



MANITOBA STEWARDSHIP PLAN FOR MERCURY-CONTAINING THERMOSTATS

Five Year Plan for 2017 - 2021

Submitted & Revised by:

Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI) with
the support of the Canadian Institute of Plumbing and Heating (CIPH)

Originally
Prepared by:
Scout
Environmental

Revised by:
HRAI

December 2016

Version 2

Table of Contents

- 1. GLOSSARY**
 - 1.1 Definitions
- 2. INTRODUCTION**
 - 2.1 Overview
 - 2.2 Program Participants
 - 2.3 Program Products
- 3. PRODUCT STEWARDSHIP PLAN**
 - 3.1 Plan Development
 - 3.2 Collection Infrastructure
 - 3.3 Available for Collection
 - 3.4 Pollution Prevention Hierarchy
- 4. PROGRAM PERFORMANCE**
 - 4.1 Program Accessibility
 - 4.2 Consumer Awareness
 - 4.3 Collection Targets
- 5. PROGRAM ADMINISTRATION**
 - 5.1 Program Financing
 - 5.2 Steward Compliance
 - 5.3 Dispute Resolution
 - 5.4 Cooperation with Other Thermostat Collection Programs
- 6. ANNUAL REPORT**
- 7. STAKEHOLDER CONSULTATION**

APPENDICES

Appendix A— List of Manufacturers and Distributors Responsible for Selling Mercury-containing Thermostats into Manitoba

Appendix B— List of Thermostats Manufacturers and Distributors Signed-on to Participate in the Stewardship Plan

Appendix C— List of all TRP Collection Points throughout Manitoba

Appendix D — Consumer-facing Outreach Materials

Appendix E— Industry-facing Outreach Materials

Appendix F — Summary of Program Performance Measures

1. GLOSSARY

1.1 Definitions

In this Plan,

“contractor” – means a licensed heating, ventilation & air conditioning technician who is trained to properly install and remove HVAC equipment (including thermostats).

“distributor” – means a business that purchases only non-competing brands of thermostats directly from the manufacturers, warehouses the products and then distributes and sells them either to wholesalers (see definition below) or to HVAC contractors who install them into residences and businesses.

“HVAC” – means heating, ventilation and air conditioning equipment.

“manufacturer” – means a business that designs and makes (manufacturers) thermostats and sells them to wholesalers and distributors.

“mercury switches” – means mercury that is sealed in a glass bulb/vessel/vial as part of the thermostat (see definition below).

“thermostat(s)” – means products that sense and control room temperature through communication with heating, ventilation and air conditioning equipment from all sectors (residential and commercial), including: electromechanical thermostats, which contain internal mercury switches; and electronic thermostats, which use sensors instead of switches to detect temperature levels.

“wholesaler” – means a business that purchases various competing brands of thermostats directly from the manufacturers or distributors, warehouses the products and then sells them to HVAC contractors who install them into residences and businesses.

2. INTRODUCTION

2.1 Overview

The Manitoba Regulation 16/2010 (February 3, 2010) for *Household Hazardous Material and Prescribed Household Material Stewardship Regulation* under the *Waste Reduction and Prevention (WRAP) Act* sets the requirements for stewards of designated materials to have either a program of their own or to join an approved industry funded program. In accordance with the Regulation the Heating, Refrigeration and Air Conditioning Institute of Canada (HRAI), with the support of the Canadian Institute of Plumbing and Heating (CIPH), is submitting this Stewardship Plan on behalf of manufacturers and distributors responsible for previously selling mercury-containing thermostats into Manitoba; since major manufacturers are no longer manufacturing, distributing or selling these products.

The ultimate goal of this Plan is to continue to deliver a high-quality program that satisfies the obligations of the thermostat manufacturers under the *Manitoba Household Hazardous Material and Prescribed Household Material Stewardship Regulation*, and which is also part of a harmonized national program.

Under the national program all thermostats are collected (mercury-containing and electronic); however, since only mercury-containing thermostats are covered under Regulation 16/2010, as well since they pose the most risk of damaging the environment and human health, the Plan targets are set and will be reported for these types only. This version of the Plan covers a five-year period from April 1, 2016 to March 31, 2021, and as such, sets five-year targets for accessibility and collection. This Plan builds from the work that was completed in the original plan period of April 1, 2011 to March 31, 2016, and makes amendments to ensure that program performance shows continuous improvement. As per the Regulation 16/2010 guidelines, the collection program for thermostats will be ongoing and the Plan will be reviewed after five years of operations, with any necessary amendments being made at that time. Between five year plan revisions, the Thermostat Recovery Program (TRP) will remain committed to achieving the targets set out in this Plan and demonstrating continual improvement.

2.2 Executive Summary

The Thermostat Recovery Program has performed consistently during the 2012 – 2015 period. The program’s performance is measured according to number of participants; collection totals and communication outreach:

| Measure | Target | | | | Total achieved in: | | | | % of target | | | |
|--------------------------|--------|------|------|------|--------------------|------|------|------|-------------|------|------|-------|
| | 2012 | 2013 | 2014 | 2015 | 2012 | 2013 | 2014 | 2015 | 2012 | 2013 | 2014 | 2015 |
| Participants | 60 | 75 | 90 | 105 | 48 | 77 | 87 | 94 | 80% | 103% | 97% | 89.5% |
| Collection totals | 660 | 910 | 1075 | 1240 | 496 | 992 | 807 | 892 | 75% | 109% | 75% | 72% |

| Measure | Target | Total achieved | % of target |
|-------------------------------|---|---|---|
| Communications in 2012 | <ul style="list-style-type: none"> Functional website 500 brochures distributed | <ul style="list-style-type: none"> Website up to date: 254 visitors from MB 1,775 brochures distributed | <ul style="list-style-type: none"> n/a 355% |
| Communications in 2013 | <ul style="list-style-type: none"> Functional website 500 brochures distributed | <ul style="list-style-type: none"> Website up to date: 294 visitors from MB 1,150 brochures distributed | <ul style="list-style-type: none"> n/a 225% |
| Communications in 2014 | <ul style="list-style-type: none"> Functional | <ul style="list-style-type: none"> Website up to date: 223 visitors from | <ul style="list-style-type: none"> n/a |

| | | | |
|-------------------------------|---|---|---|
| | website <ul style="list-style-type: none"> • 500 brochures distributed | MB <ul style="list-style-type: none"> • 1,790 brochures distributed | <ul style="list-style-type: none"> • 358% |
| Communications in 2015 | <ul style="list-style-type: none"> • Functional website • 500 brochures distributed | <ul style="list-style-type: none"> • Website up to date: 268 visitors from MB • 1,490 brochures distributed | <ul style="list-style-type: none"> • n/a • 298% |

Through the Thermostat Recovery Program, 100% of all components of the recovered thermostats are recycled, including the plastics, metals, glass and mercury associated with the thermostat. From January 1, 2012 to December 31, 2015, the total breakdown of all materials recovered and recycled from the province of Manitoba included:

- ✓ 4,464 mercury-containing vessels, including 1,533 loose vessels, which were clipped from thermostats and returned loose in pails;
- ✓ 2,403 intact mercury-containing thermostats;
- ✓ 9.69 kilograms of mercury;
- ✓ 62.33 kilograms of metals; and,
- ✓ 166.49 kilograms of plastics.

During this period the program has experienced some significant progress, such as a 96% increase in participation, as well as steady collection totals and public awareness communication efforts. There have been some gaps in the program’s performance; however, going forward under new day-to-day operational management by HRAI, TRP is optimistic and will continue to seek out new opportunities/initiatives for ongoing communication with existing participants and outreach to industry members that will eliminate these gaps.

2.3 Program Participants

In accordance with Manitoba Regulation 16/2010, HRAI, with the support of CIPH, has taken the lead in developing this Plan on behalf of manufacturers and distributors responsible for previously selling mercury-containing thermostats into Manitoba. [Appendix A](#) includes a list of the manufacturers and distributors that have sold mercury-containing thermostats into Manitoba. [Appendix B](#) lists the thermostat manufacturers and distributors that have already signed onto this Plan.

HRAI contacted the manufacturers and distributors listed in [Appendix A](#) to notify them about this Plan and, as a result, the list in [Appendix B](#) represents all those who were contacted. Currently, 26 manufacturers have signed on to this program, representing 100% of the thermostat brands collected by the program as of 2016. The list of participating manufacturers and distributors is posted on the program website (www.hrai.ca/trp), and will be updated only if new manufacturers of electronic thermostats enter the market and sign onto this Plan.

