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October 1, 2012

Sent Via Email: regs@dtsc.ca.gov

Krysia Von Burg
Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
PO Box 806
Sacramento, CA 95812-0806

Re: Comments on 45-Day
(DTSC Reference Number: R-2010-03, OAL Reference NumberZ-2012-080705)

Ms. Von Burg,

The Air Conditioning Contractors of America (ACCA) appreciate the opportunity to provide comments on the 45-day public notice for the mercury thermostat collection and performance requirement. As the only nationwide association representing the technical, educational and policy interests of small and large businesses that design, install and maintain indoor environmental systems, ACCA takes special interest in this issue. ACCA supports the goal of reducing and eventually eliminating mercury from California's landfills with proper disposal of mercury thermostats. To this end, ACCA has partnered with the Thermostat Recycling Corporation (TRC), a non-profit corporation voluntarily founded by thermostat manufacturers for the purpose of collecting and property disposing mercury thermostats.

While it is encouraging to see that the latest proposed regulation language removes the excessive contractor detailed information disclosure requirements and costly citations, ACCA remains concerned about the practicality and feasibility with the current proposal. The proposed requirement for contractors to disclose license numbers at drop off locations and the record keeping burdens associated with this requirement poses a number of problems for contractors and distributors alike. ACCA is concerned that contractor's confidential business information may be compromised while generating more burdens for distributors and create an additional incentive for noncompliance.

As ACCA stated in the October 19, 2011, comments on the proposed regulations, contractors in California already comply with California law and properly dispose of mercury thermostats through the TRC program. For this regulation to accomplish its goal it must be simple and

flexible so that nothing hinders participation. In agreement with Heating, Air-Conditioning & Refrigeration Distributors International (HARDI), ACCA requests the elimination of language requiring the reporting and disclosure of contractor license numbers and information. ACCA believes this increased requirement would have the opposite desired effect. This concept of collecting contractor license numbers is not well founded or researched.

Any step that fundamentally alters the simplicity of the program needs to be weighed against any perceived benefits of the change. It is well understood that economics and convenience are critical factor in any recycling program[1]. Currently, using any of TRC's collection locations in California to properly dispose of thermostats requires nothing more than dropping the thermostat in the collection bin. HVACR Technicians simply place whole thermostats in the provided collection container. Requiring a technician to record a CSLB Number on a bag or container with thermostats reduces convenience. At the same time the use of additional package would decrease bin volume requiring more frequent bin shipments and add to TRC's administrative costs with additional handling and disposal of the packaging. For the collection location it takes around 5 minutes to prepare the collection bin for shipment. Adding the step of reporting the CSLB Number at a collection location fundamentally alters the process for both the collection point and program participant. Finally, additional transaction costs (e.g. providing number, recording number, requiring staff assistance with recycling) will result in less recycling rather than more.

ACCA comments that it is also unclear how CSLB Numbers will be captured and reported to TRC. Would the collection points use log sheets and include them in the bin or would they create electronic records and transmit them? ACCA has some familiarity with information disclosure requirements and notes the potential volume of data to be captured and reported. There are 11,449 active C-20 licenses in California and according to the Bureau of Labor Statistics a minimum 17,000 HVAC technicians.[2] Assuming an average of 3 thermostats per transaction, under the proposed performance requirements the regulation contemplates approximately 49,000 transactions be recorded and reported annually. As a CSLB license certifies the business not the technician, it is unclear how the CSLB number or the absence of a CSLB number (or the frequency the number was reported) is a valid indicator of compliance with the requirement to recycle mercury-added thermostats.

Proper disposal of mercury thermostats is already required by law under the Universal Waste Rules. The majority of our contractors act in accordance with these rules, but as with any industry, there are some who will choose not to comply. Experience in our industry has informed us that there is indeed a correlation between additional requirements and the regulatory

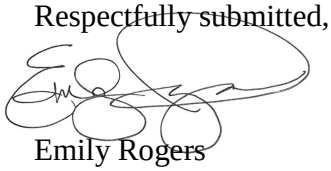
[1] Shaufique F. Sidique, et al, The Effects of Behavior and Attitudes on Drop-off Recycling Activities, Resource Conservation and Recycling 54 (2010) 163-170.
[2] Estimate undercounts total number of technicians as it does not include self-employed workers. Available at: http://www.bls.gov/oes/current/oes499021.htm#(1).

program's ultimate success. The more inconvenience associated with mercury switch recycling, the greater the risk for non-compliance by those who will choose to take the easier, less burdensome path.

The success of regulations on service technicians of any industry struggles with compliance when there is a heavy administrative burden and a low level of enforcement. As you may be aware, HVACR technicians must be properly certified to recycle or reclaim ozone depleting refrigerants under the US EPA's Section 608 Refrigerant Recycling Rule. The rule is designed to limit emissions during maintenance while encouraging the reuse of those refrigerants through recovery, recycling and reclamation. Enforcement by the EPA is lax, especially at the individual technician level. Part of the problem is there are few resources to enforce the laws and no evidence remains when a technician has illegally vented refrigerant into the atmosphere. While the laws are in place to protect the environment and the upstanding contractor, the process to evacuate the system adds time to a job and the cost of the required equipment is significant. As a result, there is little or no penalty for non-compliance and the amount of CFC and HCFC refrigerants that are recovered, recycled, and reclaimed have remained well below EPA's expectations.

ACCA supports comments submitted by TRC and made by sister trade associations in the heating, ventilation and air conditioning (HVAC) community which highlight additional relevant points of concern.

Respectfully submitted,



Emily Rogers
Director, Energy Policy

Krysia Von Burg, Regulations Coordinator
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Re: Comments on Proposed Regulation on Mercury Thermostat Collection and Performance Requirements: Department Reference Number: R-2010-03

Dear Ms. Von Burg:

These comments are submitted by the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) in response to the Department of Toxic Substances' Mercury Thermostat Collection and Performance Requirement (August 2012) Division 4.5, Title 22, California Code of Regulation, Chapter 24.

AHRI is the trade association representing manufacturers of heating, cooling, water heating, and commercial refrigeration equipment. More than 300 members strong, AHRI is an internationally recognized advocate for the industry, and develops standards for and certifies the performance of many of the products manufactured by our members. In North America, the annual output of the HVACR industry is worth more than $20 billion. In the United States alone, our members employ approximately 130,000 people, and support some 800,000 dealers, contractors and technicians.

AHRI supports efforts to collect and properly dispose mercury-containing thermostats. Unfortunately, the Department of Toxic Substances Control's (DTSC) proposed rulemaking, as currently written, will not achieve its intended purpose. The proposed regulation will require the collection of more thermostats than can possibly be collected and cause an unnecessary burden on manufacturers. In addition to proposing thermostat collection rates that are simply not feasible, the proposed regulation adds reporting requirements that are burdensome to manufacturers and that may serve as a disincentive to recycling.

AHRI has reviewed the study by Skumatz Economic Research Associates' (SERA) and finds it highly questionable. We believe that the DTSC should not base its estimate of mercury-containing thermostats on an unconvincing study or posit unexplained recovery rates.

In addition, AHRI has two major issues with the proposed rule as discussed below:

Issue 1 – Estimated Annual Flow of Mercury-Containing Thermostats

Section 66274.4 of the proposed rule, *Methodology for Determining the Number of Out-of-Service Mercury Added Thermostats Becoming Waste Annually*, relies primarily on a single study by SERA. However, the study has not been peer reviewed and cannot, in our opinion, be used to justify the proposed regulation. In addition, we have few concerns with the study:

- The baseline estimate of mercury thermostats in California is based on web survey results where home and business occupants were asked to decipher between mercury containing and non-mercury containing thermostats and report accordingly. As a result, SERA notes that "data used for [the SERA] analysis are imperfect. It is based on recall of current occupants, some of whom have been in the location a long time, and some were newer". Baseline data for a study of such regulatory influence should be collected by trained professionals, not by a random selection of lightly-incentivized citizens who have varying degrees of experience in their homes or businesses.

- The validation method relied on 30 site visits in the San Francisco Bay Area. However, California's cities and towns have diverse building types, climatic zones, supply chains, industries, levels of education, etc. The ability of citizens across California, in different types of buildings, cannot be generalized with a validation of such a small size in such a specific geography.

AHRI recommends that DTSC revise its estimated number of thermostats available for collection in accordance with the methods used in Canada's Switch the 'Stat program. Canadian requirements utilize shipment data provided by HVAC manufacturers and contractors as a basis for estimating the quantity of thermostats available for collection[1].

One part of the underlying studies surveyed contractors and asked what percentage of the programmable thermostats they were replacing were mercury thermostats. Undoubtedly, HVAC contractors have a higher and less variable judgment of the mercury content of a thermometer than the population of California. Once finalized, the results of the survey were compared to national statistics on the percentage of households with programmable thermostats. AHRI suggests that a similar study be conducted in California and compared to the results of the SERA study.

Issue 2 – Annual Collection Rate Performance Requirements

The proposed regulation's annual collection rates are arbitrary and overly aggressive. Instead of providing empirical data, the DTSC compares historic collection rates per capita in California, Maine, Vermont and Maryland, in an attempt to justify the proposed increased collection levels. The comparisons are invalid for the following reasons (among others):

- California's housing stock is younger and of different type than that in Vermont, Maine and Maryland and older buildings are more likely to contain mercury thermostats.

- The climate zones and heating, ventilation, and air-conditioning equipment markets are different from state-to-state, particularly between the east and west coasts. The utilization and removal of mercury thermostats are correlated with the types and lifetime of various HVAC products.

- Each state has imposed various collection programs that have affected the respective historical collection rates.

[1] Switch the 'Stat stewardship plans for British Columbia, Ontario, and Manitoba. For the methods used to determine feasible collection rates, see appendix F See appendix of the British Columbia plan. http://www.switchthestat.ca/eng/stewardship-plans.php

- California's Title 24 building codes (created in 1978) have been instituted for decades, are unique among the compared states, and have steered HVAC installers away from mercury thermostats and towards programmable (also known as "setback") thermostats. The current version of the Title 24 codes states, "Heating systems shall be equipped with thermostats that meet the setback thermostat requirements of Section 112(c)" and "When a space-conditioning system is altered by the installation or replacement of the air handler, outdoor condensing unit of a split system air conditioner or heat pump, cooling or heating coil, or the furnace heat exchanger, the following requirements shall be met; Non-setback thermostats shall be replaced with setback thermostats"[2].

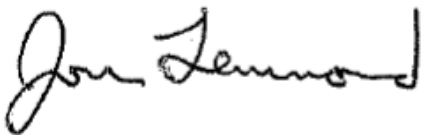
- Maryland's high collection rates in 2009 and 2010 are due to a demand response program passed by legislators in 2008 and implemented by the Baltimore Gas and Electric (BGE) utility. The rate-payer funded program offered free setback thermostats in exchange for allowing the utility to adjust temperature set points during periods of peak load. Over 300,000 BGE customers have participated in the program and resulted in the collection of over 70,000 mercury containing thermostats. While California has fewer mercury-containing thermostats per capita than Maryland and will not achieve the same high collection rates generated during the peak of the BGE program, DTSC should consider a similar demand-response program in California in the coming years.

Due to the reasons stated above, AHRI finds it highly likely that California has a fundamentally different amount and flow of mercury containing thermostats per person, than that in Maine, Vermont, and Maryland and suggests additional study on the topic.

Conclusions

The DTSC builds its proposed regulation upon an unverified estimate of mercury thermostats in use in California from a study that has not been peer reviewed. Additionally, the collection rates proposed by DTSC are not justified, not feasible, and will likely increase burden on manufacturers. AHRI supports thermostats' collection programs such the one established by the Thermostat Recycling Corporation (TRC). Since 2002, the program has recycled over six tons of mercury. We would be in support of a program that would help TRC collect more thermostats. AHRI recommends that DTSC reconsider its proposal in collaboration with the TRC, an experienced organization with the single mission of making it easier to recycle mercury thermostats.

Sincerely,



Jonathan Lemmond, Regulatory Engineer

[2] *2008 Building Energy Efficiency Standards for residential and nonresidential buildings*. California Energy Commission. CEC-400-2008-CMF. http://www.energy.ca.gov/2008publications/CEC-400-2008-001/CEC-400-2008-001-CMF.PDF

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October 1, 2012

VIA FEDERAL EXPRESS AND E-MAIL

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Re: Mercury Thermostat Collection and Performance Requirements

Dear Ms. Von Burg,

On behalf of Honeywell International Inc. ("Honeywell"), we respectfully submit the following comments on the proposed Mercury Thermostat Collection and Performance Requirements ("Regulations"). Based on our review of the Regulations and the information available in the rulemaking file,[1] there are several aspects of the Regulations that require further analysis and/or modification.

[1] It is difficult for us to meaningfully evaluate and comment upon the proposed Regulations because the rulemaking file contains very little supporting information. *See* Exhibit 1 (Sept. 5, 2012 Email from DTSC to Christopher Roberts; attachments to the DTSC email consist of (1) the Public Notice, (2) the Proposed Text, (3) the Initial Statement of Reasons, (4) a copy of the MTCA, (5) a CEQA Notice of Exemption, (6) a Form 399 Economic Impact Statement and (7) an Economic and Fiscal Impact Analysis). Moreover, in response to our attempt to obtain additional information through a Public Records Act request, we were informed that documents could not be produced until to October 5 (three days after the comment period closes). *See* Sept. 14, 2012 Letter from Robert Sullivan

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I. The Methodology For Calculating The Number Of Out-Of-Service Mercury-Added Thermostats Becoming Waste Annually Is Flawed.

Section 66274.4 of the proposed Regulations establishes a methodology for determining the number of out-of-service mercury-added thermostats that become waste annually. DTSC has chosen to rely entirely on the SERA Report for establishing this critical waste thermostat baseline. But the SERA Report is deeply flawed. Indeed, the study itself identified numerous problems that resulted in "count" and "flow" estimates that do not provide a useful basis for extrapolation.

For example, to determine the number of mercury-added thermostats in California, the study relied on respondents to count and identify the type of thermostats in their homes and businesses. Digital thermostats do not contain mercury. Other types of thermostats (e.g., square, round, snap, lever, etc.) may or may not contain mercury. Removing the cover of a non-digital thermostat is the *only* way to definitively determine if the device contains mercury, but DTSC did not permit SERA to ask respondents to do so. Rather, respondents were simply told to identify the type of thermostat(s) (e.g., programmable, square, round, snap, lever, etc.) in their home or business. SERA Report at 12. The onsite survey discussed below later determined that several respondents failed to accurately count the number of thermostats in their home/business or accurately identify the type.

SERA then conducted a "very small (30 observations)" on-site validation survey to determine the percentage of these non-digital thermostat types that contain mercury (*id.* at Note to Table 1.1) and then used that data to extrapolate a "lower estimate" of the share of thermostats in California that are mercury-containing. *Id.* at Table 1.1. But 30 site-visits (which equates to 3.5% of respondents) is too small of a sample to yield meaningful results.[2] Indeed,

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to Sara Eisenberg (attached hereto as Exhibit 2). And, notably, although the Initial Statement of Reasons provides web addresses for some of the "Reports Relied On" by the Department of Toxic Substances Control ("DTSC") the documents are not, in fact, available at those websites. *See* Exhibits 3-5.

[2] The inability of such a small sample to yield meaningful and valid results is evident from the fact that the SERA Report concluded, based on the small survey, that 100% of snap thermostats contain mercury. *See* SERA Report at Table 1.4 (lower estimate of 100% for snap thermostats based on validation survey). This is demonstrably false. *See* Ex. 6 (*mercury free* snap thermostat that is virtually

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because the field validation survey was so small, the SERA Report itself acknowledges that the estimate is imperfect and that the actual share of mercury models may be lower than the "lower estimate." *Id.* at Note to Table 1.1.

Moreover, there is no indication of how the 30 respondents who received site visits were selected or whether those respondents were typical of respondents in general. Indeed, there is reason to believe they were not. Despite the fact that this was a *statewide* survey, all of the site visits occurred in a few, relatively homogeneous counties in the Bay Area. It is not possible to validate the findings of a statewide analysis through such a limited follow-up in a small geographic area of the state. And if the respondents who received visits were not typical—*i.e.*, if they were less likely to have purchased mercury free non-programmable thermostats (due to economic, geographic, demographic or other reasons)—the results may have been further skewed by the selection process.

Finally, a recent study determined that 19% of households in California have no thermostat at all. *See* Therese Peffer, *et al.*, *How People Use Thermostats in Homes: A Review*, 46 Building and Environment 2529, 2533 (2011) (hereafter "*How People Use Thermostats*") (attached hereto as Exhibit 7). This fact was not taken into account in the SERA Report, which assumes that there are 1.2 thermostats in *every* California household. As a result, the total number of thermostats in California (and the number of mercury-added thermostats derived therefrom) is likely to be significantly lower than estimated in the SERA Report.

SERA's methodology to predict the annual "flow" of thermostats out of buildings is also flawed. To make this prediction, the study relied on respondents' memories of when the thermostats were last replaced. As the Report acknowledges, this data, which is based on the recall of current occupants is "necessarily imperfect" (SERA Report at 18 n.26)—especially since "younger households may not know when the home was remodeled for a thermostat replacement." *Id.* at 17.

As a result of these flaws, the waste thermostat baseline determined by the SERA Report and utilized in the proposed Regulations is not sound.

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identical in appearance to the picture of the snap thermostat provided in SERA's questionnaire).

II. The Annual Collection Rate Performance Requirements Are Unreasonable.

Section 66274.5 of the proposed Regulations sets out annual collection rate performance requirements of 30% (65,100 thermostats) in 2013, 45% (95,400 thermostats) in 2014, 55% (113,850 thermostats) in 2015, 65% (131,300 thermostats) in 2016, 75% (147,750 thermostats) in 2017, and 75% in 2018 and subsequent years. Given the unsound and inflated waste thermostat baseline established in Section 66274.4, these rates translate into an unreasonably high number of thermostats which must be collected each year.

In the last several years the Thermostat Recycling Corporation ("TRC")—which was voluntarily founded by Honeywell, White-Rodgers and General Electric in 1998—has implemented a multi-faceted effort to increase mercury-added thermostat collection and recycling.[3] TRC has recruited wholesalers at tradeshows and industry meetings, reached out directly to distributors, earned media coverage through trade press and purchased advertising. TRC has employed—and continues to employ—numerous strategies to elicit wholesaler participation in the thermostat recycling program in California, including:

- Direct mail to managers of facilities in California and corporate headquarters;

- Earned media on the legal obligation to collect waste thermostats in California and other states;

[3] Even before co-founding the TRC in 1998, Honeywell had engaged in substantial efforts to recycle mercury-added thermostats. As early as 1985, Honeywell began its own pilot programs in Minnesota to recycle end-of-life mercury-containing thermostats through distributors, contractors, and homeowners. These programs were developed in conjunction with, and under the guidance and authority of, the Minnesota Pollution Control Agency ("MPCA"), where Honeywell was based at the time. Honeywell proposed thermostat take-back programs to the EPA in May and October 1992, and to the MPCA in January and August of 1992 and February 1993. On October 17, 1994, Honeywell and MPCA jointly announced the availability of a homeowner mail-in program for end-of-life mercury thermostats from Minnesota residents, and in late 1994-early 1995, Honeywell requested authorization from the MPCA to operate a national program. Shortly thereafter, Honeywell, White-Rodgers and General Electric began discussions with the National Electrical Manufacturers Association about managing a national program on the industry's behalf, and by 1998 TRC was formed as an independent not-for-profit corporation.

- Direct appeals to local and senior management of wholesale distributors with facilities in California;

- Engagement with regional and national trade associations to assist them in advising members on legal obligations in California and other states;

- Attending regional and national HVAC trade shows to provide information to raise awareness of the recycling obligation and TRC's program.

In October 2010, TRC entered into a formal agreement with the Heating Airconditioning Refrigeration Distributors International ("HARDI") trade association to promote the thermostat recycling program to HARDI members, which comprise approximately 80% of the domestic wholesale market for HVAC equipment. Pursuant to this agreement, TRC notified all 450 HARDI members of their collection obligations and encouraged them to participate in the TRC program. Similarly, TRC joined the Institute of Heating and Air Conditioning Industries, which is the largest HVAC trade association in California, and used its membership status as a means to contact contractors and distributors actively engaged in HVAC work in California. TRC has corresponded with at least five additional trade organizations, informing them of wholesalers' collection obligations and encouraging them to participate in the thermostat recycling program. *See generally* 2010 California TRC Annual Report (attached hereto as Exhibit 8).

In 2011, TRC continued its efforts by, *inter alia*, developing written materials and signage for collection points and key stakeholders, increasing the level of participation among California wholesalers and retailers, purchasing substantial advertising and developing new public service announcements. *See generally* 2011 California TRC Annual Report (attached hereto as Exhibit 9). As a result of these varied efforts, the collection and recycling of mercury thermostats has increased significantly in California: from 7,542 in 2009 to 18,697 in 2011.

The proposed annual collection rates require manufacturers to increase their collections **248%** by 2013 and to sustain infeasible growth rates over the next several years (47% growth in 2014, 19% growth in 2015, 15% growth in 2016 and 13% growth in 2017).

Table 1: Growth Rate Requirements Under Section 66274.5

Year	Performance Requirements (TP)	TP expressed as number of thermostats	Required Growth Rate
2011	n/a	(actual rate) 18,697	n/a
2013	30%	65,100	248%
2014	45%	95,400	47%
2015	55%	113,850	19%
2016	65%	131,300	15%
2017	75%	147,750	13%

Although an early growth rate of 13 or 15 percent may not be unreasonable (and has, in fact, been surpassed in recent years in California), such rates are not sustainable as the number of thermostats in the state and the number of thermostats coming out of homes and businesses declines. Indeed, such rates have *not* been maintained year-over-year in other states with collection obligations. Even Maine, which is lauded as the national model, has not achieved or sustained anything near the unreasonable growth rate demanded by the proposed Regulations. Collections in Maine grew by 19% in the *first* full year of that state's program (2008), and growth declined to 15% in 2009, 2% in 2010 and 1% in 2011.[4] *See* Table 2; *see also* Department of Toxic Substances Control, Initial Statement of Reasons: Mercury Thermostat Collection and Performance Requirement (hereafter "ISOR") at 11 n.8.

Table 2: Maine Collection Trends 2008-2011

MAINE	2008	Growth	2009	Growth	2010	Growth	2011	Growth
Thermostats	5,555	**19%**	6,374	**15%**	6,523	**2%**	**6,616**	**1%**

The sole articulated basis for the overly aggressive collection rates proposed in the Regulations is that they are "based on historical collections by the [TRC] in a number of other states." ISOR at 11. DTSC contends that "[i]n 2010, TRC programs in several small states were able to collect >500 mercury thermostats per 100,000 population," and that the proposed collection rates are justifiable because they are "more modest." Notably, however, the ISOR refers to only three states—Maryland, Maine and Vermont—but DTSC's own materials

[4] This despite the fact that Maine requires manufacturers to offer a financial incentive.

demonstrate that the per capita recovery rates in these states are outliers, with recovery rates that dwarf other states including Illinois, Iowa, Montana and Rhode Island. *See* Andre Algazi, California Department of Toxic Substances Control, *California's Mercury Thermostat Collection Act: an EPR Approach* at 12 (attached hereto as Exhibit 10) (indicating, *inter alia*, that Vermont recovers approximately .00004 pounds of mercury per capita, while Iowa and Rhode Island recover less than a quarter of that amount (less than .00001 pound per capita), and Illinois and Montana recover even less—under .000005 pounds per capita).

There are several reasons why recycling programs in California cannot be expected to achieve such unusually high per capita recovery rates.

As an initial matter, the ease with which manufacturers can achieve a higher per capita recovery rate is directly related to the per capita number of mercury-added thermostats in a state. Put simply, it is, of course, more feasible to collect 500 mercury-added thermostats when there are 80,000 such thermostats for every 100,000 people than when there are only 50,000 such thermostats for every 100,000 people. And there are unique circumstances in California that drive the per capita number of thermostats down in comparison with other states:

- Title 24 of the California Code of Regulations (also known as the California Building Standards Code) began to require "setback thermostats" in 1978, thereby significantly limiting the number of mercury-added thermostats in commerce in California. And since the mid-1990s, Title 24 has effectively banned the installation of mercury-added thermostats in any new or retrofit construction in California. This has resulted in a higher percentage of programmable (non-mercury) thermostats in California than elsewhere in the country. *See How People Use Thermostats* at 2533 (noting that "the increased number of programmable thermostats in California versus nationwide is likely attributed to the last 30 years of energy code requiring a setback or programmable thermostat").

- As noted above, a recent study determined that 19% of households in California—a higher percentage than the national average—do not have any thermostats at all. *See Id.* ("The percentage of houses in California without thermostats differs from the national percentage due to milder weather"). In other words, the number of thermostats per capita is lower in California than it is in other states—particularly states with colder weather, like Vermont and Maine.

Moreover, no other California recycling program includes such aggressive target performance collection percentages—and a European recycling program that set similarly aggressive rates for recycling of portable batteries has proven unworkable. In 2006, the European Union ("EU") directed its members to implement mandatory recycling obligations on manufacturers of portable batteries. Target collection rates were set at 25% by 2012 and 45% by 2016, taken against a baseline of the previous three-year sales of portable batteries. Significantly, several EU members project that they will *not* be able to increase battery collections to meet the 25% collection goal by 2012, and the 45% goal for 2016 is even more unrealistic. *See, e.g., EU set to miss targets for battery collection, recycling* (Oct. 14, 2011), available at http://www.euractiv. com/specialreport-recycling-society/eu-set-targets-battery-collectio-news-508303. This despite the fact that portable batteries enjoy a key collection advantage over mercury-added thermostats: end-of-life batteries retain economic value from their constituent rare metals, while the mercury in thermostats has a negative value. Moreover, while the number of mercury-added thermostats in California is constantly declining, there is a continuous flow of portable batteries into the stream of commerce. Given that the EU deems it unlikely to achieve its collection goals for a more valuable end-of-life product, DTSC's aggressive proposed collection rates for mercury-added thermostats are unrealistic and unreasonable.

Indeed, a survey of recycling programs in the United States and Europe and found no programs (outside of lead-acid batteries[5]) that achieve similar levels of performance. And even DTSC has acknowledged that the collection rates are not feasible and that manufacturers will likely be forced into an enforcement context within a year after the regulations take effect. *See* Exhibit 11.[6]

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[5] The high collection rate for lead-acid batteries derives in large part from certain advantages lead-acid batteries enjoy that items such as mercury-added thermostats do not. For example, lead-acid batteries are replaced by or for consumers who are incentivized to exchange them at the time of replacement. Distributors and recyclers are similarly incentivized to collect lead-acid batteries because the lead contained therein retains economic value at end-of-life, whereas the mercury in thermostats has a negative value. Also, the physical nature of lead-acid batteries—their sheer size and bulk—makes them significantly harder to illegally dispose than mercury-added thermostats. Because of these important differences, DTSC cannot look to the lead-acid battery collection context as evidence to support its unrealistic mercury-added thermostat collection rates.

[6] Accordingly, before the proposed Regulations were made available for formal public review and comment, TRC (on behalf of Honeywell and other TRC

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On behalf of Honeywell, we appreciate your consideration of these comments and encourage DTSC to consider revising the proposed Regulations to ensure that the requirements contained therein are reasonable and achievable. We also ask that you please include these comments, and any other written comments that you receive, in the rulemaking file pursuant to Government Code Section 11347.3(b)(6).

Sincerely,

Sara J. Eisenberg

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members) provided DTSC officials with draft alternative regulations. *See* Exhibit 12. Honeywell continues to believe that the "Annual Collection Rate" provisions set forth therein will be at least as effective as the proposed Regulations at "provid[ing]for the collection and recycling of the maximum feasible number of out-of-service mercury-added thermostats" (Health & Safety Code §25214.8.20) and will be less burdensome on affected parties.

Exhibit 1

Eisenberg, Sara J.

From: Roberts, Christopher
Sent: Wednesday, September 05, 2012 3:01 PM
To: Eisenberg, Sara J.
Subject: FW: Review of Rulemaking File, Ref. No. R-2010-03
Attachments: 399 Attachment.pdf; 399.pdf; CEQA NOE.pdf; ISOR.pdf; Mercury Statute.pdf; Proposed Text.pdf; Public Notice.pdf

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From: DTSC REGS@DTSC [mailto:REGS@dtsc.ca.gov]
Sent: Wednesday, September 05, 2012 2:50 PM
To: Roberts, Christopher
Subject: RE: Review of Rulemaking File, Ref. No. R-2010-03

Hi Chris,

Attached are the documents which make up the Mercury Thermostat Collection and Performance Requirement rulemaking file.

Please let me know if you have any questions.

Krysia Von Burg
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Tel: (916) 324-2810
krysia.vonburg@dtsc.ca.gov

From: Roberts, Christopher [mailto:Christopher.Roberts@aporter.com]
Sent: Tuesday, September 04, 2012 4:02 PM
To: DTSC REGS@DTSC
Cc: Eisenberg, Sara J.
Subject: FW: Review of Rulemaking File, Ref. No. R-2010-03

Hello,

I just wanted to follow up on my request to obtain copies of the rulemaking file listed below (Department Reference Number R-2010-03). Please let me know at your earliest convenience the best procedure for procuring that file.

Thanks,
Chris

Chris Roberts
Legal Assistant

Arnold & Porter LLP
Three Embarcadero Center, Seventh Floor
San Francisco, CA 94111-4024

Telephone: +1 415.471.3208
Fax: +1 415.471.3400
christopher.roberts@aporter.com
www.arnoldporter.com

From: Roberts, Christopher
Sent: Thursday, August 30, 2012 2:55 PM
To: 'regs@dtsc.ca.gov'
Cc: Eisenberg, Sara J.
Subject: Review of Rulemaking File, Ref. No. R-2010-03

Hello,

I would like to obtain a copy of the entire rulemaking file for the Mercury Thermostat Collection and Performance Requirement matter with Department Reference Number R-2010-03. What is the best procedure for acquiring a copy of the entire file? I can schedule to come to the Department just about any time to make copies.

Thanks so much,
Chris

Chris Roberts
Legal Assistant

Arnold & Porter LLP
Three Embarcadero Center, Seventh Floor
San Francisco, CA 94111-4024

Telephone: +1 415.471.3208
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Exhibit 2

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

September 14, 2012

Sent via e-mail

Sara Eisenberg, Esq.
Arnold & Porter LLP
7th Floor
Three Embarcadero Center
San Francisco, CA 94111- 4024

Re: Thermostat Regulations PRA request dated 8/30/12; received by fax 9/5/12

Dear Ms. Eisenberg,

On September 5, 2012, the Department of Toxic Substances Control (DTSC) received by fax your letter dated August 30, 2012 requesting records under the Public Records Act (PRA). DTSC is in the process of gathering and reviewing the requested records.

The records need to be searched for and collected and may be located in different field offices of DTSC.

The request seeks records that are separate, distinct, and voluminous and need to be searched for, collected, and examined before they can be released.

The request seeks records that may require coordination and consultation with another agency, or two or more components of DTSC, that have a substantial interest in the records.

Once the records are collected, our legal department must review them before they can be disclosed and provided to you. I am hoping that by October 5, 2012 we will be able to notify you as to which records will be available for your review and which, if any, may be exempt from disclosure and why.

Preliminarily, it appears that some of the records you seek may likely be exempt from disclosure and will not be provided by DTSC for your review. Records which are likely exempt are

draft documents,
enforcement documents related to ongoing investigation and enforcement actions,
records of complaints or investigations,
attorney-client communications,
attorney work-product documents,

Documents containing such information are likely exempt under the following PRA exemptions:

Draft documents, Government Code section 6254(a);

Records protected by the Official Information Privilege through Government Code section 6254(k) and Evidence Code section 1040;

Records of complaints or investigations protected by Government Code section 6254(f);

Records protected by the Deliberative Process Privilege through Government Code section 6254(k) and *Times Mirror Company v. Superior Court* (1991) 53 Cal. 3d 1325, and/or the balancing of interests test of Government Code section 6255;

Records protected by the Mental Process Privilege through Government Code section 6254(k);

Records protected by the Attorney-Client Privilege through Government Code section 6254(k) and Evidence Code section 954;

Records protected by the Attorney Work Product Privilege through Government Code section 6254(k) and Code of Civil Procedure section 2018.030;

As DTSC locates the requested records, DTSC will make every effort to keep you informed about records that are not exempt from disclosure.

Should you have any questions or require additional information, please call or email.

Sincerely,

Sent via e-mail

Robert A. Sullivan
Senior Staff Counsel
DTSC
Office of Legal Affairs MS23A
1001 I Street
Sacramento, CA 95812
916-323-8127

cc via e-mail
Susie Flowers-Williams
Headquarters' PRA Coordinator
External Affairs
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200

California Department of
Toxic Substances Control

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California Department of
Toxic Substances Control

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Exhibit 5

California Department of
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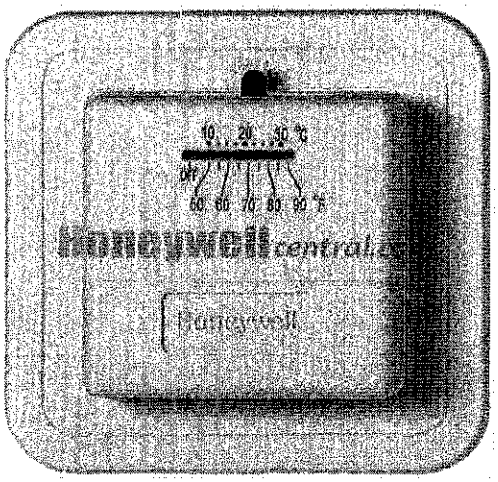
Exhibit 6



Heat Only Thermostat CT30A by Honeywell

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$14.99

Qty: 1

Model: CT30A **Sku:** 0-85267-26239-2

CT30A Heat Only Thermostat - Low voltage controls with a snap-action switch for heating systems only. Precise temperature control, snap action switching, mercury free.
Sku: YCT30A1003

* Simple worry free operation
* Bimetal temperature sensor
* Snap Acting Switch (Magnetic Switch) does not require leveling
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* Simple, worry-free operation
* Available in:
* Heat Only (CT30A)
* Heat/Cool (CT31A)
* Millivolt (CT33A)

Key Benefits

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More Information

Heat only thermostat that is easy to use and mercury free

Product Dimensions

Plate: 4.75 in. x 4.75 in.; Unit: 3.25 in. x 3.25 in.

Electrical Specs

Power Requirements - 24 volt

Documentation

Sales Sheet

Manual

Owner's Manual

Warranty

1 year limited warranty

There are no reviews for this product, yet.

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Exhibit 7

Building and Environment 46 (2011) 2529–2541

Contents lists available at ScienceDirect

Building and Environment

journal homepage: www.elsevier.com/locate/buildenv

How people use thermostats in homes: A review

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ABSTRACT

Residential thermostats control a substantial portion of both fuel and electrical energy—9% of the total energy consumption in the U.S. Consumers install programmable thermostats to save energy, yet numerous recent studies found that homes with programmable thermostats can use more energy than those controlled manually depending on how—or if—they are used. At the same time, thermostats are undergoing a dramatic increase in capability and features, including control of ventilation, responding to electricity price signals, and interacting with a home area network. These issues warrant a review of the current state of thermostats, evaluating their effectiveness in providing thermal comfort and energy savings, and identifying areas for further improvement or research.

This review covers the evolution in technologies of residential thermostats; we found few standards and many features. We discuss studies of how people currently use thermostats, finding that nearly half do not use the programming features. The review covers the complications associated with using a thermostat. Finally, we suggest research needed to design—and especially test with users—thermostats that can provide more comfortable and economical indoor environments.

1. Introduction

Heating and cooling homes consumes a substantial portion of energy. Most households in the U.S.[1] use thermostats to control the heating and/or cooling system in their home; in 2005, approximately 97% of households in the U.S. had a heating system and over 75% had air conditioning (Table 2.6 in [1]). In 2008, about a quarter (28% or 6.04 quadrillion BTUs) of the total residential source energy consumed was for heating and 14% (3.07 quadrillion BTUs) for cooling [2]. Most (65%) of the energy supplied by fuels (primarily natural gas, also fuel oil and propane) was for heating [3], but the use of electricity for heating nearly doubled from 1985 to 2005. While approximately 20% of total residential electrical energy was used for cooling, air conditioning constitutes the largest single contributor to peak electricity demand (which can lead to brownouts and wildly variable wholesale prices) [4]. Moreover, electricity use for air conditioning is rapidly increasing, due to population growth in hot climates and greater demand for comfort. In 2009, nearly 90% of newly constructed single family homes included air conditioning [5]. In 2008, energy for heating and cooling homes comprised approximately 42% of the total source residential energy and about 9% of the total source energy in the U.S. [2,6].

The basic function of the typical residential thermostat—to set a target temperature, see the current temperature, and control the equipment accordingly—has remained constant over the past sixty years. A second—and expanding—role is to save energy. Many new features and functions have emerged in the past twenty years to facilitate the energy-saving role. While the thermostats' capabilities to control temperature are well understood, less is known about the effectiveness of the technologies devised to enable savings. The uncertainty in these savings is increasingly important because manufacturers are adding many new features and functions that affect the ability and ease of saving energy. The most advanced thermostats control multiple zones and humidity levels. Still other features include one-touch energy-savings, access to weather, display of energy consumption, alerts for maintenance (e.g., battery, filter), and diagnostics [7]. Remote control is becoming a popular feature as smart phones and Internet access become ubiquitous. Some changes are dictated by regulations or utilities. Since 1978, California building codes have required thermostats with night setback capabilities and many other regions followed. The Environmental Protection Agency (EPA) established

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[1] The thermostats described in this paper mostly control forced-air systems found in North American homes. However, many of the same issues apply to other heating and cooling systems found in Europe, Australia, and East Asia.

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technical specifications for programmable thermostats for its EnergyStar program in 1995. A relatively recent development is residential demand response: utilities with high costs of supplying peak power want to communicate directly with thermostats because adjusting temperatures in cooperating customers' homes is cheaper than building new generation capacity.

This review describes the history and current state of the art of thermostats in Sections 2 and 3. Section 4 draws from the literature to understand what types of thermostats are installed and how they are used across the U.S. Section 5 discusses the energy savings from thermostats. Section 6 categorizes the types of problems in adopting programmable thermostats. Section 7 pairs what we know with what we don't know in suggesting areas for future research and policy implications. Section 8 of the review is the conclusion.

2. History

Since the first fire was lit in a cave, heating and cooling for thermal comfort in dwellings has required human intervention [8]. The Romans were among the first to move from the concept of a simple open fire to a central heating system, where hot air from a wood fire flowed through under-floor chambers or hypocaust [9]. In fact, the word thermostat is derived from the Greek words *thermos* ("hot") and *statos* ("a standing"). Cornelius van Drebbel (born 1572 in Alkmaar, Holland) is commonly credited with inventing the thermostat–automated temperature control in the form of a mechanical device; Van Drebbel was able to regulate the temperature of ovens and chicken incubators [8,10].

Modern thermostat history in the U.S. revolves around two companies who are still in the business of building thermal controls today: Johnson Controls and Honeywell. In 1883, Warren S. Johnson received a patent for the first electric room thermostat; upon his death in 1911, his company Johnson Controls focused on temperature controls for nonresidential buildings only [11]. In 1885, Albert Butz developed a furnace regulator that used a "damper flapper" to control air entry (and thus heat output) to a furnace. His company, the Electric Heat Regulator Co., eventually became Honeywell Inc [12]. In 1906, Honeywell produced the first automatic programmable setback thermostat, using a clock to turn the temperature down at night and up in the morning. The first thermostat with an anticipator—a means of reducing temperature overshoot—was produced in 1924. The first modern thermostat controlling a central heating system (typically a forced air system in the U.S.) used a bi-metallic strip to measure temperature change and used mercury in a tilting glass tube to provide contact with the electrodes in the tube to control the furnace. The typical thermostat interface was a simple rectangular box on the wall that used sliding levers to control the temperature; the ubiquitous Honeywell Round, which emerged in 1953 and is still available today, required the user to turn the round dial. These types of thermostats are often termed manual, standard, or mechanical thermostats. Both current temperature and the target or desired temperature were displayed on an analog scale showing temperature range.

Over the past 40 years, different policies have driven the development of features in thermostats. The first oil crisis in 1973 spawned the creation of the first energy code (Building Energy Efficiency Standards) in California in 1978, part of which required clock or setback thermostats for new homes. These thermostats were designed to save energy by automatically relaxing temperature setpoints when people are sleeping. Studies performed in the 1970s, based on models of energy flows through a house, suggested that on average a daily 8-h nighttime setback could bring approximately 1% reduction in natural gas consumption for each degree Fahrenheit offset [13]. This result became and remains the rule of thumb that guides much of the discussion on the effectiveness of programmable thermostats with gas- and oil-fired heating systems.

The physical human interface on thermostats has evolved partly because of technical innovations and partly pushed by regulations. The Americans with Disabilities Act (ADA) standards introduced in 1988 mandated controls that did not require the twisting of one's wrist [14]. This requirement along with the trend away from mechanical thermostats with their moving parts towards semiconductor electronic manufacturing drove the "modern" look for thermostats. By the early 1990s, the new thermostat was a plastic rectangular box with few moving parts; thermistors replaced bimetallic strips, digital display replaced analog, and push buttons replaced dials and slider bars. The addition of memory allowed the storage of data, such as target temperatures for different times of day, and required a power source.

In 1995, the Environmental Protection Agency's EnergyStar program included programmable thermostats, suggesting that homeowners could save about $180 a year with a programmable thermostat [15]. EnergyStar requirements included certain features: default energy-saving and comfort setpoint temperatures, cycle rate setting, recovery systems, and a hold or override option. Consumers understood that the EnergyStar emblem on an appliance indicated energy efficient equipment; manufacturers had to comply with EnergyStar eligibility requirements.

Throughout the 1990s programming grew more complex, with these features plus programming schedules for weekend/weekday (5 + 2), seven-day, or vacation. More recently, part of the 2008 California Building Energy Efficiency Standards, commonly referred to as Title 24, requires that programmable thermostats have the ability to set temperature preferences for at least four different time periods per day.

Utilities across the globe are exploring time-varying price tariffs to reduce peak electricity demand—driven primarily from space heating (e.g., in hydroelectric-rich New Zealand and Canada) and cooling systems (e.g., in the U.S.). This created the demand for programmable communicating thermostats that can receive price or reliability signals from the utility. In California, while these thermostats were not included in the 2008 energy code, this is expected for future iterations; at the federal level, this will most likely start with the new EnergyStar specifications regarding climate controls (a subset of programmable thermostats) that include communication and time of use price level indication [16].

Remotely controlled thermostats have become both feasible and possible with the growing prevalence of cell phones, home area networks (HAN), and the Internet in residences. Several applications have been developed to enable control of a thermostat using a mobile phone. Global Positioning Systems (GPS) in mobile phones can be used to convey occupancy and proximity information to thermostats, which can then predict arrival times of a home's occupants and modify the setpoint accordingly [17].

Many aspects of a programmable thermostat's functionality have been transferred to the Internet. An Internet thermostat describes a programmable thermostat that connects to an IP (Internet Protocol) network; models are currently being made by Proliphix, Aprilaire, and Ecobee. Internet connectivity has spawned companies such as EcoFactor, which sells an energy-saving thermostat service. One network-enabled thermostat has a removable standardized communication module (based on U-SNAP (Utility Smart Network Access Port)) to connect the thermostat to a Home Area Network via various wireless standards, such as ZigBee, Z-Wave, RDS (Radio Data System), WiFi, FlexNet and Trilliant [18]. Further, companies such as Control4 who specialize in home automation have added a comfort function to their home management interface to remotely control an Internet thermostat

from the TV or other display. Likewise, security companies such as ADT have also included thermostats in their networks.

Thermostats have come a long way from simply controlling a heating or cooling unit and displaying current and target indoor temperatures (Fig. 1). Today's thermostats can control ventilation, whole house fans, humidity, and multiple zones. The user interface can be remote (e.g., controlled through web or smart phone), voice-controlled, a large full color LCD or touchscreen. Displays now can include outdoor temperature, messages from the utility, or maintenance alerts (e.g., battery or filter replacement warning).

These trends have shifted the thermostat from being a simple wired appendage of the heating and cooling systems to a separate product resembling software or consumer electronics. This is also reflected in the shift in the orientation of companies involved in thermostats, from more mechanical (e.g., manufacturers of HVAC equipment) to those more familiar with consumer electronics and communications.

3. Architecture & features

A basic thermostat has four components: a temperature sensor in the desired environment, a switch or actuator to the physical target of heating, ventilating, and air conditioning (HVAC) equipment, a feedback loop between the two, and some means of displaying the current (and target) temperatures as well as providing a means for the user to change the target temperature. Electronic devices with digital displays have largely replaced mechanical and mercury-based thermostats; wired connections are slowly being replaced by wireless. Advances in communication networks have allowed thermostats to become increasingly disaggregated into separate components. Fig. 2 shows a schematic of thermostat components, which may or may not be packaged together. The temperature sensor may be wireless, communicating with the controller via radio frequency; the user interface may be a mobile phone or web page.

1. *Sensors*: basic functioning of a thermostat requires at minimum a single room temperature sensor. Additional sensors could monitor humidity, outside temperature or additional inside temperature points, occupancy through infrared sensors, or connected to a security system that includes door entry or window sensors.
2. *Actuators*: the thermostat uses a switch or relay, whether mechanical or electronic, to turn on or off the target equipment, whether furnace, fans, or compressor for the air conditioning system. Other potential equipment includes an economizer, whole house fans, and a humidifier/dehumidifier.
3. *Control logic*: for simple thermostats, the control logic is simply a feedback loop that compares the target temperature with the current measured temperature to determine when to turn on or off the equipment. Mechanical thermostats handled this, plus anticipation (to prevent overshooting the target) and hysteresis (a deadband of temperature typically ±1 °F around the target temperature to prevent frequent switching of the equipment). Modern programmable thermostats provide anticipation, hysteresis, as well as other features through electronics. Data is read from the settings, user interface, and sensors, and a set of algorithms determines when the system switches on and off.
4. *User interface*: the user interface (UI) represents a means for the user to provide input for thermostat control and view a display of information. The UI allows users to change the target temperature setting—and on programmable thermostats, input a schedule of changing temperature settings—while displaying information, such as current and target temperatures. The thermostat interface can be mechanical with slide bars, digital with push buttons, or digital with touchscreen. New interfaces include web interfaces, mobile interfaces, TV interfaces, audio, and remote controls.
5. *Communication interface*: at a minimum, a thermostat must communicate with the HVAC system, generally through wired connections. Additional capabilities require communication using various protocols; examples include connection with a home area network, receiving price or reliability signals, streaming local weather forecast, receiving control signals through an external optimization service, or communication with interval meters.
6. *Memory*: programmable thermostats require memory for data storage; memory can be permanent or volatile (i.e., disappears when power is disconnected). These data, such as time of the day and target temperature for each program, are needed for the thermostat control logic.
7. *Power supply*: modern programmable and digital thermostats require electric power for operation. Batteries or low voltage ac power from the heating or cooling equipment typically provide this power; electric heating systems commonly use line voltage

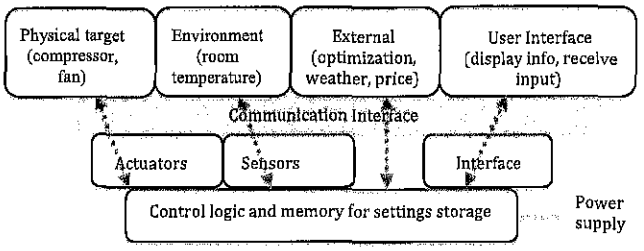

Fig. 2. Disaggregated components of a typical thermostat.

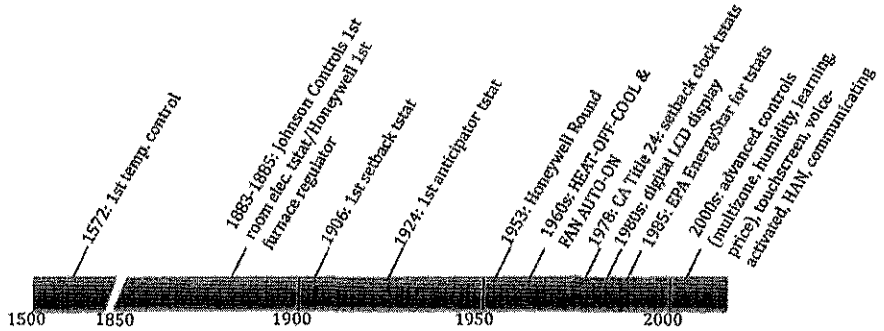

Fig. 1. Timeline of the history of residential thermostats.

power. Thermostats often employ both systems, using the batteries to preserve settings in the event of power outages or other failures.

3.1. Control features

Today's thermostats have a variety of features, both for control and the user interface, with different levels of sophistication. One range of features is related to *what* is under control. Thermostats typically control heating and cooling equipment, which can include forced air, radiant floor (typically using water) or radiant ceiling systems (water or electric), or radiators (typically steam). Some equipment, such as heat pumps, requires specialized control. Thermostats may also control related equipment, such as humidifiers/dehumidifiers, auxiliary heating systems, economizers, whole house fans, or other ventilation systems. High efficiency equipment often includes two stage systems with variable speed fans, which are controlled based on the difference in current and target temperature.

Another set of features of thermostats involves *where* the control lies. For example, a fan-delay relay at the equipment allows the blower fan to continue to run a few minutes after the compressor has turned off to take advantage of residual cooling. Some thermostats provide this control at the thermostat and allow adjustment of this time period. The anticipator, which turns off equipment before the setpoint is reached to prevent overshoot, may be adjustable (especially for heating) or not (cooling). Compressor protection, which requires the compressor to remain off for a few minutes minimum to protect equipment, is a typical feature often embedded at the HVAC controls.

A key issue is *how* these features work; some features with the same name (such as hold or recovery) have very different functions with different manufacturers. Some de facto standards have evolved, such as switches for heating/cooling mode (HEAT-COOL-OFF), auto switchover (automatically switch between use of heating and cooling equipment), and separate control of the blower fan (Fan-AUTO). For programmable thermostats, two push buttons to increase or decrease target temperature (as well as other functions) is fairly standard.

Some features have been driven by the EnergyStar program, such as default energy-saving and comfort setpoint temperatures and schedule, cycle rate setting, pre-comfort recovery, and hold and/or override options. Other policies, such as demand response dynamic pricing (described in [19]), are driving features such as communication and temperature setpoints that automatically respond to price. Other feature development is driven by increasing sophistication, such as multi-zone control, air filtering, and multi-stage HVAC equipment. While some thermostats do not indicate current time of day, programmable thermostats typically do—either allowing an internal clock to be set by the user or providing a means of updating the time automatically.

3.2. User interface features

Another set of features relates to the user interface of the thermostat. These features are categorized by what is displayed and how it is displayed. Typical information to be displayed includes current and target temperatures (in Fahrenheit or Celsius), day of week, time (12 or 24 h), and current schedule control mode (e.g., morning, day, evening or night); some displays show outside temperature, relative humidity, and/or local weather forecast. System status is often displayed by the position of a switch, or text or icon. Status information includes:

- thermostat is off or in heating, cooling, or auto switchover mode,
- fan is off or in auto mode,
- heating or cooling system, fan, or backup heating system is currently running,
- hold/temporary/vacation mode is active (supercedes regular programmed schedule).

Another type of display is an alert, such as indication of a low battery or that the filter needs changing. Other types of information include help (e.g., tips, other information for easy set up, instruction manual), energy usage and or cost, messages from utility and/or current price tier.

The user interfaces of thermostats have evolved over time, both in how information is displayed and the means of user interaction. Early thermostats presented a needle-type marker that indicated current and target temperatures within a range of possible temperatures in an analog display (Fig. 3). The majority of programmable thermostats now use digital numbers to display temperature; some recent models have returned to numbers on an analog scale. Many programmable thermostats display text or numerical information on some sort of Liquid Crystal Display (LCD). The early models had relatively small monochrome screens that had space dedicated to specific information. In some models, a marker such as an arrow pointed to text (such as day of the week) printed on the plastic enclosure of the thermostat; the displayed marker changed position to indicate change in status or information. In recent years, the LCDs have grown larger, multi-colored, and screen space is shared—different information can be displayed in the same area at different times. Some thermostats use menus in a framework similar to personal computer interfaces to provide many layers of information structured on the same screen. Many programmable thermostats now have backlights for reading the LCD screen at night (Fig. 4).

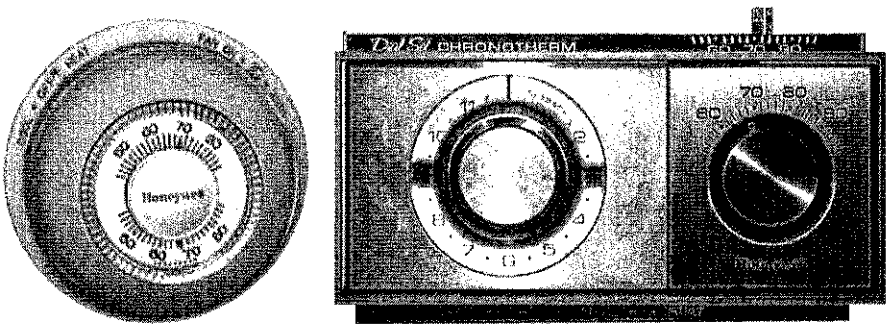

Fig. 3. Older thermostat designs with slider bars, dials, and analog displays; Honeywell Round [20] on left and Honeywell Chronotherm setback thermostat on right (photo by T. Peffer).

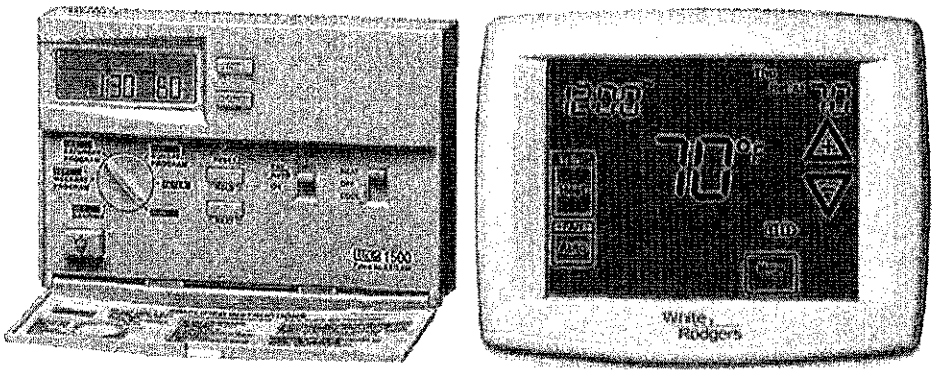

Fig. 4. The evolution of the programmable thermostat from small LCD on LUX 1500 [21] on left to full touchscreen on White Rodgers [22] on right.

The user interaction has changed from sliding needle-markers and turning dials to push buttons and even touchscreens on some models. While early models used push buttons to control a single use—up, down, hold, next, reset, clear—some thermostats rely on context-sensitive buttons, that is multi-use buttons that control different features in different modes. Physical slider switches are still commonly used, although in touchscreen and web interface models, these are replaced with a virtual switch. Other conventions borrowed from computer interfaces include using OK, Back, and Save buttons.[2]

Many thermostats have controls or settings meant to be used rarely and/or only at installation. These functions are often hidden from apparent view, such as locating the switch for temperature display in Fahrenheit or Celsius on the back of the thermostat. A separate installer mode might include setting cycle rate or temperature differential (deadband); these features may be only accessible via a specific sequence of button pushes.

Manufacturers are constantly offering new interfaces. Voice control thermostats allow a thermostat to be set up and controlled by spoken commands. Some thermostats offer the user a selection of multiple languages. Others provide great flexibility, such as custom names for various programmed schedules. Audible touch confirmation is a feature that imparts an audio prompt to confirm entries. Single button pushes allow easy program switches, such as changing to Daylight Savings Time versus Standard Time or changing to an occupied or energy-savings mode.

4. Thermostat ownership & usage

4.1. Thermostat ownership

We found data on thermostat ownership mainly from surveys. The Residential Energy Consumption Survey (RECS) is a national area-probability sample survey (about 4000 homes every four years) that includes several questions about presence, type, and usage of thermostats. The American Home Comfort Study (AHCS) also surveys 30,000 homeowners every two years; the 2008 survey was conducted via the Internet. About 86% of U.S. homes have a thermostat of some type controlling heating and/or cooling systems [24,25]. Over time, the penetration of programmable thermostats has increased in response to codes, decreased costs, needs for additional features (e.g., central air conditioning), and the desire to save energy. Building codes and other efficiency programs have accelerated the transition to programmable units.

Currently, about a third of U.S. homes have programmable thermostats [24,25]. The exact saturation is difficult to determine because the estimates rely on consumer responses to surveys. Consumers do not universally understand the distinction between the types of thermostats even though manual and programmable thermostats have very different capabilities. While two major categories of thermostats—manual or programmable—are generally recognized, several surveys have indicated that lay people do not understand these terms. Manual thermostats—those that require human intervention and have no automatic features—are often called standard or mechanical. However, manual thermostats can have digital displays and operate with electronic sensors and switches instead of mechanical ones. The early setback or clock thermostats look like manual thermostats with their analog displays, but they are categorized as programmable thermostats, since they can automatically change temperature based on a timed schedule. In both the national RECS and California-based Residential Appliance Saturation Survey (RASS), the authors noted problems with people understanding the term programmable thermostat [1,26]. In RECS, the authors noted that when a clarifying phrase was added to the question regarding type of thermostat, the number of households reporting a programmable thermostat nearly dropped in half compared to the previous survey, from 44.9 million in 1997 to 25.1 million in 2001 [27]. RASS noted that the numbers listed were lower than expected, that is, the response rate regarding programmable thermostats in post-1995 houses was expected to be 100% due to the energy code, but was underreported.

Although programmable thermostats have been available for more than 30 years, only 30% of U.S. households have installed them. In the 2005 RECS, 14% of U.S. households reported having no thermostat, 30% (34.6% of thermostat owners) had a programmable thermostat, and 56% had a manual thermostat [1]. According to the AHCS, 36% of households had programmable thermostats in 2004, and the percentage increased to 42% in 2008 [28]. In California, the 2005 RECS reported 19% of households with no thermostat, 44% (54% of thermostat owners) with a programmable thermostat, and 37% with a manual thermostat [24]. The percentage of houses in California without thermostats differs from the national percentages due to milder weather, whereas the increased number of programmable thermostats in California versus nationwide is likely attributed to the last 30 years of energy code requiring a setback or programmable thermostat. Of those that used central air conditioning in California, 68% had programmable thermostats; this most likely reflects the fact that homes built in the past 30 years were more likely to have central air conditioning (Fig. 5). Another survey conducted in Seattle, the Residential Customer Characteristics Survey 2009, reported that programmable thermostats were installed in approximately 51% of households [29].

[2] We note that Honeywell holds a patent on the saving changes indication, which poses a constraint on other thermostat designs [23].

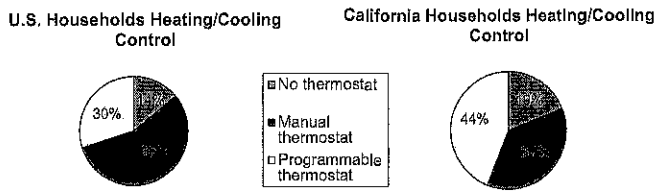

Fig. 5. Thermostat type in United States and California [1].

Thus, residential energy use (and savings) still depends largely on the settings of manual thermostats by the owners. This fraction will fall steadily in the next decade as older thermostats are upgraded through weatherization programs, utility incentives, and consumer initiatives to achieve energy savings and more features.

4.2. Thermostat usage patterns

Several studies show that programmable thermostats are set and programmed differently than manual thermostats. In a home with a programmable thermostat, the occupants can program a schedule to change the target temperature or setpoint. During the heating season, the temperature setpoint can be reduced ("set back") when the house is empty or at night; in the cooling season, the temperature setpoint can be increased ("set up") to prevent operation of the cooling system when not needed. In the 2005 heating season, about 60% of U.S. households with programmable thermostats reported using them to reduce temperature at night. Only 45% reduced the temperature during the day; the same survey indicated that approximately 51% of homes have someone home all day, which may explain why fewer household reduce temperature during the day than during the night [25]. During the cooling season, 55% of households with programmable thermostats set them to increase temperature at night as well as during the day [24]. According to the California 2003 Residential Appliance Saturation Survey (RASS), only 28% of households in California actively set up the temperature for air conditioning (AC) during the day, and the presence of programmable thermostats did not appear to dramatically affect setback behaviors [26]. Of the recent buyers of HVAC equipment, the American Home Comfort Study (AHCS) reported that 56% of homeowners always program their thermostats, 32% sometimes program, 9% never program their thermostats, and 3% do not know how [28].

In a study that compared the energy consumption of manual thermostats versus programmable thermostats in CA households, programmable thermostats were set slightly higher (i.e., 0.7–1.2 °F) than manual thermostats in the cooling season (which would save energy), but were not in OFF mode as often. In the heating season, programmable thermostats were set at higher temperatures than manual thermostats (which would cause more energy use), and far fewer were placed in OFF mode than manual thermostats [30]. A consumer survey conducted in Seattle revealed that a night setback was adopted by 86% of people with programmable thermostats and only by 60% of people with manual thermostats [29]. A study in California found that setpoints assumed in Title 24 energy code compliance software (similar to those required for EnergyStar eligibility) overestimated the cooling setpoint and underestimated the heating setpoints; in other words households in the study on average used a lower setpoint for cooling (used more energy) and a higher setpoint for heating (used less energy) than the default energy-saving setpoints [31].

Similarly, outside the U.S., setup and setback behaviors are not a common habit, as reported in several international studies. A cross-cultural study of energy behavior in Norway and Japan [32] reveals that less than 50% of Oslo's households setback temperature at night and 28% did not lower thermostat settings during weekends or vacations. Another northern European survey of 600 homes [33] showed that only 38% of the houses with thermostats lowered their temperature during the night.

Occupants regularly interrupt the programming of their programmable thermostat by selecting operating modes that suspend the programmed schedule: *hold* and *override* (sometime called temporary hold or temporary override) mode. *Override* allows the occupant to temporarily raise or lower the desired temperature typically until the next scheduled time program. The *hold* mode is a permanent change, and functionally transforms the programmable thermostat into a manual thermostat. A study conducted by thermostat manufacturer Carrier examined the operating mode of installed programmable thermostats in households within the jurisdiction of four utilities, LIPA, ConEd, SCE, SDG&E. Of the 35,471 thermostats monitored overall, only 47% were in program mode, in which the thermostat used the schedule previously input by the occupant to control temperature setpoints. The rest—53%—were in hold mode. The households within the two southern California utilities (SCE and SDG&E) showed a higher percentage (65%) in program mode, although it was unclear why [34]. In the AHCS, no distinction was made between override and hold. One question asked about the frequency of overrides for recent HVAC buyers (all the time 8%, often 12%, sometimes 36%, rarely 35%, never, 9%) [28]. It is difficult to know whether overriding "all the time" means the thermostat was in hold mode or not.

Several studies have examined temperature swings, comfort, and control within homes [31,35–39]. These indicated that thermal comfort preferences at home are very different from that in offices: there is a wider temperature range, because of greater control (i.e., occupants opened windows, and had greater freedom to change thermostat settings, clothing, and activity level) [40] and because of costs [41]. A recent national survey found that 49% of homeowners were very much satisfied with their home comfort systems, 43% somewhat satisfied, and 8% not at all satisfied [28]. There was a slight correlation between programmable thermostats and satisfaction: 45% of those very much satisfied had programmable thermostats compared to 32% of those who were not at all satisfied [28]. A preliminary study indicated that socioeconomic class may affect these responses: in a recent weatherization study by one of the authors (Meier) in low-income households, the top two complaints were mechanical ventilation and the programmable thermostat. However, thermal comfort throughout the home tends to be problematic—68% of homeowners found at least one room too hot in the summer and 60% found at least one room too cold in the winter [28]. When asked about seeking improvements to their home comfort system, 89% of homeowners listed greater energy efficiency as very important, but many listed issues with thermostat as very important as well: more even temperature (65%), better temperature control (68%), faster heating and cooling (64%) [28]. Other issues were listed as very important—such as better air purification (76%), improved air flow (69%), and better humidity control (64%) [28]. However, most commercially available thermostats (the main device to affect house thermal environment) control only air temperature, leaving all other parameters unmonitored and uncontrolled.

There are no set standards for thermal comfort in residences, although New York rental housing has a minimum indoor temperature requirement for the eight coldest months of the year [42]. A few have suggested the Adaptive Comfort Standard described in ASHRAE 55-2004 as an appropriate standard [40,43] since houses by law have operable windows for ventilation; this standard allows a wider comfort temperature range given the occupants' ability to adapt. Thermal comfort has been defined and studied both in the lab and field, primarily in the commercial sector

[44–49]. Many factors have been found to influence thermal comfort, such as air temperature, radiant temperature, air speed, humidity, level of clothing/activity [44,50,51] as well as psychological, behavioral, and physiological influences [52–56]. These may explain the difference in heating and cooling season temperature offsets [57]. In general, comfort temperatures have been increasing in winter and decreasing in summer over the past several decades [58,59]. Several studies indicated control as a major issue in thermal comfort at home [35,38,40,60]. However, most of the thermal comfort testing and surveys in residences have suffered from small sample size and not been representative of all socio-economic and demographic classes; even surveys such as AHCS, RECS and RASS still struggle with definition of terms (e.g., programmable thermostat, setpoint, zones).

5. Energy savings from programmable thermostats

Programmable thermostats have been promoted (and mandated) as a means of saving energy. But programmable thermostats differ from the traditional conservation measures, such as insulation or a more efficient refrigerator, where simply installing the measure will save energy. In contrast, the occupants must actively program the thermostat and select settings that result in savings. Furthermore, observing the programmable thermostat-induced energy savings is experimentally difficult since energy savings cannot be observed directly; instead one must examine the *difference* in energy use between two periods. Few studies directly meter the gas for heating or electricity for cooling separately from other appliances. In addition, the differences in energy use may be partially attributable to differences with other appliance energy use, seasonal weather variations, or changes in occupants or economic conditions. Alternatively, one can measure the difference in energy use between similar homes with and without programmable thermostats. This approach is sometimes simpler but introduces other kinds of uncertainties. Perhaps these difficulties in evaluations explain why field studies of thermostat savings have shown mixed results.

One recent analysis of energy bills in about 7000 households concluded that savings of about 6% in natural gas consumption could be attributed to programmable thermostat use [61]. In Quebec, 90% of houses are electrically heated with room thermostats; a billing analysis study (more than 25,000 households) estimated that the use of programmable thermostats reduced the energy consumption by 3.6% [62]. In a survey conducted in Seattle with 2300 respondents, houses with programmable thermostats had on average a 9% reduction in electricity consumption [29]. Studies of cooling energy savings are less common.

Several field studies showed no significant savings in households using programmable thermostats compared to households using non-programmable thermostats [30,63–65]. Some of these studies are summarized in Table 1. The availability of a programmable thermostat did not change setback behaviors: people who were accustomed to setting back with a manual thermostat kept doing so, and did not increase their energy savings. Those who had not previously changed the temperature setpoints did not set back with programmable thermostats. Some researchers argued that homes relying on programmable thermostats consumed more energy than those where the occupants set the thermostats manually [66], especially with heat pumps [67].

The EPA reviewed these studies and concluded that consumers were not using programmable thermostats effectively due to programming difficulties and lack of understanding of terms such as setpoint [69]. As a result, the EPA discontinued the EnergyStar programmable thermostat program in December 2009.

Table 1
Summary of thermostat behavior and energy savings studies [68].

