



Independent practitioner’s reasonable assurance report on Heating, Refrigeration and Air Conditioning Institution’s Annual Report to the Director of Extended Producer Responsibility Programs at the Ministry of the Environment, Government of British Columbia.

To the Directors of Heating, Refrigeration and Air Conditioning Institution

We have undertaken a reasonable assurance engagement on the following information (the “subject matter information”) of Heating, Refrigeration and Air Conditioning Institution (HRAI), as detailed in Appendix A, and also included within HRAI’s 2019 Annual Report (the “report”) to the Director of Extended Producer Responsibility Programs at the Ministry of Environment, Government of British Columbia (“MOE”) during the period from January 1 to December 31, 2019

- The location of collection facilities, and any changes in the number and location of collection facilities from the prior year in accordance with Section 8(2)(b) of the British Columbia Regulation 449/2004 Recycling Regulation (“Recycling Regulation”);
- The description of how recovered product was managed in accordance with the pollution prevention hierarchy in accordance with 8(2)(d) of the Recycling Regulation;
- The total amount of the producers’ product collected for the year ended December 31, 2019 in accordance with 8(2)(e) of the Recycling Regulation; and
- The description of performance for the year in relation to targets in the approved stewardship plan under Section 8(2)(e), in accordance with Section 8(2)(g) of the Recycling Regulation.

Management’s responsibility

Management is responsible for preparation of the subject matter in accordance with sections 8(2)(b), 8(2)(d), 8(2)(e) and 8(2)(g) established in the British Columbia Regulation 449/2004 Recycling Regulation (the criteria), as detailed in Appendix A. Management is also responsible for such internal control as management determines necessary to enable the preparation of the subject matter that is free from material misstatement.

Our responsibility

Our responsibility is to express a reasonable assurance opinion on the subject matter information based on the evidence we have obtained. We conducted our reasonable assurance engagement in accordance with the Canadian Standard on Assurance Engagements (CSAE) 3000, *Attestation Engagements Other than Audit or Reviews of Historical Financial Information*.

This standard requires that we plan and perform this engagement to obtain reasonable assurance about whether the subject matter is free from material misstatement.

Reasonable assurance is a high level of assurance, but is not a guarantee that an engagement conducted in accordance with this standard will always detect a material misstatement when it exists. The nature, timing and extent of procedures selected depends on our professional judgment, including an assessment of the risks of material misstatements, whether due to fraud or error, and involves examining evidence about management’s preparation of the subject matter in accordance with the criteria.

*PricewaterhouseCoopers LLP
PwC Tower, 18 York Street, Suite 2600, Toronto, Ontario, Canada M5J 0B2
T: +1 416 863 1133, F: +1 416 365 8215*



We believe the evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our independence and quality control

We have complied with the relevant rules of professional conduct/code of ethics applicable to the practice of public accounting and related to assurance engagements, issued by various professional accounting bodies, which are founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behavior.

The firm applies Canadian Standard on Quality Control 1, *Quality Control for Firms that Perform Audits and Reviews of Financial Statements, and Other Assurance Engagements* and, accordingly, maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Opinion

In our opinion, Heating, Refrigeration and Air Conditioning Institution’s subject matter information for the period January 1, 2019 to December 31, 2019 has been prepared, in all material respects, in accordance with the criteria.

Emphasis of matter

We draw your attention to Appendix B, which describes why certain items required by the Assurance Requirements have been excluded. Our opinion is not modified in respect of this matter.

Purpose of statement and restriction of use and distribution

The subject matter information has been prepared to report to the MOE Director, Extended Producer Responsibility. As a result, the subject matter information may not be suitable for another purpose.

Our report is intended solely for HRAI and the MOE Director, Extended Producer Responsibility, in accordance with the terms of our engagement, and should not be distributed to or used by parties other than HRAI and the MOE Director, Extended Producer Responsibility.

PricewaterhouseCoopers LLP

Chartered Professional Accountants

Toronto, Ontario
June 29, 2020

Appendix A – Results and criteria

1. The location of collection facilities, and any changes in the number and location of collection facilities from the previous report as presented on page 4 and 11 of HRAI's 2019 Annual Report to the Director.