HRAI will provide full program management and delivery, as the agency appointed by the manufacturers and distributors listed in [Appendix B](#) to fulfill their legal obligation to develop and deliver a collection and recycling program for mercury-containing thermostats in Manitoba under the *Household Hazardous Material and Prescribed Household Material Stewardship Regulation*.

2.4 Program Products

Even though in Manitoba only mercury thermostats are specifically designated under the *Manitoba Household Hazardous Material and Prescribed Household Material Stewardship Regulation*, this program also includes electronic/digital thermostats; in other words it covers all thermostat types defined as “products that sense and control room temperature through communication with heating, ventilation and air conditioning equipment” from all sectors (residential and commercial), including:

- Electromechanical (mercury) thermostats, which contain internal mercury switches/vessels (mercury in a sealed glass bulb) or snap switches to control the flow of electrical current; and,
- Electronic thermostats, which use sensors instead of switches to detect temperature levels and electronically control the flow of electrical current.”

While mercury-containing thermostats have been in use for more than 50 years, they are no longer manufactured or sold by the major manufacturers. The designed life span of a mercury-containing thermostat is 20 – 30 years. However, in reality, the majority of thermostats are replaced more frequently than that — on average every 7 – 10 years — as a result of renovations and/or replacing furnaces and other HVAC equipment. This long potential lifespan, coupled with the significant variability in the replacement rate presents a challenge in anticipating how many thermostats will become available for collection in a given year. As a result of this, targets must be based around collection totals rather than a recovery rate. Details will be provided below in the section describing [Collection Targets](#).

3. PRODUCT STEWARDSHIP PLAN

3.1 Plan Development

In 2006, Clean Air Foundation (now Scout Environmental) developed and operated a pilot program to collect mercury-containing thermostats. This program— Switch the ‘Stat— became a permanent, ongoing initiative of Clean Air Foundation in 2007. Then in early 2009, Scout Environmental (SE), HRAI, CIPH and a number of thermostat manufacturers and distributors partnered to use the existing Switch the ‘Stat program model and infrastructure as the basis for the Stewardship Plan for thermostats to meet the obligations of the provincial stewardship regulations, including the Manitoba *Household Hazardous Material and Prescribed Household Material Stewardship Regulation*.

Since 2011, SE has been delivering Switch the ‘Stat. In the summer of 2016 the program was taken in house to be fully delivered and managed by HRAI, and was rebranded as Thermostat Recovery Program (TRP) on behalf of HRAI, CIPH and the thermostat manufacturers and distributors under an approved stewardship plan in MB. Under the management of HRAI, SE has also been delivering the program under an approved plan in BC since 2010, and operating across the rest of Canada on a voluntary basis. TRP now reaches over 1,600 contractors and wholesalers across Canada, including 86 in MB, with HRAI providing education and outreach for both the participating home and/or business owners and contractors/wholesalers, as well as free collection containers and shipping for all thermostats collected.

3.2 Collection Infrastructure

The Plan will use the following three channels to collect end-of-life thermostats in Manitoba:

1. Contractors/wholesalers who will remove and collect thermostats during the course of their operation, and act as drop-off locations for general public.
2. Send-back kits for members of the public in remote regions of the province, or who have mobility challenges.
3. Regional District and municipal collection points where the public can drop-off their old thermostats.

Contractor/Wholesaler Channel

Contractors/wholesalers have the option when signing up to register to participate in the TRP to either act as collection points (locations that collect thermostats through the course of their regular business operations and return them via the program); or to act as both collection points and drop off locations (allowing small contractors, do-it yourselfers and the general public to drop off their old thermostats at their location and return them via the program).

The contractor/wholesaler channel will be used as the primary collection channel for the Plan. It is estimated that a minimum of 85 to 90 percent of new thermostats sold into Manitoba are sold via the contractors/wholesalers in the heating, ventilation and air conditioning (HVAC) industry. The same percentages apply to the amount of new thermostats installed, as well as old thermostats collected (taken off walls during installation of new thermostats/HVAC systems) by contractors during the course of their regular business operations. Similarly, many wholesalers allow

contractors to drop off their old thermostats to their locations as part of their operations, because some contractors operate small businesses with few employees and may not collect a significant volume of thermostats on a regular basis to warrant managing their own collection. As such, we generally see a similar percentage proportion of thermostats collected and returned through the contractor/wholesaler channel via the program. This assumption has been proven through Manitoba's collection results over the last five years, which demonstrate that only 5% of thermostats are recovered from other sources.

HRAI will continue to identify and engage HVAC contractors and wholesalers via letters, emails, advertising in industry publications, and participation in industry meetings and tradeshow. Contractors and wholesalers can register for the TRP either via the program website (www.hrai.ca/trp) or by calling HRAI directly. Upon registration, HRAI sends the following materials to a new contractor/wholesaler participant:

- a collection container (United Nations approved for shipping mercury);
- an introductory letter;
- program instructions;
- information brochures to leave behind with their customers; and,
- a pre-paid courier waybill

Contractors remove old thermostats from homes or businesses and replace them with new thermostats, placing the old models in the provided collection containers, intact. Once the collection container is full, the participant can use their pre-paid waybill to return the collection container to the recycling facility. Participants will also be asked to send back any pail that is half-full or more during the collection sweeps, which take place bi-annually in May and September.

The program will continue to ensure that the courier and recycling companies used by the program have the appropriate certificates of approval to transport and receive all types of thermostats, including those containing mercury.

Once at the recycling facility, the thermostats will be counted, documented, and dismantled, and the number of thermostats collected by each participant will be reported back to HRAI on a monthly basis, along with a breakdown of the total quantities of mercury-containing thermostats, the total number of mercury vessels (each thermostat can have between 1-4), and the total weight of plastics and metals from each participant. The mercury vessels will be removed and stored temporarily before being shipped to a retort facility at least once a year, and the metal and plastic components of the thermostats will be sent to appropriate secondary recycling facilities.

For do-it-yourselfers or smaller contractor businesses (who do not collect a sufficient volume of thermostats to warrant having their own pail), the program promotes the larger contractors and wholesalers that participate in the program as year-round drop-off locations. The TRP website (www.hrai.ca/trp) will have a map with a search by postal code function that allows the general public to locate a participating contractor/wholesaler in their area.

Send-back Channel

This channel will continue to be used as a secondary collection channel for the Plan, after being

tested as a pilot project in Years one through five. Though there has been no collection through this channel in Manitoba over the past five years, this channel is important in terms of offering fair and equitable access to thermostat recycling for northern and remote residents of Manitoba. This channel is provided as an option for Manitoba residents living in remote areas who do not have access to TRP drop-off locations. The TRP website will list a phone number and an online request option where the public can request a small shipping container (suitable for up to approximately 4 thermostats) with a pre-paid courier waybill to ship their old thermostat directly to the recycling facility.

Regional District/Municipal Collection

As of December 31, 2015 there were 8 regional district/municipal collection points located throughout Manitoba. This channel will continue to be used as a secondary collection channel for the Plan, after being tested as a pilot project in Years 1 through 5, and being found to result in 5% of overall collection results. Regional District and Municipal Collection provides a very good way for the general public to easily access the program. These are locations that members of the public are most likely already familiar with, and which most often support collection of other stewarded materials as well. For this reason the TRP will continue to engage regional districts and municipalities throughout Manitoba to participate, and will continue with its ongoing advertisement of the program in a publication called *Municipal Leader Magazine*, which is specifically circulated to members of the Association of Manitoba Municipalities (Manitoba mayors, councillors, municipal administrators, etc.).

For a full list combining all 94 collection points throughout Manitoba up to December 31, 2015, please see [Appendix C](#).

3.3 Pollution Prevention Hierarchy

Reduce/Redesign

The main environmental concern with thermostats is the mercury contained in many of the older models. While mercury-containing thermostats have been in use for more than 50 years, they are no longer manufactured by the major manufacturers. For example; Honeywell stopped selling mercury-containing thermostats in Canada in 2006 and Emerson/White Rodgers stopped in spring 2007. As well, the government of Canada is working on a risk management strategy that bans the sale, manufacture and import of all mercury-containing products (excluding lamps and dental amalgam) into Canada. This ban will guarantee that mercury-containing thermostats are an obsolete material.