Organization	Investigators	Location & year	Sample size	Conclusions
Southern California Edison	Paul Reeves, Jeff Hirsch, Carlos Haiad	CA 2004	N/A	Energy savings depend on behavior and can be + or –
Energy Center of Wisconsin	Monica Nevius, Scott Pigg	WI 1999	299 Homes	No significant savings. PT's don't change behavior.
Connecticut Natural Gas Corporation	David Cross, David Judd	CN 1996	100 Homes	PT's cause no significant behavior change.
BPA/PNNL	Craig Conner	NW 2001	150 Homes	No significant behavior change/savings.
Florida Solar Energy Center	Danny Parker	FL 2000	150 Homes	No savings, some increases.

6. Usability issues

Programmable thermostats have not seen great market penetration; only about half are actually programmed to adjust temperatures at night or unoccupied times, and thus they do not necessarily save energy. The EPA review and other studies indicate that people find programmable thermostats difficult to understand, and lack the confidence and motivation to overcome difficulties in programming [64,70–74].

We recognize that there are many factors involved in people adopting and using a new device that are applicable; here we discuss Rogers' technology diffusion theory, Nielsen's factors of system acceptability, and usability guidelines.

Rogers' diffusion of innovation curve (Fig. 6) defines different attributes that affect the willingness and ability of consumers to trying new technology [75]. Rogers' theory describes why seemingly advantageous innovations, like the programmable thermostat, can take some time to diffuse in a social system. In some cases, policy has created a tipping point in driving adoption, especially between early adopters and the early majority; this has certainly been the case in California's higher adoption of programmable thermostats compared to the rest of the U.S.

Jakob Nielsen outlines factors in system acceptability, in Fig. 7. This figure is targeted for web interfaces, however, we feel it is applicable since thermostats are becoming more like other consumer electronics.

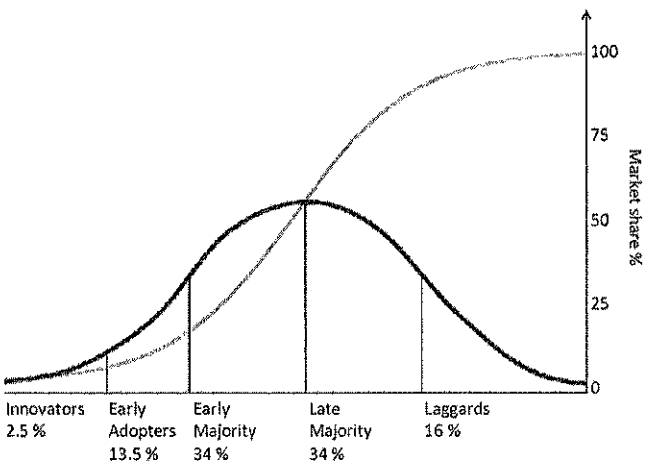

Fig. 6. Rogers' technology adoption or Diffusion of Innovation Curve [75].

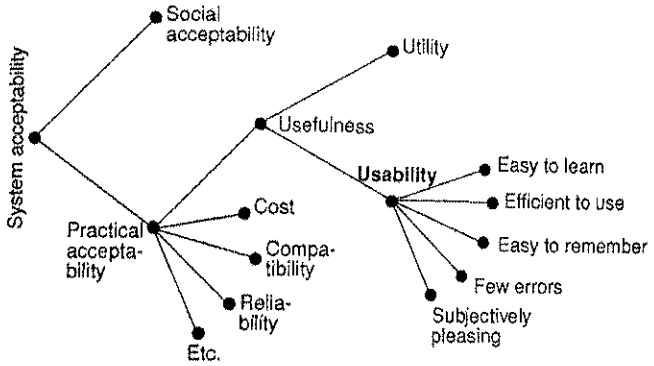

Fig. 7. Nielsens' factors in system acceptability [76].

In the International Organization for Standardization (ISO) Guidelines on Usability (ISO 9241-11 1998), usability refers to the extent to which a product can be used by specified users to achieve specified goals with *effectiveness* (the accuracy and completeness with which users achieve specified goals), *efficiency* (the resources expended in relation to the accuracy and completeness with which users achieve goals) and *satisfaction* (freedom from discomfort, and positive attitudes towards the use of the product) in a specified context of use [77]. In this section, we focus on some of issues mentioned in the literature on the use of programmable thermostats.

Our review of several U.S. and European studies collected a list of complaints and unexpected beliefs held by users on thermostats. Misconceptions about both energy and thermostats affect the use of thermostats, which arguably can be categorized under *social acceptability* in Nielsen's framework. Some people feel that heating all the time is more efficient than turning the heat off; in other words, they feel that turning down the thermostat for several hours per day actually consumes more energy because of the energy needed to heat the house back up to the comfort temperature [64,70]. Several studies have reported that consumers do not understand how their HVAC system works [36,78–82]. They may have incorrect mental models about creating comfortable indoor air temperature, especially since thermal feedback is delayed due to thermal inertia of the house. For example, they may think of the thermostat as an on–off switch or they may think the thermostat works as a valve: to accelerate heating, one must set the thermostat higher [80,83]. Many consumers do not know how much energy heating and cooling their home consumes or costs [70]. Other social acceptability issues may relate to priority of values: consumers may care about the environment, but value their comfort more [81,84]. In some cases, discomfort in entering a cold house discouraged people from lowering the temperature when they are away during the day [33]. In fact, in some countries a warm house is cozy and socially recognized [32]. Other social issues include gender differences in thermal perception or different needs and schedules of people in a household that make it more difficult to find agreement on the programmed temperature [53,54,80,81,85,86]. While some studies indicate residents found comfort in "fiddling" with their thermostats [35,60,87], other studies found that most people do not have interest in tinkering with their thermostats to optimize performance [38,78,88–90]. Other issues that are social in nature include a fear of the unknown: some people unfamiliar with a thermostat are afraid of using it in case there are terrible consequences [64,80,81,88].

The *practical acceptability* and *satisfaction* of using a programmable thermostat has many factors. Programmable thermostats cost more than manual thermostats, and consumers must expect enough value or *usefulness* (whether convenience, cost-savings, or some other *utility*) to warrant the time and money to purchase and install the new device. At least one study suggested that the payback and convenience are not worth the cost [64]. Other practical concerns include compatibility with the current system; there are a few anecdotal reports of people mounting their new programmable thermostat sideways to match the "footprint" of the old manual thermostat so they wouldn't need to repaint the wall. A few studies mention that the programmable thermostat was located in an inaccessible location [80,81]; many are located in hallways that are poorly lit. Current ADA standards require the placement of the thermostat 48 in. (1.2 m) above the floor which may be more usable for those in wheelchairs, but less usable for others than the 60 in. (1.5 m) de facto standard. In addition, many houses have alternative heating or cooling systems (e.g., woodstoves) not controllable by thermostats [64,81]. While many people have predictable schedules, others' schedules are more variable which makes the programming useless [64,81].

The poor *usability* of programmable thermostats and the necessity to improve their ergonomics was highlighted almost thirty years ago by Dale and Crawshaw, who stated that "it is easy to blame them [thermostat users] for stupidity, but is slowly being realized that the problem of efficiency in practice properly belongs to the engineers or the system designers" [91]. A report from 1982 illustrating the application of human factors techniques to heating controls interfaces listed several flaws, such as small text size and knobs, difficulties reading in poor lighting and distinguishing the current mode of the device, and lack of feedback on programming [92]. Although the technology of the interfaces has greatly improved over the past decades, little has been achieved in overcoming these problems.

One important aspect of usability is learnability: is operation of the device *easy to learn*? The EPA review and many other studies indicate that programmable thermostats are too complicated to use [33,64,71,73,74,80,81,83,93], especially for the elderly [73,81,88,94,95]. A consumer reports lab test stated that the subjects had difficulty setting the current time and day [71]; other studies indicate problems with programming desired temperature and schedule [33,64,81,94]. Several studies report that buttons and/or font size of text are too small [71,81,89,91,92]. Other studies point to poorly understood abbreviations (e.g., "Clk" for clock, "Prg" or "Prog" for program) and terminology (e.g., setpoint, program, default, zone) and confusing lights and symbols or icons [38,80,89,91,92].

Another aspect of usability is *efficiency*: how many steps does it take to achieve the objective? Boait and Rylatt reported the example of a thermostat that required a total of 28 steps to enter heating times, which were identical for each day of the week [74]. Freudenthal and Mook observed that programmable thermostat owners do not use all functions, even the ones they find valuable, due to poor interface design [94]. Several studies suggested that the layout of the interface itself was illogical, and thus difficult to navigate [89,91,92].

Since many thermostats at minimum require seasonal adjustment, the *easy to remember* factor of usability is important. Some thermostats have help or have a quick guide located on an inside cover. But many programmable thermostats require a manual, which can be 100+ pages long and are often unavailable when needed. Of the manuals themselves, Rathouse and Young reported that many people find them too technical, detailed and wordy, with not enough diagrams and attention on basics with procedural step-by-step instructions [81].

Another measure of usability is *few errors*. In a recent study in progress by one of the authors, Pritoni, nearly a fifth of households reported that the current time on their programmable thermostats

was incorrect by more than an hour. Poor feedback in setting a program was listed in a few studies as leading to errors [80,92].

We only found one study that addressed the aesthetics of the programmable thermostat (is it *subjectively pleasing*?) as a barrier to usability [17]. Anecdotally, one author has heard many complain of the lack of aesthetics, especially in the vein of, "it just looks complicated, I don't want to touch it."

7. Discussion

Programmable thermostats have largely fallen short of the goal of saving consumers energy. Some research suggests that improving usability may increase use and adoption of programmable thermostats towards facilitating energy-saving behavior. This section describes what usability testing has been done and what more is needed as well as describing what new features may help usability.

7.1. Usability testing

Although a wide range of studies has been conducted on temperature settings, thermal comfort, and efficiency of HVAC systems, little quantitative information is available on how people deal with temperature and environmental controls. A few researchers have performed quantitative usability tests on programmable thermostats.

Karjalainen completed qualitative and quantitative surveys on thermostat use in homes and offices in Finland, and then developed a prototype thermostat interface with usability guidelines and a user-centered design approach [80]. As an example of user-centered methods, six focus groups were conducted in the UK [81] to investigate issues in use of heating controls. Based on user experiences and complaints, a series of recommendations for manufacturers and installers was formulated to improve the next generation of thermostat interfaces, including the recommendation that manufacturers offer a variety of products of different complexity to suit different needs.

Freudenthal and Mook [94] developed a programmable thermostat interface with vocal messages that guide the users through the programming steps, in order to provide an interface usable for people with no knowledge of the device, even for elderly users. The device usability was tested by videotaping the interactions with a touchscreen computer of 14 people randomly selected among the population of Delft.

Sauer et al. investigated various types of enhanced user support (status, history, predictive, instructional and warning displays) on user performance [95]. Seventy-five subjects were asked to evaluate them. The highest scoring interface was the predictive display, which predicted the impact of heating setups on certain parameters, such as energy consumption, efficiency, and comfort level, thus helping users make informed decisions [95]. The more interactive and rich information displays (e.g. warnings) appeared to be useful for less experienced people. The results of this study suggested that different levels of support were appropriate for specific situations and groups of users.

A recent publication by the UK Building Control Industry Association [96] focused on the implementation of user interfaces of control devices for heating, cooling, and ventilation, analyzing the flaws of existing interfaces and providing usability guidelines for new products. The authors affirmed that usable controls improved not only user satisfaction and comfort, but also they provided higher energy efficiency (use of HVAC only when needed), helped to building management (local control versus central control) and provided users with faster response of the system (due to perceived control and feedback).

To our knowledge, the only comparative usability study on commercially available programmable thermostats was conducted by Consumer Reports [71].[3] Twenty-five different thermostats were lab-tested to assess their energy performance and their usability. As a result, programmable thermostats were ranked according to these criteria and a series of problems with using thermostats were highlighted. Consumer reports did not explicitly state what parameters were considered to assess thermostat usability, and it did not appear that quantitative tests were performed. Moreover, the thermostats were tested in unusual conditions; namely, the users evaluated the thermostats while sitting down and in a well-illuminated room.

7.2. Recommendations

What features might increase adoption and usability of programmable thermostats? We discuss below some recommended features listed in the literature, as well as standards. The current trend in consumer electronics may help thermostat usability. Certainly adding thermostat functionality to existing interfaces, such as on the television or smart phone, may improve the use and usability. While home automation has been around for many years, perhaps today's more compelling interfaces will encourage consumer acceptance of automation and intelligence in home controls. Educating consumers with better feedback may encourage programmable thermostat use, by revealing how much heating or cooling energy homes consume and how modifying the temperature setpoint can save energy.

Improved feedback: recently energy consumption feedback has received a great deal of attention [97–108] with respect to changing energy consumption behavior. Cost and energy consumption data can be obtained from interval meters, user-installed sensors on meters or appliances, smart appliances, and other intelligent systems. This information can help users understand the connection between temperature settings, HVAC use, cost, and the environment. Some recent studies indicate that the estimated time expected to reach the selected temperature is a useful indication for users [17,80]. This feature may also enhance the users' perception of control of the system and discourage the use of the thermostat as if it were a valve.

Intelligent systems: automated systems can, in theory, limit the need for human interaction, such as eliminating thermostat programming by systems that learn occupancy schedules and thermal preference. Different solutions have been suggested to monitor the location of household members ranging from occupancy sensors [57,109–112] to Mobile GPS [17]. Occupancy data can also be predicted from historic energy consumption [74]. Sensors can be complemented by an intelligent controller that uses learning algorithms to recognize patterns (e.g., preference in temperatures and characteristics of HVAC and house) [57,74,113]. Intelligent systems can theoretically overcome some of the problems associated with human-thermostat interaction, although some users may be reluctant to surrender control. Clearly the optimal path is to provide choices in the balance between user control and automated features [57].

Communication: the thermostat can use a home gateway to communicate with other devices in a Home Area Network such as smart appliances, in home energy displays, and energy detectors. A thermostat could in theory exchange data with utilities and other service providers. Web/mobile interfaces already enable the control

[3] While programmable thermostat manufacturers affirm they perform usability tests for their products, they do not disclose results because they consider the user interface a key feature for sales.

of thermostat configurations from personal computers, cell phones, and potentially Internet-connected television. Enhanced communication with other devices in the home and with the outside world may increase thermostat usability by piggybacking on other devices with more interesting and provocative user interfaces that are easy to use.

Other improvements: voice-controlled thermostats, such as by Talking Thermostats.com and Innotech, may improve thermostat usability for elderly or motion-disabled people [114,115]. Voice-activated devices could dramatically simplify the interaction with thermostats, especially in case of out-of-schedule requests [81]. Some researchers have proposed the development of goal-setting strategies for occupant interactions with programmable thermostats [85]. Some studies have suggested new functions considered useful to consumers. One is a "boost button" (an additional hour of heating or cooling) [81], similar to the plus-1-minute button commonly found on microwave ovens. This function could provide flexibility to a programmed schedule; in other words, a single button press could extend the space conditioning to accommodate an impromptu change in schedule. In the same vein, another potential function is a timer [90] to turn on or off heating or cooling for a specific amount of time. A third helpful function is an estimation of the time needed to reach the desired temperature [80]. These features are not currently available in any of the surveyed U.S. thermostats. In response to demands to simplify the interfaces, a single button push triggering an energy-saving mode has been proposed in EnergyStar Program Requirements. Aesthetically improved interfaces are suggested by several studies to improve social acceptability and increase likelihood of adoption. Another area of improvement is motivation: the "Green Machine" [116] is a mobile application that is an example of *persuasive technology*—defined by BJ Fogg as technology created for the purpose of changing people's attitudes or behaviors [117]. The Green Machine interface provides a visualization of energy consumption in comparison to user goals and utilizes social networking to motivate users to reduce their energy consumption.

In the long term, standardization can improve usability, because people have to learn a system only once. In our survey of thermostats currently available in the market we found a substantial lack of standardization not only in the interaction design, but also in symbols, icons, and text. The most basic functions and concepts are implemented in different ways. Standardization of interfaces, symbols, and icons has been successfully implemented in other sectors such as in car dashboards (SAE Standards [118]) and in power controls for electronic equipment (IEEE 1621 [119]).

7.3. Future work

We suggest that a "good" thermostat design is not only usable (easy to use/learn/remember), but also useful (provides needed functions for its users) in a way that is cost-effective and compatible with existing equipment. Arguably, a good programmable thermostat would facilitate energy-saving behavior as well as provide comfort and convenience for the people using it. But do thermostats really save energy? What else factors into their adoption and use? And what is good usable design? To whom?

We recognize several needed areas of research. Additional research is needed to determine the energy savings from programmable thermostats and link the amount of savings to initial conditions and usage of the thermostat's features. In addition, we uncovered little exploration of thermal comfort in homes; this is well studied in commercial buildings and has led to better control strategies. Understanding residential thermal comfort could improve comfort and save energy. Another issue entirely is addressing motivation to use the thermostat to save energy. Are there softer non-technical means of achieving the same goals, for example, with social networking with Facebook or encouraging behavior change by promoting positive social norms in utility bill inserts?

At the beginning of this section we listed the few quantitative usability studies we could find. While a few surveys and some studies point anecdotally to widespread user difficulties with programmable thermostats, the literature contains relatively few usability studies with quantitative data and analysis. (Access to the thermostat manufacturers' consumer telephone help lines would be invaluable.) Lack of usability studies is a critical weakness in the design of advanced thermostats because usability is among the most frequent complaints about them.

We have begun some initial exploratory usability studies which are described in [120]. We think that there is not a "one-size fits all" solution; we are exploring the elements of good thermostat design, and are currently outlining design principles of programmable thermostats. While we briefly mention technology adoption theory and guidelines for web user interface design in this review, we plan further research to look at usability in other fields, such as medical equipment and dashboards.

8. Conclusion

Thermostats play a vital role in both providing comfort to people in their homes and controlling the most energy intensive systems in the home—heating and cooling. This review began with a brief history of the thermostat, outlined the basic features, discussed ownership and use of manual and programmable thermostats in the U.S., described the energy savings—or rather lack thereof—and pointed out usability issues. Our review of thermostats indicates that the thermostats designed and promoted by energy conservation policies have had slow penetration into the market and are used as designed in only half of the homes in the U.S. In general, the energy savings from using programmable thermostats are less than predicted, although we acknowledge that these evaluations are difficult to perform.

The number and variety of new features for programmable thermostats is increasing, which further complicates the device. One example is the programmable communicating thermostat for residential demand response. Many utilities are exploring time-varying price tariffs to reduce peak electricity demand—driven primarily from space heating and cooling. Yet, overlaying price-response on the current functionality of programmable thermostats will only increase the complexity of this already misunderstood and underutilized device, much less introduce a tariff structure completely foreign to many consumers.

User complaints culled from the literature include misconceptions about energy use and how thermostats work, lengthy and obtuse operating manuals, and social and practical barriers to using programmable thermostats. The user misconceptions are particularly important since they may encourage incorrect usage that cannot be easily overcome by better interfaces. When users complained about the thermostats themselves, they noted in particular their complexity, small size of buttons and text, confusing terms and symbols, and the number of steps needed to program the devices.

Several studies indicated disparate attitudes towards thermostats. Some users preferred never to adjust their thermostats—to the point of being afraid of touching them; some believe that changes in thermostat settings consume more energy. Others tinkered with their thermostat several times per day, and prefer the control of manual adjustment to a set program. These groups will have different priorities for top-level features.

Our recommendations for improved usability include access through a web portal and use of audible commands and even voice

recognition. The literature revealed some functions that would be desirable to some users but are not available in U.S. models, such as a "boost" feature that would provide an extra hour of operation (similar to the "plus one minute" feature on a microwave oven). One study found that users liked a feature that would indicate how long it would take to achieve the desired temperature.

A goal of future thermostats will be to overcome the misconceptions about thermostat operation and to minimize the number of interface-related complaints. At present, however, designers lack the foundational research to determine which thermostat features succeed or fail. We are encouraged by EnergyStar's inclusion of usability metrics in the future thermostat specification and hope that this effort leads to more quantitative usability research as well as building on the success of intuitive popular consumer electronics.

Finally, we note that the thermostat is only one of many devices where human interaction plays a role in energy consumption. We expect a similar discourse in the future on in-home energy displays, lighting controls, as well as household appliances (such as televisions) that focus on making energy consumption more transparent and user interfaces more usable.

Acknowledgements

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Exhibit 8

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

April 1, 2011

Pauline Batarseh
Assistant Deputy Director
Office of Pollution Prevention and Green Technology
California Department of Toxic Substance Control
1001 "I" Street
Sacramento, CA 95812

Re: 2010 Thermostat Recycling Corporation's Annual Report

Dear Ms. Batarseh:

Attached is TRC's 2010 annual collection report for the Department. To the extent practicable TRC has made its best effort to be responsive to the Department's request for expense and collection data. A copy of this report will be posted on TRC's website at www.thermostat-recycle.org.

TRC would like to take the opportunity to summarize some of its major accomplishments in 2010.

- Notwithstanding continued economic challenges to the HVAC industry, the national recovery of thermostats increased by 29 percent, diverting almost 1,900 pounds of mercury from solid waste.
- Industry participation in TRC continued to grow and by the end of the year TRC represented 29 manufacturers that historically branded and distributed mercury switch thermostats.
- TRC continues to see substantial growth in access to the program, adding over 700 new collection locations in 2010. TRC saw solid growth in all collection location types in 2010.

TRC is now in its second year of the mandatory program in California. TRC saw a 77% increase in the number of intact mercury thermostats recovered through the program in California. TRC collected 13,340 whole thermostats in 2010 from California locations. Only one state, Maryland, had higher collections last year.

Looking towards 2011, we are looking forward to the continued expansion of the program and are always open to discussing strategies to help build the program.

Sincere Regards,

Mark Tibbetts
Executive Director

2010 Thermostat Recycling Corporation Annual Report

Collection Data

Table 1: 2010 California Collections by Brand

	Count Whole Hg Thermostats	Count Hg Switches
Honeywell	9,478	18,424
White Rogers	1,624	2,314
GE	89	255
Bard	86	294
Burnham	0	1
Carrier	578	1,844
Chromalox	0	0
ClimateMaster	3	12
Crane	0	0
Empire Comfort	1	1
Invensys	309	326
ITT	14	22
Lear Siegler	5	6
Lennox	182	427
Lux	155	156
McQuay	24	65
Nordyne	25	60
PSG	201	298
Rheem	56	129
Sears	47	41
Taco	0	0
Thomas & Betts	2	4
TPI	0	0
Trane	153	383
Uponor	0	0
Valliant	0	0
WW Grainger	8	11
York / JCI	43	117
Total Member Product Recovered	13,083	25,190
Orphan Waste	257	4,778
TOTAL	13,340	29,968

TRC recovered 185.8 pounds of mercury from 13,340 intact mercury thermostats and mercury switches from California collection locations in 2010. This is an increase of 77% over the 7,542 intact mercury thermostats collected in 2009. California ranked second among the 46 states from which TRC recovered thermostats in 2010.

Waste Mercury-Added Thermostat Management

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell International under contract with TRC.

Bins are received at the loading dock and sent to the TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name, city, state, zip code, date returned, number of thermostats and mercury switches by manufacturer and any non-conforming material.

The bin is returned to the business that sent it in with a new prepaid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to the TRC processing area to have the mercury switches removed from the plastic

housing. Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement. Small quantities of thermostats are removed from the container, which is then closed again, and placed at the switch removal workstation on a tray that contains any potential mercury spillage. The switches are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a switch breaks and mercury spills, the work area is designed to contain the spillage and the operators are trained in the clean up and disposal of mercury. TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury switches. Bethlehem Apparatus meets or exceeds all local, state, federal and EPA regulations for the management of the product. Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- EPA BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of the TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

Program Education and Outreach

TRC marketing and promotion efforts targeted key audiences in California. Our objective was to raise awareness of key components of California's mercury thermostat law and to affect recycling behavior of the generators of waste mercury thermostats. Below is a summary of activities and channels we utilized in support of this effort.

Wholesaler Recruitment/Engagement—TRC continued to engage wholesale distributers to ensure that they are aware of the 1) mandate to collect waste mercury thermostats in California, and 2) the availability of the TRC program as a simple, low-cost means of compliance.

Engagement with wholesalers took many forms (see below for information on specific activities by channel). Outreach included trade shows and industry meetings, direct outreach and

engagement of specific distributors, earned media through industry trade press, and paid advertising.

TRC expanded efforts with the Heating Airconditioning Refrigeration Distributors International (HARDI) trade association last year. HARDI members represent approximately 80% of the domestic wholesale market for HVACR equipment. Most significantly, in October, TRC and HARDI entered into a formal agreement to promote the TRC program to HARDI's members. Aspects of this agreement include the development of website content on mercury thermostat regulations and an annual award recognizing the contributions of HARDI member(s) to the program. TRC sent correspondence [see Appendix H(1) for a copy of correspondence] to the executives of all 450 HARDI member companies inviting them to meet with TRC staff at the HARDI annual meeting.

TRC attempted to engage with the American Supply Association both in writing and by phone [see appendix N for a copy of correspondence] as well.

HVAC Contractor Engagement (including utilities)—TRC joined the Institute of Heating and Air Conditioning Industries (IHACI) in April, 2010. IHACI is a non-profit trade association of contractors, manufacturers, distributors, utility firms, and related businesses actively engaged in the heating, ventilation, air conditioning, refrigeration, and sheet metal industries. TRC understands that IHACI is the largest HVAC trade association in California. TRC provided information on the California law and encouraged IHACI to inform its members on the need to recycle. This resulted in a number of articles on thermostat recycling in IHACI's Indoor Comfort News.

TRC engaged the California State Licensing Board (CSLB) and provided information on the California Mercury Thermostat Act for inclusion in CSLB's newsletter (see appendix M). Information on mercury thermostat recycling was provided to the California Public Utilities Commission and its staff. TRC provided similar information to the California Energy Commission [see appendix K and L for copies of the correspondence].

Retailer Engagement—TRC engaged with representatives of major thermostat retailers in 2010 to ensure they were aware TRC was open to their participation in the program.

Summary of Outreach by Channel

Local, Regional, and National Trade Shows—TRC attended and exhibited at the following trade shows relevant to California:

January 25-27: AHR Expo, Orlando, Florida. The largest national trade show for HVACR industry. TRC staff exhibited and promoted program to HVAC contractors, HVAC manufacturers, and HVAC distributors. The show had a total registered attendance of 44,000.

May 24-25: National Oil Heat Service Managers annual meeting and trade show, Providence, Rhode Island. TRC also sponsored the opening reception for additional visibility at the event.

June 23-24: National Town Meeting for Demand Response, Washington, DC. This was a two day event focusing on demand response and included both utilities and thermostat contractors. TRC exhibited at the event.

July 27-29: North American Hazardous Materials Management Association (NAHMMA) Annual Meeting, St. Pete Beach, Florida. TRC exhibited and also presented on the program.

September 23-24: Comfortech, Baltimore, Maryland. Comfortech is a national trade show for HVAC contractors sponsored by Penton Media, publishers of Contracting Business.

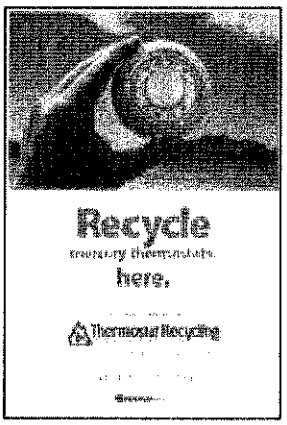
October 23-26: HARDI annual meeting, Houston, Texas. TRC exhibited at the event, which targets representatives of approximately 80% of the wholesale market for HVACR products.

November 17: IHACI Trade Show, Pasadena, California. TRC exhibited at the largest annual HVAC trade show in California. The show was sponsored by the Institute of Heating and Air Conditioning Industries Association. The one day show had a total attendance of over 3,600.

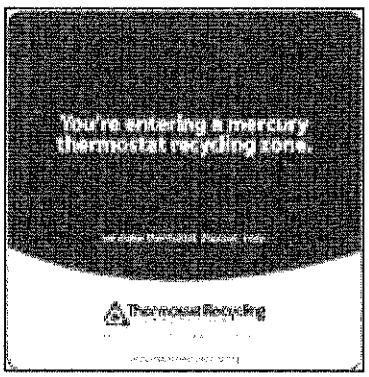
Program website—In October 2010 TRC launched a new website. The site updated and reorganized content; making pertinent information on the program to various audiences more accessible. The new website may be viewed at www.thermostat-recycle.org.

Promotional Took-kit—Concurrent with the launch of the new website, TRC added high-resolution templates of a number of promotional items. These items are free to use by TRC collection points. Developed for HVAC wholesale distributors, these items are available at no cost to TRC collection points to assist them in promoting the program to their customers. Items include a poster, bill stuffer, invoice template, cling sticker, banner, postcard, and print advertisement. Once the inventory of the current poster and window cling is used, TRC will replace those items with materials from the toolkit.

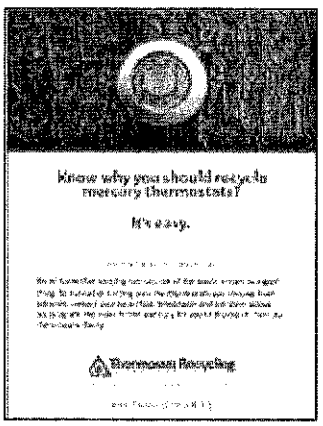
Poster



Window Cling



Advertisement



Earned Media

TRC sent letters to various stakeholders in California. They are as follows:

National Demolition Association (NDA): On May 4, 2010, TRC sent a letter to the Chair of the National Demolition Association's Environmental Committee as follow up to a phone conversation discussing TRC and NDA's promotion of the program [see appendix A]. The Chair presented information about TRC to the NDA's Board of Directors and ensured a link to TRC's website was included on NDA's website

American Public Works Association (APWA): On September 13, 2010, TRC sent a letter to eight California-based chapters of APWA to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix B]. The letter explained TRC's program and that participation is free for local governments.

Air Conditioning Contractors of America (ACCA): On September 13, 2010, TRC sent a letter to the West Coast chapter executive to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix C]. The letter articulated that all HVAC contractors were required to recycle waste mercury thermostats and prohibited from leaving the waste at the customer's home.

Plumbing, Heating, and Cooling Contractors of America (PHCC): On September 13, 2010, TRC sent a letter to eight California-based chapters of PHCC to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix D]. The letter articulated that all HVAC contractors were required to recycle waste mercury thermostats and prohibited from leaving the waste at the customer's home.

Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): On September 13, 2010, TRC sent a letter to eight California-based chapters of SMACNA to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix E]. The letter articulated that all HVAC contractors were required to recycle waste mercury thermostats and prohibited from leaving the waste at the customer's home.

California Household Hazardous Waste Facilities: On December 1, 2010, TRC sent a letter to 177 Household Hazardous Waste Facilities in California to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix F]. The letter explained TRC's program and that participation is free for local governments.

TRC also received coverage in national trade press on numerous occasions. For instance the program was covered in *Indoor Comfort News* (June 2010, July 2010, and October 2010). The HARDI/TRC media release (December, 2010) was covered in *Waste and Recycling News* and *Air Conditioning Today*. TRC's program also received extensive coverage in the HARDI Convention Daily (distributed to all HARDI annual convention attendees) and *HVACR Distributor* (see appendix G for examples of media coverage).

Paid Advertising

TRC ran rotating banner advertisements (Exhibit 1) on the websites contractingbusiness.com and Hvac-talk.com for the months of April, May and June. The advertisement was animated with scrolling images of thermostats, the final message directed contractors to TRC's website.

Both sites are national and target the HVAC contracting audience. Contractingbusiness.com averages 59,000 page views and 27,000 unique visitors per month. Hvac-talk.com averages 1.5 million page views and 221,000 unique visitors per month.
TRC ran a quarter page advertisements in *Indoor Comfort News* in the April, August, and November editions (see exhibit 2). *Indoor Comfort News* has 25,000 subscribers, primarily in the Western United States. It is sent to all licensed C-20 contractors in California and has a total audience of approximately 250,000.

Exhibit 1: Web Banner Advertisement

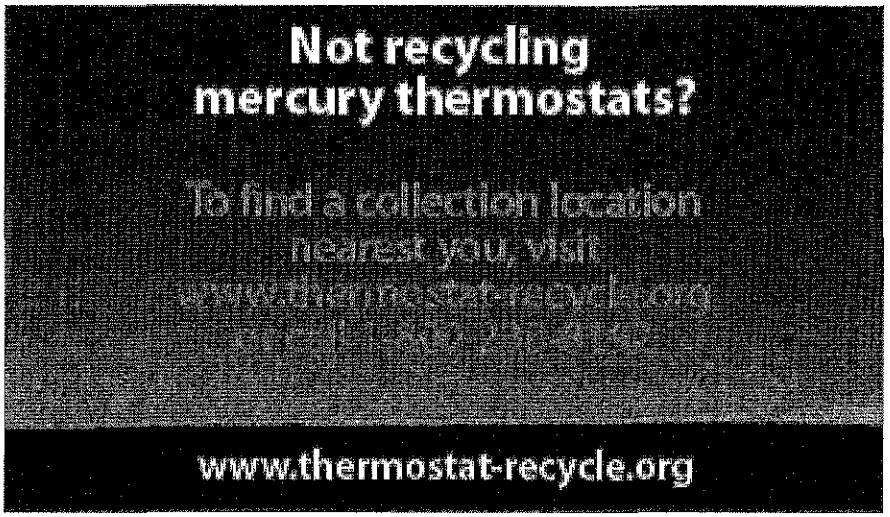
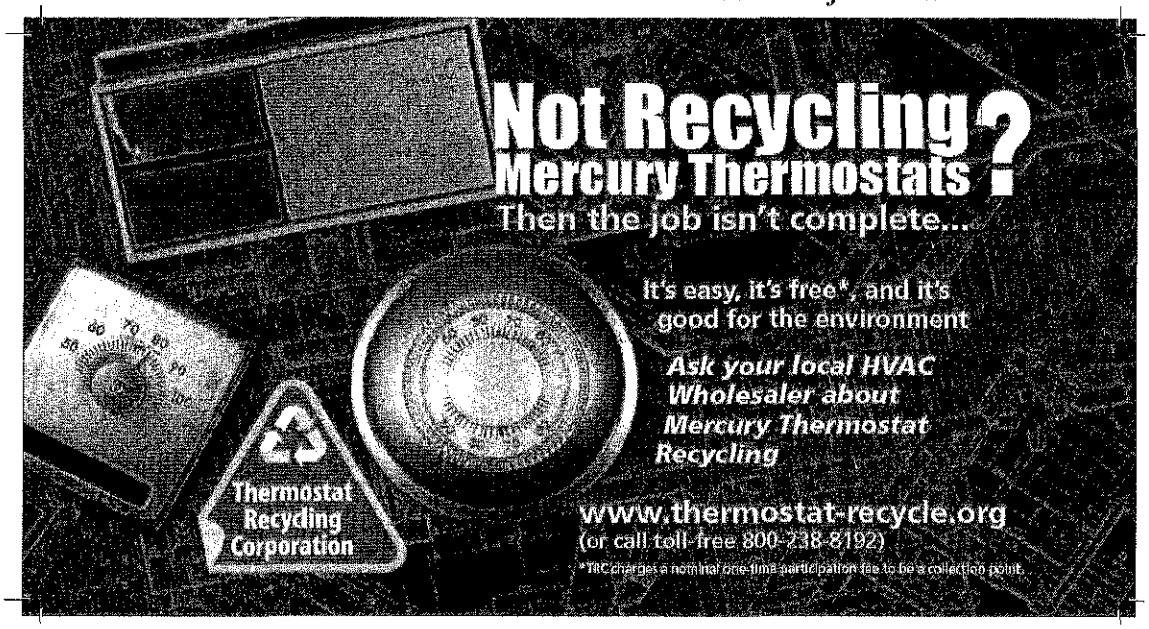


Exhibit 2: Print Advertisement *Indoor Comfort News*



Program Expenses

TRC program expenses for 2010 reflect changes in marketing strategy and certain one-time expenses that occurred in 2009. For instance, in 2009 TRC expended over $60,000 on the California study (reflected in "administration") on mercury thermostat disposal and over $20,000 in printing expense (reflected in "marketing") for incentive coupons as mandated by Maine and Vermont law.

TRC also shifted from certain paid advertising that was deemed not effective and instead emphasized industry events and trade shows. As such, travel increased significantly in 2010 as TRC staff (including a new full-time outreach staff person hired in November 2009) regularly attended both national and regional industry trade shows.

In 2010 TRC also began the development of new custom database and, while budgeted for 2010, less than 30% of the project expense was booked during the fiscal year and will be carried over to 2011.

Exhibit 3: 2010 Program Expenses

TRC Staff and Administration	$231,757
Recycling Costs	$300,096
Insurance	$17,771
Statutory Incentive Payments	$40,380
New Collection Containers	$18,219
Travel	$28,809
Direct Expenses for Marketing & Outreach	$76,696
Total	$713,728

TRC expenses include:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, legal, and other administrative expenses. Includes labor costs to implement California program.
- Insurance: Pollution and liability insurance.
- Travel: All travel in 2010 and includes travel to trade shows to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and data management.
- New Collection Containers: Direct cost for new containers ordered in 2010.
- Marketing/Outreach & Printing: Includes direct costs to develop and print program collateral; direct mail, website development, national and state advertising, sponsorships and other outreach activities. Marketing/Outreach does not include any TRC labor costs.

A copy of TRC's 2009 IRS Form 990 is attached in appendix H.

Recommendations/Next Steps

TRC was pleased with the program results in 2010. While in absolute numbers TRC still has much to accomplish, the rate in growth in collections is substantial.

In 2010 TRC recovered 13,340 whole thermostats from participating collection locations in California. TRC also recovered 4,207 mercury switches that had been removed from thermostats[1].

Overall, collections of whole thermostats are up 90% since the law's passage in 2008. Only collections in Maryland exceed California's total in 2010.

TRC also continued to add collection locations in 2010. At the end of 2009 there were 321 locations in California that had requested recycling containers. As of March 2010, the number had increased to 428. The majority of which were wholesale distributors.

Despite our success, much work remains to be done. The three most significant challenges to TRC are:

1. Collection point participation: TRC remains concerned with the level of participation among HVAC wholesale distributors. Out of the 500 plus recycling containers TRC had provided to collection points, only 144 were returned in 2010. While the program continues to add locations, it is the *active* collection of thermostats that is essential to the program's long term success. The program must be visible at the location and staff must be informed about the program and encourage participation.

TRC's challenge is that the collection locations are independent businesses that it has no control over. TRC has no enforcement authority and can not compel any collection location to take any action including ordering a container, shipping a container when full, or promoting the program.

2. Marketing to HVAC contractors and other stakeholders: Marketing to HVAC contractors remains challenging. The industry is diverse and is dominated by thousands of small contracting businesses that subsequently employee the technicians that are the primary generators of the waste.

3. Consumer facing promotion: As the Skumatz study indicated, the replacement of a mercury thermostat by a homeowner is likely a one-time event that may occur today or 15 years from now. Moreover, the study indicated that the vast majority of removals were conducted by professionals, not homeowners. Additionally, the disposal of waste thermostats occurs after the removal of the existing thermostat. As such, developing effective marketing strategies remains challenging.

[1] TRC strongly discourages the shipment of mercury switches removed from thermostats, however from time-to-time locations may ship them to TRC despite TRC policies prohibiting their shipment. TRC is unable to estimate the number of whole thermostats this represents as each thermostat may contain between 1 and 6 switches. Each switch contains 2.87 grams of mercury.

Looking towards 2011 and beyond, TRC has refined its marketing strategy and will be focusing on the following:

1. Directly engaging wholesale distributors: TRC has seen great success in California and other states where wholesale distributors actively promote the program to their customers. This entails doing more than required by law. TRC's new promotional tool-kit was the first step in this strategy. Our objective is to make it simple (and low-cost) for distributors to promote the program. Several large wholesale distributors see value in the TRC program and have embraced this concept. We see the cooperative partnership with HARDI as essential to this strategy. This relationship provides TRC direct access to key decision-makers at many wholesale distributors in the United States.

2. Leveraging member marketing channels: TRC is working with its member companies in developing strategies to leverage their marketing/sales channels to promote TRC. This may take the form of co-branded collateral promoting the program, award/recognition programs, or other activities that reinforce the importance and value of the program to distributors.

3. Expanding national and regional promotion of the program: In 2010 TRC attended ten national and/or regional industry events. TRC found significant value in attending national and some of the regional shows and will expand this effort in 2011. TRC also (see below for summary of specific activities) expanded the scope of its national/regional advertising in 2011.

4. At the state-level TRC sees opportunities to focus on key sectors in partnership with state regulators. Energy efficiency programs led to significant increases in collections in Maryland, Michigan, Kansas, and Texas in 2010 and we hope to build upon that in other states where opportunities exist. TRC also sees opportunities in encouraging collection point participation in collaboration with state regulators.

5. TRC is also committed to improvement in the program's "infrastructure." TRC will bring a new database into production in 2011 and this will lead to significant improvements in our ability to manage data (including the search tool on TRC's website). TRC is also developing additional collateral in 2011, including point-of-sale information, new advertising creative, and contractor materials.

6. TRC is exploring developing a consumer facing program that serves dual purpose of raising awareness among consumers on the need to recycle mercury thermostats and recognizing HVAC contractors that properly manage waste mercury thermostats. Initial plans are to leverage the channels afforded by new media, including social media in this effort.

In 2011, in support of this marketing strategy, TRC among other things will:

- Attend and exhibit at several national and regional industry trade shows (including the Greater Los Angeles Plumbing Heating Cooling Contractors trade show in March and the IAHCI show in November).

- Expand its advertising buy in www.contractingbusiness.com and www.hvac-talk.com to 4 months (spring and fall). TRC is also developing new creative for this campaign. TRC will repeat the advertising buy in *Indoor Comfort News* but with updated advertising copy

- Place a postcard insert in HVACR Business (April and September issues) that will go to 12,000 subscribers in states, including California, with mercury thermostat disposal bans and/or mandates for recycling.

- Update its website to recognize and promote HVAC distributor participation.

- Directly recruit HVAC distributor participation in the program and encourage distributors to actively promote the program to their customers.

- With HARDI, develop an award program that recognizes the HVAC distributors' contribution to the success of the program.

- Continue efforts to engage with other industry stakeholders and build support for the program.

Appendix A: Correspondence to National Demolition Association

[redacted] • [redacted] • [redacted]

Thermostat Recycling Corporation

www.[redacted]

May 4, 2010

John Lloyd
Vice President
Lloyd's Construction Services, Inc.
7207 West 128th Street
Savage, MN 55378

Dear Mr. Lloyd:

This letter is to serve as a follow-up to our email conversations regarding outreach efforts between the National Demolition Association (NDA) and the Thermostat Recycling Corporation (TRC).

We would like to thank you again for your efforts in presenting information about TRC to the Board of Directors as well as the Environmental Committee at the NDA 2010 Convention. We also appreciate NDA's website including a link and information on TRC's program. Once our website updates are complete, we plan on incorporating a link directing to NDA's website as well.

We look forward to continued collaboration on this issue. We welcome and appreciate the support and assistance.

Please feel free to contact me at mark_tibbetts@nemw.org or (703) 841-3243 if you need further assistance.

Thank you for your time.

Sincere Regards,

Mark Tibbetts
Executive Director

Appendix B: Correspondence to APWA Chapters

1333 North 17th Street • Suite 1102 • Arlington VA 22209 www.thermostat-recycle.org

September 20, 2010

Kevin McCune
President
APWA, Central Coast Chapter
100 Civic Center Plz # 8001
Lompoc, CA 93436

Dear Kevin McCune:

I am writing this letter to bring your attention to recently passed legislation (AB 2347) in California requiring the proper disposal of mercury thermostats. As you may be aware, mercury thermostats contain between 3 and 12 grams of mercury and it is illegal to throw them in the trash in California.

As an industry-supported non-profit, Thermostat Recycling Corporation (TRC) works to facilitate the collection and proper disposal of mercury thermostats. Under California law AB 2347, participation in TRC's waste mercury thermostat collection program is free for local governments. TRC will provide collection containers at no cost to any California local government for use at house hold hazardous waste collection facility or household hazardous waste event. Additionally, TRC assumes all costs to ship and recycle the waste mercury thermostats.

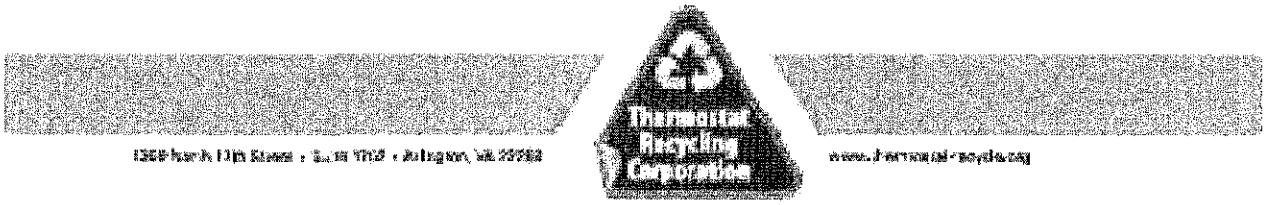
TRC seeks your assistance in getting the word out to your members to raise awareness about the issue and TRC's program. Included with this letter is the signup form for California HHW facilities to participate. Additionally, we have attached informational copy to use in a newsletter or online publication.

For more information on the TRC program, or to sign up for the program, please visit TRC's website at www.thermostat-recycle.org/California. TRC can be reached by email at TRC@thermostat-recycle.org or by calling the undersigned at 703-841-3243.

Sincere Regards,

Virginia Borchardt
Communications and Outreach

Appendix C, D, & E: Correspondence with HVAC Stakeholder Organizations



September 9, 2010

Dear :

This letter is to inform you of a law in California that may be of concern to your organization. The Mercury Thermostat Recycling Act of 2008 (A.B. 3347) requires all HVAC contractors that remove a mercury thermostat from service to take the waste thermostat to a collection location. Contractors are specifically prohibited from leaving mercury thermostats at a customers' premises.

As an industry-supported non-profit, Thermostat Recycling Corporation (TRC) works to facilitate the collection and proper disposal of this product at its end of life. The program provides HVAC contractors and homeowners a no-cost means to properly dispose of waste mercury thermostats. TRC accomplishes this through a simple reverse distribution program where HVAC wholesale distributors act as collection points for waste mercury thermostats. TRC is asking for your help in getting the word out to your members in California, with the goal of diverting as many mercury thermostats from the solid waste as possible.

Additionally, some HVAC contracting businesses have the option to directly participate in TRC. HVAC contracting businesses with 7 or more technicians or those that serve rural communities are eligible to sign up and collect mercury thermostats. After an initial fee of $25.00, TRC assumes all costs to ship and properly dispose of mercury thermostats as many times as collection locations find necessary.

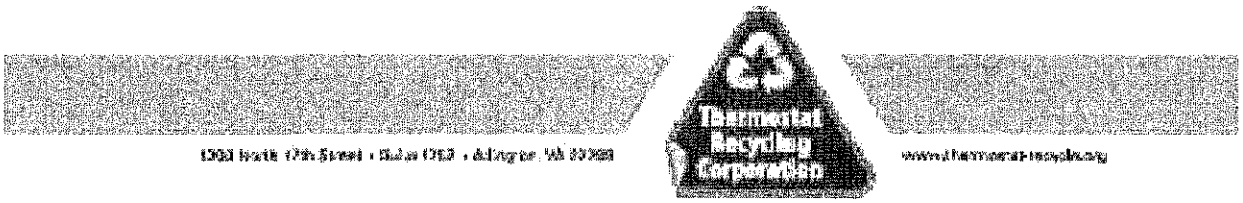
Included with this letter is short newsletter copy that can be used to bring awareness of California law and TRC. Though mercury thermostats aren't a significant source of pollution, they are an easily controlled one. We are asking your help in protecting California's environment by promoting the recycling of mercury thermostats to your members.

For more information on the TRC program, or to sign up for the program, please visit TRC's website at www.thermostat-recycle.org. TRC can be reached by email at TRC@thermostat-recycle.org or by calling the undersigned at 703-841-3243.

Sincere Regards,

Virginia Borcherdt
Communications and Outreach

Appendix F: Sample Correspondence to California HHW Locations



Contact
HHW Facility
Address
City, State Zip

Dear :

I am writing this letter to bring your attention to recently passed legislation (AB 2347) in California requiring the proper disposal of mercury thermostats. As you may be aware, mercury thermostats contain between 3 and 12 grams of mercury and it is illegal to throw them in the trash in California.

As an industry-supported non-profit, Thermostat Recycling Corporation (TRC) works to facilitate the collection and proper disposal of mercury thermostats. Under California law AB 2347, participation in TRC's waste mercury thermostat collection program is free for local governments. TRC will provide collection containers at no cost to any California local government for use at house hold hazardous waste collection facility or household hazardous waste event. Additionally, TRC assumes all costs to ship and recycle the waste mercury thermostats.

TRC encourages your location to sign-up to serve as a collection point. Included with this letter is the form for California HHW facilities to participate. Additionally, we have attached informational copy to use in a newsletter or online publication.

For more information on the TRC program, or to sign up for the program, please visit TRC's website at www.thermostat-recycle.org/California. TRC can be reached by email at TRC@thermostat-recycle.org or by calling the undersigned at 703-841-3243.

Sincere Regards,

Appendix G: Miscellaneous Media

IHACI NEWSbriefs

June 2010
Vol. 17 - Issue 6

The newsletter of the Institute of Heating & Air Conditioning Industries, Inc.
454 West Broadway Glendale, CA 818-551-1555 • E-mail: ihaci@ihaci.org • Internet: www.ihaci.org

Westlake Works With IHACI to Offer Property & Casualty, Liability & Workers Comp and Employee Benefits

Westlake Risk & Insurance Services (WRIS) in Westlake Village, Calif.-based independent insurance agency, whose goal is to assist policyholders in all insurance needs, from commercial coverage to personal lines. They have assessed the needs of members of the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) and offer a package of insurance products that properly either mitigate or transfer members' risk.

Steve Stanfield, CIC, president, WRIS, heads up the Property & Casualty, Liability & Workers Compensation for IHACI members. "Westlake Risk is dedicated to providing our commercial clients with the highest level of service they deserve," he said.

Included within the offered service platform are the following:

• Westlake Risk & Insurance along with IHACI have developed a customized insurance program with Golden Eagle Insurance, a subsidiary of Liberty Mutual for IHACI members. Members can maintain their prior relationships but need to provide information to agents on the coverage's offered;

• If Golden Eagle is unable to offer terms, Westlake Risk & Insurance has access to over 100 highly rated insurance carriers providing customized coverage's for

Continued on Page 8

IHACI's 26th Annual Spring Golf Tournament—Another Sellout!

By Peter Landau, Editor, Indoor Comfort News

On Monday, May 17, 2010, the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) celebrated its 26th Annual Spring Golf Tournament at the California Country Club in Whittier, Calif. Members of the heating, ventilation and air conditioning (HVAC) industry, from manufacturers and distributors to dealers, were on hand for a shotgun/scramble game of 18-hole golf, followed by cocktails, dinner and prizes.

An awards reception and raffle followed the awards dinner at which more than

First place winners, L-R: Ed Anderson, Steve Rustan and Mike Rustan. Rustan Brothers Air, Paul Alonso, WSJ CPA.

Continued on Page 8

Mercury Collection

The Department of Toxic Substances Control (DTSC) has issued a notice to contractors that the Mercury Thermostat Collection Act of 2008 became law on July 1, 2009. It requires that contractors and persons engaged in building demolition properly manage out-of-service mercury-added thermostats.

The Mercury Thermostat Collection Act of 2008 imposes requirements on "any contractor who installs heating, ventilation and air conditioning (HVAC) components and who removes a mercury-added thermostat." Contractors are required by law to handle and recycle out-of-service mercury-added thermostats in accordance with the Universal Waste Regulations found in California Code of Regulations, title 22, chapter 23. In addition, contractors must dispose of out-of-service mercury-added thermostats at a collection location that is operated in accordance with Universal Waste Regulations.

For information on the requirements for Universal Waste Regulations, please visit DTSC's universal waste web page at *www.dtsc.ca.gov/HazardousWaste/upload/UW_-thermostats_N3.pdf*.

Collection bins for out-of-service mercury-added thermostats are required by law to be provided at certain HVAC wholesaler locations in California. To find a HVAC wholesaler collection location near you, visit *www.thermostatrecycle.org*. Collection bins may also be found at local government agency household hazardous waste (HHW) collection facilities. To find a HHW collection facility near you, visit *www.dtsc.ca.gov/HazardousWaste/UniversalWaste/HHW.cfm*.

The DTSC has authority to enforce its requirements and will use this authority as appropriate to ensure compliance. Failure to comply may result in penalties up to $25,000 for each separate violation or, for continuing violations, for each day that a violation continues.

Additional information is available on DTSC's website at *www.dtsc.ca.gov/HazardousWaste/Mercury_Therm_Act.cfm*, or call (800) 728-6942.

WASTE & RECYCLING NEWS

RECYCLING BRIEFS

Scrap

Schnitzer to expand auto parts biz

A series of transactions will expand Schnitzer Steel Industries' auto parts business, the company said.

The company acquired most of the assets of Waco U-Pull-It Inc. of Waco, Texas; a facility in Stockton, Calif., that will be developed into a specialty self-service facility; and a property adjacent to one of the company's existing facilities in Portland, Ore., that will allow that facility to expand.

"These three transactions continue the expansion of the footprint of our auto parts business and demonstrate the disciplined execution of our stated strategy to develop scale in core supply regions to obtain scrap at the earliest stage of disposal," said Tamara Lundgren, CEO of Schnitzer Steel Industries.

The Waco acquisition adds to ESI's existing operations in the Dallas/Fort Worth area and in San Antonio. Lundgren called Texas "a high-growth market."

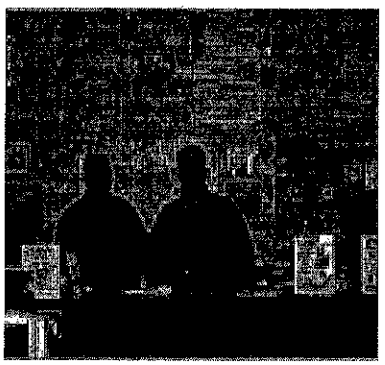
ESI's auto parts business sells used auto parts through 68 self-service facilities located in 14 states and in two Canadian provinces. The company also recycles and exports metals and has a steel manufacturing business.

Mercury Recycling

Two groups join to recycle thermostats

Two organizations are teaming up to properly dispose of old mercury-containing thermostats.

The Thermostat Recycling Corp. and Heating, Air Conditioning & Refrigeration Distributors International have formed a partnership



A Goodman customer service rep, Long Beach and Inset, Long Beach branch manager at Goodman and Her Cars and Coal Customers event.

d car show
ame time.
ith at one
ware on our

Hedges. "So, next May if you see in Long Beach and see lots of classic cars cruising down the road, drop in line behind them

Mercury Thermostat Collection Act of 2008

Sacramento, Calif.: The Department of Toxic Substances Control (DTSC) has issued a notice to contractors that the Mercury Thermostat Collection Act of 2008 became law on July 1, 2009. It requires that contractors and persons engaged in building demolition properly manage out-of-service mercury-added thermostats.

The Mercury Thermostat Collection Act of 2008 imposes requirements on "any contractor who installs heating, ventilation and air conditioning (HVAC) components and who removes a mercury-added thermostat." Contractors are required by law to handle and transport out-of-service mercury-added thermostats in accordance with the Universal Waste Regulations found in California Code of Regulations, title 22, chapter 23. In addition, contractors must dispose of out-of-service mercury-added thermostats at a collection location that is operated in accordance with Universal Waste Regulations.

For information on the requirements for Universal Waste Regulations, please visit DTSC's universal waste web page at

Continued on Page 8

Appendix H(1): Copy of Letter to HARDI Members

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

[redacted]

October 7, 2010

Dear Jess Hill:

If you have operations in California, Iowa, Illinois, Maine, Montana, New Hampshire, Pennsylvania, Rhode Island, or Vermont, please plan on visiting with Thermostat Recycling Corporation (TRC) staff at HARDI's Conference Booth Program on Monday, October 25, during HARDI's annual meeting in Houston, Texas. TRC staff will be at booth 429 and attending the full conference.

As you may be aware, these states have passed mercury thermostat legislation. Among other things, the legislation requires all HVAC wholesale distributors with facilities in these jurisdictions to act as a collection point for waste mercury-containing thermostats. While many wholesale distributors have taken advantage of TRC's program and ordered collection containers, many have not begun to actively collect mercury thermostats at all locations in these states.

Failing to act as a collection point could result in penalties that range from sales bans on residential controls to civil penalties up to $25,000 a day per facility.

TRC staff will be prepared to brief you on your specific legal requirements in each state, which of your facilities are signed up for the program, and the volume of thermostats collected at your locations. TRC staff will also explain how manufacturers, through TRC's take-back program, make compliance easy and nearly cost-free.

If you don't have legal obligations in the states where you have operations, participating in TRC's program is still a great way to promote your business as a "green business" and provide a valuable service to your customers with little direct cost to you. Please visit our booth and we can provide you with all the information you need to participate in and promote the TRC program.

For more information on TRC, please visit our website at www.thermostat-recycle.org. If you would like to speak with TRC staff in advance of HARDI's meeting, please do not hesitate to contact the undersigned at 703-841-3246 or at mark.tibbetts@nema.org.

Sincere Regards,

Mark Tibbetts
Executive Director

Appendix H: 2009 IRS 990

Form **990**

Department of the Treasury
Internal Revenue Service

Return of Organization Exempt From Income Tax

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except black lung benefit trust or private foundation)

▶ The organization may have to use a copy of this return to satisfy state reporting requirements.

OMB No. 1545-0047

2009

Open to Public Inspection

A For the 2009 calendar year, or tax year beginning and ending

B Check if applicable: ☐ Address change ☐ Name change ☐ Initial return ☐ Termin-ated ☐ Amended return ☐ Applica-tion pending

Please use IRS label or print or type. See Specific Instruc-tions.

C Name of organization: THERMOSTAT RECYCLING CORPORATION

Doing Business As: TRC

Number and street (or P.O. box if mail is not delivered to street address): 1300 NORTH 17TH STREET — Room/suite: 1752

City or town, state or country, and ZIP + 4: ARLINGTON, VA 22209

D Employer identification number: 54-1830284

E Telephone number: 703-841-3200

G Gross receipts $: 641,411.

F Name and address of principal officer: MARK TIBBETTS
SAME AS C ABOVE

H(a) Is this a group return for affiliates? ☐ Yes ☒ No

H(b) Are all affiliates included? ☐ Yes ☐ No
If "No," attach a list. (see instructions)

I Tax-exempt status: ☒ 501(c) (6) ◀ (insert no.) ☐ 4947(a)(1) or ☐ 527

J Website: ▶ WWW.THERMOSTAT-RECYCLE.ORG

H(c) Group exemption number ▶

K Form of organization: ☒ Corporation ☐ Trust ☐ Association ☐ Other ▶

L Year of formation: 1996 M State of legal domicile: DE

Part I Summary

1 Briefly describe the organization's mission or most significant activities: TO PROMOTE THE SAFE COLLECTION AND PROPER DISPOSAL OF MERCURY-CONTAINING THERMOSTATS.

2 Check this box ▶ ☐ if the organization discontinued its operations or disposed of more than 25% of its net assets.

Activities & Governance	3 Number of voting members of the governing body (Part VI, line 1a)	3	4
	4 Number of independent voting members of the governing body (Part VI, line 1b)	4	4
	5 Total number of employees (Part V, line 2a)	5	0
	6 Total number of volunteers (estimate if necessary)	6	0
	7a Total gross unrelated business revenue from Part VIII, column (C), line 12	7a	0.
	b Net unrelated business taxable income from Form 990-T, line 34	7b	0.

		Prior Year	Current Year
Revenue	8 Contributions and grants (Part VIII, line 1h)		
	9 Program service revenue (Part VIII, line 2g)	397,861.	640,464.
	10 Investment income (Part VIII, column (A), lines 3, 4, and 7d)	25.	847.
	11 Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)	475.	100.
	12 Total revenue - add lines 8 through 11 (must equal Part VIII, column (A), line 12)	398,361.	641,411.
Expenses	13 Grants and similar amounts paid (Part IX, column (A), lines 1-3)		
	14 Benefits paid to or for members (Part IX, column (A), line 4)		
	15 Salaries, other compensation, employee benefits (Part IX, column (A), lines 5-10)	69,358.	126,347.
	16a Professional fundraising fees (Part IX, column (A), line 11e)		
	b Total fundraising expenses (Part IX, column (D), line 25) ▶		
	17 Other expenses (Part IX, column (A), lines 11a-11d, 11f-24f)	311,186.	503,128.
	18 Total expenses. Add lines 13-17 (must equal Part IX, column (A), line 25)	380,544.	629,475.
	19 Revenue less expenses. Subtract line 18 from line 12	17,817.	11,936.

		Beginning of Current Year	End of Year
Net Assets or Fund Balances	20 Total assets (Part X, line 16)	91,519.	189,345.
	21 Total liabilities (Part X, line 26)	196,696.	282,586.
	22 Net assets or fund balances. Subtract line 21 from line 20	<105,177.>	<93,241.>

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

Sign Here

▶ Signature of officer — Date: 8/13/10

▶ MARK TIBBETTS, EXECUTIVE DIRECTOR
Type or print name and title

Paid Preparer's Use Only

Preparer's signature — Date: 8/12/10 — Check if self-employed ☐ — Preparer's identifying number (see instructions)

Firm's name (or yours if self-employed), address, and ZIP + 4: TATE AND TRYON
805 15TH STREET, NW SUITE 900
WASHINGTON, DC 20005

EIN ▶

Phone no. ▶ (202)293-2200

May the IRS discuss this return with the preparer shown above? (see instructions) ☒ Yes ☐ No

932001 02-04-10 LHA For Privacy Act and Paperwork Reduction Act Notice, see the separate instructions. Form 990 (2009)

Form **8868** (Rev. April 2009)
Department of the Treasury
Internal Revenue Service

Application for Extension of Time To File an Exempt Organization Return

▶ File a separate application for each return.

OMB No. 1545-1709

- If you are filing for an **Automatic 3-Month Extension, complete only Part I** and check this box ▶ [X]
- If you are filing for an **Additional (Not Automatic) 3-Month Extension, complete only Part II** (on page 2 of this form).

Do not complete Part II unless you have already been granted an automatic 3-month extension on a previously filed Form 8868.

Part I **Automatic 3-Month Extension of Time.** Only submit original (no copies needed).

A corporation required to file Form 990-T and requesting an automatic 6-month extension - check this box and complete Part I only ▶ [ ]

All other corporations (including 1120-C filers), partnerships, REMICs, and trusts must use Form 7004 to request an extension of time to file income tax returns.

Electronic Filing (e-file). Generally, you can electronically file Form 8868 if you want a 3-month automatic extension of time to file one of the returns noted below (6 months for a corporation required to file Form 990-T). However, you cannot file Form 8868 electronically if (1) you want the additional (not automatic) 3-month extension or (2) you file Forms 990-BL, 6069, or 8870, group returns, or a composite or consolidated Form 990-T. Instead, you must submit the fully completed and signed page 2 (Part II) of Form 8868. For more details on the electronic filing of this form, visit *www.irs.gov/efile* and click on *e-file for Charities & Nonprofits.*

Type or print	Name of Exempt Organization	Employer identification number
	THERMOSTAT RECYCLING CORPORATION	54-1830284
File by the due date for filing your return. See instructions.	Number, street, and room or suite no. If a P.O. box, see instructions. 1300 NORTH 17TH STREET, NO. 1752	
	City, town or post office, state, and ZIP code. For a foreign address, see instructions. ARLINGTON, VA 22209	

Check type of return to be filed (file a separate application for each return):

[X] Form 990	[ ] Form 990-T (corporation)	[ ] Form 4720
[ ] Form 990-BL	[ ] Form 990-T (sec. 401(a) or 408(a) trust)	[ ] Form 5227
[ ] Form 990-EZ	[ ] Form 990-T (trust other than above)	[ ] Form 6069
[ ] Form 990-PF	[ ] Form 1041-A	[ ] Form 8870

- The books are in the care of ▶ MARK TIBBETTS 1300 NORTH 17TH STREET, NO. 1752 - ARLINGTON, VA 22209
  Telephone No. ▶ 703-841-3200 FAX No. ▶
- If the organization does not have an office or place of business in the United States, check this box ▶ [ ]
- If this is for a Group Return, enter the organization's four digit Group Exemption Number (GEN) _____. If this is for the whole group, check this box ▶ [ ]. If it is for part of the group, check this box ▶ [ ] and attach a list with the names and EINs of all members the extension will cover.

1 I request an automatic 3-month (6-months for a corporation required to file Form 990-T) extension of time until AUGUST 15, 2010, to file the exempt organization return for the organization named above. The extension is for the organization's return for:
▶ [X] calendar year 2009 or
▶ [ ] tax year beginning _____, and ending _____.

2 If this tax year is for less than 12 months, check reason: [ ] Initial return [ ] Final return [ ] Change in accounting period

3a	If this application is for Form 990-BL, 990-PF, 990-T, 4720, or 6069, enter the tentative tax, less any nonrefundable credits. See instructions.	3a	$
b	If this application is for Form 990-PF or 990-T, enter any refundable credits and estimated tax payments made. Include any prior year overpayment allowed as a credit.	3b	$
c	**Balance Due.** Subtract line 3b from line 3a. Include your payment with this form, or, if required, deposit with FTD coupon or, if required, by using EFTPS (Electronic Federal Tax Payment System). See instructions.	3c	$ N/A

Caution. If you are going to make an electronic fund withdrawal with this Form 8868, see Form 8453-EO and Form 8879-EO for payment instructions.

LHA **For Privacy Act and Paperwork Reduction Act Notice, see instructions.** Form **8868** (Rev. 4-2009)

923831

Form 990 (2009) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 2

Part III Statement of Program Service Accomplishments

1 Briefly describe the organization's mission:
TO PROMOTE THE SAFE COLLECTION AND PROPER DISPOSAL OF MERCURY-CONTAINING THERMOSTATS.

2 Did the organization undertake any significant program services during the year which were not listed on the prior Form 990 or 990-EZ? ☐ Yes ☒ No
If "Yes," describe these new services on Schedule O.

3 Did the organization cease conducting, or make significant changes in how it conducts, any program services? ☐ Yes ☒ No
If "Yes," describe these changes on Schedule O.

4 Describe the exempt purpose achievements for each of the organization's three largest program services by expenses. Section 501(c)(3) and 501(c)(4) organizations and section 4947(a)(1) trusts are required to report the amount of grants and allocations to others, the total expenses, and revenue, if any, for each program service reported.

4a (Code:) (Expenses $ Including grants of $) (Revenue $)
TRC FACILITATES THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS BY PROVIDING RECYCLING CONTAINERS FOR THE COLLECTION AND TRANSPORT OF WASTE MERCURY THERMOSTATS TO ELIGIBLE COLLECTION SITES IN ALL US STATES, EXCEPT ALASKA AND HAWAII. TRC ALSO CONDUCTS AN EDUCATIONAL CAMPAIGN PROMOTING THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS. TRC RECOVERED 155,000 MERCURY THERMOSTATS IN 2009 FROM OVER 1000 COLLECTION SITES. THIS EFFORT DIVERTED ALMOST 1500 POUNDS OF MERCURY FROM SOLID WASTE.

