

# **Switch the 'Stat**

## **Annual Report to the Director**

### **2013 Calendar Year**

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June 2014

This annual report is issued by the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) in accordance with the British Columbia Recycling Regulation (Reg. 449/2004). The 2013 annual report documents the Switch the 'Stat program's activities and results in British Columbia from January 1 to December 31, 2013.

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Warren Heeley  
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Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI)

Date: June 26, 2014

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### 1. Executive Summary

<b>Products within plan</b>	Thermostats (electronic and mercury-containing)
<b>Program website</b>	<a href="http://www.switchthestat.ca">www.switchthestat.ca</a>

Recycling Regulation Reference	Topic	Summary (5-bullet maximum)
Part 2, section 8(2)(a)	<a href="#">Public Education Materials and Strategies</a>	<ul style="list-style-type: none"> <li>• Outreach through HRAI, the Thermal Environmental Comfort Association (TECA), and the Mechanical Contractors Association of Canada (MCAC) &amp; Mechanical Service Contractors of Canada (MSCC)</li> <li>• Print ads and eblasts with HPAC/Canadian Contractor marketing; ads in regional district recycling calendars</li> <li>• Collaboration through Stewardship Agencies of BC (SABC)</li> <li>• Outreach at the Canadian Green Building Council Expo</li> <li>• Recycling Council of British Columbia (RCBC) hotline and Recyclepedia</li> <li>• In person engagement at RCBC annual conference and Coast Waste Management Association (CWMA) annual conference</li> </ul>
Part 2, section 8(2)(b)	<a href="#">Collection System and Facilities</a>	<ul style="list-style-type: none"> <li>• 121 new collection points</li> <li>• 61 new drop-off locations</li> <li>• 319 total collection points</li> <li>• Collection points in 27 regional districts</li> <li>• 1 collection facility</li> </ul>
Part 2, section 8(2)(c)	<a href="#">Product Environmental Impact Reduction, Reusability and Recyclability</a>	<ul style="list-style-type: none"> <li>• 5,075 mercury-containing vessels (there can be anywhere between 1 to 4 mercury vessels contained in each thermostat) collected</li> <li>• 50.77 kilograms of metals recycled</li> <li>• 66.45 kilograms of plastics recycled</li> <li>• 0 new mercury-containing thermostats sold into the market</li> </ul>
Part 2, section 8(2)(d)	<a href="#">Pollution Prevention Hierarchy and Product / Component Management</a>	<ul style="list-style-type: none"> <li>• New thermostats do not contain mercury, and are help reduce energy consumption</li> <li>• Recovered thermostats are not suitable for re-use</li> <li>• Plastic and metal components are recycled</li> <li>• Mercury vessels are sent for retort and mercury is either put into long-term storage or reused in CFL and fluorescent production (depending on market demand)</li> </ul>
Part 2, section 8(2)(e)	<a href="#">Product Sold and Collected and Recovery Rate*</a>	<ul style="list-style-type: none"> <li>• Collected 2,517 mercury containing thermostats, 6 electronic thermostats, and 1,022 loose mercury vessels</li> <li>• Adjusted total: 3,253 thermostats collected</li> <li>• 20% improvement from 2012 collection results</li> </ul>
Part 2, section 8(2)(e.1)		See <a href="#">Section 9</a> for breakdown per regional district

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Recycling Regulation Reference	Topic	Summary (5-bullet maximum)
Part 2, section 8(2)(f)	<a href="#">Summary of Deposits, Refunds, Revenues and Expenses</a>	<i>N/A</i>

\*Switch the 'Stat does not report on Product Sold or Recovery Rate; see [Section 7](#) for details.

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Comparison of Key Performance Targets		
Part 2 section 8(2)(g); See full list of targets in <a href="#">Plan Performance</a>		
Priority Stewardship Plan Targets* (as agreed with ministry file lead)	Performance	Strategies for Improvement
1. Collection: 8,100 thermostats	3,253 thermostats collected (40% of target) (adjusted total)	<ul style="list-style-type: none"> <li>• Increase number of public drop-off locations</li> <li>• Increase number of collection points</li> <li>• Improve communication with wholesalers so that all staff can effectively market the program at their location</li> </ul>
2. Collection points/Participants: 317	319 participants (100% of target)	<ul style="list-style-type: none"> <li>• Increase outreach to wholesaler locations, especially those with multiple locations in the province.</li> <li>• Increase face-to-face communication at trade shows</li> <li>• Explore new recruitment options (eg. new marketing plan, new outreach events)</li> </ul>

*\*targets are pro-rated, using ½ of the year three target and ½ of the year four target, as the program years run from July 1 to June 30 of the following year, while the reporting period is based on the calendar year.*

## 2. Program Outline

Switch the 'Stat is the designated program for managing thermostats in British Columbia, both mercury-containing and electronic models. The British Columbia Stewardship Plan for Thermostats is the approved five year plan for recovering these products, and spans a timeline of July 1, 2010 to June 30, 2015.

Switch the 'Stat is funded by thermostat manufacturers who have sold thermostats into Canada; a complete list of manufacturers is available online at <http://www.switchthestat.ca/eng/program-facilitators.php>. On behalf of the manufacturers, the program is administered by the Heating, Refrigeration, and Air Conditioning Institute of Canada (HRAI) and delivered by Summerhill. Additionally, the program is supported by the Canadian Institute of Plumbing and Heating (CIPH).

In accordance with the program plan, Switch the 'Stat collects thermostats in the province of British Columbia through one main collection channel (HVAC contractors/wholesalers & municipal/regional district collection) and two secondary collection channels (drop-off locations and a send-back option).

Based on estimates that 85 to 90 percent of thermostats sold in British Columbia are sold through contractors and wholesalers in the heating, ventilation and air-conditioning (HVAC) industry, this group logically makes up the primary channel through which to recover all types of thermostats. In order to support this channel and make the program more accessible to members of the public, any participating collection point can also register to be a drop-off location (typical drop-off locations are wholesalers, regional districts, and municipal locations). An up-to-date list of drop-off locations, searchable by postal code or by zooming in on a map, is always available on the Switch the 'Stat website. Finally, the send-back option provides access to the program to individuals who are not close to a drop-off location. A small pail and a pre-paid waybill addressed to the collection facility are shipped to the individual's home (or desired location), making program accessible to individuals in remote areas. Together these channels comprise all of the program participants, or "collection points" as they shall be identified throughout this report.

As per the requirements under the British Columbia Recycling Regulation, this report has been prepared to summarize the program activities undertaken during the calendar year of 2013, and will be posted on the program website at [www.switchthestat.ca](http://www.switchthestat.ca).

### 3. Public Education Materials and Strategies

#### *Initiatives*

Switch the 'Stat operates by collecting thermostats through existing businesses and infrastructure, referred to in the program plan as "collection channels." As described in [Section 2](#), the program uses one main collection channel (HVAC contractors/wholesalers) and two secondary collection channels (drop-off locations and send-back option) to recover mercury-containing thermostats. During Year Four, the focus of the program continued to be on increasing registrations, particularly in the contractor/wholesaler channel. This focus is based on both the goal of meeting the Year Four participation target, and on the desire to increase program coverage.