Reuse

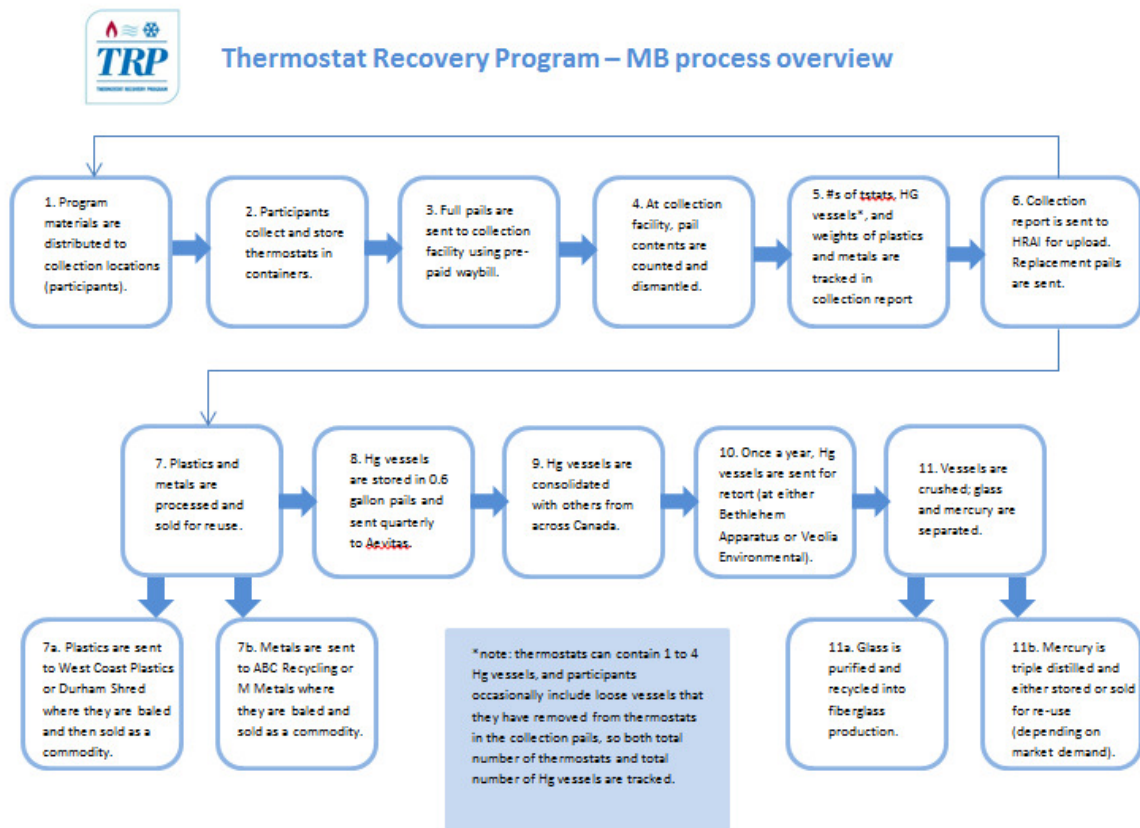
The TRP does not encourage the reuse of old thermostats collected through this program for a number of reasons. First, many of the old thermostats contain mercury and this program will ensure that the mercury is properly managed and recycled once in our collection channels. Second, for the non-mercury-containing thermostats, the risk in reusing them is that they will not meet the technical/safety specifications of new HVAC systems.

Recycle

The following steps will continue to be taken to manage the materials recovered through the program:

- Once at the recycler, the thermostats are counted, documented, dismantled and the components are separated for appropriate recycling.
- The glass vials that contain the mercury will be removed from the thermostat and stored temporarily before being sent to a retort facility where the mercury is triple distilled to remove any impurities and then either sold as a commodity (depending on market demand) or put into long-term storage. The glass is crushed, distilled and sent for recycling in fiberglass applications.
- The metal and plastic components from the thermostats are separated and sent for recycling. Both the metals and plastics are sent from the primary recycling facility to secondary recyclers where the material is consolidated with material from various other sources and baled, then sold as a commodity.

The process is described in the following flow chart:



Both the Collection Infrastructure and the adherence to the Pollution Prevention Hierarchy, as well as the Program Performance (as described in the following section) were subject to an Independent Reasonable Assurance audit by Abrahamse Berkis Pinto (ABP). The details of this audit can be found in the 2015 Annual Report, which will be located online on the “[Program Results](#)” page of the TRP website (www.hrai.ca/trp).

4. PROGRAM PERFORMANCE

4.1 Program Accessibility

CONTRACTOR/WHOLESALE CHANNEL

In the previous approved Plan (2010-2015), it was estimated that there were approximately 150 businesses that could eventually act as collection points for thermostats. By reaching out to existing HRAI and CIPH contractor/wholesaler memberships, as well as the memberships of several other contractor associations, and by advertising in industry trade publications and attending industry meetings, the program has reached 94 participants, 86 of which are contractors and wholesalers. These contractors provide on-site collection for thermostats that they remove from homes and businesses.

The program has also worked to engage wholesaler branches as drop-off points for thermostats because all small contractor businesses will visit at least one wholesaler branch on a regular basis to pick-up supplies. Research conducted by the program team has also shown that many smaller contractor businesses prefer to visit drop-off locations rather than registering for the program, therefore it will not be possible to register 100% of the potential businesses. However, these businesses will still have access to the program through the drop-off locations. This finding will be reflected in the registration targets outlined below.

SEND-BACK COLLECTION

This channel was run as a pilot project in the original 5 year plan, to provide access to the TRP in rural and remote areas of the province. While the program did not see any collection through this channel, there is still value in making the program accessible to those residents of MB who are outside the areas currently serviced by existing participants and drop-off locations. This revised plan intends to continue to offer this channel.

REGIONAL DISTRICT/MUNICIPAL CHANNEL

To ensure that the program is as accessible as possible to the residents of MB, collection is also available through Regional Districts and Municipal collection channels. This channel provides convenient access to the program for members of the public who are “do-it-yourselfers” and prefer not to use a contractor for a thermostat replacement, as well as being a method of disposal that many residents are already familiar with. Whenever possible, TRP makes collection available at the same municipal/regional district locations as other MB PRO programs, in order to improve the convenience to the public, as well as program visibility.

This channel was run as a pilot in Year one of the previous Plan, and was determined to be a valuable method of collection, accounting for approximately 5% of returned thermostats. As a result of this, efforts are continually being made to engage with as many Regional Districts and Municipalities as possible to increase the availability of this channel. To bolster these efforts the TRP will continue to advertise and promote the program in a publication specifically circulated 4 times per year to members of the Association of Manitoba Municipalities (Manitoba mayors, councillors, municipal administrators, etc.) called the *Municipal Leader Magazine*.

Collection Location Targets

Program delivery over the previous plan period focused heavily on recruiting new collection locations, particularly in 2012 and 2013 to address the challenges in meeting these targets in previous years. The program has strong coverage in the Southern part of the province, and representation in all Regional Districts in Manitoba. Although the program has representation in all Regional Districts, the majority of participation falls within the Winnipeg Regional District, with participation in the northern part of the province being quite sparse.

HRAI will continue to contact contractors and wholesalers, as well as Municipal and Regional District locations with the intention of increasing the number of collection points outside of the Winnipeg Regional District. The communities serviced by TRP collection locations account for approximately 67% of the total population in Manitoba, with coverage in the rest of the province available through the send-back channel.

In order to ensure that all avenues for engaging potential collection locations have been explored and that outreach attempts are cost-effective and reach the target audience (based on above channels); ongoing research has been conducted throughout the term of the original Plan. Additional research has been conducted to support the development of revised targets for the 2017-2021 Plan; this research is as follows:

- Analysis of potential collection locations (via registration membership lists, and chapter outreach);
- Analysis of registration/participation trends;
- Annual participant survey; and,
- In-depth interviews with HRAI members.

As demonstrated in the table below, the program has continued to grow steadily from Year 1 through 4, positioning the program well to meet targets in Year 5. At this point, the program has conducted extensive outreach to contractor associations (including HRAI, CIPH, Mechanical Service Contractors of Canada, etc.) as well as reaching out to wholesalers to register all of their MB branches. The extensive research that was conducted in the preparation of this revised Plan, as well as research that has been conducted throughout the term of the original Plan indicates that many small contractor businesses prefer to visit drop-off locations rather than registering for the program themselves. Therefore while the original assumption as to the number of contractors and wholesalers who could potentially participate was accurate, the program has likely reached a saturation point as to the number that would actually register for the program.