4b (Code:) (Expenses $ Including grants of $) (Revenue $)

4c (Code:) (Expenses $ Including grants of $) (Revenue $)

4d Other program services. (Describe in Schedule O.)
(Expenses $ Including grants of $) (Revenue $)

4e Total program service expenses ▶ $

Part IV Checklist of Required Schedules

			Yes	No
1	Is the organization described in section 501(c)(3) or 4947(a)(1) (other than a private foundation)? *If "Yes," complete Schedule A*	1		X
2	Is the organization required to complete Schedule B, Schedule of Contributors?	2		X
3	Did the organization engage in direct or indirect political campaign activities on behalf of or in opposition to candidates for public office? *If "Yes," complete Schedule C, Part I*	3		X
4	**Section 501(c)(3) organizations.** Did the organization engage in lobbying activities? *If "Yes," complete Schedule C, Part II*	4		
5	**Section 501(c)(4), 501(c)(5), and 501(c)(6) organizations.** Is the organization subject to the section 6033(e) notice and reporting requirement and proxy tax? *If "Yes," complete Schedule C, Part III*	5		X
6	Did the organization maintain any donor advised funds or any similar funds or accounts where donors have the right to provide advice on the distribution or investment of amounts in such funds or accounts? *If "Yes," complete Schedule D, Part I*	6		X
7	Did the organization receive or hold a conservation easement, including easements to preserve open space, the environment, historic land areas, or historic structures? *If "Yes," complete Schedule D, Part II*	7		X
8	Did the organization maintain collections of works of art, historical treasures, or other similar assets? *If "Yes," complete Schedule D, Part III*	8		X
9	Did the organization report an amount in Part X, line 21; serve as a custodian for amounts not listed in Part X; or provide credit counseling, debt management, credit repair, or debt negotiation services? *If "Yes," complete Schedule D, Part IV*	9		X
10	Did the organization, directly or through a related organization, hold assets in term, permanent, or quasi-endowments? *If "Yes," complete Schedule D, Part V*	10		X
11	Is the organization's answer to any of the following questions "Yes"? *If so, complete Schedule D, Parts VI, VII, VIII, IX, or X as applicable*	11		X
	• Did the organization report an amount for land, buildings, and equipment in Part X, line 10? *If "Yes," complete Schedule D, Part VI.*			
	• Did the organization report an amount for investments - other securities in Part X, line 12 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VII.*			
	• Did the organization report an amount for investments - program related in Part X, line 13 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VIII.*			
	• Did the organization report an amount for other assets in Part X, line 15 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part IX.*			
	• Did the organization report an amount for other liabilities in Part X, line 25? *If "Yes," complete Schedule D, Part X.*			
	• Did the organization's separate or consolidated financial statements for the tax year include a footnote that addresses the organization's liability for uncertain tax positions under FIN 48? *If "Yes," complete Schedule D, Part X.*			
12	Did the organization obtain separate, independent audited financial statements for the tax year? *If "Yes," complete Schedule D, Parts XI, XII, and XIII.*	12		X
12A	Was the organization included in consolidated, independent audited financial statements for the tax year? *If "Yes," completing Schedule D, Parts XI, XII, and XIII is optional* (Yes / No: No)	12A		X
13	Is the organization a school described in section 170(b)(1)(A)(ii)? *If "Yes," complete Schedule E*	13		X
14a	Did the organization maintain an office, employees, or agents outside of the United States?	14a		X
b	Did the organization have aggregate revenues or expenses of more than $10,000 from grantmaking, fundraising, business, and program service activities outside the United States? *If "Yes," complete Schedule F, Part I*	14b		X
15	Did the organization report on Part IX, column (A), line 3, more than $5,000 of grants or assistance to any organization or entity located outside the United States? *If "Yes," complete Schedule F, Part II*	15		X
16	Did the organization report on Part IX, column (A), line 3, more than $5,000 of aggregate grants or assistance to individuals located outside the United States? *If "Yes," complete Schedule F, Part III*	16		X
17	Did the organization report a total of more than $15,000 of expenses for professional fundraising services on Part IX, column (A), lines 6 and 11e? *If "Yes," complete Schedule G, Part I*	17		X
18	Did the organization report more than $15,000 total of fundraising event gross income and contributions on Part VIII, lines 1c and 8a? *If "Yes," complete Schedule G, Part II*	18		X
19	Did the organization report more than $15,000 of gross income from gaming activities on Part VIII, line 9a? *If "Yes," complete Schedule G, Part III*	19		X
20	Did the organization operate one or more hospitals? *If "Yes," complete Schedule H*	20		X

Part IV Checklist of Required Schedules *(continued)*

			Yes	No
21	Did the organization report more than $5,000 of grants and other assistance to governments and organizations in the United States on Part IX, column (A), line 1? *If "Yes," complete Schedule I, Parts I and II*	21		X
22	Did the organization report more than $5,000 of grants and other assistance to individuals in the United States on Part IX, column (A), line 2? *If "Yes," complete Schedule I, Parts I and III*	22		X
23	Did the organization answer "Yes" to Part VII, Section A, line 3, 4, or 5 about compensation of the organization's current and former officers, directors, trustees, key employees, and highest compensated employees? *If "Yes," complete Schedule J*	23	X	
24a	Did the organization have a tax-exempt bond issue with an outstanding principal amount of more than $100,000 as of the last day of the year, that was issued after December 31, 2002? *If "Yes," answer lines 24b through 24d and complete Schedule K. If "No", go to line 25*	24a		X
b	Did the organization invest any proceeds of tax-exempt bonds beyond a temporary period exception?	24b		
c	Did the organization maintain an escrow account other than a refunding escrow at any time during the year to defease any tax-exempt bonds?	24c		
d	Did the organization act as an "on behalf of" issuer for bonds outstanding at any time during the year?	24d		
25a	**Section 501(c)(3) and 501(c)(4) organizations.** Did the organization engage in an excess benefit transaction with a disqualified person during the year? *If "Yes," complete Schedule L, Part I*	25a		
b	Is the organization aware that it engaged in an excess benefit transaction with a disqualified person in a prior year, and that the transaction has not been reported on any of the organization's prior Forms 990 or 990-EZ? *If "Yes," complete Schedule L, Part I*	25b		
26	Was a loan to or by a current or former officer, director, trustee, key employee, highly compensated employee, or disqualified person outstanding as of the end of the organization's tax year? *If "Yes," complete Schedule L, Part II*	26		X
27	Did the organization provide a grant or other assistance to an officer, director, trustee, key employee, substantial contributor, or a grant selection committee member, or to a person related to such an individual? *If "Yes," complete Schedule L, Part III*	27		X
28	Was the organization a party to a business transaction with one of the following parties, (see Schedule L, Part IV instructions for applicable filing thresholds, conditions, and exceptions):			
a	A current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28a		X
b	A family member of a current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28b		X
c	An entity of which a current or former officer, director, trustee, or key employee of the organization (or a family member) was an officer, director, trustee, or direct or indirect owner? *If "Yes," complete Schedule L, Part IV*	28c		X
29	Did the organization receive more than $25,000 in non-cash contributions? *If "Yes," complete Schedule M*	29		X
30	Did the organization receive contributions of art, historical treasures, or other similar assets, or qualified conservation contributions? *If "Yes," complete Schedule M*	30		X
31	Did the organization liquidate, terminate, or dissolve and cease operations? *If "Yes," complete Schedule N, Part I*	31		X
32	Did the organization sell, exchange, dispose of, or transfer more than 25% of its net assets? *If "Yes," complete Schedule N, Part II*	32		X
33	Did the organization own 100% of an entity disregarded as separate from the organization under Regulations sections 301.7701-2 and 301.7701-3? *If "Yes," complete Schedule R, Part I*	33		X
34	Was the organization related to any tax-exempt or taxable entity? *If "Yes," complete Schedule R, Parts II, III, IV, and V, line 1*	34		X
35	Is any related organization a controlled entity within the meaning of section 512(b)(13)? *If "Yes," complete Schedule R, Part V, line 2*	35		X
36	**Section 501(c)(3) organizations.** Did the organization make any transfers to an exempt non-charitable related organization? *If "Yes," complete Schedule R, Part V, line 2*	36		
37	Did the organization conduct more than 5% of its activities through an entity that is not a related organization and that is treated as a partnership for federal income tax purposes? *If "Yes," complete Schedule R, Part VI*	37		X
38	Did the organization complete Schedule O and provide explanations in Schedule O for Part VI, lines 11 and 19? Note. All Form 990 filers are required to complete Schedule O.	38	X	

Part V Statements Regarding Other IRS Filings and Tax Compliance

				Yes	No
1a	Enter the number reported in Box 3 of Form 1096, Annual Summary and Transmittal of U.S. Information Returns. Enter -0- if not applicable	1a	3		
b	Enter the number of Forms W-2G included in line 1a. Enter -0- if not applicable	1b	0		
c	Did the organization comply with backup withholding rules for reportable payments to vendors and reportable gaming (gambling) winnings to prize winners?		1c	X	
2a	Enter the number of employees reported on Form W-3, Transmittal of Wage and Tax Statements, filed for the calendar year ending with or within the year covered by this return	2a	0		
b	If at least one is reported on line 2a, did the organization file all required federal employment tax returns?		2b		
	Note. If the sum of lines 1a and 2a is greater than 250, you may be required to *e-file* this return. (see instructions)				
3a	Did the organization have unrelated business gross income of $1,000 or more during the year covered by this return?		3a		X
b	If "Yes," has it filed a Form 990-T for this year? *If "No," provide an explanation in Schedule O*		3b		
4a	At any time during the calendar year, did the organization have an interest in, or a signature or other authority over, a financial account in a foreign country (such as a bank account, securities account, or other financial account)?		4a		X
b	If "Yes," enter the name of the foreign country: ▶				
	See the instructions for exceptions and filing requirements for Form TD F 90-22.1, Report of Foreign Bank and Financial Accounts.				
5a	Was the organization a party to a prohibited tax shelter transaction at any time during the tax year?		5a		X
b	Did any taxable party notify the organization that it was or is a party to a prohibited tax shelter transaction?		5b		X
c	If "Yes," to line 5a or 5b, did the organization file Form 8886-T, Disclosure by Tax-Exempt Entity Regarding Prohibited Tax Shelter Transaction?		5c		
6a	Does the organization have annual gross receipts that are normally greater than $100,000, and did the organization solicit any contributions that were not tax deductible?		6a		X
b	If "Yes," did the organization include with every solicitation an express statement that such contributions or gifts were not tax deductible?		6b		
7	**Organizations that may receive deductible contributions under section 170(c).**				
a	Did the organization receive a payment in excess of $75 made partly as a contribution and partly for goods and services provided to the payor?		7a		
b	If "Yes," did the organization notify the donor of the value of the goods or services provided?		7b		
c	Did the organization sell, exchange, or otherwise dispose of tangible personal property for which it was required to file Form 8282?		7c		
d	If "Yes," indicate the number of Forms 8282 filed during the year	7d			
e	Did the organization, during the year, receive any funds, directly or indirectly, to pay premiums on a personal benefit contract?		7e		
f	Did the organization, during the year, pay premiums, directly or indirectly, on a personal benefit contract?		7f		
g	For all contributions of qualified intellectual property, did the organization file Form 8899 as required?		7g		
h	For contributions of cars, boats, airplanes, and other vehicles, did the organization file a Form 1098-C as required?		7h		
8	**Sponsoring organizations maintaining donor advised funds and section 509(a)(3) supporting organizations.** Did the supporting organization, or a donor advised fund maintained by a sponsoring organization, have excess business holdings at any time during the year?		8		
9	**Sponsoring organizations maintaining donor advised funds.**				
a	Did the organization make any taxable distributions under section 4966?		9a		
b	Did the organization make a distribution to a donor, donor advisor, or related person?		9b		
10	**Section 501(c)(7) organizations.** Enter:				
a	Initiation fees and capital contributions included on Part VIII, line 12	10a			
b	Gross receipts, included on Form 990, Part VIII, line 12, for public use of club facilities	10b			
11	**Section 501(c)(12) organizations.** Enter:				
a	Gross income from members or shareholders	11a			
b	Gross income from other sources (Do not net amounts due or paid to other sources against amounts due or received from them.)	11b			
12a	**Section 4947(a)(1) non-exempt charitable trusts.** Is the organization filing Form 990 in lieu of Form 1041?		12a		
b	If "Yes," enter the amount of tax-exempt interest received or accrued during the year	12b			

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02-04-10

Part VI Governance, Management, and Disclosure *For each "Yes" response to lines 2 through 7b below, and for a "No" response to line 8a, 8b, or 10b below, describe the circumstances, processes, or changes in Schedule O. See instructions.*

Section A. Governing Body and Management

				Yes	No
1a	Enter the number of voting members of the governing body	1a	4		
b	Enter the number of voting members that are independent	1b	4		
2	Did any officer, director, trustee, or key employee have a family relationship or a business relationship with any other officer, director, trustee, or key employee?	2			X
3	Did the organization delegate control over management duties customarily performed by or under the direct supervision of officers, directors or trustees, or key employees to a management company or other person?	3			X
4	Did the organization make any significant changes to its organizational documents since the prior Form 990 was filed?	4		X	
5	Did the organization become aware during the year of a material diversion of the organization's assets?	5			X
6	Does the organization have members or stockholders?	6		X	
7a	Does the organization have members, stockholders, or other persons who may elect one or more members of the governing body?	7a		X	
b	Are any decisions of the governing body subject to approval by members, stockholders, or other persons?	7b		X	
8	Did the organization contemporaneously document the meetings held or written actions undertaken during the year by the following:				
a	The governing body?	8a		X	
b	Each committee with authority to act on behalf of the governing body?	8b		X	
9	Is there any officer, director, trustee, or key employee listed in Part VII, Section A, who cannot be reached at the organization's mailing address? *If "Yes," provide the names and addresses in Schedule O*	9			X

Section B. Policies *(This Section B requests information about policies not required by the Internal Revenue Code.)*

			Yes	No
10a	Does the organization have local chapters, branches, or affiliates?	10a		X
b	If "Yes," does the organization have written policies and procedures governing the activities of such chapters, affiliates, and branches to ensure their operations are consistent with those of the organization?	10b		
11	Has the organization provided a copy of this Form 990 to all members of its governing body before filing the form?	11	X	
11A	Describe in Schedule O the process, if any, used by the organization to review this Form 990.			
12a	Does the organization have a written conflict of interest policy? *If "No," go to line 13*	12a	X	
b	Are officers, directors or trustees, and key employees required to disclose annually interests that could give rise to conflicts?	12b		X
c	Does the organization regularly and consistently monitor and enforce compliance with the policy? *If "Yes," describe in Schedule O how this is done*	12c		X
13	Does the organization have a written whistleblower policy?	13	X	
14	Does the organization have a written document retention and destruction policy?	14	X	
15	Did the process for determining compensation of the following persons include a review and approval by independent persons, comparability data, and contemporaneous substantiation of the deliberation and decision?			
a	The organization's CEO, Executive Director, or top management official	15a		X
b	Other officers or key employees of the organization	15b		X
	If "Yes" to line 15a or 15b, describe the process in Schedule O. (See instructions.)			
16a	Did the organization invest in, contribute assets to, or participate in a joint venture or similar arrangement with a taxable entity during the year?	16a		X
b	If "Yes," has the organization adopted a written policy or procedure requiring the organization to evaluate its participation in joint venture arrangements under applicable federal tax law, and taken steps to safeguard the organization's exempt status with respect to such arrangements?	16b		

Section C. Disclosure

17 List the states with which a copy of this Form 990 is required to be filed ▶ CA

18 Section 6104 requires an organization to make its Forms 1023 (or 1024 if applicable), 990, and 990-T (501(c)(3)s only) available for public inspection. Indicate how you make these available. Check all that apply.

☐ Own website ☐ Another's website ☒ Upon request

19 Describe in Schedule O whether (and if so, how), the organization makes its governing documents, conflict of interest policy, and financial statements available to the public.

20 State the name, physical address, and telephone number of the person who possesses the books and records of the organization: ▶

MARK TIBBETTS - 703-841-3200

1300 NORTH 17TH STREET, NO. 1752, ARLINGTON, VA 22209

Part VII Compensation of Officers, Directors, Trustees, Key Employees, Highest Compensated Employees, and Independent Contractors

Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees

1a Complete this table for all persons required to be listed. Report compensation for the calendar year ending with or within the organization's tax year. Use Schedule J-2 if additional space is needed.

- List all of the organization's **current** officers, directors, trustees (whether individuals or organizations), regardless of amount of compensation. Enter -0- in columns (D), (E), and (F) if no compensation was paid.
- List all of the organization's **current** key employees. See instructions for definition of "key employee."
- List the organization's five **current** highest compensated employees (other than an officer, director, trustee, or key employee) who received reportable compensation (Box 5 of Form W-2 and/or Box 7 of Form 1099-MISC) of more than $100,000 from the organization and any related organizations.
- List all of the organization's **former** officers, key employees, and highest compensated employees who received more than $100,000 of reportable compensation from the organization and any related organizations.
- List all of the organization's **former directors or trustees** that received, in the capacity as a former director or trustee of the organization, more than $10,000 of reportable compensation from the organization and any related organizations.

List persons in the following order: individual trustees or directors; institutional trustees; officers; key employees; highest compensated employees; and former such persons.

☐ Check this box if the organization did not compensate any current officer, director, or trustee.

(A) Name and Title	(B) Average hours per week	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
DAN O'DONNELL CHAIR	5.00	X		X				0.	0.	0.
JOHN SARTAIN VICE CHAIR/TREASURER	5.00	X		X				0.	0.	0.
MIKE DREVYANKO SECRETARY	5.00	X		X				0.	0.	0.
ROBERT JOHNSON TRUSTEE	5.00	X						0.	0.	0.
MARK TIBBETTS EXECUTIVE DIRECTOR	30.00			X				79,951.	0.	0.

Form 990 (2009) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 8

Part VII Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees *(continued)*

(A) Name and title	(B) Average hours per week	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
1b Total ▶								79,951.	0.	0.

2 Total number of individuals (including but not limited to those listed above) who received more than $100,000 in reportable compensation from the organization ▶ 0

		Yes	No
3	Did the organization list any former officer, director or trustee, key employee, or highest compensated employee on line 1a? *If "Yes," complete Schedule J for such individual*		X
4	For any individual listed on line 1a, is the sum of reportable compensation and other compensation from the organization and related organizations greater than $150,000? *If "Yes," complete Schedule J for such individual*		X
5	Did any person listed on line 1a receive or accrue compensation from any unrelated organization for services rendered to the organization? *If "Yes," complete Schedule J for such person*	X	

Section B. Independent Contractors

1 Complete this table for your five highest compensated independent contractors that received more than $100,000 of compensation from the organization. NONE

(A) Name and business address	(B) Description of services	(C) Compensation

2 Total number of independent contractors (including but not limited to those listed above) who received more than $100,000 in compensation from the organization ▶ 0

Form **990** (2009)

932008 02-04-10

Form 990 (2009) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 9

Part VIII Statement of Revenue

			(A) Total revenue	(B) Related or exempt function revenue	(C) Unrelated business revenue	(D) Revenue excluded from tax under sections 512, 513, or 514
Contributions, gifts, grants and other similar amounts	1a Federated campaigns	1a				
	b Membership dues	1b				
	c Fundraising events	1c				
	d Related organizations	1d				
	e Government grants (contributions)	1e				
	f All other contributions, gifts, grants, and similar amounts not included above	1f				
	g Noncash contributions included in lines 1a-1f: $					
	h Total. Add lines 1a-1f					
Program Service Revenue		Business Code				
	2a MEMBERSHIP DUES	900099	613,364.	613,364.		
	b SITE PARTICIPATION FEE	900099	27,100.	27,100.		
	c					
	d					
	e					
	f All other program service revenue					
	g Total. Add lines 2a-2f		640,464.			
Other Revenue	3 Investment income (including dividends, interest, and other similar amounts)		847.			847.
	4 Income from investment of tax-exempt bond proceeds					
	5 Royalties					
		(i) Real	(ii) Personal			
	6a Gross Rents					
	b Less: rental expenses					
	c Rental income or (loss)					
	d Net rental income or (loss)					
		(i) Securities	(ii) Other			
	7a Gross amount from sales of assets other than inventory					
	b Less: cost or other basis and sales expenses					
	c Gain or (loss)					
	d Net gain or (loss)					
	8a Gross income from fundraising events (not including $ ____ of contributions reported on line 1c). See Part IV, line 18	a				
	b Less: direct expenses	b				
	c Net income or (loss) from fundraising events					
	9a Gross income from gaming activities. See Part IV, line 19	a				
	b Less: direct expenses	b				
	c Net income or (loss) from gaming activities					
	10a Gross sales of inventory, less returns and allowances	a				
	b Less: cost of goods sold	b				
	c Net income or (loss) from sales of inventory					
	Miscellaneous Revenue	Business Code				
	11a MISCELLANEOUS INCOME	900099	100.			100.
	b					
	c					
	d All other revenue					
	e Total. Add lines 11a-11d		100.			
	12 Total revenue. See instructions.		641,411.	640,464.	0.	947.

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Form 990 (2009)

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Part IX Statement of Functional Expenses

Section 501(c)(3) and 501(c)(4) organizations must complete all columns.
All other organizations must complete column (A) but are not required to complete columns (B), (C), and (D).

Do not include amounts reported on lines 6b, 7b, 8b, 9b, and 10b of Part VIII.	(A) Total expenses	(B) Program service expenses	(C) Management and general expenses	(D) Fundraising expenses
1 Grants and other assistance to governments and organizations in the U.S. See Part IV, line 21				
2 Grants and other assistance to individuals in the U.S. See Part IV, line 22				
3 Grants and other assistance to governments, organizations, and individuals outside the U.S. See Part IV, lines 15 and 16				
4 Benefits paid to or for members				
5 Compensation of current officers, directors, trustees, and key employees	79,951.			
6 Compensation not included above, to disqualified persons (as defined under section 4958(f)(1)) and persons described in section 4958(c)(3)(B)				
7 Other salaries and wages	46,396.			
8 Pension plan contributions (include section 401(k) and section 403(b) employer contributions)				
9 Other employee benefits				
10 Payroll taxes				
11 Fees for services (non-employees):				
a Management				
b Legal	15,745.			
c Accounting	7,875.			
d Lobbying				
e Professional fundraising services. See Part IV, line 17				
f Investment management fees				
g Other	66,848.			
12 Advertising and promotion	46,576.			
13 Office expenses	49,648.			
14 Information technology	10,533.			
15 Royalties				
16 Occupancy				
17 Travel	16,105.			
18 Payments of travel or entertainment expenses for any federal, state, or local public officials				
19 Conferences, conventions, and meetings	400.			
20 Interest				
21 Payments to affiliates				
22 Depreciation, depletion, and amortization				
23 Insurance	18,706.			
24 Other expenses. Itemize expenses not covered above. (Expenses grouped together and labeled miscellaneous may not exceed 5% of total expenses shown on line 25 below.)				
a HONEYWELL REIMBURSEMENT	222,755.			
b INCENTIVE PAYMENTS	27,331.			
c BINS EXPENSE	18,130.			
d SPONSORSHIP AND MEMBERS	1,080.			
e MISCELLANEOUS	846.			
f All other expenses	550.			
25 Total functional expenses. Add lines 1 through 24f	629,475.			
26 Joint costs. Check here ▶ ☐ if following SOP 98-2. Complete this line only if the organization reported in column (B) joint costs from a combined educational campaign and fundraising solicitation ...				

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Part X Balance Sheet

			(A) Beginning of year		(B) End of year
Assets	1	Cash - non-interest-bearing	91,519.	1	88,347.
	2	Savings and temporary cash investments		2	100,673.
	3	Pledges and grants receivable, net		3	
	4	Accounts receivable, net		4	325.
	5	Receivables from current and former officers, directors, trustees, key employees, and highest compensated employees. Complete Part II of Schedule L		5	
	6	Receivables from other disqualified persons (as defined under section 4958(f)(1)) and persons described in section 4958(c)(3)(B). Complete Part II of Schedule L		6	
	7	Notes and loans receivable, net		7	
	8	Inventories for sale or use		8	
	9	Prepaid expenses and deferred charges		9	
	10a	Land, buildings, and equipment: cost or other basis. Complete Part VI of Schedule D — 10a			
	b	Less: accumulated depreciation — 10b		10c	
	11	Investments - publicly traded securities		11	
	12	Investments - other securities. See Part IV, line 11		12	
	13	Investments - program-related. See Part IV, line 11		13	
	14	Intangible assets		14	
	15	Other assets. See Part IV, line 11		15	
	16	Total assets. Add lines 1 through 15 (must equal line 34)	91,519.	16	189,345.
Liabilities	17	Accounts payable and accrued expenses	196,696.	17	282,586.
	18	Grants payable		18	
	19	Deferred revenue		19	
	20	Tax-exempt bond liabilities		20	
	21	Escrow or custodial account liability. Complete Part IV of Schedule D		21	
	22	Payables to current and former officers, directors, trustees, key employees, highest compensated employees, and disqualified persons. Complete Part II of Schedule L		22	
	23	Secured mortgages and notes payable to unrelated third parties		23	
	24	Unsecured notes and loans payable to unrelated third parties		24	
	25	Other liabilities. Complete Part X of Schedule D		25	
	26	Total liabilities. Add lines 17 through 25	196,696.	26	282,586.
Net Assets or Fund Balances		Organizations that follow SFAS 117, check here ▶ [X] and complete lines 27 through 29, and lines 33 and 34.			
	27	Unrestricted net assets	<105,177.>	27	<93,241.>
	28	Temporarily restricted net assets		28	
	29	Permanently restricted net assets		29	
		Organizations that do not follow SFAS 117, check here ▶ [ ] and complete lines 30 through 34.			
	30	Capital stock or trust principal, or current funds		30	
	31	Paid-in or capital surplus, or land, building, or equipment fund		31	
	32	Retained earnings, endowment, accumulated income, or other funds		32	
	33	Total net assets or fund balances	<105,177.>	33	<93,241.>
	34	Total liabilities and net assets/fund balances	91,519.	34	189,345.

Form 990 (2009)

Part XI Financial Statements and Reporting

			Yes	No
1	Accounting method used to prepare the Form 990: ☐ Cash ☒ Accrual ☐ Other _____ If the organization changed its method of accounting from a prior year or checked "Other," explain in Schedule O.			
2a	Were the organization's financial statements compiled or reviewed by an independent accountant?	2a	X	
b	Were the organization's financial statements audited by an independent accountant?	2b		X
c	If "Yes" to line 2a or 2b, does the organization have a committee that assumes responsibility for oversight of the audit, review, or compilation of its financial statements and selection of an independent accountant? If the organization changed either its oversight process or selection process during the tax year, explain in Schedule O.	2c	X	
d	If "Yes" to line 2a or 2b, check a box below to indicate whether the financial statements for the year were issued on a consolidated basis, separate basis, or both: ☒ Separate basis ☐ Consolidated basis ☐ Both consolidated and separate basis			
3a	As a result of a federal award, was the organization required to undergo an audit or audits as set forth in the Single Audit Act and OMB Circular A-133?	3a		X
b	If "Yes," did the organization undergo the required audit or audits? If the organization did not undergo the required audit or audits, explain why in Schedule O and describe any steps taken to undergo such audits.	3b		

SCHEDULE J (Form 990)

Department of the Treasury
Internal Revenue Service

Compensation Information

For certain Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees

▶ Complete if the organization answered "Yes" to Form 990, Part IV, line 23.

▶ Attach to Form 990. ▶ See separate instructions.

OMB No. 1545-0047

2009

Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

Part I Questions Regarding Compensation

		Yes	No
1a	Check the appropriate box(es) if the organization provided any of the following to or for a person listed in Form 990, Part VII, Section A, line 1a. Complete Part III to provide any relevant information regarding these items.		
	☐ First-class or charter travel ☐ Travel for companions ☐ Tax indemnification and gross-up payments ☐ Discretionary spending account ☐ Housing allowance or residence for personal use ☐ Payments for business use of personal residence ☐ Health or social club dues or initiation fees ☐ Personal services (e.g., maid, chauffeur, chef)		
b	If any of the boxes on line 1a are checked, did the organization follow a written policy regarding payment or reimbursement or provision of all of the expenses described above? If "No," complete Part III to explain	1b		
2	Did the organization require substantiation prior to reimbursing or allowing expenses incurred by all officers, directors, trustees, and the CEO/Executive Director, regarding the items checked in line 1a?	2		
3	Indicate which, if any, of the following the organization uses to establish the compensation of the organization's CEO/Executive Director. Check all that apply.		
	☐ Compensation committee ☐ Independent compensation consultant ☐ Form 990 of other organizations ☐ Written employment contract ☐ Compensation survey or study ☐ Approval by the board or compensation committee		
4	During the year, did any person listed in Form 990, Part VII, Section A, line 1a, with respect to the filing organization or a related organization:		
a	Receive a severance payment or change-of-control payment?	4a		X
b	Participate in, or receive payment from, a supplemental nonqualified retirement plan?	4b		X
c	Participate in, or receive payment from, an equity-based compensation arrangement?	4c		X
	If "Yes" to any of lines 4a-c, list the persons and provide the applicable amounts for each item in Part III.			
	Only section 501(c)(3) and 501(c)(4) organizations must complete lines 5-9.			
5	For persons listed in Form 990, Part VII, Section A, line 1a, did the organization pay or accrue any compensation contingent on the revenues of:			
a	The organization?	5a		
b	Any related organization?	5b		
	If "Yes" to line 5a or 5b, describe in Part III.			
6	For persons listed in Form 990, Part VII, Section A, line 1a, did the organization pay or accrue any compensation contingent on the net earnings of:			
a	The organization?	6a		
b	Any related organization?	6b		
	If "Yes" to line 6a or 6b, describe in Part III.			
7	For persons listed in Form 990, Part VII, Section A, line 1a, did the organization provide any non-fixed payments not described in lines 5 and 6? If "Yes," describe in Part III	7		
8	Were any amounts reported in Form 990, Part VII, paid or accrued pursuant to a contract that was subject to the initial contract exception described in Regs. section 53.4958-4(a)(3)? If "Yes," describe in Part III	8		
9	If "Yes" to line 8, did the organization also follow the rebuttable presumption procedure described in Regulations section 53.4958-6(c)?	9		

LHA For Privacy Act and Paperwork Reduction Act Notice, see the Instructions for Form 990. Schedule J (Form 990) 2009

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Part II **Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees.** Use Schedule J-1 if additional space is needed.

For each individual whose compensation must be reported in Schedule J, report compensation from the organization on row (i) and from related organizations, described in the instructions, on row (ii). Do not list any individuals that are not listed on Form 990, Part VII.

Note. The sum of columns (B)(i)-(iii) must equal the applicable column (D) or column (E) amounts on Form 990, Part VII, line 1a.

(A) Name		(B) Breakdown of W-2 and/or 1099-MISC compensation			(C) Retirement and other deferred compensation	(D) Nontaxable benefits	(E) Total of columns (B)(i)-(D)	(F) Compensation reported in prior Form 990 or Form 990-EZ
		(i) Base compensation	(ii) Bonus & incentive compensation	(iii) Other reportable compensation				
MARK TIBBETTS	(i)	79,925.	0.	26.	0.	0.	79,951.	0.
	(ii)	0.	0.	0.	0.	0.	0.	0.
	(i)							
	(ii)							
	(i)							
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Part III Supplemental Information

Complete this part to provide the information, explanation, or descriptions required for Part I, lines 1a, 1b, 4c, 5a, 5b, 6a, 6b, 7, and 8. Also complete this part for any additional information.

THE COMPENSATION REPORTED ON FORM 990, PART VII, SECTION A, LINE 1 WAS PAID BY THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION TO MARK TIBBETTS, THE EXECUTIVE DIRECTOR, FOR SERVICES RENDERED TO THE ORGANIZATION.

SCHEDULE O (Form 990)
Department of the Treasury
Internal Revenue Service

Supplemental Information to Form 990

Complete to provide information for responses to specific questions on Form 990 or to provide any additional information.
▶ Attach to Form 990.

OMB No. 1545-0047
2009
Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

FORM 990, PART VI, SECTION A, LINE 4: 1. ARTICLE IV: MEETINGS OF DIRECTORS WAS AMENDED TO PLACE LIMITATIONS ON THE ACTIONS OF THE BOARD OF DIRECTORS.

2. ARTICLE VII: FINANCIAL MATTERS WAS AMENDED TO ESTABLISH A BASE MEMBERSHIP FEE FOR ALL MEMBERS AND CHANGE THE METHODOLOGY FOR ASSESSING A PRORATED SHARE OF MEMBERSHIP FEES AMONG A SUBSET OF MEMBERS.

FORM 990, PART VI, SECTION A, LINE 6: THE INITIAL MEMBERS OF THIS CORPORATION SHALL BE GENERAL ELECTRIC CORPORATION, WHITE-RODGERS CORPORATION, AND HONEYWELL INC. EACH SUCH CORPORATION SHALL BE DEEMED AN ORIGINAL MEMBER OF THE CORPORATION, AND ALL THREE CORPORATIONS MAY BE REFERRED TO COLLECTIVELY IN THE BY-LAWS AS THE ORIGINAL MEMBERS.

FROM TIME TO TIME, THE BOARD OF DIRECTORS MAY INVITE OTHER THERMOSTAT MANUFACTURERS TO PARTICIPATE AS MEMBERS IN THE CORPORATION. SUCH A CORPORATION SHALL BECOME A MEMBER ONLY UPON PAYMENT OF FEES AS PROVIDED UNDER ARTICLE VII OF THE BY-LAWS.

FORM 990, PART VI, SECTION A, LINE 7A: THERE SHALL BE A NOMINATING COMMITTEE OF THE BOARD OF DIRECTORS, WHICH SHALL CONSIST OF THREE DIRECTORS, ALL OF WHOM ARE EMPLOYED BY ORIGINAL MEMBERS. ONE MONTH PRIOR TO THE ANNUAL MEETING OF THE CORPORATION, THE NOMINATING COMMITTEE SHALL

SCHEDULE O (Form 990)
Department of the Treasury
Internal Revenue Service

Supplemental Information to Form 990

Complete to provide information for responses to specific questions on Form 990 or to provide any additional information.
▶ Attach to Form 990.

OMB No. 1545-0047
2009
Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

APPROVE A SLATE OF NOMINEES MEETING THE QUALIFICATIONS SET FORTH IN SECTION 2 TO BE SUBMITTED TO THE MEMBERS FOR ELECTION AT THE ANNUAL MEETING.

FORM 990, PART VI, SECTION A, LINE 7B: THE BUSINESS AND AFFAIRS OF THE CORPORATION SHALL BE MANAGED BY BOARD OF DIRECTORS EXCEPT AS OTHERWISE PROVIDED BY LAW, BY THE ARTICLES OF INCORPORATION, OR BY THE BYLAWS.

FORM 990, PART VI, SECTION B, LINE 11: A COPY OF FORM 990 IS PROVIDED TO ALL GOVERNING MEMBERS BEFORE IT IS FILED.

FORM 990, PART VI, SECTION C, LINE 19: TRC MAKES ITS GOVERNING DOCUMENTS, CONFLICT OF INTEREST POLICY, AND FINANCIAL STATEMENTS AVAILABLE TO THE PUBLIC UPON REQUEST.

FORM 990, PART XI, LINE 2C

THIS PROCESS HAS REMAINED UNCHANGED FROM THE PRIOR YEAR.

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Appendix I: California Locations Requesting TRC Recycling Containers (as of March 2011)

Customer Type	Business Name	Address	City	State	ZIPCODE	ATTENTION	Total
CONTRACTOR	A-1 GUARANTEED	1768 BROADWAY	VALLEJO	CA	94589	RICHARD	1
CONTRACTOR	BILL HOWE HEATING & AIR	1364 MORENA BLVD #A	SAN DIEGO	CA	92110	MIGUEL SANCHEZ	1
CONTRACTOR	BUCKLEY PARNELL HEAT & AIR	5990 DEVECCHI AVE	CITRUS HEIGHTS	CA	95621	BRIAN	1
CONTRACTOR	CHIMNEY KRAFT	700 NORTHCREST DRIVE	CRESCENT CITY	CA	95531	DEANIE HANLON	1
CONTRACTOR	GOODCENTS	1322 DUPONT COURT	MANTECA	CA	95336	Tony CASTRO	1
CONTRACTOR	GOODCENTS	0	0	0	0	0	3
CONTRACTOR	GOODCENTS	1322 DUPONT CT.	MANTECA	CA	95336-0000	Tony CASTRO	2
CONTRACTOR	MAKI HEATING & AIR CONDITIONING, INC.	105B GI, A;ME	AUBURN	CA	95603	APRIL STEVENSON	1
CONTRACTOR	MATRIX HG, INC.	2355 WHITMAN RD. SUITE A	CONCORDIA	CA	94518	DEBBIE PULASKI	2
CONTRACTOR	MCCLELLAND Air CONDITIONING	801 MARAUDER STREET	CHICO	CA	95973	DENNIS MURAVEZ	2
CONTRACTOR	RICHARD HEATH & ASSOCIATES, INC	9480 TELSTAR AVENUE SUITE 2	El Monte	CA	91731-0000	ROBERT JAMES	2
CONTRACTOR	YUBA-SUTTER HHW FACILITY C/O YUBA-SUTTER DISPOSAL, INC	3001 N LEVEE ROAD	MARYSVILLE	CA	95901	MAGGIE JOHNSON	1
HHW FACILITY	ALAMEDA COUNTY HOUSEHOLD HAZ. WASTE PROGRAM	2091 W WINTON AVE	HAYWARD	CA	94545	BILL POLLOCK	6
HHW FACILITY	AMADOR COUNTY WASTE MANAGEMENT DEPT.	810 COURT STREET	JACKSON	CA	95642	JIM MCHARQUE	5
HHW FACILITY	BAY COUNTIES WASTE SERVICES	301 CARL ROAD	SUNNYVALE	CA	94089-0000	MAIRA SIMONE	2
HHW FACILITY	BUENA VISTA HHW FACILITY	150 ROUNDTREE LANE	WATSONVILLE	CA	95076-0000	KASEY KOLASSA	3

HHW FACILITY	BUTTE REGIONAL HHW COLLECTION FACILITY	1101 MARADER ST.	CHICO	CA	95973-0000	MALCOME MAXWELL	3
HHW FACILITY	CASTRO VALLEY SANITARY DISTRICT	21040 MARSHALL STREET	CASTRO VALLEY	CA	94546	NAOMI LUE	2
HHW FACILITY	Chicago Grade Landfill Household Hazardous Waste Drop-Off	HWY 41	Atascadero	CA	93422	(blank)	1
HHW FACILITY	CITY OF CARPINTERIA	5775 CARPINTERIA AVE.	CARPINTERIA	CA	93013	PAUL MEDEL	2
HHW FACILITY	CITY OF FREMONT PHHWCF	41149 BOYCE ROAD	FREMONT	CA	94538	BRUCE FRITZ	1
HHW FACILITY	CITY OF HIGHLAND	27215 BASELINE STREET	HIGHLAND	CA	92346	ANDREA SAAVEDRA	1
HHW FACILITY	CITY OF MADERA PUBLIC WORKS	1030 S. GATEWAY DRIVE	MADERA	CA	93637	Tony FREDE	1
HHW FACILITY	CITY OF REDDING SOLID WASTE	2255 ABERNATHY LANE	REDDING	CA	96003	CHRISTINA PILES	1
HHW FACILITY	CITY OF SACRAMENTO PHHWCF	8491 FRUITRIDGE ROAD	SACRAMENTO	CA	95826	SHARON SIMPSON	1
HHW FACILITY	CITY OF SAN DIEGO, HOUSEHOLD HAZARDOUS WASTE TRANSFER FACILITY	5161 CONVOY STREET	SAN DIEGO	CA	92111	JAMES CHEN	1
HHW FACILITY	CITY OF SAN DIEGO, MIRAMAR HHWCF	5161 CONVOY STREET	SAN DIEGO	CA	92111-0000	KIRK GALARNEAU	1
HHW FACILITY	CITY OF SANTA MARIA HHW FACILITY	2065 E. MAIN STREET	SANTA MARIA	CA	93454	RON VILANINO	2
HHW FACILITY	Cold Canyon Landfill Household Hazardous Waste Drop-Off	HWY 227	SAN LUIS OBISPO	CA	93401-0000	(blank)	1
HHW FACILITY	COLUSA COUNTY HHW PROGRAM	1215 MARKET STREET	COLUSA	CA	95932-0000	MIKE AZEVEDO	2
HHW FACILITY	COUNTY OF MARIPOSA	5593 HWY 49 NORTH	MARIPOSA	CA	95338	CALVIN JONES	6

HHW FACILITY	COUNTY OF SAN DIEGO HHW COLLECTION FACILITY, RAMONA	324 MAPLE STREET	RAMONA	CA	92065	REBECCA LAFRENIERE	1
HHW FACILITY	COUNTY OF SANTA CLARA	1555 BERGER DR SUITE 300	SAN JOSE	CA	95112	ROB D'ARCY	2
HHW FACILITY	COUNTY OF TUOLUMNE SOLID WASTE DIVISION	2 SOUTH GREEN ST.	SONORA	CA	95370	BELINDA	3
HHW FACILITY	COUNTY OF VENTURA-INTEGRATED WASTE MANAGEMENT DIVISION	800 SOUTH VICTORIA AVE	VENTURA	CA	93009-1650	Don Sheppard	2
HHW FACILITY	CV STRATEGIES	42600 CAROLINE COURT SUITE 102	PALM DESERT	CA	92211	(blank)	1
HHW FACILITY	CYPRESS CITY HALL	5275 ORANGE AVENUE	CYPRESS	CA	90630	ANTONIA CASTRO	4
HHW FACILITY	DEL NORTE COUNTY TRANSFER STATION	1700 STATE STREET	CRESCENT CITY	CA	95531	WES WHITE	1
HHW FACILITY	DELTA HHW COLLECTION FACILITY	2550 PITTSBURG-ANTIOCH HWY	Pittsburg	CA	94509-1373	JEFF IMACHI	1
HHW FACILITY	EL DORADO COUNTY ENVIRONMENTAL MGMT. DEPT.	2850 FOURLANE COURT	PLACERVILLE	CA	95667	DAVE JOHNSTON	1
HHW FACILITY	GLEN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	5700 COUNTY ROAD 33	ARTOIS	CA	95913-0000	MANDY KLEYKAMP	2
HHW FACILITY	HUMBOLDT WASTE MANAGEMENT AUTHORITY	1059 W. HAWTHORNE ST.	EUREKA	CA	95501-0000	CARLOS CHAVES	1
HHW FACILITY	KERN COUNTY SPECIAL WASTE FACILITY	17035 FINNIN AVE. #2	MOJAVE	CA	93501	ERIC CAMPBELL	1
HHW FACILITY	KERN COUNTY SPECIAL WASTE FACILITY	3301 BOWMAN ROAD	RIDGECREST	CA	93555	ERIC CAMPBELL	1
HHW FACILITY	KERN COUNTY SPECIAL WASTE FACILITY	4951 STANDARD ST.	BAKERSFIELD	CA	93308	ERIC CAMPBELL	1

HHW FACILITY	LUCIA MAR UNIFIED SCHOOL DISTRICT	222 STANLEY AVE	ARROYO GRANDE	CA	93420	MIKE BRUFFEY	1
HHW FACILITY	MADERA COUNTY HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITY	21739 ROAD 19	CHOWCHILLA	CA	93610	David Jones	2
HHW FACILITY	MADERA COUNTY PERMANENT HOUSEHOLD HAZ. WASTE FAC.	2037 W. CLEVELAND AVE	MADERA	CA	93637	KEITH QUINLAN	2
HHW FACILITY	MARIN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	565 JACOBY STREET	SAN RAFAEL	CA	94901	BRADLEY MARK	2
HHW FACILITY	MENDOCINO SOLID WASTE MANAGEMENT AUTHORITY	298A PLANT ROAD	UKIAH	CA	95482	MIKE SWEENEY	1
HHW FACILITY	MERCED COUNTY HHW	260 E 15TH ST.	MERCED	CA	95341-6216	WILLIAM PEELER	1
HHW FACILITY	MERCED COUNTY HHW	6040 N. HIGHWAY 59	MERCED	CA	95340	WILLIAM PEELER	1
HHW FACILITY	Morro Bay/Cayucos Waste Water Plant Household Hazardous Waste Drop-Off	160 Atascadero Road	Morro Bay	CA	93442	(blank)	1
HHW FACILITY	NEVADA COUNTY H.H.W. FACILITY	14741 WOLF MTN. RD.	GRASS VALLEY	CA	95949	Paul WILKIN	4
HHW FACILITY	Nipomo Household Hazardous Waste Drop-Off	509 Southland	Nipomo	CA	93444	(blank)	1
HHW FACILITY	ORO LOMA SANITARY DISTRICT	2600 GRANT AVE	SAN LORENZO	CA	94580-1838	Rodney Smith	2
HHW FACILITY	Palo Alto Public Works Dept	2501 Embarcadero Way	Palo Alto	CA	94303	Phil Bobel	1

HHW FACILITY	Paso Robles Landfill Household Hazardous Waste Drop-Off	Hwy 46 East	Paso Robles	CA	93446	(blank)	1
HHW FACILITY	PERMANENT HHW COLLECTION FACILITY	50 NATOMA ST.	FOLSOM	CA	95630	ROD MILLER	2
HHW FACILITY	PROFESSIONAL ASBESTOS REMOVEL CORPORATION dba PARC ENVIRONMENTAL	2706 S RAILROAD AVE	FRESNO	CA	93725	JEFF DAVIS	2
HHW FACILITY	RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	CA	91201-0000	CESAR CANTU	2
HHW FACILITY	SALINAS VALLEY SOLID WASTE HHWCF	139 SUN STREET	SALINAS	CA	93901	DAVID ROEL HHW	1
HHW FACILITY	SAN BERNADINO COUNTY HHW	2824 EAST W STREET, BLDG 302	SAN BERNADINO	CA	92408-0000	JONIE WALLACE	2
HHW FACILITY	SAN JOAQUIN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	7850 R.A. BRIDGEFORD STREET	STOCKTON	CA	95206	KIMBRA ANDREWS	3
HHW FACILITY	SAN LUIS OBISPO COUNTY INTEGRATED WASTE MANAGEMENT AUTHORITY	870 OSOS STREET	SAN LUIS OBISPO	CA	93401-0000	BILL WORRELL	2
HHW FACILITY	SAN MATEO COUNTY HHW FACILITY	32 TOWER ROAD	SAN MATEO	CA	94402	ELIZABETH ROYAN	1
HHW FACILITY	SONOMA COUNTY WASTE MANAGEMENT AG	500 MECHAM ROAD	PETALUMA	CA	94952	LISA STEINMAN	1
HHW FACILITY	SOUTH TAHOE REFUSE TRANSFER STATION	2140 Ruth AVE.	SOUTH LAKE TAHOE	CA	96150	JEREMY STEINHOUSE	2
HHW FACILITY	TEHAMA COUNTY/RED BLUFF LANDFILL MANAGEMENT AGENCY	19995 PLYMIRE ROAD	RED BLUFF	CA	96080	KRISTINA MILLER	4

HHW FACILITY	VENTURA HOUSEHOLD HAZARDOUS WASTE FACILITY	336 SAN JON ROAD	VENTURA	CA	93002	KAREN SEDLACEK	2
HHW FACILITY	WEST CONTRA COSTA PERMANENT HHW COLLECTION FACILITY	101 PITTSBURG AVENUE	RICHMOND	CA	94801-0000	NICOLE FORTE	2
HHW FACILITY	WESTERN PLACER WASTE MANAGEMENT AUTHORITY	NORTECH WASTE 3195 ATHENS AVE	LINCOLN	CA	95648	STEPHANIE THOMPSON	2
HHW FACILITY	YOLO COUNTY CENTRAL LANDFILL	44090 COUNTY ROAD 28H	WOODLAND	CA	95776	PAM HEDRICK	2
RETAIL	ANTIOCH ACE HARDWARE	501 SUNSET DRIVE	ANTIOCH	CA	94509-0000	JERRY THORPE	1
RETAIL	BERKELEY ACE HARDWARE	2145 UNIVERSITY AVENUE	BERKELEY	CA	94704-0000	JAMES CARPENTER	1
RETAIL	BILL'S ACE HARDWARE	3503 PACHECO BLVD.	MARTINEZ	CA	94553-0000	BILL WYGAL	2
RETAIL	BRENTWOOD ACE HARDWARE	8900 BRENTWOOD BLVD, STE J	BRENTWOOD	CA	94513-0000	JERRY THORPE	1
RETAIL	LAUREL ACE HARDWARE	4024 MACARTHUR BLVD	OAKLAND	CA	94619	ANDY CISNEROS	1
RETAIL	OAKLEY ACE HARDWARE	305 4TH STREET	OAKLEY	CA	94561-0000	JERRY THORPE	1
RETAIL	PITTSBURG ACE HARDWARE	125 E. LELAND ROAD	Pittsburg	CA	94565-0000	JERRY THORPE	1
RETAIL	SAN LUIS OBISPOS COUNTY INTEGRATED WASTE MANAGEMENT AUHTORITY	870 OSOS STREET	SAN LUIS OBISPO	CA	93401-0000	PATTI TOEWS	28
Wholesaler/Dist	AIR COLD SUPPLY	206 COMMERCIAL STREET	SAN JOSE	CA	95112	FERNANDO GIRARDI	1
Wholesaler/Dist	AIR COLD SUPPLY	640 AVON AVE	AZUSA	CA	91702-2044	ERIC S.	2
Wholesaler/Dist	AIR COLD SUPPLY # 1057	26470 SUMMIT CIRCLE	SANTA CLARITA	CA	91350-2991	ANDY SHIRLEY	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	11244 PLAYA COURT BRANCH 1048	CULVER CITY	CA	90230	JOHN BELLUCCI	1

Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	1144 WEST AVENUE, L-12 BRANCH 1053	LANCASTER	CA	93534	VYONEE SZALAI	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	1224 NORTH MARSHALL BRANCH 1581	EL CAJON	CA	92020	ROB SHERMAN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	0	0	0	92020-0000	TERRY BIERFREUND	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	12841 PRODUCTION PLACE BRANCH 1055	VICTORVILLE	CA	92395	DONALD PICKENS	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	1346 SOUTH CLAUDINA STREET BRANCH 692	ANAHEIM	CA	92805-6234	JOHN MAMOLA	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	13500 SATICOY STREET	VAN NUYS	CA	91402	David Jones	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	149 B GRANADA DRIVE BRANCH 1894	SAN LUIS OBISPO	CA	93401-7316	DAVID GUZMAN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	2750 SOUTH TOWNE AVENUE BRANCH 1183	POMONA	CA	91766	CARLOS SERRANO	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	2751 DURAHART STREET BRANCH 570	RIVERSIDE	CA	92507	STEVE GUTIERREZ	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	289 NORTH MCARTHUR WAY BRANCH 1081	UPLAND	CA	91786	TYLER BROWN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	3550 LA CRUZ WAY BRANCH 1893	Paso Robles	CA	93446	JIM WERN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	429 MADERA STREET BRANCH 1059	SAN GABRIEL	CA	91776	ED FERNANDEZ	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	887 LAWRENCE DRIVE BRANCH 1056	NEWBURY PARK	CA	91320	GARY LANOUETTE	1
Wholesaler/Dist	ALLIED REFRIGERATION	1211 EAST EDINGER AVENUE	TUSTIN	CA	92780-0000	DAVID RIVERA	1
Wholesaler/Dist	ALLIED REFRIGERATION	1256 PRICE STREET	POMONA	CA	91767-5840	SCOTT MELTON	1
Wholesaler/Dist	ALLIED REFRIGERATION	1375 EAST 15TH STREET	LOS ANGELES	CA	90021-0000	VICTOR PEREZ	1
Wholesaler/Dist	ALLIED REFRIGERATION	15558 CABRITO ROAD	VAN NUYS	CA	91406-0000	AL ORTEGA	1
Wholesaler/Dist	ALLIED REFRIGERATION	1928 DON LEE PLACE	ESCONDIDO	CA	92029-0000	BRIAN JACKSON	1
Wholesaler/Dist	ALLIED REFRIGERATION	199 SOUTH MARSHALL STREET	EL CAJON	CA	92020-0000	TONY HAYMES	1
Wholesaler/Dist	ALLIED REFRIGERATION	2170 COMMERCE AVENUE, UNIT U	CONCORD	CA	94520-0000	CHARLEY KIM	1

Wholesaler/Dist	ALLIED REFRIGERATION	2175 ADAMS AVENUE	SAN LEANDRO	CA	94577-0000	NICK DEMAURI	1
Wholesaler/Dist	ALLIED REFRIGERATION	2300 EAST 28TH STREET	SIGNAL HILL	CA	90755-0000	MARC MEICHT	1
Wholesaler/Dist	ALLIED REFRIGERATION	306 SOUTH NINTH AVENUE	CITY OF INDUSTRY	CA	91746-0000	JOE RUIZ	1
Wholesaler/Dist	ALLIED REFRIGERATION	34660 DATE PALM DRIVE	CATHEDRAL CITY	CA	92234-0000	ED FITHIAN	1
Wholesaler/Dist	ALLIED REFRIGERATION	404 S. I STREET	SAN BERNADINO	CA	92410-0000	JEFF MELTON	1
Wholesaler/Dist	ALLIED REFRIGERATION	702 EAST GISH ROAD	SAN JOSE	CA	95112-0000	JEFF BELKNAP	1
Wholesaler/Dist	ALLIED REFRIGERATION	7823 OSTROW STREET	SAN DIEGO	CA	92111-0000	JOE ESKEY	1
Wholesaler/Dist	ALLIED REFRIGERATION	8480 HIGUERA STREET	CULVER CITY	CA	90232-0000	RENNY NICHOLS	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	1086 KRAEMER PL.	ANAHEIM	CA	92806-0000	LARRY LUCERO	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	1405-2 GRANITE LN.	MODESTO	CA	95351-0000	CHUCK EDDINGS	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	145 11TH ST.	SAN FRANCISCO	CA	94103-0000	BRUCE IRWIN	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	1501 POMONA RD. STE. 102	CORONA	CA	92880-0000	MARIO GRANADOS	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	245 SUTTON PL.	SANTA ROSA	CA	95407-0000	JIM CARTER	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	2703 5TH ST. STE 7	SACRAMENTO	CA	95818-0000	Paul CARROLL	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	325 5TH ST.	OAKLAND	CA	94607-0000	JESUS LERMA	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	399 S. ARROWHEAD AVE.	SAN BERNARDINO	CA	92408-0000	JEFF CLARK	1

Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	444 LITTLEFIELD	S SAN FRANCISCO	CA	94080-0000	BARRY SMITH	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	6110 VALLEY VIEW AVE.	BUENA PARK	CA	90620-0000	GARY GARNER	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	740 E. HAZELTON AVE.	STOCKTON	CA	95203-0000	MICHAEL FOX	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	7874 RONSON RD.	SAN DIEGO	CA	92111-0000	Steve EMORY	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	910 JUSTIN AVE.	GLENDALE	CA	91201-0000	Steve KONESS	1
Wholesaler/Dist	ATWATER SUPPLY	1903 FRIENDSHIP DRIVE	EL CAJUN	CA	92020	JOHN MAUTINO	1
Wholesaler/Dist	ATWATER SUPPLY	42655 RIO NEDO	TEMECALA	CA	92590	LARRY ROBINSON	1
Wholesaler/Dist	Baker Distributing Co.	1295 EMERALD AVE. SUITE D	MODESTO	CA	95351-0000	ROD BORBA	1
Wholesaler/Dist	Baker Distributing Co.	1351 OLD BAYSHORE	SAN JOSE	CA	95112-0000	DANNY CORONADO	1
Wholesaler/Dist	Baker Distributing Co.	1501 MINNESOTA ST.	SAN FRANCISCO	CA	94107-0000	JIM SEWELL	1
Wholesaler/Dist	Baker Distributing Co.	1853 E. MCKINLEY AVE.	FRESNO	CA	93703-0000	RUSS AVILA	1
Wholesaler/Dist	Baker Distributing Co.	2065 COMMERCE AVENUE	CONCORD	CA	94520-0000	STEVE LANFRI	1
Wholesaler/Dist	Baker Distributing Co.	2375 DAVIS ST.	SAN LEANDRO	CA	94577-2205	MARK JOHNSON	1
Wholesaler/Dist	Baker Distributing Co.	300 WEST ROBLES BLDG J.	SANTA ROSA	CA	95407-0000	DON MEIXSELL	1
Wholesaler/Dist	Baker Distributing Co.	3000 ORANGE GROVE AVE.	NORTH HIGHLANDS	CA	95660-0000	TAMI BENSON	1
Wholesaler/Dist	Baker Distributing Co.	6805 SIERRA COURT, #E	DUBLIN	CA	94568-0000	DAVID SCOTT	1
Wholesaler/Dist	Baker Distributing Co.	849 WEST 8TH ST.	CHICO	CA	95926-0000	BRIAN HUDSON	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	1225 NORTH FIFTH STREET	SAN JOSE	CA	95112-0000	TOM GLENN	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	1312 ALLEC ST.	ANAHEIM	CA	92805-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	155 W. VICTORIA ST.	LONG BEACH	CA	90805-0000	(blank)	1

Wholesaler/Dist	BURKE ENGINEERING COMPANY	1790 IOWA AVENUE	RIVERSIDE	CA	92507	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	3190 ORANGE GROVE AVE. A	NORTH HIGHLANDS	CA	95660	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	3190 ORANGE GROVE AVENUE	NORTH HIGHLANDS	CA	95660-0000	PAMELA VILLANUEVA	2
Wholesaler/Dist	BURKE ENGINEERING COMPANY	3190-A ORANGE GROVE AVE.	N. HIGHLANDS	CA	95660-5706	MIKE ALMANZA	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	4250 PEPSI DR # D	SAN DIEGO	CA	92111-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	6605 ODESSA AVENUE	VAN NUYS	CA	91406-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	7303 EDGEWATER DRIVE, #A	OAKLAND	CA	94621-3016	MICHAEL JONES	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	7303 EDGEWATER DRIVE, UNIT A	OAKLAND	CA	94621-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	74488 VILLAGE DR	CHINO	CA	90708-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	9700 FACTORIAL WAY	El Monte	CA	91733-1799	(blank)	10
Wholesaler/Dist	CALIFORNIA COOLING	1922 FRIENDSHIP DRIVE	EL CAJON	CA	92020-0000	BOB BIGLER	2
Wholesaler/Dist	CALIFORNIA COOLING	239 W. ORANGE AVE	EL CENTRO	CA	92243-0000	MIGUEL ROA	2
Wholesaler/Dist	CALIFORNIA COOLING	622 S. VINEWOOD ST.	ESCONDIDO	CA	92029-0000	PETE HARRIS	2
Wholesaler/Dist	CALIFORNIA COOLING SUPPLY	14718 RAYMER ST. SUITE C	VAN NUYS	CA	91405	ANTHONY GIST	2
Wholesaler/Dist	CALIFORNIA REFRIGERATION SUPPLY INC	1718 FAIRWAY DR	SAN LEANDRO	CA	94577-0000	KEVIN HUNTER	1
Wholesaler/Dist	CASS, INC	2730 PERALTA STREET	OAKLAND	CA	94607	BILL INMAN	1
Wholesaler/Dist	CFM EQUIPMENT DIST.	1644 MAIN AVE. SUITE 1	SACRAMENTO	CA	95838-0000	JIM GARRETT	1
Wholesaler/Dist	CONTROLCO	15375 BARRANCA PKWY, I - 104	IRVINE	CA	92618	GABE TRINIDAD	1
Wholesaler/Dist	CONTROLCO	210 VAN NESS	FRESNO	CA	93721-0000	JENNIE SCHWAN	1
Wholesaler/Dist	CONTROLCO	251 OPPORTUNITY STREET, B	SACRAMENTO	CA	95838	STEVE GALL	1

Wholesaler/Dist	CONTROLCO	320 KENTUCKY STREET	BAKERSFIELD	CA	93305	LARRY JOHNSON	1
Wholesaler/Dist	CONTROLCO	35 DORMAN, #2	SAN FRANCISCO	CA	94124	DAVE DOMINGUEZ	1
Wholesaler/Dist	CONTROLCO	5600 IMHOTT DRIVE, SUITE G	CONCORD	CA	94520	BRIDGET TURNER	1
Wholesaler/Dist	CONTROLCO	840 66TH AVENUE	OAKLAND	CA	96421	BILL PROMES	1
Wholesaler/Dist	D & D PLUMBING HEATING & COOLING	28 UNION WAY	VACAVILLE	CA	95687	DAN MOORE	1
Wholesaler/Dist	DAN GOETZ WHOLESALE OUTLET INC	335 O'HAIR COURT, SUITE A	SANTA ROSA	CA	95407	DAN GOETZ	1
Wholesaler/Dist	DIAL ONE -- SERVICE EXPERTS	4670 PACIFIC STREET, STE. 100	ROCKLIN	CA	95677-0000	BOB WIKSE	1
Wholesaler/Dist	FACSCO	1528 N. THESTA STREET	FRESNO	CA	93703-0000	JIM LITTLE	2
Wholesaler/Dist	FERGUSON HEATING & COOLING	605 EAST CERRITOS AVENUE	ANAHEIM	CA	92805	ERIC BAUSERMAN	1
Wholesaler/Dist	FERGUSON HEATING & COOLING	640 AYON AVENUE BRANCH 1050	AZUSA	CA	91702	CORNELIO ARREOLA	1
Wholesaler/Dist	FERGUSON HEATING & COOLING	903 NORTH MARKET BOULEVARD	SACRAMENTO	CA	95834	DEREK MURRAY	1
Wholesaler/Dist	FERGUSON HEATING & COOLING	9349 OSO AVENUE BRANCH 1049	CHATSWORTH	CA	91702	MICHAEL RITTNER	1
Wholesaler/Dist	FIX AIR AUTHORIZED Trane PARTS	890 SERVICE ST., UNIT A	SAN JOSE	CA	95112-0000	TONY V.	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	1161 W. BRADLEY AVE.	EL CAJON	CA	92030-1503	CLIFF PEEBLES	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	1162 W. BRADLEY AVE.	EL CAJON	CA	92030-1503	JACK CAMPAGNA	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	1200 E. CERRITOS AVENUE	ANAHEIM	CA	92805-0000	KEVIN CURTIN	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	31050 HUNTWOOD AVENUE	HAYWARD	CA	94544-0000	DENISE DOE	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	333 S. TEILMAN AVE.	FRESNO	CA	93706-0000	CLIFF PEEBLES	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	333 S. TEILMAN AVENUE	FRESNO	CA	93706-0000	CHRIS VILLHAUER	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	3443 NIKI WAY	RIVERSIDE	CA	92507-6812	MIKE WALLIS	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	4365 JETWAY COURT	NORTH HIGHLANDS	CA	95660-5701	KENNY STOVES	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	6421 BOX SPRINGS BLVD.	RIVERSIDE	CA	92507-0000	EFRAIN HURTADO	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	6918 VALJEAN AVENUE	VAN NUYS	CA	91406-0000	JESSE WILLIAMSON	2

Wholesaler/Dist	GEARY PACIFIC SUPPLY	8711 AIRPORT ROAD	REDDING	CA	96002-9223	JASON SANCHEZ	1
Wholesaler/Dist	GENIE AIR CONDITIONING & HEATING, INC	15035 CAUFA STREET	SHERMAN OAKS	CA	91411	YOLANDA	1
Wholesaler/Dist	GEORGE T. HALL	1257 GOODRICH BLVD	LOS ANGELES	CA	90022	RAY TORRES	1
Wholesaler/Dist	GEORGE T. HALL	15915 ARMINTA ST	VAN NUYS	CA	91406	DEE BUSS	1
Wholesaler/Dist	GEORGE T. HALL	1605 GENE AUTRY WAY	ANAHEIM	CA	95805	DINA HARRIS	1
Wholesaler/Dist	GEORGE T. HALL	4289 TAYLOR STREET	SAN DIEGO	CA	92110	BILL BRENNAN	1
Wholesaler/Dist	GOODMAN DISTRIBUTING	1070 COMMERCIAL STREET STE 103	SAN JOSE	CA	95112	RON	1
Wholesaler/Dist	Goodman Distribution	1070 Commercial Street, Suite 103	SAN JOSE	CA	95112	Ron Rodriguez	1
Wholesaler/Dist	Goodman Distribution	1101 Oates Court Ste 100	MODESTO	CA	95358	George Wanner	1
Wholesaler/Dist	Goodman Distribution	1150 McCullom Street	EL CENTRO	CA	92243	Javier Sanchez	1
Wholesaler/Dist	Goodman Distribution	1225 N. Kraemer Blvd.	ANAHEIM	CA	92806	Larry Baker	1
Wholesaler/Dist	Goodman Distribution	15024 Anacapa Road	VICTORVILLE	CA	92392	Don Johnston	1
Wholesaler/Dist	Goodman Distribution	1900 Compton Ave Suite 102	CORONA	CA	92881	Kesh Patel	1
Wholesaler/Dist	Goodman Distribution	1972 Essex Ct	Redlands	CA	92373	David Chadwick	1
Wholesaler/Dist	Goodman Distribution	2364 W Winton Ave	HAYWARD	CA	94545	Charlie Schwalb	1
Wholesaler/Dist	Goodman Distribution	2601 Teepee Dr.	STOCKTON	CA	95205	Don Carlson	1
Wholesaler/Dist	Goodman Distribution	2620 East Byrd Avenue	FRESNO	CA	93706	Joe Munoz	1
Wholesaler/Dist	Goodman Distribution	2823 Gibson Street	BAKERSFIELD	CA	93308	Jeremy Brown	1
Wholesaler/Dist	Goodman Distribution	300 N. Graves Avenue, Unit C	OXNARD	CA	93030	Greg Steele	1
Wholesaler/Dist	Goodman Distribution	30720 Gunther Street	Palm Springs	CA	92276	Dylan Weatherford	1
Wholesaler/Dist	Goodman Distribution	315 Cloverleaf Drive	BALDWIN PARK	CA	91706	Daniel Berliner	1
Wholesaler/Dist	Goodman Distribution	3334 San Fernando Rd #102	LOS ANGELES	CA	90065	Abraham Torres	1
Wholesaler/Dist	Goodman Distribution	3562 Ruffin Road	SAN DIEGO	CA	92123	Stephen Thoresen	1
Wholesaler/Dist	Goodman Distribution	3633 Lenawee Ave. Ste 180	LOS ANGELES	CA	90016	Anthony Chavis	1
Wholesaler/Dist	Goodman Distribution	3648 Industry Avenue	LAKEWOOD	CA	90712	Ryan Czudak	1
Wholesaler/Dist	Goodman Distribution	4020 Nelson Ave. Suite 100	CONCORD	CA	94520	Peter Meeker	1
Wholesaler/Dist	Goodman Distribution	40222a LaQuinta Lane, Suite 101	PALMDALE	CA	93551	Eric Denslow	1
Wholesaler/Dist	Goodman Distribution	41670 Reagan Way	MURRIETA	CA	92562	Abraham Alvarado	1
Wholesaler/Dist	Goodman Distribution	5160 Richton St. Suite A	Montclair	CA	91763	Heidi Richardson	1

