.

DBO Contractor's implementation plan must also describe any operational changes to the energy from waste Facility that would be anticipated as a result of activation of the district heating

Vendors will be evaluated on the energy delivery guarantees offered in association with future activation of the district heating implementation plan.

Addendum 10, Revision 5

Add: RFP-604-2008 – Appendix B Forms, Form 4 Performance Guarantees

Add the following:

DBO Contractor to provide a guaranteed maximum reduction in electrical output resulting from the implementation of the district heating loop. DBO Contractor's guarantee shall be at peak load conditions of 3.5 MW thermal to the new office buildings in the Energy Park and 3.9 MW thermal load to the Courtice WPCP.

4. **Future District Heating System Energy Output Guarantee**			

The information contained in this addendum is explicitly applicable to all articles and clauses noted in this addendum. In addition, this addendum is applicable to other related articles and clauses of the Request for Proposals not specifically noted herein, as may be required in order to interpret the Request for Proposals in a fashion which is internally consistent with all addenda issued in relation thereto.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #11 – OCTOBER 30, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The purpose of this addendum is to provide additional clarification and specific revisions regarding delineation of the roles and responsibilities of the DBO Contractor, the Regions and the Regions' Consultants in the context of the approvals processes and the Early Works activities associated with development of the proposed energy from waste Facility.

Addendum 11, Revision 1

Delete: Appendix 1, Scope of Work, to Appendix E, the Early Works Agreement, to RFP-604-2008

Substitute: Appendix 1, Revised Scope of Work, to Appendix E, the Early Works Agreement, to RFP-604-2008 attached hereto.

EARLY WORKS AGREEMENT APPENDIX 1

REVISED SCOPE OF WORK

The Early Works shall consist of the following elements:

1. Refine Architectural Design

The RFP requires proponents to propose a basic Facility design. The RFP provides Proponents a cash allowance of **up to $9,000,000.00** for the Preferred Proponent to develop and implement architectural enhancements to their basic design to accommodate local requirements and the Owners' preference for an innovative building design.

Under this Early Works task, the Preferred Proponent will develop, in co-operation with the Owner, the final architectural design for the Facility. The activities within this task include:

(a) Preparation and submission of drawings illustrating three (3) alternate proposed designs for the Facility;

(b) Review of these designs with the Owner and local stakeholders at no fewer than 10 public meetings within Durham Region and the formulation of a preferred architectural design; and

(c) Preparation of a final set of drawings and a three dimensional model illustrating the preferred architectural design of the Facility.

(d) Based on the preferred architectural design, complete a visual assessment and submit as a package forming part of the EPA application

2. Responsibilities Regarding Regulatory Approvals

The Preferred Proponent shall have sole responsibility for obtaining all regulatory authorizations, permits, licenses and approvals necessary for the design, development, construction and operation of the Facility save and except where such regulatory authorizations, permits, licenses and approvals require the direct participation of the Regions in order to obtain said approval. In such cases, the Preferred Proponent to shall have the primary responsibility to obtain such regulatory authorizations, permits, licenses and approvals with the collaboration and cooperation of the Regions.

Without limiting the generality of the foregoing requirement, the Preferred Proponents shall be responsible for:

(a) collaboration with Regional staff in the development and pre-submission review of all regulatory approvals submissions;

(b) joint negotiations with the Owner and all regulatory agencies; and,

(c) Payment of application processing fees.

All applications for regulatory approvals shall clearly identify the Regions as Owner of the Facility.

All applications for regulatory approvals shall be in the joint names of the Preferred Proponent and the Regions as their interests may exist as design, build operator and as owners of the Facility,

3. Support of Regulatory Approval Applications

Without limiting the foregoing responsibilities of the Preferred Proponent, the Preferred Proponent will work with the appropriate regulatory authorities to respond to any questions, attend meetings, provide additional information and generally provide support so that the required approvals are obtained in a timely fashion.

Support of all approval applications shall include taking the lead role as proponent at any hearing necessitated by an application for regulatory approval or any appeal resulting from the issuance thereof. The Preferred Proponent shall collaborate with, and take direction from, Regional staff in conjunction with any required hearing.

4. Support of Environmental Assessment ("EA") Studies

Contemporaneous with the Early Works, the Regions' EA consultants will be undertaking additional site-specific studies in support of the Region's EA application for the Facility. The Regions have primary responsibility for the conduct and completion of the EA.

These site-specific studies include a traffic impact assessment, site servicing (water, sewer, gas) studies, archaeological and other potential studies. The Preferred Proponent's right to comment on the EA study will cooperate with the Regions' EA consultants and will provide any technical details on the proposed Facility as is required to support these studies. The Preferred Proponent will be provided with copies to all of these site-specific studies as and when they are prepared and provided with a reasonable opportunity to comment upon same before they are submitted by the Regions as a part fo the Region's EA application..

In the event that the EA regulatory approval process results in a hearing, the Preferred Proponent shall cooperate with the Regions and shall support the Regions in the conduct of said hearing.

5. Participation in Public Meetings

Proponents shall include an allowance for preparation for attending and participating in no less than 10 public meetings including presentations to Committees and Council for the purpose of reporting on the progress of the Early Works and discussing the proposed architectural design options.

6. Details Regarding Certain Specific Approvals

The Regions have set out below additional details regarding a number of the regulatory approval processes which will be the responsibility of the Preferred Proponent. In addition, attached hereto is a chart identifying the major regulatory approvals which will be required to be completed as a part of the Early Works.

A. The Preferred Proponent shall complete and submit all applications required to obtain any local municipal approvals for the construction and operation of the Facility. Local municipal approvals undertaken as part of the Early Works shall include:

(a) Site Plan Approvals including:

(i) Traffic impact assessments;

(ii) Road needs study;

(iii) Site servicing studies;

(iv) Review and negotiation of proposed architectural designs and site layout and landscaping with local municipality;

(v) Conservation Authority approvals. and

(vi) The negotiation and execution of a site plan agreement with the Municipality of Clarington.

Additional local municipal approvals undertaken as part of the Early Works may include:

(b) Official Plan Amendment Applications;

(c) Rezoning Application.

B. The Preferred Proponent shall be responsible for negotiating Certificates of Approval from the Ontario Ministry of the Environment ("MOE") for the Facility. Required Certificates of Approval from the MOE shall at a minimum include:

(a) Air and Noise Emissions (s. 9, EPA);

(b) Stormwater (s. 53, Ontario Water Resources Act ("OWRA")); and,

(c) Waste Management (Part V, EPA).

During the preparation of the RFP the Regions met with representatives of MOE and incorporated potential MOE baseline requirements into the RFP documents. The Preferred Proponent will work with the Owner in negotiating the final details associated with these conditions.

C. The Preferred Proponent shall be responsible for obtaining approvals from a variety of electrical utility authorities in order to connect to the electrical transmission grid to sell electricity generated at the Facility and to receive electricity. These authorities include, but are not limited to:

(a) Hydro One Networks Inc.; and,

(b) The Independent Electrical System Operator ("IESO").

As there is considerable lead-time associated with obtaining these approvals, the Hydro One FORM B and the IESO System Impact Assessment applications have already been submitted by the Regions.

The Preferred Proponent will be required to amend these applications to incorporate to the specific technical details of their proposed electrical equipment and interconnect. The Preferred Proponent will be required to address any issues regarding electrical interconnection with the grid and obtain the required approvals.

7. Other Approvals

The Preferred Proponent will be solely responsible for obtaining any other required approvals including, without limitation, any approvals required from Transport Canada pursuant to the federal *Aeronautics Act* related to the local Oshawa Airport zoning Regulations.

The following chart has been prepared to identify the anticipated major regulatory authorizations required to be completed during the scope of the Early Works. The chart identifies the assigned roles of the Preferred Proponent and the Regions (which should be interpreted as including the Regions' designated Consultants). This list is subordinate to the general responsibilities set forth previously in Appendix 1 and is provided for illustrative purposes only.

Regulatory Approval	***Primary or Lead Party***	***Secondary Party (Anticipated Contribution to Primary Party)***	***Project Phase***
Environmental Assessment. Ontario Environmental Assessment Act ("EAA")	**Regions**	**Preferred Proponent** Providing any information necessary to support the Regions' EAA application. Such information will be identified by way of an Addendum to RFP.	Early Works
Certificate(s) of Approval – Air and Noise Ontario Environmental Protection Act ("EPA") Part II, s. 9	**Preferred Proponent**	**Regions** Air dispersion modeling utilizing Calpuff model will have been previously completed to support EA related air and risk studies. One (1) years worth of ambient air data will be made available to the Preferred Proponent. A Noise Impact Assessment will be have been previously completed to support EA approvals process.	Early Works

Regulatory Approval	***Primary or Lead Party***	***Secondary Party (Anticipated Contribution to Primary Party)***	***Project Phase***
Certificate of Approval – Waste Management EPA Part V, s. 27 –	**Preferred Proponent**	**Regions** A Noise Impact Assessment will be completed to support EA approvals process. Traffic Impact Assessment will be completed as part of EA study. Health Risk Assessment will be completed as part of EA study. An initial Visual Impact Assessment will be completed as a part of EA study prior to the selection of the preferred architectural design. This will be provided to the Preferred Proponent but will likely not support EPA level application requirements. A Land Use study will be completed as part of EA study.	Early Works
Certificate of Approval – Industrial Sewage Works Ontario Water Resources Act ("OWRA") s. 53	**Preferred Proponent**	**Regions** An initial surface and stormwater management plan will be completed to support EA approvals process. Detail will likely not support OWRA level application requirements	Early Works
Site Plan Approval Municipality of Clarington Site Plan Control By-Law	**Preferred Proponent**	**Regions** Limited general support as may be required	Early Works
Ontario Conservation Authorities Act	**Preferred Proponent**	**Regions** Limited general support as may be required	Early Works
Electrical Authorities Approvals	**Preferred Proponent**	**Regions** Initial applications including Hydro One FORM B and IESO System Impact Assessment applications have been submitted.)	Early Works

Regulatory Approval	***Primary or Lead Party***	***Secondary Party (Anticipated Contribution to Primary Party)***	***Project Phase***
Aeronautics Act, Oshawa Airport Zoning Regulations	**Preferred Proponent**	**Regions** Limited general support as may be required	Early Works

The information contained in this addendum is explicitly applicable to all articles and clauses noted in this addendum. In addition, this addendum is applicable to other related articles and clauses of the Request for Proposals not specifically noted herein, as may be required in order to interpret the Request for Proposals in a fashion which is internally consistent with all addenda issued in relation thereto.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #12 – OCTOBER 31, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Question
Please confirm that as part of the Proposal submittal we are required to include the color rendering as the other architectural details for our standard design, notwithstanding the architectural work that will be part of the Early Works.

Answer
Article 4.5.1.3 requires a Proponent include with their proposal "a conceptual drawing or rendering of the contemplated exterior of the base Facility from each direction." As such, a rendering of the proponent's standard design is required with the submission of the Proposal.

Question
Has the Region identified local site or sites of up to a total of 25 acres that would be available for construction parking, laydown and pre-assembly work?

There will likely be a substantial volume of top soil to be disposed of from the site. Does the Region have a disposal area or vendor to sell the removed material?

Answer
The Region has no additional space available to Proponents for construction parking, laydown and pre-assembly work. If such is required by a Proponent, then it will be the responsibility of the Proponent to arrange for same.

At this point in time the Region has no designated offsite storage area for topsoil. See Article 6.9 of the Technical requirements for additional details.

Question
With regard to the plot layout, is it required/preferred that the visitor center be adjacent to the administration building and the offices provided for the Regions' personnel?

Answer
Article 7.7 of the Technical Requirements addresses the Regions' requirements for a visitor's centre. It provides that the visitor's centre viewing galleries and presentation rooms are connected to the Administration Building in order to provide visitors with a safe environment to observe Facility operations.

Question
With regard to the Early Works Scope of Work, Part 2, please identify the agencies/permits that will require support by the Preferred Proponent during the Early Works and the estimated value of the application processing fees.

Answer
Please see Addendum #11 to RFP-604-2008 for additional details regarding the Scope of Work during the Early Works phase of the project.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #13 – OCTOBER 31, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Proponents are advised to review Standard 621.19 – Standards Obstruction Markings, (the "standards" issued under the authority of Section 5.9(3) of the *Aeronautics Act*, R.S.C. 1985, c. A-2 and Section 601.19 of the Canadian Aviation Regulations for additional information regarding marking and lighting requirements for any structures likely to be hazardous to aviation safety because of its height and location).

Additional information regarding Transport Canada's process for review and/or approval of structures likely to be hazardous to aviation safety because of its height and location can be obtained from the Regional Civil Aviation authority.

The contact information for the Regional Civil Aviation Authority for the Ontario Region is as follows:

Regional Manager, Aerodrome Safety
Transport Canada
4900 Yonge Street, Suite 300
Willowdale, Ontario M2N 6A5
Tel. (416) 952-0248.

A copy of the Standards is attached hereto.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

Part VI - General Operating and Flight Rules

Canadian Aviation Regulations 2008-1

Standard 621.19 - Standards Obstruction Markings

Content last revised: 2000/06/01

Preamble

The *Standards Obstruction Markings Manual* has been updated and revised to include the specifications governing design requirements and quality assurance tests for any light required under these standards. Accordingly, the Manual was also brought into line with the structure of the *Canadian Aviation Regulations* (CARs) and related standards.

Although compliance to the Standards Obstruction Markings is voluntary, it is recommended that persons planning to erect a building or structure likely to be hazardous to aviation safety because of its height and location still abide by these standards as the Minister may, by Order, direct the owner or persons in control of such building or structure found to be hazardous to aviation safety, to mark it and light it in accordance with these standards.

For your ease of reference, please note that the text in italics is information in support of the standards.

***Note**: In the French version of the Standards Obstruction Markings, the terms "marque" and "balise" have the same meaning as "balisage"; while the terms "feu" and "balise lumineuse" have the same meaning as "éclairage". Both terms "balise" and "éclairage" stems from the verbs "baliser" and "éclairer" which are used in CAR 601.19.*

(amended 2000/06/01; no previous version)

CHAPTER 1 - INTRODUCTION

1.1 *Incorporation by Reference and Authority for Publication*

These Standards are incorporated by reference under subsection 5.9(3) of the Aeronautics Act *and published under the authority of section 601.19 of the* Canadian Aviation Regulations, *reproduced below for information purposes only:*

Where it is likely that a building, structure or object, including an object of natural growth, is hazardous to aviation safety because of its height and location, the Minister may, by order, direct the owner, or other person in control of the building, structure or hazard, to mark it and light it in accordance with the standards specified in the Standards Obstruction

Markings Manual.

1.2 *Responsibilities*

1.2.1 Responsibility of the Minister

It is the responsibility of the Minister to assess individual obstructions, namely buildings, structures or objects, to determine if they are likely to constitute a hazard to air navigation and consequently require marking and/or lighting in accordance with the standards identified as such in this publication.

***NOTE**: If it has been determined that a planned construction might create an obstruction to air navigation for a Department of National Defence (DND) aerodrome, the appropriate DND authorities are to be advised.*

1.2.2 Responsibility of Owners of Structures

Persons planning to erect an obstruction, namely a building, structure or object, including a moored balloon, either permanently or temporarily, should contact the appropriate regional Civil Aviation authority, as specified in Appendix A, as early as possible and provide the following information on the planned obstruction, using the Aeronautical Obstruction Clearance Form (#26-0427) as shown in Appendix C:

(a) location;

(i) latitude and longitude (indicate if NAD 27 or NAD 83 datum is used),

(ii) indicated on a 8 1/2" x 11" portion of 1:50,000 scale map;

(b) overall height in metres and feet above sea-level;

(c) overall height in metres and feet above ground level;

(i) side view drawing with dimensions,

(ii) shielded objects indicated on side view and location map. Indicate if shielded object marked and lighted;

(d) start and completion dates of construction;

(e) date of proposed removal, if the obstruction is of a temporary nature; and

(f) name, address and telephone number of owner or person in control of obstruction.

1.3 *Definitions*

Appurtenance - That part of any vertical mast, pole or other appendage added to a building, structure or object that protrudes above the top of the

building, structure or object; (servitude)

Beam Spread - The angle between the two directions in the vertical or horizontal plane in which the intensity is equal to 50 percent of the minimum specified peak beam effective intensity; (angle d'ouverture du faisceau)

Catenary - The curved span of overhead wires hung freely between two or more supporting structures, normally with regard to exceptionally long elevated spans over canyons, rivers and deep valleys; (caténaire)

Effective Intensity - The effective intensity of a flashing light is equal to the intensity of a steady-burning (fixed) light of the same color which produces the same visual range under identical conditions of observation; (intensité efficace)

Fixed Light - (see Steady Burning Light) (feu fixe or feu permanent)

Flight Visibility - The average forward horizontal distance from the cockpit of an aircraft in flight, at which prominent unlighted objects may be seen and identified by day and prominent lighted objects may be seen and identified by night; (visibilité en vol)

Lighting - Any light displayed on an obstruction as a means of indicating the presence of the obstruction; (feu or balisage lumineux)

Markers - An object displayed on an obstruction during daytime as a means of indicating the presence of relatively invisible obstructions such as power lines; (balise)

Marking - A symbol, group of symbols, or markers that are displayed on the surface of an obstruction and intended to reduce hazards to aircraft by indicating the presence of the obstruction by day; (marque or marquage)

Meteorological Visibility - The greatest distance, expressed in statute miles, that selected objects (visibility markers) or lights of moderate intensity at night (25 candela) can be seen and identified under specific conditions of observation; (visibilité météorologique)

Painting - Marking applied to the surface of an obstruction and intended to identify the presence of the obstruction by day; (marque de peinture)

Steady Burning Light or Fixed light - A light having constant luminous intensity when observed from a fixed point; (feu permanent or feu fixe)

Units of Light Specification - Refer to Figure 1-1; (unités photométriques)

(a) Lumen - Unit of the luminous flux output from a light fixture.

(b) Candela -Unit of the luminous intensity of light emitted from a light fixture in a specific direction within a solid angle (steradian).

(c) Lux - Unit of illuminance of light falling upon a surface area. May be expressed as lumens per square metre or photons per second per

square metre.

***NOTE**: Imperial unit of illuminance is "footcandle". Simple approximate conversion factor:*
10 lux = 1 footcandle.

Vertical Aiming Angle - The angle formed between the horizontal and a line through the centre of the vertical beam spread; (calage en site)

Figure 1-1 Units of Measurement of Light

CHAPTER 2 - GENERAL

2.1 *Purpose of Standards*

The purpose of obstruction marking and lighting is to provide an effective means of indicating the presence of likely hazards to aviation safety.

More specifically, the marking and lighting standards are aimed at ensuring that an obstruction to air navigation remains visible at a range sufficient to permit a pilot to take appropriate action in order to avoid the obstruction by not less than 305 m (1,000 feet) vertically within a horizontal radius of 610 m (2,000 feet) from the obstruction.

2.2 *Obstructions Requiring Marking and/or Lighting*

Unless otherwise provided for in these standards, the following obstructions should be marked and/or lighted in accordance with the standards specified therein:

(a) any obstruction penetrating an airport Obstacle Limitation Surface as specified in the *Aerodrome Standards and Recommended Practices Manual* - TP 312;

(b) any obstruction greater than 90 m (300 feet) AGL within 2 nautical miles of the imaginary centre line of a recognised VFR route such as, but not limited to, a valley, a railroad, a transmission line, a pipeline, a river or a highway;

(c) any permanent catenary wire crossing where any portion of the wires or supporting structures exceed 90 m (300 feet) AGL;

(d) any obstructions greater than 150 m (500 feet) AGL; and

(e) any other obstruction to air navigation that is assessed as a likely hazard to aviation safety in accordance with paragraph 2.3.1(a).

2.3 *Transport Canada Aeronautical Evaluations*

The Minister may perform an Aeronautical Evaluation with respect to the following types of obstructions:

(a) obstructions greater than 90 m (300 feet) AGL, but not exceeding150

m (500 feet) AGL;

(b) catenary wire crossings, including temporary crossings, where the wires or supporting structures do not exceed 90 m (300 feet) AGL;

(c) obstructions less than 90 m (300 feet) AGL; and

(d) any other obstruction specified in these standards.

2.3.1 Purpose of Aeronautical Evaluations

Aeronautical Evaluations are used by the Minister:

(a) to determine, for the purposes of section 2.2, whether or not it is likely that an obstruction to air navigation is a likely hazard to aviation safety; or

(b) where expressly provided for in these standards, to specify alternative modes of complying with the obstacle marking and lighting standards while ensuring that the visibility requirement set out in section 2.1 is met.

2.3.2

Subject to any specific limit set out in these standards, an Aeronautical Evaluation conducted under paragraph 2.3.1(b) above may result in the Minister approving alternate:

(a) colour of the obstruction;

(b) dimensions of colour bands or rectangles;

(c) colours and types of lights;

(d) basic signals and intensity of lighting;

(e) night/day lighting combinations;

(f) flashing rate of lights; and

(g) portions of the obstruction to be marked and/or lighted (i.e: the object may be located with respect to other objects or terrain so that a lesser portion of it only needs to be marked and/or lighted).

2.4 *Aeronautical Evaluation Guidelines*

2.4.1

The following factors are normally considered by the Minister during an Aeronautical Evaluation:

(a) the location of buildings, structures or objects on high terrain;

(b) surrounding topography;

(c) VFR air traffic density;

(d) the presence of atmospheric conditions which would affect ceiling and flight visibility; and

(e) the proximity of obstructions to water aerodromes and heliports.

2.4.2

Attached to these standards as Appendix C is the form normally used to record basic data for the purposes of conducting an Aeronautical Evaluation.

2.5 Shielding

The principle of shielding established below may be employed in an Aeronautical Evaluation when assessing the need to apply the marking and lighting standards to buildings, structures or objects, and accepting the application of lesser obstruction marking and lighting standards.

2.5.1 Principle of Shielding

The principle of shielding may be applied in a way that a dominant permanent building, structure or object which is marked and/or lighted, obviates the need for marking and/or lighting other buildings, structures or objects in the immediate surrounding area, which might otherwise be treated as individual obstructions.

More specifically, the principle of shielding may be applied if the marking and/or lighting of a dominant permanent building, structure or object is assessed as providing sufficient warning to aircraft that, in avoiding the dominant obstruction, they will also avoid the unmarked or unlighted obstructions in the immediate surrounding area without risk of collision.

2.5.2 Two Adjacent Similar Obstructions

Where two similar obstructions of equal height are situated adjacent to each other, one of two obstructions is shielded provided the separations listed in Table 2—1 are not exceeded.

Table 2—1

HEIGHT OF OBSTRUCTIONS AGL		SEPARATION	
METRES	(feet)	METRES	(feet)
30 to 75	(100 to 249)	15	(50)
76 to 122	(250 to 399)	23	(75)
123 to 198	(400 to 649)	30	(100)
199 to 290	(650 to 949)	45	(150)

291 and higher	(950 and higher)	60	(200)

2.5.3 Adjacent Narrow and Large Obstructions

A narrow obstruction is shielded when it is situated with respect to a large obstruction so that an aircraft, whose flight path would avoid the large obstruction would, as a result, also avoid the narrow one.

The effectiveness of the shielding will depend upon the way in which the normal path of the aircraft is orientated in relation to the general orientation of the large and narrow obstructions.

2.5.4 Adjacent Cable Spans

A cable span across a recognized VFR route in a valley or along a watercourse does not require marking and/or lighting where it is shielded by a large obstruction such as a bridge or a higher cable span.

More specifically, a cable span segment is shielded when it is situated within 610 m (2,000 feet) of the dominant obstruction so that it remains below a sloping down surface at a gradient of 5% projected from the adjacent edges of the dominant obstruction. (Refer to Figure 2-1).

If the second cable span is above the gradient, this span is not shielded and should be marked or lighted in accordance with the applicable standards.

2.5.5 Cluster of Structures

Where it is not possible to apply a uniform standard to a cluster of obstructions such as industrial plants, oil refineries, thermal generating stations, and similar structures, they should be assessed on an individual basis to determine whether or not they should be treated as likely hazards to aviation safety or as an extended obstruction, taking into account the structure's location, height and spacing.

When treated as an extended obstruction, sufficient marking and lighting should be provided to ensure that the extent of the obstruction is defined and adequate visual warning, as referred to in section 2.1, is provided from any normal angle of aircraft approach.

Figure 2-1 Shielding of Cable Spans

CHAPTER 3 - DAY MARKINGS

3.1 *Paint Markings - General*

3.1.1 Standard Colours of Paint

Alternate sections of international orange (hereafter to be referred to as "orange") and white paint provide maximum visibility of an obstruction by contrast of colours.

Subject to section 3.1.2, where alternate sections of orange and white paint markings are required under these standards, the colours of paint markings should conform with the United States Federal Standard FED-STD-595, namely:

(a) Orange no. 12197; and

(b) White no. 17875.

Specifications describing the technical characteristics of various paints and their application techniques may be obtained from:

GSA - Specification Section
470 L'Enfant Plaza
Suite 8100
Washington, DC 20407
Telephone: (202) 755-0325

3.1.2 Alternative colours

Where the use of orange and white colours required under section 3.1.1 is considered to be aesthetically unacceptable, the Minister may approve:

(a) alternative colour schemes, provided:

(i) the colours conform with the basic visibility criteria of section 2.1; and

(ii) the paint meets the other specifications of section 3.1.1 above, or

(b) the use of plastic wrap pole marking in lieu of painting.

3.1.3 Maintenance of Paint Quality on Obstructions

Subject to section 3.1.4, the surfaces of structures required to be marked with paint should be repainted whenever a colour is changed or whenever its effectiveness is reduced significantly by such factors as scaling, oxidization, chipping, or layers of industrial contamination.

3.1.4 Surfaces Not Requiring Paint

Where the smoothness of a painted surface would create a potential hazard to maintenance personnel, the ladders, decks and walkways of structures are exempt from the painting requirements of section 3.1.3 above, provided that the effectiveness of overall marking on a structure is not significantly reduced.

Paint may also be omitted from other critical surfaces, if it has an adverse effect upon signal transmissions.

3.1.5 Painting Skeletal Structures

Paint markings should be applied to all inner and outer surfaces of skeletal

structures. This standard applies to supporting structures of overhead transmission lines, communications towers, and similar skeletal structures.

3.2 *Solid Pattern*

A structure required to be marked should be coloured a solid orange, if the structure's horizontal and vertical dimensions are less than 3.2 m (10.5 feet) respectively.

3.3 *Checkerboard Pattern*

Subject to sections 3.3.3 to 3.3.4, alternate rectangles of orange and white should be displayed on the appropriate surfaces of buildings and on the following types of structure:

(a) water, gas, and grain storage tanks; and

(b) large structures of 3.2 m (10.5 feet) or more across, having a horizontal dimension that is equal to or greater than the vertical dimension.

3.3.1 Size of Rectangles

Unless the dimensions and the shape of a structure otherwise dictate, the sides of the checkerboard rectangles should measure not less than 1.5 m (5 feet) and no more than 5 m (20 feet), the angles being as nearly square as possible and the corner surfaces being coloured in orange.

3.3.2 Roofs

Where it is not practical to paint the roof of a structure in a checkerboard pattern, the roof should be coloured solid orange.