Result:

There is one main collection facility as at December 31st 2019.

Reference: Page 4 and 11 of HRAI's 2019 Annual Report to the Director.

Method of Reporting:

- Reporting Period: January 1st to December 31st, 2019.
- HRAI considers Aevitas Inc. to be the only Collection Facility. HRAI uses many Collection Points as partners in the collection of products. These are not considered collection facilities under the stewardship plan, and accordingly are not reported here.
- The number of Collection Facilities is reported on the basis of the number of Collection Facilities who have a signed contract with HRAI to collect, process, ship, and report on collected program products during the reporting period.
- The changes in number and location of Collection Facilities are calculated by tracking the additions and removals of Collection Facilities throughout a given reporting year. This information is further compared with the equivalent data from the end of the prior year.

Definitions:

- "Program Products" are all products included in the program as listed in the revised product stewardship plan 2015-2020, Section 2.4.
- "Collection Facilities" are considered to be locations with a signed contract with HRAI for the purpose of collecting, processing, shipping, and reporting on Program Products at any point during the reporting year.
- "Collection Points" are mechanisms for collection. This term was new to the program as of the 2012 reporting year. In prior years, the collection points were considered the collection facilities. Collection Points may include the following types of businesses (also known as 'participants') and have either signed a formal document or a had a verbal discussion outlining their agreement with the Agency to take part in the program:
 - Contractors
 - Wholesalers
 - Local or regional government recycling centers or transfer stations
 - Direct send-back

2. The description of how recovered product was managed in accordance with the pollution prevention hierarchy in accordance with 8(2)(d) of the Recycling Regulation as presented on pages 5, 16, 17, 18 and 19 of HRAI's 2019 Annual Report to the Director.

The descriptions of how components (i.e. plastic, metals, glass vials containing mercury) are processed, is presented in a list on pages 16-19 of the 2019 Annual Report for Aevitas Inc.

The acceptable end fates for each of the components of a thermostat, is presented within the table on page 19 of the 2019 Annual Report.

Component	Reuse	Recycle	Energy Recovery	Landfill	Other
Plastics	X	Preferred	X	X	See page 19
Metals	X	Preferred	X	X	NA
Mercury Vessels (glass)	X	Preferred	X	X	NA
Mercury Vessels (mercury)	Optional	X	X	X	See page 19

Reference: Pages 5, 16, 17, 18 and 19 of HRAI's 2019 Annual Report to the Director.

Method of Reporting:

- Reporting Period: January 1st to December 31st, 2019.
- Program Products collected are reported by end of fate both by commodity and by process on the Pollution Prevention Hierarchy:
 - Reuse: N/A – No Program Products are reused per the revised product stewardship plan 2015-2020.
 - Recycle: Products are reported by each separately identifiable end of fate commodity (e.g. metals, glass, etc.) either based on the number of units for the mercury vessels; or based on weight in Kgs for the plastics, metals, mercury and glass:
 - The weight in kg of glass is calculated by multiplying the total number of mercury vessels by the industry standard of 1 gram of glass per vessel
 - The weight in kg of mercury is calculated by multiplying the total number of mercury vessels by the industry standard of 2.5 grams of mercury per vessel
 - Recovery: N/A - No Program Products are recovered.
 - Waste: In 2019, the plastics generated from the TRP thermostats were disposed of into landfills.

Definitions:

- The Pollution Prevention Hierarchy includes the following:
 - “Reuse” includes all Program Products that are refurbished or can be reused “as-is” through either, resale, return to inventory, or given away as a donation.
 - “Recycle” includes:

- Any Program Product that cannot be Reused.
- Any Program Product where the sales agreement strictly prohibits the reuse of that product or requires its destruction.
- Any Program Product that is harvested for parts.
- Any commodities that are captured from the recycling process.

“Energy Recovery” relates to processing activities after the recycling stage and includes any element of the Program Product that is harvested to generate energy.

“Waste” includes any products not captured in the three streams above.

- “End of fate” is defined as final processed state of each commodity before entering a re-use stream or shipment to landfill / sequestration.