Wholesaler/Dist	Goodman Distribution	525 Park Avenue Suite A	San Fernando	CA	91340	Larry Girton	1
Wholesaler/Dist	Goodman Distribution	840 N. 10th Street, Suite J	SACRAMENTO	CA	95811	Alex Iaconis	1
Wholesaler/Dist	Goodman Distribution	8825 Washington Boulevard, Suite 400	ROSEVILLE	CA	95678	TIM BRIGGS	1
Wholesaler/Dist	Goodman Distribution	9621 Oates Dr	SACRAMENTO	CA	95827	Joel Beyers	1
Wholesaler/Dist	HOWARD INDUSTRIES	8855 WASHINGTON	CULVER CITY	CA	90232-0000	LARRY WINTER	6
Wholesaler/Dist	INVENSYS CLIMATE CONTROLS, NORTH AMERICA	151 SOUTH PROMENADE AVENUE	CORONA	CA	92879-0000	DAVE WILSON	4
Wholesaler/Dist	JOHNSTONE SUPPLY #098	200 TALMADGE DRIVE	SANTA ROSA	CA	95407	GARY PERKINS	1
Wholesaler/Dist	JOHNSTONE SUPPLY #140	1335 DAYTON ST. SUITE A	SALINAS	CA	93901	TROY TAYLOR	1
Wholesaler/Dist	JOHNSTONE SUPPLY #328	870 PIPER AVE	MERCED	CA	95341	LARRY JOHNSON	1
Wholesaler/Dist	JOHNSTONE SUPPLY #329	1000 N. BURKE	VISALIA	CA	93292	JOHN SCOTT	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	1070 COMMERCIAL ST, STE 104	SAN JOSE	CA	95112-0000	JOANN GRAHAM	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	13211 SPRING STREET	BALDWIN PARK	CA	91706-2289	ERIN	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	1385 N. MAGNOLIA AVE	EL CAJON	CA	92020-0000	JOHN	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	1445 SAN MATEO AVENUE	SOUTH SAN FRANCISCO	CA	94080-0000	KRESH	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	2132 AVIATION DRIVE	UPLAND	CA	91786-5720	ERIN	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	23211 DEL LAGO DRIVE	LAGUNA HILLS	CA	92653-1307	AMANDA WILLS	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	2331 COMMERCE AVE #E	CONCORD	CA	94520-0000	JEMMA PARSONS	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	3015 S. KILSON DRIVE	SANTA ANA	CA	92707-0000	AMANDA WILLS	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	333 MARKET ST	OAKLAND	CA	94607-0000	JOANN GRAHAM	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	42342 10TH ST WEST SUITE A	LANCASTER	CA	93534	ADRIEN ROCHA	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	4320 PACIFIC HWY	SAN DIEGO	CA	92110	DAVE WILCOX	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	0	0	0	92110-0000	DAVID	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	477 QUILLCO CT	SANTA ROSA	CA	95407-0000	GARY PERKINS	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	5658 E. CLINTON AVE.	FRESNO	CA	93727-0000	CHRISTI	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	8639 TAMARACK AVE	SUN VALLEY	CA	91352-0000	JULIAN MOSER	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	900 S. ANDREASEN	ESCONDIDO	CA	92029-0000	Chris	1

Wholesaler/Dist	JOHNSTONE SUPPLY OF LONE BEACH	2810 TEMPLE AVE.	LONG BEACH	CA	90806-2213	(blank)	1
Wholesaler/Dist	JOHNSTONE SUPPLY OF REDDING	940 WALL STREET	REDDING	CA	96002	JAMES HOMEM	1
Wholesaler/Dist	JOHNSTONE SUPPLY UPLAND	2132 AVIATION DRIVE	UPLAND	CA	91786-5720	(blank)	1
Wholesaler/Dist	JOHNSTONE SUPPLY-ANAHEIM	518 E BALL ROAD	ANAHEIM	CA	92805-0000	PAUL	1
Wholesaler/Dist	JOHNSTONE-COMMERCE	8040 SLAUSON AVENUE	MONTEBELLO	CA	90640	LONNIE AGUILAR	1
Wholesaler/Dist	JOHNSTONE-SANTA BARBARA	220 WEST GUTIERREZ STREET	SANTA BARBARA	CA	93101	LEE FRAZIER	1
Wholesaler/Dist	JOHNSTONE-THOUSAND OAKS	2645 TOWNSGATE ROAD # 600	THOUSAND OAKS	CA	91361	JIM FAULKNER	1
Wholesaler/Dist	JOHNSTONE-VENTURA	5960 VALENTINE ROAD # 3	VENTURA	CA	93003	CARLOS PEREZ	1
Wholesaler/Dist	Lennox Industries Inc.	1021 STRIKER AVENUE	SACRAMENTO	CA	95835-0000	SHAWN PAPKE	2
Wholesaler/Dist	Lennox Industries Inc.	1059 VINE STREET, SUITE 108	SACRAMENTO	CA	95814-0321	TIM BRIGGS	2
Wholesaler/Dist	Lennox Industries Inc.	12775 RESERVOIR STREET	CHINO	CA	91710-2943	RICK BALDONADO	2
Wholesaler/Dist	Lennox Industries Inc.	2500 E. FRANCIS STREET	ONTARIO	CA	91761-0000	RICK BALDONADO	2
Wholesaler/Dist	Lennox Industries Inc.	3410 SAN FERNANDO ROAD, UNIT 5	LOS ANGELES	CA	90065-0000	CHARLIE DIAZ	2
Wholesaler/Dist	Lennox Industries Inc.	7670 TRADE STREET, STE. A - D	SAN DIEGO	CA	92121-0000	DAN TOPPINS	2
Wholesaler/Dist	MSI HVAC	11700 INDUSTRY	FONTANA	CA	92337	MARSHALL SCOTT	1
Wholesaler/Dist	MSI HVAC	2344 MEYERS AVE	ESCONDIDO	CA	92029	ERIC ROUSH	1
Wholesaler/Dist	MSI HVAC	23456 SOUTH POINTE #B	LAGUNA HILLS	CA	92653	ALONSO COBODA	1
Wholesaler/Dist	NORTHAIRE SUPPLY CO INC	1359 OAKLAND ROAD	SAN JOSE	CA	95112-0000	GREG	1
Wholesaler/Dist	PACIFIC HEATING & COOLING SUPPLY, INC,	3720 LA CRUZ WAY	TEMPLETON	CA	93465-0000	DON SCRIVNER	1
Wholesaler/Dist	R.S.D.	3355 McMAUDE PL	SANTA ROSA	CA	95407	(blank)	1
Wholesaler/Dist	RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	CA	91201	SILVIA/CESAR	1
Wholesaler/Dist	REFRIGERATION SUPPLIES DISTRIBUTOR	43300 BUSINESS PARK DR.	TEMECULA	CA	92590	MARK RAMIREZ	1

Wholesaler/Dist	REFRIGERATION SUPPLIES DISTRIBUTOR	43300 BUSINESS PARK DR. # A102	TEMECULA	CA	92590	MARK RAMIREZ	1
Wholesaler/Dist	RSD	10170 CROYDON WAY SUITE 1	SACRAMENTO	CA	95827-0000	JOHN PULLIN	2
Wholesaler/Dist	RSD	0	0	0	95827-2104	JOHN PULLIN	1
Wholesaler/Dist	RSD	1050 COMMERCIAL STREET, #105	SAN JOSE	CA	95112-0000	J.R. BUSTAMANTE	2
Wholesaler/Dist	RSD	110 EAST MAIN STREET	EL CENTRO	CA	92243-2589	LEE GRIDER	2
Wholesaler/Dist	RSD	1121 LONE PALM AVENUE, #A	MODESTO	CA	95351-0000	GREG SMITH	2
Wholesaler/Dist	RSD	1201 MONTEREY PASS ROAD	MONTEREY PARK	CA	91754-3616	ROB ACOSTA	1
Wholesaler/Dist	RSD	1340 GALAXY WAY, STE. H, I, J	CONCORD	CA	94520-0000	DAVE COBB	1
Wholesaler/Dist	RSD	1376 STEALTH STREET	LIVERMORE	CA	94551-0000	WILLIAM WALLACE	4
Wholesaler/Dist	RSD	14766 RAYMER STREET	VAN NUYS	CA	91405-0000	DAN SIMPSON	1
Wholesaler/Dist	RSD	14901 RAYMER ST	VAN NUYS	CA	91405-0000	DAN SIMPSON	1
Wholesaler/Dist	RSD	1615 EAST CYPRESS	REDDING	CA	96002-1369	BOB HUNT	1
Wholesaler/Dist	RSD	1670 INDUSTRIAL BLVD.	CHULA VISTA	CA	91911-0000	JEFF LEGGITT	2
Wholesaler/Dist	RSD	1721 LOGAN AVENUE	SAN DIEGO	CA	92113-1006	RANDY HORMAN	2
Wholesaler/Dist	RSD	1833 EAST MAIN STREET	VISALIA	CA	93292-6768	GARY GURON	2
Wholesaler/Dist	RSD	1933 S VINEYARD AVE	ONTARIO	CA	91761-0000	MIKE PETTIT	2
Wholesaler/Dist	RSD	2100 E. WILSHIRE AVE	SANTA ANA	CA	92705-0000	MIKE PETTIT	1
Wholesaler/Dist	RSD	2100 WILSHIRE AVENUE, UNIT A	SANTA ANA	CA	92705-0000	DAVE WATERS	1
Wholesaler/Dist	RSD	21727 NORDHOFF STREET	CHATSWORTH	CA	91311	DAVE LaMEAR	2
Wholesaler/Dist	RSD	2208 EAST MCKINLEY AVENUE	FRESNO	CA	93703-3005	TOMMY THOMPSON	2
Wholesaler/Dist	RSD	2350 LEXINGTON STREET	SACRAMENTO	CA	95815-3216	JIM BRANSCUM	2
Wholesaler/Dist	RSD	2551 S. TOWNWELL DRIVE	CONCORD	CA	94520-0000	DAVE COBB	1
Wholesaler/Dist	RSD	2601 ATLANTIC OCEAN DR.	LAKE FOREST	CA	92630	JEFF GAUDERN	1
Wholesaler/Dist	RSD	26021 ATLANTIC OCEAN DRIVE	LAKE FOREST	CA	92630-0000	MIKE PETTIT	1
Wholesaler/Dist	RSD	285 LAWRENCE AVENUE	SOUTH SAN FRANCISCO	CA	94080-6818	MIKE MCCORKHILL	2
Wholesaler/Dist	RSD	2882 TEEPEE DRIVE	STOCKTON	CA	95205-0000	CHAD MCAFEE	3
Wholesaler/Dist	RSD	2890 E CORONADO ST	ANAHEIM	CA	92806	DAN WEAVER	1
Wholesaler/Dist	RSD	2890 E. CORONADO ST.	ANAHEIM	CA	92806-1760	JOE LARSON	1
Wholesaler/Dist	RSD	3355 MCMAUDE PLACE	SANTA ROSA	CA	95407-0000	Scott Iverson	2
Wholesaler/Dist	RSD	4131 LATHAM STREET	RIVERSIDE	CA	92501-0000	JEFF BLANTON	2
Wholesaler/Dist	RSD	436 HESTER STREET	SAN LEANDRO	CA	94577-1024	MIKE PRETO	2

Wholesaler/Dist	RSD	527 BRUNKEN AVENUE	SALINAS	CA	93901-0000	HOWARD CHITWOOD	2
Wholesaler/Dist	RSD	5910 BOWCROFT STREET	LOS ANGELES	CA	90016-0000	JIM PINAULT	2
Wholesaler/Dist	RSD	621 EAST 21ST STREET	BAKERSFIELD	CA	93305-5109	MARK MIRANDA	2
Wholesaler/Dist	RSD	6391 ORANGETHORPE AVENUE	BUENA PARK	CA	90620-0000	SEAN MCGUIRE	2
Wholesaler/Dist	RSD	640 COMMERCE DRIVE, #200	ROSEVILLE	CA	95678-0000	JOHN PULLIN	2
Wholesaler/Dist	RSD	680 UNION AVE	POMONA	CA	91768-0000	DAN WEAVER	2
Wholesaler/Dist	RSD	702 WEST 190TH STREET	GARDENA	CA	90248-0000	JIM PINAULT	2
Wholesaler/Dist	RSD	715 SOUTH FLOWER STREET	BURBANK	CA	91502-2014	TIM WILBUR	2
Wholesaler/Dist	RSD	7332 CONVOY COURT, STE A	SAN DIEGO	CA	92111-0000	LEROY SABERS	2
Wholesaler/Dist	RSD	915 INDOSLAT AVE	REDDING	CA	96001-0000	BOB HUNT	1
Wholesaler/Dist	RSD	915 INDUSTRIAL AVENUE, STE 101	REDDING	CA	96002-0000	RICHARD ENGLISH	2
Wholesaler/Dist	RSD-48	702 W. 190TH STREET	GARDENA	CA	90248-0000	JIM PINAULT	1
Wholesaler/Dist	RSD-MONTEREY PARK	1201 MONTEREY PASS ROAD	MONTEREY PARK	CA	91754-3616	ROB ACOSTA	1
Wholesaler/Dist	RSD-TOTAL CONTROL	221 PANORAMA DRIVE	BENICIA	CA	94510-0000	JOE FRISINGER	2
Wholesaler/Dist	SIGLER INC	20680 NORDHOFF ST	CHATSWORTH	CA	91311	(blank)	1
Wholesaler/Dist	SIGLER INC	2301 ARNOLD INDUSTRIAL WAY	CONCORD	CA	94520	(blank)	2
Wholesaler/Dist	SIGLERS	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	CA	91744	(blank)	1
Wholesaler/Dist	SIGLERS	20680 NORDHOFF ST	CHATSWORTH	CA	91311	(blank)	1
Wholesaler/Dist	SLAKEY BROTHERS	1001 OATES COURT	MODESTO	CA	95352	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	111 MADRONE	SANTA CRUZ	CA	95060	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	1190 WESTERN STREET	FAIRFIELD	CA	94533	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	1200 INDUSTRIAL STREET	REDDING	CA	96002	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	12277 LOMA RICA DRIVE SUITE E	GRASS VALLEY	CA	95945	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	1400 SOUTH HIGHWAY 49	JACKSON	CA	95642	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	19450 INDUSTRIAL DRIVE	SONORA	CA	95370	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2201 EAST BRUNDAGE LANE	BAKERSFIELD	CA	93307	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2215 KAUSEN STE 1	ELK GROVE	CA	95758	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2301 PARK AVENUE	CHICO	CA	95927	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2460 BATES AVENUE	CONCORD	CA	94520	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2540 TEEPEE DRIVE	STOCKTON	CA	95208	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	26534 DANTI CT	HAYWARD	CA	91520	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2845 DUKE COURT	SANTA ROSA	CA	95407	HVAC MANAGER	2

Wholesaler/Dist	SLAKEY BROTHERS	30 STEIN AM RHEIN CT STE F	REDWOOD CITY	CA	94063	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	CA	95660	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	321 ORANGE AVENUE	SAND CITY	CA	93955	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	328 ROEBLING ROAD	SOUTH SAN FRANCISCO	CA	94080	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	4333 NORTH EFFIE STREET	FRESNO	CA	93755	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	545 BOYD STREET	YUBA CITY	CA	95992	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	601 WORK STREET	SALINAS	CA	93901	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	863 SAVAKER AVE	SAN JOSE	CA	95126-0000	MATT CHRISTY	1
Wholesaler/Dist	SLAKEY BROTHERS	863 SAVAKER STREET	SAN JOSE	CA	95126	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS/BAKERSFIELD	2201 EAST BRUNDAGE LANE	BAKERSFIELD	CA	93307	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/CHICO	2301 PARK AVENUE	CHICO	CA	95927	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/ELK GROVE	2215 KAUSEN STE 1	ELD GROVE	CA	95758	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/FAIRFIELD	1190 WESTERN STREET	FAIRFIELD	CA	94533	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/FRESNO	4333 NORTH EFFIE STREET	FRESNO	CA	93755	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/GRASS VALLEY	12277 LOMA RICA DRIVE, STE E	GRASS VALLEY	CA	94945	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/JACKSON	1400 SOUTH HIGHWAY 49	JACKSON	CA	95642	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/MODESTO	1001 OATES COURT	MODESTO	CA	95352	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/NORTH HIGHLANDS	3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	CA	95660	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/REDDING	1200 INDUSTRIAL STREET	REDDING	CA	96049	JOE FRISINGER (SALES REP)	1

Wholesaler/Dist	SLAKEY BROTHERS/REDWOOD CITY	30 STEIN AM RHEIN COURT STE F	REDWOOD CITY	CA	94063	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/S. SAN FRANCISCO	328 ROEBLING ROAD	S. SAN FRANCISCO	CA	94080	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SALINAS	601 WORK STREET	SALINAS	CA	93901	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SAN JOSE	863 SAVAKER STREET	SAN JOSE	CA	95126	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SAND CITY	321 ORANGE AVENUE	SAND CITY	CA	93955	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SANTA CRUZ	111 MADRONE	SANTA CRUZ	CA	95060	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SANTA ROSA	2845 DUKE COURT	SANTA ROSA	CA	95407	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SONORA	19450 INDUSTRIAL DRIVE	SONORA	CA	95370	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/STOCKTON	2540 TEEPEE DRIVE	STOCKTON	CA	95208	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/YUBA CITY	545 BOYD STREET	YUBA CITY	CA	95992	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SOUTHERN CALIFORNIA AIR CON APPL	1000 N. JOHNSON AVE.	EL CAJON	CA	92020	RICK GIBSON	1
Wholesaler/Dist	SPECIALTY AC	5250 EAST SECOND STREET	BENICIA	CA	94510-0000	KEN WIBLE	3
Wholesaler/Dist	STANDARD SUPPLY USA	1820 "S" STREET	SACRAMENTO	CA	95811	R. J.	2
Wholesaler/Dist	T & A SUPPLY, INC.	1045 NORTH 10TH STREET	SAN JOSE	CA	95112	COUNTER	1
Wholesaler/Dist	THRIFTY SUPPLY	8541 23RD AVE.	SACRAMENTO	CA	95826	MIKE EDWARDS	1
Wholesaler/Dist	THRIFTY SUPPLY	8541 23RD AVENUE	SACRAMENTO	CA	95826-0000	MIKE EDWARDS	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	1070 COMMERCIAL STREET, SUITE 106	SAN JOSE	CA	95112	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	1090 E. COOLEY AVENUE	SAN BERNARDINO	CA	92408	(blank)	2

Wholesaler/Dist	TOTALINE OF CALIFORNIA	12819 TELEGRAPH RD.	SANTA FE SPRINGS	CA	90670	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	CA	91744	(blank)	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	18791 RANCHO WAY, UNIT A	RANCHO DOMINGUEZ	CA	90220	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	20191 WINDROW DR. UNIT B	LAKE FOREST	CA	92630	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	205 S. PUENTE ST	BREA	CA	92821	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2301 ARNOLD INDUSTRIAL WAY	CONCORD	CA	94520	(blank)	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2345 LOS ANGELES STREET	FRESNO	CA	92721	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2425 AUTO PKWY SUITE 200	ESCONDIDO	CA	92029	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2641 LINDSAY PRIVADO DR.	ONTARIO	CA	91761	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	41710 REAGAN WAY	MURRIETA	CA	92562	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	421 S. LOMBARD ST.	OXNARD	CA	93030	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	4517 STANDARD STREET	BAKERSFIELD	CA	93308	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	4863 SHAWLINE STREET	SAN DIEGO	CA	92111	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	615 W. GROVE AVE.	ORANGE	CA	92865	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	6450 SYCAMORE CANYON BLVD.	RIVERSIDE	CA	92507	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	6650 TOP GUN ST.	SAN DIEGO	CA	92121	(blank)	2

Wholesaler/Dist	TOTALINE OF CALIFORNIA	7615 N. SAN FERNANDO RD.	BURBANK	CA	91352	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	78-305 DINAH SHORE, BLDG 1200	PALM DESERT	CA	92211	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	8615 23RD AVENUE	SACRAMENTO	CA	95826	(blank)	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	99 SOUTHHILL DRIVE SUITE B	BRISBANE	CA	94005	(blank)	2
Wholesaler/Dist	TRANE PARTS CENTER	4145 DEL MAR AVENUE	ROCKLIN	CA	95677-0000	HAROLD HAYEK	1
Wholesaler/Dist	UNITED REFRIGERATION	1134 E. DOMINGUEZ STREET	CARSON	CA	90746-3518	CAMERON TRACY	1
Wholesaler/Dist	UNITED REFRIGERATION	1265 WEST MCCOY LANE, STE. C	SANTA MARIA	CA	93455-1058	RICK SMITH	1
Wholesaler/Dist	UNITED REFRIGERATION	134 NOPALITOS WAY	SANTA BARBARA	CA	93103-3629	ABEL ACOSTA	1
Wholesaler/Dist	UNITED REFRIGERATION	1413 GRANITE LANE	MODESTO	CA	95351-1121	MICHAEL POND	1
Wholesaler/Dist	UNITED REFRIGERATION	15054 KESWICK STREET	VAN NUYS	CA	91405-1132	VICTOR MARKLEY	1
Wholesaler/Dist	UNITED REFRIGERATION	1736 JANELLI COURT	VISALIA	CA	93292-6644	DANNY BAUTISTA	1
Wholesaler/Dist	UNITED REFRIGERATION	1848 EAST GRIFFITH WAY	FRESNO	CA	93726-4819	ALAN LEDGERWOOD	1
Wholesaler/Dist	UNITED REFRIGERATION	1920 EAST MCFADDEN AVENUE	SANTA ANA	CA	92705-4705	RANDY BOATMAN	1
Wholesaler/Dist	UNITED REFRIGERATION	1951 GARDENA AVENUE	GLENDALE	CA	91204-2910	J. C. CHRISTENSEN	1
Wholesaler/Dist	UNITED REFRIGERATION	2225 AUTO PARK WAY	ESCONDIDO	CA	92029-1348	RICH MALDONADO	1
Wholesaler/Dist	UNITED REFRIGERATION	230 EAST 21ST STREET	BAKERSFIELD	CA	93305-5115	MIKE SULLIVAN	1
Wholesaler/Dist	UNITED REFRIGERATION	2405 VERNA COURT	SAN LEANDRO	CA	94577-4222	CHARLEY KIM	1

Wholesaler/Dist	UNITED REFRIGERATION	2626 SOUTHPORT WAY, STE. G	NATIONAL CITY	CA	91950-8752	JOSE MONTELONGO	1
Wholesaler/Dist	UNITED REFRIGERATION	3120 PASEO MERCADO, STE. 101	OXNARD	CA	93036-8916	GREGG MEISEL	1
Wholesaler/Dist	UNITED REFRIGERATION	4060 EAST AIRPORT DRIVE	ONTARIO	CA	91761-1566	JOHN VASQUEZ	2
Wholesaler/Dist	UNITED REFRIGERATION	41573 CHERRY STREET	MURRIETA	CA	92562-9193	BILL MACK	1
Wholesaler/Dist	UNITED REFRIGERATION	4248 ROSEVILLE ROAD	SACRAMENTO	CA	95660-5710	JIM MCMANAMAN	1
Wholesaler/Dist	UNITED REFRIGERATION	510 EAST RANCHO VISTA BLVD.	PALMDALE	CA	93550-3005	JEFF HARRIS	1
Wholesaler/Dist	UNITED REFRIGERATION	5345 THIRD STREET	IRWINDALE	CA	91706-2085	JOHN GARDNER	1
Wholesaler/Dist	UNITED REFRIGERATION	6150 VALLEY VIEW STREET	BUENA PARK	CA	90620-1030	RICH SCOTT	1
Wholesaler/Dist	UNITED REFRIGERATION	625 LINCOLN AVENUE	SAN BERNADINO	CA	92408-2230	SCOTT RICHARDSON	1
Wholesaler/Dist	UNITED REFRIGERATION	77-670 SPRINGFIELD LANE, STE #5A	PALM DESERT	CA	92211-0474	KEVIN LABAR	1
Wholesaler/Dist	UNITED REFRIGERATION	8835 COMPLEX DRIVE	SAN DIEGO	CA	92123-1403	BILL SELLERS	1
Wholesaler/Dist	UNITED REFRIGERATION	904 COMMERCIAL STREET	SAN JOSE	CA	95112-1435	BILL DAVIDSON	1
Wholesaler/Dist	UNITED REFRIGERATION	933 WASHINGTON STREET	SAN CARLOS	CA	94070-5316	TOM DAVIDSON	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1002 INDUSTRY WAY	EL CENTRO	CA	92243	SANTIAGO ESTAVILLO	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1238-A SIMPSON WAY	ESCONDIDO	CA	92029-0000	ERIC J. PIERCY	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1250 NORTH MARSHALL AVENUE	EL CAJON	CA	92020-0000	VALERIE DEVEAU	1

Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1304 S, CLAUDINA STREET	ANAHEIM	CA	92805-0000	PAUL WOLFE	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	16900 CHESTNUT STREET	CITY OF INDUSTRY	CA	91748-0000	TONY GRANADOS	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	17615 CATALPA STREET	HESPERIA	CA	92345-0000	TODD PALMER	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1951 FAIRWAY DRIVE	SAN LEANDRO	CA	94577-0000	GARY EPPERSON	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	2100 CHICAGO AVENUE	RIVERSIDE	CA	92507-0000	PERRY WALEK	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	27470 COLT COURT	TEMECULA	CA	92590-0000	RUSSELL J. TINGLEY	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	2751 TEMPLE AVE	SIGNAL HILL	CA	90755-2210	STEVE FREDRICK	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	3035 CROSSROADS DRIVE	REDDING	CA	96003	BILL HYRES	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	3333 ORANGE GROVE	NORTH HIGHLANDS	CA	95660-0000	CARLA VALLEJOS	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	4700 RUFFNER STREET	SAN DIEGO	CA	92111-0000	JEFF LEGGITT	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	720 WILLIAMS STREET	BAKERSFIELD	CA	93305-0000	ARNIE MORENO	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	9250 OWENSMOUTH AVENUE	CHATSWORTH	CA	91311-0000	MIKE BOOKER	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS UC	495 MARQUITA AVENUE	Paso Robles	CA	93446	CESAR ABURTO	1
Wholesaler/Dist	USACD	16900 CHESTNUT STREET	CITY OF INDUSTRY	CA	91748	TONY ALBERS	1
Wholesaler/Dist	WESTERN NEVADA SUPPLY	10990 INDUSTRIAL WAY	TRUCKEE	CA	96161-0000	TED REUIGLIO	1
Wholesaler/Dist	WESTERN NEVADA SUPPLY	200 BELLA WAY	SUSANVILLE	CA	96130-9166	BRENDEN BOISE	1
Wholesaler/Dist	WESTERN NEVADA SUPPLY	515 SOUTH MAIN STREET	BISHOP	CA	93514-0000	MIKE GUIDO	1

Appendix J: California locations that shipped product in 2010

Bin Number	Customer Name	City	Zip	Sum of Total Stats	Sum of Total lbs mercury
F10362	REFRIGERATION SUPPLIES DISTRIBUTOR	TEMECULA	92590	33	0.403
M10754	HOWARD INDUSTRIES	CULVER CITY	(blank)	42	0.7874
M10992	GEARY PACIFIC SUPPLY	REDDING	96002-9223	46	0.682
M11059	FIX AIR AUTHORIZED Trane PARTS	SAN JOSE	95112	39	0.6572
M11070	HOWARD INDUSTRIES	CULVER CITY	90232-0000	40	0.806
M11071	HOWARD INDUSTRIES	CULVER CITY	90232-0000	41	0.837
M11072	HOWARD INDUSTRIES	CULVER CITY	90232-0000	42	0.6138
M11150	JOHNSTONE SUPPLY	UPLAND	91786	79	0.713
M11262	RSD	MONTEREY PARK	91754	53	0.5146
	RSD-MONTEREY PARK	MONTEREY PARK	91754-3616	27	0.3286
M11263	RSD	MONTEREY PARK	91754-3616	80	1.1222
M11272	RSD	FRESNO	93703-3005	74	1.3144
M11273	RSD	FRESNO	93703-3005	63	0.7564
M11274	RSD	ANAHEIM	92806	69	1.271
M11275	RSD	ANAHEIM	92806	73	1.1532

			92806-1760	80	1.1656
M11277	RSD	SACRAMENTO	95815-3216	42	0.5704
M11278	RSD	SAN LEANDRO	94577-1024	51	0.899
M11279	RSD	SAN LEANDRO	94577-1024	75	0.837
	RSD	SAN LEANDRO	94577	77	1.3578
M11298	RSD	REDDING	96002	45	0.6758
M11299	RSD	SAN JOSE	95112	44	0.899
			95112-0000	134	1.9902
M11300	RSD	SOUTH SAN FRANCISCO	94080-6818	35	0.6262
M11302	RSD	CONCORD	94520	46	0.6386
			94520-0000	57	0.9114
M11303	RSD	CONCORD	94520	57	0.992
M11305	RSD	VAN NUYS	91405-0000	75	0.837
	RSD	VAN NUYS	91405	28	0.3844
M11307	RSD	MODESTO	95351-0000	59	0.5704
M11310	RSD	SANTA ROSA	95407	50	0.7378
M11311	RSD	SANTA ROSA	95407	42	0.7378
M11312	RSD	POMONA	91768	57	0.5952
			91768-0000	94	1.0788
M11313	RSD	POMONA	91768-	136	1.8228

			0000		
M11315	R.S.D.	GARDENA	90248	30	0.5332
M11318	REFRIGERATION SUPPLIES DIST	SANTA ANA	92705	53	0.8618
	RSD	SANTA ANA	92705-0000	50	0.8122
M11320	RSD	REDDING	96002	31	0.4464
M11321	RSD	SAN JOSE	95112-0000	128	2.6474
M11348	RSD	EL CENTRO	92243	28	0.3286
M11352	RSD	LAKE FOREST	92630	47	0.7502
M11719	RSD	ONTARIO	91761-0000	44	0.6448
M11720	RSD	ONTARIO	91761-0000	93	1.705
M11944	JOHNSTONE SUPPLY-ANAHEIM	ANAHEIM	92805-0000	127	1.5686
M11945	JOHNSTONE SUPPLY CO	ESCONDIDO	92029-0000	87	1.4446
M12427	JOHNSTONE SUPPLY	SAN JOSE	95112-1070	71	0.7998
	JOHNSTONE SUPPLY CO	SAN JOSE	95112-0000	54	0.5704
M12428	JOHNSTONE SUPPLY CO	OAKLAND	94607-0000	39	0.3224
M12430	UNITED REFRIGERATION	BUENA PARK	90620	44	0.6572
			90620-1030	34	2.4118
M12445	JOHNSTONE SUPPLY	SUN VALLEY	91352	46	0.4464
	JOHNSTONE SUPPLY # 33	SUN VALLEY	91352	45	0.4898
	JOHNSTONE SUPPLY #33	SUN VALLEY	91352	44	0.4278

	JOHNSTONE SUPPLY CO	SUN VALLEY	91352-0000	156	1.4756
M12494	JOHNSTONE SUPPLY	FRESNO	93727	68	0.8122
	JOHNSTONE SUPPLY CO	FRESNO	93727-0000	40	0.4774
M12584	UNITED REFRIGERATION	GLENDALE	91204-2910	30	1.178
M12664	CALIFORNIA COOLING	EL CAJON	92020-0000	49	1.5748
	CALIFORNIA COOLING SUPPLY	EL CAJON	92020	52	0.744
M12665	CALIFORNIA COOLING	EL CAJON	92020-0000	45	0.5828
M12702	BURKE ENGINEERING CO.	OAKLAND	94621	48	0.6324
			94621-3016	65	0.5518
	BURKE ENGINEERING COMPANY	OAKLAND	94621-3016	46	0.4712
M12705	BURKE ENGINEERING CO.	NORTH HIGHLANDS	95660	38	0.403
M12861	CITY OF SACRAMENTO PHHWCF	SACRAMENTO	95826	40	0.372
M13148	BURKE ENGINEERING CO.	ANAHEIM	92805	31	0.3038
	BURKE ENGINEERING COMPANY	ANAHEIM	92805-0000	264	5.3134
M13156	BURKE ENGINEERING COMPANY	VAN NUYS	91406-0000	57	0.5642
M13158	BURKE ENGINEERING CO.	NORTH HIGHLANDS	95660	34	0.496
M13159	BURKE ENGINEERING CO.	RIVERSIDE	92507	41	2.2692
M13160	BURKE ENGINEERING COMPANY	LONG BEACH	90805-0000	54	0.6944
M13163	BURKE ENGINEERING CO.	OAKLAND	94621	36	0.5394
	BURKE ENGINEERING COMPANY	OAKLAND	94621-	98	0.8928

			0000		
M13698	CITY OF FREMONT PHHWCF	FREMONT	94538	34	0.3038
M13747	REFRIGERATION SUPPLIES DIST	LIVERMORE	94551	32	0.5766
	RSD	LIVERMORE	94551-0000	48	0.8866
M13749	RSD	LIVERMORE	94551	41	0.9052
M13850	JOHNSTONE SUPPLY CO	SOUTH SAN FRANCISCO	94080-0000	98	0.7936
M13851	JOHNSTONE SUPPLY CO	SOUTH SAN FRANCISCO	94080-0000	91	0.8308
M14118	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	40	0.372
M14172	SAN LUIS OBISPO COUNTY INTEGRATED WASTE MANAGEMENT AUTHORITY	SAN LUIS OBISPO	93401-0000	28	0.2418
M14177	MSI HVAC	FONTANA	92337	39	0.3782
M14178	MSI HVAC	ESCONDIDO	92029	35	0.3844
M14180	MSI HVAC	LAGUNA HILLS	92653	60	0.7502
M14188	MERCED COUNTY HHW	MERCED	95340	53	1.364
M14189	MERCED COUNTY HHW	MERCED	95341-6216	49	0.5642
M14194	A-1 GUARANTEED	VALLEJO	94589	55	0.4712
M14275	PARC ENVIRONMENTAL	FRESNO	93725	0	0
M14276	PARC ENVIRONMENTAL	FRESNO	93725	5	0.0992
M14343	KERN COUNTY SPECIAL WASTE FACILITY	RIDGECREST	93555	41	0.4154
M14373	UNITED REFRIGERATION	PALMDALE	93550-3005	33	0.3844
M14380	UNITED REFRIGERATION	SANTA BARBARA	93103-3629	43	0.5828
M14383	UNITED REFRIGERATION	VISALIA	93292-	60	1.1284

			6644		
M14461	BAY COUNTIES WASTE SERVICES	SUNNYVALE	94089-0000	23	0.1984
M14462	BAY COUNTIES WASTE SERVICES	SUNNYVALE	94089	17	0.1922
M14469	JOHNSTONE SUPPLY	LAGUNA HILLS	92653-1307	63	0.5952
M14495	US AIR CONDITIONING DISTRIBUTORS	ANAHEIM	92805-0000	70	1.1532
M14496	US AIR CONDITIONING DISTRIBUTORS	BAKERSFIELD	93305-0000	3	0.031
M14497	US AIR CONDITIONING DIST.	CHATSWORTH	91311	41	0.4898
	US AIR CONDITIONING DISTRIBUTORS	CHATSWORTH	91311-0000	192	3.224
M14498	US AIR CONDITIONING DISTRIBUTORS	EL CAJON	92020-0000	89	0.8432
M14499	US AIR CONDITIONING DISTRIBUTORS	CITY OF INDUSTRY	92397	119	1.2028
			91748-0000	748	17.6018
	USACD	CITY OF INDUSTRY	91748	153	2.1266
	USAIRCONDITIONING	CITY OF INDUSTRY	91748	37	0.4278
M14500	US AIR CONDITIONING DISTRIBUTORS	RIVERSIDE	92507-0000	276	4.1168
	USAIRCONDITIONING	RIVERSIDE	92507	24	0.2976
M14501	US AIR CONDITIONING	SAN DIEGO	92111	49	0.7068
	US AIR CONDITIONING DISTRIBUTORS	SAN DIEGO	92111-0000	97	1.5624
M14502	US AIR CONDITIONING DISTRIBUTORS	SIGNAL HILL	90755-0000	223	2.914
			90755-2210	383	6.4232

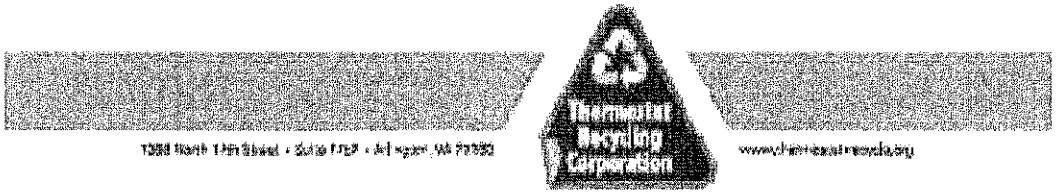
M14503	US AIR CONDITIONING DISTRIBUTORS	NORTH HIGHLANDS	95660-0000	14	0.1612
M14504	US AIR COND. DIST.	SAN LEANDRO	94577	52	0.5022
	US AIR CONDITIONING DISTRIBUTORS	SAN LEANDRO	94577-0000	42	0.3286
M14522	GOOD CENTS	MANECA	95336	49	0.4216
		MANTECA	95330	54	0.4712
	GOODCENTS	MANLECA	95336	41	0.4402
		MANTECA	95336	37	0.31
M14523	ENERTOUCH IN D/B/A GOODCENTS SOLUTIONS	MANTECA	95336-0000	174	1.86
	GOOD CENTS	MANTECA	95336	149	1.4942
	GOODCENTS	MANTECA	95336	129	1.6678
			95336-0000	53	0.5394
M14528	AMERICAN REFRIGERATION SUPPLIES INC.	SAN DIEGO	92111-0000	30	0.3596
M14530	AMERICAN REFRIGERATION SUPPLIES	SAN FRANCISCO	94103	27	0.4402
	AMERICAN REFRIGERATION SUPPLIES INC.	SAN FRANCISCO	94103-0000	25	0.4278
M14538	SAN BERNADINO COUNTY FIRE DEPT. HHW	SAN BERNADINO	92415	42	0.4836
	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	32	0.2976
M14544	SLAKEY BROTHERS	SAN JOSE	95126-0000	70	1.0664
M14545	US AIR CONDITIONING DISTRIBUTORS	ESCONDIDO	92029	80	0.9486
			92029-0000	116	1.4508
M14572	US AIR CONDITIONING DISTRIBUTORS	REDDING	96003	119	1.3702

M14577	SLAKEY BROS	ELK GROVE	95758	4	0.0558
M14578	SLAKEY BROTHERS	FAIRFIELD	94533	22	0.341
M14580	SLAKEY BROS	SANTA ROSA	95407	52	0.5394
M14582	SLAKEY BROTHERS	JACKSON	95642-2667	28	0.3162
M14584	SLAKEY BROS	NORTH HIGHLANDS	95660	27	0.2604
M14591	SLAKEY BROS	SANTA ROSA	95407	51	0.5084
	SLAKEY BROTHERS	SANTA ROSA	95407	33	0.3348
M14593	SLAKEY BROTHERS	SOUTH SAN FRANCISCO	94080	48	0.9114
M14594	SLAKEY BROTHERS	YUBA CITY	95992	25	0.1984
M14597	FERGUSON HEATING & COOLING	SACRAMENTO	95834	58	0.6882
M14600	FERGUSON HEATING & COOLING	NEWBURY PARK	91320	53	0.558
M14602	AIR COLD-A FERGUSON ENTERPRISE	SAN GABRIEL	91776	71	0.6758
M14607	AIR COLD-A FERGUSON ENTERPRISE	SAN LUIS OBISPO	93401-7316	58	0.5456
M14610	AIR COLD-A FERGUSON ENTERPRISE	EL CAJON	92020-0000	48	0.6944
M14645	US AIR CONDITIONING DISTRIBUTORS	HESPERIA	92345-0000	55	1.984
M14659	ALLIED REFRIGERATION	SIGNAL HILL	90755-0000	40	0.899
M14661	ALLIED REFRIGERATION	TUSTIN	92780-0000	33	0.6572
M14662	ALLIED REFRIGERATION	CONCORD	94520-0000	28	0.279
M14664	ALLIED REFRIGERATION	POMONA	91767-5840	218	3.2116
M14666	ALLIED REFRIGERATION	SAN JOSE	95112-0000	45	0.8928

	ALLIED REFRIGERATION INC.	SAN JOSE	95112	64	1.0664
M14668	ALLIED REFRIGERATION	VAN NUYS	91406-0000	217	1.5128
M14679	US AIR CONDITIONING DISTRIBUTORS	TEMECULA	92590-0000	61	0.9362
M14764	SIGLERS	CHATSWORTH	91311	35	0.3968
M14765	SIGLER INC	CHATSWORTH	91311	34	0.403
M14768	CARRIER CORP	CONCORD	94520	72	0.62
	TOTALINE OF CALIFORNIA	CONCORD	94520	34	0.2976
M14769	CARRIER CORP	CONCORD	84520	60	0.5332
	SIGLER INC	CONCORD	94520	24	0.2852
M14780	CARRIER CORP	ORANGE	92865	21	0.2294
M14781	CARRIER CORP	ORANGE	92865	27	0.3472
M14790	CARRIER CSD	CONCORD	94520	37	0.4898
	SIGLER INC	CONCORD	94520	30	0.2046
M14791	TOTALINE OF CALIFORNIA	SACRAMENTO	95826	43	0.3596
M14797	TOTALINE OF CALIFORNIA	SAN DIEGO	92121	111	0.7688
M14799	TOTALINE OF CALIFORNIA	SAN JOSE	95112	27	0.31
M14832	YUBA-SUTTER HHW FACILITY C/O YUBA-SUTTER DISPOSAL, INC	MARYSVILLE	95901	51	0.4836
M14918	SLAKEY BROTHERS	GRASS VALLEY	95945	34	0.3844
M14942	SLAKEY BROTHERS/FAIRFIELD	FAIRFIELD	94533	31	0.3534
M14952	SLAKEY BROTHERS/SAN JOSE	SAN JOSE	95126	22	0.2542
M14954	SLAKEY BROS	SANTA ROSA	95407	58	0.4898
M15004	ENERTOUCH INC. D/B/A GOOD CENTS SOLUTIONS	MANTECA	95336	149	1.4756
	GOOD CENTS	MANTECA	95336	50	0.5146
	GOODCENTS	MANTECA	95336	42	0.372
M15005	ENERTOUCH INC. D/B/A GOOD CENTS SOLUTIONS	MANTECA	95336	140	1.4632
	GOODCENTS	MANTECA	95336	117	1.3082

M15006	GOOD CENTS	MANTECA	95336	44	0.5084
	GOODCENTS	MANTECA	95336	44	0.4092
M15007	ENERTOUCH INC. D/B/A GOOD CENTS SOLUTIONS	MANTECA	95336	91	1.0416
	GOOD CENTS	MANTECA	95330	47	0.4402
	GOODCENTS	MANLECA	95336	40	0.465
		MANTECA	95330	86	0.9114
		MENTECA	95336	42	0.4216
M15065	CITY OF SAN DIEGO, MIRAMAR HHWCF	SAN DIEGO	92111-0000	81	0.7192
M15068	JOHNSTONE SUPPLY	UPLAND	91786-5720	70	0.527
	JOHNSTONE SUPPLY UPLAND	UPLAND	91786-5720	93	1.3206
M15074	US AIR CONDITIONING DISTRIBUTORS	EL CENTRO	92243	181	1.5314
	USAIRCONDITIONING	EL CENTRO	92243	169	1.643
M15123	RSD	CHATSWORTH	91311	46	0.5084
M15124	RSD	CHATSWORTH	91311	61	0.7874
M15143	JOHNSTONE SUPPLY OF LONE BEACH	LONG BEACH	90806-2213	102	1.2586
	JOHNSTONE SUPPLY OF LONG BEACH	LONG BEACH	90806	61	0.5766
M15457	ATWATER SUPPLY	SAN DIEGO	92110	66	0.7936
	JOHNSTONE SUPPLY	SAN DIEGO	92110	39	0.6944
M15462	RAHAC HTG & COOLING INC.	GLENDALE	91201	15	0.186
		LOS ANGELES	90063-0000	25	0.2976
M15645	USACD	CITY OF INDUSTRY	91748	50	1.2648
Grand Total				13340	185.8016

Appendix K: Correspondence to California Energy Commission



Contact
State Department
Address
City State Zip

Date

Dear _____:

This letter is intended to bring your attention to the issue of the proper disposal of end-of-use mercury-containing thermostats. As you may be aware, many older thermostats contain on average 3 grams of mercury and it is important that at the end-of-use these thermostats are properly disposed of to prevent release of mercury into the environment.

In fact, many states regulate the disposal of mercury-containing products and several go further requiring contractors to assume responsibility for the proper disposal of mercury-containing thermostats.

Fortunately, the proper end-of-life management of mercury thermostats is easy. Voluntarily founded by manufacturers, the Thermostat Recycling Corporation provides an easy and affordable way for contractors to properly dispose of mercury-containing thermostats. TRC has collection locations in 47 states that accept end-of-use thermostats at no charge. TRC absorbs all costs related to shipping, handling, and processing of the waste thermostats. To date, TRC has collected and recycled over 4 tons of mercury and nearly 1 million thermostats.

It is our understanding that many state energy programs are promoting the use of electronic programmable thermostats. We strongly encourage you to incorporate thermostat recycling into your programs. Additionally, adding a link to TRC's website from your own may encourage participation in the program.

To learn more about TRC and how it can support thermostat recycling in your state, please refer to the attached fact sheet that we've included with this letter. Also, you may visit our website at www.thermostat-recycle.org. To contact TRC directly, email Mark.Tibbetts@nema.org or call 703-841-3246.

Sincere Regards,

Mark Tibbetts
Executive Director
Thermostat Recycling Corporation

Appendix L: Correspondence with California PUC

NEMA
Setting Standards for Excellence

The Association of Electrical and Medical Imaging Equipment Manufacturers
www.nema.org

August 2010

Michael R. Peevey, President
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

RE: Introduction to the Thermostat Recycling Corporation

Dear Commissioner Peevey:

The National Electrical Manufacturers Association (NEMA) is the primary trade association representing the interests of the US electrical products industry. Our 430 member companies supply the full spectrum of products used worldwide in the generation, transmission, distribution, control, and end-use of electricity.

In 1998, three NEMA member companies – Honeywell, White-Rodgers, and GE – voluntarily established the Thermostat Recycling Corporation (TRC), a nationwide non-profit designed to facilitate recycling of mercury-added thermostats. The TRC now has 29 corporate members and is the only national program of its kind in the US (see www.thermostat-recycle.org).

I am writing to introduce you to the TRC and its vital role in ensuring that heating, ventilation & air conditioning (HVAC) contractors and demolition workers who remove out-of-service mercury thermostats dispose of them in accordance with California law. The Mercury Thermostat Collection Act of 2008,[1] enacted with the support of Honeywell, the largest corporate member of the TRC, established a regulatory framework for the program aimed at increasing its effectiveness in the state. A key provision of this law is a ***legal obligation*** on HVAC contractors, the parties who handle end-of-life thermostats most frequently, to ensure they do not enter the solid waste stream (see Sec. 25214.8.15).

This requirement is particularly important for contractors implementing utility energy efficiency programs that involve the replacement of old thermostats with new demand response or smart grid enabled devices. Once a mercury thermostat is removed from service, under California law that thermostat can never be re-installed and must be taken by the contractor to a recycling location. Fortunately, the TRC program provides the means for contractors to meet this requirement.

I encourage you to familiarize yourself with this industry-funded and operated program, and to share this information with relevant CPUC offices and staff. The program is convenient, accessible, and virtually cost-free to participants and we are committed to working with state officials to ensure its continued success in California. If you have questions or would like additional information, please do not hesitate to contact me at 703-841-3249 or mar_kohorst@nema.org.

Very truly yours,

Mark A. Kohorst
Senior Manager, Environment Health & Safety

[1] Chaptered as article 10.2.2., chapter 6.5 of Division 20 of the California Health and Safety Code, relating to hazardous waste.

Appendix M: Correspondence with CSLB

Tibbetts, Mark

From: Tibbetts, Mark
Sent: Friday, August 27, 2010 10:38 AM
To: [redacted]@cslb.ca.gov'
Subject: Information on CA mercury thermostat Act
Attachments: CA CSLB Blurb.doc

Venus,

You may recall we spoke about a week ago regarding the CA Mercury Thermostat Act. As promised attached is a short article for CSLB's newsletter. The article summarizes CA contractors' legal obligations under the Act and how simple it is to comply with the law by taking advantage of the manufacturers' take-back program.

If you have any questions, or need additional information please do not hesitate to contact me.

We deeply appreciate your assistance in getting the word out to CA contractors.

Regards,

Mark Tibbetts
Executive Director
Thermostat Recycling Corporation

Direct: 703.841.3246
Fax: 703.841.3346
Mobile: 202.340.6232
www.nema.org
www.thermostat-recycle.org

Appendix N: Correspondence to American Supply Association

September 13, 2010

Mr. Michael Adelizzi
Executive Vice President
American Supply Association
222 Merchandise Mart, Suite 1400
Chicago, IL 60654

Subject: Legal Mandate in Nine States for HVAC Wholesale Distributors to Collect Waste Mercury Thermostats

Dear Mr. Adelizzi:

Thermostat Recycling Corporation (TRC) requests your assistance in informing your members about their legal obligations in several states to collect waste mercury thermostats.

As you maybe aware, many older thermostats contain between three and twelve grams of mercury. While safe when in use, these thermostats may pose a risk to human health and the environment when discarded in solid waste.

In an attempt to increase the number of thermostats diverted from solid waste, several states have passed laws relating to the collection and disposal of waste mercury thermostats. Currently seven states (California, Iowa, Maine, Montana, New Hampshire, Pennsylvania, and Vermont) require wholesale distributors of HVAC equipment to act as a collection point for waste mercury-containing thermostats. Two additional states (Illinois and Rhode Island) begin mandating collections in 2011.

Fortunately, for wholesale distributors who currently are not collecting mercury thermostats, a simple and low-cost collection/recycling program that satisfies most state legal obligations exists. Manufacturers of mercury-containing thermostats started the non-profit Thermostat Recycling Corporation in 1997 to facilitate the collection of all brands of mercury-containing thermostats.

For a modest one-time fee (currently $25 per collection container), TRC provides a sturdy plastic collection container, pre-paid shipping label, and educational materials to collection points. TRC assumes all on-going costs for shipping and processing of the thermostats. All that TRC requires is that collection locations only ship whole mercury-containing thermostats (no other mercury-containing products) with their covers, return the container at least once a year, and assistance in promoting the program.

Exhibit 9

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

April 1, 2012

VIA EMAIL

Ms. Debbie Raphael, Director
Department of Toxic Substances Control
10001 I Street
Sacramento, CA 95814

Subject: Thermostat Recycling Corporation's 2011 Annual Report for California

Dear Ms. Raphael:

Attached is TRC's annual collection report for calendar year 2011. TRC has made its best effort to provide a comprehensive report on its efforts to promote the collection program in California and improve the program's environmental outcomes. A copy of this report may be found on TRC's website at: http://www.thermostat-recycle.org/media/index.

While results are encouraging, much work remains. The program built upon 2010's growth and increased the number of thermostats recovered from California collection locations by nearly 50%.

TRC continues to aggressively market its program in California and the attached report describes a number of modifications to the program in an effort to increase the number of mercury switch thermostats recovered from California in 2012.

Sincere Regards,

Mark Tibbetts
Executive Director

Cc: TRC Member Representatives

Collection Data

Table 1: 2011 California Collections by Brand

	Thermostats	Switches	Lbs Mercury
Honeywell	13,732	28,465	176.48
White Rogers	1,994	2,717	16.85
GE	116	318	1.97
Bard	79	250	1.55
Burnham	9	19	0.12
Carrier	955	3,174	19.68
Chromalox	6	20	0.12
ClimateMaster	24	72	0.45
Crane	-	-	-
Empire Comfort	3	3	0.02
Goodman	33	75	0.47
WW Grainger	5	10	0.06
Hunter	3	3	0.02
Invensys	377	448	2.78
ITT	102	109	0.68
Lear Siegler	4	6	0.04
Lennox	166	346	2.15
Lux	336	410	2.54
Marley-Wylain	2	3	0.02
McQuay	33	99	0.61
Nordyne	27	76	0.47
PSG	23	53	0.33
Rheem	122	367	2.28
Sears	32	36	0.22
Taco	-	-	-
Thomas & Betts	1	2	0.01
TPI	3	6	0.04
Trane	247	788	4.89
Uponor	-	-	-
Valliant	-	-	-
York / JCI	90	275	1.71
Noms (orphans)	173	419	2.60
Whole Thermsotat Total	18,697	38,569	239
Switches (removed)		2,534	15.71
Switches		**41,103**	**254.84**
Total Thermostats			**19,927**

From California collection locations TRC recovered 255.84 pounds of mercury from 18,697 intact mercury thermostats and 2,534 mercury switches removed from thermostats.

Based upon 2011 returns, TRC estimates there are 2.05 switches per thermostat recovered from California. The 2,534 switches likely represent an additional 1,230 thermostats.

TRC recovered 16,529 thermostats from HVAC wholesale distributor collection locations, 1,403 from HVAC contractors and 765 from HHW locations in California. TRC received no thermostats from California retail locations in 2011.

Waste Mercury-Added Thermostat Management

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell International under contract with TRC.

Bins are received at the loading dock and sent to the TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name (location name), city, state, zip code, date returned, number of thermostats and

mercury switches by manufacturer and any non-conforming material. The bin is returned to the location that sent it in with a new pre-paid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to the TRC processing area to have the mercury switches removed from the plastic housing. Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement. Small quantities of thermostats are removed from the container, which is then closed again, and placed at the switch removal workstation on a tray that contains any potential mercury spillage. The switches are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a switch breaks and mercury spills the work area is designed to contain the spillage and the operators are trained in the clean-up and disposal of mercury. TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury switches. Bethlehem Apparatus meets or exceeds all local, state, federal regulations for the management of the product. Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- EPA BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of the TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

Program Education and Outreach

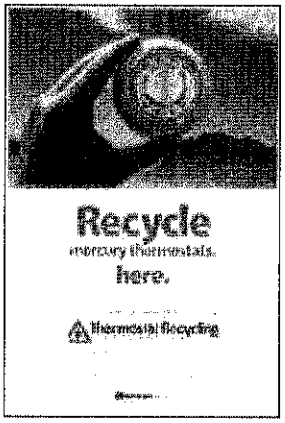
TRC marketing and promotion efforts targeted key audiences in California. TRC's objectives are to raise awareness of California's mercury thermostat law and to encourage the recycling of waste mercury thermostats. Below is a summary of many of the activities and the channels TRC utilized to support of this effort.

Development of Written Materials and Signage for Collection Points and Key stakeholders—TRC maintains on its website (www.thermostat-recycle.org) a Promotional

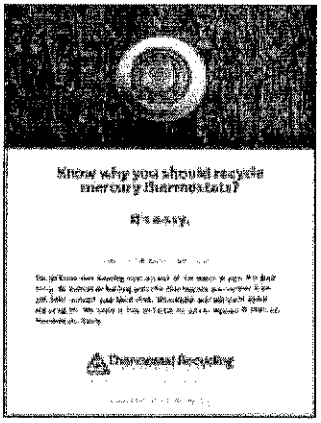
Toolkit which contains templates of a number of items for collection points to download and reproduce. In 2011 TRC **added three new** items to the toolkit. The new items include two posters and two versions of a point-of-sale card.

Exhibit 1: Examples of Toolkit Items

Poster



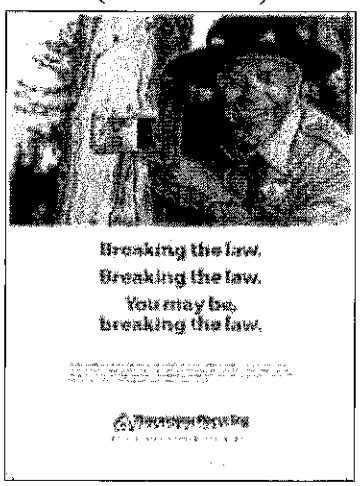
Advertisement



In addition to the templates on TRC's website, TRC placed the new window cling (ideal for the entrances of collection locations) into inventory along with the two new 11 x 17 posters and a postcard. TRC provided the cling and a copy of the "law" poster (or previous versions) to all California locations that ordered a new or additional bin in 2011. TRC actively promotes the availability of these items and will provide these materials to any participating collection location or HVAC contractor. These items are also distributed at trade shows. Finally, TRC provided copies of these materials to DTSC staff in support of the Department's educational efforts.

Exhibit 2: Examples of New Print Collateral

Poster (law version)



Window Cling

Wholesaler Recruitment/Engagement—All HVAC wholesale distributors with physical locations in California are required to act as a collection point for waste mercury thermostats and promote the availability of thermostat recycling at their location(s).

In an effort to increase the level of participation among California distributors TRC employed the following tactics:

- Direct engagement: TRC determined the most efficient and effective means of engaging distributors is not at the branch location level. TRC staff specifically targeted decision makers of distributors with multiple California locations in 2011. The primary message was it is the law and the Department is taking steps to enforce. TRC used industry meetings, member contacts, and other tactics to identify and contact decision makers at distributors.
- Creating competitive pressure: The distribution business is highly competitive and TRC used that to engage competitors. Marketing and media efforts highlighted certain distributors' participation in an effort to engage their competitors. Placing the logos of distributors on TRC's website is one of the best examples of this effort.
- Pushing contractors to collection locations: Paid and earned media emphasized to contractors to ask their distributors to collect; if distributors' customers request the service it is more likely they will offer it.

The following summarizes a few key projects conducted in 2011 targeting distributors.

- In partnership with Heating Airconditioning Refrigeration Distributors International (HARDI), TRC launched the inaugural *Mercury Thermostat Recycling Awards* in **May.** The awards were intended to incent participation in the program by recognizing the distributor(s) that recovered the most mercury thermostats and/or developed innovative strategies to promote the program at its location(s). The program was widely promoted by HARDI to its members and within the industry trade press. TRC also developed custom promotional materials for HARDI members and templates of those materials are available on TRC's website. The awards were presented at HARDI's annual meeting in **October.** California distributors **USACD** and **Baker Distributing** were among the winners.
- TRC placed a 5x7full-color insert in *HVACR Business* magazine (for greater detail see the advertising section below). TRC included the logos of several California distributors that have supported the program beyond the minimums in the law. California distributors **USACD, Baker Distributing, Goodman Distribution, and RE Michel** provided art to TRC.
- Following the Department's recommendation that TRC "pull" bins from collection locations, TRC sent correspondence (see Appendix A and B) to all California collection locations in **July** that had 1) never returned the bin or 2) had not returned the bin within the last 12 months.[1] TRC included a copy of its window cling sticker in the mailing to promote the availability of materials to participating collection locations.
- TRC added a scrolling bar with the logo of "collection partners" to its website. Several California distributors agreed to provide art to TRC.

[1] The impact of the mailing was significant as evidenced by the spike in returns in August.

Retailer Engagement— TRC continued to encourage large national retailers to participate in the program. During the implementation of San Louis Obispo County's retail ordinance, TRC again availed the program to large retailers.

Summary of Additional Education and Outreach by Channel

TRC conducted an array of activities intended to raise awareness of California's mercury thermostat disposal ban, mandatory HVAC contractor recycling, and the ease of compliance through TRC's collection program.

Website—TRC's maintains www.thermostat-recycle.org. The website contains participation forms, the previously mentioned outreach toolkit, safety and shipping information, media releases, and reports. The website includes a location search utility that provides for an easy search by zip-code of locations that have ordered TRC collection containers. TRC also promotes its national collection partners by scrolling their corporate logos on the homepage. In **September** TRC completed a *search engine optimization* (SEO) of its website. The objective of the SEO was to increase website traffic by making TRC easier to find on the internet. For instance if a person searches on the term "mercury thermostat recycling" or "thermostat recycling" the first search result in Google is TRC's website. The optimization nearly doubled TRC's monthly website traffic and also markedly shifted the manner in which the site is found, as a higher percentage are now finding TRC through "organic search."

Earned Media— TRC generated considerable positive media attention in 2011. TRC made a concerted effort in 2011 to generate stories on the program. Most notable was the four-page article in *The Air Conditioning, Heating, and Refrigeration News* (*The News*) which included a TRC provided table on mercury thermostat laws. *The News* is one of the leading industry publications.

Publication/Website	Month	Coverage	Readership/Reach
Air Conditioning, Heating & Refrigeration News	January	Article on thermostat recycling and TRC	111,000
RSES Journal	January	TRC & HARDI partnership	18,000
HVACR Business	April	Guest Column thermostat recycling	33,000
Indoor Comfort News	June		25,000
Air Conditioning Today	June	2010 TRC annual report	n/a
ACCA-Hot Air! Blog	July	TRC program	n/a
Wholesale Observations (HARDI)	July	TRC program	n/a
Demolition Magazine	July/August	Proper management of mercury	n/a
Indoor Comfort News	July	2010 TRC annual report	25,000
1800recycling.com	September	Recycling old thermostats	N/A
Contracting Business	October	Thermostat recycling awards	29,000
Indoor Comfort News	October	USACD thermostat recycling	n/a
Supply House Times	October	Thermostat recycling awards	12,800

The National Demolition Association (NDA) also ran a multi-page article authored by TRC's executive director on the proper management of mercury containing products found in residential and commercial structures in the **June/July** issue of *Demolition Magazine*. Select reprints of

these articles may be found on TRC's website at http://www.thermostat-recycle.org/media/index and have also been included in the Appendix.

Paid Advertising

ACCA Sponsorship—TRC sponsored the Air Conditioning Contractors of America (ACCA) 2011 Contracting Week in Nashville, Tennessee, **October** 18-21. The sponsorship included TRC's logo on attendee bags, the inclusion of TRC promotional materials in the bag, and TRC's logo on ACCA's website and signage at the event.

Trade channel web-based advertising— TRC developed new rotating banner advertisements and ran them (Exhibit 3) on the websites contractingbusiness.com (160x600 skyscraper) and hvac-talk.com (300x250 medium rectangle) during the months of **April, May, September** and **October**. Together, the websites average 1.8 million pages views and 280,000 unique visitors per month. HVAC-Talk.com, an online discussion community, boasts 122,000 registered users.

TRC strategically placed ads to coincide with the spring and fall HVAC business cycles. While the ads were featured, 701,528 impressions were delivered and 522 clicks on the advertisements were recorded. In September and October, clicks from HVAC-Talk.com ads accounted for 3% of TRC's website traffic.

Exhibit 3: Web Banner Advertisement (300 x 250 version)

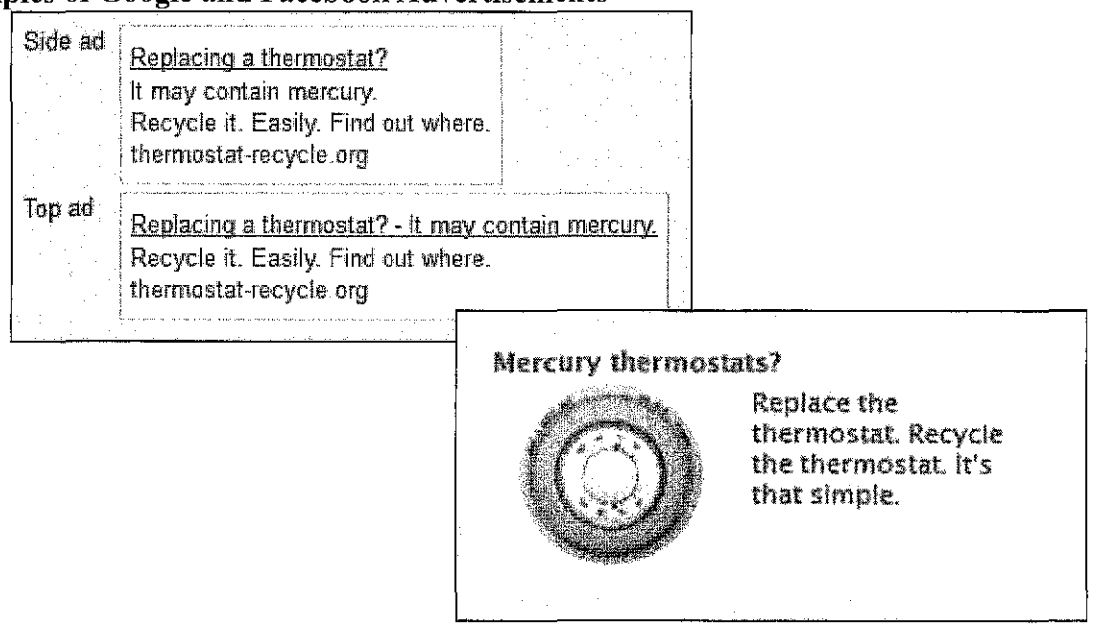
Facebook and Google— TRC developed and deployed a Social Media strategy that leveraged the power of Google and the popularity of Facebook. The campaign, which ran from **September** through **December,** geo-targeted contractors and consumers in California and other states with mercury thermostat disposal bans in an effort to create awareness and increase thermostat collections.

Ads (See Exhibit 4) were developed with variable messages targeting both audiences. Advertisements appeared on Google search results pages after an individual searched terms related to TRC's mission (E.g. thermostat replacement, contracting recycling regulations, mercury thermostat recycling, programmable thermostats, etc.). Similarly, the Facebook

campaign targeted users over 18 who "like" industry-relevant topics or organizations (i.e. renovating, renovators, HVAC, HVAC Technicians, home repair, etc.)

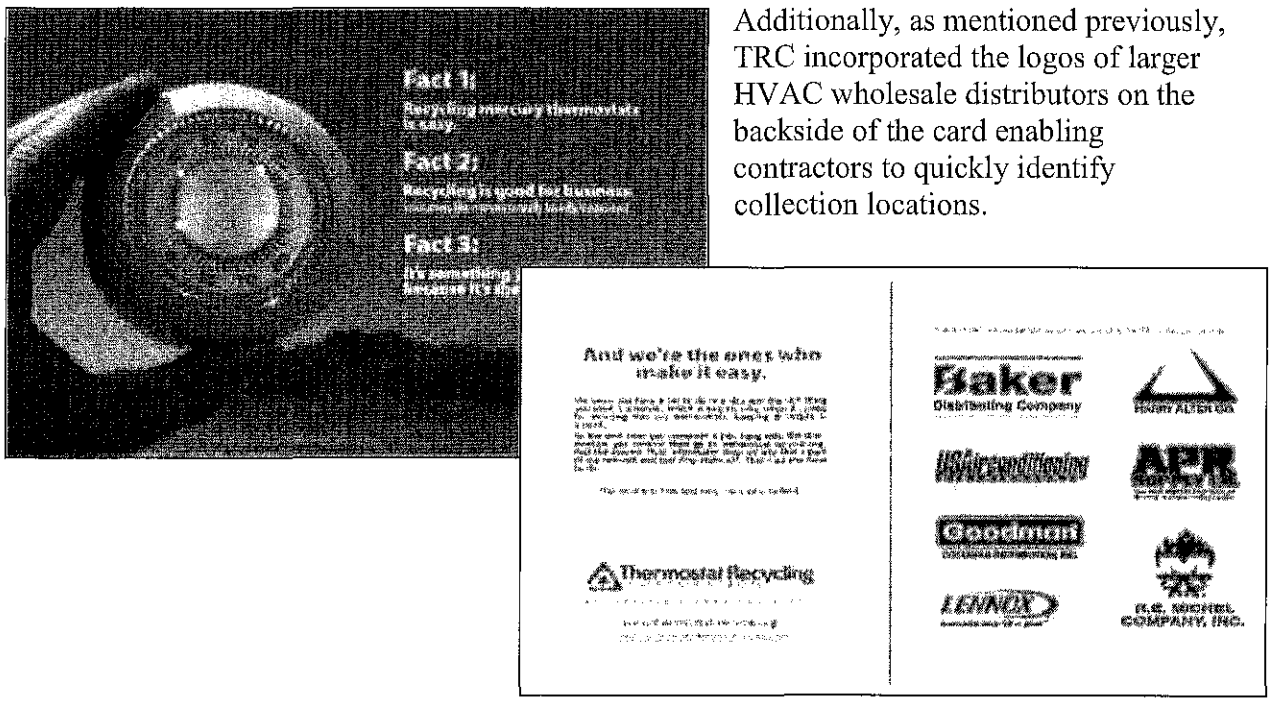
The campaign resulted in over **340,000 impressions** on Google and **8.1 million impressions** on Facebook.