3.3.3 Spherical Structures

Where part or all of a spherical structure does not permit exact application of a checkerboard pattern, the shape of the rectangle should be modified to suit the shape of the structure.

3.3.4 Storage Tanks

Where the shape of a storage tank does not permit the use of a checkerboard pattern, the structure should be coloured by alternating bands of orange and white, or a limited checkerboard pattern applied to the upper one-third of the structure. The skeletal framework of certain water, gas and grain storage tanks may be excluded from the checkerboard pattern. (Refer to Figure 3-1).

3.4 *Alternate Bands*

Alternate bands of orange and white should be displayed on the following types of structure:

(a) communications towers and supporting structures of overhead transmission lines;

(b) poles;

(c) chimneys;

(d) skeletal framework of storage tanks and similar structures;

(e) structures that appear narrow from a side view, that are 3.2 m (10.5 feet) or more across, and the horizontal dimension is less than the vertical dimension;

(f) buildings with horizontal siding; and

(g) wind turbine towers and rotor blades.

3.4.1 Characteristics of Bands

The width of bands on structures 3.2 m (10.5 feet) to 150 m (500 feet) in height should be equal, provided that each band has a width not less than 0.5 m (1.5 feet) nor more than 30 m (100 feet). The bands should be perpendicular to the vertical axis, and those at the top and bottom coloured orange. There should be an odd number of bands on the structure. Each band should be approximately 1/7 of the height of the structure up to 213.5 m (700 feet) and 30.5 m (100 feet) in width for structures over 213.5 m (700 feet). The width of all bands should be equal and in proportion to the structure's height. If the top of the structure has a cover or roof, the highest orange band should be continued to cover the entire top of the structure.

To simplify painting of individual structural members or complete structure sections, they may be painted prior to final assembly. In order to accommodate approximations in proportionate band widths, the pre-painting of individual standard length structural sections should be completed in 3.2 m (10 feet) or 7.5 m (20 feet) incremental sections with application as detailed in Figure 3—4.

3.4.2 Wind Turbine Rotor Blades

Wind turbine rotor blades should be marked, front and back, with three bands of orange and white paint beginning with an orange band at each tip, the bands being approximately the same width as those on the supporting tower, as indicated in Figure 3-5.

The remaining inner blade area may be any colour.

3.5 *Marking of Power Lines*

3.5.1 Support Structures

Support structures of power lines should be painted in alternate bands of orange and white in accordance with section 3.4, and be clear of trees and brush insofar as practicable so as to be clearly visible in each direction from

which an aircraft is likely to approach.

3.5.2 Shore and Tower Base Markers

Where according to an Aeronautical Evaluation the markings of support structures would not clearly indicate the presence of aerial wire and cables, the shore and tower base markers, as indicated in Figure 3-3, should be painted orange and white, and be either of the panel or pole type.

3.5.3 Aerial Cable Markers

Where according to an Aeronautical Evaluation other methods of marking are inadequate or not practicable, aircraft warning markers should be displayed on aerial wires and cables, as indicated in Figure 3-3 and specified below:

(a) Dimensions - Cable spherical markers should be 50 cm (20 inches), 75 cm (2.5 feet) or 150 cm (5.0 feet ± 15 cm (0.5 feet)) in diameter.

Other dimensions may be acceptable as determined by an Aeronautical Evaluation as providing adequate visibility. Refer to section 2.1.

(b) Spacing - The 50 cm (20 inch) diameter spherical markers should be spaced at intervals of approximately 30 m (100 feet). The 75 cm (2.5 feet) diameter spherical markers and conical markers should be spaced at intervals of approximately 45 m (150 feet). The 150 cm (5 feet) diameter spherical markers should be spaced at intervals of 90 m (300 feet) to 120 m (400 feet). Where the associated span is relatively short, not less than two markers should be used. The markers should be displayed on the highest wire or by other means at the same height.

(c) Staggered Installation - Where there is more than one wire at the highest level, the spheres may be installed alternately along each wire, as indicated in Figure 3-3, as long as the distance between adjacent markers meets the spacing standard. This method will allow the weight and wind loading factors to be distributed.

(d) Pattern - Overhead wires should be marked by alternating solid colour spheres of orange and white. An orange sphere should be placed at each end of the overhead wire and spacing adjusted to accommodate the rest of the spheres. When less than four spheres are needed, they should be orange.

An alternating colour scheme is the most conspicuous pattern against all backgrounds.

3.5.4 Lighting for Day Marking

Where support structures or a power line crossing are assessed in an Aeronautical Evaluation as likely to be inadequately marked by painting and markers, the support structures should be lighted for day marking by the use of medium or high intensity white flashing obstruction lighting in accordance with the standards specified in Chapter 6 or 7, as the case may be.

CHAPTER 4 - DAY/NIGHT LIGHTING

4.1 *Lighting Systems*

Lighting is primarily installed on obstructions in order to warn pilots of a potential collision during nighttime operations. If the lighting is of sufficient intensity, however, it may also serve to give warning during daytime operations and may be approved, by way of an Aeronautical Evaluation, in lieu of other means of day marking.

Any light required under these Standards to be used for day or night obstruction lighting should comply with the specifications of Appendix B governing design requirements and quality assurance tests.

Obstruction lighting displayed on structures consists of one of the systems described in the following provisions.

4.1.1 Red Obstruction Lighting System

Subject to section 4.1.2, a red obstruction lighting system should be used for night marking on structures 150 m (500 feet) AGL or less, and consists of steady burning aviation red lights as illustrated in Figure 5-1(a) and flashing aviation red beacons as illustrated in Figure 5-1(b), when orange and white paint is required to be used for day marking.

4.1.2 Medium Intensity White Flashing Obstruction Lighting System

A medium intensity white flashing obstruction lighting system should have an omnidirectional photometric output and automatically selected intensity modes of day/twilight (20,000 effective candela) and night (2,000 effective candela).

(a) Medium intensity white flashing obstruction lighting systems may be used instead of a red obstruction lighting system and in place of high intensity white flashing obstruction lighting systems, including those required for the supporting structures of catenary wires, where an Aeronautical Evaluation assesses such substitution as acceptable. When used on supporting structures of catenary wires, reference to the standards specified in Chapter 8 with the exception of intensity and beam spread, should be made.

(b) Where a medium intensity white flashing obstruction lighting system is operated 24 hours a day on obstructions 150 m (500 feet) AGL or less, daytime marking standards do not apply.

(c) A medium intensity white flashing obstruction lighting system may be used on structures exceeding 150 m (500 feet) AGL only if daytime marking is also used.

(d) Because of possible distracting or disabling glare to motorists, vessel operators, and pilots on approach to an airport, a medium or high intensity white flashing obstruction lighting system should not be installed at heights less than 60 m (200 feet) AGL, unless assessed as acceptable in an Aeronautical Evaluation.

(e) Where the height of a structure necessitates the installation of a high intensity white flashing obstruction lighting system, a medium intensity white flashing obstruction lighting system may be used to mark its appurtenances, in accordance with the standards specified in Chapter 7.

4.1.3 High Intensity White Flashing Obstruction Lighting System

Subject to section 4.1.2, a high intensity white flashing obstruction lighting system should have a unidirectional photometric output and automatically selected operational modes for day (200,000 effective candela or 100,000 effective candela for support structures of catenary lines), twilight (20,000 effective candela) and for night (2,000 effective candela).

(a) A high intensity white flashing obstruction lighting system should be used only for the lighting of a structure exceeding 150 m (500 feet) AGL in height, unless assessed as necessary for a lower structure in an Aeronautical Evaluation. When this system is operated 24 hours a day, daytime marking standards do not apply.

(b) A high intensity white flashing obstruction lighting system should be either of two types:

(i) **Simultaneously flashing levels of lights** - Where there is an appurtenance greater than 12 m (40 feet) above a structure requiring high intensity white flashing lighting, a medium intensity omnidirectional white flashing light unit should be installed on top of the appurtenance and flash in unison with the levels of high intensity obstruction lights as specified in Chapter 7; or

(ii) **Sequentially flashing levels of lights installed on the support structures of an extensive span of transmission lines (catenary) over rivers, canyons and deep valleys** - The lights should be controlled in a fashion such that there is a unique system display to indicate the top of the support structures and lowest elevation of the catenary, as specified in Chapter 8.

4.1.4 Dual Lighting

Where, due to glare problems, it is not practical to install medium or high intensity white flashing obstruction lighting systems for nighttime marking, a

dual lighting system consisting of red obstruction lighting for nighttime marking and the applicable white flashing obstruction lighting for daytime marking should be installed. Subject to the paragraphs 4.1.2(b) and (c), when this type of dual lighting system is used, daytime obstruction marking standards do not apply.

4.2 *General Provisions*

4.2.1 Temporary Obstruction Lights

(a) When a likely hazard to aviation safety is present during the construction of a structure, at least two obstruction lights should be installed at the uppermost part of the structure so as to permit unobstructed viewing of at least one light.

(b) Wherever an Aeronautical Evaluation assesses the type of obstruction lighting system that would be the permanent installation for the completed structure, the temporary lighting should be of the same type. In addition, as the height of the structure exceeds each level at which permanent obstruction lights will be required, two or more similar lights should be installed at that level. The lights should be positioned so as to ensure unobstructed viewing of at least one light at each level by a pilot on a potential collision course.

(c) Except for periods when they would interfere with construction, temporary red lights should be operated during periods of darkness and reduced flight visibility. Temporary high or medium intensity white lights should be operated 24 hours a day or until all of the permanent obstruction lights are in operation. If practicable, the permanent obstruction lights should be installed and operated at each level as construction progresses.

(i) **Aviation Red Obstruction Lights** - Each steady burning temporary light should emit at least 32.5 candela of aviation red light in all horizontal directions.

(ii) **White Obstruction Lights** - Each temporary light should conform to the standards specified in Chapters 7 and 8, as applicable. The flashes of various fixtures on a structure do not have to be simultaneous.

(d) When the installation of temporary lights is not possible, floodlighting may be used.

4.2.2 Temporary Construction Equipment

Since there is such a variance in construction cranes, derricks, oil and other drilling rigs, it is recommended to consider each case individually.

4.2.3 Floodlighting

A moored balloon, chimney, church steeple or similar obstruction not exceeding 150 m (500 feet) AGL may be floodlit by means of fixed search light projectors that should be installed at three or more equidistant points

about the base of the obstruction and provide an average illumination of 150 lux over the top one-third of the obstruction.

4.2.4 Group of Obstructions

If individual objects within a group of obstructions are not the same height and are spaced more than 45 m (150 feet) apart, the prominent objects within the group should be lighted in accordance with the standards for individual obstructions of a corresponding height. In addition, at least one flashing red beacon or medium intensity white light should be installed at the top of a prominent centre obstruction.

However, if there is no prominent centre obstruction, then an Aeronautical Evaluation will be performed to assess the location of the applicable beacons.

4.2.5 Modified Ground Level

The elevation of the tops of the buildings in congested areas should be used as the equivalent of the ground level when determining the proper number of light levels required to adequately light an obstruction.

4.2.6 Monitoring of Obstruction Lighting

Although some obstruction lighting systems have redundant features, close monitoring by visual or automatic means remains an essential aviation safety feature. Hence, the following standard.

Obstruction lighting systems should be closely monitored by visual or automatic means as follows:

(a) obstruction lighting without automatic monitoring should be visually monitored once every 24 hours;

(b) where obstruction lighting is not accessible for visual monitoring, a properly maintained automatic monitor should be used to provide indication that the system or portion thereof is not functioning properly. The monitor should be designed to register the malfunction of any light on the obstruction regardless of its position;

(c) the monitor output should be located in an area generally occupied by authorized personnel. Both red and white light systems should be monitored;

(d) all obstruction lighting should be visually inspected on a regular basis. Lamps should be replaced after being operated for not more than 75 percent of their rated life. Flashtubes are exempted from this replacement standard; and

(e) the owner/operator of the obstruction should advise the nearest regional Civil Aviation authority as specified in Appendix A, as soon as possible, of any obstruction lighting unserviceabilities so that an appropriate NOTAM action can be initiated.

4.2.7 Glare from Flashing Obstruction Lights

(a) Where obstruction lighting is likely to distract operators of aircraft, railway trains, surface vessels, and other vehicles, or if the lighting will be in a congested residential area, a suitable shield should be installed on the appropriate lights to minimize the adverse effects of the light.

(b) In the proximity of navigable waterways or along coastal regions, the installation of an obstruction lighting system should be coordinated with marine authorities in order to avoid interference with marine navigation.

4.2.8 Photometric Specification

White flashing obstruction lighting should conform to the specifications of photometric output of light fixtures as shown in Tables 6-1, 7-1 and 8-1 which specify the requirements for effective intensity in the horizontal and vertical beam spreads. The effective intensity should be determined by standard integration formulas for strobe-type lights.

CHAPTER 5 - RED OBSTRUCTION LIGHTING SYSTEMS

5.1 *Characteristics of Red Obstruction Lighting*

Unless otherwise specified in these standards, a red obstruction lighting system should consist of a combination of steady burning aviation red lights and flashing red beacons.

5.1.1 Maintenance

To ensure the proper light output of a flashing red beacon or steady burning red light, the operating voltage provided at the lamp socket should not vary by more than 3 percent from the rated voltage of the lamp. This voltage should be measured during the hours of normal operation. When the lamp is replaced, the same lamp or an approved alternate should be used.

5.1.2 Operation of Red Obstruction Lights

A red obstruction lighting system should be operated continuously or turned on and off by means of an acceptable automatic photoelectric control device having an on/off setting between 300 lux and 600 lux of northern sky illuminance.

5.2 Flashing Red Beacons

A flashing red beacon used in a red obstruction lighting system should:

(a) produce aviation red light;

(b) produce red light flashes having each a peak effective intensity of at least 1,500 candela, measured at any horizontal azimuth angle;

(c) have a flashing mechanism that does not permit more than 40 nor fewer than 20 flashes per minute; and

(d) be lighted from one-half to two-thirds of the total on/off cycle.

5.3 *Steady Burning Red Lights*

The intensity of light emitted by each lamp within a steady burning red light unit should not be less than 32.5 candela in aviation red colour, with distribution of light as indicated in Table 5-1 (refer to Figure 5-1).

Table 5-1

ANGLE (degrees above horizontal)	INTENSITY (percentage of total intensity)
-15 to 0	5
0 to 2.5	40
2.5 to 12.5	100
12.5 to 15	40
15 to 30	15
30 to 90	5

5.3.1 Mandatory Use of Dual Steady Obstruction Lights

For the purposes of this Chapter, a "single light unit" means a light unit containing a single lamp only, and a "dual light unit" means a light unit containing two lamps.

The provision of two lamps under this standard is for reason of redundancy.

Subject to section 5.3.2, dual light units containing at least two lamps, each enclosed within an aviation red globe should be used as follows:

(a) a red obstruction dual light unit should be installed as a top light unit, at each end of a row of single light units at the top level, in areas or locations where the failure of a lamp would cause the obstruction to be totally unlighted when viewed by the pilot of an approaching aircraft;

(b) the top level of a structure 45 m (150 feet) AGL or less, should have one or more dual lights units installed at the highest point and operated simultaneously; and

(c) when a malfunction of a single light unit could create an unsafe condition, and in remote areas where maintenance cannot be performed within a reasonable period of time, at least two dual light units should be installed at each intermediate level on a structure. Both light units should be operated simultaneously or a transfer relay may be used to switch to the spare light should the active side fail.

5.3.2 Permitted Use of Single Red Obstruction Light Units

Where more than one steady burning red light is required to be installed either horizontally or vertically for red obstruction lighting, a single red light unit may be used:

(a) on the top level of structures such as airport electronic navigational aid buildings and horizontal structures such as building roof outlines; and

(b) on intermediate levels of skeletal and solid structure having more than one level of lighting and more than one single light unit on each level;

provided that maintenance for lamp replacement or repair can be accomplished within a reasonable period of time.

5.4 *Appurtenances*

5.4.1

The location of the light levels to be installed on a red obstruction lighting system should be a function of the combined height of the main structure and any appurtenance.

5.4.2

Where an appurtenance is less than 12 m (40 feet), the determined location of intermediate light levels should be maintained, but the top light may be placed at the base of the appurtenance. If such placement does not allow unobstructed viewing of the top light by the pilot, additional lights should be installed.

5.4.3

Where the appurtenance is more than 12 m (40 feet), the top light should be installed on the top of the appurtenance. If the appurtenance is not capable of carrying the light unit, the light may be mounted on the top of an adjacent mast.

5.5 *Poles, Towers and Similar Skeletal Structures*

The following standards apply to communications towers, supporting structures or overhead transmission lines, and similar skeletal structures.

5.5.1 Top Mounted Obstruction Light

(a) On structures 45 m (150 feet) AGL or less, two or more steady burning lights should be installed.

(b) On structures exceeding 45 m (150 feet) AGL, at least one red flashing beacon should be installed.

5.5.2 Lights Mounted at Intermediate Levels

The number of levels of lights should be in accordance with Figure 5-2. The number of lights at each level should be determined by the shape and height of the structure. The lights should be installed so as to provide an unobstructed view of at least one light by a pilot on a potential collision course. More specifically:

(a) in the case of steady burning red lights,

(i) for structures 107 m (350 feet) AGL or less, two or more steady burning red lights should be installed on diagonally or diametrically opposite positions,

(ii) for triangular shaped structures 107 m (350 feet) AGL or less, two red light units, single or double, should be installed provided that at least one can be viewed unobstructed from any normal angle of approach. If this is not possible, then three red light units should be installed, one on each apex of the triangular cross-section, and

(iii) for structures exceeding 107 m (350 feet) AGL, steady burning red lights should be installed on each outside corner at each level; and

(b) in the case of flashing red beacons on structures exceeding 107 m (350 feet) AGL but not exceeding 150 m (500 feet) AGL, a red flashing beacon should be installed within the structure proper, except that if the structural members impair the viewing of the beacon, then two flashing red beacons should be installed on the outside of diagonally or diametrically opposite positions at each level.

5.6 *Chimneys, Flare Stacks and Similar Solid Structures*

5.6.1 Top Mounted Red Obstruction Lights

Red Obstructions lights mounted at the top of chimneys, flare stacks or similar solid structures should meet the following requirements:

(a) on structures 45 m (150 feet) AGL or less, at least three steady burning red obstruction lights should be installed at regular intervals on the horizontal plane at or near the top, in a manner to ensure an unobstructed view by the pilot of an approaching aircraft;

(b) on structures exceeding 45 m (150 feet) AGL, two or more flashing red beacons should be installed in a manner to ensure an unobstructed view by the pilot of an approaching aircraft; and

(c) on chimneys, red lights may be displayed as low as 6 m (20 feet) below the tops of chimneys in order to avoid the obscuring effect of the deposits generally emitted by this type of structure. These lights should be readily accessible for cleaning and lamp replacement.

5.6.2 Mounting at Intermediate Levels

(a) In the case of steady burning lights, at least three lights should be mounted on each intermediate level to ensure an unobstructed view of at least two lights on each level by the pilot of an approaching aircraft.

The recommended number of light levels is contained in Figure 5-2.

(b) In the case of flashing beacons, the required number of beacon levels should be in accordance with Figure 5-2. Where the structure

exceeds 107 m (350 feet) AGL, two or more flashing beacons should be installed on each level to allow an unobstructed view of at least one beacon by the pilot of an approaching aircraft.

5.7 *Prominent Buildings and Similar Extensive Structures*

Individual obstructions having a similar height above ground and located not more than 45 m (150 feet) apart within a group of obstructions may be considered as an extensive obstruction for lighting purposes, in which case they should display steady burning red lights to indicate the extent of the obstruction as specified from section 5.7.1 to section 5.7.3 inclusively.

5.7.1 Structures 45 m (150 feet) or Less in Both Horizontal Dimensions

If the extensive obstruction is 45 m (150 feet) or less in both horizontal dimensions, at least one steady burning obstruction light should be displayed on the highest point at each end of the major axis of the obstruction. If this method of lighting is impractical because of the shape of the obstruction, then a double obstruction red light may be displayed in the centre of the highest point (refer to Figure 5-4).

5.7.2 Structures Exceeding 45 m (150 feet) in any Horizontal Dimension

If the extensive obstruction exceeds 45 m (150 feet) AGL in any horizontal dimension, at least one steady burning obstruction light should be displayed for each 45 m (150 feet) or fraction thereof, of the overall length of the major axis of the obstruction. At least one of these lights should be displayed on the highest point at each end of the obstruction. Additional lights should be displayed on the highest points along the edge between the end lights. If there are two or more edges of the same height on an obstruction located near a landing area, the edge nearest the landing area should be lighted (refer to Figure 5-4).

5.7.3 Structures Exceeding 45 m (150 feet) AGL

Steady burning obstruction lights should be installed at the top of an obstruction as specified in sections 5.5.1 and 5.5.2. At intermediate levels, steady burning lights should be displayed for each 45 m (150 feet) or fraction thereof. The position of these lights on the vertical plane should be equidistant between the top lights and the ground level as the shape and type of obstruction will permit. One such light should be displayed at the outside corner on each level with the remaining lights evenly spaced between the corner lights (Refer to Figure 5-4).

5.8 *Bridges*

Obstruction lighting for bridges that are assessed as likely hazards to aviation safety are subject to an Aeronautical Evaluation.

Red obstruction lighting or medium/high intensity white flashing obstruction lighting, as applicable, should be installed on bridges as shown in Figure 5-5.

5.9 *Wind Turbines*

A wind turbine should have a flashing red beacon mounted on the highest practical point of the turbine as indicated in Figure 5-6.

Figure 5-1 Red Obstruction Lighting Light Units

Figure 5-2 Red Obstruction Lighting Light Levels

Figure 5-3 Red Obstruction Lighting Towers, Poles And Similar Structures

Figure 5-4 Red Obstruction Lighting Prominent Buildings

Figure 5-5 Obstruction Lighting Bridges

Figure 5-6 Wind Turbines

CHAPTER 6 - MEDIUM INTENSITY WHITE FLASHING OMNIDIRECTIONAL OBSTRUCTION LIGHTS

6.1 *Application*

The standards contained in this Chapter govern the use of medium intensity lighting.

Refer to Chapter 8 for additional standards applicable to catenaries.

6.2 *Characteristics*

6.2.1 Photometric Output

A medium intensity white flashing system should provide white flashing output with the photometric characteristics specified in Table 6-1.

Table 6-1

Operation Mode	Minimum Effective Intensity (candelas)	Peak Effective Intensity (candelas)	Minimum Beam Spread (degrees) Horizontal - Vertical
day/twilight night	7500 750	20,000 (1) 2,000 (1)	360 (2) 3 (3) 360 (2) 3 (3)

Note (1): Tolerance of plus or minus 25%.

Note (2): Multiple light units may be required to achieve horizontal coverage where the structure would partially shield a single unit.

Note (3): Refer to paragraph 6.3.3.

6.2.2 Flash Rate

The flash rate of a medium intensity white flashing system should be 40 flashes per minute, plus or minus 5 percent.

6.2.3 Flash Duration

The flash duration of a medium intensity white flashing system should be 0.1 to 0.25 seconds for the night intensity only. When the effective flash duration is achieved by a group of short flashes, the short flashes should be emitted at a rate of not less than 30 per second.

6.2.4 Intensity Control

The medium intensity white flashing system should be controlled so as to provide day, twilight and night modes of operation, in conformity with the values of Northern sky illuminance specified in Table 6-2.

Table 6-2

MODE	ILLUMINANCE CHANGE (lux)
day to twilight	between 300 and 600
twilight to night	between 20 and 50
night to twilight	between 20 and 50
twilight to day	between 300 and 600

6.3 *Use of Medium Intensity Lighting*

6.3.1 Alternative to Red Obstruction Lighting

The medium intensity white flashing obstruction lighting system may be used as an alternative to the red obstruction lighting system. Refer to Chapter 5.

6.3.2 Appurtenances

A medium intensity white flashing omnidirectional light unit should be used for top indication of appurtenances higher than 12 m (40 feet) where the main structure is required under these standards to have high intensity white flashing obstruction lighting.

6.3.3 Vertical Aiming

The actual beam spread of manufactured light units may be in excess of the minimum requirement of Table 6-1.

For installation, the lower limit of the beam should be set between minus 1 degree and plus 0.5 degrees of the horizontal, the lower limit being the point at which the beam intensity exceeds the minimum requirements.

6.3.4 Levels of Light Units

The levels of light units for medium intensity white flashing obstruction lighting should meet the specifications of Figure 6-2.

This figure is similar to Figure 5-2 for red obstruction lighting, except that the lowest mounting height normally is limited to 60 m (200 feet) AGL. Refer to paragraph 4.1.2(c).

6.4 *Supporting Structures of Catenary Wires*

Medium intensity white flashing obstruction lighting may be used to warn the pilot of an approaching aircraft of the presence of supporting structures of catenary wires, provided that no portion of the obstruction exceeds 150 m (500 feet) AGL, and provided that an Aeronautical Evaluation assesses it as acceptable. In such instances the light units should be mounted and operated sequentially as specified in Chapter 8.

6.5 *Flashtube Replacement*

The flashtubes in a light unit should be replaced upon failure, when the peak effective intensity falls below 15,000 effective candela (20,000 candela minus 25 percent), or at the manufacturer's recommended intervals, whichever occurs first.

Figure 6-1 Medium Intensity White Flashing Obstruction Lighting Typical Light Unit

Figure 6-2 Medium Intensity White Flashing Obstruction Lighting Mounting Levels

CHAPTER 7 - HIGH INTENSITY WHITE FLASHING OBSTRUCTION LIGHTS - GENERAL

7.1 *Application*

The standards contained in this Chapter govern the use of high intensity lighting. In addition, Chapter 8 contains specific lighting standards applicable to the support structures of catenary wire crossings.

7.2 *Characteristics*

7.2.1 Typical Light Units

In a high intensity white flashing obstruction lighting system, a minimum of three light units should be installed at each mounting level in order to provide 360 degree coverage.

This standard stems from the fact that individual light units in a high intensity white flashing system are not omnidirectional.

7.2.2 Photometric Output

A high intensity white flashing obstruction lighting system should provide white flashing output with the photometric characteristics specified in Table

7-1.

Table 7-1

Operation Mode	Minimum Effective Intensity (candelas)	Peak Effective Intensity (candelas)	Minimum Beam Spread (degrees) Horizontal - Vertical
day	100,000	200,000 (1)	360 (3) 3 to 7
twilight	7500	20,000 (2)	360 (3) 3 to 7
night	750	2,000 (2)	360 (3) 3 to 7

Note (1): Minimum.

Note (2): Tolerance of plus or minus 25%.

Note (3): Effective beam coverage.

7.2.3 Beam Spread

A relatively narrow vertical beam spread should be emitted as specified in Table 7-1 to provide full light intensity at possible collision altitudes with the structure so that persons on the ground or at altitudes sufficiently above the structure receive only minimum light. The actual horizontal beam spread of manufactured light units should be either 90 or 120 degrees, such that either 3 or 4 lights are needed to provide the 360 degree effective coverage at each level.

7.2.4 Flash Rate

All light units should flash simultaneously at 40 flashes per minute, plus or minus 5 percent.

7.2.5 Flash Duration

The flash duration of a high intensity white flashing system should be 0.1 to 0.25 seconds for the night intensity only. When the effective flash duration is achieved by a group of short flashes, the short flashes should be emitted at a rate of not less than 30 per second.