The table below shows performance towards the targets for the number of collection points from the original Plan:

| Program Year | Target Number of Collection Locations | Pro-rated Target for Calendar Year (for annual report) | | Actual Collection Points (by calendar year) | Percentage Increase |
|-----------------------|---------------------------------------|--|----|---|---------------------|
| Year 1 (April 1, 2011 | 50 | 2011 | 38 | 8 | n/a |

| | | | | | |
|---|-----|------|-----|----|------|
| –March 31, 2012) | | | | | |
| Year 2 (April 1, 2012 –March 31, 2013) | 60 | 2012 | 58 | 46 | 475% |
| Year 3 (April 1, 2013 –March 31, 2014) | 75 | 2013 | 71 | 72 | 57% |
| Year 4 (April 1, 2014 –March 31, 2015) | 90 | 2014 | 86 | 87 | 21% |
| Year 5 (April 1, 2015 –March 31, 2016) | 105 | 2015 | 101 | 94 | 7% |

The original Plan aimed for between 20-25% growth in Year 1 through 4, with Year 5 aiming for a more modest target of 17%. The targets presented in this revised Plan for 2017-2021 aim for more modest growth of 10% in Year 6, 5% in Years 7 and 8, and then reaching a plateau in Year 8, after which point recruitment efforts will be focused on ensuring that coverage remains consistent and any collection locations that opt out of the program (for example, businesses that close down) are replaced. Growth in Years 6 through 8 will be focused on areas outside of the Winnipeg Regional District, which are currently under-serviced by the program. This revised strategy will allow the program to target resources to focus outreach on areas where recruitment has been more difficult. These targets are as follows:

| Program Year | Target Number of Collection Locations | Percent Increase from Previous Year |
|--------------|---------------------------------------|-------------------------------------|
| 2016* | 111 | 10% |
| 2017 | 117 | 5% |
| 2018 | 123 | 5% |
| 2019 | 123 | 0% |
| 2020 | 123 | 0% |
| 2021 | 123 | 0% |

*Although part of 2016 is included in the original Plan (which extends to March 31, 2016) the calendar year results for 2016 are included in this plan for clarity and continuity

One additional change to the Collection Location targets is that they will be re-aligned to the calendar year rather than the program year in order to better facilitate reporting.

4.2 Consumer Awareness

As detailed above, the TRP is primarily focused on the HVAC and Plumbing industry, rather than the general public. However, 5% of all thermostats collected have come from Regional and Municipal channels; therefore, there is a need for some level of public awareness of the program.

In Year 1 through 5, the program engaged in targeted and cost-effective consumer outreach initiatives, expanding awareness of the program through municipal eco calendars, consumer-facing websites, and outreach events focused on waste reduction. The TRP will continue to engage in these initiatives and to explore various opportunities for outreach.

The messaging that is used for consumer awareness outreach focuses on why old thermostats need to be recycled (in particular because of the risks associated with the mercury found in many older thermostats), who funds the program (and the fact that it is completely free to participate), disposal options (contractor channel, drop-off locations, send-back), and program contact information for more information. This information is communicated through the following resources and channels:

- Program website—presents a comprehensive overview of the program, with periodic updates and an up-to-date list of disposal locations (i.e., participating contractors and wholesalers, drop-off locations and send backoptions);
- Printed brochures — consumer friendly brochures are made available at Regional District/Municipal collection locations (sent upon registration, or available upon request);
- Green Manitoba – key program information and a link to the program website currently appears on the Green Manitoba website. The eco calendar also features the program logo and URL, and provides eco tips about mercury and where to recycle thermostats;
- Recycle Manitoba – information about the program currently appears on the Recycle Manitoba website (www.recyclemanitoba.ca/);
- Advertising via the Mechanical Contractors Association of Manitoba website – information about the program and a link to the program website currently appears on the Service Contractors page.

In addition, manufacturers currently provide information on the packaging of new thermostats sold into North America to inform the customer that their old thermostat may contain mercury, along with a website (www.thermostat-recycle.org) and a toll-free phone number so that customers can find out where and how to properly dispose of it in the United States. This Plan will continue to utilize this existing US infrastructure which includes a link to the TRP (<http://www.thermostat-recycle.org/resources/faqs>).

Appendix C provides examples of the existing TRP program resources that are focused on consumer awareness.

Once the program transition is complete, HRAI will consult with Green Manitoba and Recycle Manitoba to determine appropriate metrics for optimizing the effectiveness of the program's consumer communications strategy.

4.3 Industry Awareness

Because TRP is industry-focused rather than consumer-facing, awareness efforts will primarily target contractors/wholesalers. To supplement the consumer facing initiatives detailed above, industry-facing materials are also available. The messaging for these materials is similar to the consumer-facing information, in that it focuses on why old thermostats need to be recycled (in particular because of the risks associated with the mercury found in many older thermostats) and who funds the program, but include a greater emphasis on the fact that it is completely free to participate. Materials also describe the ways that contractors or wholesalers can join the program (registering as a participant or a drop-off location, or the option for smaller businesses to visit drop-off locations), what they will receive once they register, and emphasize how easy it is to participate. This information is communicated through the following resources and channels:

- Program website – presents a comprehensive overview of the program, with regular updates, an up-to-date list of disposal locations, and a quick link for registering for the program.
- Printed brochures – to be distributed by contractors/wholesalers at locations that sell new thermostats.
- Printed posters – to be displayed at participating drop-off locations to advertise to customers that the program is available at that location.
- Industry communications via newsletters and industry publications to inform the contractors/wholesalers about the program and how to register and participate.
- Wholesalers, distributors and manufacturers will promote the program to contractors and the general public via their websites, newsletters, signage, etc.
- Wholesalers and distributors provide on-site promotion and education for the small, one-person contractors via signage and printed information (posters, brochures and stickers), as well as allowing the contractors to use their collection containers if they want to (instead of acquiring their own collection pail).
- This Plan will continue to link to other initiatives and programs that HRAI is part of, such as the Refrigerant Management Canada (RMC) program and outreach to the Building Owners and Managers Association (BOMA) and Green Building Council to target the IC&I sector.

Appendix D provides examples of the existing TRP program resources that are focused on Industry Awareness.

The following metrics will be used as benchmarks to measure the effectiveness of the communications tools listed above:

- Program website – the program website will be updated monthly with collection results and new program participants and drop-off locations.
- Printed brochures – a minimum of 500 brochures will be printed and distributed on

- an annual basis.
- Printed posters – posters will be distributed to all new drop-off locations to be displayed on site.
- Industry-facing advertising – a minimum of 5 ads per year will target industry (for example, through industry associations, trade publications, e-blasts, etc.)

4.4 Collection Targets

The collection targets determined for the original plan were based on research conducted in Ontario as there was limited information available specific to the MB context. The data gathered was adjusted on a per capita basis for MB and adjusted upward to ensure the program set ambitious collection targets in its first years. The targets set in ON were appropriate for that context; however, the actual collection results in MB for years 1-4 have mostly suggested that these targets were slightly unrealistic. The table below provides the original five-year collection targets, and the actual collection results to date:

| Year | Estimated Number of Mercury- containing Thermostats Available for Collection | Number of Thermostats to be Collected | % Capture | Actual Collection Results |
|-------------------------------------|--|---------------------------------------|-----------|---------------------------|
| Year 1 (April 2011 – March 2012) | 1,650 | 415 | 25% | 175 |
| Year 2 (April 2012 – March 2013) | 1,650 | 660 | 40% | 434 |
| Year 3 (April 2013 – March 2014) | 1,650 | 910 | 55% | 1,177 |
| Year 4 (April 2014 – March 2015) | 1,650 | 1,075 | 65% | 753 |
| Year 5 (April 2015 – March 2016) | 1,650 | 1,240 | 75% | 879* |

*Collection results as of March 1, 2016

In light of these findings, the original targets have been analyzed and additional research has been conducted to support the revision of Collection targets for the 2017-2021 Plan. The goals of the research were to seek more accurate sources of data, and consult with industry members to validate findings; this research is as follows:

- Analysis of central air conditioner (CAC) and furnace sales for 2009-2014 for MB and ON;
- Analysis of thermostat sales for 2009-2014 for MB, ON and Canada;

- Analysis of Program collection trends in MB and ON;
- Annual participant survey (9% response rate in MB); and,
- In-depth interviews with HRAI members (9 interviews)

This research has determined that adjusting the ON targets to account for the population of MB was slightly aggressive and did not result in accurate targets for the following reasons:

- Analysis of the available thermostat sales data, which was not available in the development of the original ON or MB plans, shows that sales into the MB market are approximately 19% of those in ON
- Analysis of Program participant surveys and collection trends in MB and ON suggest that the number of mercury-containing thermostats available for collection are declining
- Anecdotal evidence from interviews with HRAI members suggests that many older homes would have had electric heat that did not use mercury-containing thermostats

Based on this evidence, the total thermostats available for collection and the collection targets must both be adjusted. Based on the available thermostat sales data, there are approximately 16,110 thermostats sold into the MB market each year. To determine the retrofit market, the CAC and furnace sales were analyzed. The research conducted for the original plan development indicated that, according to industry sources, a reasonable assumption regarding the incidence of thermostat replacement is that half of the replacements occur when both the CAC and furnace are replaced, and the other half occurs when only one of the two (either the CAC or the furnace) are replaced. The retrofit market for CACs was determined to be 35% of sales, and for furnaces it represents 53% of sales; to estimate the percentage of thermostats going to retrofits rather than new builds, an average of 44% will be used. Therefore, an average of 7,088 thermostat replacements is occurring each year MB.