Exhibit 4: Examples of Google and Facebook Advertisements



Tip-In Insert in HVAC Trade Press—TRC placed a 5x7 color insert in the **April** and **October** issues of *HVACR Business* (see Exhibit 5). The insert was included in issues received by approximately 12,000 subscribers in states with mercury thermostat disposal bans (including California). This enabled TRC to incorporate the message, "It's something you gotta do, because it's the law."

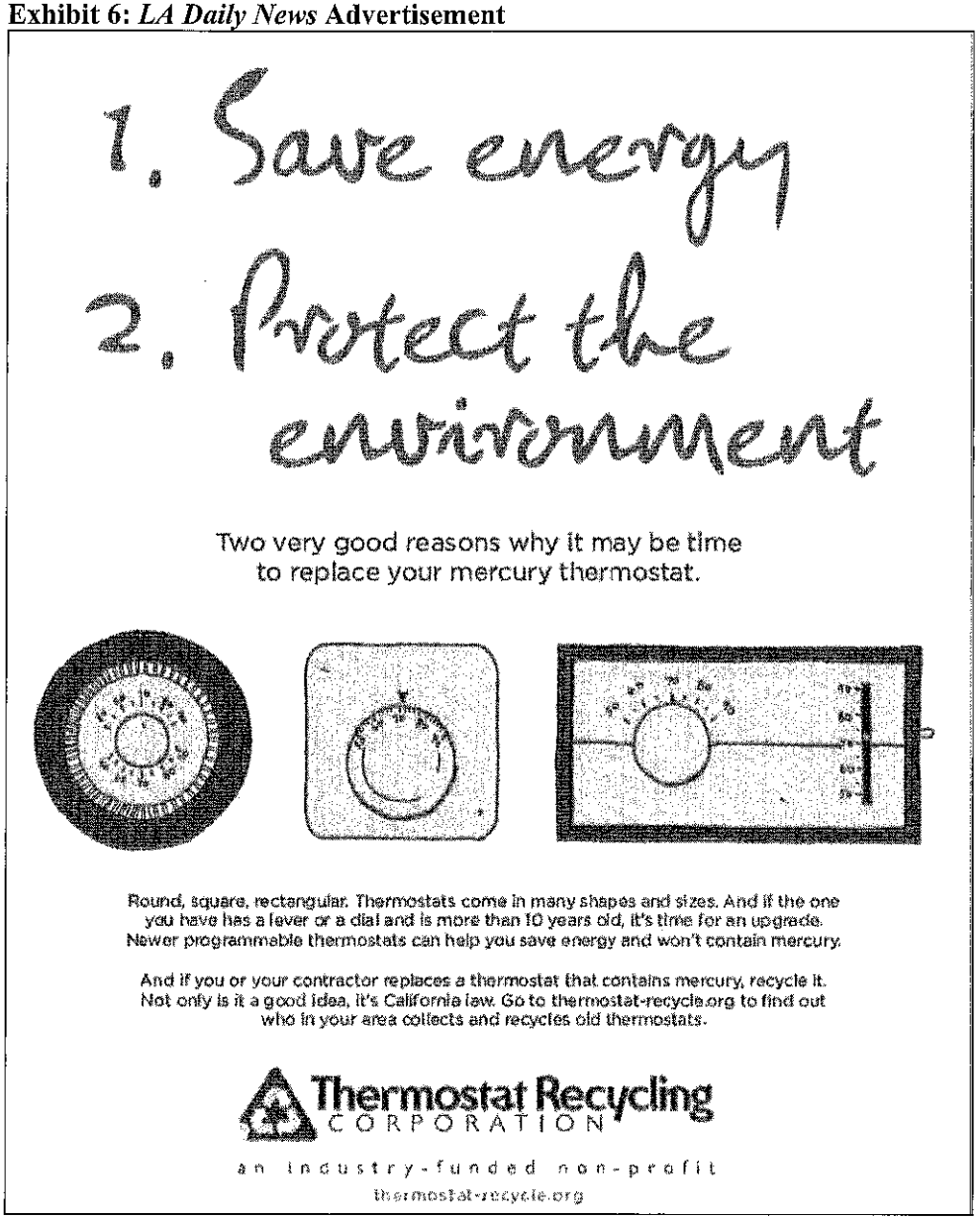
Exhibit 5: *HVACR Business* Insert



Additionally, as mentioned previously, TRC incorporated the logos of larger HVAC wholesale distributors on the backside of the card enabling contractors to quickly identify collection locations.

2011 IHACI Summer Energy Savings Guide, *Los Angeles Daily News*—TRC ran a full-page color advertisement in the guide (Exhibit 6). The guide reached over 400,000 readers of the *Daily News* and featured editorial and emphasis on quality installation practices, utility programs, and energy savings.

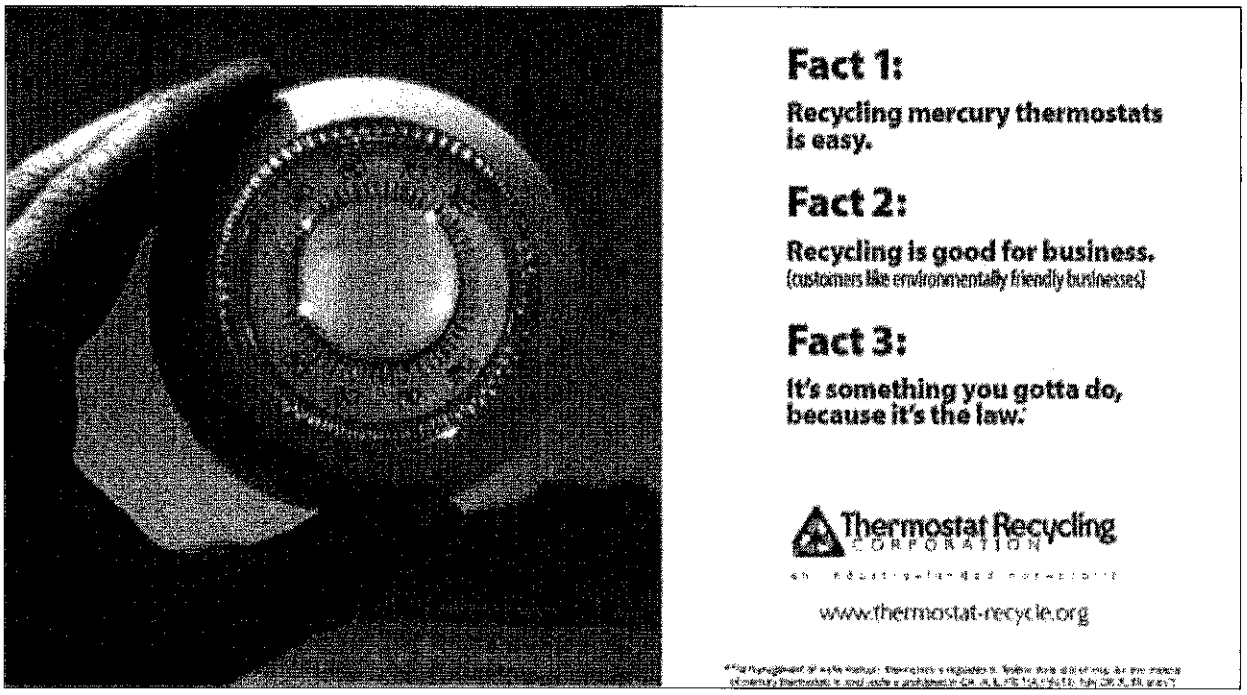
Exhibit 6: *LA Daily News* Advertisement



***Indoor Comfort News* Advertising—**TRC placed a quarter-page advertisement in the April, August, and November issues. *Indoor Comfort News* (*ICN*) has been published by the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) since 1955 as a tool for attaining the trade association's goal of educating and promoting HVACR industry. *ICN's* audience includes

contractors, distributors, and manufacturers. Total circulation is 25,000 with a readership estimated over 100,000. **California circulation is approximately 17,000.**

Exhibit 7: *ICN* Advertisement



Tradeshows—TRC attended and exhibited at the following trade shows:

January 31-February 2: AHRExpo. Las Vegas. AHRExpo is the largest national trade show for the HVACR industry. TRC staff exhibited and promoted the program to HVAC contractors, manufacturers and distributors. The show had a total registered attendance of over 53,000.

February 15–17: Air Conditioning Contractors of America Indoor Air Expo, San Antonio, Texas. Representatives from over 200 HVAC contracting businesses attended the show.

March 1: Plumbing, Heating Cooling Contractors of Greater **Los Angles, California**. The "Flow Expo" was held at the Long Beach Convention Center and was attended by over 5,000 industry professionals.

May 22-26: Oil and Energy Service Professionals. Hershey, PA. This was OESP's annual convention and trade show. Nearly 2,700 HVAC professionals attended this show, which targeted service managers for HVAC firms that install and repair oil fired furnaces. TRC sponsored this event and its logo was displayed on event signage and website.

September 27-29: North American Hazardous Materials Management Association (NAHMMA), Portland, Oregon. This was NAHMMA's annual meeting. TRC exhibited and co-presented with a HARDI representative.

October 23-26: Heating Airconditioning and Refrigeration Distributors International (HARDI). Maui, Hawaii. TRC exhibited and participated in the "Booth Program," which provides for 1-on-1 sessions with senior executive staff from HARDI member companies. This event targeted representatives of approximately 80% of the wholesale market for HVACR products. TRC also presented the inaugural Thermostat Recycling Award to three HVACR distributors recognizing their support of the program.

November 16: Institute of Heating and Air Conditioning Industries, Inc. (IHACI) **Pasadena, California**. IHACI's trade show is attended by over 5,000 HVAC professionals; this show is the largest annual California trade show for the industry.

Public Service Announcement— TRC developed a new 30 second public service announcement in 2011 reflecting changes to the Energy Star program.

California

Did you know that by turning down your thermostat by ten to fifteen degrees for eight hours a day you could save ten percent a year on energy bills? That's according to The US Department of Energy. Installing a programmable thermostat makes this easy.

But remember many older thermostats contain mercury, and if you replace one, you must recycle it--it's California law. The good news is there are recycling locations all over the state. Go to thermostat dash recycle dot O R G to know more.

In **August** TRC requested (See Appendix D) radio stations serving the California market air the PSA. TRC monitored the airtime of the PSA through **December**. While the monitoring doesn't cover all stations within California, it does provide data on the frequency and audience for the PSA, particularly in larger markets.

Exhibit 8: PSA Summary:

Market	Stations	Audience Total
Bakersfield	KRAB, KDFO	5,600
Los Angles	KFRG	9,300
San Fransco	KLIV	74,400
San Deigo	KGB, KHTS, KIOZ, KMYI, KUSS	268,300
Fresno	KJZN	59,500
	Total	**417,100**

Stakeholder Outreach— TRC sent correspondence followed by a direct appeal via telephone (See Appendix E) to over **40** California trade groups in **August and September.** TRC targeted the California chapters of **Plumbing Heating Cooling Contractors Association** and **Sheet Metal and Air Conditioning Contractors' National Association.** TRC sent similar correspondence to the **Northern CA Mechanical Contractors Association** and the

Airconditioning, Refrigeration and Mechanical Contractors Association of Southern California. The California chapters of the **National Association of Residential Property Managers, Building Owners and Managers Association,** and **California Apartment Association** also received correspondence. Attached to the correspondence was a simple media release for use in association publications.

Operational Enhancements

TRC made a number of enhancements to its operations in 2011. Some enhancements include:

- To facilitate compliance with the one-year accumulation regulation and speed bin returns, TRC began including an adhesive label to record the accumulation start date in each container. TRC modified the label on the exterior of the bin to include the admonition to return bin within one year of receipt. TRC also updated instructions provided with every new and returned recycling container to explicitly require locations to record the accumulation start date and return the container within one year that date

- To improve customer service TRC began to directly handle customer service calls at program's HQ and included the new toll-free number and email address on instructions provided in each bin. This toll-free number was also provided in all correspondence to California distributors. The new number and email helpline was added to the footer and contact us page on TRC's website. TRC's goal is to return all calls and emails within one business day. TRC is also maintaining a log of all calls to ensure quality of service and that issues are resolved appropriately and in a timely manner.

- TRC updated the participation forms to capture more information from the collection location at the time the bin is ordered. **TRC is also now accepting orders via email and fax,** in an effort to both ease and speed up the order process. TRC also began explicitly offering to invoice bin fees. TRC found this is particularly helpful to larger distributors ordering multiple bins.

- Implemented a new data management system that provides for timely updates to collection location information on the website. TRC also modified the bin order process. **All orders are now initially processed by TRC staff at the corporate office.** This change results in faster processing of orders and fewer errors in processing and data entry.

- Engaged directly with several wholesale distributors with multiple locations in California to **update location information in the program's location database**. Maintaining accurate listings is an on-going and continual process.

- Updated its compliance assistance effort. As collections have increased, the frequency of bins with non-compliant materials has grown. **A new monitoring system was implemented increasing the frequency of contact to collection locations.** This effort has the additional benefit of pushing collateral to locations and updating location information.

Program Expenses

TRC is a national voluntary program that is also operating nine mandatory programs on behalf of its manufacturer members. As most promotional activities are run concurrently in multiple states, tracking and isolating expenses specifically to California is not possible. Below is a summary of TRC's national program expenses for 2011. A copy of TRC's 2010 IRS Form 990 is attached in the Appendix.

Exhibit 8: 2011 Program Administrative Expenses

TRC Staff and Administration	$	255,617
Recycling Costs	$	299,877
Insurance	$	13,945
Statutory Incentive Payments	$	37,860
New Collection Containers	$	18,859
Travel	$	28,108
Legal	$	93,272
Direct Expenses for Marketing & Outreach	$	123,221
Total	$	870,760

TRC expenses include:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, and other administrative expenses. Includes staff labor costs to implement California program.
- Insurance: Pollution and liability insurance.
- Travel: All travel in 2011 includes travel to trade shows to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and data management.
- New Collection Containers: Direct cost for new containers ordered in 2011.
- Marketing/Outreach & Printing: Includes direct costs to develop and print program collateral; direct mail, national and state advertising, sponsorships, marketing consultants, some web and IT consulting, and other outreach activities. Marketing/Outreach does not include any TRC labor costs.

Comments/Recommendations/Modifications

California's mandatory collection program will shortly be entering its third year of operation. Using 2008 as the base year, the cumulative increase in collections is 167%[2].

[2] Comparison uses whole thermostats recovered, actual growth higher if the totals include switches removed from thermostats.

While these results are encouraging, TRC recognizes significant work remains. There are also a number of challenges. Some more significant challenges include:

- Wholesale distributor participation remains problematic. As an example, TRC staff visited approximately 20 wholesale distributor collection locations in the Los Angeles area in **November.** Not surprisingly, several were still not collecting (even if TRC had record of a bin order for that location). Surprisingly, many of the locations not collecting had also been visited by DTSC staff, and were still not collecting. TRC speculates that the issue with wholesaler compliance is not awareness of the law's requirements within the channel, but rather it simply may not be considered a priority by some.

  However, in the months following, the perceived threat of enforcement has had an impact. The channel is aware that the Department is conducting inspections and risk of substantial fines for non-compliance is now making this program a priority. Both bin orders and requests for materials spiked in the last several months.

- Maintaining accurate information on collection locations. Staff turnover at distributors is high and location information quickly becomes dated. Additionally, locations rarely inform TRC if they move, close, or lose a bin. If anything occurs, locations simply order a new bin. Moreover, typically after the initial bin order the only contact with the collection location is the return of a full bin. The return address information on the pre-printed label from Federal Express is limited and does not allow us to update contact information such as name or phone number[3].

- Contractor and/or technician compliance with the disposal ban remain below desired levels. However, we are certain the level of awareness of California law is high within the channel.

- Compliance with TRC storage and shipping policies. TRC's policies are intended to protect the health and safety of program participants in compliance with state and federal regulations. The return of items other than whole mercury thermostats is a continual issue and as collection rates increase, the amount of time and effort now devoted to compliance assistance is significant.

In response, TRC will among other things make the following modifications to its program in 2012:

- Expand and modify aspects of its marketing efforts to the trade channel in California. TRC will **mail over 32,000** postcards to California HVAC contractors in 2012. TRC is also expanding its advertising buy in *Indoor Comfort News* and will run a full-color 5x7 insert in 3 consecutive issues of the magazine. The buy will reach **17,000 California subscribers per issue.**
- **Test a consumer-facing web-based advertising** campaign in California. Noteworthy, the campaign's primary objective will not target consumers' recycling behavior; rather it will attempt to get consumers to affect their HVAC contractors' behavior.

[3] Many locations do not even complete the return label. Additionally, locations may provide a main phone number or it may be a direct line to the staff person that ordered the bin(s).

- Develop a postcard reminder encouraging collection locations to ship TRC collection containers within a year of the accumulation date and contact the program with address changes. **TRC's goal is to "touch" collection locations more frequently** and this is one of several tactics that will be employed and/or tested in 2012.
- TRC's new database and changes to its participation forms and bin order processing will assist in the accuracy of collection location information forms moving forward. However, 10 years of legacy data remains a problem. **Cleaning TRC's database** will be one of several projects for the program's summer intern.
- TRC does not see value in conducting site visits to all, or even a substantial minority of locations. Efforts in other states have merely proven what is known; many are not actively collecting. Site visits have not yielded growth in location participation, as staff at the location generally does not have the authority to order bins. Rather, TRC will continue with its strategy of engaging decision makers at the corporate offices of wholesale distributors. Efforts are underway (dependent on the voluntary participation of the distributor) to engage certain distributors with a significant market presence in California on cooperative marketing efforts. Working with HARDI, TRC is also modifying the Thermostat Recycling Awards program to **incent the active promotion of the program** by collection locations.
- Develop additional collateral to **assist HVAC contractors** in promoting their support of the program and incent their participation.
- **Develop two short training videos.** One will be for use by HVAC training instructors to show prior to HVAC training classes. The other will be for wholesale distributors to train staff on the program and TRC's storage and shipping policies (e.g. compliance with universal waste regulations.)

Appendix A: Sample of Correspondence to HVAC Wholesale Distributor locations in California

[redacted]
1300 North 17th Street • Suite 1752 • Arlington, VA 22209
Thermostat Recycling Corporation
www.thermostat-recycle.org

July 29, 2011

COPY

[redacted]
SAN JOSE, CA 95112-0000

Dear [redacted]

Legislation passed in 2008 requires all HVAC wholesale distributors with facilities in California to act as a collection point for waste mercury-switch thermostats. Thermostat Recycling Corporation thanks you for participating in its program and acting as a collection site for waste mercury thermostats.

According to our records, your location has not returned a bin within the last 12 months. I want to remind you that California universal waste regulations require that wastes such as mercury thermostats be stored for no longer than 12 months from the start date of accumulations. If you have thermostats in the container, please ship it to us promptly. We have included an extra pre-paid shipping label in case you misplaced the one provided with the container. If you have questions about the program, please contact us using the information provided below.

Additionally, TRC recently updated the promotional materials available to collection sites. TRC has both printed cling stickers and posters available at no cost. Templates of materials are available on TRC's website at thermostat-recycle.org. We have included a window cling as an example. Please consider using this collateral as it serves to promote the program while showcasing your business as an environmental steward.

Please feel free to contact me with any questions about the law or TRC's program. Call 888-266-0550 or email us at trc@thermostat-recycle.org

Regards,

Neisha Johnson

Appendix B: Sample of Correspondence to HVAC Wholesale Distributors in California

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

August 1, 2011

[redacted]
SAN DIEGO, CA 92110

Dear [redacted]

Legislation passed in 2008 requires all HVAC wholesale distributors with facilities in California to act as a collection point for waste mercury-switch thermostats. I want to remind you that California universal waste regulations require that wastes such as mercury thermostats be stored for no longer than 12 months from the start date of accumulations.

According to our records, your location received container(s) in order to comply with California law. However, to date, our records indicate we have never received any waste mercury thermostats from this location. It has come to our attention that the California Department of Toxic Substances Control (DTSC) has been conducting inspections of HVAC wholesalers and has begun enforcement of this regulation. If you have thermostats in the container, please ship it to us promptly.

If you no longer have a container or if you need another pre-paid shipping label, please contact Neisha Johnson immediately at 888-266-0550 or by email at trc@thermostat-recycle.org.

Regards,

Mark Tibbetts
Executive Director

Appendix C: NDA Article

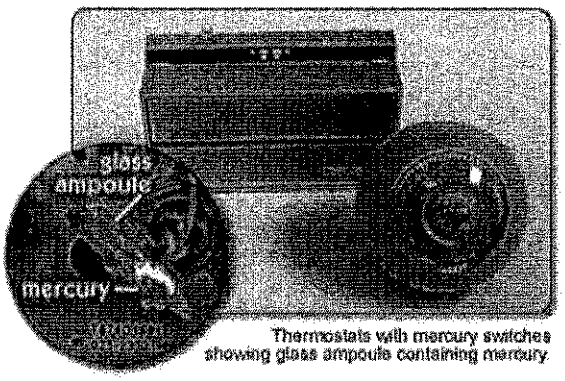
ENVIRONMENTAL **UPDATE**

SAFE HANDLING & DISPOSAL OF MERCURY-CONTAINING THERMOSTATS

Additional Regulations Affect Demolition Industry: Pre-Demolition Removal of Mercury-containing devices from Residential and Commercial Facilities

By MARK TIBBETTS
Executive Director
Thermostat Recycling Corporation
Arlington, VA

Mercury can be found in various devices in residential and commercial structures. If not managed properly at the end-of-life, these devices can break, releasing mercury into the environment. Prior to demolition, facilities should be inspected and these devices should be removed to ensure proper disposal.



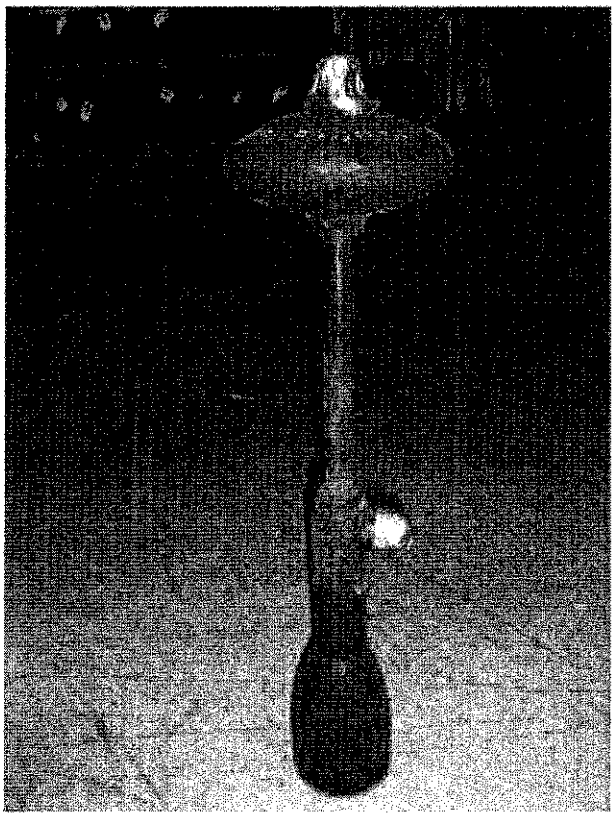
Thermostats with mercury switches showing glass ampoule containing mercury.

Mercury releases can present a serious environmental and health problem. Inhaling mercury vapors – which are colorless and odorless – can cause irreversible damage to the brain and kidneys. Even very small amounts of mercury (less than a gram) may cause adverse health effects.

The central nervous system, eyes and respiratory system can also be affected by mercury. Developing fetuses and children are the most sensitive to mercury exposure. Inhalation of mercury vapor is the most harmful means of exposure. Mercury can also enter the body through contact with the skin or by swallowing.

If released, mercury can pose a danger to people if not properly cleaned up and removed. It can easily spread by walking (tracking), sweeping or vacuuming, thereby presenting a potential health threat to others. Tracking throughout a building or into automobiles has spread mercury contamination to many other locations in many instances.

Health impacts will increase over time if the mercury is not properly removed. Mercury vapors are heavier than air and tend to remain near the floor or mercury source, but can get into the ventilation system and be spread throughout a house or business. Indoors, mercury vapors will accumulate in the air. Children five years of age and younger are considered to be particularly sensitive to the effects of mercury on the nervous



Mercury Seal Generator

system since their central nervous system is still developing. When pregnant women are exposed to mercury, the mercury can pass from the mother's body to the developing fetus; it can also be passed to a nursing infant through breast milk.

CLEANING UP MERCURY SPILLS

If released, clean-up costs are significant. It is not unusual for costs to range from $5,000 up to $300,000 for a single incident. Typical response to mercury releases in homes has consisted of relocating the residents and providing temporary housing, gathering visible mercury with a special vacuum, and heating and ventilating the house to drive off the harmful mercury vapors. In some instances, walls, carpeting and floors of houses have had to be removed because they were grossly contaminated. Personal possessions have also been discarded if they became contaminated and the mercury could not be removed. Contaminated materials are likely to be treated as hazardous waste and sent to a special landfill or a mercury retort facility. In a worst case scenario mercury is spread from the original release location into vehicles and other homes via shoes or clothing; spreading contamination and the scope of clean-up.

DEVICES THAT CONTAIN MERCURY

The three most common devices with significant amounts of mercury in them are mercury-switch thermostats, gas pressure regulators, and mercury pressure switches.

Facilities that were built prior to 1968 may have a mercury-containing gas pressure regulator adjacent to the gas meter. Most of these devices were manufactured and installed in the 1940s and 1950s. These devices contain approximately two teaspoons of mercury. Mercury spills have sometimes occurred during improper removal of these devices, causing a potentially significant health risk and resulting in costly cleanups.

Some older boiler heating systems have a mercury seal generator or mercury pressure switch(s). These devices may be found near the boiler or near a radiator on an upper floor. They can contain up to several fluid ounces of mercury. Mercury spills can occur as a result of improper removal of these devices. A spill can require a significant cleanup effort. In April 2011, EPA responded to a mercury spill at a home where an old 1920s boiler had been improperly removed, resulting in a spill of about four fluid ounces of mercury.

The most commonly found mercury-containing devices are mercury-switch thermostats. While it its more likely to find them in residential structures (single and multi-family), mercury-switch thermostats may also be

found in commercial and light-industrial facilities. Each thermostat contains up to 12 grams of elemental mercury and is one of the largest remaining reservoirs of mercury in residential buildings today.

Mercury Gas Regulator
(Courtesy of American Gas Association)

LEGAL ISSUES GOVERNING MANAGEMENT

The management of mercury-containing devices is regulated by both state and federal authorities.

The Superfund Law (Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended, 42 U.S.C. Sec. 9604) provides the US Environmental Protection Agency (EPA) the legal authority to respond to mercury releases. The Superfund law also gives EPA the authority to identify the party responsible for the release, order those who improperly handle mercury to take appropriate response, and/or compel them to pay for a cleanup.

CERCLA also requires that any release amount above the quantity of one pound – one pound of mercury is approximately two tablespoons – must be reported to the National Response Center.

The Emergency Planning and Community Right-to-Know Act requires that any release of mercury greater than one pound be reported to the local emergency planning committee, state emergency response commission, or local response personnel by the owner/operator.

Disposal of these devices may also be regulated by federal law.

Additionally, many states also regulate the disposal of mercury-containing products. Twelve states specifically ban the disposal of mercury-containing products in solid waste. Additionally, some states, most notably California and Illinois, require demolition contractors to remove and properly manage all mercury-containing thermostats prior to a building's demolition.

PROPER MANAGEMENT

Facilities need to be inspected, and if mercury is present, these devices need to be removed and disposed of properly prior to a building's demolition. In the instance of mercury-containing gas pressure regulators, the removal needs to be coordinated with the gas utility.

In the case of mercury-switch thermostats, they can be managed as a universal waste, reducing costs associated with transport and disposal. In fact, the manufacturers of mercury-switch thermostats established a national program in which assumes all costs associated with the transport and disposal of whole mercury-switch thermostats. For more information on the management of waste mercury thermostats visit www.thermostat-recycle.org.

Appendix D: PSA cover letter

1200 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

July 29, 2011

Dear Public Service Director,

The Thermostat Recycling Corporation (TRC) is a not-for-profit organization that facilitates the collection and proper disposal of mercury-containing thermostats. Voluntarily founded by thermostat manufacturers, TRC's mission is to promote the safe collection and proper disposal of mercury-containing thermostats.

Mercury is a potent neurotoxin and by properly disposing mercury thermostats by recycling them is the best means of keeping it from the environment. Many people are replacing their old thermostats to save energy and it is important for them to know that many old thermostats contain mercury and should be recycled.

We would appreciate any support you can give us, within your community, by running this Radio PSA, giving your audience a chance to help protect California's environment.

Thank You for your time and consideration,

Mark Tibbetts
Executive Director

Appendix E: Stakeholder Correspondence

1300 North 17th Street - Suite 1752 - Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

September 19, 2011

COPY

Gary Schwenk
SMACNA
7677 Oakport St., #1100
Oakland, CA 94621

SUBJECT: IMPORTANT INFORMATION ON CALIFORNIA'S MERCURY THERMOSTAT DISPOSAL ACT

Dear Mr. Schwenk:

This letter is to remind you of a legal obligation in California that affects your members. The Mercury Thermostat Act, which went into effect in 2008, requires HVAC contractors to recycle all mercury-switch thermostats they removed from service. The law prohibits them from leaving them at the customer's premise.

The good news is that this law is very easy to comply with. Manufacturers must provide a no-cost recycling program in the state of California and every HVAC wholesale distributor in California is required to collect waste mercury thermostats. All contractors need to do is have their technicians hang-on to the mercury thermostats they remove from service and make arrangements to drop-off the waste thermostats at any HVAC wholesale distributor free-of-charge.

Thirty manufacturers are supporting the non-profit Thermostat Recycling Corporation (TRC) which is implementing and promoting the collection program in California and other states.

We are interested in working with your organization to increase awareness about the legal obligations of the HVAC industry and TRC's program. Currently less than 50% of all waste mercury thermostats are being recycled in California and it is critical for the HVAC industry to increase the number being recycled. The better this program performs decreases the likelihood of more onerous regulations on the HVAC industry. One has to look no further than the current rule-making by the Department of Toxic Substances Control's (DTSC) to see the risk to the HVAC industry in California.

We attached information on the program and we encourage you to share it with your members. We plan to follow-up with you to discuss ideas on further promoting the program and increasing HVAC contractor's participation in this program.

For more information, please call 703-841-3243 or email Neisha.johnson@nema.org. Additional information is also available at TRC's website at www.thermostat-recycle.org.

Sincerely,

Mark Tibbetts
Executive Director

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

September 19, 2011

COPY

Gary Schwenk
SMACNA
7677 Oakport St., #1100
Oakland, CA 94621

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For more information, please call 703-841-3243 or email Neisha.johnson@nema.org. Additional information is also available at TRC's website at www.thermostat-recycle.org.

Sincerely,

Mark Tibbetts
Executive Director

Appendix F: 990

Form **990** — Department of the Treasury, Internal Revenue Service

Return of Organization Exempt From Income Tax

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except black lung benefit trust or private foundation)

▶ The organization may have to use a copy of this return to satisfy state reporting requirements.

OMB No. 1545-0047 — **2010** — Open to Public Inspection

A For the 2010 calendar year, or tax year beginning and ending

B Check if applicable: Address change; Name change; Initial return; Terminated; Amended return; Application pending

C Name of organization: THERMOSTAT RECYCLING CORPORATION

Doing Business As: TRC

Number and street (or P.O. box if mail is not delivered to street address): 1300 NORTH 17TH STREET — Room/suite: 1752

City or town, state or country, and ZIP + 4: ARLINGTON, VA 22209

D Employer identification number: 54-1830284

E Telephone number: 703-841-3200

G Gross receipts $: 672,104.

F Name and address of principal officer: MARK TIBBETTS
SAME AS C ABOVE

H(a) Is this a group return for affiliates? Yes [X] No

H(b) Are all affiliates included? Yes [ ] No

If "No," attach a list. (see instructions)

H(c) Group exemption number ▶

I Tax-exempt status: [ ] 501(c)(3) [X] 501(c) (6) ◀ (insert no.) [ ] 4947(a)(1) or [ ] 527

J Website: ▶ WWW.THERMOSTAT-RECYCLE.ORG

K Form of organization: [X] Corporation [ ] Trust [ ] Association [ ] Other ▶

L Year of formation: 1996 M State of legal domicile: DE

Part I Summary

1 Briefly describe the organization's mission or most significant activities: TO PROMOTE THE SAFE COLLECTION AND PROPER DISPOSAL OF MERCURY-CONTAINING THERMOSTATS.

2 Check this box ▶ [ ] if the organization discontinued its operations or disposed of more than 25% of its net assets.

Activities & Governance	3 Number of voting members of the governing body (Part VI, line 1a)	3	4
	4 Number of independent voting members of the governing body (Part VI, line 1b)	4	4
	5 Total number of individuals employed in calendar year 2010 (Part V, line 2a)	5	0
	6 Total number of volunteers (estimate if necessary)	6	0
	7a Total unrelated business revenue from Part VIII, column (C), line 12	7a	0.
	b Net unrelated business taxable income from Form 990-T, line 34	7b	0.

		Prior Year	Current Year
Revenue	8 Contributions and grants (Part VIII, line 1h)	0.	0.
	9 Program service revenue (Part VIII, line 2g)	640,464.	671,686.
	10 Investment income (Part VIII, column (A), lines 3, 4, and 7d)	847.	418.
	11 Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)	100.	0.
	12 Total revenue - add lines 8 through 11 (must equal Part VIII, column (A), line 12)	641,411.	672,104.
Expenses	13 Grants and similar amounts paid (Part IX, column (A), lines 1-3)	0.	0.
	14 Benefits paid to or for members (Part IX, column (A), line 4)	0.	0.
	15 Salaries, other compensation, employee benefits (Part IX, column (A), lines 5-10)	126,347.	186,787.
	16a Professional fundraising fees (Part IX, column (A), line 11e)	0.	0.
	b Total fundraising expenses (Part IX, column (D), line 25) ▶ 0.		
	17 Other expenses (Part IX, column (A), lines 11a-11d, 11f-24f)	503,128.	526,907.
	18 Total expenses. Add lines 13-17 (must equal Part IX, column (A), line 25)	629,475.	713,694.
	19 Revenue less expenses. Subtract line 18 from line 12	11,936.	-41,590.

		Beginning of Current Year	End of Year
Net Assets or Fund Balances	20 Total assets (Part X, line 16)	189,345.	189,998.
	21 Total liabilities (Part X, line 26)	282,586.	324,829.
	22 Net assets or fund balances. Subtract line 21 from line 20	-93,241.	-134,831.

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

Sign Here

▶ Signature of officer — Date: 5/11/11

▶ MARK TIBBETTS, EXECUTIVE DIRECTOR
Type or print name and title

Paid Preparer Use Only

Print/Type preparer's name: CHARLES DIETZ, III, CPA — Preparer's signature — Date: 5/9/11 — Check [ ] if self-employed — PTIN

Firm's name ▶ DIXON HUGHES GOODMAN LLP — Firm's EIN ▶

Firm's address ▶ 1430 SPRING HILL ROAD, STE 300
MCLEAN, VA 22102-3018 — Phone no. (703) 970-0400

May the IRS discuss this return with the preparer shown above? (see instructions) [X] Yes [ ] No

032001 02-23-11 LHA For Paperwork Reduction Act Notice, see the separate instructions. Form 990 (2010)

Form 990 (2010) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 2

Part III Statement of Program Service Accomplishments

Check if Schedule O contains a response to any question in this Part III ☐

1 Briefly describe the organization's mission:
NONE

2 Did the organization undertake any significant program services during the year which were not listed on the prior Form 990 or 990-EZ? ☐ Yes [X] No
If "Yes," describe these new services on Schedule O.

3 Did the organization cease conducting, or make significant changes in how it conducts, any program services? ☐ Yes [X] No
If "Yes," describe these changes on Schedule O.

4 Describe the exempt purpose achievements for each of the organization's three largest program services by expenses. Section 501(c)(3) and 501(c)(4) organizations and section 4947(a)(1) trusts are required to report the amount of grants and allocations to others, the total expenses, and revenue, if any, for each program service reported.

4a (Code:) (Expenses $ 620,299. including grants of $) (Revenue $)
TRC FACILITATES THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS BY PROVIDING RECYCLING CONTAINERS FOR THE COLLECTION AND TRANSPORT OF WASTE MERCURY THERMOSTATS TO ELIGIBLE COLLECTION SITES IN ALL US STATES, EXCEPT ALASKA AND HAWAII. TRC ALSO CONDUCTS AN EDUCATIONAL CAMPAIGN PROMOTING THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS. DURING 2010, TRC HAS COLLECTED OVER 200,000 MERCURY-CONTAINING THERMOSTATS. THIS TRANSLATES TO ALMOST 1,900 POUNDS OF MERCURY REMOVED OUT OF THE WASTE STREAM.

4b (Code:) (Expenses $ including grants of $) (Revenue $)

4c (Code:) (Expenses $ including grants of $) (Revenue $)

4d Other program services. (Describe in Schedule O.)
(Expenses $ including grants of $) (Revenue $)

4e Total program service expenses ▶ 620,299.

Form 990 (2010)

892002
12-21-10

Form 990 (2010) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 3

Part IV Checklist of Required Schedules

			Yes	No
1	Is the organization described in section 501(c)(3) or 4947(a)(1) (other than a private foundation)? *If "Yes," complete Schedule A*	1		X
2	Is the organization required to complete Schedule B, Schedule of Contributors?	2		X
3	Did the organization engage in direct or indirect political campaign activities on behalf of or in opposition to candidates for public office? *If "Yes," complete Schedule C, Part I*	3		X
4	**Section 501(c)(3) organizations.** Did the organization engage in lobbying activities, or have a section 501(h) election in effect during the tax year? *If "Yes," complete Schedule C, Part II*	4		
5	Is the organization a section 501(c)(4), 501(c)(5), or 501(c)(6) organization that receives membership dues, assessments, or similar amounts as defined in Revenue Procedure 98-19? *If "Yes," complete Schedule C, Part III*	5	X	
6	Did the organization maintain any donor advised funds or any similar funds or accounts where donors have the right to provide advice on the distribution or investment of amounts in such funds or accounts? *If "Yes," complete Schedule D, Part I*	6		X
7	Did the organization receive or hold a conservation easement, including easements to preserve open space, the environment, historic land areas, or historic structures? *If "Yes," complete Schedule D, Part II*	7		X
8	Did the organization maintain collections of works of art, historical treasures, or other similar assets? *If "Yes," complete Schedule D, Part III*	8		X
9	Did the organization report an amount in Part X, line 21; serve as a custodian for amounts not listed in Part X; or provide credit counseling, debt management, credit repair, or debt negotiation services? *If "Yes," complete Schedule D, Part IV*	9		X
10	Did the organization, directly or through a related organization, hold assets in term, permanent, or quasi-endowments? *If "Yes," complete Schedule D, Part V*	10		X
11	If the organization's answer to any of the following questions is "Yes," then complete Schedule D, Parts VI, VII, VIII, IX, or X as applicable.			
a	Did the organization report an amount for land, buildings, and equipment in Part X, line 10? *If "Yes," complete Schedule D, Part VI*	11a		X
b	Did the organization report an amount for investments - other securities in Part X, line 12 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VII*	11b		X
c	Did the organization report an amount for investments - program related in Part X, line 13 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VIII*	11c		X
d	Did the organization report an amount for other assets in Part X, line 15 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part IX*	11d		X
e	Did the organization report an amount for other liabilities in Part X, line 25? *If "Yes," complete Schedule D, Part X*	11e		X
f	Did the organization's separate or consolidated financial statements for the tax year include a footnote that addresses the organization's liability for uncertain tax positions under FIN 48 (ASC 740)? *If "Yes," complete Schedule D, Part X*	11f		X
12a	Did the organization obtain separate, independent audited financial statements for the tax year? *If "Yes," complete Schedule D, Parts XI, XII, and XIII*	12a		X
b	Was the organization included in consolidated, independent audited financial statements for the tax year? *If "Yes," and if the organization answered "No" to line 12a, then completing Schedule D, Parts XI, XII, and XIII is optional*	12b		X
13	Is the organization a school described in section 170(b)(1)(A)(ii)? *If "Yes," complete Schedule E*	13		X
14a	Did the organization maintain an office, employees, or agents outside of the United States?	14a		X
b	Did the organization have aggregate revenues or expenses of more than $10,000 from grantmaking, fundraising, business, and program service activities outside the United States? *If "Yes," complete Schedule F, Parts I and IV*	14b		X
15	Did the organization report on Part IX, column (A), line 3, more than $5,000 of grants or assistance to any organization or entity located outside the United States? *If "Yes," complete Schedule F, Parts II and IV*	15		X
16	Did the organization report on Part IX, column (A), line 3, more than $5,000 of aggregate grants or assistance to individuals located outside the United States? *If "Yes," complete Schedule F, Parts III and IV*	16		X
17	Did the organization report a total of more than $15,000 of expenses for professional fundraising services on Part IX, column (A), lines 6 and 11e? *If "Yes," complete Schedule G, Part I*	17		X
18	Did the organization report more than $15,000 total of fundraising event gross income and contributions on Part VIII, lines 1c and 8a? *If "Yes," complete Schedule G, Part II*	18		X
19	Did the organization report more than $15,000 of gross income from gaming activities on Part VIII, line 9a? *If "Yes," complete Schedule G, Part III*	19		X
20a	Did the organization operate one or more hospitals? *If "Yes," complete Schedule H*	20a		X
b	If "Yes" to line 20a, did the organization attach its audited financial statements to this return? Note. Some Form 990 filers that operate one or more hospitals must attach audited financial statements (see instructions)	20b		

Form 990 (2010)

932003
12-21-10

Part IV Checklist of Required Schedules (continued)

			Yes	No
21	Did the organization report more than $5,000 of grants and other assistance to governments and organizations in the United States on Part IX, column (A), line 1? *If "Yes," complete Schedule I, Parts I and II*	21		X
22	Did the organization report more than $5,000 of grants and other assistance to individuals in the United States on Part IX, column (A), line 2? *If "Yes," complete Schedule I, Parts I and III*	22		X
23	Did the organization answer "Yes" to Part VII, Section A, line 3, 4, or 5 about compensation of the organization's current and former officers, directors, trustees, key employees, and highest compensated employees? *If "Yes," complete Schedule J*	23		X
24a	Did the organization have a tax-exempt bond issue with an outstanding principal amount of more than $100,000 as of the last day of the year, that was issued after December 31, 2002? *If "Yes," answer lines 24b through 24d and complete Schedule K. If "No", go to line 25*	24a		X
b	Did the organization invest any proceeds of tax-exempt bonds beyond a temporary period exception?	24b		
c	Did the organization maintain an escrow account other than a refunding escrow at any time during the year to defease any tax-exempt bonds?	24c		
d	Did the organization act as an "on behalf of" issuer for bonds outstanding at any time during the year?	24d		
25a	**Section 501(c)(3) and 501(c)(4) organizations.** Did the organization engage in an excess benefit transaction with a disqualified person during the year? *If "Yes," complete Schedule L, Part I*	25a		
b	Is the organization aware that it engaged in an excess benefit transaction with a disqualified person in a prior year, and that the transaction has not been reported on any of the organization's prior Forms 990 or 990-EZ? *If "Yes," complete Schedule L, Part I*	25b		
26	Was a loan to or by a current or former officer, director, trustee, key employee, highly compensated employee, or disqualified person outstanding as of the end of the organization's tax year? *If "Yes," complete Schedule L, Part II*	26		X
27	Did the organization provide a grant or other assistance to an officer, director, trustee, key employee, substantial contributor, or a grant selection committee member, or to a person related to such an individual? *If "Yes," complete Schedule L, Part III*	27		X
28	Was the organization a party to a business transaction with one of the following parties (see Schedule L, Part IV instructions for applicable filing thresholds, conditions, and exceptions):			
a	A current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28a		X
b	A family member of a current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28b		X
c	An entity of which a current or former officer, director, trustee, or key employee (or a family member thereof) was an officer, director, trustee, or direct or indirect owner? *If "Yes," complete Schedule L, Part IV*	28c		X
29	Did the organization receive more than $25,000 in non-cash contributions? *If "Yes," complete Schedule M*	29		X
30	Did the organization receive contributions of art, historical treasures, or other similar assets, or qualified conservation contributions? *If "Yes," complete Schedule M*	30		X
31	Did the organization liquidate, terminate, or dissolve and cease operations? *If "Yes," complete Schedule N, Part I*	31		X
32	Did the organization sell, exchange, dispose of, or transfer more than 25% of its net assets? *If "Yes," complete Schedule N, Part II*	32		X
33	Did the organization own 100% of an entity disregarded as separate from the organization under Regulations sections 301.7701-2 and 301.7701-3? *If "Yes," complete Schedule R, Part I*	33		X
34	Was the organization related to any tax-exempt or taxable entity? *If "Yes," complete Schedule R, Parts II, III, IV, and V, line 1*	34		X
35	Is any related organization a controlled entity within the meaning of section 512(b)(13)?	35		X
a	Did the organization receive any payment from or engage in any transaction with a controlled entity within the meaning of section 512(b)(13)? *If "Yes," complete Schedule R, Part V, line 2* ☐ Yes ☒ No			
36	**Section 501(c)(3) organizations.** Did the organization make any transfers to an exempt non-charitable related organizations? *If "Yes," complete Schedule R, Part V, line 2*	36		
37	Did the organization conduct more than 5% of its activities through an entity that is not a related organization and that is treated as a partnership for federal income tax purposes? *If "Yes," complete Schedule R, Part VI*	37		X
38	Did the organization complete Schedule O and provide explanations in Schedule O for Part VI, lines 11 and 19? Note. All Form 990 filers are required to complete Schedule O	38	X	

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Part V Statements Regarding Other IRS Filings and Tax Compliance

Check if Schedule O contains a response to any question in this Part V ☐

				Yes	No
1a	Enter the number reported in Box 3 of Form 1096. Enter -0- if not applicable	1a	5		
b	Enter the number of Forms W-2G included in line 1a. Enter -0- if not applicable	1b	0		
c	Did the organization comply with backup withholding rules for reportable payments to vendors and reportable gaming (gambling) winnings to prize winners?		1c	X	
2a	Enter the number of employees reported on Form W-3, Transmittal of Wage and Tax Statements, filed for the calendar year ending with or within the year covered by this return	2a	0		
b	If at least one is reported on line 2a, did the organization file all required federal employment tax returns?		2b		
	Note. If the sum of lines 1a and 2a is greater than 250, you may be required to e-file. (see instructions)				
3a	Did the organization have unrelated business gross income of $1,000 or more during the year?		3a		X
b	If "Yes," has it filed a Form 990-T for this year? *If "No," provide an explanation in Schedule O*		3b		
4a	At any time during the calendar year, did the organization have an interest in, or a signature or other authority over, a financial account in a foreign country (such as a bank account, securities account, or other financial account)?		4a		X
b	If "Yes," enter the name of the foreign country: ▶				
	See instructions for filing requirements for Form TD F 90-22.1, Report of Foreign Bank and Financial Accounts.				
5a	Was the organization a party to a prohibited tax shelter transaction at any time during the tax year?		5a		X
b	Did any taxable party notify the organization that it was or is a party to a prohibited tax shelter transaction?		5b		X
c	If "Yes," to line 5a or 5b, did the organization file Form 8886-T?		5c		
6a	Does the organization have annual gross receipts that are normally greater than $100,000, and did the organization solicit any contributions that were not tax deductible?		6a		X
b	If "Yes," did the organization include with every solicitation an express statement that such contributions or gifts were not tax deductible?		6b		
7	**Organizations that may receive deductible contributions under section 170(c).**				
a	Did the organization receive a payment in excess of $75 made partly as a contribution and partly for goods and services provided to the payor?		7a		
b	If "Yes," did the organization notify the donor of the value of the goods or services provided?		7b		
c	Did the organization sell, exchange, or otherwise dispose of tangible personal property for which it was required to file Form 8282?		7c		
d	If "Yes," indicate the number of Forms 8282 filed during the year	7d			
e	Did the organization receive any funds, directly or indirectly, to pay premiums on a personal benefit contract?		7e		
f	Did the organization, during the year, pay premiums, directly or indirectly, on a personal benefit contract?		7f		
g	If the organization received a contribution of qualified intellectual property, did the organization file Form 8899 as required?		7g		
h	If the organization received a contribution of cars, boats, airplanes, or other vehicles, did the organization file a Form 1098-C?		7h		
8	**Sponsoring organizations maintaining donor advised funds and section 509(a)(3) supporting organizations.** Did the supporting organization, or a donor advised fund maintained by a sponsoring organization, have excess business holdings at any time during the year?		8		
9	**Sponsoring organizations maintaining donor advised funds.**				
a	Did the organization make any taxable distributions under section 4966?		9a		
b	Did the organization make a distribution to a donor, donor advisor, or related person?		9b		
10	**Section 501(c)(7) organizations.** Enter:				
a	Initiation fees and capital contributions included on Part VIII, line 12	10a			
b	Gross receipts, included on Form 990, Part VIII, line 12, for public use of club facilities	10b			
11	**Section 501(c)(12) organizations.** Enter:				
a	Gross income from members or shareholders	11a			
b	Gross income from other sources (Do not net amounts due or paid to other sources against amounts due or received from them.)	11b			
12a	**Section 4947(a)(1) non-exempt charitable trusts.** Is the organization filing Form 990 in lieu of Form 1041?		12a		
b	If "Yes," enter the amount of tax-exempt interest received or accrued during the year	12b			
13	**Section 501(c)(29) qualified nonprofit health insurance issuers.**				
a	Is the organization licensed to issue qualified health plans in more than one state?		13a		
	Note. See the instructions for additional information the organization must report on Schedule O.				
b	Enter the amount of reserves the organization is required to maintain by the states in which the organization is licensed to issue qualified health plans	13b			
c	Enter the amount of reserves on hand	13c			
14a	Did the organization receive any payments for indoor tanning services during the tax year?		14a		X
b	If "Yes," has it filed a Form 720 to report these payments? *If "No," provide an explanation in Schedule O*		14b		

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Part VI Governance, Management, and Disclosure *For each "Yes" response to lines 2 through 7b below, and for a "No" response to line 8a, 8b, or 10b below, describe the circumstances, processes, or changes in Schedule O. See instructions.*

Check if Schedule O contains a response to any question in this Part VI ..... [X]

Section A. Governing Body and Management

				Yes	No
1a	Enter the number of voting members of the governing body at the end of the tax year	1a	4		
b	Enter the number of voting members included in line 1a, above, who are independent	1b	4		
2	Did any officer, director, trustee, or key employee have a family relationship or a business relationship with any other officer, director, trustee, or key employee?		2		X
3	Did the organization delegate control over management duties customarily performed by or under the direct supervision of officers, directors or trustees, or key employees to a management company or other person?		3		X
4	Did the organization make any significant changes to its governing documents since the prior Form 990 was filed?		4		X
5	Did the organization become aware during the year of a significant diversion of the organization's assets?		5		X
6	Does the organization have members or stockholders?		6	X	
7a	Does the organization have members, stockholders, or other persons who may elect one or more members of the governing body?		7a	X	
b	Are any decisions of the governing body subject to approval by members, stockholders, or other persons?		7b		X
8	Did the organization contemporaneously document the meetings held or written actions undertaken during the year by the following:				
a	The governing body?		8a	X	
b	Each committee with authority to act on behalf of the governing body?		8b	X	
9	Is there any officer, director, trustee, or key employee listed in Part VII, Section A, who cannot be reached at the organization's mailing address? *If "Yes," provide the names and addresses in Schedule O*		9		X

Section B. Policies *(This Section B requests information about policies not required by the Internal Revenue Code.)*

			Yes	No
10a	Does the organization have local chapters, branches, or affiliates?	10a		X
b	If "Yes," does the organization have written policies and procedures governing the activities of such chapters, affiliates, and branches to ensure their operations are consistent with those of the organization?	10b		
11a	Has the organization provided a copy of this Form 990 to all members of its governing body before filing the form?	11a	X	
b	Describe in Schedule O the process, if any, used by the organization to review this Form 990.			
12a	Does the organization have a written conflict of interest policy? *If "No," go to line 13*	12a	X	
b	Are officers, directors or trustees, and key employees required to disclose annually interests that could give rise to conflicts?	12b		X
c	Does the organization regularly and consistently monitor and enforce compliance with the policy? *If "Yes," describe in Schedule O how this is done*	12c		X
13	Does the organization have a written whistleblower policy?	13	X	
14	Does the organization have a written document retention and destruction policy?	14	X	
15	Did the process for determining compensation of the following persons include a review and approval by independent persons, comparability data, and contemporaneous substantiation of the deliberation and decision?			
a	The organization's CEO, Executive Director, or top management official	15a	X	
b	Other officers or key employees of the organization	15b	X	
	If "Yes" to line 15a or 15b, describe the process in Schedule O. (See instructions.)			
16a	Did the organization invest in, contribute assets to, or participate in a joint venture or similar arrangement with a taxable entity during the year?	16a		X
b	If "Yes," has the organization adopted a written policy or procedure requiring the organization to evaluate its participation in joint venture arrangements under applicable federal tax law, and taken steps to safeguard the organization's exempt status with respect to such arrangements?	16b		

Section C. Disclosure

17 List the states with which a copy of this Form 990 is required to be filed ▶ CA, MT

18 Section 6104 requires an organization to make its Forms 1023 (or 1024 if applicable), 990, and 990-T (501(c)(3)s only) available for public inspection. Indicate how you make these available. Check all that apply.

☐ Own website ☐ Another's website [X] Upon request

19 Describe in Schedule O whether (and if so, how), the organization makes its governing documents, conflict of interest policy, and financial statements available to the public.

20 State the name, physical address, and telephone number of the person who possesses the books and records of the organization: ▶

MARK TIBBETTS - 703-841-3200
1300 NORTH 17TH STREET, NO. 1752, ARLINGTON, VA 22209

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Part VII Compensation of Officers, Directors, Trustees, Key Employees, Highest Compensated Employees, and Independent Contractors

Check if Schedule O contains a response to any question in this Part VII ☐

Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees

1a Complete this table for all persons required to be listed. Report compensation for the calendar year ending with or within the organization's tax year.

- List all of the organization's **current** officers, directors, trustees (whether individuals or organizations), regardless of amount of compensation. Enter -0- in columns (D), (E), and (F) if no compensation was paid.
- List all of the organization's **current** key employees, if any. See instructions for definition of "key employee."
- List the organization's five **current** highest compensated employees (other than an officer, director, trustee, or key employee) who received reportable compensation (Box 5 of Form W-2 and/or Box 7 of Form 1099-MISC) of more than $100,000 from the organization and any related organizations.
- List all of the organization's **former** officers, key employees, and highest compensated employees who received more than $100,000 of reportable compensation from the organization and any related organizations.
- List all of the organization's **former directors or trustees** that received, in the capacity as a former director or trustee of the organization, more than $10,000 of reportable compensation from the organization and any related organizations.

List persons in the following order: individual trustees or directors; institutional trustees; officers; key employees; highest compensated employees; and former such persons.

☐ Check this box if neither the organization nor any related organization compensated any current officer, director, or trustee.

(A) Name and Title	(B) Average hours per week (describe hours for related organizations in Schedule O)	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
DAN O'DONNELL CHAIR	2.50	X		X				0.	0.	0.
JOHN SARTAIN VICE CHAIR/TREASURER	2.50	X		X				0.	0.	0.
ANDREW GRAHAM SECRETARY	2.50	X		X				0.	0.	0.
ROBERT JOHNSON DIRECTOR	2.50	X						0.	0.	0.
MARK TIBBETTS EXECUTIVE DIRECTOR	35.00			X				110,109.	0.	30,779.

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Part VII Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees *(continued)*

(A) Name and title	(B) Average hours per week (describe hours for related organizations in Schedule O)	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
1b Sub-total ▶								110,109.	0.	30,779.
c Total from continuation sheets to Part VII, Section A ▶								0.	0.	0.
d Total (add lines 1b and 1c) ▶								110,109.	0.	30,779.

2 Total number of individuals (including but not limited to those listed above) who received more than $100,000 in reportable compensation from the organization ▶ 1

		Yes	No
3	Did the organization list any former officer, director or trustee, key employee, or highest compensated employee on line 1a? *If "Yes," complete Schedule J for such individual*		X
4	For any individual listed on line 1a, is the sum of reportable compensation and other compensation from the organization and related organizations greater than $150,000? *If "Yes," complete Schedule J for such individual*		X
5	Did any person listed on line 1a receive or accrue compensation from any unrelated organization or individual for services rendered to the organization? *If "Yes," complete Schedule J for such person*		X

Section B. Independent Contractors

1 Complete this table for your five highest compensated independent contractors that received more than $100,000 of compensation from the organization.

(A) Name and business address	(B) Description of services	(C) Compensation
HONEYWELL INTERNATIONAL, 1985 DOUGLAS DRIVE, GOLDEN VALLEY, MN 55422-3992	ADMINISTRATIVE AND RECYCLING SERVICES	240,974.

2 Total number of independent contractors (including but not limited to those listed above) who received more than $100,000 in compensation from the organization ▶ 1

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Part VIII Statement of Revenue

			(A) Total revenue	(B) Related or exempt function revenue	(C) Unrelated business revenue	(D) Revenue excluded from tax under sections 512, 513, or 514
Contributions, gifts, grants and other similar amounts	1a Federated campaigns 1a					
	b Membership dues 1b					
	c Fundraising events 1c					
	d Related organizations 1d					
	e Government grants (contributions) 1e					
	f All other contributions, gifts, grants, and similar amounts not included above 1f					
	g Noncash contributions included in lines 1a-1f $					
	h Total. Add lines 1a-1f					
Program Service Revenue		Business Code				
	2a MEMBERSHIP DUES	900099	655,186.	655,186.		
	b SITE PARTICIPATION FEE	900099	16,500.	16,500.		
	c					
	d					
	e					
	f All other program service revenue					
	g Total. Add lines 2a-2f		671,686.			
Other Revenue	3 Investment income (including dividends, interest, and other similar amounts)		418.			418.
	4 Income from investment of tax-exempt bond proceeds					
	5 Royalties					
		(i) Real	(ii) Personal			
	6a Gross Rents					
	b Less: rental expenses					
	c Rental income or (loss)					
	d Net rental income or (loss)					
		(i) Securities	(ii) Other			
	7a Gross amount from sales of assets other than inventory					
	b Less: cost or other basis and sales expenses					
	c Gain or (loss)					
	d Net gain or (loss)					
	8a Gross income from fundraising events (not including $ ____ of contributions reported on line 1c). See Part IV, line 18 a					
	b Less: direct expenses b					
	c Net income or (loss) from fundraising events					
	9a Gross income from gaming activities. See Part IV, line 19 a					
	b Less: direct expenses b					
	c Net income or (loss) from gaming activities					
	10a Gross sales of inventory, less returns and allowances a					
	b Less: cost of goods sold b					
	c Net income or (loss) from sales of inventory					
	Miscellaneous Revenue	Business Code				
	11a					
	b					
	c					
	d All other revenue					
	e Total. Add lines 11a-11d					
	12 Total revenue. See instructions.		672,104.	671,686.	0.	418.

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Part IX Statement of Functional Expenses

Section 501(c)(3) and 501(c)(4) organizations must complete all columns.
All other organizations must complete column (A) but are not required to complete columns (B), (C), and (D).

Do not include amounts reported on lines 6b, 7b, 8b, 9b, and 10b of Part VIII.	(A) Total expenses	(B) Program service expenses	(C) Management and general expenses	(D) Fundraising expenses
1 Grants and other assistance to governments and organizations in the U.S. See Part IV, line 21				
2 Grants and other assistance to individuals in the U.S. See Part IV, line 22				
3 Grants and other assistance to governments, organizations, and individuals outside the U.S. See Part IV, lines 15 and 16				
4 Benefits paid to or for members				
5 Compensation of current officers, directors, trustees, and key employees	140,888.			
6 Compensation not included above, to disqualified persons (as defined under section 4958(f)(1)) and persons described in section 4958(c)(3)(B)				
7 Other salaries and wages	45,899.			
8 Pension plan contributions (include section 401(k) and section 403(b) employer contributions)				
9 Other employee benefits				
10 Payroll taxes				
11 Fees for services (non-employees):				
a Management				
b Legal	7,349.			
c Accounting	9,845.			
d Lobbying				
e Professional fundraising services. See Part IV, line 17				
f Investment management fees				
g Other	4,981.			
12 Advertising and promotion	36,034.			
13 Office expenses	40,164.			
14 Information technology	19,107.			
15 Royalties				
16 Occupancy				
17 Travel	28,809.			
18 Payments of travel or entertainment expenses for any federal, state, or local public officials				
19 Conferences, conventions, and meetings				
20 Interest				
21 Payments to affiliates				
22 Depreciation, depletion, and amortization				
23 Insurance	17,771.			
24 Other expenses. Itemize expenses not covered above. (List miscellaneous expenses in line 24f. If line 24f amount exceeds 10% of line 25, column (A) amount, list line 24f expenses on Schedule O.)				
a HONEYWELL REIMBURSEMENT	300,096.			
b INCENTIVE PAYMENTS	40,380.			
c BINS EXPENSE	18,219.			
d SPONSORSHIP AND MEMBERS	4,152.			
e				
f All other expenses				
25 Total functional expenses. Add lines 1 through 24f	713,694.			
26 Joint costs. Check here ▶ ☐ if following SOP 98-2 (ASC 958-720). Complete this line only if the organization reported in column (B) joint costs from a combined educational campaign and fundraising solicitation				

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Part X Balance Sheet

			(A) Beginning of year		(B) End of year
Assets	1	Cash - non-interest-bearing	88,347.	1	66,595.
	2	Savings and temporary cash investments	100,673.	2	100,905.
	3	Pledges and grants receivable, net		3	
	4	Accounts receivable, net	325.	4	16,000.
	5	Receivables from current and former officers, directors, trustees, key employees, and highest compensated employees. Complete Part II of Schedule L		5	
	6	Receivables from other disqualified persons (as defined under section 4958(f)(1)), persons described in section 4958(c)(3)(B), and contributing employers and sponsoring organizations of section 501(c)(9) voluntary employees' beneficiary organizations (see instructions)		6	
	7	Notes and loans receivable, net		7	
	8	Inventories for sale or use		8	
	9	Prepaid expenses and deferred charges		9	6,498.
	10a	Land, buildings, and equipment: cost or other basis. Complete Part VI of Schedule D — 10a			
	b	Less: accumulated depreciation — 10b		10c	
	11	Investments - publicly traded securities		11	
	12	Investments - other securities. See Part IV, line 11		12	
	13	Investments - program-related. See Part IV, line 11		13	
	14	Intangible assets		14	
	15	Other assets. See Part IV, line 11		15	
	16	Total assets. Add lines 1 through 15 (must equal line 34)	189,345.	16	189,998.
Liabilities	17	Accounts payable and accrued expenses	282,586.	17	324,829.
	18	Grants payable		18	
	19	Deferred revenue		19	
	20	Tax-exempt bond liabilities		20	
	21	Escrow or custodial account liability. Complete Part IV of Schedule D		21	
	22	Payables to current and former officers, directors, trustees, key employees, highest compensated employees, and disqualified persons. Complete Part II of Schedule L		22	
	23	Secured mortgages and notes payable to unrelated third parties		23	
	24	Unsecured notes and loans payable to unrelated third parties		24	
	25	Other liabilities. Complete Part X of Schedule D		25	
	26	Total liabilities. Add lines 17 through 25	282,586.	26	324,829.
Net Assets or Fund Balances		Organizations that follow SFAS 117, check here ▶ [X] and complete lines 27 through 29, and lines 33 and 34.			
	27	Unrestricted net assets	-93,241.	27	-134,831.
	28	Temporarily restricted net assets		28	
	29	Permanently restricted net assets		29	
		Organizations that do not follow SFAS 117, check here ▶ [ ] and complete lines 30 through 34.			
	30	Capital stock or trust principal, or current funds		30	
	31	Paid-in or capital surplus, or land, building, or equipment fund		31	
	32	Retained earnings, endowment, accumulated income, or other funds		32	
	33	Total net assets or fund balances	-93,241.	33	-134,831.
	34	Total liabilities and net assets/fund balances	189,345.	34	189,998.

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Part XI Reconciliation of Net Assets

Check if Schedule O contains a response to any question in this Part XI ☐

1	Total revenue (must equal Part VIII, column (A), line 12)	1	672,104.
2	Total expenses (must equal Part IX, column (A), line 25)	2	713,694.
3	Revenue less expenses. Subtract line 2 from line 1	3	-41,590.
4	Net assets or fund balances at beginning of year (must equal Part X, line 33, column (A))	4	-93,241.
5	Other changes in net assets or fund balances (explain in Schedule O)	5	
6	Net assets or fund balances at end of year. Combine lines 3, 4, and 5 (must equal Part X, line 33, column (B))	6	-134,831.

Part XII Financial Statements and Reporting

Check if Schedule O contains a response to any question in this Part XII ☒

			Yes	No
1	Accounting method used to prepare the Form 990: ☐ Cash ☒ Accrual ☐ Other _____ If the organization changed its method of accounting from a prior year or checked "Other," explain in Schedule O.			
2a	Were the organization's financial statements compiled or reviewed by an independent accountant?	2a	X	
b	Were the organization's financial statements audited by an independent accountant?	2b		X
c	If "Yes" to line 2a or 2b, does the organization have a committee that assumes responsibility for oversight of the audit, review, or compilation of its financial statements and selection of an independent accountant? If the organization changed either its oversight process or selection process during the tax year, explain in Schedule O.	2c	X	
d	If "Yes" to line 2a or 2b, check a box below to indicate whether the financial statements for the year were issued on a separate basis, consolidated basis, or both: ☒ Separate basis ☐ Consolidated basis ☐ Both consolidated and separate basis			
3a	As a result of a federal award, was the organization required to undergo an audit or audits as set forth in the Single Audit Act and OMB Circular A-133?	3a		X
b	If "Yes," did the organization undergo the required audit or audits? If the organization did not undergo the required audit or audits, explain why in Schedule O and describe any steps taken to undergo such audits.	3b		

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SCHEDULE C (Form 990 or 990-EZ)

Department of the Treasury Internal Revenue Service

Political Campaign and Lobbying Activities

For Organizations Exempt From Income Tax Under section 501(c) and section 527

▶ Complete if the organization is described below. ▶ Attach to Form 990 or Form 990-EZ. ▶ See separate instructions.

OMB No. 1545-0047

2010

Open to Public Inspection

If the organization answered "Yes," to Form 990, Part IV, line 3, or Form 990-EZ, Part V, line 46 (Political Campaign Activities), then

- Section 501(c)(3) organizations: Complete Parts I-A and B. Do not complete Part I-C.
- Section 501(c) (other than section 501(c)(3)) organizations: Complete Parts I-A and C below. Do not complete Part I-B.
- Section 527 organizations: Complete Part I-A only.

If the organization answered "Yes," to Form 990, Part IV, line 4, or Form 990-EZ, Part VI, line 47 (Lobbying Activities), then

- Section 501(c)(3) organizations that have filed Form 5768 (election under section 501(h)): Complete Part II-A. Do not complete Part II-B.
- Section 501(c)(3) organizations that have NOT filed Form 5768 (election under section 501(h)): Complete Part II-B. Do not complete Part II-A.

If the organization answered "Yes," to Form 990, Part IV, line 5 (Proxy Tax), or Form 990-EZ, Part V, line 35a (Proxy Tax), then

- Section 501(c)(4), (5), or (6) organizations: Complete Part III.

Name of organization	Employer identification number
THERMOSTAT RECYCLING CORPORATION	54-1830284

Part I-A Complete if the organization is exempt under section 501(c) or is a section 527 organization.

