

## Schedule D

### Composition Audit Protocol

#### Composition Audit Protocol

##### A. Overview

1. The purpose of the Monthly Composition Audit is to support the administration of the contract by producing estimates of the percentage of each Designated Material and Contaminants in the Collected Materials received at the Designated Facility and to measure the density of the Collected Material.
2. The Monthly Composition Audit involves collection of samples of Collected Materials, preparation of an audit sample, sorting the audit sample in Designated Materials (by each Designated Material) and Contaminants, verification of the sampling and audit procedures, recording the audit results in a spreadsheet and using the audit results to calculate the percentage of each Designated Material and Contaminants by weight in the audit sample.
3. A City employee must be present during the Monthly Composition Audit.
4. Completion of an audit requires from verification by:
  - (a) the City employee delegated by the City to supervise such audits (the "City Representative"); and
  - (b) the Operator's supervisor;that the sample collection, preparation, and sorting procedures were completed in accordance with this protocol and that the City has received the original audit sheet and an electronic spreadsheet showing the audit results and the calculation of the percentage of each Designated Material and Contaminants, by weight, in the audit sample.
5. The results of the Monthly Composition Audit must be reported in the Operator's Monthly and Quarterly Reports.

##### B. Frequency

1. The Operator shall conduct at least one (1) inbound composition audits of the Collected Materials per month for the Term of the contract. In addition to the one (1) minimum mandatory audit the Operator must complete, at the City's sole discretion, up to three (3) additional composition audits per year.
2. Scheduling the inbound composition audit will be at the sole discretion of the City. A minimum of one week's notice will be provided to the Operator.

3. Audits shall be conducted between the hours of 8:30 a.m. and 4:30 p.m. Monday to Friday (statutory holidays excluded) with no more than one inbound composition audit to be completed on any Business Day.

**C. Material and Method**

1. The Operator shall provide a secure, well-lit space of sufficient area within the Designated Facility for undertaking the audit work.
2. The Operator shall supply all labour, supervision, materials and equipment required to complete the audit. The Operator's employees assigned to the audit work will be trained in the successful execution of this protocol and be familiar with the specifications of the Designated Material and Contaminants. The Operator shall provide its employees with the personal protective equipment appropriate for handling Collected Materials.
3. The City Representative shall observe the audit process.
4. Scales used for the inbound composition audit must be certified by Corporate and Consumer Affairs Weights and Measures Canada. The weigh scale shall be calibrated every six months at the Operator's expense. The City may request proof of scale accuracy at any time. Scales used for the Monthly Composition Audit must have a capacity rated from 0.01 kg and to at least 40 kg and must be capable of providing weight measurements within +/- 1% of true weight.
5. All weights are to be recorded to two decimal places in kilograms.
6. The weigh scales must be "zeroed out" before any weights are obtained.
7. The Monthly Composition Audit shall, at minimum, identify the following:
  - (a) the total collected Tonnes per month of Collected Materials,
  - (b) proportions of each Designated Material in the Collected Materials;
  - (c) proportion of Contaminants in the Collected Materials;
  - (d) the Contamination Rate;
  - (e) composition of the City's Collected Materials for each Designated Material; and
  - (f) density of Collected Material.
8. The MRF operator needs to know the volume of each truck entering his MRF – that would be entered into his scale software. Then knowing the net weight of the load, density is easy.
9. The Monthly Composition Audits specified above are part of the Operator's Services and the cost of such audits shall be borne by the Operator.
- a) **Sampling**
10. One sample must be collected from each of six randomly selected locations in the inventory of Collected Material on the Designated Facility's tipping floor. A loader or

similar equipment can be used to collect individual samples. The six random samples are then to be combined and thoroughly mixed. The weight of the combined samples must be greater than 500 kg.

11. Care must be taken to ensure the sampling, combining and mixing of the samples does not affect the characteristics of the Collected Material by way of tearing, breaking, crushing, or otherwise changing the condition of the items in the Collected Material.
  12. The combined sample is then further reduced by successive "cone and quartering" to produce an audit sample of a minimum of 250 kg.
  13. The City Representative may direct the Operator to discard a particular audit sample and to repeat the sampling procedure until a suitable audit sample is produced.
- b) Sorting**
14. The weight of the audit sample must be determined and recorded on the audit sheet prior to sorting.
  15. The designated sorting area must be clear of extraneous materials and swept clean prior to the start of the sorting.
  16. The sorting bins must be designed and assigned to a specific Designated Material category. The tare weights of the empty sorting bins are to be measured and recorded on the audit sheet.
  17. The audit sample must be manually sorted by the Operator's employees and each individual item of the audit sample must be assigned to a Designated Material category or to the Contaminant category.
  18. The sorting bins must be weighed and the gross weight must be recorded on the audit sheet and again the Designated Material category each time a bin becomes full and when the audit sample is completing sorted.
  19. Once sorting is finished the Collect Materials, excluding the Contaminants, are to be returned to the inventory of Collected Materials awaiting processing. Contaminants are to be dealt with in accordance with the requirements of the RFP and Applicable Laws.
- D. Quality Assurance / Quality Control**
1. The audit sheet must state the type of audit, the date and the time the sample was obtained, as well as the beginning and end times for the sorting portion of the audit. It must also record the names of the Operator's staff supervising, the City Representative observing the audit.
  2. The audit sheet is to be a record of the quantitative measurements and is not to include any written commentary regarding working conditions, weather, exceptions or other information.

3. Audit results will be verified and the completed audit sheet will be signed-off by the City Representative, and the Operator's supervisor. The document bearing the original signatures will be retained by the City. The Operator will make and retain a copy of the document. Audit data sheets that are not verified and signed by the City Representative and the Operator's supervisor will be considered invalid and will cause the audit to be deemed incomplete and will not contribute to the Operator's minimum audit frequency obligation.

**E. Calculations and Results**

1. The Operator will enter the verified audit results into an electronic spreadsheet, in a form acceptable to the City. The spreadsheet will calculate the net weight of Collected Material by subtracting the tare weight from gross weight. The sum of the net weights recorded against each Designated Material category will be the weight of that Designated Material in the audit sample.
2. The spreadsheet will present the weight of Designated Materials in each Designated Material category and will total the individual Designated Material weights for all Designated Materials categories and express the result as the total weight of sorted Collected Materials.
3. The spread sheet will calculate the ratio of the weight of Designated Material in each individual Designated Material Category to the total weight of sorted materials and express the result as a weight percentage. The sum of the weight percentages for all Designated Material categories plus Contaminants must be 100 percent.
4. Results are to be provided to the City Representative by the end of the next Business Day following the sorting of the audit sample.

**Schedule "E"**

**Recovery Rate Audit Protocol**

**(to be based on the Operator's Proposal)**



**HALTON RECYCLING LTD. (DBA EMTERRA ENVIRONMENTAL)Microsoft**

# Recovery Rate Audit Protocol

**Created on February 28, 2012**



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**Schedule "F"**

**Marketing Plan**

**(to be based on the Operator's Proposal)**

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