In 2013, the program built on the foundation laid in previous years and broadened the audience that is reached by Switch the 'Stat messaging. Key areas of focus in 2013 were:

- Regular communication with participants (to keep them engaged)
- Increased marketing and outreach efforts to non-participants (particularly contractors and wholesalers)
- Increased public outreach (info about the program and how to participate)

To achieve these goals, the following initiatives were undertaken:

Initiative	Details	Audience/ Channel Reached	Type of Outreach
Ongoing outreach with HRAI national office	<ul style="list-style-type: none"> <li>• Information about the program and a call to register were included in the HRAI Spring &amp; Fall review newsletters, sent to all HRAI members.</li> <li>• Information about Switch the 'Stat (StS) accomplishments was included in the HRAI Accomplishment List, accompanying renewal letters sent to all HRAI members</li> </ul>	Contractors/wholesalers	<ul style="list-style-type: none"> <li>• Industry outreach (print)</li> </ul>
Targeted outreach through the Thermal Environmental Comfort Association (TECA)	<ul style="list-style-type: none"> <li>• Recruitment emails to all members</li> <li>• Recruitment phone calls to all members</li> </ul>	Contractors	<ul style="list-style-type: none"> <li>• Industry outreach</li> </ul>
Partnership with Mechanical Contractors Association of Canada (MCAC) & Mechanical Service Contractors of	<ul style="list-style-type: none"> <li>• MSCC has offered its full support to the StS program and has promoted the program to its members</li> <li>• StS promoted in enewsletter</li> </ul>	Contractors	<ul style="list-style-type: none"> <li>• Industry outreach</li> </ul>



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Canada (MSCC)			
HPAC/Canadian Contractor ads & eblast	<ul style="list-style-type: none"> <li>Print ads appeared in all seven issues of HPAC magazine (with a readership of 18,500)</li> <li>Eblasts to MB and BC subscribers of HPAC and Canadian Contractor in March, May, July and September had a reach of 3,300 viewers each</li> </ul>	Contractors/wholesalers	<ul style="list-style-type: none"> <li>Business-to-business print media</li> </ul>
BC Stewards/Stewardship Agencies of BC (SABC)	<ul style="list-style-type: none"> <li>Formalized association of all BC stewardship associations allows all stewards to present a united front, and to collaborate on communicating to various stakeholder groups</li> <li>Website (bcstewards.com) provides an overview of each of the programs (including Switch the 'Stat)</li> <li>Recycling Handbook provides an overview of each of the programs (including Switch the 'Stat)</li> <li>Action Plan developed by SABC to ensure the success of all programs, investigate potential gaps, and address feedback from BC Ministry of the Environment.</li> </ul>	General Public	<ul style="list-style-type: none"> <li>Print media</li> <li>Online</li> </ul>
Regional District Calendars	<ul style="list-style-type: none"> <li>Program ads in calendars distributed the follow regional district recycling calendars: <ul style="list-style-type: none"> <li>Central Okanagan</li> <li>Thompson Nicola</li> <li>Peace River</li> <li>Northern Rockies</li> <li>Buckley-Nechako</li> <li>Okanagan-Similkameen</li> <li>Kootenay Boundary</li> </ul> </li> </ul>	General Public	<ul style="list-style-type: none"> <li>Print media</li> </ul>
Canadian Green Building Council Conference & Expo	<ul style="list-style-type: none"> <li>Booth at the Canadian Green Building Council Expo in Vancouver (June 5-6)</li> <li>Ad in Canadian Journal of Green Building &amp; Design</li> </ul>	Green Building Industry	<ul style="list-style-type: none"> <li>In person outreach</li> <li>Print media</li> </ul>
Recycling Council of British	<ul style="list-style-type: none"> <li>Info about the program (materials</li> </ul>	General Public; BC waste management	<ul style="list-style-type: none"> <li>Online</li> </ul>

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Columbia (RCBC)	<p>accepted and nearest drop-off locations) made available to the public through a hotline and online tool (the Recyclepedia)</p> <ul style="list-style-type: none"> <li>○ 61 hotline inquiries*</li> <li>○ 565 Recyclepedia searches</li> </ul> <ul style="list-style-type: none"> <li>• Attendance at the RCBC Annual Zero Waste conference, which provides as opportunity to conduct face-to-face outreach and engagement with representatives from Regional Districts, recycling depots, and other relevant stakeholders.</li> </ul>	industry	<ul style="list-style-type: none"> <li>• Phone</li> <li>• In person outreach</li> </ul>
Coast Waste Management Association	<ul style="list-style-type: none"> <li>• Attendance at the Coast Waste Management Association annual conference, which provides as opportunity to conduct face-to-face outreach and engagement with representatives from Regional Districts, recycling depots, and other relevant stakeholders.</li> </ul>	BC waste management industry	<ul style="list-style-type: none"> <li>• In person outreach</li> </ul>

\*In the spring of 2013 the hotline was switched to a new database, and some information was lost; some info was retrieved, but the actual number of Hotline inquiries may have been higher.

In addition to the efforts listed above, the program was promoted through numerous voluntary channels. See examples in [Appendix A](#).

### Resources

To support these initiatives, a variety of educational and marketing materials were used. These materials are described below.

1. **Program Website:** The program's website, [www.switchthestat.ca](http://www.switchthestat.ca), is the primary educational tool, and features content directed at educating contractors and wholesalers as well as the general public. This site provides a comprehensive overview of the program, education about mercury and the dangers it presents, an interactive map of drop-off locations that is searchable by postal code or by map and updated in real time as participants join the program, and an online registration form for residents who want to return a thermostat using the send-back option. The site is also kept up-to-date with cumulative totals of thermostats and mercury vessels that have been collected and the weight in kilograms of the mercury that has been recovered.
2. **Promotional Resources:** The Switch the 'Stat website also features an exclusive section that can only be accessed by registered collection points and program supporters who have been given the link to this part of the site. This exclusive section provides special promotional resources for

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participating collection points to use while outreaching to the public about thermostat recycling. The promotional resources portion of the website can be found at [www.switchthestat.ca/resources](http://www.switchthestat.ca/resources) and includes a variety of digital resources for participants to use to promote the program, such as downloadable Switch the 'Stat logos to add to their promotional materials, as well as web banners that can be added to a webpage or an newsletter to promote their participation in the program.

3. **Introduction letters:** Each collection kit issued to a newly registered collection point contains an outreach letter that includes educational information about the program and about mercury. These letters are important educational tools that help develop commitment from newly recruited participants. These letters also help new participants with their future outreach to the public, by providing them with information about the importance of recycling mercury-containing thermostats.
4. **"Thermostats Only" Stickers:** To prevent materials other than mercury-containing thermostats from being recovered in the Switch the 'Stat collection containers, the program developed new "thermostats only" stickers at the end of 2011. These stickers are placed on the inside of all collection containers before they are shipped to participants and act as a visual reminder that only thermostats are accepted in the collection containers, as per the shipping regulations in the province of Manitoba and the goals of the program.
5. **Posters:** Two versions of promotional posters are available for participants to use in displays on-site at the collection points.
6. **Brochures:** A stack of printed brochures is provided to participating collection points for distribution to their customers (in the case of contractors/wholesalers) or at public events. These brochures include facts about mercury and information about the Switch the 'Stat program that is used to educate customers and the public.
7. **Monthly Newsletter:** In order to remain in communication with existing participants, an e-newsletter on program milestones, collection sweeps and other news is published and sent monthly. The goal of the newsletter is to keep participants up to date with program happenings, to keep the program on participants' minds, to keep participant satisfaction high, and ultimately to increase collection results. The newsletter has three main sections: key news/information; "'Stat Chat," which addresses FAQs; and a version of the results counter from the [switchthestat.ca](http://switchthestat.ca) homepage, which shows cumulative collection totals to date. As of December 31, 2013, the newsletter had 770 subscribers nationally, approximately 10% of who are in BC.
8. **Collection sweep postcard :** As part of our bi-annual collection sweep, reminder postcards were sent to all active collection points. Participants were asked to return their pail if it was at least half full. The sweep was announced in the Switch the 'Stat e-newsletter, and supported by the postcard announcing the sweep and inviting participants to request additional materials or indicate that their pail was not yet half full.
9. **Print ads and eblasts:** Based on the success of the 2012 marketing campaign with HPAC, the 2013 campaign was expanded to all seven issues, and new creative was developed; new creative

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was also developed for the expanded eblast schedule. Another ad was developed for the Canadian Journal of Green Building & Design. Ads were also developed for the Regional District recycling calendars.

10. **Banner stands:** To support in person events such as trade shows, banner stands are used to be versatile and eye catching. These banners support site-specific signage, and will be used through 2014 as well.