The next step is to determine the fraction of these that would be likely to contain mercury. The surveys that were conducted in preparation for the writing of this plan asked contractors what percentage of the programmable thermostats they installed were replacing mercury thermostats. According to the survey, 97% of households in the areas serviced by the contractors had a thermostat, and of those, 33% were non-programmable thermostats. Therefore, approximately 2,339 of the thermostats that are coming out of service each year are non-programmable.

The non-programmable thermostat segment is made up of electronic and mechanical categories. While mercury thermostats are part of the mechanical category, not all mechanical thermostats contain mercury. Because of this, it is difficult to estimate the fraction of non-programmable thermostats that are likely to contain mercury. This is compounded by the fact that manufacturers' transition to all non-mercury thermostats took place over a long period of time, and mercury thermostat sales decreased significantly as more accurate, more efficient all-electronic models became available. The most recent information available to determine the number of mechanical versus electronic thermostats that make up this non-programmable segment is from 2003, when mercury-containing thermostats were still being sold, and covers the entire North American market. This info is presented in the table below:

| Type of Thermostat | Units Sold | Percent of Total Sales |
|--------------------|------------|------------------------|
| Mechanical | 5,180,000 | 36% |
| Electronic | 9,100,000 | 64% |

| | | |
|-------|------------|--|
| Total | 14,280,000 | |
|-------|------------|--|

Source: Information provided by Product Stewardship Institute, using Frost & Sullivan 2003 data

The results of this research have not been reflected in the collection results in MB, where electronic thermostats have accounted for only 3% of all collection. Part of the discrepancy between the Frost & Sullivan numbers and the actual program results can be accounted for by market changes, but part could also be related to lack of awareness that electronic thermostats should also be recycled. However, it is also important to recognize that because mercury-containing thermostats are no longer being manufactured and sold into Canada, the number of these thermostats available for collection have declined and will continue to do so as the program matures. Subsequently, it is expected that the number of other mechanical and electronic thermostats will increase. Analysis of program trends in ON indicates that year over year the program has seen a steady decline in the number of mercury-containing thermostats, while electronic thermostat collection has gradually increased. The MB collection trends for mercury-containing thermostats are reflective of the ON numbers, and collection of electronic thermostats has seen significant growth as the Program has continued to mature, with a significant spike in collection from Year 2 to Year 4.

Therefore, in order to set realistic new Collection Targets, the Plan will assume that approximately 65% of thermostats coming out of service each year will be mercury-containing, for a total of 1,520 available annually. As with the previous plan, the targets will be based on a percent capture basis and will emphasize modest program growth. As with the collection location targets, the collection targets will also be re-aligned to the calendar year rather than the program year in order to facilitate reporting. The targets for 2017-2021 are outline in the table below:

| Year | Estimated Number of Mercury-Containing Thermostats Available for Collection | Number of Thermostats to be Collected | % Capture |
|------|---|---------------------------------------|-----------|
| 2016 | 1,520 | 1,216 | 80% |
| 2017 | 1,520 | 1,292 | 85% |
| 2018 | 1,520 | 1,368 | 90% |
| 2019 | 1,520 | 1,444 | 95% |
| 2020 | 1,520 | 1,520 | 100% |
| 2021 | 1,520 | 1,520 | 100% |

Targets focus on capture of available mercury-containing thermostats, as they are much more damaging to the environment and human health if not properly disposed of. Other types of thermostats will also be collected and reflected in all reporting, but collection numbers to date have not been sufficient to necessitate setting collection targets. The Program will continue to monitor the ratio of mercury-containing versus electronic thermostats that are collected each year to determine the length of time mercury-containing thermostats will be available for collection.

Monitoring

The quantities collected and diverted as a result of the Plan will be monitored via monthly reporting from the recycler to HRAI and will include the number of thermostats collected from specific contractors and wholesalers, and regional/municipal channels.

Remedial Actions

If the collection targets are not met, the Plan will focus on scaling-up both consumer and industry awareness initiatives, as well as increasing communication to all collection locations. This communication will emphasize the importance of properly recycling mercury-containing thermostats, as well as education about collection of non-mercury-containing thermostats.

5. First Nations and Remote Communities

5.1 Strategy

In terms of offering collection and infrastructure in northern, remote regions and First Nations communities of Manitoba, consultations with the other PRO's have shown that collaborative efforts to execute special collection events in these regions will most likely be the most effective option going forward. This is due to the many challenges the TRP, as well as other stewardship plans face with collection of end-of-life products, in these regions throughout Manitoba across vast distances with limited infrastructure to support collection. Therefore, TRP will continue to focus on discussions with other PRO's to develop collaborative collection events in these regions throughout the province of Manitoba.

As discussed previously in this plan under section **4.1 Program Accessibility**; the program implemented the Send Back channel specifically for the purpose of providing individuals in northern and remote regions with the ability to return end-of-life thermostats. Therefore, this channel will continue to be very valuable for providing these remote communities with full access to the program.

TRP will also continue to focus on developing collection infrastructure in remote First Nations communities. Since the plan has been implemented in Manitoba, TRP has made connections with some First Nations groups during PRO meetings and program outreach, etc. Using these contacts the plan will continue to develop relationships with them and will seek to ramp up discussions regarding possible outreach opportunities and best ways to set up more long standing collection channels within their communities.

6. PROGRAM ADMINISTRATION

6.1 Program Financing

The Plan will be managed by HRAI and fully funded by the manufacturers and distributors that sell electronic thermostats/have sold previously manufactured mercury thermostats; and/or, import/have imported thermostats into Manitoba (mercury-containing thermostats are no longer manufactured or sold by the major manufacturers into any markets). The TRP does not charge or collect any eco fees. The manufacturers and distributors pay for the full yearly costs for recovery and recycling of thermostats as per the approved plan, along with all other yearly program expenses incurred. Their yearly individual fees to pay for the program costs are calculated based on their individual return share percentage of the total number of thermostats recovered per year. Therefore, individual manufacturer and distributor fees fluctuate from year-to-year depending on the total number of their thermostats recovered.

6.2 Steward Compliance

HRAI will actively identify and recruit manufacturers and distributors that sell and/or import thermostats into Manitoba who are not participating in the Plan. Techniques to identify these companies will include audits of collected materials and information received from the industry associations and member companies.

Once a company is identified HRAI will issue communications (letter, email or phone call) to advise the steward of their regulatory obligation to participate in a stewardship program. If the company does not comply, HRAI will issue a letter to Manitoba Sustainable Development advising of the circumstances and requesting investigation and appropriate enforcement.

6.3 Dispute Resolution

HRAI will contract with all suppliers and service providers by the use of formal contracts and agreements. If any disputes arise, HRAI will contact the supplier/service provider to set up a formal meeting (either in person or conference call) to discuss the issue. If the issue cannot be resolved during the meeting, HRAI will continue discussions (by scheduling a subsequent meeting or meetings) with the disputing party to reach a resolution; or to agree upon which next steps will be taken to work towards resolution. Ultimately, if resolution cannot be agreed upon between both parties, the issue will need be resolved using appropriate legal procedures.

6.4 Cooperation with Other Thermostat Collection Programs

HRAI is committed to working with any other agencies that operate approved stewardship programs for thermostat collection in Manitoba to ensure the programs operate cooperatively and as effectively as possible. However, to our knowledge there are no other formal thermostat collection programs operating in MB or in any other province collecting our product. However, if and when any other agencies begin to operate such programs to collect thermostats we will be sure to partner up and or collaborate with them and ensure all of their thermostats collected are channeled into TRP's collection and tracking system to be subsequently reported annually.