7.2.6 Intensity Control

The high intensity white flashing obstruction lighting should be controlled in a manner to provide day, twilight and night modes of operation. Control should be such that the operation for a particular mode occurs for the values of Northern sky illuminance specified in Table 7-2.

Table 7-2

Mode	Illuminance Change (lux)

day to twilight	between 300 and 600
twilight to night	between 20 and 50
night to twilight	between 20 and 50
twilight to day	between 300 and 600

7.3 *Vertical Aiming*

7.3.1 Installation

The top light should be set at zero degrees to the horizontal and all other lights should be installed in accordance with the specifications of Table 7-3.

The manufacturing specifications provide for the peak intensity of the light beam to be adjusted from zero to 8 degrees above the horizon.

Table 7-3

Height of Light Unit In metres (feet) AGL	Degrees of Elevation
exceeding 150 (500)	0
122 to 150 (401 to 500)	1
90 to 122 (301 to 400)	2
less than 90 (300)	3

7.3.2 Higher Aiming

Where terrain, nearby residential areas or other situations dictate, the light beam should be elevated further above the horizon. The main beam of light at the lowest level should not strike the ground closer than 5 kilometres (3 miles) from the structure. If additional adjustments are necessary, the lights should be individually adjusted upward, in one degree increments, starting at the bottom.

CAUTION: Higher elevation angles may reduce conspicuity by raising the beam above the collision course flight path. This adjustment should not derogate from the intended purpose of the lighting system.

7.3.3 Special Cases

Where a high intensity white flashing lighting system is installed on a structure located near highways, waterways, airport approach areas and similar sensitive areas, shielding or an adjustment to the vertical or horizontal aiming may be approved through an Aeronautical Evaluation to ensure that the lights do not distract or otherwise cause a hazard to motorists, vessel operators, or to pilots on an approach to an airport.

CAUTION: This adjustment should not derogate from the intended purpose of the lighting system.

7.4 Number of Light Units per Level

At least three lights should be installed on the outside diameter of the

structure. The light units should be installed on each level in a manner to ensure an unobstructed view of the system by a pilot.

The number of light units recommended per level (except for the supporting structures of catenary wires of cable spans and buildings) is dependent upon the horizontal coverage from each light unit and is further dependent upon the average outside diameter of the specific structure and the horizontal beam width of the light unit. The number of light units indicated in Table 7- 4 are the minimum.

Table 7-4

Structure Diameter Metres (feet)	Light Units per Level
less than 6 (20)	3
6 to 30 (20 to 100)	4
31 to 60 (101 to 200)	6
more than 60 (200)	8

7.5 *Relocation or Omission of Light Units*

Light units should be installed on a structure in such a manner that the light distribution and intensity is not disrupted by the structure.

(a) Lowest Level of Lights: The lowest level of light units may be installed at a higher elevation than normal on a structure if the surrounding terrain, trees or adjacent buildings would obscure the lights. In exceptional circumstances, the lowest level of lights may be assessed through an Aeronautical Evaluation as not being necessary.

(b) Two Adjacent Structures: When two structures are situated 150 m (500 feet) or less from each other and the light units are installed at the same levels, the sides of the structures facing each other need not be lighted; therefore, the inboard lights may be omitted, provided that all lights on both structures flash simultaneously. Minor adjustments in the vertical placement of the lights to either or both of the structure's intermediate levels of lights may be approved through an Aeronautical Evaluation in order to place the lights on the same horizontal plane. Where one structure is higher than the other, one or more complete level of lights should be installed on that part of the higher structure which extends above the lower structure. If the structures are of such height that the levels of lights cannot be placed in identical horizontal planes, then the light units should be placed in such a way that the centre of the horizontal beam patterns of each structure does not face toward the adjacent structure.

For example, structures situated North and South of each other should have the light units on both structures installed on a Northeast/Southwest and Northwest/Southeast orientation.

7.6 *Three or More Adjacent Structures*

The feasibility of treating three or more adjacent structures as an individual structure or as a complex of structures is normally assessed through an Aeronautical Evaluation that will take into consideration the location, height and spacing of structures in relation to one another.

7.7 *Chimneys, Flare Stacks and Similar Structures*

7.7.1 Number of Light Levels

The number of levels of light depends upon the height of the structure and should meet the specifications of Figure 7-4.

7.7.2 Location of Top Level Lights

The top level of light units should be installed on the highest point of the structure, except in the case of chimneys, where they may be installed as low as 6 m (20 feet) below the top of the chimney, in order to minimize the deposit build-up due to the emission from this type of structure.

7.8 *Radio and Television Towers and Similar Structures*

7.8.1 Number of Light Levels

The number of light levels required on radio and television towers and similar structures depends upon the height of the structure, excluding antennas and similar appurtenances, and should meet the specifications of Figure 7-4.

7.8.2 Use of Ice Shields

Where icing is likely to occur, metal grates or similar protective ice shields should be installed directly over each light unit to prevent accumulations of ice or falling ice from damaging the light units, provided that no light is obscured from view to pilots of approaching aircraft.

7.8.3 Top Level of Lights

One level of lights should be installed at the highest point of the structure. If the highest point is a rod or antenna incapable of supporting a lighting system, the top level of lights should be installed at the highest portion of the main skeletal structure. Due to the type of construction of some towers, however, where the guy wires come together at the top, this level of lights may be installed as low as 3 m (10 feet) below the top. If the rod, antenna or similar appurtenance exceeds 12 m (40 feet) above the main structure, a medium intensity white flashing obstruction light should be mounted on the top of this appurtenance. If the appurtenance, such as a whip antenna, cannot support a medium intensity white flashing obstruction light, one or more of these lights may be installed on a pole adjacent to the appurtenance so as to provide an unobstructed view of at least one light.

7.9 *Prominent Buildings and Similar Extensive Structures*

Light units should be installed on the top of prominent buildings and similar extensive structures, in a manner so as to provide an effective 360 degree protective coverage.

The number of light units depends upon the side dimensions of the structure as well as the actual beam spread of the light units, as specified below.

7.9.1 Obstructions 60 m (200 feet) or Less in Both Horizontal Dimensions

At least three light units should be installed at the highest portion of the structure in a manner to ensure that at least one light is visible to the pilot of an approaching aircraft. The light units may be mounted on a single pedestal at or near the centre of the obstruction. If the light units are placed more than 3 m (10 feet) from the centre point, a minimum of four light units should be used.

7.9.2 Obstructions Exceeding 60 m (200 feet) in One Horizontal Dimension

Two light units should be placed on each of the shorter sides. These light units may either be installed adjacent to each other at the midpoint of the edge of the obstruction or near each corner and directed horizontally in a manner to give 180 degrees of coverage to each end of the obstruction. One or more light units should be installed along the overall length of the major axis at approximately equal intervals not exceeding 30 m (100 feet) from the corners or from each other, as specified in Figure 7-6.

7.9.3 Obstructions Exceeding 60 m (200 feet) in Both Horizontal Dimensions

Light units should be equally spaced along the overall perimeter of the obstruction at intervals of 30 m (100 feet) or fraction thereof.

7.10 *Flashtube Replacement*

The flashtubes in the light units should be replaced upon failure, or when the effective daytime intensity falls below the minimum 200,000 candela (or 100,000 candela in the case of systems installed on the supporting structures of overhead catenary wires), or at the manufacturer's recommended intervals, whichever occurs first.

Figure 7-1 High Intensity White Flashing Obstruction Lighting Typical Light Unit

Figure 7-2 High Intensity White Flashing Obstruction Lighting

Figure 7-3 High Intensity White Flashing Obstruction Lighting Location/Omission Of Lighting For Chimneys

Figure 7-4 High Intensity White Flashing Obstruction Lighting

Figure 7-5 High Intensity White Flashing Obstruction Lighting

Figure 7-6 High Intensity White Flashing Obstruction Lighting Lighting On Prominent Buildings (Top Level)

CHAPTER 8 - HIGH INTENSITY WHITE FLASHING OBSTRUCTION LIGHTING FOR SUPPORTING STRUCTURES OF CATENARY WIRES

8.1 *Purpose*

The purpose of lighting the supporting structures of catenary wires with a unique sequentially flashing lighting system is to warn pilots of the presence of the supporting structures themselves as well as to alert them that the structures support one or more catenary wires.

8.2 *Characteristics*

8.2.1 Photometric Distribution

A high intensity white flashing obstruction lighting system required for catenary wires should have the photometric characteristics specified in Table 8-1.

Table 8-1

Operation Mode	Minimum Effective Intensity (Candelas)	Peak Effective Intensity (Candelas)	Beam Spread (Degrees)	
			Top - Middle & Bottom	
day	50,000	100,000 (1)	360 - 180	3 to 7
twilight	7,500	20,000 (2)	360 - 180	3 to 7
night	750	2,000 (2)	360 - 180	3 to 7

Note (1): Minimum

Note (2): Tolerance of plus or minus 25%.

8.2.2 Flash Rate

Each series of flashes should be repeated 60 times (plus or minus 5 percent) every minute.

8.2.3 Flash Duration

The duration of each flash should be 0.1 to 0.25 seconds for the night intensity only. When the effective flash duration is achieved by a group of short flashes, the short flashes should be emitted at a rate of not less than 30 per second.

8.2.4 Flash Sequence

The flash sequence between the three levels of light units should be as follows: middle to top, top to bottom and bottom to middle. All lights on the same level should flash simultaneously.

8.2.5 Intervals Between Flashes

The time delay between flashes is designed to present a unique system display.

The off interval between the top level of light units and the bottom level should be twice as long as the interval between the middle level and the top level. The interval between the end of one sequence and the beginning of the next should be approximately 10 times the interval between the middle level and the top level. The middle level of obstruction lights may be omitted where the catenary sag is less than 30 m (100 feet). In such cases, the flash sequence should be from bottom level to top level and the off interval between sequences should be four times as long as the interval between the bottom level and the top level.

8.2.6 Intensity Control

The intensity control should meet the standard specified in Chapter 7, section 7.2.6.

8.2.7 Synchronisation

Although desirable, the corresponding light levels on associated supporting towers of a catenary crossing need not flash simultaneously.

8.2.8 Horizontal Coverage

The top light units should provide 360 degree horizontal coverage. The middle light unit and bottom light unit should be installed so as to provide a minimum of 180 degrees coverage centred along the catenary. Where a catenary crossing is situated near a bend in a river, a canyon or similar geographical feature, or is not perpendicular to the flyway, the horizontal beam pattern should be directed as necessary to provide the most effective light coverage to pilots approaching from either direction of the catenary wires.

8.3 Levels of Light Units - Two Supporting Structures

A system of three levels of sequentially flashing light units should be installed on each supporting structure or adjacent terrain. One level of three light units should be installed at the top of the structure, one light unit at the height of the lowest point of the catenary and one light unit at approximately midway between the other two levels of lights. The middle level should be a minimum of 15 m (50 feet) from the other two levels. The middle light unit may be omitted when the distance between the top and the bottom light levels is less than 30 m (100 feet). If the installation presents a potential danger for maintenance personnel or when it is necessary to protect against lightning, the top level of light units may be mounted as low as 6 m (20 feet) below the highest point of the structure.

8.4 *Variation*

8.4.1

Where dictated by the structural limits of the towers or by the surrounding terrain, a tolerance of 20 percent from uniform spacing may be applied to the vertical and horizontal arrangements of the lights.

8.4.2

If the base of one or more supporting structures is higher than the lowest point in the catenary, such as in the case of a canyon crossing, one or more light units should be installed on the adjacent terrain at the level of the lowest point in the span, in accordance with the specifications of Figure 8-1.

8.5 *Omission of Markings*

Where high intensity white flashing obstruction lighting is used on a catenary on a 24 hours basis and provides 360 degree coverage about the supporting structure, the marking standards applicable to that structure may be omitted.

8.6 *Levels of Light Units - Three or More Supporting Structures*

Where a catenary wire crossing requires three or more supporting structures, the inner structures should be equipped with three or four light units per level to provide a full 360 degrees of coverage, in accordance with the specifications of Table 7-4.

The exact number of light units per level depends upon the beam pattern of the particular light and the area to be covered, as determined by the possible directions of approach and upon the effective diameter of the obstruction at the level.

8.7 *Flashtube Replacement*

The flashtubes in a light unit should be replaced upon failure, when the effective day peak intensity falls below 100,000 candela or at the manufacturer's recommended intervals, whichever occurs first.

8.8 Area Surrounding Support Structures

The area in the immediate vicinity of the base of the supporting structures should be clear of all items and objects of natural growth that could interfere with the line-of-sight between the pilot and the obstruction lighting.

Figure 8-1 High Intensity White Flashing Obstruction Lighting Supporting Structures of Catenary Lines

CHAPTER 9 - MARKING AND LIGHTING OF MOORED BALLOONS AND KITES

9.1 *Application*

This chapter applies to the marking and lighting of any moored balloon 1.8 m (6 feet) in diameter or 3 cubic metres (115 cubic feet) of gas capacity and of any kite weighing more than 2.27 kg (5 lbs.) that are operated at heights greater than 90 m (300 feet) AGL. In exceptional circumstances, as determined by an Aeronautical Evaluation, this Chapter also applies to balloon and kite operations below 90 m (300 feet) AGL.

9.2 *Marking Requirements*

During daytime, streamers or similar type markers should be attached to mooring lines of balloons and kites to warn airmen of their presence, that are:

(a) displayed at not more than 15 m (50 feet) intervals along the mooring lines beginning at 45 m (150 feet) above the surface of the earth and visible from at least 1.6 km (1 mile);

(b) rectangular in shape, 150 mm (6 inches) wide and 3 m (10 feet) in length; and

(c) of the following colour patterns:

(i) solid orange; or

(ii) alternating orange and white, each colour having triangular shape that combines with the other colour to form a rectangle.

9.3 *Lighting Requirements*

At night, moored balloons and kites should be equipped with the following lighting devices to warn pilots of their presence:

(a) for operations below 150 m (500 feet) AGL, red or white flashing lights of 32.5 candela on moored balloons and on the mooring lines of both balloons and kites, or floodlighting as specified in Chapter 4, paragraph 4.2.3;

(b) for operations above 150 m (500 feet) AGL, white flashes of 500 effective candela or steady burning white lights of equivalent intensity, on moored balloons and on the mooring lines of both balloons and kites;

(c) flashing red and white lights, as determined under paragraphs (a) and (b) above, on the top, nose section, tail section, and on the mooring line/tether cable approximately 5 m (15 feet) below the balloon or kite, so as to define its shape and size, with additional lights equally spaced along the mooring cable's overall length for each 107 m (350 feet), or fraction thereof, commencing at 90 m (300 feet) AGL; and

(d) have an on and off setting of 300 and 600 lux respectively of Northern sky illuminance.

Appendices:

- Appendix A - Transport Canada Aviation Regions
- Appendix B - Obstruction Lighting Specifications
- Appendix C - Sample form (26-0427)

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(Atlantic Region - New Brunswick, Nova Scotia, Prince Edward Island and Newfoundland, including Labrador)

Last updated: 2008-01-30 Important Notices

Part VI - General Operating and Flight Rules

Canadian Aviation Regulations 2008-1

Standard 621.19 Appendix B Obstruction Lighting Specifications

Content last revised: 2000/06/01

1. *Design Requirements*

(a) General

This Appendix sets out the detailed technical design specifications applicable to obstruction marking and lighting standards.

(b) Classification of Obstruction Lights

Name	*Colour*	*Intensity*	*Type*	*Chapter*
CL-810	*Red*	*low*	*Steady burning red lights*	*5*
CL-864	*Red*	*medium*	*Red flashing lights*	*5*
CL-865	*White*	*medium*	*White flashing lights*	*6*
CL-856	*White*	*high*	*White flashing*	*7*
CL-857	*White*	*high*	*White flashing - catenary*	*8*

(c) Definitions

(i) Beam Spread - The angle between the two directions in the vertical or horizontal plane in which the intensity is equal to 50 percent of the minimum specified peak beam effective intensity.

(ii) Vertical Aiming Angle - The angle formed between the horizontal and a line through the centre of the vertical beam spread.

(iii) Steady-Burning Light (Fixed Light) - A light having constant luminous intensity when observed from a fixed point.

(iv) Effective Intensity - The effective intensity of a flashing light is equal to the intensity of a steady-burning (fixed) light of the same colour which produces the same visual range under identical conditions of observation.

(d) Applicable Documents

(i) The following Military Standards and Specifications, as amended from time to time, apply to the specifications contained in this

Appendix, to the extent stipulated below:

MIL-STD-810: Environmental Test Methods

MIL-C-7989: Covers, Light-Transmitting, for Aeronautical Lights, Specification for.

(e) ***Environmental Requirements*** *- Obstruction lighting equipment is designed for continuous operation under the following conditions:*

(i) Temperature: -55° C to +55° C.

(ii) Humidity: 95 % relative humidity.

(iii) Wind: Wind speeds up to 240 km/hr.

(iv) Wind-blown Rain: Exposure to wind-blown rain from any direction.

(v) Salt Fog: Exposure to salt-laden atmosphere.

(f) ***Light Unit*** *- The light unit is compact, lightweight, and designed for easy servicing and lamp or flash tube replacement. Materials used within the light unit are selected for compatibility with their environment.*

(g) ***Light Covers*** *- Light-transmitting covers for light units conform to the requirements of MIL-C-7989.*

(h) ***Light Colours*** *- Red light systems should emit aviation red defined in accordance with the International Commission on Illumination (CIE) chromaticity diagram with the "y" co-ordinate not exceeding 0.335. Xenon flashtube emission is acceptable for white obstruction lights.*

(i) ***Aiming for CL-856 and CL-857 (high intensity white flashing)*** *- CL-856 and CL-857 light units have a method for adjustment of the vertical aiming angle between 0 and + 8 degrees. A spirit level or other device is provided as part of each light unit for setting the elevation angle of the light beam, and an indicator shows the elevation angle with an accuracy of ± 1°.*

(j) ***Control Unit***

Control unit of a lighting system meets the following criteria:

(i) ***White Obstruction Lighting Systems***

(A) ***Medium Intensity Lights*** *- The control unit sets the system's flash rate, flash sequence, and light intensity. The power and control functions may be consolidated in a single box with the light unit or may be distributed into several units.*

(B) ***High Intensity Lights*** *- The control unit sets the system's flash rate, flash sequence, and light intensity. The system is designed for operation with light units located up to 800 m from the*

control unit. If the timing circuit fails, the light units continues to flash randomly or in accordance with Table 6. Failure of an intensity step change circuit will cause all light units to operate at the high intensity step. An override switch is mounted on the control unit to manually control light intensity during maintenance or in the event of a photometric control malfunction.

(C) ***Monitoring*** *- The control unit monitors the specified operating mode of the flash lamp in a system. The operating status of each light unit in the system is displayed at the control unit. The control unit has provisions to permit connection of a remote indicator, supplied by others or as an option, which indicates the system status.*

(ii) ***Red Obstruction Lights*** *- Control units for these light systems are optional. When provided, control units are capable of providing more than one or more of the following functions:*

(A) On/Off photometric control;

(B) Lamp failure monitor/remote display.

(k) ***Input Voltage*** *- The obstruction lighting equipment is designed to operate from the specified voltage ± 10%.*

(l) ***Transient Protection*** *- The power input, control, and monitor interface circuitry is designed to withstand line to ground surges up to 5kv for 10 milliseconds (ms) duration.*

(m) ***Warning Labels*** *- All enclosures which contain voltages exceeding 150 volts have high voltage warning label(s) placed at a conspicuous location(s).Warning labels are in French and English.*

(n) ***Interlock Switches*** *- Interlock switches are incorporated in the control unit and power supplies so that opening the enclosure has the effect of (1) disconnecting incoming power and (2) discharging all high voltage capacitors to 50 volts within 30 seconds.*

(o) ***Component Ratings****.*

(i) ***Discharge Lighting Equipment*** *- All components on discharge lighting equipment, including the flashtube, are designed for ease of servicing and meet performance requirements for a minimum of one year without maintenance.*

(ii) ***Incandescent Lighting Equipment*** *- All components in incandescent lighting equipment, except lamps, are designed to meet performance requirements for a minimum of 1 year without maintenance. Lamps have a minimum rated life of 2000 hours at rated voltage.*

(p) ***Performance Requirements***

(i) ***Photometric***

Lighting systems meet the following photometric requirements:

*(A) **General** - The effective intensity for flashing lights are calculated in accordance with the following formula:*

Where:

I_e = *Effective Intensity (Candelas)*

I = *Instantaneous Intensity (Candelas)*

t_1, t_2 = *Integration limits (seconds).*

The limits of integration are selected so that the value of I_e is maximized.

For discharge flashing lights, the equipment provides the specified light output at the specified temperature extremes as the input voltage simultaneously varies by ± 10% from nominal. The light intensity and beam distribution requirements for obstruction lighting equipment are specified below. All intensities listed are effective intensities (except steady-burning red obstruction lights) measured at the flash rate specified in Table 6.

*(B) **CL-810 (steady burning red) Light Unit** - The CL-810 light unit meets the photometric requirements of Table 1.*

Table 1

Angle (degrees above the horizontal)	Intensity (percentage) (1)
15 to 0	5
0 to 2.5	40
2.5 to 12.5	100
12.5 to 15	40
15 to 30	15
30 to 90	5

***Note (1):** 100 percent is 32.5 candelas.*

*(C) **CL-856 (high intensity white flashing - general) Light Unit** - The beam spread and effective intensity is in accordance with Table 2.*

Table 2

	Beam Spread		
Step	Horizontal (degrees) (1)	Vertical (degrees)	Peak Intensity (candelas)

Day	90 to 120	3-7	270,000 ± 25%
Twilight	90 to 120	3-7	20,000 ± 25%
Night	90 to 120	3-7	2,000 ± 25%

***Note (1)**: Multiple light units may be used to achieve a horizontal coverage of 180 or 360 degrees.*

***Spec Note**: Chapter 7 of this Manual stipulates a minimum peak intensity of 200,000 candelas. The day value of Table 2 is given as 270,000 candelas for which 75 % is 202,500 candelas.*

*(D) **CL-857 (high intensity white flashing - catenary) Light Unit** - The white flashing high intensity light unit has a beam spread and effective intensity in accordance with Table 3.*

Table 3

	Beam Spread		
Step	*Horizontal (degrees) (1)*	*Vertical (degrees)*	*Peak Intensity (candelas)*
Day	*90 to 120*	*3-7*	*140,000 ± 25%*
Twilight	*90 to 120*	*3-7*	*20,000 ± 25%*
Night	*90 to 120*	*3-7*	*2,000 ± 25%*

***Note (1)**: Multiple light units may be used to achieve a horizontal coverage of 180 or 360 degrees.*

***Spec Note**: Chapters 5 and 6 of this Manual stipulate a minimum peak effective intensity of 100,000 candelas. The day value of table 3 is given as 140,000 candelas for which 75% is 105,000 candelas.*

*(E) **CL864 (red flashing beacon) Light Unit** - The vertical beam spread has a 3 degrees minimum. The lower edge of the vertical beam spread lies between -1.5 and -0.5 degrees. Photometric requirements are in accordance with Table 4.*

Table 4

	Beam Spread		
Step	*Horizontal (degrees)*	*Vertical (degrees)*	*Peak Intensity (candelas)*
Single	*360*	*3 minimum*	*2,000 ± 25 %*

*(F) **CL-865 (medium intensity white flashing) Light Unit** - The vertical beam spread is three degrees minimum. The lower edge of the vertical beam spread lies between -1.5° and -0.5°. Photometric requirements are in accordance with Table 5.*

Table 5

	Beam Spread		
Step	Horizontal (degrees)	Vertical (degrees)	Peak Intensity (candelas)
Day/Twilight	360	3 minimum	20,000 ± 25%
Night	360	3 minimum	2,000 ± 25%

(ii) **Flash Rate and Duration** - The flash rate and duration is in accordance with Table 6.

Table 6
Flash Characteristics for Obstruction Lights

Type	Intensity Step	Flash Rate (fpm)[1]	Flash Duration [2]
CL-856	Day & Twilight	40	Less than 10 ms
CL-856	Night	40	Between 100 and 250 ms inclusive
CL-857	Day & Twilight	60	Less than 10 ms
CL-857	Night	60	Between 100 and 250 ms inclusive
CL-810	Single	20 - 40	1/2 to 2/3 of flash period note (3)
CL-865	Day & Twilight	40	Less than 10 ms
CL-865	Night	40	Between 100 and 250 ms inclusive

Notes:

(1) Flash rates have a tolerance of ± 5%.

(2) When the effective flash duration is achieved by a group of short flashes, the short flashes are emitted at not less than 30 per second.

(3) The light intensity during the period is not less than 10% of the peak effective intensity. The off period is at least 1/3 of the flash period.

(iii) **System Flashing Requirements**

(A) **Simultaneous Flashing Systems** - All obstruction lights in systems composed of CL-856, and/or CL-864, and/or CL-865 light units flash simultaneously. The flash rate is in accordance with Table 6.

(B) **Sequenced Flashing Systems** - Systems composed of CL-857 (white flashing high intensity) light units have a sequenced flash characteristic. This system consists of three lighting levels on or near each supporting structure:

- one level is near the top;
- one level midway between the top and bottom; and
- one level at the bottom or lowest point of the catenary.

The flash sequence is middle, top and bottom. The interval between top and bottom flashes is about twice the interval between middle and top flashes. The interval between the end of one sequence and the beginning of the next is about 10 times the interval between middle and top flashes. The time for the completion of one cycle is one second (± 5%).

(iv) ***Intensity Step Changing*** *- The intensity or mode change (on/off) for each of the obstruction lighting systems is stipulated in Chapters 5, 6, 7 and 9. Change of intensity or mode is controlled by means of a photocell device which is installed to sense the ambient background illuminance (lux) of the north sky. The photocell settings are in accordance with Table 7.*

Table 7

Step	*Ambient Luminance*
Day to twilight	*600 - 300*
Twilight to night	*50 - 20*
Night to twilight	*20 - 50*
Twilight to day	*300 - 600*

2. ***Quality Assurance Testing***

(a) ***Qualification Tests*** *- Photometric and system operational tests are conducted after completion of all environmental tests. The same obstruction lighting units are used throughout the tests. The purpose of the following tests is to demonstrate compliance with these specifications. The tests may be run on the control unit, power supply, and a single light unit, with a simulated load replacing the other light units. Equipment tested are completed with optional equipment.*

(b) ***High Temperature Test*** *- The high temperature test is conducted in accordance with MIL-STD-810, Method 501.2, Procedure II. The equipment is subject to a constant temperature of at least +55° C for four hours after temperature stabilization. The equipment is then turned on for testing. The owner/operator of the obstruction lighting ensures that the manufacturer has demonstrated during the test that the equipment maintains the proper flash rate and (for discharge flashing light) the proper amount of energy is being delivered to flashing light) the proper amount of energy is being delivered to the lamp as the input voltage is varied by ± 10% from nominal and that a visual examination has been conducted after the equipment was removed from the test chamber. Failure of the equipment to operate properly or any deterioration in materials constitutes failure of the test.*

(c) ***Low Temperature Test*** *- The low temperature test is conducted in accordance with MIL-STD-810, Method 502.2 Procedure II. The equipment is placed in a chamber which maintains a temperature of -55°*

C or less. Equipment, with input power off, is then exposed to a 24-hour soaking period after which the equipment is turned on for 1 hour, and achieves proper flash rate and intensity within 30 seconds after being energized. The owner or operator of the building, structure or object on which the lighting equipment is used ensures that the manufacturer has demonstrated during one hour of operation as part of the test that the equipment maintains the proper flash rate and (for discharge flashing light) the proper amount of energy is being delivered to the lamp as the input voltage is varied by ±10% from nominal and that, at the conclusion of the test, a visual inspection has been be conducted. Failure of the equipment to operate properly or any deterioration in materials constitutes failure of the test.