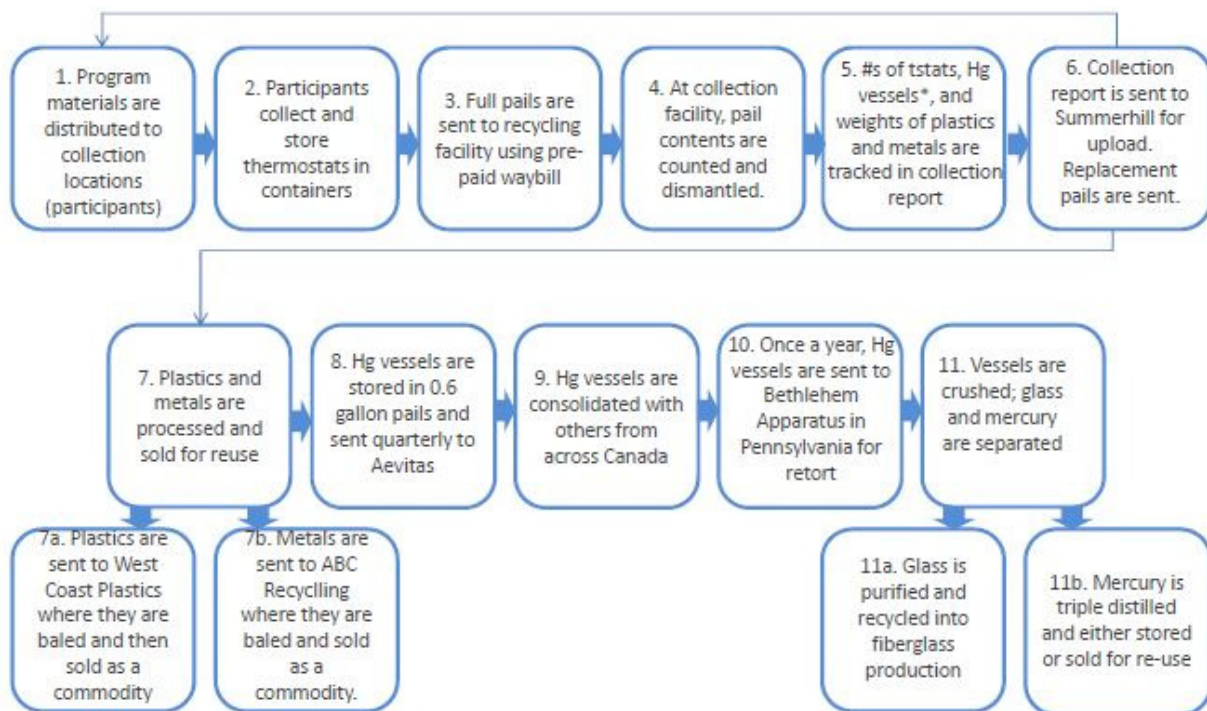
#### 4. Collection System and Facilities

##### *Collection System Overview*

The Switch the 'stat collection system is comprised of the following:

1. Collection points (participants)
  - made up of the 3 collection channels described above
  - use collection containers to collect thermostats and send them to the collection facility
2. Collection facility
  - Tri-Arrow Industrial Recovery receives collection containers from various collection points and processes thermostats (counts, dismantles, periodically ships Hg vessels to consolidation point)
3. Consolidation point
  - Aevitas Inc. receives Hg vessels from BC and consolidates them with vessels from across the country
  - All vessels are shipped to retort facility at least once a year
4. Retort facility
  - Final processing of Hg vessels

The relationship between these facilities is demonstrated in the flow chart below:



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*\*note: thermostats can contain 1 to 4 Hg vessels, and participants occasionally include loose vessels that they have removed from thermostats in the collection pails, so we track both total number of thermostats and total number of Hg vessels.*

### **Collection Facility**

As described above, Switch the 'Stat uses only one collection facility, Tri-Arrow Industrial Recovery, located in Surrey, BC. This facility receives collection containers full of thermostats from all collection points in BC, and begins processing the thermostats. The shipper of each pail is recorded in a monthly tracking sheet, as are the number of thermostats per pail (in total, and broken down by brand), the number of mercury vessels contained, the weight of the plastic and metal components, and any off-spec materials included in the collection containers. This is the same collection facility that was used in 2012; there has been no change to the number of collection facilities or the location of the collection facility.

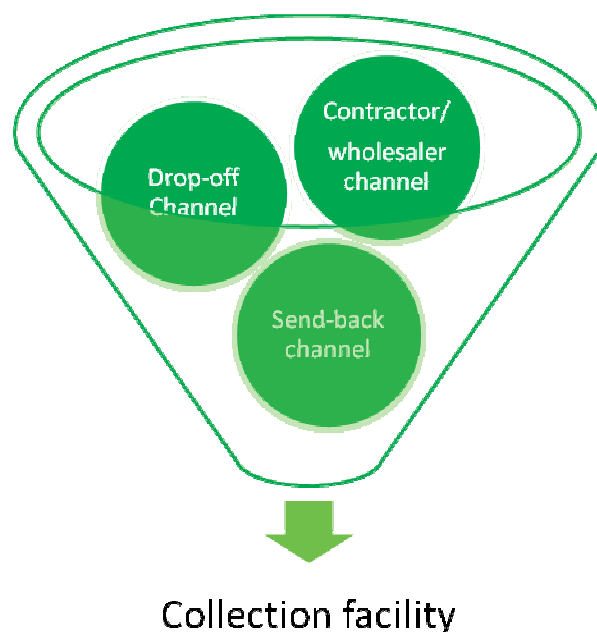
### **Collection Points**

As described in section 3 above, Switch the 'Stat uses 3 main collection channels: the contractor/wholesaler channel, public drop-off locations, and the send-back channel. The individual participants in each of the collection channels are referred to as "collection points" or "participants."

These collection points are a key part of the collection system, as they recover end-of-life thermostats and send them to the collection facility, Tri-Arrow.

Participants use the collection containers provided by the Switch the 'Stat program to collect end-of-life thermostat, and when the container is full, they use their pre-paid Purolator waybill to return the thermostats to the collection facility, Tri-Arrow. At Tri-Arrow, the thermostats are processed (for more details about processing, please see section 6). This process is illustrated below.

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According to the stewardship plan, the goal was to have 317\*registered collection points in 2013. Through outreach initiatives described above, 121 new businesses registered as collection points for end-of-life thermostats in 2013, 61 of which elected to act as drop-off locations and 3 of which registered as send-back participants (see description in [Section 2](#)).

The following chart provides information regarding the businesses registered, including the types of business registered, if they have opted to be a drop-off location and the city where the business is located.

Company Name	Type	Drop Off	City
Chilliwack Heating	Contractor	No	Chilliwack
Bartle & Gibson	Wholesaler	Yes	Vancouver
Bartle & Gibson	Wholesaler	Yes	Saanich
Bartle & Gibson	Wholesaler	Yes	Port Coquitlam
Bartle & Gibson	Wholesaler	Yes	Langford
Bartle & Gibson	Wholesaler	Yes	Surrey
Bartle & Gibson	Wholesaler	Yes	Prince George
Bartle & Gibson	Wholesaler	Yes	North Vancouver
Bartle & Gibson	Wholesaler	Yes	Nanaimo
Bartle & Gibson	Wholesaler	Yes	Kelowna
Bartle & Gibson	Wholesaler	Yes	Courtenay
Bartle & Gibson	Wholesaler	Yes	Maple Ridge
Bartle & Gibson	Wholesaler	Yes	Kelowna
Bartle & Gibson	Wholesaler	Yes	Chilliwack
Applewood Heating & AC	Contractor	Yes	Vernon
Alberni Valley Refrigeration	Contractor	No	Port Alberni
Class A Heating and Air Conditioning Ltd.	Contractor	Yes	Chilliwack