3. The total amount of the producer’s product sold and collected and the recovery rate as presented on pages 5, 22 and 23 of HRAI’s 2019 Annual Report to the Director.

Total amount of producer’s product collected in 2019 is:

- Collected 3,187 mercury containing thermostats, 2,153 electronic thermostats, and 1,772 loose mercury vessels
- **Adjusted total: 4,453 mercury containing thermostats and 2,153 electronic thermostats, for a total of 6,606 collected**

Adjusted total mercury containing thermostats are estimated as follows:

$$\begin{aligned} & \text{Intact mercury containing thermostats} + \text{Loose mercury vessels} \\ & \div \text{average mercury switches per vessel} = 3,187 + \frac{1,772}{1.4} = 4,453 \end{aligned}$$

Reference: Pages 5, 22 and 23 of HRAI’s 2019 Annual Report to the Director.

Method of Reporting:

- Reporting Period: January 1st to December 31st, 2019.
- Quantification of Product Collected is based on the number of Thermostats and Hg vessels reported by the Collection Facilities as having been received/collected and diverted during the reporting year.
- These amounts are monitored on a monthly basis through information collected that includes the number of thermostats and Hg vessels collected by geographic location.
- Although all participating collection points are encouraged to return only intact thermostats, loose vessels (which have been clipped out of thermostats) are occasionally returned as well. The equivalent number of thermostats is calculated by dividing the number of loose vessels by the industry-accepted standard of 1.4 vessels per thermostat (determined through averages provided by the industry and confirmed during a pilot study conducted by the Agency in 2006).
 - The “Adjusted total number of thermostats” collected is calculated by summing the total number of thermostats collected and the equivalent number of thermostats calculated above.

Definitions:

- "Program Products" are all products included in the program as listed in the revised product stewardship plan 2015-2020, Section 2.4.

"Product Collected" is the amount of all Program Products collected from sources known to be located within the province of BC that occurred through the Collection Facilities. The amount of Product Collected is reported as the total number of thermostats, Adjusted total number of thermostats, total number of Mercury ("Hg") vessels, and number of loose Hg vessels received by the Collection Facilities during the reporting year.

4. The performance for the year in relation to targets in the approved stewardship plan under Section 8(2)(b), (d) and (e) in accordance with Section 8(2)(g) of the Recycling Regulation as presented on pages 6, 22 and 23 of HRAI's 2019 Annual Report to the Director.**Result:**

The target number of thermostats to be collected in 2019 is 4,153 and the result is an adjusted total of 4,453 mercury thermostats. This is 7% above the target.

Reference: Pages 6, 22 and 23 of HRAI's 2019 Annual Report to the Director.

Method of Reporting:

- Reporting period: January 1st to December 31st, 2019

Specific 2019 targets set out in the revised stewardship 2015-2020 are:

- i. Section 8(2)(b) - target is set for collection points, not collection facilities and therefore, no assurance provided.
- ii. Section 8(2)(d) - no target set for how the product is managed in accordance with the pollution prevention hierarchy because the Thermostat Recovery Program is already able to recycle greater than 99% of materials recovered through the program, efforts to continually reduce environmental impacts have centered on improving the program's collection processes.
- iii. Section 8(2)(e) - no targets set for product sold (Product sold is not calculated or reported).
- iv. Section 8(2)(e) - 100% capture rate of the estimated number of mercury-containing thermostats available for collection (4,153), which equals a target of 4,153 thermostats to be collected.

Appendix B - Exclusions

HRAI has not reported the recovery rate for the year in accordance with 8(2)(e) of the Recycling Regulations for the year ended December 31, 2019 as the approved stewardship plan does not outline the requirement to report recovery rates. If the stewardship program does not report a recovery rate in the approved plan, assurance for producers' product sold data is not required as outlined in the Assurance Requirements.

HRAI has not reported its performance for the year in relation to targets under 8(2)(b) and (d) in accordance with 8(2)(g) of the Recycling Regulation for the year ended December 31, 2019 as HRAI is not required to report this to the Director as there are no targets set in the revised stewardship plan for these sections applicable to the reporting year.