(d) ***Rain Test*** *- The wind-blown rain test is conducted in accordance with MILSTD810, Method 506.2, Procedure I. The rain is at a rate of 130 mm/hour with an exposure time of 30 minutes per side. The equipment is operated throughout the test. Failure of the equipment to operate properly, or any deterioration in materials, or excessive accumulation of water in the equipment constitutes failure of the test.*

(e) ***Wind*** *- Evidence is provided, either by testing or by calculated mechanical force, to demonstrate that installed light units meet the wind requirements in paragraph 1(e)(iii).*

(f) ***Humidity Test*** *- The test is in accordance with MIL-STD-810, Method 509.2, Procedure I. The equipment is subjected to three complete cycles (71 hours) according to Table 507.2-I, except the maximum temperature at cycle 1 should be +55° C. Failure of the equipment to operate properly or any deterioration in materials constitutes failure of the test.*

(g) ***Salt Fog Test*** *- The salt fog test is conducted in accordance with MIL-STD-810, Method 509.2, Procedure I. Failure of the equipment to operate properly or any evidence of damage, rust, or corrosion in materials constitutes failure of the test.*

(h) ***Photometric Test*** *- Light units are energized by system power supply and control unit, and tested for compliance with the photometric requirements set out above. For a discharge flashing light, the specified intensity is produced at high and low temperature extremes as the input voltage to the system power supply varies by ± 10% from nominal. Red light intensity may be measured in white light and then calculated if the glassware manufacturer certifies the chromaticity and transmissivity values of the red filter material for the particular source. If more than one lamp type is to be used, the qualification testing is completed for each lamp type. For a discharge flashing system, if the power supply and optical head are separate components, the owner or operator of the building, structure or object on which the equipment is installed ensures that the manufacturer has demonstrated that the required photometrics are produced with the units separated by maximum and minimum recommended distances and connected by cable recommended by the manufacturer. Photometric test results are in the forms of:*

(i) Vertical beam pattern: Distribution curve (vertical angle versus candelas).

(ii) Horizontal beam pattern: Polar plot (horizontal angle versus candelas).

(i) ***System Operational Test*** *- System components are connected with the necessary wiring to electrically simulate an actual installation in which the top and bottom light units on a structure are separated by 600 m for a system composed of CL-856 or CL-865, and 150 m for system composed of CL-857, and the controller separated an additional 800m. Simulated interconnecting cables with equivalent impedances may be used in lieu of full cable lengths. The system is energized and operated to demonstrate compliance with all specification operating requirements such as flash rate, flash sequence, photoelectric switching of intensity steps, operation of interlock devices and satisfactory operation under input voltage variations. If the power supply and optical head are separate components, it is demonstrated that with the maximum recommended separation between components, sufficient energy is delivered to the light unit to produce the specified photometrics. This test is modified to verify the specific requirements for single CL 810 and a system composed of CL 810 and CL 864 lights.*

(j) ***Visual Examination*** *- The obstruction lighting equipment is examined for compliance with the requirements on materials, finish and quality of workmanship.*

Last updated: 2008-01-30 Important Notices

Transport Canada / Transports Canada

APPENDIX C TO CAR 621.19 - ANNEXE C RAC 621.19

TC File No./Ref No. – TC n° du dossier/N° de réf.

AERONAUTICAL OBSTRUCTION CLEARANCE FORM

FORMULAIRE D'AUTORISATION D'OBSTACLE AÉRIEN

TO BE COMPLETED BY APPLICANT – À REMPLIR PAR LE REQUÉRANT

Operator's Name – Nom de l'opérateur

Operator's Address – Adresse de l'opérateur

Operator's Contact – Agent de liaison de l'opérateur

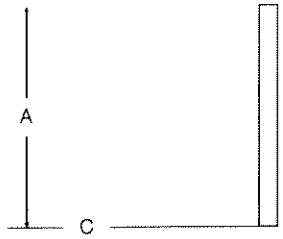
Contact's Telephone No. – N° de téléphone de liaison	Contact's FAX No. – N° de télécopieur de liaison	Contact's Email Address – Adresse électronique de liaison

Applicant's Name – Nom du requérant	Address – Adresse	
City – Ville	Province/Territory - Province/Territoire	Postal – Code – postal
Applicant's Telephone No. – N° de téléphone du requérant	Applicant's FAX No. – N° de télécopieur du requérant	Applicant's Email Address – Adresse électronique du requérant

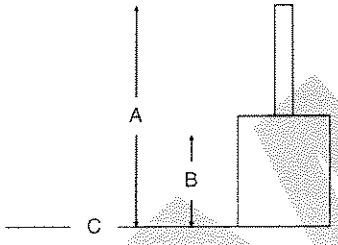
Nearest city / town to proposed facility
Ville la plus proche de la structure proposée

Geographic coordinates of structure – coordonnées géographiques de la structure
° ' " N Latitude / Latitude N
° ' " W Longtitude / Longtitude O
☐ NAD27 ☐ NAD83 ☐ WGS84

TOWERS / ANTENNAS
TOURS / ANTENNES



BUILDING OR OTHER STRUCTURE
BÂTIMENT OU AUTRE STRUCTURE



		Feet – Pieds	Meters – Mètres
A	Height above ground Hauteur au-dessus du sol		
B	Building height Hauteur du bâtiment		
C	Ground elevation above sea level Hauteur du sol au-dessus du niveau de la mer		

List any tall adjacent buildings and structures which may shield the proposed structure (Attach sketch)

Faire une liste indiquant les structures et bâtiments avoisinants plus haut que le bâtiment projeté (Inclure un diagramme)

New struc. – Nouv. struc.	Add. to exist. struc. incl. total hght. – Ajout à un bâti. exis. incl. hauteur total	Proposed Construction – Date – de construction proposée
☐ Yes / Oui ☐ No / Non		

TYPE OF STRUCTURE (narrative description and function) – GENRE DE STRUCTURE (description narrative et fonction)

Signature (of applicant) / (du requérant) ▶ Date (Y/A-M-D/J)

TRANSPORT CANADA USE ONLY – À L'USAGE DE TRANSPORTS CANADA

AERONAUTICAL ASSESSMENT – ÉVALUATION AÉRONAUTIQUE

Site acceptable – Emplacement acceptable
☐ Yes / Oui ☐ No / Non (if no, reason) (si non, pourquoi)

Lighting as per (TP382) required – Balisage lumineux tel que demandé au (TP382)
☐ Yes / Oui ☐ No / Non or / ou

Painting as per (TP382) required – Balisage peint tel que demandé au (TP382)
☐ Yes / Oui ☐ No / Non or / ou

Temporary lighting required – Nécessité d'un balisage lumineux temporaire
☐ Yes / Oui ☐ No / Non (if yes, type) (si oui, de quel genre)

Advise Transport Canada in writing 90 days before construction / Avertir Transports Canada par écrit 90 jours avant la construction ▶ ☐ when construction starts / au commencement de la construction ☐ and on completion / et à la fin des travaux ☐ Valid to / Valide jusqu'au

Civil Aviation Inspector (as required) – Inspecteur Aviation Civile (si nécessaire)
Comments – Commentaires

(Y/A-M-D/J)

Signature _____ Date _____

Regional Manager Aerodrome Safety / Gestionaire Régional Sécurité des aérodromes ▶ Signature Date (Y/A-M-D/J)

Canada

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #14 – OCTOBER 31, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

QUESTION
Request verification that the individual and sub-total amounts set forth in the Breakdown of Fixed Construction Price (Form 2A) is for evaluation purposes only and is not binding in any way.

ANSWER
Yes - The Breakdown of Fixed Construction Price (Form 2A) is for evaluation purposes. These subtotals are not binding; however, they are necessary to provide the detailed breakdown of capital costs needed to support the evaluation process which includes an assessment of the reasonableness of cost inputs provided (RFP Section 4.6.1.1) and the Integrity of the Model (Section 4.6.1.2).

For clarity, please note that:

* The Fixed Construction Price (Form 2), is calculated by totalling the sum of the components of Form 2A Breakdown of Fixed Construction Price and is binding under the Project Agreement. As noted in RFP Section 12, Form 2 Fixed Construction Price "the Lump Sum Price on the Notice to Proceed date shall be the sum of the Fixed Construction Price, the Construction Inflation Adjustment and the Architectural Features and Changes (if any)"; and

* Form 2 (RFP Section 12) requires proponents to include the Fixed Construction Price (as calculated at the bottom of Form 2A Breakdown of Fixed Construction Price), as well as the Expiry of the Fixed Construction Price, and the Construction Inflation Adjustments as noted in Form 2.

Please refer to the draft Project Agreement Article 13, Section 13.2, which provides details regarding the potential to adjust the Lump Sum Price. In addition, Article 14 provides information on the "Payment of the Lump Sum Price."

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #15 – NOVEMBER 7, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

RFP-604-2008, Page 5, Section 2.6.6
Delete “November 14, 2008” and insert in its place “November 28, 2008”.

RFP-604-2008, Page 5, Section 2.6.8 - Delete current wording and replace with:

“Issue 2nd Draft Project Agreement and Early Works Agreement on December 5, 2008.

Proponents may submit final proposed mark-ups to 2nd Draft Project Agreement and Early Works Agreement by 5:00 pm Local Time on December 12, 2008.

Issue Final Project Agreement and Final Early Works Agreement on December 19, 2008.

The successful proponent will be expected to execute the agreement with no further opportunity to make substantial changes.”

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MINICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #16 - NOVEMBER 12, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The 500 KwH per tonne referenced in Section 4.5.1.1.1 of the RFP is a NET number.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #17 – NOVEMBER 14, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

- The link provided below is the Region's current By-laws respecting the Water Supply System and the Establishment of Water Rates and Water Charges (By-law 89-2003 plus amending By-laws) and the Establishment of Sewer Surcharge Rates and Sewer Charges (By-law 90-2003 plus amending By-laws). The EFW facility will be required to conform to these and any subsequent Regional By-laws, with the facility operator responsible for payment of related water and sewer rates and charges.

  It should be noted that purchased utilities, including water and sewer, will be considered flow-through costs under the Project Agreement, to be ultimately reimbursed by the owners, consistent with Section 37 of the Project Agreement.

  http://www.region.durham.on.ca/default.asp?nr=/departments/clerk/consolidated.htm&setFooter=/includes/clerkFooter.txt

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #18 – NOVEMBER 14, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The "**Technical Requirements – Revision 1"** to RFP-604-2008 have been posted in the Data Room under separate cover in both a marked-up version and a final clean version.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #19 – NOVEMBER 17, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Addendum to address changes to Milestone Payment Schedule

The intent of this addendum is to better clarify the general milestone payment description and process.

Remove: Form 2C of the RFP, Page 54 – 56 in its entirety.

Replace With: The following Form 2C Revised, Page 54 (Revised) – Page 56 (Revised)

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

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Position

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Name of Firm

15. FORM 2C (REVISED) CONSTRUCTION MILESTONE AND PAYMENT SCHEDULE

The Lump Sum Price shall be paid to the Preferred Proponent in accordance with the Payment of Lump Sum Price procedures as defined in the Project Agreement and on the basis of Column 2 below.

		Percentage of Lump Sum Price to be Drawn-not-to-exceed	
Milestone Payment Number	Description of Milestone	Column 1 Percentage of Total Lump Sum Price (minimum 5% per milestone)	Column 2[1] Total to be Paid (less 10% of Lump Sum Price)
1	Notice to Proceed	_____	_____
2	25% Completion and Review of Construction Specifications and Drawings	_____	_____
3	Completion of Site Preparation	_____	_____
4	Completion of Foundations	_____	_____
5	75% Completion and Review of Construction Specifications and Drawings	_____	_____
6	Completion of Superstructure	_____	_____
7	100% Completion and Review of Construction Specifications and Drawings	_____	_____
8	Completion of Equipment Installations and Start-up	_____	_____
9	Issuance of the Acceptance Test Certificate	_____	_____
	Sub Total	100%	90%

Note: The order of the above milestones definitions is not fixed and may vary based on the Design Build process, staging and seasonality of general construction scheduling.

1 10% withholding will be paid in accordance with Project Agreement.

FORM 2C (REVISED) CONSTRUCTION MILESTONE AND PAYMENT SCHEDULE

The following shall have the meaning ascribed to FORM 2C:

1. **Notice to Proceed -** This definition has the same meaning ascribed to that term in Section 8.30 of the RFP.

2. **25% Completion and Review of Construction Specification and Drawings –** will be deemed when sufficient design is completed to achieve the first level of construction permitting, including but not limited to:
   - site servicing permitting
   - clearing and grubbing permitting
   - storm water permitting
   - procurement schedule
   - project construction schedule
   - foundation permitting via staged building permit
   - site layout acceptance
   - review and approval by Owner.

   As part of the 25% Submittal, the DBO shall provide Basis of Design (BOD) report that depicts the major design parameters of the Project. The intent of the BOD is to serve as the basis from which the DBO will perform the engineering effort and will not be used to determine the final equipment sizing. The BOD should include at a minimum the combustion calculations, mass and energy balances for the entire system, performance and environmental guarantees, equipment schematics and conceptual layouts, artist renderings, etc. The BOD, along with the specifications, will set forth the minimum equipment procurement requirements for the Project. In addition to the BOD and permitting requirements, the DBO will provide their Technical Specifications for the Project.

3. **Completion of Site Preparation** - will be deemed complete when:
   - Construction site access road is installed with minimum 300 mm granular B and 150 mm granular A and 90 mm high density base course asphalt. This site access road must extend far enough into the site to provide access to all site offices and related construction trailers for subcontractors and owners engineers for the length of the project until the permanent access road and parking lot is installed.
   - Mud mat is installed adjacent to the asphalt access road and truck wash station is provided to prevent mud tracking onto Osbourne Rd., Courtice Rd. or the South Service Rd.
   - Clearing and grubbing is complete.
   - Stripping and stockpiling of existing topsoil on site is complete and available for reuse in final site landscaping.
   - Installation of permanent fencing and temporary barriers necessary to maintain site security and protect the public.

- Installation of all site silt control fencing and all other silt control systems including all temporary storm water management facilities required by the local municipality and conservation authorities.
- Installation and operation of site dewatering system as required by the project design and existing site conditions.
- Installation of project site board and all other related temporary site signage.

4. **Completion of Foundations** – will be deemed complete when all foundations required for all permanent buildings, structures and major equipment have been completed in accordance with the contract drawings and specifications including all required sub-drain systems and water proofing as required, and sufficient backfilling has been completed around these foundations to adequately protect them against damage from frost.

5. **75% Completion and Review of Construction Specification and Drawings –** will be deemed complete when sufficient design is completed to include, but not be limited to:
   - Process and Environmental P&ID's;
   - Site Plans and final layout;
   - Emission control design/waste receiving and handling/odor and noise control;
   - Civil/Structural;
   - Architectural treatments and safety systems;
   - Mechanical/Piping
   - Electrical/Instrumentation specifications

6. **Completion of Superstructure** – will be deemed complete when the building envelopes for all required buildings have been completed including all exterior walls and roofs so that these facilities are watertight and all exterior doors and windows are installed so that these facilities can be locked and made secure to prevent all unauthorized access inside these facilities and help prevent the possibility of theft.

7. **100 % Design Completion and Review of Construction Specifications and Drawings** – will be deemed complete when all required contract drawings and specifications described in #5 above (contract documents) for the entire project have been finalized and provided to the Regions in both hard copy and digital form to the Regions' latest document standards after the Regions' 100 % review comments have been incorporated into these contract documents to the complete satisfaction of the Regions, and these contract documents have been submitted to the local municipality as part of the final building permit application and also submitted to all regulatory authorities requiring a related submission including the Ministry of Environment, Ministry of Natural Resources and local conservation authority.

8. **Completion of Equipment Installations and Start-up –** shall be as per APPENDIX 10 PRE-ACCEPTANCE TESTING REQUIREMENTS AND ACCEPTANCE TEST PROCEDURES SCHEDULE, of the Project Agreement

9. **Issuance of the Acceptance Test Certificate –** shall be as per APPENDIX 15 ACCEPTANCE TEST CERTIFICATE of the Project Agreement.

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #20 – NOVEMBER 18, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

1. **Courtice WPCP Effluent Addendum**

The following addendum is intended to provide a representation of the quantity and quality of effluent from the Courtice WPCP located on the lands immediately south of the EFW site. This is a new facility (Commissioned in 2007/8) owned and operated by the Region of Durham that has not yet gone through an entire year of operation. Proponents should consider the use of the effluent from this facility for processing use in the EFW facility.

This addendum also provides the standard water pressure range for Region supplied potable water.

- The WPCP is currently processing approximately 45,000 m^3/day with an ultimate capacity of 136,000 m^3/day, 25 years in the future.
- Table 1 below identifies the Effluent Objectives and Table 2 identifies the Effluent Limits permitted under the C of A.
- Attachment No. 2 are the actual effluent test results from both the in-house Courtice WPCP lab and from the Region's off-site certified lab.
- The process heat load for the Courtice Water Pollution Control Plant requires approximately 90 degrees C input with a return of approximately 70 degrees C.
- Attachment 1 to this addendum is the Design Principles section from the Courtice WPCP for further reference.

Proponents should base their design on the following tables recognizing these are based on monthly averages and that daily effluent quality can vary outside of these ranges. Any further information required shall be the responsibility of the Proponent to obtain at their own risk and cost.

Table 1 - Effluent Objectives

Effluent Parameter	Concentration Objective (milligrams per litre unless otherwise indicated)
$CBOD_5$	15
Suspended Solids	15
Total Phosphorus	0.8
Total Ammonia Nitrogen: Summer (May 01 to Oct. 31) Winter (Nov. 01 to Apr. 30)	 8 12
Unionized Ammonia	0.1*
E-Coli	200 organisms/100 mL (monthly *Geometric Mean Density*)

* To be met 95 % of the time.

Table 2 - Effluent Limits

Effluent Parameter	Monthly Average Concentration (milligrams per litre unless otherwise indicated)
Column 1	Column 2
$CBOD_5$	25
Suspended Solids	25
Total Phosphorus	1.0
Total Ammonia Nitrogen: Summer (May 01 to Oct. 31) Winter (Nov. 01 to Apr. 30)	 15 24
Unionized Ammonia Nitrogen	0.2
pH of the effluent maintained between 6.0 to 9.5, inclusive, at all times	

2. **Regional Municipality of Durham Supplied Potable Water Data**

Minimum pressure – 150 kPa

Maximum pressure – 620 kPa

Standard operating range – 400 kPa to 600 kPa

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

Attachment No. 1 – General Information on Courtice WPCP Heat Loads

11.6 Building Services

11.6.1 General

This section describes the heating and ventilation systems that service the various buildings and service tunnels. The following description outlines the major elements and concepts that have been developed. Features that have been integrated into the design include operator safety ventilation requirements of the various classified and odourous areas with the goals to minimize energy demands and off site releases of contaminants. Ventilation rates have been assigned to various areas of the plant to suit the Ontario Building Code, the Ontario Electrical Code, the B105 Canadian Gas Code, NFPA 820 and ASHRAE criteria. The buildings served include the Headworks Building, Digester Building the Biosolids Transfer Building, Biosolids Storage Facility, Administration Building, Chemical Buildings, the Energy Building, the Liquid Train Facility and interconnecting Service Tunnels.

11.6.2 Heating Systems

The heating system will consist of a central hot water boiler plant with supply and return hot water distribution piping located throughout the Facility. Hot water piping will be located in the service tunnels to service each of the buildings or areas requiring either process heat or space heating.

Hot Water Boilers

The hot water boilers have been sized to meet the space heating loads of all of the Facility buildings as well as the process load of heating the digester tanks sludge loads. Three Hot Water Boilers have been selected with sufficient capacity to meet the peak winter demand. with one boiler out of service. Space in the Energy Building has been provided to allow for installation of additional boiler in the future when the Plant expands to Phase 2 or 30 MGD. All boilers will have dual fuel burners for both natural gas and digester sludge gas firing.

Boilers have been sized to suit the digester gas production rate and the overall plant-heating load. The overall plant peak heating load is 13.4 MMBTU/ hr. (13.4×10^6) or some 400 Boiler Horsepower (BHP). The digester gas production rate for phase one is 120 cfm or 130 (BHP). Based on the digester gas production rate, one of the boilers has been sized for 150 BHP to match the 130 BHP gas production rate. In actual practice the boiler will deliver approximately 100 BHP output due to boiler efficiencies between gas input and heat output. This boiler will have a 4:1 turndown ratio when burning digester gas and therefore the actual boiler deliver rate ranges between 25 and 100 BHP. The digester process load is approximately 50 BHP at peak winter conditions, however this load is estimated to be constant year round likely varying between 50 and 35 BHP between winter and summer conditions. It is envisaged that this boiler would operate year round.

Two additional boilers have been provided each rated at 350 BHP. Assuming a typical winter boiler operation of the small boiler operating at peak digester gas load of 100BHP output and the remaining load of 300 BHP (400BHP less 100 BHP) will be serviced by one 350 BHP boiler operating on natural gas. The 2nd large boiler is standby for the operating unit whether it be the small unit or large unit.

A summary of the Facility heating loads includes:

Facility	**Heating Load MBtu/hr**	**Total Heat Load Btu/hr.with SF***	**Boiler Horsepower**
Disinfection Building	400	432	12.9
Phosphorous Removal Building	390	421	12.6
Secondary Clarifiers	331	357	10.7

Facility	Heating Load MBtu/hr	Total Heat Load Btu/hr.with SF*	Boiler Horsepower
Bioreactors	1,459	1576	47
Primary Settling	1,089	1176	35.1
Service tunnels	453	490	14.6
Headworks	1,728	1866	55.7
Admin. Bldg.	696	752	22.5
Energy Bldg.	1,071	1157	34.6
Digester Gallery	1,411	1524	45.5
Digester Process	1,674	1808	54
Biosolids	1,650	1782	53.2
Totals			398.4 **say 400 BHP**

* 8% safety factor used.

Boilers will be fire tube design for easy tube cleaning and designed to burn both natural gas and digester gas efficiently. The burners are designed for low NO_x emission rates to met the CCME Guideline A-9 of 49.6 ppm NOx for boilers rated between 300 BHP and 3000 BHP.

11.6.3 The hot water distribution system

The distribution system will consist of insulated aluminum jacketed piping systems running from the Energy Building through the service tunnels to each of the building and process loads. Pipe sizing will allow for the initial distribution system to service future loads without requiring replacement of the headers. Additional pumps will be required to service future loads. Four hot water distribution zones have been provided. The zones will allow for customizing temperature to the various zones as required by the specific are demand. The zones include the following loads:

	Area Serviced	Heat Load MBtu/hr	Boiler Horsepower
Zone No. 1	Biosoilds and Energy	3060	91
Zone No. 2	Digester Process	1808	54
Zone No. 3	Headworks	3585	107
Zone No. 4	Liquid Train Admin, and Chemical Blgs.	4895	146
Totals		13,347	398 say 400 BHP

Reference is made to the HVAC Process Flow Diagram EN-H-501 for an appreciation of the hot water system described herein.

Two hot water recirculation pumps, one duty and one standby feed each zone. In the event of the duty pump failure the standby pump will automatically start and the failed pump will alarm the failed condition.

A common hot water supply header on the recirculation pumps provides redundancy of the recirculation pumps in the unlikely case where both the duty pump and standby pump of the zone should fail. Zone supply temperature is controlled by a 3 way mixing valve located on the recirculatiaon pump suction header. At low load conditions the majority of water returned from the zone will be recirculated back to the zone without boiler reheat. The design differential at peak load between the supply temperature and the return temperature conditions is 20 °F.

A common return hot water header has been provided to promote mixing of the 4 zone return water prior to delivery to the boiler. Mixing of the return water assists in maintaining design return water temperatures and therefore controlling flue gas condensing and corrosion. Also individual boiler recirculation pumps have been provided to maintain design water flow rates through the boiler even under low load conditions.

The hot water recirculation pumps are vertical inline centrifugal pumps (typically Armstrong Series 4300).

Chemical pot feeders will be provided around each of the hot water recirculation pump sets to maintain an alkalinity of less than 50 ppm. Controlling alkalinity assist in preventing the buildup of scale. A corrosion inhibitor using Molydate at 90 to 120 ppm or Nitrite at a concentration of 1000 to 1200 ppm will be used.

Two hot water expansion tanks have been provide, one may be taken off line for servicing while the other remains in service. Makeup water will be provided from the W2 system.

Individual building and gallery heating systems will be heated by diverting the required hot water supply rate from the main hot water distribution system and delivering the hot water to local unit heaters and convector heaters associated with the particular building. Make-up air heating hot water coil loads will also be similarly serviced from the hot water distribution system, although for these systems, glycol recirculation loops will be utilized with intermediate shell and tube glycol hot water heat exchangers to ensure make-up air heating coils do not freeze.

11.6.4 Make-up Water System

The Makeup water system comprises a pressure-regulating valve, a pressure relief valve and a back flow preventer to provide W2 water as makeup water for the hot water system. Two expansion tanks located at higher elevation connected with makeup water system will take care for hot water expansion.

11.6.5 Ventilation Systems

In general, areas of the plant where odours or chemical vapours may be released will be provided with ventilation systems that maintain a negative pressure and an exhaust fan will

discharge at roof level or higher via a stack. Depending on the area served, fresh air will be provided by a make-up air package complete with throwaway filters, and an intake-damper louvre, interlocked with the exhaust fan.

Classified areas, where combustible gas may be released, will be provided with push pull ventilation systems at rates required by NFPA 8W. These systems will involve make-up air units with removable filter, and high and low rate exhaust fan systems that discharge at roof level or higher via a stack. Combustion gas detector with visual and audible alarms will be provided for these areas. Ventilation systems shall be fitted with flow detection devices to indicate ventilation system failure.

Areas of the plant that do not result in odourous or combustible gas releases will be ventilated in accordance with good practice to provide operator comfort and control moisture levels while avoiding excessive heating costs during winter. In general, ventilation systems serving of these areas will have the capability for 6 AC/hr in summer, 2 AC/hr in winter.

For the Administration Building heat recovery will be utilized on the exhaust air stream to preheat fresh incoming air.

11.6.6 Headworks Building Ventilation Systems

The upper level of the Headworks Building will be ventilated at 6 ACH and hence will be classified as Class 1, Division 1 per NFPA 820. Accordingly, a combustible gas monitoring system will be provided to alarm on emergency high gas levels.

The system will comprise a push/pull ventilation system with Make-up Air Units (MAUs) and exhaust fans interlocked. The MAUs will be located on the east end of the building and exhaust fans located on the west end. Future expansion of the Headworks Building will require additional MAUs and exhaust fans, or replacement with larger units. The exhaust fans will be connected to a stub stack for vertical dispersion. Audible and visual alarms will be activated when ventilation systems fail. All fans and ducting within the room will be designed for corrosive and high humidity service.