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Axis Heating + Cooling Ltd	Contractor	Yes	Courtenay
Miles plumbing services ltd	Contractor	Yes	Victoria
Alpine Gas Ltd	Contractor	Yes	Campbell Rivedr
Aquasave Plumbing & Heating Services	Contractor	No	Abbotsford
Emco	Wholesaler	Yes	Victoria
Ecco Supply	Wholesaler	No	Burnaby
Alp's Fireplace Service Inc.	Contractor	No	Delta
Emco Squamish	Wholesaler	No	Squamish
McConnell Air Conditioning and Refrigeration	Contractor	Yes	Port Coquitlam
Mills Mechanical Ltd	Contractor	Yes	SURREY
Tumbler Ridge Town Hall	Municipal	Yes	Tumbler Ridge
Chetwynd Landfill	Municipal	Yes	Chetwynd
Dawson Creek transfer Station	Municipal	Yes	Dawson Creek
Bessborough Landfill	Municipal	Yes	15 Km W of Dawson Creek
Jay Fitch	Send Back	No	North Vancouver
Noboco Styro Containers Ltd	Contractor	No	Campbell River
Evergreen Heating and Air	Contractor	Yes	Logan Lake
Sims Recycling Solutions	Recycling Centre	No	Langley
Quality Stoves & Fireplaces Ltd	Contractor	No	Campbell River
E L Fox & Sons Plumbing & Heating Ltd.	Contractor	No	Vernon
Sierra Mechanical Limited	Contractor	No	Delta
Quality Stoves & Fireplaces	Contractor	Yes	Campbell River
Daryl - Evans Services	Contractor	No	Coquitlam
Sheehan plumbing & Heating Ltd.	Contractor	Yes	Port Coquitlam
Romaine Industries Ltd.	Contractor	No	Grand Forks
Parkinson's Heating Ltd.	Contractor	Yes	Surrey
S.P.Seymour Ltd.	Contractor	Yes	Vernon
Markell Mechanical	Contractor	No	North Vancouver
Noboco Styro Containers	Contractor	No	Campbell River
Trout Lake	Municipal	Yes	Trout Lake
Skimikin	Municipal	Yes	Tappen
Seymour Arm	Municipal	Yes	Seymour Arm
Scotch Creek Transfer Station	Municipal	Yes	SCOTCH CREEK
Parson Transfer Station	Municipal	Yes	Parson
Malakwa Transfer Station	Municipal	Yes	Malakwa
Glenemma Transfer Station	Municipal	Yes	Glenemma
Falkland Transfer Station	Municipal	Yes	Falkland
Golden Landfill	Municipal	Yes	Golden
Sicamous Landfill	Municipal	Yes	Sicamous
Revelstoke Landfill	Municipal	Yes	Revelstoke
Salmon Arm Landfill	Municipal	Yes	Salmon Arm
Columbia Shuswap Regional District	Municipal	Yes	Salmon Arm
Product care Association	Recycling Centre	No	Surrey
Mayne Island Recycling Society	Recycling Centre	Yes	Mayne Island
Sinclair Supply Ltd.	Contractor	No	Kamloops



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Sinclair Supply Ltd.	Contractor	No	Kelowna
Sinclair Supply Ltd.	Contractor	No	Nanaimo
Sinclair Supply Ltd.	Contractor	No	Terrace
Sinclair Supply Ltd.	Contractor	No	Prince George
Sinclair Supply Ltd.	Contractor	No	Surrey
4 Ws Demo Ltd	Contractor	No	Richmond
Whistler Mechanical Ltd.	Contractor	No	Whistler
West Bay Mechanical	Contractor	Yes	Victoria
Bertelsen Plumbing Ltd	Contractor	Yes	Vernon
Houle Electric Ltd.	Contractor	Yes	Saanichton
Sinclair Supply Ltd.	Wholesaler	Yes	Victoria
Comox Valley Regional District	Recycling Centre	Yes	Courtenay
Clayton Gillies	Send Back	No	Burnaby
Service Excel	Contractor	No	Nanaimo
Westisle Mechanical Services Ltd.	Contractor	No	Duncan
THOMAS HEATING & ELECTRIC	Contractor	No	Gibsons
Mission Recycling Program	Contractor	No	Mission
Abbotsford Recycling Program	Contractor	No	Abbotsford
Darin's Plumbing Ltd.	Contractor	Yes	Vernon
Mavco Plumbing and Heating Ltd.	Contractor	No	Penticton
Latek Gas Fitting Inc.	Contractor	No	Vancouver
Canuck Mechanical Ltd.	Contractor	Yes	Prince George
B.C. Housing	Contractor	No	Burnaby
Independent Plumbing and Heating	Contractor	Yes	Fort St. John
Kootenay Furnace Ltd.	Contractor	No	Slocan City
JK MECHANICAL SERVICES LTD.	Contractor	No	Fernie
Hydro West Products Ltd.	Contractor	No	Coquitlam
Horizon Climate Controls Ltd.	Contractor	Yes	Williams lake
Heatwave Plumbing & Heating Ltd.	Contractor	No	Victoria
Foster Air Conditioning	Contractor	No	Victoria
Essential Air	Contractor	No	Victoria
COBING BUILDING SOLUTIONS	Contractor	No	Port Coquitlam
Envirotemp Refrigeration Ltd.	Contractor	No	Sooke
Entreprise Mechanical Systems	Contractor	No	North Vancouver
City Service Plumbing	Contractor	No	victoria
Canada Furnace Heating & Air Conditioning	Contractor	No	Maple Ridge
Bennett Sheet Metal	Contractor	No	Courtenay
Bargens Heating	Contractor	No	Abbotsford
Ark Solar Products Ltd.	Contractor	No	victoria
Kerr Controls Inc.	Contractor	Yes	Saanichton
Albon Mechanical	Contractor	No	Sparwood
Airco Heating &Cooling Ltd.	Contractor	No	Surrey
360 Comfort Systems	Contractor	No	DUNCAN
Tri-Port Recycling	Contractor	No	Port Hardy
Vancouver School Board	Municipal	No	Vancouver
Plumb-Spec	Contractor	Yes	Penticton
EMCO CORPORATION	Wholesaler	Yes	North Vancouver

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Lewis Mechanical Group	Contractor	Yes	Langley
Kite Refrigeration	Contractor	No	Nelson
Royce's Appliance & Refrigeration LTD	Contractor	No	Creston
EMCO Corporation	Wholesaler	Yes	Abbotsford
TR3 Geothermal Services Inc.	Contractor	No	Abbotsford
Public Health Protection	Send Back	No	Terrace
Northern Environmental Action Team	Recycling Centre	Yes	Fort St.John
Universal Supply Co. Inc.	Wholesaler	Yes	Surrey
BA Robinson Co. Ltd.	Wholesaler	No	Burnaby
Mac's Heating LTd	Contractor	No	Victoria
Integrity Mechanical Ltd	Contractor	No	North Vancouver
Galiano Island Recycling Resource	Recycling Centre	Yes	Galiano Island

*\* as with collection target, this number is pro-rated to compensate for difference between plan year and reporting year. See explanation in [Section 9](#), below.*

### Changes to Collection Points

Since 2012, there have also been two changes to existing collection points. These changes are as follows:

Company Name	Type	Drop Off	City	Change
Solace Home Comfort Ltd.	Contractor	No	Burnaby	No longer wishes to participate
Groundsource Plumbing & Heating	Contractor	No	Powell River	Name change

Taking these changes into account, and combining the new participants with existing collection points from Year Three, as of December 31, 2013 there were 319 collection points in British Columbia.

These collection points are located in the following regional districts:

Region	Number of Collection Points
Alberni–Clayoquot Regional District	2
Capital Regional District	38
Cariboo Regional District	3
Columbia–Shuswap Regional District	17
Comox Valley Regional District	10
Cowichan Valley Regional District	8
Fraser Valley Regional District	22
Metro Vancouver (Greater Vancouver Regional District)	119
Northern Rockies Regional District	1
Peace River Regional District	8
Powell River Regional District	2

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Regional District of Bulkley–Nechako	1
Regional District of Central Kootenay	5
Regional District of Central Okanagan	12
Regional District of East Kootenay	5
Regional District of Fraser – Fort George	7
Regional District of Kitimat–Stikine	3
Regional District of Kootenay Boundary	4
Regional District of Mount Waddington	2
Regional District of Nanaimo	11
Regional District of North Okanagan	8
Regional District of Okanagan–Similkameen	6
Skeena – Queen Charlotte Regional District	2
Squamish–Lillooet Regional District	4
Strathcona Regional District	4
Sunshine Coast Regional District	4
Thompson–Nicola Regional District	11

As this list demonstrates, there are collection points in 27 of British Columbia's 29 regions. The regions in which we do not yet have participants are as follows:

- Central Coast Regional District
- Stikine Region

Over the course of 2014, attempts will be made to register participants in the remaining 2 regional districts. However, it should be noted that people can participate in the program by taking advantage of our free send-back channel even if there is not a registered collection point in their region.