1 Provide a description of the organization's direct and indirect political campaign activities in Part IV.

2 Political expenditures ▶ $

3 Volunteer hours

Part I-B Complete if the organization is exempt under section 501(c)(3).

1 Enter the amount of any excise tax incurred by the organization under section 4955 ▶ $

2 Enter the amount of any excise tax incurred by organization managers under section 4955 ▶ $

3 If the organization incurred a section 4955 tax, did it file Form 4720 for this year? ☐ Yes ☐ No

4a Was a correction made? ☐ Yes ☐ No

b If "Yes," describe in Part IV.

Part I-C Complete if the organization is exempt under section 501(c), except section 501(c)(3).

1 Enter the amount directly expended by the filing organization for section 527 exempt function activities ▶ $

2 Enter the amount of the filing organization's funds contributed to other organizations for section 527 exempt function activities ▶ $

3 Total exempt function expenditures. Add lines 1 and 2. Enter here and on Form 1120-POL, line 17b ▶ $

4 Did the filing organization file Form 1120-POL for this year? ☐ Yes ☐ No

5 Enter the names, addresses and employer identification number (EIN) of all section 527 political organizations to which the filing organization made payments. For each organization listed, enter the amount paid from the filing organization's funds. Also enter the amount of political contributions received that were promptly and directly delivered to a separate political organization, such as a separate segregated fund or a political action committee (PAC). If additional space is needed, provide information in Part IV.

(a) Name	(b) Address	(c) EIN	(d) Amount paid from filing organization's funds. If none, enter -0-.	(e) Amount of political contributions received and promptly and directly delivered to a separate political organization. If none, enter -0-.

For Paperwork Reduction Act Notice, see the instructions for Form 990 or 990-EZ. Schedule C (Form 990 or 990-EZ) 2010

LHA

932041 02-02-11

Schedule C (Form 990 or 990-EZ) 2010 THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 2

Part II-A Complete if the organization is exempt under section 501(c)(3) and filed Form 5768 (election under section 501(h)).

A Check ▶ ☐ if the filing organization belongs to an affiliated group.

B Check ▶ ☐ if the filing organization checked box A and "limited control" provisions apply.

Limits on Lobbying Expenditures (The term "expenditures" means amounts paid or incurred.)	(a) Filing organization's totals	(b) Affiliated group totals
1a Total lobbying expenditures to influence public opinion (grass roots lobbying)		
b Total lobbying expenditures to influence a legislative body (direct lobbying)		
c Total lobbying expenditures (add lines 1a and 1b)		
d Other exempt purpose expenditures		
e Total exempt purpose expenditures (add lines 1c and 1d)		
f Lobbying nontaxable amount. Enter the amount from the following table in both columns.		
g Grassroots nontaxable amount (enter 25% of line 1f)		
h Subtract line 1g from line 1a. If zero or less, enter -0-		
i Subtract line 1f from line 1c. If zero or less, enter -0-		
j If there is an amount other than zero on either line 1h or line 1i, did the organization file Form 4720 reporting section 4911 tax for this year?	☐ Yes ☐ No	

If the amount on line 1e, column (a) or (b) is:	The lobbying nontaxable amount is:
Not over $500,000	20% of the amount on line 1e.
Over $500,000 but not over $1,000,000	$100,000 plus 15% of the excess over $500,000.
Over $1,000,000 but not over $1,500,000	$175,000 plus 10% of the excess over $1,000,000.
Over $1,500,000 but not over $17,000,000	$225,000 plus 5% of the excess over $1,500,000.
Over $17,000,000	$1,000,000.

4-Year Averaging Period Under Section 501(h)

(Some organizations that made a section 501(h) election do not have to complete all of the five columns below. See the instructions for lines 2a through 2f on page 4.)

Lobbying Expenditures During 4-Year Averaging Period Calendar year (or fiscal year beginning in)	(a) 2007	(b) 2008	(c) 2009	(d) 2010	(e) Total
2a Lobbying nontaxable amount					
b Lobbying ceiling amount (150% of line 2a, column(e))					
c Total lobbying expenditures					
d Grassroots nontaxable amount					
e Grassroots ceiling amount (150% of line 2d, column (e))					
f Grassroots lobbying expenditures					

Schedule C (Form 990 or 990-EZ) 2010

Schedule C (Form 990 or 990-EZ) 2010 THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 3

Part II-B Complete if the organization is exempt under section 501(c)(3) and has NOT filed Form 5768 (election under section 501(h)).

		(a) Yes	(a) No	(b) Amount
1	During the year, did the filing organization attempt to influence foreign, national, state or local legislation, including any attempt to influence public opinion on a legislative matter or referendum, through the use of:			
a	Volunteers?			
b	Paid staff or management (include compensation in expenses reported on lines 1c through 1i)?			
c	Media advertisements?			
d	Mailings to members, legislators, or the public?			
e	Publications, or published or broadcast statements?			
f	Grants to other organizations for lobbying purposes?			
g	Direct contact with legislators, their staffs, government officials, or a legislative body?			
h	Rallies, demonstrations, seminars, conventions, speeches, lectures, or any similar means?			
i	Other activities? If "Yes," describe in Part IV			
j	Total. Add lines 1c through 1i			
2a	Did the activities in line 1 cause the organization to be not described in section 501(c)(3)?			
b	If "Yes," enter the amount of any tax incurred under section 4912			
c	If "Yes," enter the amount of any tax incurred by organization managers under section 4912			
d	If the filing organization incurred a section 4912 tax, did it file Form 4720 for this year?			

Part III-A Complete if the organization is exempt under section 501(c)(4), section 501(c)(5), or section 501(c)(6).

			Yes	No
1	Were substantially all (90% or more) dues received nondeductible by members?	1		X
2	Did the organization make only in-house lobbying expenditures of $2,000 or less?	2	X	
3	Did the organization agree to carryover lobbying and political expenditures from the prior year?	3		X

Part III-B Complete if the organization is exempt under section 501(c)(4), section 501(c)(5), or section 501(c)(6) if BOTH Part III-A, lines 1 and 2 are answered "No" OR if Part III-A, line 3 is answered "Yes."

1	Dues, assessments and similar amounts from members	1	
2	Section 162(e) nondeductible lobbying and political expenditures (do not include amounts of political expenses for which the section 527(f) tax was paid).		
a	Current year	2a	
b	Carryover from last year	2b	
c	Total	2c	
3	Aggregate amount reported in section 6033(e)(1)(A) notices of nondeductible section 162(e) dues	3	
4	If notices were sent and the amount on line 2c exceeds the amount on line 3, what portion of the excess does the organization agree to carryover to the reasonable estimate of nondeductible lobbying and political expenditure next year?	4	
5	Taxable amount of lobbying and political expenditures (see instructions)	5	

Part IV Supplemental Information

Complete this part to provide the descriptions required for Part I-A, line 1; Part I-B, line 4; Part I-C, line 5; and Part II-B, line 1i. Also, complete this part for any additional information.

Schedule C (Form 990 or 990-EZ) 2010

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SCHEDULE O (Form 990 or 990-EZ)
Department of the Treasury
Internal Revenue Service

Supplemental Information to Form 990 or 990-EZ

Complete to provide information for responses to specific questions on Form 990 or 990-EZ or to provide any additional information.
▶ Attach to Form 990 or 990-EZ.

OMB No. 1545-0047
2010
Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

FORM 990, PART VI, SECTION A, LINE 6: THE INITIAL MEMBERS OF THIS CORPORATION SHALL BE GENERAL ELECTRIC CORPORATION, WHITE-RODGERS CORPORATION, AND HONEYWELL INC. EACH SUCH CORPORATION SHALL BE DEEMED AN ORIGINAL MEMBER OF THE CORPORATION, AND ALL THREE CORPORATIONS MAY BE REFERRED TO COLLECTIVELY IN THE BY-LAWS AS THE ORIGINAL MEMBERS.

FROM TIME TO TIME, THE BOARD OF DIRECTORS MAY INVITE OTHER THERMOSTAT MANUFACTURERS TO PARTICIPATE AS MEMBERS IN THE CORPORATION. SUCH A CORPORATION SHALL BECOME A MEMBER ONLY UPON PAYMENT OF FEES AS PROVIDED UNDER ARTICLE VII OF THE BY-LAWS.

FORM 990, PART VI, SECTION A, LINE 7A: THERE SHALL BE A NOMINATING COMMITTEE OF THE BOARD OF DIRECTORS, WHICH SHALL CONSIST OF THREE DIRECTORS, ALL OF WHOM ARE EMPLOYED BY ORIGINAL MEMBERS. ONE MONTH PRIOR TO THE ANNUAL MEETING OF THE CORPORATION, THE NOMINATING COMMITTEE SHALL APPROVE A SLATE OF NOMINEES MEETING THE QUALIFICATIONS SET FORTH IN SECTION 2 TO BE SUBMITTED TO THE MEMBERS FOR ELECTION AT THE ANNUAL MEETING.

FORM 990, PART VI, SECTION B, LINE 11: A COPY OF FORM 990 IS PROVIDED TO ALL GOVERNING MEMBERS BEFORE IT IS FILED. A REASONABLE AMOUNT OF TIME IS ALLOWED FOR THE GOVERNING MEMBERS TO REVIEW THE FORM 990 AND PROVIDE COMMENTS.

FORM 990, PART VI, SECTION B, LINE 15: COMPENSATION IS ESTABLISHED BY THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA). NEMA UTILIZES INDEPENDENT CONSULTANTS AND COMPARABILITY DATA, AMONG OTHER METHODS, TO

Name of the organization: THERMOSTAT RECYCLING CORPORATION | Employer identification number: 54-1830284

DETERMINE THE COMPENSATION OF THE ORGANIZATION'S EXECUTIVE DIRECTOR.

FORM 990, PART VI, SECTION C, LINE 19: TRC MAKES ITS GOVERNING DOCUMENTS, CONFLICT OF INTEREST POLICY, AND FINANCIAL STATEMENTS AVAILABLE TO THE PUBLIC UPON REQUEST (VIA E-MAIL OR MAIL).

PART XII, LINE 2C - THIS PROCESS HAS REMAINED UNCHANGED FROM THE PRIOR YEAR.

Form **8868** (Rev. January 2011)
Department of the Treasury
Internal Revenue Service

Application for Extension of Time To File an Exempt Organization Return

▶ File a separate application for each return.

OMB No. 1545-1709

* If you are filing for an **Automatic 3-Month Extension, complete only Part I** and check this box ▶ [X]
* If you are filing for an **Additional (Not Automatic) 3-Month Extension, complete only Part II** (on page 2 of this form).

Do not complete Part II unless you have already been granted an automatic 3-month extension on a previously filed Form 8868.

Electronic filing (e-file). You can electronically file Form 8868 if you need a 3-month automatic extension of time to file (6 months for a corporation required to file Form 990-T), or an additional (not automatic) 3-month extension of time. You can electronically file Form 8868 to request an extension of time to file any of the forms listed in Part I or Part II with the exception of Form 8870, Information Return for Transfers Associated With Certain Personal Benefit Contracts, which must be sent to the IRS in paper format (see instructions). For more details on the electronic filing of this form, visit *www.irs.gov/efile* and click on *e-file for Charities & Nonprofits*.

Part I **Automatic 3-Month Extension of Time.** Only submit original (no copies needed).

A corporation required to file Form 990-T and requesting an automatic 6-month extension - check this box and complete Part I only ▶ ☐

All other corporations (including 1120-C filers), partnerships, REMICs, and trusts must use Form 7004 to request an extension of time to file income tax returns.

Type or print	Name of exempt organization	Employer identification number
File by the due date for filing your return. See instructions.	THERMOSTAT RECYCLING CORPORATION	54-1830284
	Number, street, and room or suite no. If a P.O. box, see instructions. 1300 NORTH 17TH STREET, NO. 1752	
	City, town or post office, state, and ZIP code. For a foreign address, see instructions. ARLINGTON, VA 22209	

Enter the Return code for the return that this application is for (file a separate application for each return) 01

Application Is For	Return Code	Application Is For	Return Code
Form 990	01	Form 990-T (corporation)	07
Form 990-BL	02	Form 1041-A	08
Form 990-EZ	03	Form 4720	09
Form 990-PF	04	Form 5227	10
Form 990-T (sec. 401(a) or 408(a) trust)	05	Form 6069	11
Form 990-T (trust other than above)	06	Form 8870	12

* The books are in the care of ▶ MARK TIBBETTS 1300 NORTH 17TH STREET, NO. 1752 - ARLINGTON, VA 22209
  Telephone No. ▶ 703-841-3200 FAX No. ▶
* If the organization does not have an office or place of business in the United States, check this box ▶ ☐
* If this is for a Group Return, enter the organization's four digit Group Exemption Number (GEN) _____. If this is for the whole group, check this box ▶ ☐. If it is for part of the group, check this box ▶ ☐ and attach a list with the names and EINs of all members the extension is for.

1 I request an automatic 3-month (6 months for a corporation required to file Form 990-T) extension of time until AUGUST 15, 2011, to file the exempt organization return for the organization named above. The extension is for the organization's return for:
▶ [X] calendar year 2010 or
▶ ☐ tax year beginning _____, and ending _____.

2 If the tax year entered in line 1 is for less than 12 months, check reason: ☐ Initial return ☐ Final return ☐ Change in accounting period

3a	If this application is for Form 990-BL, 990-PF, 990-T, 4720, or 6069, enter the tentative tax, less any nonrefundable credits. See instructions.	3a	$ 0.
b	If this application is for Form 990-PF, 990-T, 4720, or 6069, enter any refundable credits and estimated tax payments made. Include any prior year overpayment allowed as a credit.	3b	$ 0.
c	**Balance due.** Subtract line 3b from line 3a. Include your payment with this form, if required, by using EFTPS (Electronic Federal Tax Payment System). See instructions.	3c	$ 0.

Caution. If you are going to make an electronic fund withdrawal with this Form 8868, see Form 8453-EO and Form 8879-EO for payment instructions.

LHA **For Paperwork Reduction Act Notice, see instructions.** Form **8868** (Rev. 1-2011)

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01-03-11

APPENDIX F: Locations Requesting Bins from TRC

Customer Type	Business Name	Address	City	ZIPCODE	Total
CONTRACTOR	A-1 GUARANTEED	1768 BROADWAY	VALLEJO	94589	1
	BUCKLEY PARNELL HEAT & AIR	5990 DEVECCHI AVE	CITRUS HEIGHTS	95621	1
	CHIMNEY KRAFT	700 NORTHCREST DRIVE	CRESCENT CITY	95531	1
	GOODCENTS	1322 DUPONT COURT	MANTECA	95336	6
	MAKI HEATING & AIR CONDITIONING, INC.	105 GUM LANE	AUBURN	95603	1
	MATRIX HG, INC.	2355 WHITMAN RD. SUITE A	CONCORDIA	94518	2
	MCCLELLAND Air CONDITIONING	801 MARAUDER STREET	CHICO	95973	2
	RICHARD HEATH & ASSOCIATES, INC	9480 TELSTAR AVENUE SUITE 2	El Monte	91731-0000	2
	YUBA-SUTTER HHW FACILITY	3001 N LEVEE ROAD	MARYSVILLE	95901	1
	BONNEY PLUMBING, HEATING & AIR	3906 KRISTI COURT	SACRAMENTO	95827	1
	BILL HOWE HEATING & AIR	1364 MORENA BLVD #A	SAN DIEGO	92110	1
	ONE HOUR HEATING & A/C	415 20TH STREET	BAKERSFIELD	93301	1
HHW FACILITY	ALAMEDA COUNTY HOUSEHOLD HAZ. WASTE PROGRAM	2091 W WINTON AVE	HAYWARD	94545	5
		2091 W. WINTON AVE.	HAYWARD	94545	1
	AMADOR COUNTY WASTE MANAGEMENT DEPT.	810 COURT STREET	JACKSON	95642	5
	BAY COUNTIES WASTE SERVICES	301 CARL ROAD	SUNNYVALE	94089-0000	2
	BUENA VISTA HHW FACILITY	150 ROUNDTREE LANE	WATSONVILLE	95076-0000	3
	BUTTE REGIONAL HHW COLLECTION FACILITY	1101 MARADER ST.	CHICO	95973-0000	3
	CASTRO VALLEY SANITARY DISTRICT	21040 MARSHALL STREET	CASTRO VALLEY	94546	2
	Chicago Grade Landfill HHW	HWY 41	Atascadero	93422	1
	CITY OF FREMONT PHHWCF	41149 BOYCE ROAD	FREMONT	94538	1
	CITY OF HIGHLAND	27215 BASELINE STREET	HIGHLAND	92346	1
	CITY OF MADERA PUBLIC WORKS	1030 S. GATEWAY DRIVE	MADERA	93637	1
	CITY OF SACRAMENTO PHHWCF	8491 FRUITRIDGE ROAD	SACRAMENTO	95826	1
	CITY OF SAN DIEGO, MIRAMAR HHWCF	5161 CONVOY STREET	SAN DIEGO	92111-0000	1
	CITY OF SANTA MARIA HHW FACILITY	2065 E. MAIN STREET	SANTA MARIA	93454	2
	Cold Canyon Landfill HHW	HWY 227	SAN LUIS OBISPO	93401-0000	1

COLUSA COUNTY HHW PROGRAM	1215 MARKET STREET	COLUSA	95932-0000	2
COUNTY OF MARIPOSA	5593 HWY 49 NORTH	MARIPOSA	95338	6
COUNTY OF SAN DIEGO HHW	324 MAPLE STREET	RAMONA	92065	1
COUNTY OF SANTA CLARA	1555 BERGER DR SUITE 300	SAN JOSE	95112	2
COUNTY OF TUOLUMNE SOLID WASTE DIVISION	2 SOUTH GREEN ST.	SONORA	95370	3
COUNTY OF VENTURA-	800 SOUTH VICTORIA AVE	VENTURA	93009-1650	2
CV STRATEGIES	42600 CAROLINE COURT SUITE 102	PALM DESERT	92211	1
CYPRESS CITY HALL	5275 ORANGE AVENUE	CYPRESS	90630	4
DEL NORTE COUNTY TRANSFER STATION	1700 STATE STREET	CRESCENT CITY	95531	1
DELTA HHW COLLECTION FACILITY	2550 PITTSBURG-ANTIOCH HWY	Pittsburg	94509-1373	1
EL DORADO COUNTY ENVIRONMENTAL MGMT. DEPT.	2850 FOURLANE COURT	PLACERVILLE	95667	1
GLEN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	5700 COUNTY ROAD 33	ARTOIS	95913-0000	2
HUMBOLDT WASTE MANAGEMENT AUTHORITY	1059 W. HAWTHORNE ST.	EUREKA	95501-0000	1
KERN COUNTY SPECIAL WASTE FACILITY	17035 FINNIN AVE. #2	MOJAVE	93501	1
	3301 BOWMAN ROAD	RIDGECREST	93555	1
	4951 STANDARD ST.	BAKERSFIELD	93308-4531	1
LUCIA MAR UNIFIED SCHOOL DISTRICT	222 STANLEY AVE	ARROYO GRANDE	93420	1
MADERA COUNTY HHW COLLECTION FACILITY	21739 ROAD 19	CHOWCHILLA	93610	2
MADERA COUNTY HHW COLLECTION FACILITY	2037 W. CLEVELAND AVE	MADERA	93637	2
MARIN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	565 JACOBY STREET	SAN RAFAEL	94901	2
MENDOCINO SOLID WASTE MANAGEMENT AUTHORITY	298A PLANT ROAD	UKIAH	95482	1
MERCED COUNTY HHW	260 E 15TH ST.	MERCED	95341-6216	1
	6040 N. HIGHWAY 59	MERCED	95340	1
Morro Bay/Cayucos Waste Water Plant	160 Atascadero Road	Morro Bay	93442	1
NEVADA COUNTY H.H.W. FACILITY	14741 WOLF MTN. RD.	GRASS VALLEY	95949	4
Nipomo Household Hazardous Waste Drop-Off	509 Southland	Nipomo	93444	1
ORO LOMA SANITARY DISTRICT	2600 GRANT AVE	SAN LORENZO	94580-1838	2
Palo Alto Public Works Dept	2501 Embarcadero Way	Palo Alto	94303	1
Paso Robles Landfill HHW	Hwy 46 East	Paso Robles	93446	1
PERMANENT HHW COLLECTION FACILITY	50 NATOMA ST.	FOLSOM	95630	2

	PARC ENVIRONMENTAL	2706 S RAILROAD AVE	FRESNO	93725	2
	RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	91201-0000	1
				91201-2305	1
	SALINAS VALLEY SOLID WASTE HHWCF	139 SUN STREET	SALINAS	93901	1
	SAN BERNADINO COUNTY HHW	2824 EAST W STREET, BLDG 302	SAN BERNADINO	92408-0000	2
	SAN JOAQUIN COUNTY HHW	7850 R.A. BRIDGEFORD STREET	STOCKTON	95206	3
	SAN LUIS OBISPO COUNTY IWA	870 OSOS STREET	SAN LUIS OBISPO	93401-0000	2
	SAN MATEO COUNTY HHW FACILITY	32 TOWER ROAD	SAN MATEO	94402	1
	SOUTH TAHOE REFUSE TRANSFER STATION	2140 Ruth AVE.	SOUTH LAKE TAHOE	96150	2
	TEHAMA COUNTY/RED BLUFF LANDFILL	19995 PLYMIRE ROAD	RED BLUFF	96080	4
	VENTURA HOUSEHOLD HAZARDOUS WASTE FACILITY	336 SAN JON ROAD	VENTURA	93002	2
	WEST CONTRA COSTA PERMANENT HHW	101 PITTSBURG AVENUE	RICHMOND	94801-0000	2
	YOLO COUNTY CENTRAL LANDFILL	44090 COUNTY ROAD 28H	WOODLAND	95776	2
		44090 COUNTY RD 28 H	WOODLAND	95776	1
	CLEAN HARBORS EVS	500 MECHAM ROAD	PETALUMA	94952	1
	WESTERN PLACER WASTE MANAGEMENT AUTHORITY	NORTECH WASTE 3195 ATHENS AVE	LINCOLN	95648	2
	CITY OF REDDING SOLID WASTE	2255 ABERNATHY LANE	REDDING	96003	1
	CITY OF CARPINTERIA	5775 CARPINTERIA AVE.	CARPINTERIA	93013	2
	CITY OF SAN DIEGO, HHW	5161 CONVOY STREET	SAN DIEGO	92111	1
	AAA AIR & HEATING	5644 E. WESTOVER	FRESNO	93727	1
	EDH FIRE STATION #86	3670 BASS LAKE ROAD	EL DORADO HILLS	95762	2
	RDC EM BUILDING C	2850 FAIRLANE COURT, BUILDING C	PLACERVILLE	95667	1
	CTY OF TUOLUMNE, CA SIERRA TRANSFER STATION	11111 SCOFIELD ST	BIG OAK FLAT	95305	1
	REGIONAL WATER QUALITY CONTROL PLANT	2501 EMBARCADERO WAY	Palo Alto	94303	1
	KERN COUNTY WASTE MANAGEMENT	4951 STANDARD ST.	BAKERSFIELD	93308	2
RETAIL	ANTIOCH ACE HARDWARE	501 SUNSET DRIVE	ANTIOCH	94509-0000	1
	BERKELEY ACE HARDWARE	2145 UNIVERSITY AVENUE	BERKELEY	94704-0000	1
	BILL'S ACE HARDWARE	3503 PACHECO BLVD.	MARTINEZ	94553-0000	2
	BRENTWOOD ACE HARDWARE	8900 BRENTWOOD BLVD, STE J	BRENTWOOD	94513-0000	1
	LAUREL ACE HARDWARE	4024 MACARTHUR BLVD	OAKLAND	94619	1

	OAKLEY ACE HARDWARE	305 4TH STREET	OAKLEY	94561-0000	1
	PITTSBURG ACE HARDWARE	125 E. LELAND ROAD	Pittsburg	94565-0000	1
	Orchard Supply Hardware	825 Oak Park Blvd	Pismo Beach	93449	1
		2005 Theatre Drive	Paso Robles	93446	1
	Miners (N)	553 W. Tefft	Nipomo	93444	1
	Cambria Hardware	2345 Village Ln.	Cambria	93428	1
	SAN LUIS OBISPOS COUNTY IWMA	870 OSOS STREET	SAN LUIS OBISPO	93401-0000	7
	Miner's Ace Hardware (LO)	1080 Los Osos Valley Rd.	Los Osos	93402	1
	Pismo Beach True Value Hardware	930 Price St.	Pismo Beach	93449	1
	Lowes	2445 Golden Hills Rd.	Paso Robles	93446	1
	Miner's Ace Hardware (MB)	510 Atascadero Rd.	Morro Bay	93442	1
	Home Depot	905 El Camino Real	Atascadero	93422	1
		1551 Froom Ranch Wy	SAN LUIS OBISPO	93405	1
	Miner's Ace Hardware (AT)	9370 El Camino Real	Atascadero	93422	1
	KMart	3980 El Camino Real	Atascadero	93422	1
		1570 W. Branch St.	ARROYO GRANDE	93420	1
	Costco	1540 Froom Ranch Rd.	SAN LUIS OBISPO	93405	1
	Miners (SLO) formerly Pac. Home & Garden	2034 Santa Barbara	SAN LUIS OBISPO	93401	1
	Brisco's True Value Hardware	1005 El Camino Real	ARROYO GRANDE	93420	1
	Decou Lumber & Ace Hardware (AT)	8965 El Camino Real	Atascadero	93422	1
	Hewitt Hardware	428 Main St.	TEMPLETON	93465	1
	Miner's Ace Hardware (AG)	186 Station Way	Arroyo Grande	93420	1
	Miner's Ace Hardware (GB)	1056 Grand Ave.	Grover Beach	93433	1
	Blake's True Value Home Center	1701 Riverside Ave.	Paso Robles	93446	1
Wholesaler/Dist	AIR COLD SUPPLY	206 COMMERCIAL STREET	SAN JOSE	95112	1
		640 AVON AVE	AZUSA	91702-2044	2
	AIR COLD-A FERGUSON ENTERPRISE	11244 PLAYA COURT BRANCH 1048	CULVER CITY	90230	1
		1144 WEST AVENUE, L-12 BRANCH 1053	LANCASTER	93534	1
		1224 NORTH MARSHALL BRANCH 1581	EL CAJON	92020	2
		12841 PRODUCTION PLACE BRANCH 1055	VICTORVILLE	92395	1

	1346 SOUTH CLAUDINA STREET BRANCH 692	ANAHEIM	92805-6234	1
	13500 SATICOY STREET	VAN NUYS	91402	1
	149 B GRANADA DRIVE BRANCH 1894	SAN LUIS OBISPO	93401-7316	1
	2750 SOUTH TOWNE AVENUE BRANCH 1183	POMONA	91766	1
	2751 DURAHART STREET BRANCH 570	RIVERSIDE	92507	1
	289 NORTH MCARTHUR WAY BRANCH 1081	UPLAND	91786	1
	3550 LA CRUZ WAY BRANCH 1893	Paso Robles	93446	1
	429 MADERA STREET BRANCH 1059	SAN GABRIEL	91776	1
	887 LAWRENCE DRIVE BRANCH 1056	NEWBURY PARK	91320	1
ALLIED REFRIGERATION	1211 EAST EDINGER AVENUE	TUSTIN	92780-0000	1
	1375 EAST 15TH STREET	LOS ANGELES	90021-0000	1
	15558 CABRITO ROAD	VAN NUYS	91406-0000	1
	1928 DON LEE PLACE	ESCONDIDO	92029-0000	1
	199 SOUTH MARSHALL STREET	EL CAJON	92020-0000	1
	2170 COMMERCE AVENUE, UNIT U	CONCORD	94520-0000	1
	2175 ADAMS AVENUE	SAN LEANDRO	94577-0000	1
	2300 EAST 28TH STREET	SIGNAL HILL	90755-0000	1
	306 SOUTH NINTH AVENUE	CITY OF INDUSTRY	91746-0000	1
	34660 DATE PALM DRIVE	CATHEDRAL CITY	92234-0000	1
	404 S. I STREET	SAN BERNADINO	92410-0000	1
	702 EAST GISH ROAD	SAN JOSE	95112-0000	1
	7823 OSTROW STREET	SAN DIEGO	92111-0000	1
	8480 HIGUERA STREET	CULVER CITY	90232-0000	1
	1256 PRICE AVE.	POMONA	91767-5840	1
AMERICAN REFRIGERATION SUPPLIES INC.	1086 KRAEMER PL.	ANAHEIM	92806-0000	1
	1405-2 GRANITE LN.	MODESTO	95351-0000	1
	145 11TH ST.	SAN FRANCISCO	94103-0000	1
	1501 POMONA RD. STE. 102	CORONA	92880-0000	1
	245 SUTTON PL.	SANTA ROSA	95407-0000	1
	2703 5TH ST. STE 7	SACRAMENTO	95818-0000	1

	325 5TH ST.	OAKLAND	94607-0000	1
	399 S. ARROWHEAD AVE.	SAN BERNARDINO	92408-0000	1
	444 LITTLEFIELD	S SAN FRANCISCO	94080-0000	1
	6110 VALLEY VIEW AVE.	BUENA PARK	90620-0000	1
	740 E. HAZELTON AVE.	STOCKTON	95203-0000	1
	7874 RONSON RD.	SAN DIEGO	92111-0000	1
	910 JUSTIN AVE.	GLENDALE	91201-0000	1
ATWATER SUPPLY	1903 FRIENDSHIP DRIVE	EL CAJUN	92020	1
	42655 RIO NEDO	TEMECALA	92590	1
	518 EAST BALL ROAD	ANAHEIM	92805	1
Baker Distributing Co.	1295 EMERALD AVE. SUITE D	MODESTO	95351-0000	1
	1351 OLD BAYSHORE	SAN JOSE	95112-0000	1
	1501 MINNESOTA ST.	SAN FRANCISCO	94107-0000	1
	2375 DAVIS ST.	SAN LEANDRO	94577-2205	1
	300 WEST ROBLES BLDG J.	SANTA ROSA	95407-0000	1
	849 WEST 8TH ST.	CHICO	95926-0000	1
	5449 EAST LAMONA AVE.	FRESNO	93703-0000	1
	6800 SIERRA COURT, SUITE N	DUBLIN	94568-0000	1
	2138 ZANKER ROAD	SAN JOSE	95131-2108	1
	428 NORTH CANAL ST.	SAN FRANCISCO	94107-0000	1
	3020 SOUTH KILSON DRIVE	SANTA ANA	92707-0000	1
	149 UNION AVENUE	BAKERSFIELD	93307-0000	1
	25978 BUSINESS CENTER DRIVE	Redlands	92374-0000	1
	575 CARDIFF STREET	CORONA	92879-0000	1
	9355 REMICK AVENUE	PACOMIA	91331-0000	1
	16253 OMELAS STREET	IRWINDALE	91706-0000	1
	9610 DESOTO AVENUE	CHATSWORTH	91311-0000	1
	849 WEST 8TH STREET	CHICO	95928	1
	180 HEGENBERGER LOOP, STE A & B	OAKLAND	94621-0000	1
Baker Distributing Company	5474 Complex Street Suite 502	SAN DIEGO	92123	1

	16253 ORNELAS ST	IRWINDALE	91706	1
BURKE ENGINEERING COMPANY	1225 NORTH FIFTH STREET	SAN JOSE	95112-0000	1
	1312 ALLEC ST.	ANAHEIM	92805-0000	1
	155 W. VICTORIA ST.	LONG BEACH	90805-0000	1
	3190 ORANGE GROVE AVE. A	NORTH HIGHLANDS	95660	1
	3190 ORANGE GROVE AVENUE	NORTH HIGHLANDS	95660-0000	2
	3190-A ORANGE GROVE AVE.	N. HIGHLANDS	95660-5706	1
	4250 PEPSI DR # D	SAN DIEGO	92111-0000	1
	6605 ODESSA AVENUE	VAN NUYS	91406-0000	1
	7303 EDGEWATER DRIVE, #A	OAKLAND	94621-3016	1
	74488 VILLAGE DR	CHINO	90708-0000	1
	9700 FACTORIAL WAY	El Monte	91733-1799	8
	1790 IOWA AVENUE	RIVERSIDE	92507	1
	1225 N. 5TH STREET	SAN JOSE	95112	1
	1225 N. FIFTH STREET	SAN JOSE	95112	1
CALIFORNIA COOLING	1922 FRIENDSHIP DRIVE	EL CAJON	92020-0000	1
	239 W. ORANGE AVE	EL CENTRO	92243-0000	2
	622 S. VINEWOOD ST.	ESCONDIDO	92029-0000	1
CALIFORNIA COOLING SUPPLY	14718 RAYMER ST. SUITE C	VAN NUYS	91405	1
CALIFORNIA REFRIGERATION SUPPLY INC	1718 FAIRWAY DR	SAN LEANDRO	94577-0000	1
CASS, INC	2730 PERALTA STREET	OAKLAND	94607	1
CFM EQUIPMENT DIST.	1644 MAIN AVE. SUITE 1	SACRAMENTO	95838-0000	1
CONTROLCO	15375 BARRANCA PKWY, I - 104	IRVINE	92618	1
	210 VAN NESS	FRESNO	93721-0000	1
	251 OPPORTUNITY STREET, B	SACRAMENTO	95838	1
	320 KENTUCKY STREET	BAKERSFIELD	93305	1
	35 DORMAN, #2	SAN FRANCISCO	94124	1
	5600 IMHOTT DRIVE, SUITE G	CONCORD	94520	1
	840 66TH AVENUE	OAKLAND	96421	1
DAN GOETZ WHOLESALE OUTLET INC	335 O'HAIR COURT, SUITE A	SANTA ROSA	95407	1

DIAL ONE -- SERVICE EXPERTS	4670 PACIFIC STREET, STE. 100	ROCKLIN	95677-0000	1
FACSCO	1528 N. THESTA STREET	FRESNO	93703-0000	2
FERGUSON HEATING & COOLING	605 EAST CERRITOS AVENUE	ANAHEIM	92805	1
	640 AYON AVENUE BRANCH 1050	AZUSA	91702	1
	903 NORTH MARKET BOULEVARD	SACRAMENTO	95834	1
	9349 OSO AVENUE BRANCH 1049	CHATSWORTH	91702	1
	81925 INDUSTRIAL PLACE	INDIO	92201	1
FIX AIR AUTHORIZED Trane PARTS	890 SERVICE ST., UNIT A	SAN JOSE	95112-0000	1
GEARY PACIFIC SUPPLY	1161 W. BRADLEY AVE.	EL CAJON	92030-1503	1
	1162 W. BRADLEY AVE.	EL CAJON	92030-1503	1
	1200 E. CERRITOS AVENUE	ANAHEIM	92805-0000	1
	31050 HUNTWOOD AVENUE	HAYWARD	94544-0000	2
	333 S. TEILMAN AVE.	FRESNO	93706-0000	2
	333 S. TEILMAN AVENUE	FRESNO	93706-0000	1
	3443 NIKI WAY	RIVERSIDE	92507-6812	1
	4365 JETWAY COURT	NORTH HIGHLANDS	95660-5701	2
	6421 BOX SPRINGS BLVD.	RIVERSIDE	92507-0000	2
	6918 VALJEAN AVENUE	VAN NUYS	91406-0000	2
	8711 AIRPORT ROAD	REDDING	96002-9223	1
GENIE AIR CONDITIONING & HEATING, INC	15041 CALVERT ST.	VAN NUYS	91411	1
GEORGE T. HALL	1257 GOODRICH BLVD	LOS ANGELES	90022	1
	15915 ARMINTA ST	VAN NUYS	91406	1
	1605 GENE AUTRY WAY	ANAHEIM	95805	1
	4289 TAYLOR STREET	SAN DIEGO	92110	1
HOWARD INDUSTRIES	8855 WASHINGTON BLVD	CULVER CITY	90232-0000	6
INVENSYS CLIMATE CONTROLS, NORTH AMERICA	151 SOUTH PROMENADE AVENUE	CORONA	92879-0000	4
JOHNSTONE SUPPLY	1661 MARKET ST	CORONA	92880	1
JOHNSTONE SUPPLY #098	200 TALMADGE DRIVE	SANTA ROSA	95407	1
JOHNSTONE SUPPLY #140	1335 DAYTON ST. SUITE A	SALINAS	93901	1
JOHNSTONE SUPPLY #328	870 PIPER AVE	MERCED	95341	1

JOHNSTONE SUPPLY #329	1000 N. BURKE	VISALIA	93292	1
JOHNSTONE SUPPLY CO	1070 COMMERCIAL ST, STE 104	SAN JOSE	95112-1408	1
	13211 SPRING STREET	BALDWIN PARK	91706-2289	2
	1385 N. MAGNOLIA AVE	EL CAJON	92020-0000	1
	1445 SAN MATEO AVENUE	SOUTH SAN FRANCISCO	94080-0000	2
	2132 AVIATION DRIVE	UPLAND	91786-5720	2
	23211 DEL LAGO DRIVE	LAGUNA HILLS	92653-1307	1
	2331 COMMERCE AVE #E	CONCORD	94520-0000	1
	3015 S. KILSON DRIVE	SANTA ANA	92707-0000	1
	333 MARKET ST	OAKLAND	94607-0000	1
	42342 10TH ST WEST SUITE A	LANCASTER	93534	1
	4320 PACIFIC HWY	SAN DIEGO	92110	1 1
	477 QUILLCO CT	SANTA ROSA	95407-0000	2
	5658 E. CLINTON AVE.	FRESNO	93727-0000	2
	900 S. ANDREASEN DR.	ESCONDIDO	92029-1914	1
JOHNSTONE SUPPLY OF LONE BEACH	2810 TEMPLE AVE.	LONG BEACH	90806-2213	1
JOHNSTONE SUPPLY OF REDDING	940 WALL STREET	REDDING	96002	1
JOHNSTONE SUPPLY UPLAND	2132 AVIATION DRIVE	UPLAND	91786-5720	1
JOHNSTONE SUPPLY-ANAHEIM	518 E BALL ROAD	ANAHEIM	92805-0000	1
JOHNSTONE-COMMERCE	8040 SLAUSON AVENUE	MONTEBELLO	90640	1
JOHNSTONE-SANTA BARBARA	220 WEST GUTIERREZ STREET	SANTA BARBARA	93101	1
JOHNSTONE-THOUSAND OAKS	2645 TOWNSGATE ROAD # 600	THOUSAND OAKS	91361	1
JOHNSTONE-VENTURA	5960 VALENTINE ROAD # 3	VENTURA	93003	1
Lennox Industries Inc.	1021 STRIKER AVENUE	SACRAMENTO	95835-0000	2
	1059 VINE STREET, SUITE 108	SACRAMENTO	95814-0321	2
	12775 RESERVOIR STREET	CHINO	91710-2943	2
	2500 E. FRANCIS STREET	ONTARIO	91761-0000	1
	3410 SAN FERNANDO ROAD, UNIT 5	LOS ANGELES	90065-0000	2
	7670 TRADE STREET, STE. A - D	SAN DIEGO	92121-0000	2

	4000 HAMNER AVE.	MIRA LOMA	91752	1
MSI HVAC	11700 INDUSTRY	FONTANA	92337	1
	2344 MEYERS AVE	ESCONDIDO	92029	1
	23456 SOUTH POINTE #B	LAGUNA HILLS	92653	1
NORTHAIRE SUPPLY CO INC	1359 OAKLAND ROAD	SAN JOSE	95112-0000	1
PACIFIC HEATING & COOLING SUPPLY, INC,	3720 LA CRUZ WAY	TEMPLETON	93465-0000	1
R.E. MICHEL COMPANY, INC	1922 FRIENDSHIP DRIVE	EL CAJON	92020-00	1
	14718 RAYMER ST. UNIT A	VAN NUYS	91405-1262	1
R.S.D.	3355 McMAUDE PL	SANTA ROSA	95407	1
RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	91201	1
REFRIGERATION SUPPLIES DISTRIBUTOR	43300 BUSINESS PARK DR.	TEMECULA	92590	1
	43300 BUSINESS PARK DR. # A102	TEMECULA	92590	1
RSD	10170 CROYDON WAY SUITE 1	SACRAMENTO	95827-2104	3
	1050 COMMERCIAL STREET, #105	SAN JOSE	95112-0000	1
	110 EAST MAIN STREET	EL CENTRO	92243-2589	2
	1121 LONE PALM AVENUE, #A	MODESTO	95351-0000	2
	1201 MONTEREY PASS ROAD	MONTEREY PARK	91754-3616	1
	1376 STEALTH STREET	LIVERMORE	94551-0000	4
	14766 RAYMER STREET	VAN NUYS	91405-0000	1
	14901 RAYMER ST	VAN NUYS	91405-0000	1
	1670 INDUSTRIAL BLVD.	CHULA VISTA	91911-0000	2
	1721 LOGAN AVENUE	SAN DIEGO	92113-1006	2
	1833 EAST MAIN STREET	VISALIA	93292-6768	2
	1933 S VINEYARD AVE	ONTARIO	91761-0000	2
	2100 E. WILSHIRE AVE	SANTA ANA	92705-0000	1
	2100 WILSHIRE AVENUE, UNIT A	SANTA ANA	92705-0000	1
	21727 NORDHOFF STREET	CHATSWORTH	91311	2
	2208 EAST MCKINLEY AVENUE	FRESNO	93703-3005	2
	2350 LEXINGTON STREET	SACRAMENTO	95815-3216	2
	2601 ATLANTIC OCEAN DR.	LAKE FOREST	92630	1

		26021 ATLANTIC OCEAN DRIVE	LAKE FOREST	92630-0000	1
		285 LAWRENCE AVENUE	SOUTH SAN FRANCISCO	94080-6818	2
		2882 TEEPEE DRIVE	STOCKTON	95205-0000	3
		2890 E CORONADO ST	ANAHEIM	92806-2503	1
		2890 E. CORONADO ST.	ANAHEIM	92806-2503	1
		3355 MCMAUDE PLACE	SANTA ROSA	95407-0000	2
		4131 LATHAM STREET	RIVERSIDE	92501-0000	2
		436 HESTER STREET	SAN LEANDRO	94577-1024	2
		527 BRUNKEN AVENUE	SALINAS	93901-0000	2
		5910 BOWCROFT STREET	LOS ANGELES	90016-0000	2
		621 EAST 21ST STREET	BAKERSFIELD	93305-5109	2
		6391 ORANGETHORPE AVENUE	BUENA PARK	90620-0000	1
		640 COMMERCE DRIVE, #200	ROSEVILLE	95678-0000	2
		680 UNION AVE	POMONA	91766	1
				91768-0000	1
		702 WEST 190TH STREET	GARDENA	90248-0000	2
		715 SOUTH FLOWER STREET	BURBANK	91502-2014	1
		915 INDOSLAT AVE	REDDING	96001-0000	1
		915 INDUSTRIAL AVENUE, STE 101	REDDING	96002-0000	1
		2551 S. TOWNWELL DRIVE	CONCORD	94520-0000	2
		915 INDUSTRIAL ST	REDDING	96002-1369	1
		640 COMMERCE DRIVE	ROSEVILLE	95678-0000	2
	RSD-48	702 W. 190TH STREET	GARDENA	90248-0000	1
	RSD-MONTEREY PARK	1201 MONTEREY PASS ROAD	MONTEREY PARK	91754-3616	1
	RSD-TOTAL CONTROL	221 PANORAMA DRIVE	BENICIA	94510-0000	2
	SIGLER INC	20680 NORDHOFF ST	CHATSWORTH	91311	1
		2301 ARNOLD INDUSTRIAL WAY	CONCORD	94520	2
	SIGLERS	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	91744	1
		20680 NORDHOFF ST	CHATSWORTH	91311	1
	SLAKEY BROTHERS	1001 OATES COURT	MODESTO	95352	1

		111 MADRONE	SANTA CRUZ	95060	1
		1190 WESTERN STREET	FAIRFIELD	94533	1
		1200 INDUSTRIAL STREET	REDDING	96002	1
		12277 LOMA RICA DRIVE SUITE E	GRASS VALLEY	95945	1
		2201 EAST BRUNDAGE LANE	BAKERSFIELD	93307	1
		2215 KAUSEN STE 1	ELK GROVE	95758	1
		2301 PARK AVENUE	CHICO	95927	1
		2460 BATES AVENUE	CONCORD	94520	1
		2540 TEEPEE DRIVE	STOCKTON	95208	1
		26534 DANTI CT	HAYWARD	91520	1
		2845 DUKE COURT	SANTA ROSA	95407	2
		30 STEIN AM RHEIN CT STE F	REDWOOD CITY	94063	1
		3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	95660	1
		321 ORANGE AVENUE	SAND CITY	93955	1
		4333 NORTH EFFIE STREET	FRESNO	93755	1
		545 BOYD STREET	YUBA CITY	95992	1
		601 WORK STREET	SALINAS	93901	1
		863 SAVAKER AVE	SAN JOSE	95126-0000	1
		863 SAVAKER STREET	SAN JOSE	95126	2
		111 MADRANOE STREET	SANTA CRUZ	95060	1
	SLAKEY BROTHERS/BAKERSFIELD	2201 EAST BRUNDAGE LANE	BAKERSFIELD	93307	1
	SLAKEY BROTHERS/CHICO	2301 PARK AVENUE	CHICO	95927	1
	SLAKEY BROTHERS/ELK GROVE	2215 KAUSEN STE 1	ELD GROVE	95758	1
	SLAKEY BROTHERS/FAIRFIELD	1190 WESTERN STREET	FAIRFIELD	94533	1
	SLAKEY BROTHERS/FRESNO	4333 NORTH EFFIE STREET	FRESNO	93755	1
	SLAKEY BROTHERS/GRASS VALLEY	12277 LOMA RICA DRIVE, STE E	GRASS VALLEY	94945	1
	SLAKEY BROTHERS/JACKSON	1400 SOUTH HIGHWAY 49	JACKSON	95642	1
	SLAKEY BROTHERS/MODESTO	1001 OATES COURT	MODESTO	95352	1
	SLAKEY BROTHERS/NORTH HIGHLANDS	3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	95660	1
	SLAKEY BROTHERS/REDDING	1200 INDUSTRIAL STREET	REDDING	96049	1

SLAKEY BROTHERS/REDWOOD CITY	30 STEIN AM RHEIN COURT STE F	REDWOOD CITY	94063	1
SLAKEY BROTHERS/S. SAN FRANCISCO	328 ROEBLING ROAD	S. SAN FRANCISCO	94080	1
SLAKEY BROTHERS/SALINAS	601 WORK STREET	SALINAS	93901	1
SLAKEY BROTHERS/SAN JOSE	863 SAVAKER STREET	SAN JOSE	95126	1
SLAKEY BROTHERS/SAND CITY	321 ORANGE AVENUE	SAND CITY	93955	1
SLAKEY BROTHERS/SANTA CRUZ	111 MADRONE	SANTA CRUZ	95060	1
SLAKEY BROTHERS/SANTA ROSA	2845 DUKE COURT	SANTA ROSA	95407-7844	1
SLAKEY BROTHERS/SONORA	19450 INDUSTRIAL DRIVE	SONORA	95370	1
SLAKEY BROTHERS/STOCKTON	2540 TEEPEE DRIVE	STOCKTON	95208	1
SLAKEY BROTHERS/YUBA CITY	545 BOYD STREET	YUBA CITY	95991	1
SOUTHERN CALIFORNIA AIR CON APPL	1000 N. JOHNSON AVE.	EL CAJON	92020	1
SPECIALTY AC	5250 EAST SECOND STREET	BENICIA	94510-0000	3
T & A SUPPLY, INC.	1045 NORTH 10TH STREET	SAN JOSE	95112	1
THRIFTY SUPPLY	8541 23RD AVE.	SACRAMENTO	95826	1
	8541 23RD AVENUE	SACRAMENTO	95826-0000	1
TOTALINE OF CALIFORNIA	1070 COMMERCIAL STREET, SUITE 106	SAN JOSE	95112	1
	1090 E. COOLEY AVENUE	SAN BERNARDINO	92408	2
	12819 TELEGRAPH RD.	SANTA FE SPRINGS	90670	2
	18791 RANCHO WAY, UNIT A	RANCHO DOMINGUEZ	90220	1
	20191 WINDROW DR. UNIT B	LAKE FOREST	92630	2
	205 S. PUENTE ST	BREA	92821	2
	2301 ARNOLD INDUSTRIAL WAY	CONCORD	94520	1
	2345 LOS ANGELES STREET	FRESNO	92721	2
	2425 AUTO PKWY SUITE 200	ESCONDIDO	92029	1
	2641 LINDSAY PRIVADO DR.	ONTARIO	91761	1
	41710 REAGAN WAY	MURRIETA	92562	2
	421 S. LOMBARD ST.	OXNARD	93030	2
	4517 STANDARD STREET	BAKERSFIELD	93308	2
	4863 SHAWLINE STREET	SAN DIEGO	92111	1
	615 W. GROVE AVE.	ORANGE	92865	2

	6450 SYCAMORE CANYON BLVD.	RIVERSIDE	92507	2
	6650 TOP GUN ST.	SAN DIEGO	92121	2
	7615 N. SAN FERNANDO RD.	BURBANK	91352	2
	78-305 DINAH SHORE, BLDG 1200	PALM DESERT	92211	2
	8615 23RD AVENUE	SACRAMENTO	95826	1
	99 SOUTHHILL DRIVE SUITE B	BRISBANE	94005	2
TRANE	5595 N GOLDEN STATE BLVD	FRESNO	93722	1
TRANE PARTS CENTER	4145 DEL MAR AVENUE	ROCKLIN	95677-0000	1
UNITED REFRIGERATION	1134 E. DOMINGUEZ STREET	CARSON	90746-3518	1
	1265 WEST MCCOY LANE, STE. C	SANTA MARIA	93455-1058	1
	1413 GRANITE LANE	MODESTO	95351-1121	1
	1736 JANELLI COURT	VISALIA	93292-6644	1
	1848 EAST GRIFFITH WAY	FRESNO	93726-4819	1
	1920 EAST MCFADDEN AVENUE	SANTA ANA	92705-4705	1
	2225 AUTO PARK WAY	ESCONDIDO	92029-1348	1
	230 EAST 21ST STREET	BAKERSFIELD	93305-5115	1
	2405 VERNA COURT	SAN LEANDRO	94577-4222	1
	2626 SOUTHPORT WAY, STE. G	NATIONAL CITY	91950-8752	1
	3120 PASEO MERCADO, STE. 101	OXNARD	93036-8916	1
	4060 EAST AIRPORT DRIVE	ONTARIO	91761-1566	2
	41573 CHERRY STREET	MURRIETA	92562-9193	1
	510 EAST RANCHO VISTA BLVD.	PALMDALE	93550-3005	1
	5345 THIRD STREET	IRWINDALE	91706-2085	1
	6150 VALLEY VIEW STREET	BUENA PARK	90620-1030	1
	625 LINCOLN AVENUE	SAN BERNADINO	92408-2230	1
	77-670 SPRINGFIELD LANE, STE #5A	PALM DESERT	92211-0474	1
	8835 COMPLEX DRIVE	SAN DIEGO	92123-1403	1
	904 COMMERCIAL STREET	SAN JOSE	95112-1435	1
	933 WASHINGTON STREET	SAN CARLOS	94070-5316	1
	134 NOPALITAS WAY	SANTA BARBARA	93103-3629	1

US AIR CONDITIONING DISTRIBUTORS	4770 RUFFNER STREET	SAN DIEGO	92111-1520	1
USACD	1002 INDUSTRY WAY	EL CENTRO	92243	1
	1238-A SIMPSON WAY	ESCONDIDO	92029-0000	1
	1250 NORTH MARSHALL AVENUE	EL CAJON	92020-0000	1
	1304 S, CLAUDINA STREET	ANAHEIM	92805-0000	1
	16900 CHESTNUT STREET	CITY OF INDUSTRY	91748	1
			91748-0000	1
	17615 CATALPA STREET	HESPERIA	92345-0000	1
	1951 FAIRWAY DRIVE	SAN LEANDRO	94577-0000	1
	27470 COLT COURT	TEMECULA	92590-0000	1
	2751 TEMPLE AVE	SIGNAL HILL	90755-2210	1
	3035 CROSSROADS DRIVE	REDDING	96003	1
	3333 ORANGE GROVE	NORTH HIGHLANDS	95660-0000	1
	495 MARQUITA AVENUE	Paso Robles	93446	1
	720 WILLIAMS STREET	BAKERSFIELD	93305-0000	1
	9250 OWENSMOUTH AVENUE	CHATSWORTH	91311-0000	1
	2670 E. BYRD AVE	FRESNO	93706	1
	8620 HAYDEN PL.	CULVER CITY	90232	1
	3826 TEEPEE DRIVE SUITE 103	STOCKTON	95205	1
WESTERN NEVADA SUPPLY	10990 INDUSTRIAL WAY	TRUCKEE	96161-0000	1
	200 BELLA WAY	SUSANVILLE	96130-9166	1
	515 SOUTH MAIN STREET	BISHOP	93514-0000	1
RDS-BURBANK	715 SOUTH FLOWER STREET	BURBANK	91502-2014	1
RSD 25	7332 CONVOY COURT, STE A	SAN DIEGO	92111-1110	2
RDS-SAN JOSE	1050 COMMERCIAL STREET, #105	SAN JOSE	95112-0000	1
JOHNSTONE SUPPLY # 33	8639 TAMARACK AVE	SUN VALLEY	91352-2505	1
R.E. MICHEL CO. INC. #381	1922 FRIENDSHIP DRIVE	EL CAJON	92020-0000	1
RSD-22	915 INDUSTRIAL AVENUE, STE 101	REDDING	96002-0000	1
UNITED REFRIGERATION # D5	3421 N. SAN FERNANDO RD. # E & F	LOS ANGELES	90065	1
UNITED REFRIGERATION # P1	4248 ROSEVILLE ROAD	NORTH HIGHLANDS	95660-5710	1

UNITED REFRIGERATION # C4	16606 Schoenborn St	North Hills	91343	1
US AIRCONDITIONING DIST.	2100 CHICAGO AVENUE	RIVERSIDE	92507-0000	1
MOUNTAIN AIR	14441 SPURLOCK LANE	PINE GROVE	95665	1
AIR COLD SUPPLY # 1057	26470 SUMMIT CIRCLE	SANTA CLARITA	91350-2991	1
RUSSELL SIGLER INC.	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	91744	1
	2425 AUTO PKWY SUITE 200	ESCONDIDO	92029	1
	19801 RANCHO WAY UNIT A	COMPTON	90220	1
SIGLER-ONTARIO	2641 LINDSAY PRIVADO DR.	ONTARIO	91761	1
RUSSELL SIGLER	4863 SHAWLINE STREET	SAN DIEGO	92111	1
SIGLER	1070 COMMERCIAL STREET, SUITE 106	SAN JOSE	95112	1
GOODMAN DISTRIBUTION, INC.	1070 COMMERCIAL STREET STE 103	SAN JOSE	95112	1
	1900 Compton Ave Suite 102	CORONA	92881	1
	315 Cloverleaf Drive	BALDWIN PARK	91706	1
	525 Park Avenue Suite A	San Fernando	91340	1
	3562 Ruffin Road	SAN DIEGO	92123	1
	1225 N. Kraemer Blvd.	ANAHEIM	92806	1
	3648 Industry Avenue	LAKEWOOD	90712	1
	1972 Essex Ct	Redlands	92373	1
	30720 Gunther Street	Palm Springs	92276	1
	300 N. Graves Avenue, Unit C	OXNARD	93030	1
	15024 Anacapa Road	VICTORVILLE	92392	1
	41670 Reagan Way	MURRIETA	92562	1
	40222a LaQuinta Lane, Suite 101	PALMDALE	93551	1
	3633 Lenawee Ave. Ste 180	LOS ANGELES	90016	1
	3334 San Fernando Rd #102	LOS ANGELES	90065	1
	9621 Oates Dr	SACRAMENTO	95827	1
	4020 Nelson Ave. Suite 100	CONCORD	94520	1
	2601 Teepee Dr.	STOCKTON	95205	1
	8825 WASHINGTON BLVD. STE 400	ROSEVILLE	95678-5935	1
	2364 W Winton Ave	HAYWARD	94545	1

	1070 Commercial Street, Suite 103	SAN JOSE	95112	1
	840 N. 10th Street, Suite J	SACRAMENTO	95811	1
	2823 Gibson Street	BAKERSFIELD	93308	1
	2620 East Byrd Avenue	FRESNO	93706	1
	1101 Oates Court Ste 100	MODESTO	95358	1
	1150 McCullom Street	EL CENTRO	92243	1
GOODMAN DIST. # 706	5160 RICHTON ST. "A"	MONTCLAIR	91763	1
STANDARD SUPPLY USA	1820 "S" STREET	SACRAMENTO	95811	2
COAST APPLIANCE PARTS	1404 29TH STREET	BAKERSFIELD	93301-0000	1
	6909 SOUTH WESTERN AVENUE	LOS ANGELES	90047-0000	1
	2606 LEE AVENUE	SOUTH EL MONTE	91733-0000	1
	948 COLTON AVENUE	COLTON	92324-0000	1
	4408 TWAIN AVENUE	SAN DIEGO	92120-0000	1
	9515 KESTER AVENUE	VAN NUYS	91411-0000	1
	3260 EAST MCKINLEY	FRESNO	93703-0000	1
	1702 SOUTH LYON STREET	SANTA ANA	92705-0000	1
	312 EAST TULARE STREET	VISALIA	93277-0000	1
	6250 CHERRY AVENUE	LONG BEACH	90805-0000	1
	15700 SOUTH BROADWAY	GARDENA	90248-0000	1
	12503 VENICE BLVD.	CULVER CITY	90066-0000	1
GLOBAL HVAC	900 SPRECKLES AVENUE	MANTECA	95336	2
Lennox Parts Plus	299 GODDARD	IRVINE	92618	1
CATHEDRAL CITY #7	68713 PEREZ RD. BLDG. B-7	CATHEDRAL CITY	92234	1
GOODMAN DISTRIBUTION, INC #764	18085 EUCLID STREET	FOUNTAIN VALLEY	92708	1
SO. CAL A/C SUPPLY CO. INC	1000 NORTH JOHNSON AVENUE	EL CAJON	92020	1
GOODMAN DISTRIBUTION INC. # 768	16300 STAGG STREET	VAN NUYS	91406	1
HEATING & COOLING LLC #811	3970 HOME AVENUE	SAN DIEGO	92105	1
HEATING & COOLING LLC #813	629 ALPINE WAY	ESCONDIDO	92029	1
HEATING & COOLING LLC #815	2350 MULBERRY STREET	RIVERSIDE	92501	1
HEATING & COOLING LLC #812	11661 RIVERSIDE DRIVE STE. 185	LAKESIDE	92040	1

HEATING & COOLING LLC #817	72110 CORPORATE WAY	THOUSAND PALMS	92276	1
HEATING & COOLING LLC #831	6510 SIERRA COURT	DUBLIN	94568	1
HEATING & COOLING LLC #832	5357 EAST HOME AVENUE	FRESNO	93727	1
HEATING & COOLING LLC #834	301 S. 9TH STREET-BLDG. C	MODESTO	95351	1
HEATING & COOLING LLC #833	3324 LANDCO DRIVE	BAKERSFIELD	93308	1
HEATING & COOLING LLC #835	7321 ROSEVILLE RD., SUITE 1	SACRAMENTO	95842	1
HEATING & COOLING LLC #821	685 N. POPLAR STREET	ORANGE	92868	1
HEATING & COOLING LLC #822	910 CANAL PLACE	CITY OF INDUSTRY	91746	1
HEATING & COOLING LLC #823	2650 N. INDUSTRY DRIVE	LAKEWOOD	90712	1
HEATING & COOLING LLC #824	14742 RAYMER STREET	VAN NUYS	91405	1
HEATING & COOLING LLC #826	320 LAMBERT STREET #8	OXNARD	93036	1
HEATING & COOLING LLC #825	9714 DEERING AVENUE	CHATSWORTH	91311	1
CFM EQUIPMENT	1744 SOUTH PEARL ST.	FRESNO	93721	1
BAKER DISTRIBUTING COMPANY #982	929 SEABOARD COURT	UPLAND	91786	1
LENNOX	30575 HILL ST.	THOUSAND PALMS	92276	1
ARCTIC SUPPLY	213 CIVIC CENTER DRIVE	NATIONAL CITY	91950	1
INDIO COOLING & HEATING SUPPLY	45-100 GOLF CENTER PARKWAY SUITE C	INDIO	92201	1
J W WOOD CO., INC/ALL AIR SUPPLY	224 MEYERS STREET	CHICO	95928	1
	3676 OLD HWY 44 DRIVE	REDDING	96004	1
TRANE PARTS - SOUTH SACRAMENTO	5440 FLORIN PERKINS RD	SACRAMENTO	95826	1
TRANE - LONG BEACH 549	1930 E CARSON ST #101	LONG BEACH	90810	1
TRANE - TUSTIN 544	1451 EDINGER AVE STE E	TUSTIN	92780	1
INGERSOLL RAND / TRANE	3565 CORPORATE CT	SAN DIEGO	92123	1
Trane INDUSTRY SITE 547	17760 ROWLAND ST.	CITY OF INDUSTRY	91748	1
MSI HVAC 08	75220 MERLE DR.	PALM DESERT	92211	1
MSI HVAC 01	11700 INDUSTRY AVE.	FONTANA	92337	1
Trane RIVERSIDE	2222 KANSAS AVE. SUITE C	RIVERSIDE	92507	1
Trane COMPANY GLENDALE	3631 SAN FERNANDO ROAD	GLENDALE	91204	1

APPENDIX G: Returns by location

Bin Number	Customer Name	City	Zip	Data	Grand Total
M10992	GEARY PACIFIC SUPPLY	REDDING	96002-9223	Sum of Total Stats Sum of Total lbs mercury	30 0.3596
M11059	FIX AIR AUTHORIZED Trane PARTS	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	45 0.5828
M11070	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	115 1.7732
M11071	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	66 0.8308
M11072	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	104 1.4322
M11150	JOHNSTONE SUPPLY CO	UPLAND	91786-5720	Sum of Total Stats Sum of Total lbs mercury	83 0.8742
M11262	RSD-MONTEREY PARK	MONTEREY PARK	91754-3616	Sum of Total Stats Sum of Total lbs mercury	51 0.6634
M11263	RSD	MONTEREY PARK	91754-	Sum of Total Stats	25

			3616	Sum of Total lbs mercury	0.31
M11273	RSD	FRESNO	93703-3005	Sum of Total Stats	74
				Sum of Total lbs mercury	1.3268
M11274	RSD	ANAHEIM	92806	Sum of Total Stats	76
				Sum of Total lbs mercury	1.1966
			92806-2503	Sum of Total Stats	147
				Sum of Total lbs mercury	2.511
M11275	RSD	ANAHEIM	92806-1760	Sum of Total Stats	61
				Sum of Total lbs mercury	1.1842
			92806-2503	Sum of Total Stats	126
				Sum of Total lbs mercury	1.8662
M11278	RSD	SAN LEANDRO	94577-1024	Sum of Total Stats	102
				Sum of Total lbs mercury	1.7794
M11279	RSD	SAN LEANDRO	94577-1024	Sum of Total Stats	63
				Sum of Total lbs mercury	1.1408
M11299	RSD	SAN JOSE	95112-0000	Sum of Total Stats	43
				Sum of Total lbs mercury	0.806

	RDS-SAN JOSE	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	52 0.8742
M11302	RSD	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	73 1.55
M11303	RSD	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	121 2.356
	RSD CONCORD	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	51 0.7688
M11305	RSD	VAN NUYS	91405-0000	Sum of Total Stats Sum of Total lbs mercury	166 1.86
M11312	RSD	POMONA	91768-0000	Sum of Total Stats Sum of Total lbs mercury	108 1.1656
M11313	RSD	POMONA	91766	Sum of Total Stats Sum of Total lbs mercury	109 1.7794
M11315	RSD	GARDENA	90248	Sum of Total Stats Sum of Total lbs mercury	41 0.713
M11318	RSD	SANTA ANA	92705-0000	Sum of Total Stats Sum of Total lbs mercury	78 1.302

M11321	RSD	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	212 3.596
M11719	RSD	ONTARIO	91761-0000	Sum of Total Stats Sum of Total lbs mercury	45 0.8432
M11720	RSD	ONTARIO	91761-0000	Sum of Total Stats Sum of Total lbs mercury	51 0.7502
M11944	JOHNSTONE SUPPLY-ANAHEIM	ANAHEIM	92805-0000	Sum of Total Stats Sum of Total lbs mercury	239 2.6846
M11945	JOHNSTONE SUPPLY CO	ESCONDIDO	92029-0000	Sum of Total Stats Sum of Total lbs mercury	166 1.5562
			92029-1914	Sum of Total Stats Sum of Total lbs mercury	146 2.1886
M12427	JOHNSTONE SUPPLY CO	SAN JOSE	95112-1408	Sum of Total Stats Sum of Total lbs mercury	107 1.8166
M12428	JOHNSTONE SUPPLY CO	OAKLAND	94607-0000	Sum of Total Stats Sum of Total lbs mercury	39 0.372
M12430	UNITED REFRIGERATION	BUENA PARK	90620-1030	Sum of Total Stats	181

				Sum of Total lbs mercury	2.5916
M12445	JOHNSTONE SUPPLY # 33	SUN VALLEY	91352-0000	Sum of Total Stats	183
				Sum of Total lbs mercury	1.7422
			91352-2505	Sum of Total Stats	42
				Sum of Total lbs mercury	0.5518
	JOHNSTONE SUPPLY CO	SUN VALLEY	91352-0000	Sum of Total Stats	185
				Sum of Total lbs mercury	1.6554
M12494	JOHNSTONE SUPPLY CO	FRESNO	93727-0000	Sum of Total Stats	43
				Sum of Total lbs mercury	0.6572
M12584	UNITED REFRIGERATION	LOS ANGELES	90065	Sum of Total Stats	38
				Sum of Total lbs mercury	0.4464
	UNITED REFRIGERATION # D5	LOS ANGELES	90065	Sum of Total Stats	50
				Sum of Total lbs mercury	0.6138
M12664	R.E. MICHEL CO. INC. #381	EL CAJON	92020-0000	Sum of Total Stats	44
				Sum of Total lbs mercury	0.5952
M13148	BURKE ENGINEERING COMPANY	ANAHEIM	92805-0000	Sum of Total Stats	46
				Sum of Total lbs mercury	0.6386
M13156	BURKE ENGINEERING COMPANY	VAN NUYS	91406-0000	Sum of Total Stats	33

				Sum of Total lbs mercury	0.3162
M13158	BURKE ENGINEERING COMPANY	NORTH HIGHLANDS	95660	Sum of Total Stats Sum of Total lbs mercury	18 0.1798
M13159	BURKE ENGINEERING COMPANY	RIVERSIDE	92507	Sum of Total Stats Sum of Total lbs mercury	228 2.0336
M13160	BURKE ENGINEERING COMPANY	LONG BEACH	90805-0000	Sum of Total Stats Sum of Total lbs mercury	36 0.62
M13163	BURKE ENGINEERING COMPANY	SAN JOSE	95112	Sum of Total Stats Sum of Total lbs mercury	47 0.558
M13698	CITY OF FREMONT PHHWCF	FREMONT	94538	Sum of Total Stats Sum of Total lbs mercury	48 0.4278
M13747	RSD	LIVERMORE	94551-0000	Sum of Total Stats Sum of Total lbs mercury	29 0.4154
M13749	RSD	LIVERMORE	94551-0000	Sum of Total Stats Sum of Total lbs mercury	77 1.147
M14118	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	Sum of Total Stats Sum of Total lbs mercury	76 0.775
M14178	MSI HVAC	ESCONDIDO	92029	Sum of Total Stats Sum of Total lbs mercury	75 1.6678