Three make-up air units will be provided, two for the upper level and one for the basement. The three proposed units will provide separation between the units serving the classified and unclassified areas. The two units serving the Screening Room will be located inside the Screening Room and provide 50% redundancy. These units are rated at 7,050 M^3/h each and the basement unit is rated at 13,450 M^3/h. Each MAU will comprise a filter section, hot water/glycol heating coil and supply fan.

Two odour control fans will be provided. One will draw air continuously from the screenings bin, the conveyors, the grit classifier and the channels. Since the air drawn from the bins, the conveyors and the grit channels is taken from the room, the room will be kept slightly pressurized. The second fan will draw additional air from the channels in the summer to assist in controlling odour releases. A fresh air inlet with louver/damper is interlocked with this fan.

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Alkalinity as CaCO3	234	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Alkalinity as CaCO3	241	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Alkalinity as CaCO3	261	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Alkalinity as CaCO3	252	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Alkalinity as CaCO3	233	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Alkalinity as CaCO3	187	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Alkalinity as CaCO3	173	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Alkalinity as CaCO3	155	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Alkalinity as CaCO3	142	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Alkalinity as CaCO3	168	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Alkalinity as CaCO3	131	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Alkalinity as CaCO3	123	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Alkalinity as CaCO3	124	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Alkalinity as CaCO3	124	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Alkalinity as CaCO3	142	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Alkalinity as CaCO3	150	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Alkalinity as CaCO3	161	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Alkalinity as CaCO3	159	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Alkalinity as CaCO3	151	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Alkalinity as CaCO3	121	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Alkalinity as CaCO3	125	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Alkalinity as CaCO3	114	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Alkalinity as CaCO3	108	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Alkalinity as CaCO3	96.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Alkalinity as CaCO3	85.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Alkalinity as CaCO3	86.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Alkalinity as CaCO3	88.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Alkalinity as CaCO3	84.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Alkalinity as CaCO3	83.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Alkalinity as CaCO3	76.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Alkalinity as CaCO3	69.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Alkalinity as CaCO3	122	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Alkalinity as CaCO3	159	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Alkalinity as CaCO3	127	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Alkalinity as CaCO3	185	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Alkalinity as CaCO3	140	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Alkalinity as CaCO3	97.4	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Alkalinity as CaCO3	88.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Alkalinity as CaCO3	69.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Alkalinity as CaCO3	92.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Alkalinity as CaCO3	65.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Alkalinity as CaCO3	60.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Alkalinity as CaCO3	70.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Alkalinity as CaCO3	61.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Alkalinity as CaCO3	64.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Alkalinity as CaCO3	51.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Alkalinity as CaCO3	80.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Alkalinity as CaCO3	47.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Alkalinity as CaCO3	68.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Aluminum as Al	0.078	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Aluminum as Al	0.008	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Aluminum as Al	0.049	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Aluminum as Al	0.009	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Aluminum as Al	<0.005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Aluminum as Al	<0.005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Aluminum as Al	0.017	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Aluminum as Al	<0.005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Aluminum as Al	0.003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Aluminum as Al	0.031	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Aluminum as Al	0.010	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Ammonia + Ammonium as N	30.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Ammonia + Ammonium as N	23.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Ammonia + Ammonium as N	24.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Ammonia + Ammonium as N	21.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Ammonia + Ammonium as N	17.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Ammonia + Ammonium as N	10.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Ammonia + Ammonium as N	11.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Ammonia + Ammonium as N	5.75	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Ammonia + Ammonium as N	0.65	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Ammonia + Ammonium as N	0.23	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Ammonia + Ammonium as N	0.09	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Ammonia + Ammonium as N	0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Ammonia + Ammonium as N	0.32	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Ammonia + Ammonium as N	0.07	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Ammonia + Ammonium as N	0.12	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Ammonia + Ammonium as N	0.12	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Ammonia + Ammonium as N	0.14	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Ammonia + Ammonium as N	0.11	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Ammonia + Ammonium as N	0.09	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Ammonia + Ammonium as N	0.07	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Ammonia + Ammonium as N	0.06	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Ammonia + Ammonium as N	0.09	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Ammonia + Ammonium as N	0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Ammonia + Ammonium as N	0.13	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Ammonia + Ammonium as N	0.08	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Ammonia + Ammonium as N	0.09	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Ammonia + Ammonium as N	0.07	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Ammonia + Ammonium as N	0.08	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Ammonia + Ammonium as N	0.12	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Ammonia + Ammonium as N	0.06	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Ammonia + Ammonium as N	<0.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Antimony as Sb	0.0055	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Antimony as Sb	<0.0003	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Antimony as Sb	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Antimony as Sb	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Antimony as Sb	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Antimony as Sb	0.0004	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Antimony as Sb	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Antimony as Sb	0.0034	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Antimony as Sb	<0.003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Antimony as Sb	0.0019	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Antimony as Sb	0.0031	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Arsenic as As	0.0024	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Arsenic as As	0.0026	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Arsenic as As	<0.001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Arsenic as As	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	BOD (5 day)	25.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	BOD (5 day)	11.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	BOD (5 day)	4.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	BOD (5 day)	4.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	BOD (5 day)	10.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	BOD (5 day)	12.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	BOD (5 day)	4.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	BOD (5 day)	6.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	BOD (5 day)	2.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	BOD (5 day)	3.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	BOD (5 day)	2.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	BOD (5 day)	4.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	BOD (5 day)	3.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	BOD (5 day)	2.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	BOD (5 day)	1.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	BOD (5 day)	1.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	BOD (5 day)	1.8	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	BOD (5 day)	1.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	BOD (5 day)	3.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	BOD (5 day)	1.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	BOD (5 day)	2.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	BOD (5 day)	1.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Cadmium as Cd	0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Cadmium as Cd	0.0007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Cadmium as Cd	0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Cadmium as Cd	<0.0003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Calculated Nitrate as N	0.52	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Calculated Nitrate as N	1.12	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Calculated Nitrate as N	7.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Calculated Nitrate as N	2.20	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Calculated Nitrate as N	6.85	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Calculated Nitrate as N	17.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Calculated Nitrate as N	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Calculated Nitrate as N	13.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Calculated Nitrate as N	11.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Calculated Nitrate as N	12.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Calculated Nitrate as N	12.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Calculated Nitrate as N	15.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Calculated Nitrate as N	13.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Calculated Nitrate as N	14.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Calculated Nitrate as N	11.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Calculated Nitrate as N	14.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Calculated Nitrate as N	12.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Calculated Nitrate as N	6.08	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Calculated Nitrate as N	10.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Calculated Nitrate as N	13.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Calculated Nitrate as N	16.3	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Calculated Nitrate as N	9.01	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Calculated Nitrate as N	14.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Calculated Nitrate as N	14.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Calculated Nitrate as N	13.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Calculated Nitrate as N	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Calculated Nitrate as N	17.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Calculated Nitrate as N	12.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Calculated Nitrate as N	13.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Calculated Nitrate as N	15.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Calculated Nitrate as N	13.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Calculated Nitrate as N	12.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Calculated Nitrate as N	21.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Calculated Nitrate as N	19.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Calculated Nitrate as N	25.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Calculated Nitrate as N	20.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Calculated Nitrate as N	23.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Calculated Nitrate as N	19.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Calculated Nitrate as N	23.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Calculated Nitrate as N	26.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Calculated Nitrate as N	23.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Calculated Nitrate as N	24.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Calculated Nitrate as N	18.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Calculated Nitrate as N	28.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Calculated Nitrate as N	21.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	cBOD (5day)	22.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	cBOD (5day)	9.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	cBOD (5day)	5.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	cBOD (5day)	2.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	cBOD (5day)	2.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	cBOD (5day)	10.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	cBOD (5day)	7.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	cBOD (5day)	8.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	cBOD (5day)	1.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	cBOD (5day)	6.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	cBOD (5day)	2.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	cBOD (5day)	2.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	cBOD (5day)	3.2	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	cBOD (5day)	1.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	cBOD (5day)	2.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	cBOD (5day)	1.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	cBOD (5day)	1.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	cBOD (5day)	1.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	cBOD (5day)	1.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	cBOD (5day)	1.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	cBOD (5day)	1.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	cBOD (5day)	0.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	cBOD (5day)	2.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	cBOD (5day)	1.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	cBOD (5day)	1.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	cBOD (5day)	1.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	cBOD (5day)	<0.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	cBOD (5day)	2.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	cBOD (5day)	1.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	cBOD (5day)	0.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	cBOD (5day)	<0.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	cBOD (5day)	1.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	cBOD (5day)	<0.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	cBOD (5day)	2.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	cBOD (5day)	2.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	cBOD (5day)	1.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	cBOD (5day)	<0.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	cBOD (5day)	1.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	cBOD (5day)	1.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	cBOD (5day)	1.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	cBOD (5day)	1.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	cBOD (5day)	<0.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	cBOD (5day)	1.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	cBOD (5day)	1.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	cBOD (5day)	1.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	cBOD (5day)	1.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	cBOD (5day)	1.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	cBOD (5day)	<0.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Chromium as Cr	0.0100	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Chromium as Cr	0.0018	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Chromium as Cr	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Chromium as Cr	0.0017	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Chromium as Cr	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Chromium as Cr	0.0046	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Chromium as Cr	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Chromium as Cr	0.0010	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Chromium as Cr	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Chromium as Cr	0.0079	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Chromium as Cr	0.0014	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Cobalt as Co	0.0011	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Cobalt as Co	0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Cobalt as Co	0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Cobalt as Co	0.0006	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Cobalt as Co	0.0011	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Cobalt as Co	0.0023	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Cobalt as Co	0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Cobalt as Co	0.0006	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Cobalt as Co	<0.0002	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Cobalt as Co	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Cobalt as Co	0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	COD	78.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	COD	60.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	COD	53.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	COD	31.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	COD	33.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	COD	44.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	COD	42.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	COD	44.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	COD	38.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	COD	35.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	COD	27.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	COD	24.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	COD	41.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	COD	18.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	COD	18.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	COD	16.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	COD	20.0	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	COD	19.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	COD	18.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	COD	20.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	COD	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	COD	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	COD	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	COD	16.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	COD	18.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	COD	34.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	COD	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	COD	12.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	COD	13.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	COD	10.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	COD	12.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	COD	9.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	COD	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	COD	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	COD	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	COD	19.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	COD	17.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	COD	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	COD	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	COD	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	COD	25.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	COD	12.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	COD	16.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	COD	18.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	COD	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	COD	16.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	COD	6.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	COD	4.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Copper as Cu	0.039	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Copper as Cu	0.020	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Copper as Cu	0.018	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Copper as Cu	0.021	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Copper as Cu	0.017	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Copper as Cu	0.012	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Copper as Cu	0.013	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Copper as Cu	0.019	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Copper as Cu	0.0171	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Copper as Cu	0.019	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Copper as Cu	0.024	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Dissolved Phosphate as P	3.03	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Dissolved Phosphate as P	1.63	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Dissolved Phosphate as P	1.16	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Dissolved Phosphate as P	1.10	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Dissolved Phosphate as P	0.705	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Dissolved Phosphate as P	0.709	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Dissolved Phosphate as P	0.465	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Dissolved Phosphate as P	0.357	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Dissolved Phosphate as P	0.220	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Dissolved Phosphate as P	0.161	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Dissolved Phosphate as P	0.366	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Dissolved Phosphate as P	0.570	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Dissolved Phosphate as P	0.522	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Dissolved Phosphate as P	0.263	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Dissolved Phosphate as P	0.346	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Dissolved Phosphate as P	0.183	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Dissolved Phosphate as P	0.291	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Dissolved Phosphate as P	0.426	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Dissolved Phosphate as P	0.754	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Dissolved Phosphate as P	0.811	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Dissolved Phosphate as P	0.471	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Dissolved Phosphate as P	0.444	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Dissolved Phosphate as P	0.275	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Dissolved Phosphate as P	0.277	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Dissolved Phosphate as P	0.305	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Dissolved Phosphate as P	0.195	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Dissolved Phosphate as P	0.112	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Dissolved Phosphate as P	0.252	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Dissolved Phosphate as P	0.164	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Dissolved Phosphate as P	0.118	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Dissolved Phosphate as P	0.250	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Dissolved Phosphate as P	0.117	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Dissolved Phosphate as P	0.240	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Dissolved Phosphate as P	0.242	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Dissolved Phosphate as P	0.174	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Dissolved Phosphate as P	0.216	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Dissolved Phosphate as P	0.293	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Dissolved Phosphate as P	0.316	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Dissolved Phosphate as P	0.208	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Dissolved Phosphate as P	0.199	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Dissolved Phosphate as P	0.050	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Dissolved Phosphate as P	0.063	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Dissolved Phosphate as P	0.242	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Dissolved Phosphate as P	0.239	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Dissolved Phosphate as P	0.249	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Dissolved Phosphate as P	0.102	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Dissolved Phosphate as P	0.130	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Dissolved Phosphate as P	0.094	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Dissolved Phosphate as P	0.190	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	E. coli	5000	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	E. coli	280	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	E. coli	1000	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	E. coli	37	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	E. coli	16	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	E. coli	27	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	E. coli	4	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	E. coli	10	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	E. coli	1300	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	E. coli	920	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	E. coli	42	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	E. coli	22	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	E. coli	12	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	E. coli	27	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	E. coli	10	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	E. coli	5	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	E. coli	7	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	E. coli	27	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	E. coli	13	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	E. coli	6	CFU/100mL	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	E. coli	5	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	E. coli	1	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	E. coli	2	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	E. coli	5	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	E. coli	2	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	E. coli	6	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	E. coli	16	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	E. coli	<1	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	E. coli	17	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	E. coli	15	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	E. coli	2	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	E. coli	8	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	E. coli	1	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	E. coli	2	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	E. coli	7	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	E. coli	16	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	E. coli	8	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	E. coli	120	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	E. coli	95	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	E. coli	44	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	E. coli	21	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	E. coli	9	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	E. coli	92	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	E. coli	65	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	E. coli	12	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	E. coli	32	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	E. coli	38	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	E. coli	<1	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	E. coli	9	CFU/100mL	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Iron as Fe	0.135	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Iron as Fe	0.256	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Iron as Fe	0.392	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Iron as Fe	0.289	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Iron as Fe	0.511	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Iron as Fe	0.229	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Iron as Fe	0.229	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Iron as Fe	0.408	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Iron as Fe	0.217	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Iron as Fe	0.284	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Iron as Fe	0.402	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Iron as Fe	**** I		Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Lead as Pb	0.0068	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Lead as Pb	0.0077	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Lead as Pb	0.0124	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Lead as Pb	0.0008	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Lead as Pb	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Manganese as Mn	0.0177	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Manganese as Mn	0.0406	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Manganese as Mn	0.0596	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Manganese as Mn	0.0619	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Manganese as Mn	0.0104	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Manganese as Mn	0.0263	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Manganese as Mn	0.0223	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Manganese as Mn	0.0648	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Manganese as Mn	0.0139	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Manganese as Mn	0.0776	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Manganese as Mn	0.0215	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Mercury as Hg	0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Mercury as Hg	0.03	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Mercury as Hg	0.03	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Mercury as Hg	<0.02	ug/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Molybdenum as Mo	0.0024	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Molybdenum as Mo	0.0029	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Molybdenum as Mo	0.0014	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Molybdenum as Mo	<0.0005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Molybdenum as Mo	0.0052	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Molybdenum as Mo	0.0045	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Molybdenum as Mo	0.0023	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Molybdenum as Mo	0.0016	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Molybdenum as Mo	0.002	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Molybdenum as Mo	0.0032	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Molybdenum as Mo	0.0021	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Nickel as Ni	0.019	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Nickel as Ni	0.016	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Nickel as Ni	0.016	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Nickel as Ni	0.017	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Nickel as Ni	0.023	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Nickel as Ni	0.013	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Nickel as Ni	0.007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Nickel as Ni	0.008	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Nickel as Ni	0.0046	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Nickel as Ni	0.011	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Nickel as Ni	0.007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Nitrate + Nitrite as N	<0.04	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Nitrate + Nitrite as N	<0.04	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Nitrate + Nitrite as N	0.13	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Nitrate + Nitrite as N	1.54	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Nitrate + Nitrite as N	2.47	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Nitrate + Nitrite as N	7.79	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Nitrate + Nitrite as N	7.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Nitrate + Nitrite as N	8.65	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Nitrate + Nitrite as N	12.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Nitrate + Nitrite as N	19.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Nitrate + Nitrite as N	14.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Nitrate + Nitrite as N	13.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Nitrate + Nitrite as N	11.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Nitrate + Nitrite as N	12.1	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Nitrate + Nitrite as N	12.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Nitrate + Nitrite as N	15.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Nitrate + Nitrite as N	13.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Nitrate + Nitrite as N	14.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Nitrate + Nitrite as N	11.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Nitrate + Nitrite as N	14.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Nitrate + Nitrite as N	12.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Nitrate + Nitrite as N	6.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Nitrate + Nitrite as N	10.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Nitrate + Nitrite as N	13.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Nitrate + Nitrite as N	16.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Nitrate + Nitrite as N	9.04	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Nitrate + Nitrite as N	14.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Nitrate + Nitrite as N	14.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Nitrate + Nitrite as N	13.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Nitrate + Nitrite as N	15.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Nitrate + Nitrite as N	17.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Nitrate + Nitrite as N	12.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Nitrate + Nitrite as N	13.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Nitrate + Nitrite as N	15.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Nitrate + Nitrite as N	13.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Nitrate + Nitrite as N	12.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Nitrate + Nitrite as N	21.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Nitrate + Nitrite as N	19.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Nitrate + Nitrite as N	25.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Nitrate + Nitrite as N	20.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Nitrate + Nitrite as N	23.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Nitrate + Nitrite as N	19.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Nitrate + Nitrite as N	23.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Nitrate + Nitrite as N	26.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Nitrate + Nitrite as N	23.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Nitrate + Nitrite as N	24.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Nitrate + Nitrite as N	18.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Nitrate + Nitrite as N	28.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Nitrate + Nitrite as N	21.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Nitrate as N	<0.04	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Nitrate as N	<0.04	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Nitrate as N	0.09	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Nitrate as N	1.12	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Nitrite as N	0.003	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Nitrite as N	0.030	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Nitrite as N	0.043	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Nitrite as N	0.417	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Nitrite as N	1.95	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Nitrite as N	6.67	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Nitrite as N	<0.002	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Nitrite as N	6.45	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Nitrite as N	5.45	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Nitrite as N	2.07	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Nitrite as N	0.045	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Nitrite as N	0.097	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Nitrite as N	0.162	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Nitrite as N	0.067	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Nitrite as N	0.029	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Nitrite as N	0.013	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Nitrite as N	0.034	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Nitrite as N	0.032	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Nitrite as N	0.052	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Nitrite as N	0.018	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Nitrite as N	0.027	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Nitrite as N	0.025	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Nitrite as N	0.012	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Nitrite as N	0.026	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Nitrite as N	0.005	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Nitrite as N	0.033	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Nitrite as N	0.028	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Nitrite as N	0.026	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Nitrite as N	0.039	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Nitrite as N	0.029	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Nitrite as N	0.032	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Nitrite as N	0.033	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Nitrite as N	0.016	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Nitrite as N	0.017	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Nitrite as N	0.008	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Nitrite as N	0.002	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Nitrite as N	0.039	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Nitrite as N	0.026	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Nitrite as N	0.012	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Nitrite as N	0.008	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Nitrite as N	0.019	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Nitrite as N	0.007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Nitrite as N	0.016	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Nitrite as N	0.021	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Nitrite as N	0.007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Nitrite as N	0.007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Nitrite as N	<0.002	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Nitrite as N	0.007	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Nitrite as N	0.002	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	pH (Units)	7.68	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	pH (Units)	8.08	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	pH (Units)	8.05	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	pH (Units)	8.11	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	pH (Units)	8.15	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	pH (Units)	8.13	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	pH (Units)	7.74	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	pH (Units)	7.77	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	pH (Units)	7.61	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	pH (Units)	7.87	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	pH (Units)	7.73	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	pH (Units)	7.70	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	pH (Units)	8.03	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	pH (Units)	7.80	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	pH (Units)	7.68	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	pH (Units)	7.72	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	pH (Units)	7.70	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	pH (Units)	7.83	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	pH (Units)	7.92	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	pH (Units)	7.87	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	pH (Units)	7.76	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	pH (Units)	8.01	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	pH (Units)	7.72	Units	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	pH (Units)	7.76	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	pH (Units)	7.34	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	pH (Units)	7.75	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	pH (Units)	7.66	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	pH (Units)	7.59	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	pH (Units)	7.72	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	pH (Units)	7.51	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	pH (Units)	7.74	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	pH (Units)	7.81	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	pH (Units)	7.95	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	pH (Units)	7.48	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	pH (Units)	8.01	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	pH (Units)	7.85	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	pH (Units)	7.53	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	pH (Units)	7.74	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	pH (Units)	7.58	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	pH (Units)	7.80	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	pH (Units)	7.45	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	pH (Units)	7.53	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	pH (Units)	7.32	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	pH (Units)	7.45	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	pH (Units)	7.45	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	pH (Units)	7.23	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	pH (Units)	7.89	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	pH (Units)	7.25	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	pH (Units)	7.68	Units	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Selenium as Se	0.0065	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Selenium as Se	0.0032	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Selenium as Se	0.0040	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Selenium as Se	0.0014	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Selenium as Se	0.0166	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Selenium as Se	0.0098	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Selenium as Se	0.0072	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Selenium as Se	0.0040	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Selenium as Se	0.006	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Selenium as Se	<0.0001	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Selenium as Se	0.0050	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Suspended Solids	17.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Suspended Solids	9.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Suspended Solids	9.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Suspended Solids	7.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Suspended Solids	5.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Suspended Solids	3.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Suspended Solids	4.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Suspended Solids	9.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Suspended Solids	9.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Suspended Solids	6.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Suspended Solids	4.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Suspended Solids	9.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Suspended Solids	9.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Suspended Solids	2.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Suspended Solids	4.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Suspended Solids	4.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Suspended Solids	8.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Suspended Solids	4.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Suspended Solids	8.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Suspended Solids	3.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Suspended Solids	3.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Suspended Solids	4.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Suspended Solids	2.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Suspended Solids	2.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Suspended Solids	4.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Suspended Solids	4.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Suspended Solids	3.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Suspended Solids	3.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Suspended Solids	1.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Suspended Solids	3.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Suspended Solids	3.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Suspended Solids	3.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Suspended Solids	9.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Suspended Solids	3.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Suspended Solids	3.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Suspended Solids	2.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Suspended Solids	2.5	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Suspended Solids	2.5	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Suspended Solids	4.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Suspended Solids	4.4	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Suspended Solids	2.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Suspended Solids	3.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Suspended Solids	4.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Suspended Solids	5.1	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Suspended Solids	4.2	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Suspended Solids	2.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Suspended Solids	10.7	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Suspended Solids	3.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Suspended Solids	4.6	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Total Kjeldahl Nitrogen	35.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Total Kjeldahl Nitrogen	28.8	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Total Kjeldahl Nitrogen	31.3	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Total Kjeldahl Nitrogen	27.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Total Kjeldahl Nitrogen	22.0	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Total Kjeldahl Nitrogen	14.2	mg/l	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Total Kjeldahl Nitrogen	13.9	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Total Kjeldahl Nitrogen	8.20	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Total Kjeldahl Nitrogen	1.83	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Total Kjeldahl Nitrogen	1.41	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Total Kjeldahl Nitrogen	1.28	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Total Kjeldahl Nitrogen	1.41	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Total Kjeldahl Nitrogen	1.92	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Total Kjeldahl Nitrogen	1.02	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Total Kjeldahl Nitrogen	0.95	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Total Kjeldahl Nitrogen	0.94	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Total Kjeldahl Nitrogen	1.49	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Total Kjeldahl Nitrogen	0.90	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Total Kjeldahl Nitrogen	1.14	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Total Kjeldahl Nitrogen	1.05	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Total Kjeldahl Nitrogen	1.13	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Total Kjeldahl Nitrogen	1.00	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Total Kjeldahl Nitrogen	0.91	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Total Kjeldahl Nitrogen	0.92	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Total Kjeldahl Nitrogen	0.96	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Total Kjeldahl Nitrogen	0.86	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Total Kjeldahl Nitrogen	0.79	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Total Kjeldahl Nitrogen	0.66	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Total Kjeldahl Nitrogen	0.81	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Total Kjeldahl Nitrogen	0.98	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Total Kjeldahl Nitrogen	0.84	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Total Kjeldahl Nitrogen	0.73	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Total Kjeldahl Nitrogen	0.56	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Total Kjeldahl Nitrogen	0.75	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Total Kjeldahl Nitrogen	0.67	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Total Kjeldahl Nitrogen	0.68	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Total Kjeldahl Nitrogen	0.78	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Total Kjeldahl Nitrogen	0.85	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Total Kjeldahl Nitrogen	0.96	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Total Kjeldahl Nitrogen	0.95	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Total Kjeldahl Nitrogen	0.82	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Total Kjeldahl Nitrogen	0.83	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Total Kjeldahl Nitrogen	0.95	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Total Kjeldahl Nitrogen	0.97	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Total Kjeldahl Nitrogen	1.01	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Total Kjeldahl Nitrogen	0.89	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Total Kjeldahl Nitrogen	0.88	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Total Kjeldahl Nitrogen	0.96	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-13	Total Kjeldahl Nitrogen	**** I		Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Total Phosphorus as P	3.59	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-27	Total Phosphorus as P	2.25	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-03	Total Phosphorus as P	1.81	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Total Phosphorus as P	1.87	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-17	Total Phosphorus as P	0.928	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-24	Total Phosphorus as P	0.922	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-31	Total Phosphorus as P	0.83	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Total Phosphorus as P	0.780	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-14	Total Phosphorus as P	0.439	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-21	Total Phosphorus as P	0.303	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-28	Total Phosphorus as P	0.489	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Total Phosphorus as P	0.840	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-13	Total Phosphorus as P	0.867	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-20	Total Phosphorus as P	0.339	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-27	Total Phosphorus as P	0.473	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-03	Total Phosphorus as P	0.398	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Total Phosphorus as P	0.564	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-17	Total Phosphorus as P	0.663	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-24	Total Phosphorus as P	0.924	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-01	Total Phosphorus as P	0.995	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Total Phosphorus as P	0.573	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-15	Total Phosphorus as P	0.534	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-22	Total Phosphorus as P	0.453	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-29	Total Phosphorus as P	0.372	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Total Phosphorus as P	0.386	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-12	Total Phosphorus as P	0.392	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-19	Total Phosphorus as P	0.270	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-26	Total Phosphorus as P	0.337	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-03	Total Phosphorus as P	0.233	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Total Phosphorus as P	0.324	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-17	Total Phosphorus as P	0.317	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-24	Total Phosphorus as P	0.280	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-31	Total Phosphorus as P	0.322	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Total Phosphorus as P	0.324	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-14	Total Phosphorus as P	0.264	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-21	Total Phosphorus as P	0.261	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-28	Total Phosphorus as P	0.330	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-04	Total Phosphorus as P	0.391	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Total Phosphorus as P	0.272	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-18	Total Phosphorus as P	0.291	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-25	Total Phosphorus as P	0.178	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-02	Total Phosphorus as P	0.212	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-08	Total Phosphorus as P	0.383	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Total Phosphorus as P	0.395	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-16	Total Phosphorus as P	0.382	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-23	Total Phosphorus as P	0.271	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-30	Total Phosphorus as P	0.248	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-11-06	Total Phosphorus as P	0.202	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2007-12-20	Zinc as Zn	0.044	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-01-10	Zinc as Zn	0.018	mg/L	Effluent	Courtice WPCP