## **5. Product Environmental Impact Reduction, Reusability and Recyclability**

Through the Switch the 'Stat program, all components of the recovered thermostats are sent for recycling, including the plastics, metals, glass, mercury and any electronics associated with the thermostat. Taking into account that occasional commingling of the materials may occur, greater than 99% of materials are recycled. In 2013, the breakdown of materials recovered and recycled from the province of British Columbia included:

- 5,075 mercury-containing vessels (there can be anywhere between 1 to 4 mercury vessels contained in each thermostat)
- 12.69 Kg of mercury (calculated based on 2.5 grams of Hg per vessel)
- 5.08 Kg of glass (calculated based on 1 gram of glass per vessel)
- 50.77 kilograms of metals
- 66.45 kilograms of plastics

The recyclability of mercury-containing thermostats cannot be improved, nor can the reusability of these products because they are obsolete. New programmable thermostats are more environmentally responsible as they contain no mercury and reduce energy demands (as compared to older set-back models). Further, it is dangerous to attempt to reuse mercury-containing thermostats due to potential incompatibility with newer HVAC systems, thus replacing them with newer thermostats and recycling the older models is the best choice for reducing the environmental impact of these products.

Because Switch the 'Stat 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. One area of focus has been the reduction of non-thermostat materials which are sometimes sent back in collection pails. Efforts have included communications with participants, and the development of new "thermostats only" stickers (as described in section 3) for the inside of the collection pails to act as a reminder for participants.

As the program expands and matures, additional reductions in environmental impact will be sought in order to ensure the program is effective in having a positive outcome for the environment and the citizens of British Columbia.

## 6. Pollution Prevention Hierarchy and Product / Component Management

As per the stewardship plan for thermostats, pollution prevention efforts have focused on recycling, rather than reduce/redesign or reuse. The breakdown as to why recycling is the preferred management technique out of the four “Rs” is provided below.

**Reduce/redesign:** The main environmental concern with thermostats is the mercury contained in many older models. While many of these thermostats may still be in use, they are no longer made by the major manufacturers and are no longer sold in Canada. New thermostats have been redesigned to eliminate mercury and to help reduce energy consumption.

**Reuse:** The plan does not encourage the reuse of old thermostats collected through this program for the reasons described below:

- Our primary goal is to collect old mercury-containing thermostats and ensure that the mercury and other component parts are properly managed, not to see them in continued use.
- Old non-mercury-containing thermostats may not meet the technical/safety specifications of new HVAC systems and do not have the same ability to reduce energy use that new programmable thermostats do, and therefore we recommend that these be recycled rather than reused.

**Recycle:** As per the program plan, the thermostats recovered from the province of British Columbia are counted, documented, dismantled and recycled. The components from the thermostats are separated for recycling as follows:

- The plastic components recovered are of mixed types; these are consolidated, at the collection facility, with other plastics from the facility and then sent to the downstream recycler, West Coast Plastics. Here the plastics are baled and then sold as a commodity.
- The metals collected are a mix of iron, nickel and aluminum which all have high reuse/recycling value. The metals are consolidated with other metals at the collection facility and then sent to the downstream processor, ABC Recycling. Here the metals are baled and then sold as a commodity.
- The glass vials containing the mercury are consolidated at the collection facility (Tri-Arrow) until a large volume has been collected and are then shipped to the consolidation point (Aevitas). At Aevitas these vessels are consolidated with vessels collected across Canada and then sent to Bethlehem Apparatus (in a combined shipment with other mercury-containing products), where the glass vials are crushed and glass and mercury are separated. The mercury is triple distilled and sent for resale/reuse in products and processes or put into long term storage (sequestered), depending on market demand. The glass is crushed, distilled and sent for recycling in fibreglass applications. The latest shipment of mercury-containing vessels was sent to Bethlehem Apparatus on July 15, 2013. [Appendix B](#) contains the manifest for this shipment.

Greater than 99% of the materials collected by the program are recyclable and were managed in accordance with the program plan and the principles of pollution prevention.

**7. Product Sold and Collected and Recovery Rate**

The amount of product sold is not currently tracked as mercury-containing thermostats are no longer sold into Canada, thus there are no sales to report. As for newer programmable models, the sales of these devices are not currently tracked by the manufacturers with sufficient detail to produce reporting at the provincial level as sales are currently only tracked at the national level. It is also worth noting that thermostats can have a life span of 20-30 years, though renovations can reduce that life span to 7-10 years. These timelines are long enough to make any direct correlation between product sold into the market and product available for recover per year difficult, even if sales data were available.

Given the above, Switch the 'Stat does not use a recovery rate as a measure of program performance, but instead measures the total amount of product collected measured against targets set out in the approved program plan. Collection totals and progress against targets will be discussed in [Section 9](#), below.

**8. Summary of Deposits, Refunds, Revenues and Expenditures (N/A)**

As Switch the 'Stat does not charge deposits, this section is not applicable.

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### 9. Plan Performance

The following table describes progress made towards the targets set out in the approved stewardship plan for Switch the 'Stat.

Plan Target	2013 Results	Strategies for Improvement in 2014
<i>Performance Targets</i>		
1. Collection: 8,100 thermostats*	Adjusted total: 3,253 thermostats collected (40% of target)	<ul style="list-style-type: none"> <li>• Increase number of public drop-off locations</li> <li>• Increase number of collection points</li> <li>• Improve communication with wholesalers so that they can effectively market the program at their location</li> </ul>
2. Participants: 317**	319 participants (100% of target)	<ul style="list-style-type: none"> <li>• Increase outreach to wholesaler locations, especially those with multiple locations in the province.</li> <li>• Improved face-to-face communication at trade shows</li> <li>• Explore new recruitment options (eg. new marketing plan, new outreach events)</li> </ul>
<i>Communication Targets</i>		
3. Program website: monthly updates	<ul style="list-style-type: none"> <li>• Website is updated in real time with any new drop-off locations</li> <li>• Quarterly updates are made to ensure that all information is as up to date as possible</li> <li>• There were 2,519 visits to switchthestat.ca from BC in 2013</li> </ul>	
4. Printed brochures: a minimum of 5,000 brochures will be printed and distributed on an annual basis	<p>Approximately 4,750 brochures distributed.</p> <p>25 brochures are distributed to each new participant (3,025). Brochures have also been distributed at outreach events and through partner associations (approx 400), and extra brochures have been sent to participants upon request (1,321).</p>	<ul style="list-style-type: none"> <li>• Increase registration numbers (each new participant receives 25 brochures for distribution to their clients/stakeholders)</li> <li>• More public outreach (using program brochures as a tool to spread the word about the program)</li> </ul>

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Plan Target	2013 Results	Strategies for Improvement in 2014
5. Printed posters: a minimum of 20 posters will be printed and displayed in year 1 (the number will increase with number of retail events)	<p>206 posters distributed (103 each of 2 different posters)</p> <p>Note: retail events have been discontinued, due to poor results, but posters are still distributed to new participants, upon request to existing participants, and at outreach events.</p>	
6. Advertising via the Recycling Council of British Columbia (RCBC)'s website and hotline	Switch the 'Stat info is available via both the Recyclepedia and RCBC's hotline.	
7. Advertising in waste reduction/community calendars for regional districts (25 municipalities in Year 1, TBD based on effectiveness for years 2-5)	<p>As described in Section 3, Switch the 'Stat advertised in calendars in the following regional districts:</p> <ul style="list-style-type: none"> <li>○ Central Okanagan</li> <li>○ Thompson Nicola</li> <li>○ Peace River</li> <li>○ Northern Rockies</li> <li>○ Buckley-Nechako</li> <li>○ Okanagan-Similkameen</li> <li>○ Kootenay Boundary</li> </ul> <p>In addition to advertising in these regional district calendars, the program was promoted through the SABC "British Columbia's Recycling Handbook", which provides a simple guide to what can be recycled under BC stewardship programs.</p> <p>A total of 5,000 handbooks were distributed to various stakeholders, including regional districts, community centers and libraries, school districts, and other relevant groups.</p> <p>A digital version is available at <a href="http://www.bcstewards.com">www.bcstewards.com</a>.</p>	

*\*pro-rated target: see details above.*

*\*\* as with collection target, this number is pro-rated to compensate for difference between plan year and reporting year. See explanation in section 7, above.*



## Switch the 'Stat 2013 Report to Director, Waste Management

### Progress Toward Collection Targets

The following table provides further information regarding the amount of product collected by the Switch the 'Stat program during the period of January 1 to December 31, 2013, measured against the targets outlined in the official stewardship plan, as well as the program growth as compared to the same period in 2012 and demonstrates the program's commitment to continuous improvement.