7. ANNUAL REPORT

An annual report will be submitted to the Manitoba Minister of Sustainable Development as stated in the regulation. The annual report will also be available on the program website as a PDF file. The report will include, but not be limited to, the following information:

- Plan performance measures, including the number of mercury-containing thermostats collected, weight in Kg of mercury collected, documented product recovery rate information, including the aggregated data of the total amount of thermostats collected, along with the estimated thermostat recovery rate;
- A comparison of the approved plan performance for the year with the performance requirements and targets in the regulation and the approved plan;
- The number of thermostats collected in each regional district;
- The number and location of collection facilities;
- A summary of the educational materials and educational strategies used for the Thermostat Recovery Program in Manitoba;
- The steps taken to manage the materials recovered through the Plan, including a description of how recovered thermostats were managed in accordance with the pollution prevention hierarchy, and information on the final destination of recyclable materials recovered through the Plan; and,
- A summary of the research and development efforts conducted throughout the year and results that they have yielded.

8. ACT AND REGULATION

In accordance with the requirements of the *WRAP Act* and Regulation, HRAI will remit annual payments to Green Manitoba for the payment of salaries and other costs of government for the administration and enforcement of the *WRAP Act* and the Regulation for the duration of this plan approval.

9. STAKEHOLDER CONSULTATION

The public consultation process conducted by Ministry of Manitoba for all stewardship plans was held during the period of July 22, 2016 – October 4, 2016. During the consultation period the Ministry did not receive any specific comments or feedback regarding this plan.

Appendices

Appendix A— List of Manufacturers and Distributors Responsible for Selling Mercury-Containing Thermostats into Manitoba

- Bard Manufacturing Corporation
- Carrier Canada Ltd.
- Chromalox
- Climate Master, Inc.
- Emerson Electric Corporation/White-Rodgers
- Empire Comfort Systems
- General Electric Corporation
- Honeywell Corporation
- International Comfort Products
- ITT Corporation
- Invensys Controls/Robertshaw
- Johnson Controls Inc. (York)
- Lennox International Inc.
- Lux Products
- McQuay International
- NORDYNE/Nordyne Corporation
- Rheem Manufacturing Company
- PSG Controls Inc.
- Schneider Electric
- Sears Holdings
- Tekmar Control Systems Ltd.
- Thomas & Betts Ltd.
- TPI Corporation
- Trane Commercial Systems
- Uponor Ltd.
- Waterfurnace International, Inc.

Appendix B—List of Thermostats Manufacturers and Distributors Signed-on to Participate in the Stewardship Plan

Registered Thermostat Manufacturers and Distributors:

- Bard Manufacturing Corporation
- Carrier Canada Ltd.
- Chromalox
- Climate Master, Inc.
- Emerson Electric Corporation/White-Rodgers
- Empire Comfort Systems
- General Electric Corporation
- Honeywell Corporation
- International Comfort Products
- ITT Corporation
- Invensys Controls/Robertshaw
- Johnson Controls Inc. (York)
- Lennox International Inc.
- Lux Products
- McQuay International
- NORDYNE/Nordyne Corporation
- Rheem Manufacturing Company
- PSG Controls Inc.
- Schneider Electric
- Sears Holdings
- Tekmar Control Systems Ltd.
- Thomas & Betts Ltd.
- TPI Corporation
- Trane Commercial Systems
- Uponor Ltd.
- Waterfurnace International, Inc.

Appendix C—List of all TRP Collection Points throughout Manitoba (up to Dec. 31st, 2015)

| Company Name | Type | Drop Off | City |
|---------------------------------|------------|----------|--------------------|
| 4 Seasons Heating & Cooling | Contractor | No | Winnipeg |
| A&B Mechanical Ltd | Contractor | No | Winnipeg |
| ABCO Supply & Service Ltd. | Contractor | No | Winnipeg |
| AC Environments | Contractor | No | West Saint Paul |
| Aire Serv of Winnipeg | Contractor | No | Winnipeg |
| Assiniboine Community College | Contractor | No | Brandon |
| Atlas Heating & Sheet Metal Ltd | Contractor | No | Winnipeg |
| B.A. Express | Wholesaler | Yes | Steinbach |
| B.A. Express | Wholesaler | Yes | Winkler |
| B.A. Express | Wholesaler | Yes | Brandon |
| B.A. Express | Wholesaler | Yes | Winnipeg |
| B.A. Robinson Co Ltd | Wholesaler | Yes | Winnipeg |
| Barcol Controls Ltd. | Contractor | No | Winnipeg |
| Beauchamp Plumbing & Heating | Contractor | No | Portage la Prairie |
| Bert's Refrigeration | Contractor | No | Blumenort |
| Black & McDonald Limited | Contractor | No | Winnipeg |
| Boundary Co-op | Contractor | Yes | Boissevain |
| BSD Solutions Ltd | Contractor | No | Winnipeg |
| Buhler HVAC Ltd. | Contractor | No | Hartney |
| Cheguis and Son | Contractor | No | West St. Paul |
| Cobbe's Plumbing & Heating Ltd. | Contractor | No | PORTAGE LA PRAIRIE |
| Custom Vac Ltd | Contractor | Yes | Winnipeg |
| Delta Farms | Contractor | No | Austin |

| Company Name | Type | Drop Off | City |
|--|------------|----------|--------------|
| Derksen Plumbing & Heating (1984) Ltd. | Contractor | No | Winnipeg |
| Dick's Heating | Contractor | Yes | Carman |
| Direct Energy | Wholesaler | Yes | Winnipeg |
| DMD ELECTRIC LTD. | Contractor | No | Traverse Bay |
| E.G. Penner Building Centre | Contractor | No | Steinbach |
| Ecco Supply – Winnipeg | Wholesaler | No | Winnipeg |
| ER Refrigeration | Contractor | Yes | Brandon |
| Evergreen Environmental Technologies | Municipal | Yes | Minnedosa |
| Frontier Refrigeration and Mechanical Services | Contractor | No | Winnipeg |
| Furnasman New Homes | Contractor | No | Winnipeg |
| Furnasmans One Hour Heating and Cooling | Contractor | Yes | Winnipeg |
| Glen's Plumbing | Contractor | No | Whitemouth |
| Global Mechanical Inc. | Contractor | Yes | Winnipeg |
| GLT Service Professionals Ltd. | Contractor | No | Winnipeg |
| Hanover Plumbing & Heating | Contractor | No | Steinbach |
| Hanover School Division | Municipal | Yes | Steinbach |
| Heritage Heating & Cooling | Contractor | Yes | Winnipeg |
| Howell Mechanical | Contractor | Yes | Winnipeg |
| Hutlet's Total Home Service | Contractor | No | Beausejour |
| Ingram's Plumbing & Heating Ltd | Contractor | No | Oakville |
| Jira Electric | Contractor | Yes | Winnipegosis |
| Keating Mechanical Service Inc. | Contractor | No | Landmark |
| Kozak Plumbing & Heating Ltd | Contractor | No | Carman |

| Company Name | Type | Drop Off | City |
|--|------------------|----------|-------------|
| Lance Wagner Plumbing & Heating Ltd | Contractor | Yes | Brandon |
| Lennox Parts Plus | Wholesaler | No | Winnipeg |
| Local 254 Plumber and Pipefitter Union | Contractor | Yes | Winnipeg |
| Louise Integrated Waste Management | Recycling Centre | Yes | Pilot Mound |
| Lowe Mechanical Services Ltd. | Contractor | No | Winnipeg |
| McMechan Plumbing & Heating | Contractor | Yes | Melita |
| Miller Environmental Corporation | Recycling Centre | Yes | Winnipeg |
| MOPIA | Recycling Centre | Yes | Winnipeg |
| National Energy Equipment | Wholesaler | No | Winnipeg |
| Nexus Energy Products Inc. | Wholesaler | Yes | Morden |
| Noble Heating | Contractor | Yes | Winnipeg |
| Nor-tech Mechanical | Contractor | No | Arborg |
| North Hill Plumbing & Heating | Contractor | No | Brandon |
| On Time | Contractor | Yes | Winnipeg |
| Paradise Geothermal | Contractor | Yes | Dunrea |
| Parsons Plumbing, Heating & Electrical | Contractor | Yes | Winnipeg |
| Paul's Plumbing & Heating Ltd. | Contractor | Yes | Thompson |
| Penn-Lite Electrical and Mechanical | Contractor | Yes | Steinbach |
| Polar Plumbing and Heating | Contractor | Yes | Winkler |
| Prairie Printing | Recycling Centre | Yes | Winkler |
| Michael Aldcroft | Contractor | No | Treherne |
| Refrigerative Supply Ltd. | Wholesaler | Yes | Winnipeg |