Courtice WPCP Effluent Quality Results (Off-site lab)

PROJECT	SAMPLE TYPE	SAMPLE MATRIX	SUB LOCATION	CUSTOMER	SAMPLE DATE	ANALYTE	RESULT	UNIT	SUB TYPE	SAMPLE LOCATION
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-02-07	Zinc as Zn	0.025	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-03-06	Zinc as Zn	0.027	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-04-10	Zinc as Zn	0.040	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-05-08	Zinc as Zn	0.046	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-06-05	Zinc as Zn	0.016	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-07-10	Zinc as Zn	0.019	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-08-07	Zinc as Zn	0.0186	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-09-11	Zinc as Zn	0.032	mg/L	Effluent	Courtice WPCP
Courtice WPCP	Final	Sewage	Final Effluent	Courtice WPCP	2008-10-09	Zinc as Zn	0.025	mg/L	Effluent	Courtice WPCP

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Tuesday, January 01, 2008	42254					7.72	12.50	0.00
Wednesday, January 02, 2008	38608					7.70	11.50	0.00
Thursday, January 03, 2008	40924		1.16					0.00
Friday, January 04, 2008	40241				5.80	8.01		0.00
Saturday, January 05, 2008	42809					7.73	11.50	0.00
Sunday, January 06, 2008	48631					7.60	13.00	0.01
Monday, January 07, 2008	51016				7.00	7.87	13.00	0.00
Tuesday, January 08, 2008	57866			26.80	93.10	7.97	14.00	0.00
Wednesday, January 09, 2008	56090	1.48		24.40	6.90	7.91	13.50	0.06
Thursday, January 10, 2008	55298	0.99	1.10	19.60	5.90	7.97	13.00	0.00
Friday, January 11, 2008	50054	0.67		22.40	7.20	8.03	12.00	1.06
Saturday, January 12, 2008	48757					7.70	12.00	0.00
Sunday, January 13, 2008	49994					7.56	12.00	0.00
Monday, January 14, 2008	47791	0.43		18.10	8.00	8.00	12.00	0.00
Tuesday, January 15, 2008	45236	0.58		17.40	4.40	8.10	12.00	0.00
Wednesday, January 16, 2008	45243	0.65		17.00	5.20	8.11	12.00	0.01
Thursday, January 17, 2008	47817	0.63	0.71	18.30	4.50	7.92	12.00	0.01
Friday, January 18, 2008	44395	0.40		15.60	5.00	7.92	12.00	0.00
Saturday, January 19, 2008	44001					7.45	11.50	0.00
Sunday, January 20, 2008	45822					7.76	11.00	0.01
Monday, January 21, 2008	44055	0.52		18.90	4.20	7.26	10.50	0.01
Tuesday, January 22, 2008	43581	0.40		13.70		7.78	11.00	0.02
Wednesday, January 23, 2008	41504	0.61		9.60	4.80	7.84	11.00	0.02
Thursday, January 24, 2008	41412	0.45	0.71	12.20	3.80	7.86	11.00	0.02
Friday, January 25, 2008	40274	0.51		11.80	4.50	7.84	11.00	0.02

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L) *Plant*	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L) *Plant*	Suspended Solids (mg/L) *Plant*	pH *Plant*	Temp. (°C)	Chlorine Residual
Saturday, January 26, 2008	41261					7.54	10.50	0.02
Sunday, January 27, 2008	43241					7.58	10.50	0.85
Monday, January 28, 2008	42473	0.50		10.00	26.00	8.03	12.00	0.02
Tuesday, January 29, 2008	44397	0.35		10.60	4.00	7.73	12.00	0.01
Wednesday, January 30, 2008	41964	0.33		10.30	4.50	7.85	12.00	0.01
Thursday, January 31, 2008	38865	0.40	0.47	10.70	4.80	8.13	11.00	0.00
Friday, February 01, 2008	39604	0.33		7.61	0.4	11.00	0.2	0.02
Saturday, February 02, 2008	39324			7.45		11.00	0.2	0.00
Sunday, February 03, 2008	40287			7.45		11.00	0.5	0.03
Monday, February 04, 2008	49049	0.39		7.75	0.4	12.00	0.3	0.01
Tuesday, February 05, 2008	47457	0.36		7.74	0.4	12.00	0.0	0.01
Wednesday, February 06, 2008	41854	0.48		7.65	0.4	12.00	0.4	0.01
Thursday, February 07, 2008	47200	0.39	0.4	7.77	0.4	11.00	0.3	0.01
Friday, February 08, 2008	45648	0.31		7.59	0.4	11.00	0.4	0.00
Saturday, February 09, 2008	49993			7.59		11.50	0.2	0.00
Sunday, February 10, 2008	38609			8.01		11.50	0.2	0.01
Monday, February 11, 2008	40069	0.37		7.47	0.4	9.50	0.3	0.00
Tuesday, February 12, 2008	42566	0.33		7.36	0.4	9.50	0.5	0.00
Wednesday, February 13, 2008	41837	0.31		7.72	0.4	10.00	0.4	0.00
Thursday, February 14, 2008	42001	0.39	0.2	7.62	0.4	10.00	0.4	0.00
Friday, February 15, 2008	40092	0.34		7.62	0.4	10.00	0.3	0.00
Saturday, February 16, 2008	38376			7.28		10.10	0.2	0.00
Sunday, February 17, 2008	48086			7.11		10.10	0.4	0.00
Monday, February 18, 2008	56408			6.89		10.40	1.0	0.00
Tuesday, February 19, 2008	49334	0.15		7.31	0.4	10.00	0.4	0.10

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L) *Plant*	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L) *Plant*	Suspended Solids (mg/L) *Plant*	pH *Plant*	Temp. (°C)	Chlorine Residual
Wednesday, February 20, 2008	48097	0.20		7.51	0.4	11.00	0.9	0.01
Thursday, February 21, 2008	48474	0.16	0.2	7.59	0.4	10.00	0.2	0.10
Friday, February 22, 2008	42866	0.21		7.58	0.4	10.00	0.3	0.00
Saturday, February 23, 2008	43035			7.46		10.00	0.3	0.00
Sunday, February 24, 2008	41914			7.46		11.00	0.2	0.00
Monday, February 25, 2008	44899	0.32		7.33	0.4	11.00	0.4	0.00
Tuesday, February 26, 2008	48666	0.11		7.47	0.4	11.50	0.3	0.00
Wednesday, February 27, 2008	43904	0.25		7.40	0.4	10.50	0.4	0.03
Thursday, February 28, 2008	42695	0.30	0.4	7.44	0.4	10.00	0.5	0.01
Friday, February 29, 2008	44916	0.31		7.40	0.4	10.00	0.5	0.00
Saturday, March 01, 2008	41546			7.41		10.50	0.44	
Sunday, March 02, 2008	46659			7.14		10.50	0.40	0.03
Monday, March 03, 2008	52356	0.57		7.29	0.44	11.00	0.46	0.00
Tuesday, March 04, 2008	47928	0.43		7.39	0.44	11.50	0.47	
Wednesday, March 05, 2008	49372	0.39		7.43	0.44	11.00	0.45	0.03
Thursday, March 06, 2008	36809	0.46	0.6	7.48	0.44	10.50	0.50	
Friday, March 07, 2008	39915	0.52		7.37	0.42	11.00	0.87	
Saturday, March 08, 2008	40079			7.32		10.00	0.50	
Sunday, March 09, 2008	38416			7.26		10.00	0.41	0.03
Monday, March 10, 2008	35844	0.49		7.17	0.42		10.00	0.00
Tuesday, March 11, 2008	41732	0.29		7.10	0.42	11.00	0.42	
Wednesday, March 12, 2008	39855	0.68		7.19	0.42	11.00	0.47	
Thursday, March 13, 2008	42100	0.55	0.5	7.83	0.42	10.00	0.34	0.03
Friday, March 14, 2008	47348	0.53		7.36	0.42			0.00
Saturday, March 15, 2008	42241			7.29		11.50	0.36	0.01

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Sunday, March 16, 2008	44600			7.35		12.00	0.40	0.01
Monday, March 17, 2008	48508	0.49		7.30	0.42	11.00	0.46	0.01
Tuesday, March 18, 2008	52675	0.26		7.39	0.42	11.00	0.52	0.02
Wednesday, March 19, 2008	69985	0.27		7.41	0.42	11.00	0.48	0.00
Thursday, March 20, 2008	65335	0.24	0.3	< 7.27	0.42	11.00	0.60	
Friday, March 21, 2008	59094			6.88		10.00	0.54	0.00
Saturday, March 22, 2008	52767			7.53		10.50	0.64	
Sunday, March 23, 2008	50079			7.48		11.50	0.78	
Monday, March 24, 2008	50869			7.46		10.50	0.52	0.00
Tuesday, March 25, 2008	61726	0.21		7.40	0.42	10.50	0.52	0.02
Wednesday, March 26, 2008	65384	0.33		7.40	0.42	10.10	0.54	0.02
Thursday, March 27, 2008	62738	0.25	0.3	7.53	0.42	11.00	0.58	
Friday, March 28, 2008	51907	0.25		7.42	0.42	11.00	0.55	0.00
Saturday, March 29, 2008	44480			7.05		10.40	0.52	
Sunday, March 30, 2008	49890			7.02		10.36	0.52	
Monday, March 31, 2008	78489	0.64		7.09	0.42	10.50	0.57	0.03
Tuesday, April 01, 2008	39539	0.31		0.60	4.70	7.62	11.00	0.02
Wednesday, April 02, 2008	39540	0.36		0.60	14.30	7.89	10.00	0.00
Thursday, April 03, 2008	39541	0.38	0.2	< 0.60	1.20	7.69	10.00	0.02
Friday, April 04, 2008	39542	0.44		0.60	5.20	7.66	10.50	0.00
Saturday, April 05, 2008	39543					7.63	10.00	0.00
Sunday, April 06, 2008	39544					7.01	11.00	0.02
Monday, April 07, 2008	39545	0.31		1.10	6.50	7.55	10.00	0.04
Tuesday, April 08, 2008	39546	0.30		0.60	6.80	7.53	11.50	0.00
Wednesday, April 09, 2008	39547	0.33		0.60	6.90	6.97	11.50	0.00

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Thursday, April 10, 2008	39548	0.33	0.3	0.60	5.90	7.25	12.00	0.00
Friday, April 11, 2008	39549	0.25		0.60	4.90	7.48	11.00	0.01
Saturday, April 12, 2008	39550					7.51	11.50	0.01
Sunday, April 13, 2008	39551					7.61	11.00	0.01
Monday, April 14, 2008	39552	0.30		0.60	6.70	7.31	11.00	0.00
Tuesday, April 15, 2008	39553	0.27		0.70	1.10	7.73	10.00	0.00
Wednesday, April 16, 2008	39554	0.30		0.60	2.20	7.27	10.50	0.04
Thursday, April 17, 2008	39555	0.31	0.4	0.60	2.10	7.66	11.00	0.02
Friday, April 18, 2008	39556	0.30		0.60	1.40	7.61	11.00	0.02
Saturday, April 19, 2008	39557					7.10	13.00	0.00
Sunday, April 20, 2008	39558					7.55	13.50	0.03
Monday, April 21, 2008	39559	0.56		0.60	3.80	7.39	13.00	0.00
Tuesday, April 22, 2008	39560	0.29		0.60	1.20	7.64	13.00	0.02
Wednesday, April 23, 2008	39561	0.35		0.60	2.20	7.83	13.50	0.02
Thursday, April 24, 2008	39562	0.43	0.8	0.60	3.80	7.71	13.00	0.02
Friday, April 25, 2008	39563	0.49		0.60	1.90	7.59	13.00	0.02
Saturday, April 26, 2008	39564					7.77	13.00	0.03
Sunday, April 27, 2008	39565					7.68	13.00	0.02
Monday, April 28, 2008	39566	0.70		0.60	3.40	7.61	13.00	0.03
Tuesday, April 29, 2008	39567	0.52		0.60	3.70	7.42	13.00	0.00
Wednesday, April 30, 2008	39568	0.42		0.60	2.10	7.48	13.00	0.01
Thursday, May 01, 2008	36484	0.62	0.8	0.60	4.80	7.64	13.0	0.00
Friday, May 02, 2008	36692	0.69		0.60	3.00	7.50	13.5	0.00
Saturday, May 03, 2008	39213					7.24	13.0	0.01
Sunday, May 04, 2008	47147					7.63	13.5	0.00

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Monday, May 05, 2008	48019	0.32		0.60	3.40	7.53	13.5	0.00
Tuesday, May 06, 2008	42315	0.40		0.60	2.60	7.40	13.5	0.02
Wednesday, May 07, 2008	40238	0.32		0.60	4.60	7.62	13.5	0.00
Thursday, May 08, 2008	41461	0.26	0.5	< 0.70	2.30		13.5	0.02
Friday, May 09, 2008	40348	0.38		0.10	6.00	7.61	13.5	0.01
Saturday, May 10, 2008	37956					7.58	14.5	0.00
Sunday, May 11, 2008	37045					7.85	14.0	0.01
Monday, May 12, 2008	35423	0.41		0.60	2.90	7.63	15.0	0.06
Tuesday, May 13, 2008	36447	0.31		0.10	3.20	7.80	14.0	0.02
Wednesday, May 14, 2008	34438	0.33		0.10	4.30	7.58	14.5	0.01
Thursday, May 15, 2008	34622	0.30	0.4	0.10	4.40	7.74	14.5	0.00
Friday, May 16, 2008	32677	0.43		0.10	2.30	7.85	14.5	0.01
Saturday, May 17, 2008	32246					7.54	15.0	0.01
Sunday, May 18, 2008	31493					7.65	14.5	0.02
Monday, May 19, 2008	35419					7.52	14.0	0.02
Tuesday, May 20, 2008	37340	0.35		0.30	3.50	7.43	15.0	0.02
Wednesday, May 21, 2008	33170	0.29		0.50	4.70	7.51	14.5	0.00
Thursday, May 22, 2008	33533	0.30	0.3	< 0.10	2.20	7.42	15.0	0.00
Friday, May 23, 2008	33108	0.32		0.10	4.10	7.38	15.0	0.00
Saturday, May 24, 2008	31915					7.87	15.0	0.00
Sunday, May 25, 2008	31618					7.86	15.5	0.00
Monday, May 26, 2008	31610	0.25		1.10	2.20	7.55	15.5	0.00
Tuesday, May 27, 2008	31139	0.13		0.60	2.90	7.33	16.0	0.10
Wednesday, May 28, 2008	30193	0.30		0.10	2.60	7.27	15.5	0.01
Thursday, May 29, 2008	28638	0.27	0.3	< 0.10	2.60	7.24	16.0	0.08

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Friday, May 30, 2008	29102	0.24		0.40	3.50	7.35	16.0	0.00
Saturday, May 31, 2008	27076					7.57	16.1	0.00
Sunday, June 01, 2008	27453					7.58	16.0	0.00
Monday, June 02, 2008	30388	0.25		0.10	3.20	7.54	16.0	0.02
Tuesday, June 03, 2008	29063	0.24		0.10	4.50	7.41	16.0	0.02
Wednesday, June 04, 2008	30639	0.09		0.10	2.20	7.47	16.0	0.03
Thursday, June 05, 2008	30403	0.33	0.305	< 0.10	6.20	7.47	16.0	0.01
Friday, June 06, 2008	29897	0.22		0.10	4.30	7.42	16.5	0.02
Saturday, June 07, 2008	28854					7.46	17.5	0.01
Sunday, June 08, 2008	28479					7.39	17.0	0.01
Monday, June 09, 2008	30081	0.26		0.10	6.10	7.27	18.0	0.00
Tuesday, June 10, 2008	30899	0.25		0.10	5.90	7.51	18.5	0.01
Wednesday, June 11, 2008	33425	0.16		0.10	3.20	7.49	18.0	0.00
Thursday, June 12, 2008	30163	0.27	0.195	< 0.10	2.90	7.52	18.0	0.00
Friday, June 13, 2008	29365	0.24		0.10	2.70	7.55	17.5	0.00
Saturday, June 14, 2008	29385					7.53	18.0	0.00
Sunday, June 15, 2008	38749					7.54	18.0	0.00
Monday, June 16, 2008	33771	0.20		0.10	1.90	7.46	18.0	0.01
Tuesday, June 17, 2008	34677	0.22		0.10	3.80	7.41	17.5	0.01
Wednesday, June 18, 2008	30931	0.22		0.10	1.50	7.53	18.0	0.02
Thursday, June 19, 2008	29511	0.14	0.112	< 0.20	2.50	7.57	17.0	0.03
Friday, June 20, 2008	28832	0.18		0.10	3.00	7.13	17.0	0.00
Saturday, June 21, 2008	27951					7.10	18.0	0.02
Sunday, June 22, 2008	28329					7.09	17.6	0.02
Monday, June 23, 2008	27683	0.24		0.10	3.30	7.46	18.0	0.00

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Tuesday, June 24, 2008	28700	0.22		0.10	2.60	7.49	18.0	0.01
Wednesday, June 25, 2008	27667	0.31		0.10	2.00	7.45	18.0	0.00
Thursday, June 26, 2008	28119	0.22	0.252	0.10	2.30	7.60	19.0	0.01
Friday, June 27, 2008	28813	0.08		0.30	3.30	7.55	19.0	0.00
Saturday, June 28, 2008	29063					7.41	19.0	0.00
Sunday, June 29, 2008	34176					7.57	19.0	0.01
Monday, June 30, 2008	31302	0.21		0.10	5.00	7.40	19.0	0.00
Tuesday, July 01, 2008	29688					7.57	18.5	0.00
Wednesday, July 02, 2008	29140	0.142		0.10	3.40	7.56	19.0	0.01
Thursday, July 03, 2008	28879	0.158	0.164	< 0.10	2.50	7.66	19.5	0.00
Friday, July 04, 2008	28450	0.19		0.20	4.00	7.52	18.0	0.00
Saturday, July 05, 2008	27697					7.48	18.0	0.00
Sunday, July 06, 2008	25953					7.74	19.0	0.00
Monday, July 07, 2008	26406	0.163		0.10	4.50	7.40	19.0	0.00
Tuesday, July 08, 2008	27538	0.255		0.10	3.20	7.53	20.0	0.00
Wednesday, July 09, 2008	27445	0.184		0.10	1.20	7.53	20.0	0.01
Thursday, July 10, 2008	28491	0.174	0.118	0.30	0.30	7.39	20.0	0.04
Friday, July 11, 2008	26322	0.158		0.10	2.30	7.48	20.0	0.01
Saturday, July 12, 2008	26794					6.35	19.8	0.01
Sunday, July 13, 2008	26314					6.41	19.8	0.02
Monday, July 14, 2008	28920	0.229		0.30	2.50	7.49	20.0	0.01
Tuesday, July 15, 2008	28060	0.329		0.03	0.30	7.58	19.0	0.00
Wednesday, July 16, 2008	26060	0.29		0.10	4.50	7.59	20.0	0.01
Thursday, July 17, 2008	26266	0.115	0.25	< 0.20	2.50	7.71	20.0	0.01
Friday, July 18, 2008	26876	0.208		0.04	0.80	7.46	20.0	0.01

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L) *Plant*	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L) *Plant*	Suspended Solids (mg/L) *Plant*	pH *Plant*	Temp. (°C)	Chlorine Residual
Saturday, July 19, 2008	27343					7.56	20.0	0.01
Sunday, July 20, 2008	27866					7.56	20.0	0.02
Monday, July 21, 2008	57450	0.258		0.03	4.70	7.35	20.0	0.02
Tuesday, July 22, 2008	50975	0.214		0.03	3.90	7.44	20.0	0.00
Wednesday, July 23, 2008	40374	0.184		0.05	2.90	7.59	20.0	0.00
Thursday, July 24, 2008	55914	0.168	0.117	< 0.03	2.70	7.68	20.0	0.01
Friday, July 25, 2008	48434	0.143		0.07	3.40	7.60	19.5	0.01
Saturday, July 26, 2008	40336					7.73	20.0	0.01
Sunday, July 27, 2008	67537					7.31	19.5	0.00
Monday, July 28, 2008	62268	0.187		0.03	1.20	7.76	19.5	0.02
Tuesday, July 29, 2008	50610	0.168		0.03	1.80	7.81	20.0	0.01
Wednesday, July 30, 2008	42566	0.041		0.03	1.60	7.89	20.0	0.00
Thursday, July 31, 2008	43982	0.053	0.24	< 0.03	2.50	7.94	20.0	0.03
Friday, August 01, 2008	49503	0.05		0.03	1.70	7.79	20.0	0.01
Saturday, August 02, 2008	41419					6.80	19.9	0.00
Sunday, August 03, 2008	37484					6.88	19.8	0.00
Monday, August 04, 2008	34525					6.90	19.8	0.01
Tuesday, August 05, 2008	34952	0.28		0.03	1.90	7.62	20.0	0.01
Wednesday, August 06, 2008	37337	0.15		0.04	1.50	7.70	20.0	0.02
Thursday, August 07, 2008	38245	0.11	0.24	< 0.03	2.30	7.33	20.0	0.01
Friday, August 08, 2008	35979	0.28		0.03	1.00	7.66	20.0	0.01
Saturday, August 09, 2008	36705					7.84	20.0	0.01
Sunday, August 10, 2008	41617					7.76	20.0	0.01
Monday, August 11, 2008	48315	0.24		0.03	3.30	7.52	20.0	0.01
Tuesday, August 12, 2008	69250	0.22		0.03	1.10	7.54	19.0	0.02

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L) *Plant*	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L) *Plant*	Suspended Solids (mg/L) *Plant*	pH *Plant*	Temp. (°C)	Chlorine Residual
Wednesday, August 13, 2008	87967	0.20		0.03	3.70	7.87		0.00
Thursday, August 14, 2008	58112	0.16	0.17	0.03	2.50	7.90	19.0	0.01
Friday, August 15, 2008	48795	0.20		0.10	1.20	7.80	20.0	0.00
Saturday, August 16, 2008	49128					7.72	20.0	0.01
Sunday, August 17, 2008	46058					7.59	20.0	0.01
Monday, August 18, 2008	42391	0.14		0.03	2.30	7.79	20.0	0.02
Tuesday, August 19, 2008	41481	0.09		0.03	0.90	7.76	20.0	0.07
Wednesday, August 20, 2008	39791	0.05		0.10	1.40	7.72	20.0	0.01
Thursday, August 21, 2008	36348	0.20	0.22	0.10	4.20	7.70		0.02
Friday, August 22, 2008	35582	0.21		0.03	1.00	7.76		0.00
Saturday, August 23, 2008	35566					7.81	20.1	0.01
Sunday, August 24, 2008	34403					7.75	20.4	0.01
Monday, August 25, 2008	34978	0.28		0.03	2.30	7.73	20.5	0.02
Tuesday, August 26, 2008	33644	0.27		0.03	3.90	7.82	20.0	0.01
Wednesday, August 27, 2008	31766	0.21		0.03	2.40	7.44	20.0	0.01
Thursday, August 28, 2008	32297	0.20	0.29	< 0.03	2.00	7.73	20.0	0.01
Friday, August 29, 2008	31801	0.35		0.03	2.30	7.72	20.0	0.02
Saturday, August 30, 2008	33387					7.60	20.0	0.01
Sunday, August 31, 2008	31177					7.68	20.0	0.01
Monday, September 01, 2008	28810					7.62	21.0	0.02
Tuesday, September 02, 2008	32255	0.22		0.03	3.90	7.62	21.0	0.01
Wednesday, September 03, 2008	30834	0.30		0.03	2.50	7.65	21.0	0.01
Thursday, September 04, 2008	30977	0.28	0.316	< 0.03	3.30	7.67	21.5	0.01
Friday, September 05, 2008	30757	0.21		0.04	3.40	7.59	22.0	0.01
Saturday, September 06, 2008	30492					7.52	22.0	0.01

COURTICE WATER POLLUTION CONTROL PLANT
PLANT EFFLUENT RESULT TABULATION
(In-house lab results)

Date Sampled	Total Secondary Effluent Flow m^3/day	Total Phosphorous (mg/L)	Diss. Phos. (mg/L)	Ammonia + Ammonium (mg/L)	Suspended Solids (mg/L)	pH	Temp. (°C)	Chlorine Residual
		Plant		*Plant*	*Plant*	*Plant*		
Sunday, September 07, 2008	30949					7.54	21.0	0.01
Monday, September 08, 2008	33176	0.32		0.03	3.60	7.52	20.5	0.01
Tuesday, September 09, 2008	32189	0.33		0.14	3.00	7.46	20.5	0.01
Wednesday, September 10, 2008	37574	0.32		0.16	2.40	7.48	20.0	0.00
Thursday, September 11, 2008	31603	0.30	0.208	0.06	3.20	7.52		0.00
Friday, September 12, 2008	30189	0.37		0.03	2.00	7.17	20.0	0.00
Saturday, September 13, 2008	31092					7.48	20.3	0.00
Sunday, September 14, 2008	31259					7.44	20.6	0.00
Monday, September 15, 2008	31499	0.15			3.30	7.50	20.4	0.02
Tuesday, September 16, 2008	37574	0.28		0.08	3.30	7.49	20.0	0.01
Wednesday, September 17, 2008	34002	0.20		0.03	3.00	7.53	20.0	0.01
Thursday, September 18, 2008	32903	0.16	0.199	0.03	2.60	7.55	20.0	0.01
Friday, September 19, 2008	31605	0.20		0.03	2.80	7.54	20.0	0.02
Saturday, September 20, 2008	30743					7.46	19.0	0.02
Sunday, September 21, 2008	31113					7.57	20.0	0.01
Monday, September 22, 2008	31443	0.14		0.03	2.10	7.46	20.0	0.01
Tuesday, September 23, 2008	32098	0.40		0.03		7.52	19.3	0.00
Wednesday, September 24, 2008	29783	0.11		0.05	2.60	6.90	19.3	0.00
Thursday, September 25, 2008	29458	0.13	0.050	< 0.05	2.60	7.52	19.6	0.00
Friday, September 26, 2008	28901	0.10		0.03	3.40	7.43	19.7	0.01
Saturday, September 27, 2008	29013					6.65	19.9	0.00
Sunday, September 28, 2008	28616						19.9	0.00
Monday, September 29, 2008	30706	0.12		0.03	2.30	7.35	20.5	0.02
Tuesday, September 30, 2008	33346	0.13		0.03	2.80	7.45	20.0	0.03

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #21 – NOVEMBER 20, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

The intent of this addendum is to further clarify/define the Vendors handling responsibilities with respect to Household Hazardous Waste (HHW) and Radioactive Waste as defined in the Project Agreement definition for "**Hazardous Substance**".

