



June 26, 2019

**Independent practitioner's reasonable assurance report on HRAI's 2018 Annual Report to the Director of Extended Producer Responsibility Programs at the Ministry of the Environment, Government of British Columbia**

**To the Directors of the Heating, Refrigeration and Air Conditioning Institution (HRAI)**

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 2018 Annual Report (the "report") to the Director of Extended Producer Responsibility Programs at the Ministry of the Environment, Government of British Columbia ("MOE") during the period from January 1 to December 31, 2018:

- 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, 2018 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 information in accordance with the evaluation criteria established in Appendix A. Management is also responsible for such internal control as management determines necessary to enable the preparation of the subject matter information 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 International Standards on Assurance Engagements (ISAE) 3000, *Attestation Engagements Other Than Audits or Reviews of Historical Financial Information*, and the *Guide to Third Party Assurance for Non-Financial Information in Annual Reports – 2018 Reporting Year*, dated October, 2018 ("Assurance Requirements"), published by the MOE.

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*PricewaterhouseCoopers LLP*  
*PwC Tower, 18 York Street, Suite 2600, Toronto, Ontario, Canada M5J 0B2*  
*T: +1 416 863 1133, F: +1 416 365 8215, [www.pwc.com/ca](http://www.pwc.com/ca)*

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This standard requires that we plan and perform this engagement to obtain reasonable assurance about whether the subject matter information 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 information in accordance with the criteria.

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, HRAI's subject matter information for the period from January 1 to December 31, 2018 has been prepared, in all material respects, in accordance with the criteria.

#### **Emphasis of matter**

Without qualifying our opinion, we draw your attention to Appendix B which describes why certain items required by the Assurance Requirements have been excluded. Our opinion is not qualified 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 the purposes of 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 26, 2019



## 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 12 of HRAI's 2018 Annual Report to the Director.**

### **Result:**

There is one main collection facility by December 31<sup>st</sup> 2018.

Reference: Page 4 and 12 of HRAI's 2018 Annual Report to the Director.

### **Method of Reporting:**

- Reporting Period: January 1st to December 31<sup>st</sup>.
- HRAI considers Aevitas Inc. to be the only Collection Facility, because "Collection Points" are more of a mechanism of recovery that increases access to the public similar to the function of a Canada Post or Courier outlet.
- 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 4, 16, 17, 18 and 19 of HRAI's 2018 Annual Report to the Director.**

The breakdown of materials recovered, recycled, and not recycled from the province of British Columbia during 2018 included:

- 5,995 mercury-containing vessels (there can be anywhere between 1 to 4 mercury vessels contained in each thermostat)
- 1,100 electronic thermostats
- 14.99 Kg of mercury (calculated based on 2.5 grams of Hg per vessel)
- 6.00 Kg of glass (calculated based on 1 gram of glass per vessel)
- 73.81 kilograms of metals
- 264.05 kilograms of plastics (not recycled)

The descriptions of how components (i.e. plastic, metals, glass vials containing mercury) are processed, is presented in a list on pages 17-18 of the 2018 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 2018 Annual Report.

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

Reference: Pages 4, 16, 17, 18 and 19 of HRAI's 2018 Annual Report to the Director.

**Processor Due Diligence:**

- i. HRAI satisfies itself with the sufficiency of all downstream processors of Program Products, up to and including end of fate, based on an established due diligence process including qualification by primary processors and/or annual site visits).

- ii. The due diligence process is administered or overseen by HRAI and considers the qualifications and capabilities of the processors, in line with the goals of the Program as set out in the revised product stewardship plan 2015-2020.
- iii. If the due diligence process is administered by the processors (i.e., a primary processor assessing a secondary processor), the results of the due diligence are assessed by HRAI for sufficiency.
- iv. The rigour of the due diligence process is tailored using a risk-based approach to assess the likelihood that, and impact of, the associated Program Products/materials will enter a waste stream.
- v. Processors are responsible for designing and maintaining their own system of internal control over the Program Product reporting process, as well as assessing the system of internal control of the downstream processors as part of the selection and ongoing due diligence process.

#### **Processor Reporting:**

- The Primary Processors are responsible for maintaining the records for Program Products processed, for each separately identifiable commodity of Program Products, and reporting the results, including those from downstream processors, up to and including end of fate, on a consistent and timely basis to HRAI. Reporting includes both quantitative and qualitative end of fate data for Program Products.

#### **Method of Reporting:**

- Reporting Period: January 1st to December 31st.
- 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 2018, 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 and 24 of HRAI’s 2018 Annual Report to the Director.**

Total amount of producer’s product collected in 2018 is:

- Collected 3,749 mercury containing thermostats, 1,100 electronic thermostats, and 1,060 loose mercury vessels
- Adjusted total: 4,506 mercury containing thermostats and 1,100 electronic thermostats, for a total of 5,606 collected

Adjusted total mercury containing thermostats are estimated as follows:

*Intact mercury containing thermostats + Loose mercury vessels*

$$\div \text{average mercury switches per vessel} = 3,749 + \frac{1,060}{1.4} = 4,506$$

Reference: Pages 5 and 24 of HRAI’s 2018 Annual Report to the Director.

#### **Method of Reporting:**

- Reporting Period: January 1<sup>st</sup> to December 31<sup>st</sup>.
- 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.
- Additional information is also collected for internal tracking purposes such as:
  - Weight of plastics and metals collected;
  - Brand of the thermostat collected; and
  - Details of the mechanism used for collection (e.g. name and location of the Collection Point/Participant).

#### **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, 21 and 23 of HRAI’s 2018 Annual Report to the Director.**

#### **Result:**

The target number of thermostats to be collected in 2018 is 3,945 and the result is an adjusted total of 4,506 mercury thermostats. This is 14% above the target.

Reference: Pages 6, 21 and 23 of HRAI’s 2018 Annual Report to the Director.

#### **Method of Reporting:**

- Reporting period: January 1<sup>st</sup> to December 31<sup>st</sup>.

Specific 2018 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) - 95% capture rate of the estimated number of mercury-containing thermostats available for collection (4,153), which equals a target of 3,945 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, 2018 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, 2018 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.