| Company Name | Type | Drop Off | City |
|--|------------------|----------|--------------------|
| Reliance Superior Heating & Air Conditioning | Contractor | Yes | Winnipeg |
| Responsible Electronics Recycling | Recycling Centre | Yes | Selkirk |
| S.S. Plumbing and Heating | Contractor | Yes | Winnipeg |
| SAE Engineers | Contractor | No | Winnipeg |
| SERVICE EXPERTS HEATING & AIR CONDITIONING | Contractor | Yes | Winnipeg |
| Shewfelt's Plumbing & Heating Ltd | Contractor | Yes | Portage la Prairie |
| Shorty's Plumbing & Heating | Contractor | Yes | Winnipeg |
| Sinclair Supply Ltd. | Wholesaler | Yes | Winnipeg |
| Smart Electric | Contractor | Yes | Carberry |
| Southern Comfort Mechanical Inc | Contractor | No | Niverville |
| Supreme Auto | Contractor | No | Selkirk |
| Systech Mechanical Services Ltd. | Contractor | Yes | Winnipeg |
| Tech-Air Ltd | Contractor | No | Winnipeg |
| TOM'S PLUMBING & HEATING | Contractor | No | Brandon |
| Tradesman Mechanical | Contractor | Yes | Winnipeg |
| Valley Plumbing & Heating | Contractor | No | Swan River |
| Westech Energy Training Center | Recycling Centre | Yes | Winnipeg |
| Westside Plumbing & Heating | Contractor | No | Brandon |
| Wholesale Heating Supplies | Wholesaler | No | Winnipeg |
| Winkler Plumbing & Heating (2008) Ltd | Contractor | No | Winkler |
| Wolseley Canada HVACR Group | Wholesaler | Yes | Winnipeg |
| Wolseley Mechanical Group (1 st Location) | Wholesaler | No | Winnipeg |

| Company Name | Type | Drop Off | City |
|--|------------|----------|----------|
| Wolseley Mechanical Group (2 nd Location) | Wholesaler | No | Winnipeg |
| WWG Totaline Carrier (1st Location) | Wholesaler | No | Winnipeg |
| WWG Totaline Carrier (2nd Location) | Wholesaler | No | Winnipeg |

Appendix D: Consumer-facing Outreach Materials & Municipal Leader Magazine Ad

Consumer-facing Brochure



This is a mercury switch – Something that still exists in millions of older mechanical thermostats. Mercury is highly toxic and dangerous to the health of people and wildlife.

Switching to newer and more energy-efficient programmable thermostats and responsibly disposing of old mercury containing thermostats reduces energy consumption and prevents mercury from contaminating our soil, water and air.



NOW THE CHOICE IS YOURS!

If you dispose of your old thermostat with your household waste, you are sending mercury to landfill.



Old mechanical thermostats have one to four switches, each containing approx. 2.5 grams of mercury.



Mercury is a potent neurotoxin. It only takes one gram of mercury to contaminate an eight-hectare lake to the point the fish is not edible for a full year.



If you participate in the Thermostat Recovery Program, you'll conserve energy, save money, and prevent mercury releases to the environment.



➔ **STEP 1:** With the help of your participating Thermostat Recovery Program contractor, change to a newer, more energy efficient programmable thermostat.

➔ **STEP 2:** Responsibly dispose of your old mercury containing thermostat through your local Thermostat Recovery Program contractor. A recycling facility will dismantle the thermostat, recycle the parts, and prevent the mercury from contaminating soil, water and air.



FOR MORE INFORMATION
1(800) 267-2231, x 224 Email pthompson@hrai.ca

Administered & delivered by:  Supported by: 

Municipal Leader Magazine Ad (Manitoba Municipal Employees Publication)

Manitoba Stewardship Plan for Mercury-containing Thermostats31

Draft – December 2016

A rewarding career

LYNNE BEREZA, AMM COMMUNICATIONS COORDINATOR

If there is a "wastewater guru" in Manitoba, his name would be Wayne Wall. Wall, a former Manager of the City of Portage la Prairie's Wastewater Treatment Division, retired in 2012. Two years later, at the urging of former councillor Walter Korylak, he ran successfully for council and was promptly handed the waterworks portfolio – his first choice.

In fact, Wall's career in the field loosely began when he decided to quit school back in 1961 at the young age of 15. As he tells it, his father, who was in the plumbing business, handed Wall a shovel and told him to get to work. "I think his exact words were 'no son of mine is going to be a bum,'" Wall laughs. He went on to become a plumbing apprentice, then a journeyman plumber, following that up with small business ownership, including Portage Septic Service and Portage Water Service. (Are you seeing a trend here?)

In 1994, the City of Portage la Prairie hired Wall as a maintenance foreman. He had to work his way up to the top job by committing to attaining his Class IV Operator certification – the level required to manage a plant of that size. At the time, four years of post-secondary education along with four years of experience was required. Wall was able to get credit for some of his experience and made up the rest by taking correspondence courses and attending seminars and workshops.

Wall's transition from being a city employee to a city councillor have been easier than for some, after 13 years in management, he was somewhat familiar with the budget process and the work in general. Overseeing the waterworks portfolio allows him to work with department heads with whom he already has an established relationship.

Indeed, the City is fortunate to have someone with Wall's experience

sitting on council, given the \$106 million dollar upgrade required at its existing wastewater treatment plant. Financing such a large project is presenting enormous challenges for the municipality of 13,000.

"We're talking about a plant that initially cost about \$40M, later on, it was valued by our insurance company at around \$100 million (replacement value)," he says. "Now, because of new provincial regulations, we need to do a \$10M upgrade."

The new upgrade is required to remove more phosphorous and nitrogen, both present at very high levels due to the type of wet industry located in Portage la Prairie (two potato processing plants: McCain and Simplot).

"When the government decided to do nutrient removal initially, they targeted Portage, Winnipeg and Brandon to try to reduce nutrient levels by 10%, and get down to the level they were at in the 1970s," explains Wall. "We have to comply, so we started the planning and design of this thing some time ago."

A couple of deadlines for completion have already passed, but funding such a large project is a huge hurdle. "We can't do it without the funding from other levels of government," explains Wall. The City is currently analyzing its options for federal funding. It is also required to do a P3 analysis, a federal requirement under the Building Canada Fund for projects over \$100M. And a new provincial government means new ministers must be brought up-to-speed on the file. Water and sewer rates have already increased in Portage to help the city pay its share of the project.

However, Wall doesn't hesitate when asked whether he agrees with the new regulations. "It's the right thing to do for the environment." That statement



is perhaps the key to explaining what attracts people like Wall to the field of water and wastewater treatment. "People in the field tend to be people who are concerned about their communities and public health," he explains. "They certainly don't work for the accolades they get; for the most part people just expect good water when they turn on the tap."

It is also a field that has undergone many changes over the years. "The catalyst for the biggest change was the Walkerton tragedy," Wall explains. (The Walkerton tragedy occurred in May 2000 when *E. coli* bacteria contaminated the water supply of the small community of Walkerton, Ontario. As a result, seven people died and thousands were sickened. Neither of the plant's operators had any formal training.)

"When I began as a member with the Manitoba Water and Wastewater Association (MWWA) in 1995, members were repeatedly told they should get

People in this field tend to be people who are concerned about their communities and public health. They certainly don't work for the accolades they get; for the most part people just expect good water when they turn on the tap."

ready, that mandatory certification was coming," Wall says. "Walkerton really started a fire under that, and in 2003, the Province made certification mandatory."

The changes were necessary and welcome, but created difficulties for municipalities and staff alike. "Operators who had been out of school for a lot of years and working in the field had a tough time passing the exams," he explains. "Some of those were grandfathered into their current jobs so they could stay at that plant until they're retired." Those grandfather clauses have now all expired, meaning anyone entering the field must be certified by examination.

Today, Wall is providing input into the hiring and certification process by sitting on the Province's Apprenticeship Advisory Committee, and chairing the Certification Advisory Committee. Despite the challenges, he highly recommends other people get involved in the field.

"I wish I'd discovered it 20 years sooner," he says. "It's quite a rewarding job and you meet a lot of wonderful people. By getting involved in the various associations, like MWWA and WCW, I got to travel across Western Canada, meet all kinds of professionals in our business, and really expand my horizons."