HHW - Since the Regions, as Owners of the facility, have a process in place that is Provincially supported and subsidized, all HHW Wastes delivered to the EFW facility shall be removed from the waste stream by the Contractor; placed in separate holding area designed specifically for storage on site by the Contractor; and not processed through the facility. Actual quantities of HHW delivered to the site will be minimal as this is post diversion curbside waste only, hence only small quantities within curbside collection bags may occasionally arrive at the EFW facility. These HHW items will be removed from the facility by the Region or Regions' contracted service provider and disposed of at a designated facility on an as needed basis.

Radioactive Waste – Any waste arriving at the facility within the waste stream that activates the Radioactive Detection System shall be separated by the Contractor; placed in a separate, secure holding area; and not processed through the facility. The handling procedure for radioactive waste is defined in the attached Procedures document.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

RADIATION DETECTION RESPONSE PROCEDURES

Durham Waste Management Services

October 2008

Durham Waste Management Services

RADIATION DETECTION RESPONSE PROCEDURES

Introduction

The following "radiation detection response procedures" should be followed whenever the on-site radiation detection equipment reports an Alarm. All radiation alarms should be handled with caution.

Alarm Levels

Alarms are categorized into 3 Levels, based on their hazard.

Level-1 Alarm: **up to 15,000** Counts per Second (CPS) above background as detected at the weighscale portal monitors.

Falling in this category are the radiation detection events, which have all of the following characteristics:

- Registers a low radiation intensity (low count rate – see the above range); **and**,
- Source of radiation is identified as Iodine-131 (I-131), Technetium-99m (Tc-99m), Gallium-67 (Ga-67), Thallium-201 (Tl-201), or Indium-111 (In-111).
- **Note:** Pay attention to the number following the dash '-'. It must match as well.

The site personnel will handle alarms at Level-1.

Level-2 Alarm: **15,001 to 500,000** Counts per Second (CPS) above background as detected at the weighscale portal monitors.

Falling in this category are the radiation detection events, which have one or more of the following characteristics:

- Registers a radiation intensity/count rate as noted in the above range; or
- Source of radiation has been identified as one of the following Level 2 isotopes: cobalt-60 (Co-60), cesium-137 (Cs-137), iridium-192 (Ir-192) or radium-226 (Ra-226).
- **Note:** Please note that even if the radiation intensity corresponds to Level-1 Alarm, if the isotope is identified to be one of the Level-2 Alarm isotopes, the alarm will automatically be treated as a Level-2 Alarm

Depending on the isotope, alarms at Level-2 will either be handled by an authorized contractor and coordinated by the Supervisor/ Plant personnel, or isolated in a bin by site personnel. Refer to the Level 2 Alarm section to determine whether you have an alarm that may be isolated by site personnel.

Level-3 Alarm: **Greater than 500,000** Counts per Second (CPS) above background as detected at the weighscale portal monitors.

Level-3 Alarms will **not** be handled by site personnel. Evacuation procedures will apply in this case. Refer to the Level 3 Alarm section for detailed instructions.

Each Alarm level requires a different response and handling procedure, therefore, make sure that the alarm level is clearly identified. ***If in doubt, always call the Radiation designate for support. Appendix A identifies a list of contact numbers.***

Alarm = Alarm generated by the Radiation Detection System (RDS) installed at the facility inbound scale. The alarm will be displayed on the RDS computer station's screen and logged into the electronic alarm file. The value of the alarm will also be displayed on the screen in engineering units (CPS-counts per second).

Response Procedures are divided into three sections:

- Inbound Durham Waste Services vehicles (includes vehicles owned and operated by the local municipalities and loads picked up by contracted haulers in accordance with contracts with Durham Waste Management Services);
- Private vehicles (if non-Durham Waste Services vehicles); and,
- Outbound transfer trailers.

The appropriate Response Procedure for each Alarm Level must be followed.

Response Procedures For Inbound Waste Management Services Vehicles:

The following section is for alarms detected in inbound Durham Waste Management Services vehicles (includes vehicles owned and operated by the local municipalities and loads picked up by contracted haulers in accordance with contracts with Durham Waste Management Services.

LEVEL-1 ALARM:
Up to 15,000 Counts per Second (CPS) above background.
NOTE:
Please note and remember that certain isotopes will automatically be considered Level-2 Alarms, regardless of the radiation count rate that they generate, due to the potential hazard that they pose (developing dust or volatility might be some of the contributors). Level-2 Isotopes include: cobalt-60 (Co-60), cesium-137 (Cs-137), iridium-192 (Ir-192) and radium-226 (Ra-226).

1. Weighscale Operator (WSO) will notify the Facility Supervisor that there is a Level 1 Alarm. A transaction comment will also be applied to the weighscale receipt for the load indicating the level of the suspected radioactive source.

   The WSO will also print out a copy of the alarm report from the RDS.

   Note: If the location indicated by the RDS points to the truck cabin or anywhere in the vicinity of the driver's location, consider the possibility that the driver has set off the alarm. If this is confirmed, document it in the logbook and stop applying the rest of this procedure. Positive identification of this case can be accepted only when backed up and fully confirmed by an alternate driver having cleared the portal with the vehicle.

2. If the site is not set up for the handling of radiation alarms or trained management staff are not available, the load will need to be transferred to another site. Trained management staff with appropriate equipment must be available at the redirect location. Call the potential site for confirmation before redirecting the vehicle.

   In addition, prior approval from the Canadian Nuclear Safety Commission is required for certain loads before the vehicle can leave the site. Contact the Supervisor or Plant Engineer to arrange for this approval. You will need to provide the following information about the load:

A. Whether it is a Region vehicle or a hauler contracted with Durham Waste Management Services;
B. If it is a contract vehicle, the name of the contactor company
C. Date and time that the alarm was triggered;
D. Vehicle description (e.g. bulk lift);
E. Intended destination (e.g. EFW Facility);
F. Maximum alarm count from the portal monitor in CPS;
G. Background level in CPS from the portal monitor;
H. Dose rate from the handheld (Fieldspec/Identifinder) in either uSv or nSv, if available at your site;
I. Identity of radionuclide, if available at your site (e.g. I-131)

Once approval has been obtained, the Supervisor or Plant Engineer will fax a signed copy of the approval form to you. A copy of the faxed approval form must be given to the driver and delivered to the Supervisor at the redirect site.

Effective August 1, 2008, we will not have to wait for prior approval to move loads identified with your handheld (Fieldspec/Identifinder) as **containing I-131, Ga-67, Tc-99m, Th-201 or In-111** with a maximum alarm count **less than 20,000 cps**. However, the CNSC still requires notification that the load has been transferred and confirmation that the material was identified correctly once it has been removed at the destination site. As such, you will still need to notify the Supervisor with the above details for the load when it is detected and, if you are the receiving site, confirm with the Supervisor the radionuclide once removed from the vehicle.

3. The Supervisor will pick up the **protective equipment** from the designated “clean protective equipment” storage area (which may include: rubber gloves; coveralls; dust mask; removal tool). All personnel attempting to apply this procedure, from this point on will also wear a **personal radiation badge**, which will be monitored on a quarterly basis.

4. The Supervisor will pick up and check the hand-held radiation monitors and ensure that the batteries are charged and turn them ON.

5. The Supervisor will pick up the alarm printout from the weighscale.

6. The Supervisor will attempt to identify the radiation source with the "Fieldspec/Identifinder" monitor from the outside of the vehicle. If the source is identified as **I-131, Ga-67, Tc-99m, Th-201 or In-111,** removal will be attempted. If any other isotope is identified or identification is unclear, follow the **Level 2** alarm procedures.

   If one of the isotopes noted above, the Supervisor will attempt to remove a portion of the load and isolate the waste material. While removing the load, the Supervisor will make use of the hand held radiation detection devices to locate and confirm the radioactive isotope. Using the hand-held radiation monitors as instructed, the Supervisor will approach the load and perform a source search, following the appropriate procedures. The Supervisor should watch the dose rate displayed on the hand held instrument while approaching the source.

   If the Supervisor is able to approach to within 30 cm of the source without the dose rate exceeding 100 μSv/h then the source may be retrieved using a long-handled tool and placed in a container. However, if the dose rate exceeds 100 μSv/h, the Supervisor should not approach any closer and the loader should be used to scoop the material and place it into a bin for decay.

7. Once the suspected material is identified and removed, the vehicle, carrying the balance of this load, will go back to the weighscale and pass through the portal again. If free of radioactive material, the driver will be directed to dispose of the rest of the load in the regular waste stream.

8. If the radioactive source can not be located using the hand held monitors outside of the vehicle, the vehicle will return to the inbound scale for a further confirmation scan. Ask the driver to proceed slowly through the portal. When the alarm sounds, ask the driver to stop while you use the hand held radiation monitor to identify where the source is located. Once the location has been identified, follow the same procedures as previously described.

   If the radiation is spread throughout the load (e.g. kitty litter), the material may be isolated in a roll-off box until sufficient decay occurs.

   Once the material has been isolated, the rubber tire

loader/backhoe/roll-off may be used to further check additional material from the load to make sure the material is radiation free by slowly passing through the portal monitors.

9. Place the isolated radioactive material in a radioactive container (blue drum) that corresponds to the specific isotope that has been identified using a long handled tool.

   Storage barrels used for short-lived medical isotopes must be lined with large clear garbage bags to allow for easier removal of the materials once they have decayed to background.

   The drum must be labeled as required by the Supervisor, using the appropriate labels from the storage room. Each label must clearly identify the type of isotope, the date, dose rate from the hand held in μSv/h, and transaction number or vehicle ID. The containers shall be located within controlled area and marked in the local log file.

10. The Supervisor will make sure to record all the required details of the load including date, transaction number, hauler, vehicle Id, isotope, alarm level, highest CPS identified by portal system, dose rate (μSv/h) from RDS and hand held unit, if available, and applicable comments. All this information shall be logged in the "Radiation Log Book". The Supervisor will also keep a copy of the RDS print out alarm.

11. The work area and equipment used to isolate the radioactive material may become contaminated.

    The Supervisor will check the work area for contamination by passing the TBM3-SR unit over the floor as instructed. Contact the Radiation Supervisor or designate to report any contamination of the work area.

    The Supervisor will also check all reusable equipment for contamination. If the equipment becomes contaminated with a Level 1 isotope, put the piece of equipment in a plastic bag, label the bag with the date, isotope and dose rate, and isolate the bag in the radiation storage area

    Disposable protective equipment must be removed and placed in a plastic bag or closed container before leaving the work area.

12. The Region's Health and Safety Consultant, and Plant Engineer/Manager will be contacted with details of suspected radioactive source.

13. The driver will notify their appropriate Collection Manager that an alarm has been triggered. They will be informed if the vehicle is required to move to another site, level of the alarm and any other details relevant to the situation.

14. Stored material shall be surveyed on a weekly basis, along with the storage area vicinity, until radiation levels have decayed to a non-detectable level (refer to Appendix B for a sample weekly inspection listing). The surveyor will consult the decay/half-life expected times for each isotope prior to surveying the containers and confirm that the radiation levels decayed as expected. Refer to Appendix C for a list of the half-lives for the medical isotopes. Any abnormality shall be immediately communicated to the radiation supervisor and properly logged in the logbook.

15. To confirm that the stored material has decayed to a non-detectable level, the material must be passed through the portal monitor with no alarm **and radiation levels must be at background when measured using the handheld unit on contact with the bag.** Upon confirmation of the above, the Supervisor shall dispose of the decayed material as regular waste. The date, time and name of decision-maker will then be recorded in the logbook, under the report number originally assigned to the event.

LEVEL-2 ALARM:

15,001 to 500,000 Counts per Second (CPS) above background and/or further identification of the isotope indicates that it is part of the Level-2 isotopes' list.

NOTE:

Please note and remember that certain isotopes will automatically be considered to be part of Level-2 Alarm, regardless the radiation count rate that they generate, due to the potential hazard that they pose (developing of dust or volatility might be some of the contributors). Level-2 Isotopes include: cobalt-60 (Co-60), cesium-137 (Cs-137), iridium-192 (Ir-192) and radium-226 (Ra-226).

1. Weighscale Operator will notify the Site Supervisor that there is a Level-2 Alarm. A Level-2 transaction comment will also be applied to the weighscale ticket indicating the level of suspected radioactive source.

   The operator will also obtain a print out of the alarm form from the RDS.

   Note: If the location indicated by the RDS points to the truck cabin or anywhere in the vicinity of the driver's location, consider the possibility that the driver has set off the alarm. If this is positively identified as to be the case, document it in the logbook and stop applying the rest of this procedure. Positive identification of this case can be accepted only when backed up and fully confirmed by the radiation hand-held monitor or alternate driver having cleared the portal with the vehicle.

2. If trained management staff are not available, the load will need to be transferred to another site. Trained management staff with appropriate equipment must be available at the redirect location. Call the potential site for confirmation before redirecting the vehicle.

   In addition, prior approval from the Canadian Nuclear Safety Commission is required before the vehicle can leave the site. Contact the Supervisor or Plant Engineer to arrange for this approval. You will need to provide the following information about the load:

   A. Whether it is a Region vehicle or a hauler contracted with Durham Waste Management Services;
   B. If it is a contract vehicle, the name of the contactor company
   C. Date and time that the alarm was triggered;
   D. Vehicle description (e.g. bulk lift);
   E. Intended destination;
   F. Maximum alarm count from the portal monitor in CPS;
   G. Background level in CPS from the portal monitor;
   H. Dose rate from the handheld (Fieldspec/Identifinder) in either uSv or nSv, if available at your site;
   I. Identity of radionuclide, if available at your site (e.g. I-131)

   Once approval has been obtained, the Supervisor or Plant Engineer will provide a signed copy of the approval form to the receiving site and given to the driver and delivered to the Supervisor at the redirect site.

3. The re-direct Supervisor will direct the load to a designated area.

4. The Supervisor will pick up the protective equipment from the designated "clean protective equipment" storage area (which may include: rubber gloves; coveralls; dust mask; removal tool) and keep it handy for any potential future needs. The Supervisor will also wear a **personal radiation badge**, which will be monitored on a quarterly basis.

5. The Supervisor will pick up and check the hand-held radiation monitors and ensure that the batteries are charged and turn them ON.

6. The Supervisor will use the Fieldspec/IdentiFinder to survey the area surrounding the truck and will determine the safe distance to be kept as a buffer zone. Dose rates outside the buffer zone should be **less than 0.025 mSv/h (less than 25 μSv/h**). The distance will be indicated in the logbook and immediately communicated to all personnel on site. Unauthorized staff should not enter an area where the level exceeds **0.025 mSv/h (25 μSv/h)**.

7. The Supervisor will pick up the radiation hand held monitor and survey the surrounding area while approaching the truck. The dose rate shall be logged in along with the date/time.

8. If no positive identification of the isotope can be made with the hand held radiation monitor, the isotope is found on the Level 2 list (cobalt-60 (Co-60), cesium-137 (Cs-137), iridium-192 (Ir-192) and radium-226 (Ra-226)), or is not one of the Level 1 isotopes (**I-131, Ga-67, Tc-99m, Th-201 or In-111)** contact the Radiation Supervisor to investigate the load. If necessary, the Radiation Supervisor will contact a specialized surveying company to investigate the load and isolate the material. The Supervisor will provide copies of all documentation and assist the specialized personnel as required.

   If the Supervisor determines that the vehicle needs to be transferred, the load must receive prior approval from the Canadian Nuclear Safety Commission before the vehicle is allowed to leave the site. You will need to provide the following information about the load:

   A. Whether it is a Region vehicle or a hauler contracted with Durham Waste Management Services;
   B. If it is a contract vehicle, the name of the contactor company
   C. Date and time that the alarm was triggered;

D. Vehicle description (e.g. bulk lift);
E. Intended destination (e.g. Durham Transfer Station);
F. Maximum alarm count from the portal monitor in CPS;
G. Background level in CPS from the portal monitor;
H. Dose rate from the handheld (Fieldspec/Identifinder) in either uSv or nSv, if available at your site;
I. Identity of radionuclide, if available at your site (e.g. I-131).

Once approval has been obtained, the Supervisor or Plant Engineer will fax a signed copy of the approval form to you. A copy of the faxed approval form must be given to the driver and delivered to the Supervisor at the redirect Transfer Station.

9. If the isotope is **I-131, Ga-67, Tc-99m, Th-201 or In-111,** and the count rate at alarm exceeds 15,000 CPS above background, isolate the section of the load that the material is in and put the waste in a roll-off bin for decay. Do not attempt to isolate the specific source of the radiation.

10. The Supervisor will record the details of the load including date, transaction number, hauler, vehicle Id, isotope, alarm level, highest CPS identified by portal system, dose rate (µSv/h) from RDS and hand held unit, if available, and applicable comments in a logbook. The Health and Safety Consultant, Supervisor and/or Plant Engineer will be contacted with details of suspected radioactive source.

LEVEL-3 ALARM:
Over 500,000 Counts per Second (CPS) above background.

1. The Weighscale Operator will ask the driver to pull ahead to the designated location. Upon confirmation by the Supervisor that the RDS is alarming on a Level-3 radiation event, the weigh scale operator and any other personnel located in the area will immediately evacuate the scale in an orderly manner. Make sure that the RDS is not turned OFF. Leave all power ON upon evacuating the area.

2. If retrieval of the personal safety protective equipment and/or radiation hand-held monitoring device is safe and the personnel do not have to get any closer to the “contaminated” load, such equipment and device(s) shall be retrieved and used to determine evacuation safety, while evacuation procedure is still ON. The Supervisor must also wear a **personal radiation badge**, which will

be monitored on a quarterly basis.

3. Maintain safe distance from vehicle (**ensure buffer zone at 0.025 mSv/h (25 μSv/h)**). Safe distance can be normally assessed with the above-mentioned device(s). However, if such device(s) are not available, maintain the greatest distance possible from the vehicle and follow the evacuation procedure. Staff will coordinate the removal of vehicles on or near weigh scales, followed by traffic entering/departing facility.

4. Staff will be placed at all entrances/exits to site to divert any additional vehicle traffic from entering the facility if instructed by the Health and Safety Consultant and/or Supervisor and/or Plant Engineer, based on personal safety criteria only.

5. Customer vehicles using the site to dispose of material will be removed from site after unloading only if this is safe. Drivers will be informed that transactions will be completed at a later date.

6. The Supervisor or Plant Engineer will contact the Duty Officer at the Canadian Nuclear Safety Commission (CNSC) at **613-995-0479**.

   Local emergency services (911) should also be notified.

   Make sure the following people are notified:
   1. General Supervisor;
   2. H.R. Consultant – Health and Safety;
   3. Plant Engineer;
   4. Waste Management Director; and,
   5. Works Commissioner

   NOTE: In the event that the CNSC Duty Officer is unavailable, contact CANUTEC (613-996-6666), the Transfer Emergency Center operated by Transport Canada.

8. The Supervisor will record the details of the load including date, transaction number, vehicle Id, hauler, Isotope, highest CPS identified by the portal system, highest dose rate identified by handheld radiation monitor (if available) in the logbook.

7. Weighscale Administration will be contacted to address incomplete transactions. If possible, the RDS shall be remotely operated from this point in time.

9. The appropriate Collection Manager will be notified. The location of the radioactive material in the load would be disclosed to Collection

Manager to assist in the origin of material.

10. Collection manager will attempt to identify the source of the suspected radioactive material.

11. Plant personnel will assist in the investigation as required.

Response Procedures For Private Vehicles (Non-Solid Waste Management Services Vehicles):

The following section is for alarms detected in private vehicles (non-Solid Waste Management Services vehicles).

LEVEL-1 ALARM
Up to 15,000 Counts per Second (CPS) above background.

AND

LEVEL-2 ALARM
Up to 500,000 Counts per Second (CPS) above background

1. Weigh scale Operator will notify the Supervisor that there is a Level 1 or Level 2 alarm on a private vehicle. A transaction comment will also be applied to the weighscale receipt message indicating the level of suspected radioactive source. The load will then be cancelled using cancel code "82-Suspect Radioactive Load".

   The operator will also obtain a printout of the alarm form from the RDS.

2. The Weigh scale Operator will inform the driver that this load is denied entry due to a radiation detection alarm.

3. The Weigh scale Operator will provide the driver with a Rejection Notice and blank estoppel form. A copy of the RDS printout will be provided if requested.

4. The Supervisor will record the details of the load including date, time, transaction number, vehicle Id, highest CPS identified by the portal system, and dose rate from the RDS in the radiation logbook. The Health and Safety Consultant, Supervisor, and Plant Engineer will be contacted with details of suspected radioactive source.

LEVEL 3 ALARM:
Over 500,000 Counts per Second (CPS) above background.

It shall be treated exactly the same as the Level 3 Alarm for Inbound Solid Waste Management Services vehicles.

APPENDIX A

CONTACT NUMBERS

Rad/Comm Systems	905-678-6503 (office)

APPENDIX B

Radiation Storage Area Weekly Inspection Sheet

SITE: _____

Date	Time	Inspected By	Signature	Comments	Dose Rate at Entrance (μSv/hr)

Radiation Storage Area Inventory Sheet

SITE: _____

Date	Time	Removed By	Initial	Isotope	Dose Rate uSv/hr	Comments	Date Cleared	Cleared By	Initial

INCLUDE ON EACH LABEL – ISOTOPE, DATE, DOSE RATE (μSv/h), TRANSACTION/VEHICLE ID, CONTACT NAME & PHONE #

APPENDIX C

Medical Isotopes – Half Lives

Gallium-67 (Ga-67)	**3.3 days**
Indium-111 (In-111)	**2.8 days**
Iodine-131 (I-131)	**8.0 days**
Technetium-99m (Tc-99m)	**6.0 hours**
Thallium-201 (Tl-201)	**3.03 days**

THE REGIONAL MUNICIPALITY OF DURHAM
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THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #22 – NOVEMBER 28, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

RFP-604-2008, Page 19, Section 4.5.2.2 (.7)
Please delete the wording in 4.5.2.2 (.7) and replace with the following:

"Proponents should provide a communications and community relations plan that describes their approach to minimizing nuisance and disruption during construction, as well as addressing complaints by members of the public directly affected by construction and operations activities related to the project."

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #23 – DECEMBER 1, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Technical Requirements – Revision 1 – Section 9.8

Remove: "Minimum net continuous capability at generator terminals at 0.90 power factor, KVA'"

Replace With: "Minimum net continuous capability at generator terminals at 0.85 power factor, KVA"

NOTE: RFI's pertaining to Addendum #23 only will be received until Wednesday, December 3, 2008.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #24 – DECEMBER 1, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Technical Requirements – Revision 1 – Section 4.4.4, Electrical Generating Capacity, Last Sentence.

Remove: "The transmission capacity for the EFW facility will be designed for the ultimate processing capacity of 400,000 tonnes per year (1,218 tpd)."

Replace With: "The transmission and breaker capacity for the EFW facility will be designed for the ultimate processing capacity of 400,000 tonnes per year (1,218 tpd). The DBO Contractor will size the transformer(s) to meet the requirements of the initial facility capacity of 140,000 tonnes per year, plus the first expansion to a total minimum facility capacity of 250,000 tonnes per year."

NOTE: RFI's pertaining to Addendum #24 only will be received until Wednesday, December 3, 2008.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #25 – DECEMBER 1, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Technical Requirements - Revision 1 – Section 8.13.1, Conveyers, Paragraph 13

Remove: "All furnace/boiler fly ash collection hoppers must be insulated and equipped with motorized, pneumatic, or solenoid operated positive closing double dump valves. Rotary valves are not acceptable."

Replace With: "All furnace/boiler flay ash/air pollution control equipment fly ash collection hoppers must be insulated and equipped with motorized, pneumatic, or solenoid operated positive closing double dump valves or rotary valves. The double dump valves or rotary valves must be properly sized to prevent pluggage during operation."

NOTE: RFI's pertaining to Addendum #25 only will be received until Wednesday, December 3, 2008.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
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REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #26 – DECEMBER 1, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Technical Requirements - Revision 1 – Section 11.3, Hydrostatic Tests, Paragraph 3, Sentence 3

Remove: "Maximum test pressure must be held for a minimum of 1 hour."

Replace With: "The Test Pressure of 150% of design must be held for a minimum of 10 minutes, or in accordance with all applicable codes and standards, whichever is more stringent."

NOTE: RFI's pertaining to Addendum #26 only will be received until Wednesday, December 3, 2008.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #27 –DECEMBER 3, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following clarifications:

> The intent of this addendum is to further clarify that as Appendix 1 Technical Requirements is an attachment to the Project Agreement, proponents may provide comments or recommended changes up to and including December 12, 2008. No additional comments or changes will be accepted after this date.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #28 – DECEMBER 10, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

All of Durham Region's Water Supply Systems are accredited to the Environmental Management Standard ISO 14001:2004, the Quality Management Standard ISO 9001:2000 and the Food Safety Standard H.A.C.C.P. As part of Ontario's Drinking-Water Systems Regulation 170/03, the Regional Municipality of Durham, as a supplier and operator of public drinking water systems, is required to prepare and post on the Region's website an annual report describing our waterworks and the quality of drinking water supplied. The following link is to the Region's Water Quality Reports and additional information on Durham Region's Water Supply:

http://www.region.durham.on.ca/works.asp?nr=departments/works/services/water/waterquality.htm

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #29 – DECEMBER 10, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Replace:

RFP-604-2008, Section 23, Form 4 Performance Guarantees, Pages 70 and 71, with the following pages below: 70(Revised), 71(Revised), 71A and 71B.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

23. FORM 4 PERFORMANCE GUARANTEES

Facility Guarantee

These performance guarantees will be incorporated into the Project Agreement.

1.	**Construction Period Guarantee**		
	Length of time from Notice to Proceed to Schedule Acceptance Date (days)		
2.	**Throughput Capacity Guarantee (140,000 tonnes per year)**		
	HHV	Tonnes per day	
	11.0 MJ/kg		
	12.0 MJ/kg		
	13.0 MJ/kg *		
	14.0 MJ/kg		
	15.0 MJ/kg		
	* = Design waste HHV		
3.	**Electricity Production Guarantee (Annual Average)**		
	Throttle Conditions Proposed (Bar)		
	Throttle Conditions Proposed (^{o}C)		
	Maximum Steam load (kg/hr)		
	HHV	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne
	11.0 MJ/kg		
	12.0 MJ/kg		
	13.0 MJ/kg		
	14.0 MJ/kg		
	15.0 MJ/kg		

4.	**Residue Quality and Quantity Guarantee:** The Average monthly quality and quantity of Residue (to include bottom ash, fly ash, siftings, scrubber residue and all other process residue) from combustion of processible waste:	
	Unburned Combustible Matter (% dry weight – not exceed 3.0%)	
	Total Residue (bottom and fly ash) excluding ferrous and other materials (tonne of residue/tonne of processible waste – not to exceed 30%)	
	Percent Moisture in Bottom Ash Residue (tonne of residue/tonne of processible waste – not to exceed 25%)	
5.	**Metals Recovery Guarantee (recovery efficiency test)**	
	Measured as tonnes ferrous recovered/tonnes ferrous in residue pre-processing – expressed as a percentage	
6.	**Other Material Recovery** (Specify material; tonne of material recovered/tonne of material recoverable – expressed as %)	
	Material 1: Non-Ferrous	
	Material 2:	
	Material 3:	
7.	**Guaranteed Facility Availability**	
	the proportion of time the Incinerator Unit is available to process the Regions' waste within a calendar year time period, expressed as a percentage (minimum requirement is 90% availability or 7,884 hours available in a year)	

8. Guaranteed Maximum Emission Limits

Pollutant	Units	YD EFW Proposed Limits	Guaranteed Limit	Environmental Demerit Points
Exceed any Certificate of Approval Limit and Operator cannot receive any bonus payments for that year. Further violations will increase demerit points and demerit points for specific emissions are cumulative with CEM or Stack test demerits listed below. Operator can receive both a negative Performance Adjustment and MOE fines.				75
Continuous Emission Monitoring (CEM) Parameters Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns				
Sulphur Dioxide (SO_2) 24 hour geometric mean exceeds CEM guarantee	mg/Rm^3	35		10
Hydrogen Chloride (HCl) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm^3	9		10
Hydrogen Fluoride (HF) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm^3	0.9		10
Nitrogen Oxides (NOx) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm^3	180		10
Carbon Monoxide (CO) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm3	45		10
Stack Test Parameters				
Mercury (Hg) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	15		20
Cadmium (Cd) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	7		20
Cadmium + Thallium (Cd + Th) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	46		20
Lead (Pb) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	50		20
Sum of (As, Ni, Co, Pb, Cr, Cu, V, Mn, Sb) Stack Test result exceeds Emission Guarantee	µg/Rm3	460		20

Dioxins Stack Test result exceeds Emission Guarantee	pg/Rm3	60		20
Total Particulate Matter Stack Test result exceeds Emission Guarantee	mg/Rm^3	9		20
Organic Matter (as methane) Stack Test result exceeds Emission Guarantee	mg/Rm3	49		20
Operational Parameters Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns				
Continuous Emission Monitor Monthly Availability	percent	95 %		5
Opacity exceeds CEM guarantee	percent	TBD		5
Any other MOE C of A imposed criteria	TBD	TBD		TBD

1 The Owner will assign environmental performance points for guaranteed operating level exceedances during operation, but will exclude exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns.