Collection of Mercury-Containing Thermostats: Progress Against Targets and Program Growth				
	Targets: ½ Year Three (January 1 <sup>st</sup> -June 30 <sup>th</sup> 2013) plus ½ Year Four (July 1-December 31 <sup>st</sup> , 2013)*	Results Achieved from January 1 to December 31, 2013	Results Achieved from January 1 to December 31, 2012	Percentage increase in 2013
Number of Thermostats Collected	8,100 thermostats	2,517 mercury containing; 6 electronic; Total: 2,523	1,887 mercury containing; 13 electronic; Total: 1,900	33%
Number of Loose Vessels Collected	n/a	1,022	1,129	- 10%
Adjusted Total Thermostats Collected**	n/a	3,253	2,706	20%

\*targets are pro-rated, using ½ of the year three target and ½ of the year four target, as the program years run from July 1 to June 30 of the following year, while the reporting period is based on the calendar year.

\*\*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. Using the industry-accepted standard of 1.4 vessels per thermostat, the number of loose vessels returned in 2013 is equivalent to 730 thermostats. The adjusted total number of thermostats collected in 2013 is then 3,253.

### Amount Collected by Regional District

The following chart presents the number of thermostats collected in each regional district.

Region	Number of Thermostats Collected***	Number of Loose Vessels Collected
Alberni–Clayoquot Regional District	1	0
Capital Regional District	331	281
Cariboo Regional District	14	0
Regional District of Central Kootenay	12	9
Fraser Valley Regional District	102	0
Regional District of Fraser-Fort George	45	2
Greater Vancouver Regional District	1,559	363
Regional District of Kitimat-Stikine	1	0

**Switch the 'Stat 2013 Report to Director, Waste Management**

Regional District of Central Okanagan	278	18
Regional District of Nanaimo	109	344
Peace River Regional District	20	0
Thompson–Nicola Regional District	51	5
<b>TOTAL</b>	<b>2,523</b>	<b>1,022</b>

\*\*\*Number of intact thermostats (both mercury-containing and electronic)

## Switch the 'Stat 2013 Report to Director, Waste Management

### Appendices / Additional Information and Third Party Assurance

#### Appendix A – Earned Media

##### Bartle & Gibson website

The screenshot shows a web browser window displaying the Bartle & Gibson website. The URL in the address bar is [www.bartlegibson.com/current-promotions/switch-the-stat](http://www.bartlegibson.com/current-promotions/switch-the-stat). The website has a dark red header with the Bartle & Gibson logo and navigation links: ABOUT US, SUPPLIERS, REWARDS, LOCATIONS, CONTACT, CAREERS. Below the header is a dark grey banner with the text "Switch the 'Stat".

The main content area features a large graphic of a light switch with the text "SWITCH THE 'STAT'" inside it. Below this graphic is the heading "Make the Right Switch!" followed by a paragraph of text:

Bartle & Gibson is proud to support Switch the 'Stat. Switch the 'Stat is a thermostat replacement and collection program delivered in partnership with heating and cooling contractors/wholesalers in nearly every province across Canada. Launched in 2006, the goal of this program is to encourage the uptake of more energy efficient programmable thermostats and to provide a safe and responsible disposal option for older mercury-containing thermostats. The rapid increase in programmable thermostat installations for residential energy savings has meant that an increased number of older mercury-containing thermostats are being disposed of in household waste and ending up in landfills. More and more businesses are also making the switch to programmable thermostats, often not realizing the harmful effects of throwing their old thermostat into the garbage.

Below the paragraph is a bolded line of text: "RECYCLING OLD THERMOSTATS IS AS EASY AS THROWING THEM IN THE BIN! TO FIND YOUR NEAREST BARTLE & GIBSON DROP OFF LOCATION VISIT OUR LOCATIONS PAGE [HERE](#)".

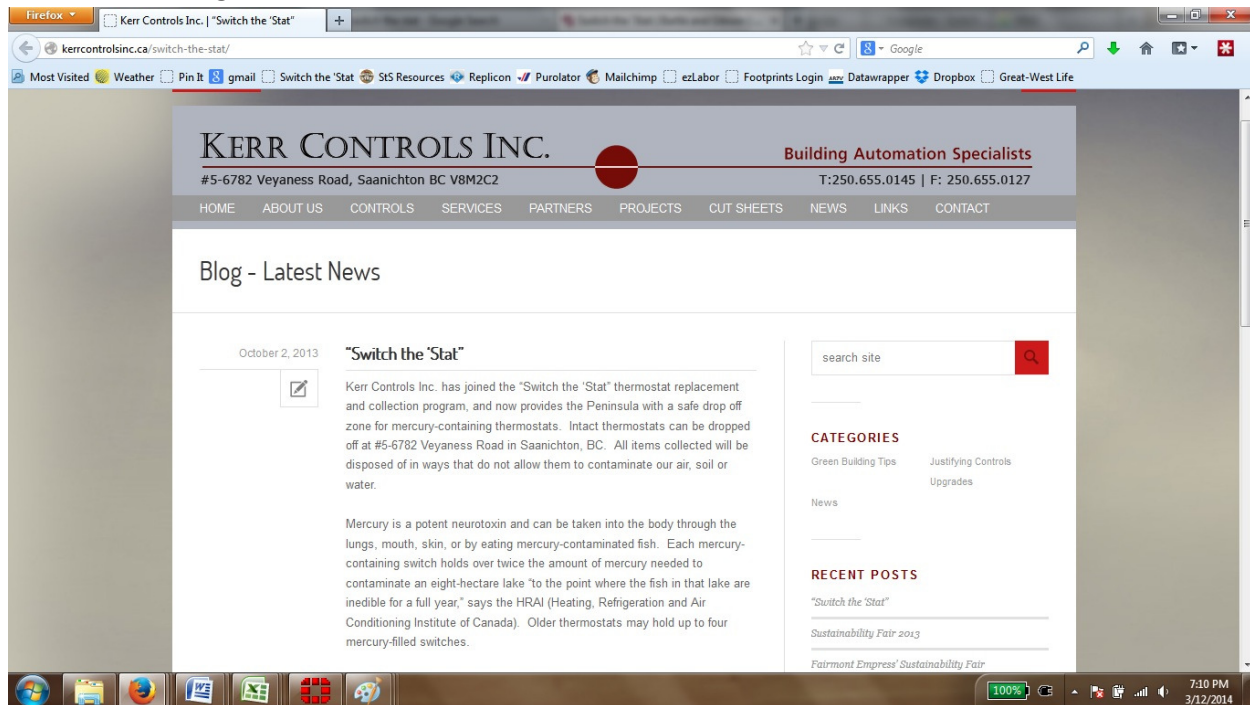
To the left of the text is a photograph of a man in a black t-shirt, blue jeans, and yellow gloves, holding a yellow tool. To the right of the photograph is a list of five bullet points, each preceded by a red checkmark:

- ✓ Many older thermostats have mercury switches in them, which can pollute the air, water and soil if they go to landfill.
- ✓ Switch the 'Stat is an extended producer responsibility program through which thermostat manufacturers pay for the responsible recycling of thermostats in order to divert them from landfill.
- ✓ According to Environment Canada, just 1 gram of mercury is enough to pollute an eight hectare lake (about the size of 1.5 Olympic sized swimming pools!) to the point where the fish are inedible for an entire year.
- ✓ Each thermostat mercury switch contains approximately 2.5 grams of mercury and there are typically 1-4 switches per mercury-containing thermostat.
- ✓ Visit [www.switchthestat.ca](http://www.switchthestat.ca) to learn more about the program.