M14180	MSI HVAC	LAGUNA HILLS	92653	Sum of Total Stats Sum of Total lbs mercury	145 1.55
M14194	A-1 GUARANTEED	VALLEJO	94589	Sum of Total Stats Sum of Total lbs mercury	103 2.3312
M14380	UNITED REFRIGERATION	SANTA BARBARA	93103-3629	Sum of Total Stats Sum of Total lbs mercury	90 1.3888
M14461	BAY COUNTIES WASTE SERVICES	SUNNYVALE	94089-0000	Sum of Total Stats Sum of Total lbs mercury	15 0.1054
M14469	JOHNSTONE SUPPLY	LAGUNA HILLS	92653-1307	Sum of Total Stats Sum of Total lbs mercury	47 0.4588
	JOHNSTONE SUPPLY CO	LAGUNA HILLS	92653-1307	Sum of Total Stats Sum of Total lbs mercury	47 0.4402
M14495	USACD	ANAHEIM	92805-0000	Sum of Total Stats Sum of Total lbs mercury	191 2.9264
M14496	USACD	BAKERSFIELD	93305-0000	Sum of Total Stats Sum of Total lbs mercury	8 0.0806
M14497	USACD	CHATSWORTH	91311	Sum of Total Stats Sum of Total lbs mercury	60 0.682
			91311-	Sum of Total Stats	607

			0000	Sum of Total lbs mercury	6.8634
M14498	USACD	EL CAJON	92020-0000	Sum of Total Stats	96
				Sum of Total lbs mercury	1.3454
M14499	USACD	CITY OF INDUSTRY	91748-0000	Sum of Total Stats	1377
				Sum of Total lbs mercury	18.1722
M14500	USACD	RIVERSIDE	92507-0000	Sum of Total Stats	176
				Sum of Total lbs mercury	1.7918
	US AIRCONDITIONING DIST.	RIVERSIDE	92507-0000	Sum of Total Stats	90
				Sum of Total lbs mercury	0.9858
M14501	US AIR CONDITIONING DISTRIBUTORS	SAN DIEGO	92111-1520	Sum of Total Stats	41
				Sum of Total lbs mercury	0.5208
	USACD	SAN DIEGO	92111-0000	Sum of Total Stats	95
				Sum of Total lbs mercury	1.5748
			92111-1520	Sum of Total Stats	115
				Sum of Total lbs mercury	1.9344
	US AIRCONDITIONING DIST.	SAN DIEGO	92111-1520	Sum of Total Stats	184
				Sum of Total lbs	2.9636

				mercury	
M14502	USACD	SIGNAL HILL	90755-2210	Sum of Total Stats Sum of Total lbs mercury	380 5.2266
M14503	USACD	NORTH HIGHLANDS	95660-0000	Sum of Total Stats Sum of Total lbs mercury	35 0.4402
M14504	USACD	SAN LEANDRO	94577-0000	Sum of Total Stats Sum of Total lbs mercury	125 1.0168
M14522	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	96 1.085
M14523	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	83 0.9982
			95336-0000	Sum of Total Stats Sum of Total lbs mercury	46 0.4588
M14530	AMERICAN REFRIGERATION SUPPLIES INC.	SAN FRANCISCO	94103-0000	Sum of Total Stats Sum of Total lbs mercury	76 1.1098
M14538	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	Sum of Total Stats Sum of Total lbs mercury	66 0.5146
M14544	SLAKEY BROTHERS	SAN JOSE	95126-0000	Sum of Total Stats Sum of Total lbs	35 0.2914

				mercury	
M14545	USACD	ESCONDIDO	92029-0000	Sum of Total Stats Sum of Total lbs mercury	108 1.55
M14572	USACD	REDDING	96003	Sum of Total Stats Sum of Total lbs mercury	25 0.2852
M14582	MOUNTAIN AIR	PINE GROVE	95665	Sum of Total Stats Sum of Total lbs mercury	47 0.5952
M14593	SLAKEY BROTHERS	SAN JOSE	95126	Sum of Total Stats Sum of Total lbs mercury	101 1.4818
		SOUTH SAN FRANCISCO	94080	Sum of Total Stats Sum of Total lbs mercury	32 0.3472
M14600	AIR COLD-A FERGUSON ENTERPRISE	NEWBURY PARK	91320	Sum of Total Stats Sum of Total lbs mercury	207 2.0274
M14602	AIR COLD-A FERGUSON ENTERPRISE	SAN GABRIEL	91776	Sum of Total Stats Sum of Total lbs mercury	243 2.3312
M14607	AIR COLD-A FERGUSON ENTERPRISE	SAN LUIS OBISPO	93401-7316	Sum of Total Stats Sum of Total lbs mercury	39 0.3286
M14645	USACD	HESPERIA	92345-0000	Sum of Total Stats Sum of Total lbs mercury	58 1.5872
M14659	ALLIED REFRIGERATION	SIGNAL HILL	90755-	Sum of Total Stats	73

			0000	Sum of Total lbs mercury	1.0106
M14661	ALLIED REFRIGERATION	TUSTIN	92780-0000	Sum of Total Stats Sum of Total lbs mercury	37 0.6386
M14664	ALLIED REFRIGERATION	POMONA	91767-5840	Sum of Total Stats Sum of Total lbs mercury	130 2.108
M14666	ALLIED REFRIGERATION	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	86 1.705
M14668	ALLIED REFRIGERATION	VAN NUYS	91406-0000	Sum of Total Stats Sum of Total lbs mercury	37 0.3782
M14679	USACD	TEMECULA	92590-0000	Sum of Total Stats Sum of Total lbs mercury	60 1.0168
M14781	TOTALINE OF CALIFORNIA	ORANGE	92865	Sum of Total Stats Sum of Total lbs mercury	33 1.9158
M14799	SIGLER	SAN JOSE	95112	Sum of Total Stats Sum of Total lbs mercury	42 0.527
M14918	SLAKEY BROTHERS	GRASS VALLEY	95945	Sum of Total Stats Sum of Total lbs mercury	30 0.3596
M14952	SLAKEY BROTHERS/SAN JOSE	SAN JOSE	95126	Sum of Total Stats	47

				Sum of Total lbs mercury	0.6076
M14954	SLAKEY BROTHERS/SANTA ROSA	SANTA ROSA	95407-7844	Sum of Total Stats Sum of Total lbs mercury	33 0.3534
M15004	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	294 3.4782
M15005	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	219 2.4862
M15006	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	132 1.5748
M15007	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	287 3.2054
M15065	CITY OF SAN DIEGO, MIRAMAR HHWCF	SAN DIEGO	92111-0000	Sum of Total Stats Sum of Total lbs mercury	53 0.5642
M15068	JOHNSTONE SUPPLY UPLAND	UPLAND	91786-5720	Sum of Total Stats Sum of Total lbs mercury	103 1.1346
M15074	USACD	EL CENTRO	92243	Sum of Total Stats Sum of Total lbs mercury	133 1.2338
M15124	RSD	CHATSWORTH	91311	Sum of Total Stats Sum of Total lbs mercury	83 1.3578
M15143	JOHNSTONE SUPPLY OF LONE BEACH	LONG BEACH	90806-	Sum of Total Stats	60

			2213	Sum of Total lbs mercury	0.7874
M15462	RAHAC HTG & COOLING INC.	GLENDALE	91201	Sum of Total Stats	13
				Sum of Total lbs mercury	0.1364
M15645	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats	1265
				Sum of Total lbs mercury	18.7302
M13164	BURKE ENGINEERING COMPANY	SAN JOSE	95112	Sum of Total Stats	40
				Sum of Total lbs mercury	0.7068
		EL MONTE	91733-1799	Sum of Total Stats	63
				Sum of Total lbs mercury	0.6138
M15034	THRIFTY SUPPLY	SACRAMENTO	95826	Sum of Total Stats	30
				Sum of Total lbs mercury	0.2728
M13153	BURKE ENGINEERING COMPANY	SAN DIEGO	92111	Sum of Total Stats	30
				Sum of Total lbs mercury	0.372
			92111-0000	Sum of Total Stats	32
				Sum of Total lbs mercury	0.4216
M14601	AIR COLD SUPPLY # 1057	SANTA CLARITA	91350-2991	Sum of Total Stats	57
				Sum of Total lbs mercury	0.5952
M12703	RSD	SACRAMENTO	95827-2104	Sum of Total Stats	70
				Sum of Total lbs	1.2524

				mercury	
M11268	RSD	RIVERSIDE	92501-0000	Sum of Total Stats Sum of Total lbs mercury	50 0.6634
M14919	NEVADA COUNTY H.H.W. FACILITY	GRASS VALLEY	95949	Sum of Total Stats Sum of Total lbs mercury	43 0.4588
M14922	NEVADA COUNTY H.H.W. FACILITY	GRASS VALLEY	95949	Sum of Total Stats Sum of Total lbs mercury	59 0.6324
M14614	AIR COLD-A FERGUSON ENTERPRISE	CULVER CITY	90230	Sum of Total Stats Sum of Total lbs mercury	48 0.4402
M15057	WESTERN NEVADA SUPPLY	TRUCKEE	96161-0000	Sum of Total Stats Sum of Total lbs mercury	51 0.4402
M14947	SLAKEY BROTHERS/NORTH HIGHLANDS	NORTH HIGHLANDS	95660	Sum of Total Stats Sum of Total lbs mercury	51 0.4712
M14798	TOTALINE OF CALIFORNIA	SAN JOSE	95112	Sum of Total Stats Sum of Total lbs mercury	20 0.217
M14795	TOTALINE OF CALIFORNIA	SAN DIEGO	92111	Sum of Total Stats Sum of Total lbs mercury	40 0.5394
M15668	USACD	PASO ROBLES	93446	Sum of Total Stats Sum of Total lbs mercury	62 0.6758
M13135	GEARY PACIFIC SUPPLY	RIVERSIDE	92507-0000	Sum of Total Stats Sum of Total lbs	39 0.3224

				mercury	
M14510	GEARY PACIFIC SUPPLY	RIVERSIDE	92507-0000	Sum of Total Stats Sum of Total lbs mercury	39 0.3534
M14567	JOHNSTONE SUPPLY #140	SALINAS	93901	Sum of Total Stats Sum of Total lbs mercury	53 0.7192
M15600	RAHAC HTG & COOLING INC.	GLENDALE	91201-0000	Sum of Total Stats Sum of Total lbs mercury	38 0.2852
M14766	SIGLERS	CITY OF INDUSTRY	91744	Sum of Total Stats Sum of Total lbs mercury	15 0.2046
M14585	SLAKEY BROTHERS	REDDING	96002	Sum of Total Stats Sum of Total lbs mercury	46 0.465
M10125	RSD-48	GARDENA	90248-0000	Sum of Total Stats Sum of Total lbs mercury	85 1.4012
M11316	RSD	BUENA PARK	90620-0000	Sum of Total Stats Sum of Total lbs mercury	133 2.1576
M14592	SLAKEY BROTHERS	SANTA CRUZ	95060	Sum of Total Stats Sum of Total lbs mercury	56 0.4154
M11947	JOHNSTONE SUPPLY CO	SAN DIEGO	92110	Sum of Total Stats Sum of Total lbs mercury	129 1.674
			92110-	Sum of Total Stats	28

			0000	Sum of Total lbs mercury	0.4526
M12669	R.E. MICHEL COMPANY, INC	EL CAJON	92020-00	Sum of Total Stats Sum of Total lbs mercury	95 1.3764
M12429	JOHNSTONE SUPPLY CO	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	58 0.6324
M11074	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	103 2.6474
M12704	BURKE ENGINEERING COMPANY	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	48 0.5332
M13748	RSD	LIVERMORE	94551-0000	Sum of Total Stats Sum of Total lbs mercury	50 1.0478
M14917	ALAMEDA COUNTY HHW	HAYWARD	94545	Sum of Total Stats Sum of Total lbs mercury	15 0.2542
M13475	CLEAN HARBORS EVS	PETALUMA	94952	Sum of Total Stats Sum of Total lbs mercury	66 0.589
M12864	COUNTY OF TUOLUMNE	SONORA	95370	Sum of Total Stats Sum of Total lbs mercury	7 0.062
M14789	TOTALINE OF CALIFORNIA	RIVERSIDE	92507	Sum of Total Stats Sum of Total lbs	13 0.1612

				mercury	
M12887	RSD-22	REDDING	96002-0000	Sum of Total Stats Sum of Total lbs mercury	44 0.7812
M14531	AMERICAN REFRIGERATION SUPPLIES INC.	OAKLAND	94607-0000	Sum of Total Stats Sum of Total lbs mercury	18 0.2914
M16044	Baker Distributing Co.	CHICO	95928	Sum of Total Stats Sum of Total lbs mercury	77 0.8618
M14779	SIGLER-ONTARIO	ONTARIO	91761	Sum of Total Stats Sum of Total lbs mercury	15 0.1054
M16454	RSD	ROSEVILLE	95678-0000	Sum of Total Stats Sum of Total lbs mercury	59 0.9982
M16453	RSD	ROSEVILLE	95678-0000	Sum of Total Stats Sum of Total lbs mercury	132 2.3002
M11281	RDS-BURBANK	BURBANK	91502-2014	Sum of Total Stats Sum of Total lbs mercury	31 0.3596
M11410	LENNOX INDUSTRIES INC.	CHINO	91710-2943	Sum of Total Stats Sum of Total lbs mercury	42 0.5208
M13339	LENNOX INDUSTRIES INC.	ONTARIO	91761-0000	Sum of Total Stats Sum of Total lbs	36 0.4588

				mercury	
		MIRA LOMA	91752	Sum of Total Stats Sum of Total lbs mercury	19 0.2356
M15872	GOODMAN DISTRIBUTION, INC.	Montclair	91763	Sum of Total Stats Sum of Total lbs mercury	23 0.3782
	GOODMAN DIST. # 706	Montclair	91763	Sum of Total Stats Sum of Total lbs mercury	29 0.2666
M14374	UNITED REFRIGERATION	SAN BERNADINO	92408-2230	Sum of Total Stats Sum of Total lbs mercury	51 0.6882
M13146	BURKE ENGINEERING COMPANY	EL MONTE	91733-1799	Sum of Total Stats Sum of Total lbs mercury	53 0.6386
M14382	UNITED REFRIGERATION # C4	North Hills	91343	Sum of Total Stats Sum of Total lbs mercury	41 0.403
M16705	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	133 1.5004
M16706	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	79 0.9424
M16704	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	74 0.9362
M16703	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	109 1.4136

M16702	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	69 1.0106
		CULVER CITY	90232	Sum of Total Stats Sum of Total lbs mercury	41 2.1266
M16700	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	147 1.984
M16701	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	80 0.992
	CATHEDRAL CITY #7	CATHEDRAL CITY	92234	Sum of Total Stats Sum of Total lbs mercury	85 3.7138
M14958	SLAKEY BROTHERS/YUBA CITY	YUBA CITY	95991	Sum of Total Stats Sum of Total lbs mercury	33 0.3162
M14915	ALAMEDA COUNTY HHW	HAYWARD	94545	Sum of Total Stats Sum of Total lbs mercury	41 0.3348
M16234	USACD	FRESNO	93706	Sum of Total Stats Sum of Total lbs mercury	47 0.434
M14913	ALAMEDA COUNTY HHW	OAKLAND	94602	Sum of Total Stats Sum of Total lbs mercury	44 0.403
M14794	RUSSELL SIGLER	SAN DIEGO	92111	Sum of Total Stats Sum of Total lbs mercury	53 0.6076
M14162	SPECIALTY AC	BENICIA	94510-0000	Sum of Total Stats Sum of Total lbs	14 0.2728

				mercury	
M14634	R.E. MICHEL COMPANY, INC	VAN NUYS	91406	Sum of Total Stats Sum of Total lbs mercury	33 0.3472
			91405-1262	Sum of Total Stats Sum of Total lbs mercury	17 0.1736
M11149	JOHNSTONE SUPPLY CO	BALDWIN PARK	91706-2289	Sum of Total Stats Sum of Total lbs mercury	65 0.6076
M14787	RUSSELL SIGLER INC.	COMPTON	90220	Sum of Total Stats Sum of Total lbs mercury	30 0.3286
M12817	MCCLELLAND Air CONDITIONING	CHICO	95973	Sum of Total Stats Sum of Total lbs mercury	23 0.31
M14767	RUSSELL SIGLER INC.	CITY OF INDUSTRY	91744	Sum of Total Stats Sum of Total lbs mercury	4 0.062
M14518	CFM EQUIPMENT DIST.	SACRAMENTO	95838-0000	Sum of Total Stats Sum of Total lbs mercury	22 0.217
M14366	UNITED REFRIGERATION	MURRIETA	92562-9193	Sum of Total Stats Sum of Total lbs mercury	11 0.1426
M11075	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	14 0.217

M14770	RUSSELL SIGLER INC.	ESCONDIDO	92029	Sum of Total Stats Sum of Total lbs mercury	15 0.248
M14583	SLAKEY BROTHERS	MODESTO	95352	Sum of Total Stats Sum of Total lbs mercury	10 0.1054
M14372	UNITED REFRIGERATION	PALM DESERT	92211-0474	Sum of Total Stats Sum of Total lbs mercury	53 0.496
M14464	FACSCO	FRESNO	93703-0000	Sum of Total Stats Sum of Total lbs mercury	86 1.3144
M11073	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	46 0.3844
M15187	BUCKLEY PARNELL HEAT & AIR	CITRUS HEIGHTS	95621	Sum of Total Stats Sum of Total lbs mercury	20 0.2356
M13877	CHIMNEY KRAFT	CRESCENT CITY	95531	Sum of Total Stats Sum of Total lbs mercury	26 0.372
M14381	UNITED REFRIGERATION	SANTA MARIA	93455-1058	Sum of Total Stats Sum of Total lbs mercury	37 0.434
M11725	RSD	SACRAMENTO	95827-2104	Sum of Total Stats Sum of Total lbs mercury	63 1.0292
M15198	MATRIX HG, INC.	CONCORDIA	94518	Sum of Total Stats	24

				Sum of Total lbs mercury	0.4154
M14663	ALLIED REFRIGERATION	SAN BERNADINO	92410-0000	Sum of Total Stats	44
				Sum of Total lbs mercury	0.434
M14605	AIR COLD-A FERGUSON ENTERPRISE	EL CAJON	92020	Sum of Total Stats	41
				Sum of Total lbs mercury	0.4278
M12770	DAN GOETZ WHOLESALE OUTLET INC	SANTA ROSA	95407	Sum of Total Stats	59
				Sum of Total lbs mercury	0.7812
M14371	UNITED REFRIGERATION	OXNARD	93036-8916	Sum of Total Stats	11
				Sum of Total lbs mercury	0.1488
M14341	KERN COUNTY SPECIAL WASTE FACILITY	BAKERSFIELD	93308-4531	Sum of Total Stats	50
				Sum of Total lbs mercury	0.3286
M14571	GEARY PACIFIC SUPPLY	NORTH HIGHLANDS	95660-5701	Sum of Total Stats	72
				Sum of Total lbs mercury	1.4632
M14286	COUNTY OF VENTURA-	VENTURA	93009-1650	Sum of Total Stats	6
				Sum of Total lbs mercury	0.0372
M15948	BILL HOWE HEATING & AIR	SAN DIEGO	92110	Sum of Total Stats	26
				Sum of Total lbs mercury	0.2666
M16222	AAA AIR & HEATING	FRESNO	93727	Sum of Total Stats	55
				Sum of Total lbs mercury	0.4464

M15041	MAKI HEATING & AIR CONDITIONING, INC.	AUBURN	95603	Sum of Total Stats Sum of Total lbs mercury	24 0.2046
M16041	Baker Distributing Co.	PACOMIA	91331-0000	Sum of Total Stats Sum of Total lbs mercury	35 0.5828
M11276	RSD	SACRAMENTO	95815-3216	Sum of Total Stats Sum of Total lbs mercury	45 0.682
M16043	Baker Distributing Co.	CHATSWORTH	91311-0000	Sum of Total Stats Sum of Total lbs mercury	24 0.2232
M14379	UNITED REFRIGERATION	SANTA ANA	92705-4705	Sum of Total Stats Sum of Total lbs mercury	25 0.3472
M14086	D & D PLUMBING HEATING & COOLING	VACAVILLE	95687	Sum of Total Stats Sum of Total lbs mercury	1 0.0062
M14375	UNITED REFRIGERATION	SAN CARLOS	94070-5316	Sum of Total Stats Sum of Total lbs mercury	121 2.4986
M16771	Baker Distributing Company	IRWINDALE	91706	Sum of Total Stats Sum of Total lbs mercury	63 0.7006
M15189	GENIE AIR CONDITIONING & HEATING, INC	VAN NUYS	91411	Sum of Total Stats Sum of Total lbs mercury	9 0.248
M14587	SLAKEY BROTHERS	SALINAS	93901	Sum of Total Stats	9

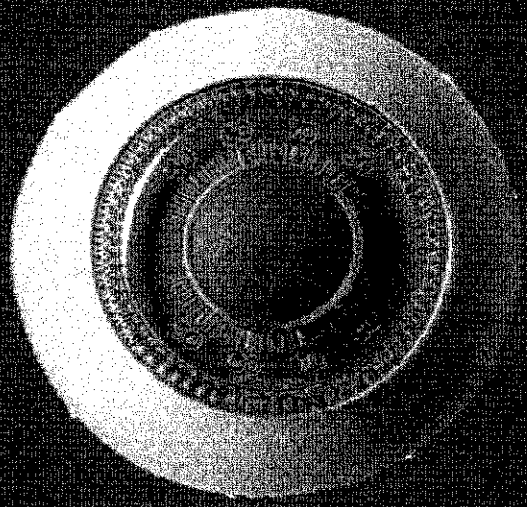
				Sum of Total lbs mercury	0.0682
M12660	Baker Distributing Co.	SAN JOSE	95131-2108	Sum of Total Stats Sum of Total lbs mercury	52 0.837
M14575	SLAKEY BROTHERS	CHICO	95927	Sum of Total Stats Sum of Total lbs mercury	62 0.5952
M14468	JOHNSTONE SUPPLY CO	SANTA ANA	92707-0000	Sum of Total Stats Sum of Total lbs mercury	79 1.1594
M14921	NEVADA COUNTY H.H.W. FACILITY	GRASS VALLEY	95949	Sum of Total Stats Sum of Total lbs mercury	74 0.8246
M12655	Baker Distributing Co.	SANTA ROSA	95407-0000	Sum of Total Stats Sum of Total lbs mercury	26 0.2852
M11288	RSD	SAN DIEGO	92111-1110	Sum of Total Stats Sum of Total lbs mercury	42 0.8432
	RSD 25	SAN DIEGO	92111-1110	Sum of Total Stats Sum of Total lbs mercury	35 0.6882
M11289	RSD	SAN DIEGO	92111-1110	Sum of Total Stats Sum of Total lbs mercury	37 0.6758
	RSD 25	SAN DIEGO	92111-1110	Sum of Total Stats	26

				Sum of Total lbs mercury	0.5022
M13190	TRANE PARTS CENTER	ROCKLIN	95677-0000	Sum of Total Stats Sum of Total lbs mercury	39 0.6262
M14376	UNITED REFRIGERATION	SAN DIEGO	92123-1403	Sum of Total Stats Sum of Total lbs mercury	23 0.3596
M15599	RAHAC HTG & COOLING INC.	GLENDALE	91201-2305	Sum of Total Stats Sum of Total lbs mercury	9 0.0682
M14529	AMERICAN REFRIGERATION SUPPLIES INC.	CORONA	92880-0000	Sum of Total Stats Sum of Total lbs mercury	40 0.4526
M14608	FERGUSON HEATING & COOLING	AZUSA	91702	Sum of Total Stats Sum of Total lbs mercury	28 0.2852
M12545	UNITED REFRIGERATION	IRWINDALE	91706-2085	Sum of Total Stats Sum of Total lbs mercury	14 0.124
M11362	RSD	REDDING	96002-1369	Sum of Total Stats Sum of Total lbs mercury	56 1.4756
M12495	JOHNSTONE SUPPLY CO	FRESNO	93727-0000	Sum of Total Stats Sum of Total lbs mercury	35 0.3596
M15894	GOODMAN DISTRIBUTION, INC.	ROSEVILLE	95678-	Sum of Total Stats	53

			5935	Sum of Total lbs mercury	0.5704
M14633	CALIFORNIA COOLING SUPPLY	VAN NUYS	91405	Sum of Total Stats	34
				Sum of Total lbs mercury	0.4216
Total Sum of Total Stats					18697
Total Sum of Total lbs mercury					254.8386

Exhibit 10

California's Mercury Thermostat Collection Act: an EPR Approach



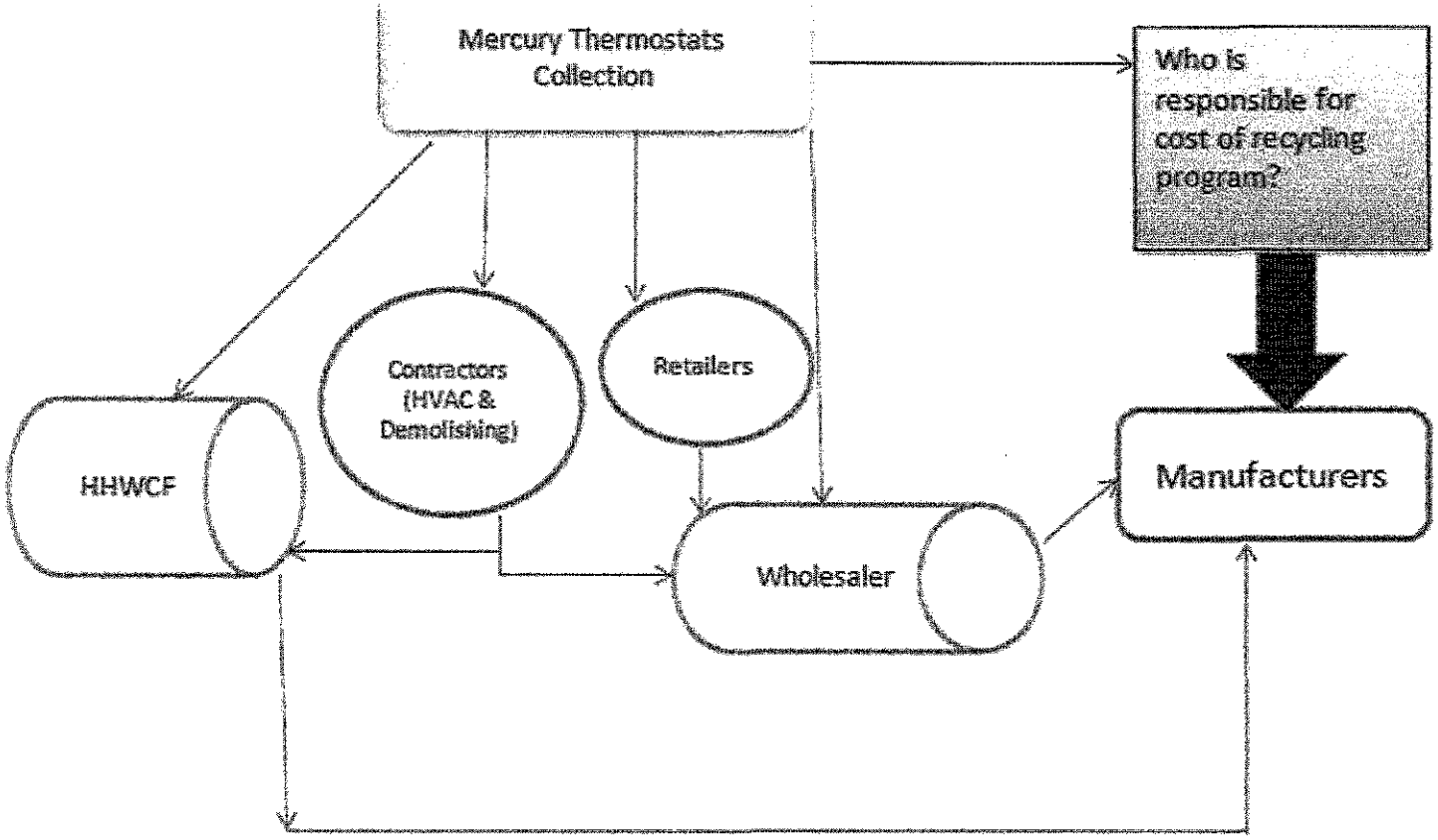
André Algazi
Toxics in Products Branch
California Department of Toxic Substances Control

First some background...

- In California, out-of-service mercury-added thermostats are hazardous waste
  - Regulated as universal waste since 2000
  - Disposal is banned, even for household-generated
- Mercury-added thermostats have been banned from sale since 2006

California's Law is EPR => The Focus is on Manufacturers...

- Individually, or as a group, they must establish and operate a program to collect out-of-service mercury-added thermostats
  - Provide bins to wholesalers of HVAC equipment and to HHW collection programs
  - Cover recycling process including cost
  - Beginning April 1,2010, submit an annual report to the Department



Acronyms:

HHWCF- HOUSEHOLD HAZAZARDOUS WASTE COLLECTION FACILITY

HVAC- HEATING, VENTILATION AND AIRCONDITIONING

Manufacturer Requirements

- One-time Survey
  - By March 2009, submit survey plan and methodology for a survey to provide statistically-valid data on the number thermostats that become waste annually in California
  - By December 1, 2009: complete the survey
  - By December 31, 2009: Present all survey data to the State (DTSC)

Manufacturer Outreach Requirements

- Develop Public Service Announcements
- Provide education and outreach materials to wholesalers, retailers and others
- These prescriptive requirements expired in December 2011 in expectation of DTSC's regulations...

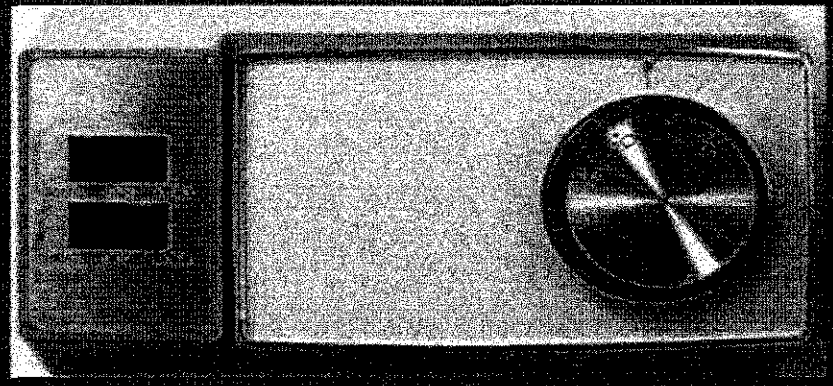
Who Else Has Obligations under California's Thermostat Law?

- HVAC contractors, building demolishers (contractors and others)
  - Remove and bring thermostats to a collection location
- Wholesalers
  - Collect thermostats
  - Don't sell noncompliant brands
- Retailers
  - Don't sell thermostats from noncompliant manufacturers

How is TRC Doing in California?

In 2011, TRC reports collecting:

- 18,697 intact mercury thermostats, containing 255.84 pounds of mercury
- This represents 8.4 percent of thermostats available and a 40 percent increase over 2010 collections



TRC Collection Trend…

Year of Collection	2009	2010	2011
Thermostats	7,542	13,340	18,697
Pounds of mercury	104.82	185.80	255.84

TRC Results in Context: vs. Thermostats Available*

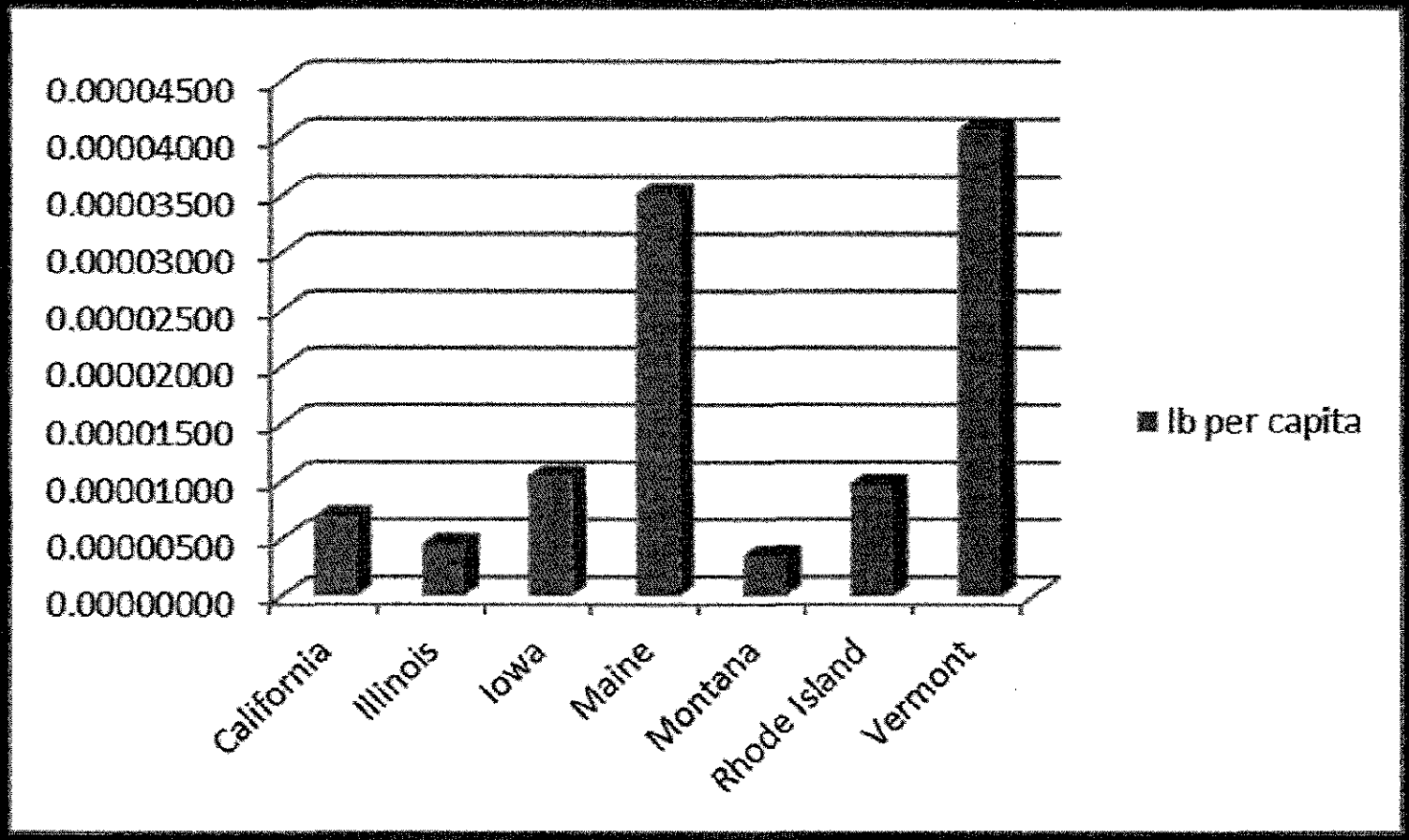
Collection Year	2009	2010	2011
TRC data (Thermostats collected)	7,542	13,340	18,697
Available for recycling (SERA Estimates)	237,000	233,000	222,000

*Source: *Mercury-Containing Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings*. December 28, 2009. Skumatz Economic Research Associates.

California Results in Context: 2011 Data for Some Other States

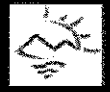
State	Total Intact Thermostats	Pounds of Mercury
California	18,697	255.84
Illinois	7,229	58.53
Iowa	3,850	31.63
Maine	6,616	46.36
Montana	274	3.46
Rhode Island	1,068	10.32
Vermont	3,572	25.37

California Results in Context: Mercury Recovered *per capita*



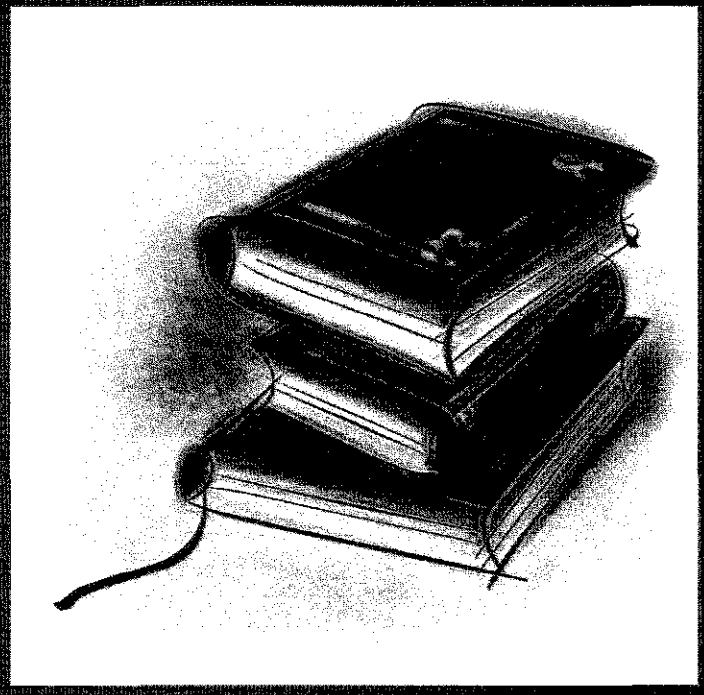
DTSC Efforts to Promote Thermostat Collection

- Outreach to supplement TRC's
  - Web postings
  - Educational Video for Contractors
  - Postcards, flyers, counter signs for wholesalers
- Field visits in 2010 and 2011
  - Some (many?) wholesalers not participating
    - Inadequate manufacturer outreach and education?
  - HVAC contractors feel burdened with various regulatory requirements...



DTSC's Draft Regulations...

- Projected public notice: Early Summer, 2012

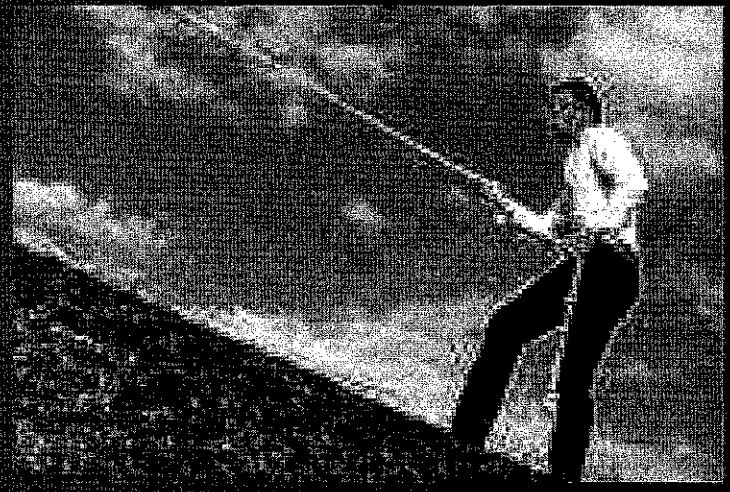


Key Elements of the Current Draft Regulations

- The methodology for determining the annual number of mercury-added thermostats becoming waste based on the manufacturer-funded SERA study
  - Previous proposal relied on contractor reporting after the first two years
- Ambitious collection rate goals from 2013
- Provides for a negotiated agreement on program modification if collection goal is not met

Improving Thermostat Collection Results ...

- Awareness
- Access to program
- Accountability



Thank you...

André Algazi
Section Chief
Consumer Products Section
Toxics in Products Branch
(916) 324-3114
aalgazi@dtsc.ca.gov

Exhibit 11

Eisenberg, Sara J.

From: Chuck Halnan [chuck@halnan.com]
Sent: Monday, October 01, 2012 1:31 PM
To: Eisenberg, Sara J.
Subject: Mercury Thermostat Regulations

In May and June of 2012 I had numerous discussions with DTSC officials concerning the proposed mercury thermostat collection requirements. These meetings were either on the phone or in person and were both one on one meetings as well as group meetings with DTSC staff and the contract lobbyists for manufacturers. From these discussions, it was clear to me that DTSC did not believe manufacturers would be able to achieve the ambitious collection rates set forth in the draft regulations and would likely be forced into some sort of enforcement proceedings almost immediately.

Charles Halnan
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Sacramento, CA 95814
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(916) 441-6504 fax
chuck@halnan.com
www.halnan.com

Exhibit 12

Amend Appendix XII of the California Code of Regulations, title 22, div 4.5, chapter 11.

Insert, in numerical and in alphabetical order within the existing section to read as follows:
(a) Subdivisions (b) and (c) of this appendix establish the California Hazardous Waste Code Numbers assigned to wastes which have been identified as hazardous wastes pursuant to the characteristics of hazardous waste as set forth in article 3 of this chapter or pursuant to the lists of hazardous wastes in article 4 of this chapter. These Waste Code Numbers shall be used in complying with the notification requirements of Health and Safety Code section 25153.6 and, where applicable, in the recordkeeping and reporting requirements under chapters 12 through 15, 18, and 20 of this division.
***
(b) List of California Hazardous Waste Codes arranged in numerical order:
***
614 Treated wood waste
(5) California Restricted Wastes:
615 Out-of-service mercury-added thermostats
711 Liquids with cyanides ≥ 1000 mg/l
***
(c) List of California Hazardous Waste Codes arranged alphabetically within each numbered category in this subdivision:
***
551 Laboratory waste chemicals
512 Other empty containers 30 gallons or more
615 Out-of-service mercury-added thermostats
541 Photochemical/photoprocessing waste
(5) California Restricted Wastes:
721 Liquids with arsenic > 500 mg/l
***
NOTE: Authority cited: Sections 25150 and 58012, Health and Safety Code. Reference: Sections 25117.9, 25122.7, and 25150, Health and Safety Code.

Chapter 35 Mercury Thermostat Collection Requirements

§67388.1 Scope

(a) This chapter establishes the requirements for the collection of out-of-service mercury-added thermostats.
(b) Nothing in this chapter is a limitation on the power of any other governmental agency to adopt or enforce additional requirements related to the management of the mercury-added thermostat materials.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.17, Health and Safety Code.

§67388.2 Applicability

Effective January 1, 2012 the requirements of this chapter shall apply to
(a) Manufacturers as described in section 67388.3.
(b) HVAC contractors as described in section 67388.3.
(c) Demolition contractors as described in section 67388.3.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.17, Health and Safety Code.

§67388.3 Definitions

The definitions set forth in section 66260.10 of this division shall apply unless otherwise defined. The following terms shall apply to the definitions used in this chapter. The definitions of the following terms are stated the Health and Safety Code sections unless otherwise noted.
"Collection Rate" means the number of out-of-service mercury added thermostats collected, as reported by a manufacturer or group of manufacturers divided by the calculated number of out of service mercury added thermostats becoming waste annually, as defined in section 67388.4, expressed as a percentage.
"Demolition contractor" has the meaning of a C-21 contractor as defined in Cal. Code Regs., title 16, section 832.21.
"Household hazardous waste collection facility (HHWCF)" has the meaning of a facility as defined in Health and Safety Code, section 25218.1(f).
"Heating, ventilating and air-conditioning (HVAC) Contractor" has the meaning as defined in Cal. Code Regs., title 16, section 832.20.
"Manufacturer" has the meaning as defined in Health and Safety Code, section 25214.8.11(a).
"Mercury-added thermostat" has the meaning as defined in Health and Safety Code, section 25214.8.11(b)
"Out-of-service mercury-added thermostat" has the meaning as defined in Health and Safety Code, section 25214.8.11(c).
"Program" has the meaning as defined in Health and Safety Code, section 25214.8.11(d).
"Retailer" has the meaning as defined in Health and Safety Code, section 25214.8.11(e).
"Thermostat" has the meaning as defined in Health and Safety Code, section 25214.8.11(f).
"Wholesaler" has the meaning as defined in Health and Safety Code, section 25214.8.11(g).
Authority: Section 58012 and,25150 Health and Safety Code. Reference: Section 25214.8.11 and 25218.1, and 25214.8.17 Health and Safety Code. Reference: Cal. Code Regs., tit. 16, §832.20 and 832.21.

§67388.4 Methodology for Calculation of Number of Out-of-Service Mercury Added Thermostats Becoming Waste Annually

(a) For the purpose of the calculation in section 67388.5 the number of out-of-service mercury-added thermostats becoming waste are 222,000 for the 2012 calendar year .
(b) Beginning on March 1, 2013, the department shall post the number of out-of-service mercury-added thermostats that became waste for the previous year based on the following methodology:

Methodology of calculating the annual generation of Waste Mercury Thermostats

$$T_{AW} = T_{HVAC} + T_{UHWM} + T_{HHWCF}$$

T_{AW} = Number of out-of-service mercury-added thermostats that become waste annually

T_{HVAC} = Number of mercury thermostats removed from service as reported by licensed HVAC contractors.

T_{UHWM} = Number of out-of-service mercury reported on Uniform Hazardous Waste Manifests under California Waste Code 615.

T_{HHWCF} = Number of out-of-service mercury thermostats report in the California Household Hazardous Waste Collection Facilities form 303(b).

$$T = (T_{lbs} \times 453.6 \text{grams/lb}) \div 100 \text{ grams per thermostat}$$

T - Number of out-of-service thermostats collected
Tlbs - Weight of out-of-service thermostats collected
k - Conversion factor for weight of thermostat = 100 grams per thermostat
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.15, 25214.8.16 and 25214.8.17 Health and Safety Code.

§67388.5 Manufacturers' Annual Collection Rate

(a) The annual target collection rate for a manufacturer or a group of manufacturers shall be 20% of the number of out of service mercury added thermostats becoming waste annually.
(b) When the 20% target collection rate is met, the target collection rate for the next calendar year shall increase to 30% of the out-of-service mercury thermostats projected to become waste that year. Each time a target collection rate standard is met in a subsequent year, the target collection rate in the next calendar shall increase by 10% of the out-of-service mercury thermostats projected to become waste that year until the maximum feasible collection rate is achieved.
(c) The department shall assign a percentage of the collection rate to each manufacturer or group of manufacturers based upon each manufacturer's or group of manufacturers' share of total thermostats collected, less orphan product reported by all manufacturers or group of manufacturers.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25218.8.13 Health and Safety Code.

§67388.6 Manufacturer Program Requirements
(a) The Department may order a manufacturer or a group of manufacturers operating a program to revise its program and to undertake actions to comply with Article 10.2.2 of Chapter 6.5, Division 20, of the Health and Safety Code.

(b) The Department may review each manufacturer's or group of manufacturers' program each year, beginning in 2014, to determine whether revisions are needed to each program
(b) In order to assess whether revisions are needed to the program implemented by a manufacturer or a group of manufacturers, the Department shall:
(1) Compare the results of each program with the annual target collection rate specified in section 67388.5;
(2) Compare the results of the program(s) to those of other states where mercury added thermostat collection programs are mandated by law;
(3) .Assess economic factors or market conditions that may adversely affect program results;
(4) Assess contractor compliance with sections 67388.7 and 67388.9 and other relevant and applicable provisions of law.
(c) If a manufacturer or group of manufacturers fails to revise its program as directed by the Department, the Department shall post a notice on its Internet Website listing the manufacturer or group of manufacturers as out of compliance pursuant to Health and Safety Code section 25214.8.12.

(d) (1) A manufacturer or group of manufacturers may petition the department to reinstate the manufacturer or group of manufacturers.
(2) A petition submitted pursuant to this subsection shall include an updated plan correcting the deficiencies identified by the department.
(3) The sales prohibition specified in Health and Safety Code section 25214.8.12 shall be suspended during the department's review of the updated plan. This suspension of the sales prohibition shall be posted on the department's Internet Web site.
(4) If the department determines that the updated plan corrects the deficiencies identified pursuant to Section 42992, the department shall list the manufacturer or group of manufacturers as no longer banned. If the updated plan does not correct the deficiencies, the sales prohibition shall be reinstated, and the manufacturer or group of manufacturers shall be posted as non-compliant on the department's Internet Web site.

Authority: Section 58012, 25150, Health and Safety Code. Reference: Section 25180, 25187, 25189.2, 25218.8.13 and 25214.8.17 Health and Safety Code.

67388.7 Contractor Compliance Requirements

(a) Any HVAC contractor or Demolition contractor that removes a thermostat from any location shall determine if the thermostat is a mercury-added thermostat.
(b) Notwithstanding any other provision of law, any mercury-added thermostat removed from service in California by a contractor shall be taken to collection location with a collection container operating in accordance with these regulations.
(c) Notwithstanding any other provision of law, any mercury-added thermostat removed from service in California by a Demolition contractor shall be taken to a location that is authorized to collect out-of-service mercury-added thermostats
(c) A licensed HVAC contractor or a Demolition contractor that takes an out-of-service mercury added thermostat to a location with a collection bin and who properly reports in accordance with section 67388.7 shall not be deemed a generator of that thermostat under title 22, division 4.5 of the California Code of Regulations.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.15 and 25214.8.16, Health and Safety Code.

67388.8 Household Compliance Requirements

(a) Any person who maintains a household as defined in section 66273.9 and who removes a mercury added thermostat from that household without the assistance of a licensed contractor is subject to the requirements of section 66273.8.
(b) Any person who maintains a household as defined in section 66273.9 and hires a licensed contractor to remove a mercury added thermostat from that household shall relinquish possession of the thermostat to the contractor for proper handling.
Authority: Section 58012, 25150 and 25154, Health and Safety Code. Reference: Section 25154, 25214.8.15 and 25214.8.16, Health and Safety Code.

§67388.7 9 Reporting Requirements

(a) Thermostat Manufacturer Group Programs: In the annual report submitted to the department, each group of manufacturers operating a program collectively shall include the following information: (1) Household Hazardous Waste Collection Facility, Retailer, HVAC contactor, or HVAC wholesaler name and physical street address.
(2) For the previous calendar year, the date(s) the program received waste shipment(s) of mercury thermostats from the collection points, the collection point name, count of thermostats, count of mercury switches from collection point, number of loose switches, and pounds of mercury.
(3) For the previous calendar year, the number of whole thermostats collected by the name of manufacturer participating in the program.
(4) For the previous calendar year, the number of thermostats collected of indeterminate manufacturer.
(5) For the previous calendar year, the number of loose mercury switches recovered and the conversion factor for determining the number of whole thermostats the loose mercury switches represent.
(b) Thermostat Manufacturer Individual Programs: In the annual report submitted to the department, each manufacturer operating a program individually shall include the following information:
(1) Household Hazardous Waste Collection Facility, Retailer, HVAC contactor, or HVAC wholesaler name and physical street address (e.g. shipping address).
(2) The date(s) the thermostat manufacturer received waste shipment(s) of mercury thermostats from the collection point(s), collection point name, count of thermostats, count of mercury switches from collection point, number of loose switches, and pounds of mercury.
(3) The number of thermostats collected by the name of manufacturer. The number of thermostats collected of indeterminate manufacturer.
(4) The number of loose mercury switches recovered
(c) Thermostat Retailers/Wholesalers Distributing by Mail
(1) In the annual report submitted to the department, each thermostat retailer or wholesaler that distributes new thermostats by mail in the state shall include the following information:(2) The number of requests for pre-paid shipping labels.(3) For the previous calendar year, the number of thermostats collected and when identifiable the brand name of the manufacturer

(d) Contractor Reporting Requirements: Beginning January 1, 2013, each HVAC contractor shall submit, to the department, an annual report for period beginning January 1 and ending December 31 for the previous calendar year. Annual reports shall be submitted in an electronic format provided by the department within 60 days of the end of each reporting period.
(1) Each annual report shall include the following:
(A) The business location and mailing address;
(B) Contractors state license number;
(C) Name, address and telephone number of contact person with knowledge of reported mercury thermostat removals;
(D) The current number of service technicians employed by the contractor;
(E) The number of mercury thermostats removed from service by the contractor name and location of the collection point(s) where mercury thermostats are disposed of.
(2) Notwithstanding the exemption provided for by section 66273.8, a HVAC contractor shall keep a record of annual reports on site for 3 years.
(3) In addition to the reporting requirements in subsection (c), HVAC contractors shall keep written records on site for the following information:
(A) Date and customer location of each mercury thermostat replacement;
(B) Count of mercury thermostat(s) removed from each location;
(C) Location, date, and count of mercury thermostats disposed of at collection location.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.13, 25214.8.15, 25214.8.16 and 25214.8.17 Health and Safety Code.

CALIFORNIA LEGISLATURE

STATE CAPITOL
SACRAMENTO, CALIFORNIA
95814

September 28, 2012

Debbie Raphael, Director
Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

Regarding: DTSC Proposed Regulations for Mercury Thermostat Collection and Performance Requirements

Dear Director Raphael,

We are writing to express our strong support for the recently proposed mercury thermostat regulation that is legally required by the Mercury Thermostat Collection Act of 2008. We urge the Department of Toxic Substances Control (DTSC) to move forward as swiftly as feasible to finalize this important regulation by the end of this year.

According to the Thermostat Recycling Corporation (TRC)'s own calculations, in California alone, between 222,000 – 460,000 out-of-service mercury-added thermostats will become waste in 2012. Taking the mid-point of this range, and assuming an average of 4 grams of mercury per thermostat, these thermostats will contain roughly 1.5 tons of mercury. Any source of mercury pollution of that magnitude warrants a strong DTSC response that effectively addresses this preventable threat to human health and the environment.

DTSC's mercury thermostat regulation is an important step to prevent further mercury contamination. As the legislation requires, this regulation offers a pragmatic approach to mercury disposal by placing the responsibility on the companies that sell their products in California. This regulation is needed because the voluntary collection program for used thermostats that the TRC has operated over the past decade has failed to divert any significant amount of mercury from the waste stream. In California, this program is capturing less than 10% of the mercury thermostats becoming waste, an unacceptably low rate that DTSC must correct through these rules as soon as possible.

We are fully aware of the contribution manufacturers of thermostats have made in improving energy efficiency, which reduces fossil fuel use and helps address climate change. With this proposed regulation, California ensures that the devices which aid our energy conservation do not contaminate our environment with toxic mercury.

We commend the department for its hard work on mercury thermostat collection and we urge a swift conclusion to the rulemaking so that greater numbers of mercury thermostats are collected and disposed of properly. Please move forward to finalize and adopt this regulation as soon as possible.

Sincerely,

ELLEN M. CORBETT

MARK DESAULNIER

NOREEN EVANS

LONI HANCOCK

CHRISTINE KEHOE

MARK LENO

FRAN PAVLEY

BOB BLUMENFIELD

WESLEY CHESBRO

MIKE FEUER

RICHARD GORDON

JARED HUFFMAN

DAS WILLIAMS

Cc: Matt Rodriquez, Secretary, California Environmental Protection Agency

CAL SMACNA

September 24, 2012

Krysia Von Burg, Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

Re: Comment on *Mercury Thermostat Collection and Performance Requirement*
Department Reference Number: R-2010-03

Dear Ms. Von Burg:

The California Association of Sheet Metal and Air Conditioning Contractor's National Association (CAL SMACNA) is pleased to support the 45-Day language as proposed for the implementation of the *Mercury Thermostat Collection and Performance Requirement*.

The contractor members of CAL SMACNA have reviewed the proposed language and are pleased to see the revisions adopted by DTSC align this regulatory effort with the intent and authority of the original statutes. Specifically, by embracing the extended producer responsibility model, this language appropriately places the primary responsibility and costs of collecting and managing out-of-service mercury-added thermostats upon the manufacturers and NOT California small businesses. This is consistent with the legislative proceedings and authority provided to DTSC by AB 2347 (Ruskin).

The prior draft of these regulations would have produced highly questionable compliance rates while simultaneously placing an inordinate financial burden on both small businesses and the DTSC to oversee and enforce the program.

CAL SMACNA appreciates the fact that DTSC listened to public comments, worked with the field, and increased it's understanding of the practical application of any proposed regulation. The current draft language reflects these successful efforts by DTSC and will undoubtedly result in far higher compliance rates at a much lower cost and impact on California small businesses.

We look forward to working collaboratively with the DTSC as we move forward together in the implementation of the regulations originally envisioned by the Legislature in 2008. If you should have any questions, or need additional information, please do not hesitate to contact me at (916) 363-7460.

Sincerely,

Cyndi Marshall
Executive Vice President

California Association Sheet Metal and Air Conditioning Contractors National Association

Cyndi Marshall
Executive Vice President

2012-2013 Officers

David Lawson
President

Joe Isom
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Sahasrabudhe, Neena@DTSC

From: Frevert, Kathy <Kathy.Frevert@CalRecycle.ca.gov>
Sent: Monday, October 01, 2012 6:06 PM
To: Sahasrabudhe, Neena@DTSC
Cc: Smyth, Brenda; Dunn, Cynthia; Wang, Emily; Williams, Clark; Levenson, Howard
Subject: Mercury thermostats regs - comments from CalRecycle - due Oct 2

Hello Neena,

Thank you for providing the information below. We've had a chance to review the proposed mercury thermostat regulation and wanted to offer some general thoughts. DTSC may want to further consider, as it develops its regulations and provides oversight and enforcement of the program, if additional language is needed to better ensure a level playing field among participants, e.g., clear consequences of not participating, ensuring information that is reported is correct, those performing audits have qualifications and follow minimum standards.

FYI, below are some of the basic elements we believe are needed to provide for an effective EPR program, recognizing that each product is different and the approaches will vary. We also recognize that AB 2347 does not require some of the key components below, such as stewardship plan submittal and approval, or approval of annual reports, therefore not all of the elements will apply to the proposed regulations. Others are already covered either in statute or the proposed regulations. Indeed, one of EPR's attributes is the flexibility in design and implementation approaches. We look forward to program implementation and continuing to learn from these first EPR programs in California!

An effective EPR program **MUST** provide manufacturers/first sellers and renovators with the option to form a stewardship organization and **REQUIRE** sustainable funding, stewardship plans, enforceable goals, and reporting from manufacturers, and oversight and enforcement by state government (paid for by the funding mechanism). Key components include:

a. Purpose, Scope, and Goals
b. Definitions
c. Manufacturers/brand owners are allowed to form a stewardship organization to prepare, manage, and implement a stewardship plan on its behalf
d. Stewardship Plans must be submitted by a certain date that contain these basic elements:
    i. List of manufacturers/brand owners covered under plan
    ii. Funding mechanism and budget sufficient to carry out the plan, including administrative, operational, and capital costs, and payment of fees and/or incentive payments to cover costs of services provided;
    iii. How the plan will achieve the purpose and goals
    iv. How the plan is consistent with the state's solid waste management hierarchy
    v. Education and outreach efforts
    vi. How citizens across the state will have convenient collection
    vii. Process for independent audits
e. Annual reporting and process for updating plans/reports
f. State oversight: state government shall approve, conditionally approve, or disapprove plans and annual reports.
g. Transparency: process for stakeholder participation in developing plans, key documents are easily available on internet
h. Level playing field: enforcement with penalties on non-compliance manufacturers/brand owners; and payments to state for providing oversight and enforcement services.

Best regards,

Californians Against Waste
Conserving Resources. Preventing Pollution. Protecting the Environment.

Debbie Raphael, Director
Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

Re: DTSC Proposed Regulations for Mercury Thermostat Collection

Dear Director Raphael,

Thank you for the opportunity to comment on the Mercury Thermostat regulation. These long overdue regulations represent a critical step to address a significant source of mercury pollution.

Relying on the industry to accomplish the intent of AB 2347, has, thus far, proven to be a failure. The industry collected a measly 3.2% of the mercury thermostats generated in 2009, representing only a paltry increase over the 2.9% recycled prior to the passage of the law.

In order to meet its obligation to protect public health and the environment and achieve the goals of AB 2347, DTSC has a responsibility to utilize every authority and opportunity provided by current law to try to increase recycling of toxic thermostats. Specifically, the law gives DTSC the authority to set the performance rate requirement. The Act also authorizes DTSC to order manufacturers to revise their programs and undertake actions to comply with the law. If a manufacturer fails to meet their quota, they face a sales prohibition of their product in California.

DTSC's proposed methodology relies upon the low-end estimate of the Thermostat Recycling Corporation (TRC)'s own calculations, likely underestimating the actual number of discarded thermostats, and setting an artificially low bar for the industry. We are urging DTSC to use the high-range value in the TRC 2009 Waste Flow Report to ensure a conservative implementation of the legislation. Each mercury thermostat that goes into a landfill represents a violation of CA law and an addition to the build-up of a potent neurotoxin in our environment. Because the highest numbers of thermostats will be discarded during the earlier years of the program, recovering most of these thermostats is an urgent health and safety priority.

Financial incentives have proven to be the best way to raise recycling rates, as proven by the incredible success of recycling under the state's Bottle and Can Deposit law. Similarly, AB 2347 specifically requires manufacturers to provide direct incentives to promote the recovery of thermostats.

> *HSC 25214.8.13 Each manufacturer **shall** individually, or collectively with other manufacturers, do all of the following:*
>
> > *(g) Provide incentives and education to contractors, service technicians, and homeowners to encourage the return of out-of-service mercury-added thermostats to established collection locations.*

www.cawrecycles.org 921 11th Street, Suite 420 Sacramento, CA 95814 Phone: (916) 443-5422 Fax: (916) 443-3912

However, the manufacturers have, thus far, failed to follow the law, and they have not developed any sort of direct incentive program. In the proposed regulations, DTSC has clearly defined what "incentives" are, and TRC now has an unambiguous standard that it needs to comply with. Should TRC fail to meet the required collection rate performance for a given year, we urge DTSC to move promptly to evaluate the amount and form of the appropriate financial incentive required to achieve the necessary program improvements.

While we are confident that DTSC will exercise its ability to fully enforce the law if manufacturers fail to meet the collection goals, the clock for the 'soft' and 'flexible' approach afforded to thermostat manufacturers in AB 2347 is running out. If this approach—utilizing all the available authority, tools and proven incentives, does not result in a substantial increase in thermostat recycling over the next 18-24 months, than stakeholders will have no choice but to pursue a more direct producer responsibility approach in order to attain the necessary hazardous waste reduction and recycling goals.

We urge a swift conclusion to the rulemaking so that greater numbers of mercury thermostats are collected and properly disposed of. Thank you for your consideration.

Sincerely,

Mark Murray
Executive Director

Cc: Karl Palmer, DTSC
Krysia Von Burg, Regulations Coordinator

California Legislative Conference of the
Plumbing, Heating and Piping Industry
1127 11th Street, Suite 747
Sacramento, CA 95814
Telephone: (916) 443-3114
Facsimile: (916) 442-6437

September 28, 2012

Krysia Von Burg, Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

Re: Comment on *Mercury Thermostat Collection and Performance Requirement*
Department Reference Number: R-2010-03

Dear Ms. Von Burg:

On behalf of the California Legislative Conference of the Plumbing, Heating and Piping Industry (CLC), I am pleased to alert you of our support for the proposed 45-Day language relating to the implementation of the "*Mercury Thermostat Collection and Performance Requirements*."

The CLC was actively involved in developing the legislative authority for these regulations and we are satisfied that the revisions to these regulations adopted by Department of Toxic Substances Control (DTSC) now follow the intent and authority of the original statutes. Specifically, by embracing the extended producer responsibility model, this language appropriately places the primary responsibility and costs of collecting and managing out-of-service mercury-added thermostats upon the manufacturers and not California small businesses. This is consistent with the legislative intent and authority provided to DTSC by AB 2347 (Ruskin).

The prior draft of these regulations would have produced questionable compliance rates while placing an excessive financial burden on both small businesses and the DTSC to oversee and enforce the program.

We appreciate that the DTSC listened to public comment and worked with industry to understand the practical applications of the proposed regulations. The regulatory language as proposed will result in higher compliance rates at a much lower cost and impact on California small businesses. For these reasons we are in support.

If you should have any questions, or need additional information, please contact our office.

Kindest Regards,

Eddie Bernacchi
Director

CPSC
California Product Stewardship Council SM

1822 21st Street, Suite #100
Sacramento, CA 95811
916-706-3420

www.CalPSC.org

September 19, 2012

Debbie Raphael, Director
Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

Regarding: DTSC Proposed Regulations for Mercury Thermostat Collection Program

Dear Director Raphael,

The California Product Stewardship Council (CPSC), as a co-sponsor of the Mercury Thermostat Collection Act of 2008 (Act), is writing to express strong support for the recently proposed mercury thermostat regulation that is legally required by the Act. We urge the Department of Toxic Substances Control (DTSC) to move forward quickly to finalize the regulation by the end of this year, as this rulemaking is already a year behind the legislatively required schedule of January 1, 2012.

According to the Thermostat Recycling Corporation (TRC)'s own calculations, in California alone between 222,000 – 460,000 out-of-service mercury-added thermostats will become waste in 2012. Taking the mid-point of this range, and assuming an average of 4 grams of mercury per thermostat, these thermostats will contain roughly 1.5 tons of mercury. Any source of mercury pollution of that magnitude warrants a strong DTSC response which effectively addresses this preventable threat to human health and the environment.

DTSC's mercury thermostat regulation is an important step to prevent further mercury contamination, and time is of the essence. This regulation is needed because the collection program for used thermostats that the TRC has operated is capturing less than 10% of the mercury thermostats becoming waste in California. This is an unacceptably low rate, which DTSC must correct through these rules as soon as possible. Attached is a letter CPSC sent to DTSC June 29, 2011, that outlines the many efforts we have made to ensure this program is successful, and also the many reasons we are disappointed with the lack of effort to recover the vast majority of thermostats from the waste stream.

We commend the agency for its hard work on mercury thermostat collection, and urge a swift conclusion to the rulemaking so that greater numbers of mercury thermostats are collected and properly disposed of. Please move forward to finalize and adopt this regulation as soon as possible.

Sincerely,

Heidi Sanborn

Heidi Sanborn, Executive Director

Attachment: Letter from CPSC to DTSC June of 2011

Cc: Matt Rodriquez, Secretary, California Environmental Protection Agency

CPSC
California Product Stewardship Council SM

P.O. Box 216381
Sacramento, CA 95821
916-480-9010

www.CalPSC.org

June 29, 2011

Ed Benelli
Office of Pollution Prevention and Green Technology
Department of Toxic Substances Control
Sent Via E-mail: thermostats@dtsc.ca.gov

Subject: Comments on Draft Thermostat Regulations

Dear Mr. Benelli:

The California Product Stewardship Council (CPSC), a co-sponsor of the Mercury Thermostat Collection Act of 2008 (Act), appreciates the work that department staff have put into the draft regulations to implement the Act. We believe that the draft closely follows both the letter and intent of the law, and we support its structure and primary elements. This letter will detail our position, and include recommendations that we believe would improve the draft regulations.

CPSC participated directly in the legislative negotiations and has gone into the implementation phase of the Act in acknowledgement of a shared responsibility system with the retailers and producers. Here is a short list of the support and partnership CPSC has provided:

- Facilitated and funded a statewide webinar December 16, 2009 to educate the local governments and other parties about the new program and included presentations by thermostat producers;
- In several counties including Yolo and Napa, conducted site visits and reported back to producers when wholesalers did not have bins or public education materials and encouraged them to sign-up;
- Forwarded information to producers when we were made aware of opportunities for public education or when the website was not accurate;
- Published TRC information on the CPSC website;
- Promoted the TRC program at multiple presentations and venues; and,
- Wrote an article which we submitted to the Contractors State Licensing Board and they put in their newsletter to the 11,000 HVAC contractors about the law.

In short, we feel that we have done all we can to support the producers to be successful.

The hazards posed by mercury are well-documented so we will not get into those details. In addition, mercury thermostats are 100% banned from landfill disposal creating an unfunded burden on local governments and waste haulers. At the workshop on the draft regulations, DTSC stated that "first year collection totaled 3.2% of what the Skumatz study estimated would be generated." The fact is that thermostats contain a potent neurotoxin that is banned from landfill disposal and we currently do not have an effective collection program. These facts can lead to the assumption that an estimated 96% of the mercury thermostats are going into landfills and creating a liability for local governments and

taxpayers, not to mention the resulting health and environmental impacts that can occur from mercury releases.

To say we are disappointed with this performance is an understatement.