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #30 – DECEMBER 12, 2008

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Replace:

RFP-604-2008, Section 23, Form 4 Performance Guarantees, Pages 70 and 71, with the following pages below: 70 (Revised – Addendum 30), 71 (Revised – Addendum 30), 71A (Revised - Addendum 30) and 71B (Revised - Addendum 30).

This addendum shall supersede Addendum No. 29.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

23. FORM 4 PERFORMANCE GUARANTEES

Facility Guarantee

These performance guarantees will be incorporated into the Project Agreement.

1.	**Construction Period Guarantee**		
	Length of time from Notice to Proceed to Schedule Acceptance Date (days)		
2.	**Throughput Capacity Guarantee (140,000 tonnes per year)**		
	HHV	Tonnes per day	
	11.0 MJ/kg		
	12.0 MJ/kg		
	13.0 MJ/kg *		
	14.0 MJ/kg		
	15.0 MJ/kg		
	* = Design waste HHV		
3.	**Electricity Production Guarantee* (Annual Average)** ***Not including the Future District Energy System component (See Part 9 to this form, below)**		
	Throttle Conditions Proposed (Bar)		
	Throttle Conditions Proposed (^{o}C)		
	Maximum Steam load (kg/hr)		
	HHV	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne
	11.0 MJ/kg		
	12.0 MJ/kg		
	13.0 MJ/kg		
	14.0 MJ/kg		
	15.0 MJ/kg		

4.	**Residue Quality and Quantity Guarantee:** The Average monthly quality and quantity of Residue (to include bottom ash, fly ash, siftings, scrubber residue and all other process residue) from combustion of processible waste:	
	Unburned Combustible Matter (% dry weight – not exceed 3.0%)	
	Total Residue (bottom and fly ash) excluding ferrous and other materials (tonne of residue/tonne of processible waste – not to exceed 30%)	
	Percent Moisture in Bottom Ash Residue (tonne of residue/tonne of processible waste – not to exceed 25%)	
5.	**Metals Recovery Guarantee (recovery efficiency test)**	
	Measured as tonnes ferrous recovered/tonnes ferrous in residue pre-processing – expressed as a percentage	
6.	**Other Material Recovery** (Specify material; tonne of material recovered/tonne of material recoverable – expressed as %)	
	Material 1: Non-Ferrous	
	Material 2:	
	Material 3:	
7.	**Guaranteed Facility Availability**	
	the proportion of time the Incinerator Unit is available to process the Regions' waste within a calendar year time period, expressed as a percentage (minimum requirement is 90% availability or 7,884 hours available in a year)	

8. Guaranteed Maximum Emission Limits

Pollutant	Units	YD EFW Proposed Limits	Guaranteed Limit	Environmental Demerit Points
Exceed any Certificate of Approval Limit and Operator cannot receive any bonus payments for that year. Further violations will increase demerit points and demerit points for specific emissions are cumulative with CEM or Stack test demerits listed below. Operator can receive both a negative Performance Adjustment and MOE fines.				75
Continuous Emission Monitoring (CEM) Parameters Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns				
Sulphur Dioxide (SO_2) 24 hour geometric mean exceeds CEM guarantee	mg/Rm^3	35		10
Hydrogen Chloride (HCl) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm^3	9		10
Hydrogen Fluoride (HF) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm^3	0.9		10
Nitrogen Oxides (NOx) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm^3	180		10
Carbon Monoxide (CO) 24 hour arithmetic mean exceeds CEM guarantee	mg/Rm3	45		10
Stack Test Parameters				
Mercury (Hg) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	15		20
Cadmium (Cd) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	7		20
Cadmium + Thallium (Cd + Th) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	46		20
Lead (Pb) Stack Test result exceeds Emission Guarantee	$\mu g/Rm^3$	50		20
Sum of (As, Ni, Co, Pb, Cr, Cu, V, Mn, Sb) Stack Test result exceeds Emission Guarantee	µg/Rm3	460		20

Dioxins Stack Test result exceeds Emission Guarantee	pg/Rm3	60		20
Total Particulate Matter Stack Test result exceeds Emission Guarantee	mg/Rm^3	9		20
Organic Matter (as methane) Stack Test result exceeds Emission Guarantee	mg/Rm3	49		20
Operational Parameters Excludes exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns				
Continuous Emission Monitor Monthly Availability	percent	95 %		5
Opacity exceeds CEM guarantee	percent	TBD		5
Any other MOE C of A imposed criteria	TBD	TBD		TBD

1 The Owner will assign environmental performance points for guaranteed operating level exceedances during operation, but will exclude exceedances during Normal Start-up and Shutdown conditions and Emergency Shutdowns.

9. **Future District Heating System Energy Output Guarantee**			
	Provide a guaranteed maximum reduction in electrical output resulting from the implementation of the district heating loop. Vendor's guarantee shall be at peak load conditions of 3.5 MW thermal to the future office buildings in the Energy Park and 3.9 MW thermal load to the Courtice WPCP.		
	Maximum anticipated Extraction Steam load for district heating system (kg/hr)		
	Extraction Steam Conditions Proposed for district heating system (^{o}C)		
	Extraction Steam Conditions Proposed for district heating system (Bar)		
	HHV	Gross Electrical Output (kWh/tonne)	Net Electrical Output (kWh/tonne
	11.0 MJ/kg		
	12.0 MJ/kg		
	13.0 MJ/kg		
	14.0 MJ/kg		
	15.0 MJ/kg		

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #31 – JANUARY 14, 2009

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

1. **Replace Section 4.6.1.2.3 (vi), entire Bullet 4 regarding Annual Property Taxes, with the following:**

   "Annual Property Taxes should be included as a separate line item and is assumed to be nine hundred and sixty eight thousand ($968,000) in 2008 Canadian dollars."

2. **Replace entire Item 18 of Form 2A with the attached amended Pages 51 Revised and 52 Revised.**

3. **Replace Form 3 with attached amended Page 63 Revised.**

4. **Replace Form 3A with the attached amended Pages 64 Revised to 66A Revised.**

5. **Replace Form 3B with attached amended Page 67 Revised.**

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

11.	Air Pollution Control Equipment, to include but not be limited to:		
	(a) Stack, I.D. Fans		$_____
	(b) Fabric Filter Particulate Control System		$_____
	(c) Acid Gas Control System		$_____
	(d) DeNOx System		$_____
	(e) Mercury Control System		$_____
	(f) Continuous Emissions Monitoring System		$_____
	(g) Ducting, freight and all related facilities		$_____
12.	Waste Water Treatment Plant	Subtotal	$_____
13.	Spare Parts and Tools	Subtotal	$_____
14.	Mobile Equipment, including, but not limited to front-end loaders, bobcats, pick-up trucks, and other mobile equipment necessary to operate the EFW Facility.	Subtotal	$_____
15.	Facility Start-up and Acceptance Testing including start-up operation, personnel training, equipment testing and Acceptance Test	Subtotal	$_____
16.	Performance Bond and Labour & Material Bond		$_____
	(a) 50% Performance Bond (As per FORM 2D)		$_____
	(b) 50% Labour and Material Payment Bond (As per FORM 2E)		$_____
		Subtotal	$_____
17.	Other (not included above; specify on attachment)	Subtotal	$_____
18.	Insurance During Construction – in the amounts required in the contract		
	(a) Builders' Risk Insurance		$_____
	(b) Wrap Up Liability Insurance		$_____
	(c) Errors & Omissions (Professional Liability)		$_____

(d)	Automobile Liability Insurance		$_____
(e)	Other		$_____
		Subtotal	$_____
19.	Goods and Services Tax (GST)		
		Subtotal	$_____
	TOTAL FIXED CONSTRUCTION PRICE as at the Closing Time		$_____

19. FORM 3 TOTAL PRICE FOR OPERATION AND MAINTENANCE OF FACILITY [1]

1. The Total Annual Operating Fee (as calculated in FORM 3A), in Canadian dollars as at the Closing Time

_____ Dollars ($_____).

Write the Total Annual Operating Fee in Canadian dollars in words on the line provided. Use numbers to state the same price within the parenthesis.

The Total Annual Operating Fee will be escalated in accordance with the Section 37.6 Annual Fee Adjustments of the Project Agreement.

Payment of the Total Annual Operating Fee will be made to the Successful Proponent in accordance with the Project Agreement.

2. The Per Tonne Total Annual Operating Fee as at the Closing Time (the Operating Fee in 1. above) divided by 140,000 metric tonnes of processing capacity

_____Dollars per tonne ($_____/Tonne)

Write the Per Tonne Total Annual Operating Fee in words on the line provided. Use numbers to state the same per tonne Per Tonne Total Annual Operating Fee within the parentheses.

3. The Per Tonne Charge for Waste Processed in Excess of 140,000 Tonnes of Annual Throughput (as calculated in FORM 3B), as at the closing time

_____Dollars per tonne ($_____/Tonne)

Write the per tonne charge for waste processed in excess of 140,000 tonnes of annual throughput in Canadian dollars in words on the line provided. Use numbers to state the same charge within the parentheses.

_____
Name of Proposer

_____
Authorized Officer

_____
Signature

1 The Total Operating Fee will be adjusted annually in accordance with the Project Agreement.

20. FORM 3A ITEMIZED TOTAL ANNUAL OPERATING FEE

All prices are in Canadian dollars as at the Closing Time.

TOTAL ANNUAL OPERATING FEE (as defined at the bottom of this form)

1. Labour Costs (including fringe)

			# of Employees	
A.	Process Operators			
	a)	boiler operators	_____	$_____
	b)	refuse handlers/crane operators	_____	$_____
	c)	maintenance staff	_____	$_____
	d)	shift supervisors	_____	$_____
	e)	residue handlers	_____	$_____
	f)	others (specify functions and costs on a separate sheet)	_____	$_____
		Subtotal		$_____
B.	Administrative Staff			
	a)	managers	_____	$_____
	b)	administrative (accounting/clerical)	_____	$_____
	c)	scale operators	_____	$_____
	d)	other (specify functions and costs on a separate sheet)	_____	$_____
		Subtotal		$_____
C.	Others (specify function, number and cost on a separate sheet)			
		Subtotal		$_____
		TOTAL LABOUR COSTS		$_____

2. Maintenance Costs

A	Minor parts/supplies for process and other equipment	$_____
B	Minor Building maintenance and repair	$_____
C.	Minor Rolling stock maintenance and repair	$_____
D.	Miscellaneous supplies and spare parts	$_____
E.	Other (specify on separate sheet)	$_____
	TOTAL MAINTENANCE COSTS	$_____

3. Consumables (i.e. chemicals, reagents) specify quantity and cost of other materials not listed below on separate sheet

a) scrubber lime (_____kg /yr at $_____/kg)
b) ammonia or urea (_____kg /yr at $_____/kg)
c) activated carbon (_____kg /yr at $_____/kg)
d) boiler chemicals (_____kg /yr at $_____/kg)

TOTAL CONSTUMABLES COSTS $_____

4. Unitary Major Equipment Repair and Facility Refurbishments Costs

A. Unitary Major Equipment Repair and Facility Refurbishments Costs (provide detail in Schedule A – Proposal FORM 3) $_____

TOTAL UNITARY MAJOR EQUIPMENT REPAIR AND FACILITY REFURBISHMENTS COSTS $_____

5. Auxiliary Fuel Costs

A. Fossil Fuel

a) natural gas (_____ cu metres/yr at $_____/metre)
b) gasoline (_____litres/yr at $_____/litres)
c) diesel fuel [2] (_____ litres/yr at $_____/litres)
d) fuel oil (_____ litres/yr at $_____/litres) $_____

B. Other (specify quantity and cost for each on a separate sheet) $_____

TOTAL AUXILIARY FUEL COSTS $_____

6. Purchased Utilities

A. Electricity (_____ kW hr / yr at $_/kWhr)
B. Water (_____ litre/ / yr at $_____/litre)
C. Sewer (_____ litre/ / yr at $_____/litre)
D. Other (provide quantity details)

TOTAL PURCHASED UTILITIES $_____

2 Excludes diesel fuel costs related to residue haulage covered in Item 7, Residue Haulage Diesel Fuel Cost

7. Residue Disposal Costs (excluding Residue Haulage Diesel Fuel Cost)

Fly Ash
Tonnes per Tonne of Throughput _____
Tonnes per year_____
$ /T _____ $_____

Bottom Ash
Tonnes per Tonne of Throughput _____
Tonnes per year_____
$ /T _____ $_____

Bypass
Tonnes per Tonne of Throughput _____
Tonnes per year_____
$ /T _____ $_____

TOTAL RESIDUE DISPOSAL COSTS (EXCLUDING RESIDUE HAULAGE DIESEL FUEL COST) $_____

8. Residue Haulage Diesel Fuel Cost

Total Truck Kilometers _____ km
Total Litres Consumed _____ litres
Price / Litre of Diesel _____ $/litres

TOTAL RESIDUE HAULAGE DIESEL FUEL COST $_____

9. Contract, Rental or Lease Services

A. Specify on a separate sheet if necessary $_____

TOTAL CONTRACT, RENTAL OR LEASE SERVICES $_____

10. Administrative

A. Continuous/periodic monitoring and testing $_____
B. Administration of Project Agreements $_____
C. Other (specify on a separate sheet) $_____

TOTAL ADMINISTRATIVE COSTS $_____

11. Annual Guaranty Agreement Costs, if any

A. Insurance (Other than those policies specified in 10 below), specify policy types on a separate sheet $_____

B. Letters of Credit (specify proposed bank and amount) $_____

_____

_____

_____

C. Others (specify on a separate sheet) $_____

TOTAL ANNUALGUARANTEE AGREEMENT COSTS $_____

12. Insurance Costs – in the amounts required in the Project Agreement

A. Commercial General Liability $_____

B. Automobile Liability Insurance $_____

C. Environmental Liability Insurance $_____

D. Errors and Omissions (Professional Liability) Insurance $_____

E. All Risks $_____

F. Business Interruption Insurance $_____

TOTAL INSURANCE COSTS $_____

13. Taxes

A. Commodity Taxes (specify type) $_____

B. Other (specify on a separate sheet) $_____

.

TOTAL TAXES $_____

14. Overhead

D. Overhead

E. Other (specify on a separate sheet)

TOTAL OVERHEAD COSTS $_____

TOTAL ANNUAL OPERATING FEE (as at the Closing Time) $_____

21. FORM 3B PER TONNE CHARGE FOR THROUGPUT IN EXCESS 140,000 TONEES OF ANNUAL THROUGHPUT

ALLOCATION OF EXCESS PER TONNE OPERATING FEE

	Item	$ PER TONNE
1.	Labour Costs (including fringe)	$_____
2.	Maintenance Costs	$_____
3.	Consumables (i.e. chemicals, reagents) specify quantity and cost of other materials not listed below on separate sheet	$_____
4.	Unitary Major Equipment Repair and Facility Refurbishments Costs	$_____
5.	Auxiliary Fuel Costs	$_____
		$_____
6.	Purchased Utilities	$_____
7.	Residue Disposal Cost (excluding Residue Haulage Diesel Fuel Cost)	$_____
8.	Residue Haulage Diesel Fuel Cost	$_____
9.	Contract, Rental or Lease Services	$_____
10.	Administrative	$_____
		$
11.	Annual Guaranty Agreement Costs, if any	$_____
		$_____
12.	Insurance Costs – in the amounts required in the Project Agreement	$_____
13.	Taxes	$_____
14.	Overhead	$_____
		$_____
	PER TONNE CHARGE FOR THROUGHPUT IN EXCESS OF 140,000 TONNES THROUGHPUT (as at the Closing Time)	$_____

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #32 – JANUARY 14, 2009

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Remove: RFP Section 4.7.4.1

Replace With: RFP Section 4.7.4.1 as outlined below:

"As a result of their involvement in the Project, the entities set forth below are not eligible to participate as a member of a Project Team or in the preparation of a Proposal. Notwithstanding the foregoing, in the event of corporate restructurings or acquisitions an otherwise ineligible team member has directly or indirectly become a member of, or related to a member of, a Project Team, then same may be permitted in the sole and unfettered discretion of the Regions provided that confidentiality protocols and corporate firewalls are instituted between the ineligible team member and the rest of the Project Team and the Proponent offers such indemnities to the Regions, all of which as may be deemed necessary in the sole and unfettered discretion of the Regions, in order to ensure the integrity of the bidding process.

.1 Deloitte & Touche LLP
.2 GENIVAR
.3 Ramboll
.4 Jacques Whitford
.5 KPMG LLP
.6 Bacopo Environmental Solutions Inc.
.7 Hill & Knowlton Canada
.8 HDR Corporation

.9 Senes Consultants Limited
.10 Borden Ladner Gervais LLP; and
.11 Tennyson Consulting”

The information contained in this addendum is explicitly applicable to all articles and clauses noted in this addendum. In addition, this addendum is applicable to other related articles and clauses of the Request for Proposals not specifically noted herein, as may be required in order to interpret the Request for Proposals in a fashion which is internally consistent with all addenda issued in relation thereto.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #33 – JANUARY 19, 2009

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Add the following Items to RFP-604-2008, Section 4.5.3.1:

Item .14 The Proponent's Noise Control Plan (Appendix 32) describing their approach to minimizing noise during both the construction and operating phases including processes for mitigating and dealing with complaints.

Item .15 The Proponent's Odour Control Plan (Appendix 33) describing their approach to minimizing odour issues during the operation of the facility including processes for mitigating and dealing with complaints.

Add the following Section to RFP-604-2008:

Section 4.7.2.1 Proponents should provide organization charts for identifying key positions and interactions of personnel.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #34 – JANUARY 19, 2009

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Remove: Section 5.3.3 - Evaluation of Technical Elements
Section 5.3.4 - Evaluation of Project Delivery Elements
Section 5.3.5 - Evaluation of Cost and Commercial Elements

Replace With: Section 5.3.3 (Revised) - Evaluation of Technical Elements
Section 5.3.4 (Revised) - Evaluation of Project Delivery Elements
Section 5.3.5 (Revised) - Evaluation of Cost and Commercial Elements

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm

5.3.3 (Revised) - Evaluation of Technical Elements:

TECHNICAL ELEMENTS **TOTAL OF 45 POINTS**

Environmental & Performance Considerations **25 Points**

- Air – RFP Form 4 section 8 - points awarded based on number of pollutant elements and the degree of reduction below with guaranteed emission limits below those defined in Table 4-1 of Appendix 1 and Appendix C-2

- Water – points awarded based on decreased use of potable water for facility processes - e.g. less reliance on purchased potable water for process make-up water

- Ash Management – points awarded based on bottom ash quality and increased diversion through the beneficial reuse and/or stabilization of process residues (i.e. less reliance on landfill and greater marketability of bottom ash up to and including and price guarantees) Substantive evidence required to support claims

- Odour – points awarded based on comprehensive detailed plans for i) odour control during both construction and operation phases. Defined process for managing (receiving, logging, investigating and resolving) complaints

- Noise – points awarded based on comprehensive detailed plans for i) noise control during both construction and operation phases and ii) defined process for managing (receiving, logging, investigating and resolving) complaints

- Energy Recovery – points awarded based on energy recovery above the minimum design criteria – e.g. higher electrical generation while still meeting the minimum district heat requirements

- Recovered Materials Management – points awarded based on improved methods and efficiencies of recovery and comprehensive marketing plans, up to and including potential guaranteed floor pricing

- Capacity and Expansion Capability – points awarded based on ease of incremental expandability to ultimate 400,000 tpy facility

capacity.

Design, Construction and Operational Considerations **15 Points**

- Guarantees – points awarded based on the extent that the reduced project Construction Period Guarantee (Form 4 Section 1) and increased points for greater Guaranteed Facility Availability guarantee (Form 4 Section 7)

- Facility design – points awarded based on the extent that the facility design proposal exceeds the minimum Technical Requirements, and for additional details/clarity of the design concept – i.e. level of detail in the basis of design and in required drawings

- Facility operations and maintenance – points awarded based on the level of detail and extent to which Annual, Five Year and Life Cycle O&M plans meet or exceed the Technical Requirements and generally accepted industry standards

Innovation in Environmental Performance, Design, Construction and/or Operational Considerations **–** points awarded based on innovation elements based on degree of identification and control of risks; environmental, economic, and social benefits; added value and demonstrated ability within the proposal to actually implement. **5 points**

5.3.4 (Revised) - Evaluation of Project Delivery Elements

PROJECT DELIVERY ELEMENTS **TOTAL OF 20 POINTS**

Schedule and Cost Control **6 points**

- Critical path management - points awarded based on comprehensive details and reasonableness of plans for maintaining construction schedule and meeting schedule guarantee

- Budget forecasting and cost control measures - points awarded based on comprehensive detail of plan for maintaining cost control and meeting milestone targets

Methods – points awarded based on comprehensive detail in each of the following plans and their integration within **6 points**

the submission

- Quality Assurance/Quality Control plans
- Construction impact mitigation, complaint mitigation methods
- Environmental and Management plan consistent with ISO 14001:2004
- Health and Safety plan
- Community relations plan

Team Organization and Qualifications – points awarded based on completeness and clarity of organizational plan, roles and responsibilities **2 Points**

- Project management qualifications
- Experience and track record
- Accountability framework

Permits/Approval Plan - points awarded based on demonstrated understanding of Early Works Agreement schedule and plan; increased points for clarity and input in the four areas below **6 Points**

- Permitting schedule
- Coordination with project schedule
- Understanding and experience with local approval requirements
- Minimized reliance on Regional Staffing resources

5.3.5 (Revised) - Evaluation of Cost and Commercial Elements

The evaluation of cost and commercial elements will be completed based on a collective assessment of evaluation factors to determine a single collective score under each element of RFP "Section 4.6 Part 3 - Cost and Commercial Considerations," i.e. Section 4.6.1: Capital and Operating Costs, Section 4.6.2 Value for Money, and Section 4.6.3 Guarantees. Because the assessment includes qualitative and quantitative analyses, the lowest priced proposal may not necessarily be awarded the highest score. Proponents should also not assume that just meeting minimum RFP requirements under section 4.6 will result in the highest score. Since it is assumed that all proposals will meet minimum requirements, proposals which exceed minimum requirements will be awarded the highest scores.

COST AND COMMERCIAL ELEMENTS	**TOTAL OF 35 POINTS**
Capital and Operating Costs	**5 points**

• Evaluation Factors**:**
  • Reasonableness of all cost inputs, including methodology and approach used to determine Unitary Major Equipment Repair and Facility Refurbishment Costs
  • Integrity of the Model
	• Considerations:
	  • A qualitative assessment of the factors will be completed on a collective basis by assessing the degree to which capital costs, maintenance costs, life-cycle costs and operating costs included in the Model are consistent with:
	  1. RFP requirements;
	  2. Proposal details; and
	  3. Projects of a similar scope and magnitude.

Value for Money	**20 points**

• Evaluation Factors**:**
  • Magnitude of NPV costs to the Regions
  • Timing of cash flows and costs to the Regions
  • Sensitivity of costs to the Regions
	• Considerations:
	  • An assessment of the factors will be completed on a collective basis by assessing the stability and magnitude of both nominal and NPV costs, including:
	  1. Comparison to the lowest NPV Proposal;
	  2. Comparison to the lowest Total Annual Operating Fee;
	  3. Degrees of fluctuation in nominal and NPV costs due to sensitivity analyses; and,
	  4. Impacts to value for money considerations, based upon alternative/innovative options provided by the Proponent (only considered where a new and complete model is provided for any and each alternative proposal as per section 4.6.2.4).

Guarantees

10 points

- Evaluation Factors**:**
  - Financial capacity and condition of the Project Guarantor
  - Construction inflation
  - Other guarantees

- Considerations:
  - A qualitative assessment of the factors will be completed on a collective basis by assessing:
    1. The condition and capacity of the Parent Guarantor;
    2. The degree to which the Proponents construction costs are fixed in the Proposal; and
    3. The degree to which the guarantees in Form 4 will benefit the Regions.

THE REGIONAL MUNICIPALITY OF DURHAM
AND
THE REGIONAL MUNICIPALITY OF YORK

REQUEST FOR PROPOSALS RFP-604-2008

TO DESIGN, BUILD, OPERATE AND MAINTAIN AN ENERGY FROM WASTE FACILITY

ADDENDUM #35 – FEBRUARY 9, 2009

This addendum will form a part of the Proposal Documents for the above-noted proposal and shall be read in conjunction therewith. This addendum will take precedence over all requirements of the original Proposal Documents and any addenda issued previously. Bidders shall acknowledge receipt of this addendum by signing and returning it with the completed Proposal submitted. If, in the opinion of the Regions, the addendum issued affects the price of the proposal and the addendum is not returned or acknowledged, then the proposal submitted will be deemed non-compliant and rejected. If, in the opinion of the Regions, the addendum does not affect the proposal price and it is not submitted with the proposal or acknowledged, the bidder will be allowed two working days to submit the missing signed addendum to the Region of Durham Purchasing Section.

Please note the following changes/clarifications:

Remove: RFP Section 4.1.1

Replace With: RFP Section 4.1.1. as outlined below:

> "Proponents should submit no less than one (1) original and ten (10) copies of their Proposal to the Durham Regional Clerk in a sealed envelope or package(s) clearly addressed using a label in the form found in FORM 1. ALL 11 copies (original plus 10 copies) should include a CD or an equivalent electronic version of the entire proposal in a PDF format which allows portions of information to be extracted."
>
> For clarification purposes, the computer costing model remains as requested in Section 4.6.1.2.1.

I/we hereby acknowledge receipt of this addendum.

_____
Signed (Must be Signing Officer of Firm)

_____
Position

_____
Name of Firm