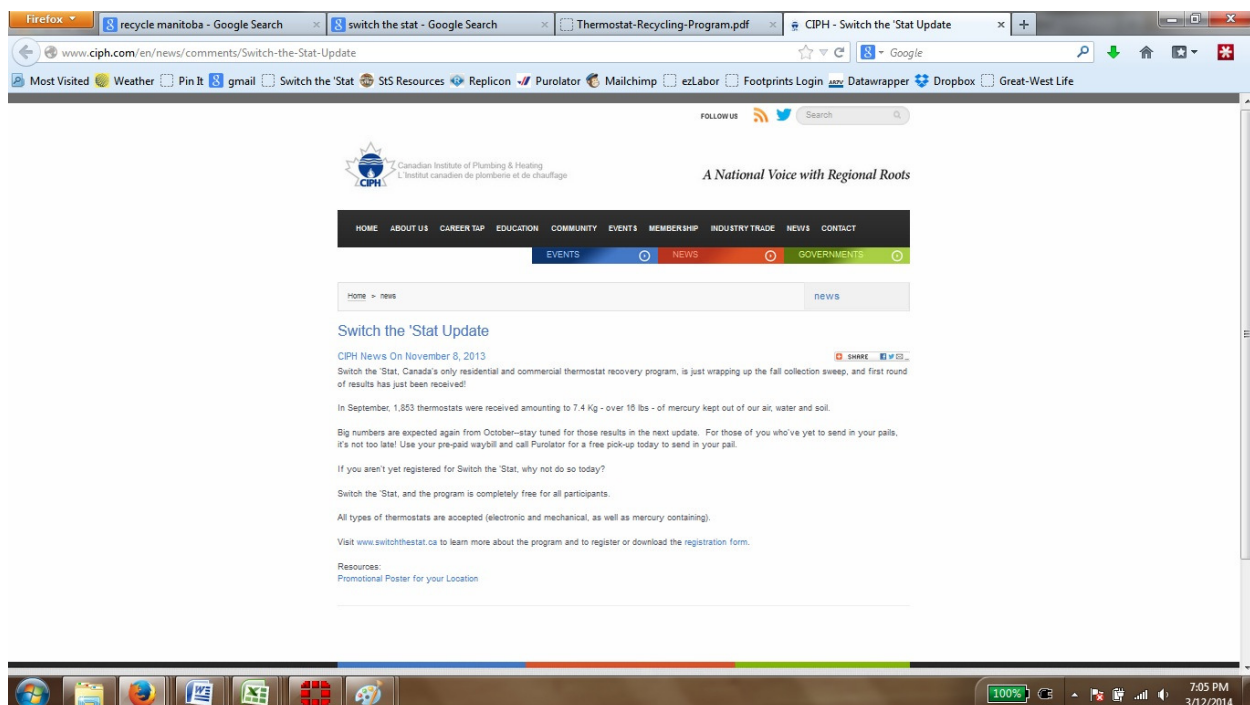
The bottom of the screenshot shows a Windows taskbar with various icons and a system clock indicating 7:13 PM on 3/12/2014.

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### Kerr Controls blog



### CIPH website



## Switch the 'Stat 2013 Report to Director, Waste Management

### MSCC website







**Appendix C – Third Party Assurance**



June 26, 2014

**Independent Reasonable Assurance Report on selected non-financial information included in the Heating, Refrigeration and Air Conditioning Institute of Canada Annual Report to the Director, Waste Management**

**To the Directors of the Heating, Refrigeration and Air Conditioning Institute of Canada**

We have been engaged by the Heating, Refrigeration and Air Conditioning Institute of Canada ("HRAI") to perform a reasonable assurance engagement in respect of the following information (the "Selected Information") detailed in Appendix A, and also included within HRAI's Annual Report to the Director, Waste Management for the year ended December 31, 2013:

1. the location of collection facilities, and any changes in the number and location of collection facilities from the previous report;
2. the description of total amount of the producers' product sold and collected and, if applicable, the producer's recover rate;
3. the description of how the recovered product was managed in accordance with the pollution prevention hierarchy under Section 8(2)(d) of the Recycling Regulation; and
4. the description of performance for the year in relation to targets in the approved stewardship plan under Sections 8(2)(b), (d) and (e) of the Recycling Regulation.

Our opinion does not constitute a legal determination on HRAI's compliance with the British Columbia Regulation 449/2004 Recycling Regulation ("Recycling Regulation").

**Responsibilities**

Preparation and fair presentation of the Selected Information in accordance with the evaluation criteria as listed in Appendix A is the responsibility of HRAI's management. Management is also responsible for such internal control as management determines is necessary to enable the preparation of the Selected Information such that it is free from material misstatement. Furthermore management is responsible for preparation of suitable evaluation criteria in accordance with the *Third party assurance requirements for non-financial information in annual reports, version 2.0*, dated February 25, 2014 ("Assurance Requirements") as specified by the Director under section 8(2)(h) of the Recycling Regulation of the Province of British Columbia.

Our responsibility is to express an opinion on the Selected Information based on the procedures we have performed and the evidence we have obtained.

**Methodology and Assurance Procedures**

We conducted our reasonable assurance engagement in accordance with the International Standard on Assurance Engagements 3000 (ISAE 3000), "Assurance Engagements other than Audits or Reviews of Historical Financial Information" published by the International Federation of Accountants. This standard

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requires that we comply with independence requirements and plan and perform the engagement to obtain reasonable assurance about whether the Selected Information is free of material misstatement. A reasonable assurance engagement includes examining, on a test basis, evidence supporting the amounts and disclosures within the Selected Information. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement in the Selected Information due to omissions, misrepresentation and errors. In making those risk assessments, we consider internal control relevant to the entity's preparation and fair presentation of the Selected Information in order to design assurance procedures that are appropriate in the circumstances, but not for the purpose of expressing a conclusion on the effectiveness of the entity's internal control. A reasonable assurance engagement also includes assessing the evaluation criteria used and significant estimates made by management, as well as evaluating the overall presentation of the Selected Information.

The main elements of our work were:

- Obtaining an understanding of the management systems, processes, and controls used to generate, aggregate and report the data;
- Testing relevant documents and records on a sample basis;
- Testing and re-calculating quantitative information related to the Selected Information on a sample basis; and,
- Reviewing the consistency of the Selected Information with the related disclosures in the Annual Report of HRAI.

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

#### **Inherent limitations**

Non-financial performance information is subject to more inherent limitations than financial information, given the characteristics of the Selected Information and the methods used for determining and calculating such information. Qualitative interpretations of relevance, materiality and the accuracy of data are subject to individual assumptions and judgements. Furthermore, the nature and methods used to determine such information, as well the evaluation criteria and the precision thereof, may change over time. It is important to read our report in the context of evaluation criteria.

#### **Conclusion**

In our opinion, the Selected Information for the year ended December 31, 2013 presents fairly, in all material respects, based on the evaluation criteria listed in Appendix A:

1. the location of collection facilities, and any changes in the number and location of collection facilities from the previous report;
2. the description of total amount of the producers' product sold and collected;
3. the description of how the recovered product was managed in accordance with the pollution prevention hierarchy under Section 8(2)(d) of the Recycling Regulation; and
4. the description of performance for the year in relation to targets in the approved stewardship plan under Section 8(2)(e) of the Recycling Regulation.





**Emphasis of matter**

Without qualifying our opinion, we draw your attention to Appendix B which describes why certain items required by the Assurance Requirements to be included in the Appendix A have been excluded.

**Other matters**

Our report has been prepared solely for the purposes of HRAI's compliance with the reporting requirements relating to Sections 8(2)(b), (d) and (e) of the Recycling Regulation and is not intended to be and should not be used for any other purpose. Our duties in relation to this report are owed solely to HRAI, and accordingly, we do not accept any responsibility for loss occasioned to any other party acting or refraining from acting based on this report.

*PricewaterhouseCoopers LLP*

**Chartered Professional Accountants**

June 26, 2014



## Appendix A to the Assurance Report

1. The location of collection facilities, and any changes in the number and location of collection facilities from the previous report as presented in Section 4 on page 14 of HRAI's Annual Report to the Director, Waste Management.

"Switch the 'Stat uses only one collection facility, Tri-Arrow Industrial Recovery, located in Surrey, BC."