And the field continues to undergo other changes, if a quick glance through

the last few issues of "Western Canada Water" magazine is any indication. More and more women are becoming plant operators and managers, and Wall has mentioned some of them. "My replacement at the Portage Wastewater Treatment Facility, Karly Friesen, worked for me for 11 years, starting as a lab tech," he says. "She asked me, quite early on, 'what would I have to do to get your job someday?' So I told her what she had to do and she did absolutely everything – and then some."

Another former employee, Danielle Vaillant, is now the manager of the Carter Regional Water Treatment Plant in St. Eustache.

When he's not talking wastewater treatment, or finance (his #2 portfolio), Wall enjoys golf, volunteering as a donor for Central Plains Cancer Care, and spending time with his family – wife Pat, daughter Andrea McCabe and her husband Justin, and his three grandchildren: Lauren, Julia and Deara. He is especially excited about becoming a great-grandfather in September, when Lauren and her husband Sean's first child is due.

And who knows? Perhaps his great-granddaughter or grandson will follow in his footsteps one day, entering the field that has given Wall so much, and to which he is now giving back. ■



"I wish I'd discovered it 20 years sooner," he says. "It's quite a rewarding job and you meet a lot of wonderful people. By getting involved in the various associations, like MWWA and WCW, I got to travel across Western Canada, meet all kinds of professionals in our business, and really expand my horizons."

REPROMAP
 Property Ownership Maps
 GIS & GPS Mapping
 Commercial Digital
 Department Center
 60" wide by any length

- Large Format Photocopying
- Colour or Black & White Plotting
- Scanning (DWG by any Length)
- File Archiving, Digital Image Processing & Gallery Preview
- CAD (DWG)
- Laminating (DWG by any Length)
- Dymounting Services
- Email Your Digital Files for Same Day Service
- National Topographical Maps
- Manitoba, Canada, North America & World Maps
- Lake Depth & Hydrographical Charts
- Computer Mapping & Drafting Services

Full Vinyl Decaling Service
 PH: (204) 638-3304 • FAX: (204) 638-3305
 220 Lakeshore Blvd. W. Suite 100
 220 Lakeshore Blvd. W. Suite 100
 Winnipeg, MB R2S 1A9
 repro@repromap.com • www.repromap.com

TRP
 THERMOSTAT RECYCLING PROGRAM

EASY. SAFE. FREE.
 THERMOSTAT RECYCLING

We recycle all elements of the thermostat; plastic, metal, electronics and mercury (which is particularly hazardous).

Do your part and join the more than 1,500 contractors already participating in the program.

FOR MORE INFORMATION
 1 (800) 947-2224, x 224
 Email: pthompson@trp.ca

Manufactured & powered by **JURAT** Supported by

Appendix E: Industry-facing Outreach Materials & Ads

Industry-facing Brochure

Front:



Recycling with the Thermostat Recovery Program is safer for you and the environment.

We recycle all components of a thermostat:
plastic, metal, electronics and mercury
(which is particularly hazardous)

**DO YOUR PART AND JOIN
THE MORE THAN 1,500
CONTRACTORS ALREADY
PARTICIPATING IN
THE PROGRAM.**

Back:



Mercury is a potent neurotoxin. It only takes one gram to contaminate 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 can contain 2.5-10 grams of mercury!

**Let us take care of them
for you in 3 easy steps:**

- 1 SIGN UP**
- 2 COLLECT STATS IN THE PAIL**
- 3 SEND THE PAIL BACK**

(and we will send you a free replacement pail)

FOR MORE INFORMATION
1(800) 267-2231, ext. 224
Email pthompson@hrai.ca

Administered &
delivered by: 

Supported by:



Drop-off Poster



EASY. SAFE. FREE.
THERMOSTAT RECYCLING

DROP OFF LOCATION

- + BRING US YOUR FULLY INTACT THERMOSTATS FOR SAFE RECYCLING
- + WE RECYCLE ALL COMPONENTS, INCLUDING HAZARDOUS MERCURY
- + SHOW YOUR CUSTOMERS YOU ARE DOING YOUR PART TO PROTECT THE ENVIRONMENT!

1,500+
CONTRACTORS
ALREADY PARTICIPATING
ACROSS CANADA

FOR MORE INFORMATION 1(800) 267-2231, x 224 / Email pthompson@hrai.ca

Administered & delivered by: 

Supported by: 

HPAC Magazine Ad (Industry Publication)

< MEETING REPORT

Industries in transition

HRAI manufacturer members gather to strategize for the future.

BY BETH MCKAY

The Heating, Refrigeration and Air Conditioning Institute (HRAI) held its product section meeting in early April in Mississauga, ON. A robust program offered attendees insight into changes within the industries that comprise the association.

A presentation entitled Transforming Business Models featured keynote speaker Paul St. Germain, wholesale distribution industry leader with IBM. St. Germain discussed the importance of company branding and working with your customer through digitization.

Similarly, William MacGowan at Cisco Systems Inc., cautioned the audience to, “not get caught on the wrong side of digitization.” He explained that if a company does not grow with technological advancements (such as the Internet of Things) then that company may find themselves on the wrong side.

As an example, MacGowan discussed the RBC WaterPark Place III office in downtown Toronto. “A lot of the design of the office was built upon retention of Generation Y,” said MacGowan. This, he contended, demonstrates the importance of looking to the future generations of businesses.

The future was also a prominent theme during the geothermal council meeting. On the national level, HRAI is now working with the Geothermal Exchange Organization (GEO), an American non-profit trade company.

Additionally, HRAI has had discussions with the International Ground Source Heat Pump Association (IGSHPA) regarding increased geothermal training and certification.

Luymes noted that the province’s commitment to investing in “gasification” has been challenging to the geothermal community. A “Geofication” proposal is, however, being developed. Luymes explained that it does not fully rely on government funding and leaves room for a role for gas utilities.

Frank Stanonik, chief technical advisor for the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) later offered an update on AHRI and discussed American efficiency standards for HVAC/R equipment.

Following Stanonik’s presentation, Caroline Czajko, manager, divisional programs (manufacturers and wholesalers) with HRAI and Katherine Delves from the office of energy efficiency provided an update on heating and air conditioning efficiency requirements.

A review of the refrigeration sector was presented by refrigeration product section chair Dennis Kozina and Warren

Heeley, HRAI president. Kozina, who is director of sales at Emerson Climate Technologies, noted that he is hearing “more and more [discussion] about using natural refrigerants.”

Heeley concluded the day’s presentations with a discussion on the proposed HFC regulations, emphasizing that this is a phase “down”, not “out”, of HFCs.

The one-day meeting wrapped up with an opportunity for delegates, speakers and HRAI staff to network and discuss the issues presented. www.hrai.ca



Paul St. Germain, wholesale distribution industry leader, IBM, discussed the importance of branding within a company.



Warren Heeley, president of HRAI, concluded the event with a discussion on HFCs.



EASY. SAFE. FREE.
THERMOSTAT RECYCLING

We recycle all elements of the thermostat; plastic, metal, electronics and mercury (which is particularly hazardous).



Do your part and join the more than 1,500 contractors already participating in the program.

FOR MORE INFORMATION
1 (800) 267-2231, x 224
Email pthompson@hrai.ca

Administered & delivered by: 
Supported by: 

Appendix F: Summary of Program Performance Measures

| Measures | Targets/Goal | | | | |
|--|--|-------|-------|-------|-------|
| | 2017 | 2018 | 2019 | 2020 | 2021 |
| Collection Location Targets (participation) | 117 | 123 | 123 | 123 | 123 |
| Collection Targets | 1,292 | 1,368 | 1,444 | 1,520 | 1,520 |
| Consumer Awareness | <ul style="list-style-type: none"> • Green Manitoba eco calendar – tips for recovery and proper disposal of thermostats will be supplied to Green Manitoba for the annual eco calendar; • Recycle Manitoba website – information about the Switch the ‘Stat program will be supplied to Recycle Manitoba for use on their website. | | | | |
| Industry Awareness | <ul style="list-style-type: none"> • Program website – the program website will be updated monthly with collection results, new program participants and drop-off locations. • Printed brochures – a minimum of 500 brochures will be printed and distributed on an annual basis. • Printed posters – posters will be distributed to all new drop-off locations to be displayed on site. • Industry-facing advertising – a minimum of 5 ads per year will target industry (for example, through industry associations, trade publications, e-blasts, etc.) | | | | |