"This is the same collection facility that was used in 2012; there has been no change to the number of collection facilities or the location of the collection facility."

### Evaluation criteria:

- "Program Products" are all products included in the program as listed in the currently approved product stewardship plan dated February 3, 2010 Section 1.3.
- "Collection Facilities" are considered to be locations with a signed contract with Summerhill (HRAI's agent) 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
- Reporting Period: January 1st to December 31st
- Summerhill ('the Agency') currently considers Tri-Arrow to be the only Collection Facility. The rationale being that the "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 the Agency 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.



<p><b>2. The description of total amount of the producer's product sold and collected, and if applicable, the producer's recovery rate, as presented in Section 1 on page 4 and 6, Section 9 on page 22, 24 and 25 of HRAI's Annual Report to the Director, Waste Management.</b></p> <p>"Collected 2,517 mercury containing thermostats, 6 electronic thermostats, and 1,022 loose mercury vessels"</p> <p>"Adjusted total: 3,253 thermostats collected"</p> <p>Note: Product Sold and Recovery rate have been excluded.</p>
<p><b>Evaluation criteria:</b></p> <ul style="list-style-type: none"> <li>• "Program Products" are all products included in the program as listed in the currently approved product stewardship plan dated February 3, 2010 Section 1.3.</li> <li>• "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.</li> <li>• "Product Sold" is the total amount of sales of Program Products by eligible Producers in British Columbia. This amount is not currently reported by HRAI per the approved product stewardship plan dated February 3, 2010.</li> <li>• "Recovery Rate" refers to the Adjusted total number of thermostats collected as compared to the target number as set out in the approved product stewardship plan dated February 3, 2010.</li> <li>• Reporting Period: January 1st to December 31st.</li> </ul> <p><b>Product Sold:</b> The Program Products fall into the electronics category of the Recycling Regulation. There are two types of thermostats that are relevant to the program:</p> <ol style="list-style-type: none"> <li>1. Hg devices: These are no longer being sold by Producers, as such there are no sales to report.</li> <li>2. Digital devices: Sales of these devices are not currently tracked by the Producers with sufficient detail to produce reporting at the provincial level as sales are currently only tracked at the country level (i.e., they can only report on the total number of devices distributed into Canada).</li> </ol> <p><b>Product Collected:</b> 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 as a result of the approved product stewardship plan dated February 3, 2010 during the reporting year.</p> <ul style="list-style-type: none"> <li>• These amounts are monitored on a monthly basis through information collected that includes the number of thermostats and Hg vessels collected by geographic location.</li> <li>• 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.             <ul style="list-style-type: none"> <li>○ The "Adjusted total number of thermostats" collected is calculated by summing the total number</li> </ul> </li> </ul>



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)

**Recovery Rate:**

The recovery rate is calculated and reported as the annual "Adjusted" total number of thermostats collected divided by the expected number of devices available in the market for collection as set out in the approved product stewardship plan dated February 3, 2010. As such, the recovery rate is not reported as a measure of product collected compared to product sold. This is due to the fact that product sold is not currently being reported as noted above.



<p><b>3. The description of how the recovered product was managed in accordance with the pollution prevention hierarchy under Section 8(2)(d) of the Recycling Regulation as presented in Section 1 on page 4 and Section 5 on page 20 of the Annual Report to the Director, Waste Management.</b></p> <p>"5,075 mercury-containing vessels (there can be anywhere between 1 to 4 mercury vessels contained in each thermostat) collected"</p> <p>"50.77 kilograms of metals recycled"</p> <p>"66.45 kilograms of plastics recycled"</p> <p>"12.69 Kg of mercury (calculated based on 2.5 grams of Hg per vessel)"</p> <p>"5.08 Kg of glass (calculated based on 1 gram of glass per vessel)"</p>	<ul style="list-style-type: none"> <li>• The Pollution Prevention Hierarchy includes the following:</li> <li>• "Reuse" includes all Program Products that are refurbished or can be reused "as-is" through either, resale, return to inventory, or donation.</li> <li>• "Recycle" includes:                         <ul style="list-style-type: none"> <li>○ Any Program Product that cannot be Re-used; and</li> <li>○ is harvested for parts or produces commodities through the recycling process.</li> </ul> </li> <li>• "Recover" relates to processing activities after the recycling stage and includes:                         <ul style="list-style-type: none"> <li>○ Any element of the Program Product that is harvested to generate energy.</li> </ul> </li> <li>• "Component" is defined as a separately identifiable part of a Program Product that is composed of two or more commodities. For instance, a mercury vessel is a part of a thermostat and is comprised of two commodities (glass and mercury).</li> <li>• "Commodity" is defined as a separately identifiable and homogenous type of material that comprises a Program Product. For instance, mercury vessels contain two commodities, mercury and glass.</li> <li>• "Waste" includes any products not captured in the three streams above.</li> <li>• "End of fate" is defined as final processed state of each commodity before entering a re-use stream or shipment to landfill / sequestration.</li> <li>• Reporting Period: January 1st to December 31st.</li> </ul> <p><b>Processor due diligence</b></p> <ol style="list-style-type: none"> <li>i. The Agency 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.</li> <li>ii. The due diligence process is administered or overseen by the Agency, and considers the qualifications and capabilities of the processors, in line with the goals of the Program as set out in the approved product stewardship plan dated February 3, 2010, prior to selection and on a periodic basis subsequent to selection.</li> <li>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 the Agency for sufficiency.</li> <li>iv. The rigor of the due diligence process is tailored using a risk-based approach to assess the likelihood</li> </ol>
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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

- i. 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 the Agency. Reporting includes both quantitative and qualitative end of fate data for Program Products.

Primary Processors by Commodity	
Mercury	Aevitas
Glass	Aevitas
Plastics	West Coast Plastics
Metals	ABC Metals

#### Method of reporting

- 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 approved product stewardship plan dated February 3, 2010.
- Recycle: Products are reported by each separately identifiable end of fate commodity (e.g. plastics, 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 Kgs 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 Kgs of mercury is calculated by multiplying the total number of mercury vessels by the industry standard of 2.5 grams of mercury per vessel
- Recover: N/A - No Program Products are recovered.
- Waste: N/A - all Program Products collected are expected to be 100% recyclable. Non-program products that may be included in shipments are not recorded or reported by the program but efforts are made to dispose of them in accordance with the pollution prevention hierarchy.



4. The description of performance for the year in relation to targets in the approved stewardship plan under Sections 8(2)(b), (d) and (e) of the Recycling Regulation as presented in Section 1 page 6 and Section 9 page 22 of HRAI's Annual Report to the Director, Waste Management.

Priority Stewardship Plan Targets* (as agreed with ministry file lead)	Performance	Strategies for Improvement in 2014
1. Collection: 8,100 thermostats	3,253 Adjusted total thermostats collected (40% of target)	<ul style="list-style-type: none"> <li>• Increase number of public drop-off locations</li> <li>• Increase number of collection points</li> <li>• Improve communication with wholesalers so that all staff can effectively market the program at their location</li> </ul>

Note: Performance for the year in relation to targets in the approved stewardship plan under Sections 8(2) (b) and (d) of the Recycling Regulation have been excluded.

**Evaluation criteria:**

Specific targets set out in the approved Stewardship Plan (adjusted for reporting period by taking 1/2 of Year 3 & 1/2 of year 4) - see below:

- i. Section 8(2)(b) - targets set for collection points, not collection facilities
- ii. Section 8(2)(d) - no target set for how the product is managed in accordance with the pollution prevention hierarchy
- iii. Section 8(2)(e) - no targets set for product sold (Product sold is not calculated or reported)
- iv. Section 8(2)(e) - 8,100 thermostats to be collected
- v. Section 8(2)(e) - 60% recovery rate



## Appendix B to the Assurance Report

It should be noted that the recovery rate and product sold was not included in the scope of the second indicator as HRAI is not required to report this rate to the Director per the evaluation criteria in Appendix A.

It should further be noted that the description of performance for the year in relation to targets in the approved stewardship plan under Sections 8(2)(b) and (d) of the Recycling Regulation was not included in the scope of the fourth indicator as HRAI is not required to report this rate to the Director as there are no targets set in approved stewardship plan for these two sections applicable to the reporting year.