The Act established an Extended Producer Responsibility (EPR) system for mercury thermostats, and delegates to the Department of Toxic Substances Control (DTSC) the task of setting recycling rates and methodology. The Act also directed the manufacturers to "present to the department a survey plan and methodology for a survey to provide statistically valid data on the number of mercury-added thermostats that become waste annually in California." The Thermostat Recycling Corporation (TRC) fulfilled this responsibility with the December 2009 study by Skumatz Economic Research Associates. The study found that between 5.1 million and 10.6 million mercury-containing thermostats remain in use in California.

Because the highest numbers of thermostats will become waste during the earlier years of the program, as the Skumatz study found, recovering most of those thermostats should be an urgent priority for DTSC. Therefore, we believe the first year recycling rate of 20% is achievable, especially considering that the law was enacted in 2008, providing years of notice to the manufacturers that they would need to ramp up recycling efforts.

Each mercury thermostat that goes into a landfill represents a violation of California law and an addition to the build-up of a potent neurotoxin in our environment. Therefore, the recycling rate of 80% for 2015 and beyond is fully justified.

Similarly, the contractor reporting requirements in the draft are necessary to prevent waste thermostats from going into landfills and to bridge the gap between waste generators and thermostat manufacturers. The reporting can be easily carried out by contractors using the tools DTSC provides.

Enforcement will be vital to implementing the Extended Producer Responsibility requirements. Retaining the back-up requirement for financial incentives is vital in the event that manufacturers fail to meet the collection goals or do not quickly propose program changes to achieve those goals. The Act specifically lists "provides incentives" as one of the means manufacturers must use to encourage return of thermostats, and it also authorizes DTSC to order manufacturers to revise their programs and undertake actions to comply with the law, so DTSC has the authority to require incentives if they become necessary.

Financial incentives have proven to be the best way to raise recycling rates especially in a short period of time. In California, we have a long history of using financial incentives to ensure products are returned for proper management including programs for beverage containers, oil, and most recently, for small containers of automotive refrigerant which became effective January 1, 2010. A recent e-mail sent to the interested parties from the Air Resources Board explained the program as follows:

> At the time of purchase, the DIY consumer pays a $10 refundable deposit to the retailer for each container. In order to get the refund, consumers are required to return the used, undamaged container(s) within 90 days with a receipt. Retailers and distributors collect the used containers for return to a recycling

> facility with the assistance of the product manufacturer. The target recycle rate is initially set at 90%, and rises to 95% beginning January 1, 2012.

So, we would argue that if we use financial incentives for bottles and cans which are a litter problem and have no health impacts, and for oil and most recently, the ARB imposed a $10 per can deposit on refrigerants with a first year goal of 90% and target recycling rate of 95% two years later, that in balance it is just as important to protect the environment from climate change as it is to protect the public from the long-term health and economic impacts from mercury releases.

With that said CPSC is also a supporter of having business determine how to meet performance goals and hopes that thermostat manufacturers will quickly admit that 3.2% is an inadequate collection rate and propose significant and immediate changes to the program to dramatically improve the collection rate in California. Defending the existing program is not taking responsibility for the performance outcome.

In Section 67388.6, we recommended the regulations should be strengthened with transparency provisions. The regulations should provide that, when the enforcement process involves a consent agreement between DTSC and the manufacturers, the public has a right to participate in that process. Local governments, health and environmental groups, and other interested parties should be able to be heard, and the agreement should not be negotiated behind closed doors by the manufacturers and DTSC.

Also, in section 67388.7, in the interest of transparency, the regulations should require the manufacturers to submit to DTSC the following:

- Administration costs of the program in California;
- As part of their annual reports, state-by-state data on thermostat collection. This will allow California to use other states' programs as benchmarks, and to learn from best practices such as those in Maryland that are achieving better collection rates; and,
- Ongoing annual expenses for program operations in California.

It is not clear to us that any real investment has been made in California as there are no staff present here or consultants working in California. We feel to effectively provide oversight in a state as large and diverse as California, dedicated staff should be provided.

To summarize, CPSC has worked diligently for years to assure this first EPR program in California was a success. We are very disappointed with the lack of focus and investment in California to make this program even marginally successful. We sincerely hope that TRC and the industry realizes that what is happening is indefensible and they reach out to work with us again to design and implement a program that meets the intent of law – "Provide for the collection and recycling of the maximum feasible number of out-of-service mercury thermostats."

Thank you for your consideration of our suggestions.

Sincerely,

Heidi Sanborn

Heidi Sanborn, Executive Director

October 1, 2012

Debbie Raphael, Director
Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

Regarding: DTSC Proposed Regulations for Mercury Thermostat Collection and Performance Requirements

Dear Director Raphael,

On behalf of the above-signed organizations, we submit these comments in support of the Department of Toxic Substances Control (DTSC) proposed regulations on mercury thermostat collection. These regulations represent a critical step to address a significant source of mercury pollution, and are already overdue.

The Mercury Thermostat Collection Act of 2008, Assembly Bill 2347, requires manufacturers to establish a collection and recycling program for out-of-service mercury-added thermostats. This program should collect and recycle the "maximum feasible" number of out-of-service mercury added thermostats.[1] To meet this objective, the statute authorizes DTSC to require revisions to manufacturers' collection programs and to undertake other actions to comply with the article.[2] The statute further requires manufacturer collection programs to provide both incentives and

[1] H&S Code § 25214.8.20
[2] Id. § 25214.8.17.

education to contractors, service technicians, and homeowners to encourage the return of out-of-service mercury added thermostats.[3]

Mercury is a danger to the development of the human fetus and young children. The federal Centers for Disease Control and Prevention estimate that between 300,000 and 630,000 infants are born in the United States each year with mercury levels that are associated, at later ages, with the loss of IQ. Evidence indicates that methyl mercury exposure may also increase the risk of cardiovascular disease in humans, especially adult men.

According to the Thermostat Recycling Corporation (TRC)'s own calculations, in California alone between 222,000 – 460,000 out-of-service mercury-added thermostats will become waste in 2012. Taking the mid-point of this range, and assuming an average of 4 grams of mercury per thermostat, these thermostats will contain roughly 1.5 tons of mercury. Any source of mercury pollution of that magnitude warrants a strong DTSC response which effectively addresses this preventable threat to human health and the environment.

The Regulations Are Critical Because Voluntary Efforts Thus Far Have Failed

DTSC's proposed regulations are all the more essential because of the inadequate mercury thermostat collection program in California and nationally currently operated by the manufacturers through TRC. As we documented in Turning Up the Heat, a report referenced by the Department in its Initial Statement of Reasons,[4] fewer than 5% of mercury thermostats becoming waste are collected by TRC nationally. In California, TRC collected 19,927 thermostats in 2011, representing between 4.1 - 8.5% of the mercury thermostats becoming waste in this state last year. Thus, even three years after the passage of California's mercury thermostat collection legislation, the TRC program fails to collect the vast majority of available mercury thermostats in this state, resulting in substantial and avoidable mercury releases.

TRC obscures this poor performance in two significant ways. First, beginning in 2009, TRC ceased to release state-by-state thermostat collection results, except in states where they are required to do so by law. Limiting the data availability in this way results in a complete lack of program accountability.

Second, TRC uses increases in collection numbers from year to year as its measure of success, even where it's clear only a small fraction of mercury thermostats are still being recycled. The most recent manifestation of this TRC strategy can be found in its 2011 annual report.[5] Rather than providing actual thermostat collection results, TRC created the Mercury Recovery Index (MRI), which is simply the percentage increase or decrease in the amount of mercury collected

[3] Id. § 25214.8.13(g).
[4] Initial Statement of Reasons, p. 4.
[5] Keeping Mercury Out of the Waste Stream – One Thermostat At A Time, 2011/2012 Progress Report (hereafter "TRC 2011 Annual Report"), TRC, available at http://www.thermostat-recycle.org/files/media/20120808125856.pdf.

in a state program each year versus a 2007 base year.[6] However, as illustrated by TRC's Texas example, when a state program starts at an exceedingly low level of performance, large percentage increases are not necessarily indicative of a substantial percentage of thermostats in that state actually being collected.

In its 2011 report, TRC describes the Texas program as a huge success story, because the MRI is up 400% since 2009, largely due to the actions of one wholesale company. However, TRC fails to note that very few mercury thermostats were collected in 2009 and before. Using previously released data from TRC, only 344 mercury thermostats were collected in 2007, the base year for TRC's MRI. In 2008, 1,820 thermostats were collected, again based on data TRC previously released. From these data, using the MRI as a guide, the Texas program results were worse for 2009 than 2008; we estimate about 960 thermostats were collected given the magnitude of the MRI decline. So the increases TRC touts are measured off a Texas program that was collecting fewer than 1,000 thermostats, in a state with a population in excess of 25 million.

Therefore, even after the increases in 2010 and 2011, we estimate the Texas program still collected less than 5,000 thermostats in 2011, as compared to the Maine program which collected over 1,500 more thermostats in the same year with a population 20 times smaller. Or to put it another way, given the size of the Texas population, the TRC program is still not collecting the vast majority of mercury thermostats becoming waste in Texas.

Through the DTSC regulations, the TRC program will need to become accountable. Program performance will finally be judged by the relevant measure of percent of available mercury thermostats captured, and program enhancements will be evaluated and imposed when those capture rates are not achieved. The DTSC rules are of paramount importance in this regard. Our comments below on the details of DTSC's proposal are meant in part to reflect modifications which will enhance DTSC's ability to provide this accountability, particularly our comments related to reporting on programs in other states and the methodology for determining the number of thermostats becoming waste.

Comments on Specific Regulations Proposed

Definitions

We support the proposed definition of "incentive" in DTSC's proposal to clarify that the intent of California law is to provide a financial incentive for contractors, service technicians, and homeowners to encourage the return of out-of-service mercury thermostats. This clarification is needed due to TRC's steadfast opposition to introducing financial incentives on its own accord, notwithstanding the continued unsatisfactory performance of its program in California and the demonstrated success in achieving high collection rates elsewhere achieved through this

[6] TRC 2011 Annual Report, p. 13.

mechanism. With this clarification, should TRC fail to meet the required collection rate performance for a given year, DTSC can move promptly to evaluate the amount and form of the appropriate financial incentive required to achieve the necessary program improvements.

This emphasis on the financial incentive as a necessary program enhancement is properly placed by DTSC, given the only two state programs now with mandated financial incentives (Maine, Vermont) consistently rank among the top three collection programs nationally on a per capita basis.[7] This is not an accident, and is in fact perfectly logical given human behavior generally.[8]

Methodology for Determining Number of Mercury Thermostats Becoming Waste

We support DTSC's decision to calculate the number of the mercury thermostats becoming waste in California based on the TRC sponsored research and results mandated by the Legislature precisely for this purpose.[9] Under Health and Safety Code section 25214.8.17(b), DTSC is required to adopt a methodology for calculating the number of out-of-service mercury thermostats becoming waste in California annually, and using this number as the denominator, develop collection rate performance requirements for the manufacturers' collection (TRC) program. In anticipation of the instant rulemaking, the Legislature required TRC to first develop and then implement a survey to provide "statistically valid data" on the number of mercury thermostats becoming waste in California. See Section 25214.8.18 of the Health and Safety Code. Accordingly, DTSC's decision to rely on the TRC 2009 Waste Flow Report was anticipated (and arguably compelled) by the Legislature.

Moreover, the TRC 2009 Waste Flow Report itself indicates the methodology and data contained therein satisfies both the Legislature's and DTSC's need for "statistically valid data" to rely upon in the instant rulemaking. The introduction of the Report reads, in pertinent part:

> *The State of California requires delivery of a "study" that provides estimates of the number of thermostats potentially available for disposal/recycling/management. This chapter describes the approach we used to provide* ***high quality, defensible estimates*** *of –*
>
> - *The inventory or "count" of thermostats in place in California households and businesses; and*

[7] See e.g., Turning Up the Heat, Exposing the Manufacturers' Lackluster Mercury Thermostat Collection Program, Clean water Action, February 2010; Initial Statement of Reasons, p. 11, fn. 8.

[8] Vermont reports a 45% increase in mercury thermostat collection after the first full two years of their cash incentive program. See Annual Report on Mercury Thermostat Collection Program, Vermont Agency of Natural Resources, January 2012, p. 5.

[9] Mercury Containing Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings, prepared for TRC by Skumatz Economic Research Associates (SERA), dated December 28, 2009 (hereafter "TRC 2009 Waste Flow Report").

- *The annual "flow" of this equipment out of the buildings, potentially subject to capture through a thermostat recycling program.*[10]

Indeed, the only aspect of the TRC 2009 Waste Flow Report where significant uncertainty is expressed concerns the percentage of thermostats coming off the wall which contain mercury. In that regard, the TRC report provides a range based upon sampling visits and other data collected. DTSC's proposed methodology relies upon the low-end estimate within the range, and thus DTSC has chosen the most conservative values for the number of mercury thermostats becoming waste in California, likely underestimating the actual number.[11] While we would favor using the mid-range value in the TRC 2009 Waste Flow Report, because of the prospect of underestimating the actual number of mercury thermostats becoming waste in California using the low-end values, DTSC's abundance of caution in how it has used the Report mandated by the Legislature further reinforces the sound basis for relying upon it.[12]

Under proposed section 66274.4(c) and (d), DTSC provides an opportunity for manufacturers to propose alternative estimates of the number of mercury thermostats becoming waste in California, and requires DTSC to consider amending these rules in the future should valid data be provided. While we are not opposed to these provisions conceptually, we believe DTSC should provide greater emphasis on reviewing the methodology manufacturers may employ before the data are collected, to ensure any data collection activities undertaken for this purpose have been subject to a prior stakeholder and technical review process. We believe such a process was mandated by the Legislature, and in any case, will result in higher quality data to be submitted.

Regarding the legal mandate, we note that in advance of the TRC 2009 Waste Flow Report, the Legislature required TRC to submit a "a survey plan and methodology" to DTSC nine months before the Report itself. See Section 25214.8.18 of the Health and Safety Code. DTSC subsequently solicited stakeholder input on the proposed TRC methodology. If DTSC is now making opportunities within this rulemaking for the manufacturers to modify their previous submission, we believe any proposed modifications should follow the review process dictated by the Legislature, particularly submission of the methodology first for review.

Significantly, the opportunity for prior technical review will yield a better result once the data are provided. As DTSC may recall, it was following the review process that TRC added the validation activities to its methodology for the 2009 Waste Flow Report, because of concerns raised by stakeholders. Similar input and the need for modifications can be expected in any future endeavor.

[10] TRC 2009 Waste Flow Report, p. 8 (emphasis added).

[11] Initial Statement of Reasons, p. 10.

[12] TRC itself acknowledged that for one year at least, its 2009 Waste Flow Report provided a sufficient basis for determining the number of mercury thermostats becoming waste. In its proposed changes to the rules submitted to DTSC in October 2011, TRC proposed 222,000 thermostats as the value for 2012, and the sole basis for this value is the low end of the range for year 3 in the TRC 2009 Waste Flow Report.

To facilitate DTSC's revisions to the proposed rules, we provide below our recommended changes to proposed 66274.4(c) to address the above comments.

> (c) A manufacturer or group of manufacturers may submit to the department additional data on the number of mercury-added thermostats estimated to remain in use in California and the number of these thermostats that will become waste in each year. At least nine months prior to making such a submittal, a manufacturer or group of manufacturers shall provide the department with a proposed plan and methodology for obtaining the additional data. Any data submittal by a manufacturer or group of manufacturers pursuant to this subsection shall include all raw data, formulas, assumptions, models and calculations used, sufficient to allow the department to replicate the manufacturer's or group of manufacturer's calculations.

Proposed Collection Rates

We have two comments on the proposed collection rates. The first comment concerns the mandated collection rates in the initial several years, and the second concerns the ultimate collection rate anticipated under the proposal.

The first few years of this program are especially critical because more mercury thermostats will be coming out of service in those years. Under the proposed rules, the proposed collection rates are 30% for 2013 and 45% for 2014. In our view, these collection goals are not as ambitious as they could be given TRC has had three years to prepare for this day. TRC's failure to capture more than 10% of available mercury thermostats in California until now should not dictate what is appropriate in the instant rulemaking.

The proposed 2013 goal of collecting 65,000 mercury thermostats in California represents 17.56 thermostats per 10,000 people in this state. In Vermont and Maine during 2011, the latest year where data are available, the comparable collection rates are 57.20 and 49.97 thermostats per 10,000 people, or about three times better than what is proposed for California. Moreover, DTSC's proposal to rely upon the lowest possible value for the number of mercury thermostats coming out of service in California provided in the TRC 2009 Waste Flow Report also reinforces the modesty of the early collection goals. On these bases, we believe the proposed 2013 and 2014 collection goals represent the minimum goals DTSC could have chosen consistent with the statutory objective of collecting "the maximum feasible number" of mercury thermostats coming out of service, and if any changes are contemplated in the final rules, they should be to increase these collection rates.

Second, the final collection rate of 75 percent beginning in 2017 and thereafter is somewhat disappointing. This has been reduced from the previous draft of this regulation in 2011 requiring an 80 percent collection rate by 2015 and thereafter. Further, other CalEPA policies call for more ambitious collection rates of consumer products that are damaging to the environment. For instance, the California Air Resources Board adopted a regulation in 2010 for refrigeration units in passenger vehicles with a 95 percent return target by 2012 for the containers of

refrigerants with high global warming potential.[13] We would strongly prefer to see a higher final collection rate of thermostats containing mercury, yet this program should begin without further delay.

Homeowner Identification Requirements

Under proposed Section 66274.7(b)(2), it would appear homeowners will be requested to provide their names, address, and telephone number to the collection location when returning a mercury thermostat for collection. We are not convinced of the need for this information, and in any case, this requirement may act as a disincentive for a non-professional to return the thermostat. During 2011, over 10% of the mercury thermostats collected in Maine came from Household Hazardous Waste (HHW) collection locations or the mail-back program, indicating homeowner participation can help make a program more successful and should thus be encouraged.[14] We suggest DTSC rethink the need for this provision, recognizing that program changes to implement a financial incentive where homeowners may wish to provide such information can be made at a later time.

Manufacturer Reporting Obligations

In our comments on the June 2011 workshop draft rules, we urged DTSC to require thermostat manufacturers (i.e., TRC) to provide data regarding the performance of their collection program in other states, as well as California. Accordingly, we enthusiastically support the inclusion of subsection 67274.8(i) in the proposed rules, although we seek technical modifications to the regulatory language as provided below to accomplish the intended purpose.

As DTSC is aware, TRC no longer provides historic state-by-state collection data on its website, and for 2009-2011 has not released the state-by-state program collection data.[15] Therefore, since these data will be useful in the future to DTSC and other stakeholders in California, DTSC should require the reporting of these data through the instant rulemaking.

As correctly noted in DTSC's Initial Statement of Reasons (pp. 17-18), DTSC will need the state-by-state collection data to achieve maximum achievable collection rates. The data will be useful to identify the best performing state programs, identify favorable or unfavorable trends in state collection programs, ascertain which programs have achieved substantial improvements and why, and evaluate the effectiveness of financial incentive models and other initiatives to improve collection results.

Indeed, DTSC staff presentations at the June 2011 workshop demonstrated both the importance of having the data for comparison purposes, and staff's inability to easily access the data

[13] California Air Resources Board, Rulemaking to Consider the Adoption of a Proposed Regulation for Small Containers of Automotive Refrigerant, February 2010, http://www.arb.ca.gov/regact/2009/hfc09/resubfro.pdf.
[14] TRC 2011 Annual Report for Maine, January 30, 2012, Table 3.
[15] As discussed above, instead of releasing actual thermostat collection data, TRC has created a Mercury Recovery Index (MRI), which simply measures annual percentage increases or decreases per state versus calendar year 2007, without providing the underlying collection data. Accordingly, TRC's MRI is just another technique for massaging the data in a way TRC believes most favorable to it, rather than providing actual collection results.

needed. DTSC staff prepared state comparison slides to illustrate a variety of points about the California program, but were unable to obtain 2010 collection data for several states.

However, the actual language of proposed subsection 67274.8(i) needs modification to accomplish its intended purpose. Specifically, the reporting obligation in the subsection only applies to "state-mandated" programs, and thus would likely produce only data on those ten states with thermostat collection legislation. This limitation is both unnecessary and unwise. It's unnecessary because TRC routinely collects collection data on all states where it operates (as the MRI reveals), thus there is no significant burden associated with requiring the information on all states. Indeed, the actual collection data must be gathered before TRC's MRI can be calculated. As a practical matter, the only new obligation DTSC would be imposing on TRC is the release of the information (something TRC had voluntarily done until 2009).

It's unwise because DTSC will undoubtedly want the information on programs beyond the 10 ten states with legislation. For example, in this rulemaking, DTSC takes note of the per capita collection data for Maryland in 2010 in its analysis of the better thermostat collection programs.[16] And as discussed above, TRC touts the Texas results for 2011 in its annual report, but actual collection data reveal a different story. Both DTSC and the California stakeholders will need to see the actual data to fully understand TRC program realities nationwide and evaluate possible paths forward.

A second change needed in proposed Section 67274.8(i) would require manufacturers to report on their program's collection results for each state during calendar years 2009, 2010, and 2011, as part of the upcoming report covering calendar year 2012. As mentioned, these are the years for which TRC program collection results are currently missing, therefore once they are provided, the full TRC program will once again be transparent for all to understand and evaluate.

Finally, we suggest information on state laws is best obtained from the statutes themselves and state officials administering those laws, and that information on education and outreach activities be provided irrespective of whether they are required by statute.

To assist DTSC, immediately below are our recommended changes to proposed subsection 66274.8(i):

> (i) A program that also implements a<u>n</u> ~~state-mandated~~ out-of-service mercury- added thermostat collection program in one or more other states shall provide the following information about each such program:
>
> (1) The name of the state;
>
> (2) The number of out-of-service mercury-added thermostats collected in the state during the same calendar year covered by the report;
>
> ~~(3) A brief description of the state's law, including any requirement for payment of an incentive to service technicians, contractors or homeowners to encourage collection;~~

[16] Initial Statement of Reasons, p. 11, fn. 8.

(3) For the report covering calendar year 2012, the number of thermostats collected during calendar years 2009, 2010, and 2011 in the state;

(4) The number of collection locations for out-of-service mercury-added thermostats in the state, if known; and

(5) A description of any education and outreach activities and performance requirements included in the state ~~law~~ program.

Enforcement Language and Transparency

Even though the regulations do not include enforcement language as stated in the enabling legislation, we acknowledge that DTSC has enforcement authority over persons and entities that are being regulated under this program. We are confident that DTSC will exercise its ability to fully enforce if collection targets are not met. Additionally, in the case that TRC fails to meet collection goals and/or amendments are needed in the provisions, we expect DTSC will involve stakeholders, such as the undersigned organizations, in any discussions relating to program changes.

We Urge DTSC to Move Forward to Finalize this Important Regulation as Swiftly as Feasible.

We are grateful for the hard work of many DTSC staff on these regulations, including the agency's efforts to engage in an extensive and thorough stakeholder input process and provide clear and adequate justification for the proposed rules. We urge a swift conclusion to the rulemaking so that greater numbers of mercury thermostats are collected and properly managed. Thank you for your consideration.

Sincerely,

David Lennett, Senior Attorney, **Natural Resources Defense Council**
Annie Pham, Policy Advocate, **Sierra Club California**
Heidi Sanborn, Executive Director, **California Product Stewardship Council**
Lynn Thorp, National Campaigns Director, **Clean Water Action**
Amber Meyer Smith, Director of Programs and Government Relations, **Clean Wisconsin**
Melville Nickerson, Staff Attorney, **Environmental Law & Policy Center**
Abigail King, Policy Advocate, **Natural Resources Council of Maine**
Laura Haight, Senior Environmental Associate, **New York Public Interest Research Group**

October 1, 2012

Debbie Raphael, Director
Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

Regarding: Support for DTSC Proposed Regulations for Mercury Thermostat Collection and Performance Requirements

Dear Director Raphael,
We, the undersigned, are writing to you on behalf of our organizations and our thousands of California members in strong support of the Department of Toxic Substances Control (DTSC) proposed regulations on mercury thermostat collection. These regulations represent a critical step to address a significant source of mercury pollution, and are already overdue.

The Mercury Thermostat Collection Act of 2008, Assembly Bill 2347, requires manufacturers to establish a collection and recycling program for out-of-service mercury-added thermostats. The intent of the statute is to make throwing away thermostats containing mercury against the law by 2012.To meet this intent, the statute authorizes DTSC to require revisions to manufacturers' collection programs and to undertake other actions such as providing incentives and education to contractors, service technicians, and homeowners to encourage the return of out-of-service mercury added thermostats.[1]

[1] Id. § 25214.8.13(g).

Mercury harms the development of the human fetus and young children. The federal Centers for Disease Control and Prevention estimate that between 300,000 and 630,000 infants are born in the United States each year with mercury levels that are associated, at later ages, with the loss of IQ. Evidence indicates that methyl mercury exposure may also increase the risk of cardiovascular disease in humans, especially adult men.

According to the Thermostat Recycling Corporation (TRC)'s calculations, 222,000 – 460,000 out-of-service mercury-added thermostats will become waste in 2012 in California. Taking the mid-point of this range, and assuming an average of 4 grams of mercury per thermostat, these thermostats will contain roughly 1.5 tons of mercury. This preventable threat to human health and the environment warrants a strong DTSC response.

The Regulation is Critical Because Voluntary Efforts Thus Far Have Failed.

DTSC's proposed regulations are essential because of the inadequate mercury thermostat collection program in California and nationally currently operated by the manufacturers through TRC. In California, TRC collected almost 20,000 thermostats in 2011, representing less than ten percent of the mercury thermostats becoming waste in this state last year. Thus, even three years after the passage of California's mercury thermostat collection legislation, the TRC program fails to collect the vast majority of available mercury thermostats in this state, resulting in substantial and avoidable mercury releases.

We Strongly Support the Following Important Provisions and Recommend Several Minor Improvements to Enhance the Regulation.

We support the proposed definition of "incentive" in DTSC's proposal to clarify that the intent of California law is to provide a financial incentive for contractors, service technicians, and homeowners to encourage the return of out-of-service mercury thermostats. This clarification is needed due to TRC's steadfast opposition to introducing financial incentives despite the poor performance of their voluntary programs. As evidence of the power of incentives, the two state programs that mandate financial incentives (Maine, Vermont) consistently rank among the top three collection programs nationally on a per capita basis.[2]

We also support DTSC's decision to calculate the number of the mercury thermostats becoming waste in California based on the TRC sponsored research and results mandated by the Legislature precisely for this purpose.[3] We believe this TRC data is of high quality and soundly defensible and thus urge DTSC to proceed with caution on any effort to revise or update those calculations.

[2] See e.g., Turning Up the Heat, Exposing the Manufacturers' Lackluster Mercury Thermostat Collection Program, Clean water Action, February 2010; Initial Statement of Reasons, p. 11, fn. 8.

[3] Mercury Containing Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings, prepared for TRC by Skumatz Economic Research Associates (SERA), dated December 28, 2009 (hereafter "TRC 2009 Waste Flow Report").

While we are very pleased that this regulation will increase the collection of used mercury thermostats beginning next year, we are disappointed that the final collection rate has been lowered from 80 percent in a previous draft proposal to 75 percent in this final proposal. This is notably lower than the 95 percent collection target of a climate policy adopted by the California Air Resources Board in 2010 for automotive refrigerant canisters.[4] However, while we would strongly prefer to see a higher collection rate of thermostats containing mercury, the greatest priority is for this program to begin without further delay.

We strongly support the requirement that thermostat manufacturers (i.e., TRC) provide performance reports including detailed data from collection programs in other states, as well as California, since TRC no longer publicly reports this information. This would allow DTSC to benchmark performance in California against other states. We urge DTSC to revise the proposed regulation to ensure the data is provided for all other states, not just states with thermostat collection laws. Furthermore, we recommend that information on education and outreach activities be provided irrespective of whether they are required by statute.

Lastly, in the case that TRC fails to meet collection goals and/or amendments are needed in the provisions, we anticipate that DTSC will involve stakeholders, such as the undersigned organizations, in any enforcement discussions relating to program changes to ensure transparency.

We Urge DTSC to Move Forward to Finalize this Important Regulation as Swiftly as Feasible.

We are grateful for the hard work of many DTSC staff on this regulation, including the agency's efforts to engage in an extensive and thorough stakeholder input process. We urge a swift conclusion to the rulemaking so that greater numbers of mercury thermostats are collected and properly disposed of. Thank you for your consideration.

Sincerely,

Michael Green,
Executive Director, Center for Environmental Health

Dan Jacobson
Legislative Director, Environment California

Bruce Reznik
Executive Director, Planning & Conservation League/PCL Foundation

[4] California Air Resources Board, Rulemaking to Consider the Adoption of a Proposed Regulation for Small Containers of Automotive Refrigerant, February 2010, http://www.arb.ca.gov/regact/2009/hfc09/resubfro.pdf

Steven Aceti, JD
Executive Director, California Coastal Coalition

Ana Mascareñas
Policy & Communications Director, Physicians for Social Responsibility - Los Angeles

Sheila Davis
Executive Director, Silicon Valley Toxics Coalition

Bill Allayaud
California Director of Government Affairs, Environmental Working Group

HARDI the voice of 5,000 distributor locations and 30,000 professionals nationwide
Heating, Air-conditioning & Refrigeration Distributors International

October 2, 2012

Via E-Mail Thermostats@dtsc.ca.gov
CC: regs@dtsc.ca.gov

Krysia Von Burg
Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
PO Box 806
Sacramento, CA 95812-0806

Re: Comments on 45-Day Language for Mercury Thermostat Collection Act of 2008 (DTSC # R-2010-03, OAL Reference NumberZ-2012-080705)

Dear Ms. Von Burg:

Heating, Air-Conditioning & Refrigeration Distributors International (HARDI) appreciates the opportunity to review and provide comments on the 45-Day Language for regulations governing the treatment of collected mercury thermostats. HARDI[1] continues to be an active stakeholder in state mercury collection programs, starting after the adoption of the legislation which provides the statutory basis for this regulation. While there are improvements from previous iterations of this regulation, the proposed reporting requirements make this regulation unworkable in terms of its stated purposes considering the resource limitations of the industry.

Since October of 2010, HARDI has been an active partner with the Thermostat Recycling Corporation (TRC), a non-profit corporation voluntarily founded by thermostat manufacturers for the purpose of collecting and properly disposing mercury thermostats. As such, HARDI supports comments submitted by the TRC. HARDI also supports comments made by sister trade associations in the heating, ventilation and air conditioning (HVAC) community which highlight additional relevant points of concern.

HARDI is committed to engaging all of our wholesaler and distributor members regarding their collection obligations in California and will continue to encourage their participation in the TRC program. HARDI and our members support the broad goals of the TRC and look forward to continuing work with DTSC and other stakeholders in the state to help spur increased collection of mercury thermostats. HARDI members

1. HARDI is an international trade association of nearly 1,000 member companies, over 450 of which are US–based wholesale distributors of HVACR equipment, supplies, and controls. HARDI represents over $25 billion in annual sales and an estimated 90% of the U.S. wholesale HVACR market. Over 80% of our distributor members are small businesses with fewer than 100 employees. TRC and HARDI have agreed to work collaboratively to promote mercury thermostat recycling with on-going awareness communication and co-branded promotional materials.

routinely apply TRC mercury thermostat recycling principles in their operations and have been honored with awards for their efforts.

To be workable, the regulation must be simple and flexible to allow for contractors and collection sites to operate without a multiplicity of reporting requirements. We have general concerns that the approach envisioned by the regulation will not achieve the underlying collection targets and will be overly burdensome to the regulated community. As such, the regulation could have the effect of impeding collection and inhibit the HVAC community's efforts to maximize the number of total collected mercury thermostats.

Section 67388.7 Reporting Requirements

> HARDI requests the elimination of language requiring addresses, names, contractor license numbers, phone numbers and other identifying information. HARDI believes contractor, wholesaler and distributor preference for efficacy and ease of use is critical to program participation. We object to the request for information that would establish a list of our wholesaler and distributor members and their activity in California. In many cases, wholesalers and distributors have defined territories within the state working with multiple contractor businesses. The disclosure of these relationships would jeopardize confidential business strategies and encourage noncompliance.
>
> If the collection rates are currently deemed to be unsuccessful, the resulting lack of success – all the reasons for it – should be analyzed and future reporting requirements based on that analysis. Lack of participation may be a cause for poor performance, but it may be one of many causes, and should not be assumed to be the only cause to potentially require additional reporting. We would support a voluntary assessment process on the current collection impacts in order to inform the appropriate regulatory response.

HARDI and a majority of our member companies have dedicated immeasurable time and energy to the informal and formal regulatory processes and remain very interested in the development of the proposed regulation. We are committed to a market-based program that will promote realistic collection rates. Wholesalers and distributors that are participating in the program have assumed the financial responsibility for liability insurance; required waste handling; administration of the program; and staff time for training, collection, handling, transport, emergency plans, release reporting, manifests, audits, and so forth. If the goal of the regulation is to increase collection rates, onerous reporting requirements will result in fewer agreeing to devote resources to participate in the future.

Respectfully submitted,

Jonathan Melchi
Director of Government Affairs
Heating, Air-Conditioning and Refrigeration Distributors International (HARDI)

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October 1, 2012

VIA FEDERAL EXPRESS AND E-MAIL

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E-mail: regs@dtsc.ca.gov
Fax Number: (916) 324-1808

Re: Mercury Thermostat Collection and Performance Requirements

Dear Ms. Von Burg,

On behalf of Honeywell International Inc. ("Honeywell"), we respectfully submit the following comments on the proposed Mercury Thermostat Collection and Performance Requirements ("Regulations"). Based on our review of the Regulations and the information available in the rulemaking file,[1] there are several aspects of the Regulations that require further analysis and/or modification.

[1] It is difficult for us to meaningfully evaluate and comment upon the proposed Regulations because the rulemaking file contains very little supporting information. *See* Exhibit 1 (Sept. 5, 2012 Email from DTSC to Christopher Roberts; attachments to the DTSC email consist of (1) the Public Notice, (2) the Proposed Text, (3) the Initial Statement of Reasons, (4) a copy of the MTCA, (5) a CEQA Notice of Exemption, (6) a Form 399 Economic Impact Statement and (7) an Economic and Fiscal Impact Analysis). Moreover, in response to our attempt to obtain additional information through a Public Records Act request, we were informed that documents could not be produced until to October 5 (three days after the comment period closes). *See* Sept. 14, 2012 Letter from Robert Sullivan

Footnote continued on next page

I. The Methodology For Calculating The Number Of Out-Of-Service Mercury-Added Thermostats Becoming Waste Annually Is Flawed.

Section 66274.4 of the proposed Regulations establishes a methodology for determining the number of out-of-service mercury-added thermostats that become waste annually. DTSC has chosen to rely entirely on the SERA Report for establishing this critical waste thermostat baseline. But the SERA Report is deeply flawed. Indeed, the study itself identified numerous problems that resulted in "count" and "flow" estimates that do not provide a useful basis for extrapolation.

For example, to determine the number of mercury-added thermostats in California, the study relied on respondents to count and identify the type of thermostats in their homes and businesses. Digital thermostats do not contain mercury. Other types of thermostats (e.g., square, round, snap, lever, etc.) may or may not contain mercury. Removing the cover of a non-digital thermostat is the *only* way to definitively determine if the device contains mercury, but DTSC did not permit SERA to ask respondents to do so. Rather, respondents were simply told to identify the type of thermostat(s) (e.g., programmable, square, round, snap, lever, etc.) in their home or business. SERA Report at 12. The onsite survey discussed below later determined that several respondents failed to accurately count the number of thermostats in their home/business or accurately identify the type.

SERA then conducted a "very small (30 observations)" on-site validation survey to determine the percentage of these non-digital thermostat types that contain mercury (*id.* at Note to Table 1.1) and then used that data to extrapolate a "lower estimate" of the share of thermostats in California that are mercury-containing. *Id.* at Table 1.1. But 30 site-visits (which equates to 3.5% of respondents) is too small of a sample to yield meaningful results.[2] Indeed,

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Footnote continued from previous page
to Sara Eisenberg (attached hereto as Exhibit 2). And, notably, although the Initial Statement of Reasons provides web addresses for some of the "Reports Relied On" by the Department of Toxic Substances Control ("DTSC") the documents are not, in fact, available at those websites. *See* Exhibits 3-5.

[2] The inability of such a small sample to yield meaningful and valid results is evident from the fact that the SERA Report concluded, based on the small survey, that 100% of snap thermostats contain mercury. *See* SERA Report at Table 1.4 (lower estimate of 100% for snap thermostats based on validation survey). This is demonstrably false. *See* Ex. 6 (*mercury free* snap thermostat that is virtually

Footnote continued on next page

because the field validation survey was so small, the SERA Report itself acknowledges that the estimate is imperfect and that the actual share of mercury models may be lower than the "lower estimate." *Id.* at Note to Table 1.1.

Moreover, there is no indication of how the 30 respondents who received site visits were selected or whether those respondents were typical of respondents in general. Indeed, there is reason to believe they were not. Despite the fact that this was a *statewide* survey, all of the site visits occurred in a few, relatively homogeneous counties in the Bay Area. It is not possible to validate the findings of a statewide analysis through such a limited follow-up in a small geographic area of the state. And if the respondents who received visits were not typical—*i.e.*, if they were less likely to have purchased mercury free non-programmable thermostats (due to economic, geographic, demographic or other reasons)—the results may have been further skewed by the selection process.

Finally, a recent study determined that 19% of households in California have no thermostat at all. *See* Therese Peffer, *et al.*, *How People Use Thermostats in Homes: A Review*, 46 Building and Environment 2529, 2533 (2011) (hereafter "*How People Use Thermostats*") (attached hereto as Exhibit 7). This fact was not taken into account in the SERA Report, which assumes that there are 1.2 thermostats in *every* California household. As a result, the total number of thermostats in California (and the number of mercury-added thermostats derived therefrom) is likely to be significantly lower than estimated in the SERA Report.

SERA's methodology to predict the annual "flow" of thermostats out of buildings is also flawed. To make this prediction, the study relied on respondents' memories of when the thermostats were last replaced. As the Report acknowledges, this data, which is based on the recall of current occupants is "necessarily imperfect" (SERA Report at 18 n.26)—especially since "younger households may not know when the home was remodeled for a thermostat replacement." *Id.* at 17.

As a result of these flaws, the waste thermostat baseline determined by the SERA Report and utilized in the proposed Regulations is not sound.

Footnote continued from previous page
identical in appearance to the picture of the snap thermostat provided in SERA's questionnaire).

II. The Annual Collection Rate Performance Requirements Are Unreasonable.

Section 66274.5 of the proposed Regulations sets out annual collection rate performance requirements of 30% (65,100 thermostats) in 2013, 45% (95,400 thermostats) in 2014, 55% (113,850 thermostats) in 2015, 65% (131,300 thermostats) in 2016, 75% (147,750 thermostats) in 2017, and 75% in 2018 and subsequent years. Given the unsound and inflated waste thermostat baseline established in Section 66274.4, these rates translate into an unreasonably high number of thermostats which must be collected each year.

In the last several years the Thermostat Recycling Corporation ("TRC")—which was voluntarily founded by Honeywell, White-Rodgers and General Electric in 1998—has implemented a multi-faceted effort to increase mercury-added thermostat collection and recycling.[3] TRC has recruited wholesalers at tradeshows and industry meetings, reached out directly to distributors, earned media coverage through trade press and purchased advertising. TRC has employed—and continues to employ—numerous strategies to elicit wholesaler participation in the thermostat recycling program in California, including:

- Direct mail to managers of facilities in California and corporate headquarters;

- Earned media on the legal obligation to collect waste thermostats in California and other states;

[3] Even before co-founding the TRC in 1998, Honeywell had engaged in substantial efforts to recycle mercury-added thermostats. As early as 1985, Honeywell began its own pilot programs in Minnesota to recycle end-of-life mercury-containing thermostats through distributors, contractors, and homeowners. These programs were developed in conjunction with, and under the guidance and authority of, the Minnesota Pollution Control Agency ("MPCA"), where Honeywell was based at the time. Honeywell proposed thermostat take-back programs to the EPA in May and October 1992, and to the MPCA in January and August of 1992 and February 1993. On October 17, 1994, Honeywell and MPCA jointly announced the availability of a homeowner mail-in program for end-of-life mercury thermostats from Minnesota residents, and in late 1994-early 1995, Honeywell requested authorization from the MPCA to operate a national program. Shortly thereafter, Honeywell, White-Rodgers and General Electric began discussions with the National Electrical Manufacturers Association about managing a national program on the industry's behalf, and by 1998 TRC was formed as an independent not-for-profit corporation.

- Direct appeals to local and senior management of wholesale distributors with facilities in California;

- Engagement with regional and national trade associations to assist them in advising members on legal obligations in California and other states;

- Attending regional and national HVAC trade shows to provide information to raise awareness of the recycling obligation and TRC's program.

In October 2010, TRC entered into a formal agreement with the Heating Airconditioning Refrigeration Distributors International ("HARDI") trade association to promote the thermostat recycling program to HARDI members, which comprise approximately 80% of the domestic wholesale market for HVAC equipment. Pursuant to this agreement, TRC notified all 450 HARDI members of their collection obligations and encouraged them to participate in the TRC program. Similarly, TRC joined the Institute of Heating and Air Conditioning Industries, which is the largest HVAC trade association in California, and used its membership status as a means to contact contractors and distributors actively engaged in HVAC work in California. TRC has corresponded with at least five additional trade organizations, informing them of wholesalers' collection obligations and encouraging them to participate in the thermostat recycling program. *See generally* 2010 California TRC Annual Report (attached hereto as Exhibit 8).

In 2011, TRC continued its efforts by, *inter alia*, developing written materials and signage for collection points and key stakeholders, increasing the level of participation among California wholesalers and retailers, purchasing substantial advertising and developing new public service announcements. *See generally* 2011 California TRC Annual Report (attached hereto as Exhibit 9). As a result of these varied efforts, the collection and recycling of mercury thermostats has increased significantly in California: from 7,542 in 2009 to 18,697 in 2011.

The proposed annual collection rates require manufacturers to increase their collections **248%** by 2013 and to sustain infeasible growth rates over the next several years (47% growth in 2014, 19% growth in 2015, 15% growth in 2016 and 13% growth in 2017).

Table 1: Growth Rate Requirements Under Section 66274.5

Year	Performance Requirements (TP)	TP expressed as number of thermostats	Required Growth Rate
2011	n/a	(actual rate) 18,697	n/a
2013	30%	65,100	248%
2014	45%	95,400	47%
2015	55%	113,850	19%
2016	65%	131,300	15%
2017	75%	147,750	13%

Although an early growth rate of 13 or 15 percent may not be unreasonable (and has, in fact, been surpassed in recent years in California), such rates are not sustainable as the number of thermostats in the state and the number of thermostats coming out of homes and businesses declines. Indeed, such rates have *not* been maintained year-over-year in other states with collection obligations. Even Maine, which is lauded as the national model, has not achieved or sustained anything near the unreasonable growth rate demanded by the proposed Regulations. Collections in Maine grew by 19% in the *first* full year of that state's program (2008), and growth declined to 15% in 2009, 2% in 2010 and 1% in 2011.[4] *See* Table 2; *see also* Department of Toxic Substances Control, Initial Statement of Reasons: Mercury Thermostat Collection and Performance Requirement (hereafter "ISOR") at 11 n.8.

Table 2: Maine Collection Trends 2008-2011

MAINE	2008	Growth	2009	Growth	2010	Growth	2011	Growth
Thermostats	5,555	**19%**	6,374	**15%**	6,523	**2%**	**6,616**	**1%**

The sole articulated basis for the overly aggressive collection rates proposed in the Regulations is that they are "based on historical collections by the [TRC] in a number of other states." ISOR at 11. DTSC contends that "[i]n 2010, TRC programs in several small states were able to collect >500 mercury thermostats per 100,000 population," and that the proposed collection rates are justifiable because they are "more modest." Notably, however, the ISOR refers to only three states—Maryland, Maine and Vermont—but DTSC's own materials

[4] This despite the fact that Maine requires manufacturers to offer a financial incentive.

demonstrate that the per capita recovery rates in these states are outliers, with recovery rates that dwarf other states including Illinois, Iowa, Montana and Rhode Island. *See* Andre Algazi, California Department of Toxic Substances Control, *California's Mercury Thermostat Collection Act: an EPR Approach* at 12 (attached hereto as Exhibit 10) (indicating, *inter alia*, that Vermont recovers approximately .00004 pounds of mercury per capita, while Iowa and Rhode Island recover less than a quarter of that amount (less than .00001 pound per capita), and Illinois and Montana recover even less—under .000005 pounds per capita).

There are several reasons why recycling programs in California cannot be expected to achieve such unusually high per capita recovery rates.

As an initial matter, the ease with which manufacturers can achieve a higher per capita recovery rate is directly related to the per capita number of mercury-added thermostats in a state. Put simply, it is, of course, more feasible to collect 500 mercury-added thermostats when there are 80,000 such thermostats for every 100,000 people than when there are only 50,000 such thermostats for every 100,000 people. And there are unique circumstances in California that drive the per capita number of thermostats down in comparison with other states:

- Title 24 of the California Code of Regulations (also known as the California Building Standards Code) began to require "setback thermostats" in 1978, thereby significantly limiting the number of mercury-added thermostats in commerce in California. And since the mid-1990s, Title 24 has effectively banned the installation of mercury-added thermostats in any new or retrofit construction in California. This has resulted in a higher percentage of programmable (non-mercury) thermostats in California than elsewhere in the country. *See How People Use Thermostats* at 2533 (noting that "the increased number of programmable thermostats in California versus nationwide is likely attributed to the last 30 years of energy code requiring a setback or programmable thermostat").

- As noted above, a recent study determined that 19% of households in California—a higher percentage than the national average—do not have any thermostats at all. *See Id.* ("The percentage of houses in California without thermostats differs from the national percentage due to milder weather"). In other words, the number of thermostats per capita is lower in California than it is in other states—particularly states with colder weather, like Vermont and Maine.

Moreover, no other California recycling program includes such aggressive target performance collection percentages—and a European recycling program that set similarly aggressive rates for recycling of portable batteries has proven unworkable. In 2006, the European Union ("EU") directed its members to implement mandatory recycling obligations on manufacturers of portable batteries. Target collection rates were set at 25% by 2012 and 45% by 2016, taken against a baseline of the previous three-year sales of portable batteries. Significantly, several EU members project that they will *not* be able to increase battery collections to meet the 25% collection goal by 2012, and the 45% goal for 2016 is even more unrealistic. *See, e.g., EU set to miss targets for battery collection, recycling* (Oct. 14, 2011), available at http://www.euractiv. com/specialreport-recycling-society/eu-set-targets-battery-collectio-news-508303. This despite the fact that portable batteries enjoy a key collection advantage over mercury-added thermostats: end-of-life batteries retain economic value from their constituent rare metals, while the mercury in thermostats has a negative value. Moreover, while the number of mercury-added thermostats in California is constantly declining, there is a continuous flow of portable batteries into the stream of commerce. Given that the EU deems it unlikely to achieve its collection goals for a more valuable end-of-life product, DTSC's aggressive proposed collection rates for mercury-added thermostats are unrealistic and unreasonable.

Indeed, a survey of recycling programs in the United States and Europe and found no programs (outside of lead-acid batteries[5]) that achieve similar levels of performance. And even DTSC has acknowledged that the collection rates are not feasible and that manufacturers will likely be forced into an enforcement context within a year after the regulations take effect. *See* Exhibit 11.[6]

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[5] The high collection rate for lead-acid batteries derives in large part from certain advantages lead-acid batteries enjoy that items such as mercury-added thermostats do not. For example, lead-acid batteries are replaced by or for consumers who are incentivized to exchange them at the time of replacement. Distributors and recyclers are similarly incentivized to collect lead-acid batteries because the lead contained therein retains economic value at end-of-life, whereas the mercury in thermostats has a negative value. Also, the physical nature of lead-acid batteries—their sheer size and bulk—makes them significantly harder to illegally dispose than mercury-added thermostats. Because of these important differences, DTSC cannot look to the lead-acid battery collection context as evidence to support its unrealistic mercury-added thermostat collection rates.

[6] Accordingly, before the proposed Regulations were made available for formal public review and comment, TRC (on behalf of Honeywell and other TRC

Footnote continued on next page

On behalf of Honeywell, we appreciate your consideration of these comments and encourage DTSC to consider revising the proposed Regulations to ensure that the requirements contained therein are reasonable and achievable. We also ask that you please include these comments, and any other written comments that you receive, in the rulemaking file pursuant to Government Code Section 11347.3(b)(6).

Sincerely,

Sara J. Eisenberg

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members) provided DTSC officials with draft alternative regulations. *See* Exhibit 12. Honeywell continues to believe that the "Annual Collection Rate" provisions set forth therein will be at least as effective as the proposed Regulations at "provid[ing]for the collection and recycling of the maximum feasible number of out-of-service mercury-added thermostats" (Health & Safety Code §25214.8.20) and will be less burdensome on affected parties.

Exhibit 1

Eisenberg, Sara J.

From: Roberts, Christopher
Sent: Wednesday, September 05, 2012 3:01 PM
To: Eisenberg, Sara J.
Subject: FW: Review of Rulemaking File, Ref. No. R-2010-03
Attachments: 399 Attachment.pdf; 399.pdf; CEQA NOE.pdf; ISOR.pdf; Mercury Statute.pdf; Proposed Text.pdf; Public Notice.pdf

---

From: DTSC REGS@DTSC [mailto:REGS@dtsc.ca.gov]
Sent: Wednesday, September 05, 2012 2:50 PM
To: Roberts, Christopher
Subject: RE: Review of Rulemaking File, Ref. No. R-2010-03

Hi Chris,

Attached are the documents which make up the Mercury Thermostat Collection and Performance Requirement rulemaking file.

Please let me know if you have any questions.

Krysia Von Burg
Office of Policy
Department of Toxic Substances Control
Tel: (916) 324-2810
krysia.vonburg@dtsc.ca.gov

From: Roberts, Christopher [mailto:Christopher.Roberts@aporter.com]
Sent: Tuesday, September 04, 2012 4:02 PM
To: DTSC REGS@DTSC
Cc: Eisenberg, Sara J.
Subject: FW: Review of Rulemaking File, Ref. No. R-2010-03

Hello,

I just wanted to follow up on my request to obtain copies of the rulemaking file listed below (Department Reference Number R-2010-03). Please let me know at your earliest convenience the best procedure for procuring that file.

Thanks,
Chris

Chris Roberts
Legal Assistant

Arnold & Porter LLP
Three Embarcadero Center, Seventh Floor
San Francisco, CA 94111-4024

Telephone: +1 415.471.3208
Fax: +1 415.471.3400
christopher.roberts@aporter.com
www.arnoldporter.com

From: Roberts, Christopher
Sent: Thursday, August 30, 2012 2:55 PM
To: 'regs@dtsc.ca.gov'
Cc: Eisenberg, Sara J.
Subject: Review of Rulemaking File, Ref. No. R-2010-03

Hello,

I would like to obtain a copy of the entire rulemaking file for the Mercury Thermostat Collection and Performance Requirement matter with Department Reference Number R-2010-03. What is the best procedure for acquiring a copy of the entire file? I can schedule to come to the Department just about any time to make copies.

Thanks so much,
Chris

Chris Roberts
Legal Assistant

Arnold & Porter LLP
Three Embarcadero Center, Seventh Floor
San Francisco, CA 94111-4024

Telephone: +1 415.471.3208
Fax: +1 415.471.3400
christopher.roberts@aporter.com
www.arnoldporter.com

Exhibit 2

Department of Toxic Substances Control

Matthew Rodriquez
Secretary for
Environmental Protection

Deborah O. Raphael, Director
1001 "I" Street
P.O. Box 806
Sacramento, California 95812-0806

Edmund G. Brown Jr.
Governor

September 14, 2012

Sent via e-mail

Sara Eisenberg, Esq.
Arnold & Porter LLP
7th Floor
Three Embarcadero Center
San Francisco, CA 94111- 4024

Re: Thermostat Regulations PRA request dated 8/30/12; received by fax 9/5/12

Dear Ms. Eisenberg,

On September 5, 2012, the Department of Toxic Substances Control (DTSC) received by fax your letter dated August 30, 2012 requesting records under the Public Records Act (PRA). DTSC is in the process of gathering and reviewing the requested records.

The records need to be searched for and collected and may be located in different field offices of DTSC.

The request seeks records that are separate, distinct, and voluminous and need to be searched for, collected, and examined before they can be released.

The request seeks records that may require coordination and consultation with another agency, or two or more components of DTSC, that have a substantial interest in the records.

Once the records are collected, our legal department must review them before they can be disclosed and provided to you. I am hoping that by October 5, 2012 we will be able to notify you as to which records will be available for your review and which, if any, may be exempt from disclosure and why.

Preliminarily, it appears that some of the records you seek may likely be exempt from disclosure and will not be provided by DTSC for your review. Records which are likely exempt are

draft documents,
enforcement documents related to ongoing investigation and enforcement actions,
records of complaints or investigations,
attorney-client communications,
attorney work-product documents,

Documents containing such information are likely exempt under the following PRA exemptions:

Draft documents, Government Code section 6254(a);

Records protected by the Official Information Privilege through Government Code section 6254(k) and Evidence Code section 1040;

Records of complaints or investigations protected by Government Code section 6254(f);

Records protected by the Deliberative Process Privilege through Government Code section 6254(k) and *Times Mirror Company v. Superior Court* (1991) 53 Cal. 3d 1325, and/or the balancing of interests test of Government Code section 6255;

Records protected by the Mental Process Privilege through Government Code section 6254(k);

Records protected by the Attorney-Client Privilege through Government Code section 6254(k) and Evidence Code section 954;

Records protected by the Attorney Work Product Privilege through Government Code section 6254(k) and Code of Civil Procedure section 2018.030;

As DTSC locates the requested records, DTSC will make every effort to keep you informed about records that are not exempt from disclosure.

Should you have any questions or require additional information, please call or email.

Sincerely,

Sent via e-mail

Robert A. Sullivan
Senior Staff Counsel
DTSC
Office of Legal Affairs MS23A
1001 I Street
Sacramento, CA 95812
916-323-8127

cc via e-mail
Susie Flowers-Williams
Headquarters' PRA Coordinator
External Affairs
Department of Toxic Substances Control
8800 Cal Center Drive
Sacramento, CA 95826-3200

California Department of
Toxic Substances Control

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California Department of
Toxic Substances Control

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Exhibit 5

California Department of
Toxic Substances Control

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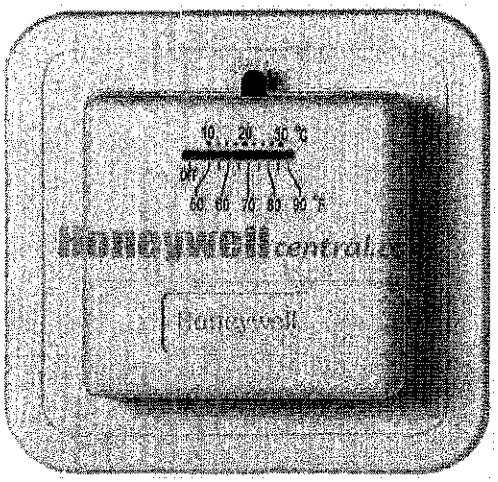
Exhibit 6



Heat Only Thermostat CT30A by Honeywell

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CT30A Heat Only Thermostat - Low voltage controls with a snap-action switch for heating systems only. Precise temperature control, snap action switching, mercury free.
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* Bimetal temperature sensor
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* Mercury free
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* Simple, worry-free operation
* Available in:
* Heat Only (CT30A)
* Heat/Cool (CT31A)
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Comfort and easy operation

More Information

Heat only thermostat that is easy to use and mercury free

Product Dimensions

Plate: 4.75 in. x 4.75 in.; Unit: 3.25 in. x 3.25 in.

Electrical Specs

Power Requirements - 24 volt

Documentation

Sales Sheet

Manual

Owner's Manual

Warranty

1 year limited warranty

There are no reviews for this product, yet.

Write a Review

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Toll Free 866-991-4422 8:30am-5:30pm CST, M-F

Exhibit 7

Building and Environment 46 (2011) 2529–2541

Contents lists available at ScienceDirect

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How people use thermostats in homes: A review

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ABSTRACT

Residential thermostats control a substantial portion of both fuel and electrical energy—9% of the total energy consumption in the U.S. Consumers install programmable thermostats to save energy, yet numerous recent studies found that homes with programmable thermostats can use more energy than those controlled manually depending on how—or if—they are used. At the same time, thermostats are undergoing a dramatic increase in capability and features, including control of ventilation, responding to electricity price signals, and interacting with a home area network. These issues warrant a review of the current state of thermostats, evaluating their effectiveness in providing thermal comfort and energy savings, and identifying areas for further improvement or research.

This review covers the evolution in technologies of residential thermostats; we found few standards and many features. We discuss studies of how people currently use thermostats, finding that nearly half do not use the programming features. The review covers the complications associated with using a thermostat. Finally, we suggest research needed to design—and especially test with users—thermostats that can provide more comfortable and economical indoor environments.

1. Introduction

Heating and cooling homes consumes a substantial portion of energy. Most households in the U.S.[1] use thermostats to control the heating and/or cooling system in their home; in 2005, approximately 97% of households in the U.S. had a heating system and over 75% had air conditioning (Table 2.6 in [1]). In 2008, about a quarter (28% or 6.04 quadrillion BTUs) of the total residential source energy consumed was for heating and 14% (3.07 quadrillion BTUs) for cooling [2]. Most (65%) of the energy supplied by fuels (primarily natural gas, also fuel oil and propane) was for heating [3], but the use of electricity for heating nearly doubled from 1985 to 2005. While approximately 20% of total residential electrical energy was used for cooling, air conditioning constitutes the largest single contributor to peak electricity demand (which can lead to brownouts and wildly variable wholesale prices) [4]. Moreover, electricity use for air conditioning is rapidly increasing, due to population growth in hot climates and greater demand for comfort. In 2009, nearly 90% of newly constructed single family homes included air conditioning [5]. In 2008, energy for heating and cooling homes comprised approximately 42% of the total source residential energy and about 9% of the total source energy in the U.S. [2,6].

The basic function of the typical residential thermostat—to set a target temperature, see the current temperature, and control the equipment accordingly—has remained constant over the past sixty years. A second—and expanding—role is to save energy. Many new features and functions have emerged in the past twenty years to facilitate the energy-saving role. While the thermostats' capabilities to control temperature are well understood, less is known about the effectiveness of the technologies devised to enable savings. The uncertainty in these savings is increasingly important because manufacturers are adding many new features and functions that affect the ability and ease of saving energy. The most advanced thermostats control multiple zones and humidity levels. Still other features include one-touch energy-savings, access to weather, display of energy consumption, alerts for maintenance (e.g., battery, filter), and diagnostics [7]. Remote control is becoming a popular feature as smart phones and Internet access become ubiquitous. Some changes are dictated by regulations or utilities. Since 1978, California building codes have required thermostats with night setback capabilities and many other regions followed. The Environmental Protection Agency (EPA) established

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[1] The thermostats described in this paper mostly control forced-air systems found in North American homes. However, many of the same issues apply to other heating and cooling systems found in Europe, Australia, and East Asia.

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technical specifications for programmable thermostats for its EnergyStar program in 1995. A relatively recent development is residential demand response: utilities with high costs of supplying peak power want to communicate directly with thermostats because adjusting temperatures in cooperating customers' homes is cheaper than building new generation capacity.

This review describes the history and current state of the art of thermostats in Sections 2 and 3. Section 4 draws from the literature to understand what types of thermostats are installed and how they are used across the U.S. Section 5 discusses the energy savings from thermostats. Section 6 categorizes the types of problems in adopting programmable thermostats. Section 7 pairs what we know with what we don't know in suggesting areas for future research and policy implications. Section 8 of the review is the conclusion.

2. History

Since the first fire was lit in a cave, heating and cooling for thermal comfort in dwellings has required human intervention [8]. The Romans were among the first to move from the concept of a simple open fire to a central heating system, where hot air from a wood fire flowed through under-floor chambers or hypocaust [9]. In fact, the word thermostat is derived from the Greek words *thermos* ("hot") and *statos* ("a standing"). Cornelius van Drebbel (born 1572 in Alkmaar, Holland) is commonly credited with inventing the thermostat–automated temperature control in the form of a mechanical device; Van Drebbel was able to regulate the temperature of ovens and chicken incubators [8,10].

Modern thermostat history in the U.S. revolves around two companies who are still in the business of building thermal controls today: Johnson Controls and Honeywell. In 1883, Warren S. Johnson received a patent for the first electric room thermostat; upon his death in 1911, his company Johnson Controls focused on temperature controls for nonresidential buildings only [11]. In 1885, Albert Butz developed a furnace regulator that used a "damper flapper" to control air entry (and thus heat output) to a furnace. His company, the Electric Heat Regulator Co., eventually became Honeywell Inc [12]. In 1906, Honeywell produced the first automatic programmable setback thermostat, using a clock to turn the temperature down at night and up in the morning. The first thermostat with an anticipator—a means of reducing temperature overshoot—was produced in 1924. The first modern thermostat controlling a central heating system (typically a forced air system in the U.S.) used a bi-metallic strip to measure temperature change and used mercury in a tilting glass tube to provide contact with the electrodes in the tube to control the furnace. The typical thermostat interface was a simple rectangular box on the wall that used sliding levers to control the temperature; the ubiquitous Honeywell Round, which emerged in 1953 and is still available today, required the user to turn the round dial. These types of thermostats are often termed manual, standard, or mechanical thermostats. Both current temperature and the target or desired temperature were displayed on an analog scale showing temperature range.

Over the past 40 years, different policies have driven the development of features in thermostats. The first oil crisis in 1973 spawned the creation of the first energy code (Building Energy Efficiency Standards) in California in 1978, part of which required clock or setback thermostats for new homes. These thermostats were designed to save energy by automatically relaxing temperature setpoints when people are sleeping. Studies performed in the 1970s, based on models of energy flows through a house, suggested that on average a daily 8-h nighttime setback could bring approximately 1% reduction in natural gas consumption for each degree Fahrenheit offset [13]. This result became and remains the rule of thumb that guides much of the discussion on the effectiveness of programmable thermostats with gas- and oil-fired heating systems.

The physical human interface on thermostats has evolved partly because of technical innovations and partly pushed by regulations. The Americans with Disabilities Act (ADA) standards introduced in 1988 mandated controls that did not require the twisting of one's wrist [14]. This requirement along with the trend away from mechanical thermostats with their moving parts towards semiconductor electronic manufacturing drove the "modern" look for thermostats. By the early 1990s, the new thermostat was a plastic rectangular box with few moving parts; thermistors replaced bimetallic strips, digital display replaced analog, and push buttons replaced dials and slider bars. The addition of memory allowed the storage of data, such as target temperatures for different times of day, and required a power source.

In 1995, the Environmental Protection Agency's EnergyStar program included programmable thermostats, suggesting that homeowners could save about $180 a year with a programmable thermostat [15]. EnergyStar requirements included certain features: default energy-saving and comfort setpoint temperatures, cycle rate setting, recovery systems, and a hold or override option. Consumers understood that the EnergyStar emblem on an appliance indicated energy efficient equipment; manufacturers had to comply with EnergyStar eligibility requirements.

Throughout the 1990s programming grew more complex, with these features plus programming schedules for weekend/weekday (5 + 2), seven-day, or vacation. More recently, part of the 2008 California Building Energy Efficiency Standards, commonly referred to as Title 24, requires that programmable thermostats have the ability to set temperature preferences for at least four different time periods per day.

Utilities across the globe are exploring time-varying price tariffs to reduce peak electricity demand—driven primarily from space heating (e.g., in hydroelectric-rich New Zealand and Canada) and cooling systems (e.g., in the U.S.). This created the demand for programmable communicating thermostats that can receive price or reliability signals from the utility. In California, while these thermostats were not included in the 2008 energy code, this is expected for future iterations; at the federal level, this will most likely start with the new EnergyStar specifications regarding climate controls (a subset of programmable thermostats) that include communication and time of use price level indication [16].

Remotely controlled thermostats have become both feasible and possible with the growing prevalence of cell phones, home area networks (HAN), and the Internet in residences. Several applications have been developed to enable control of a thermostat using a mobile phone. Global Positioning Systems (GPS) in mobile phones can be used to convey occupancy and proximity information to thermostats, which can then predict arrival times of a home's occupants and modify the setpoint accordingly [17].

Many aspects of a programmable thermostat's functionality have been transferred to the Internet. An Internet thermostat describes a programmable thermostat that connects to an IP (Internet Protocol) network; models are currently being made by Proliphix, Aprilaire, and Ecobee. Internet connectivity has spawned companies such as EcoFactor, which sells an energy-saving thermostat service. One network-enabled thermostat has a removable standardized communication module (based on U-SNAP (Utility Smart Network Access Port)) to connect the thermostat to a Home Area Network via various wireless standards, such as ZigBee, Z-Wave, RDS (Radio Data System), WiFi, FlexNet and Trilliant [18]. Further, companies such as Control4 who specialize in home automation have added a comfort function to their home management interface to remotely control an Internet thermostat

from the TV or other display. Likewise, security companies such as ADT have also included thermostats in their networks.

Thermostats have come a long way from simply controlling a heating or cooling unit and displaying current and target indoor temperatures (Fig. 1). Today's thermostats can control ventilation, whole house fans, humidity, and multiple zones. The user interface can be remote (e.g., controlled through web or smart phone), voice-controlled, a large full color LCD or touchscreen. Displays now can include outdoor temperature, messages from the utility, or maintenance alerts (e.g., battery or filter replacement warning).

These trends have shifted the thermostat from being a simple wired appendage of the heating and cooling systems to a separate product resembling software or consumer electronics. This is also reflected in the shift in the orientation of companies involved in thermostats, from more mechanical (e.g., manufacturers of HVAC equipment) to those more familiar with consumer electronics and communications.

3. Architecture & features

A basic thermostat has four components: a temperature sensor in the desired environment, a switch or actuator to the physical target of heating, ventilating, and air conditioning (HVAC) equipment, a feedback loop between the two, and some means of displaying the current (and target) temperatures as well as providing a means for the user to change the target temperature. Electronic devices with digital displays have largely replaced mechanical and mercury-based thermostats; wired connections are slowly being replaced by wireless. Advances in communication networks have allowed thermostats to become increasingly disaggregated into separate components. Fig. 2 shows a schematic of thermostat components, which may or may not be packaged together. The temperature sensor may be wireless, communicating with the controller via radio frequency; the user interface may be a mobile phone or web page.

1. *Sensors*: basic functioning of a thermostat requires at minimum a single room temperature sensor. Additional sensors could monitor humidity, outside temperature or additional inside temperature points, occupancy through infrared sensors, or connected to a security system that includes door entry or window sensors.
2. *Actuators*: the thermostat uses a switch or relay, whether mechanical or electronic, to turn on or off the target equipment, whether furnace, fans, or compressor for the air conditioning system. Other potential equipment includes an economizer, whole house fans, and a humidifier/dehumidifier.
3. *Control logic*: for simple thermostats, the control logic is simply a feedback loop that compares the target temperature with the current measured temperature to determine when to turn on or off the equipment. Mechanical thermostats handled this, plus anticipation (to prevent overshooting the target) and hysteresis (a deadband of temperature typically ±1 °F around the target temperature to prevent frequent switching of the equipment). Modern programmable thermostats provide anticipation, hysteresis, as well as other features through electronics. Data is read from the settings, user interface, and sensors, and a set of algorithms determines when the system switches on and off.
4. *User interface*: the user interface (UI) represents a means for the user to provide input for thermostat control and view a display of information. The UI allows users to change the target temperature setting—and on programmable thermostats, input a schedule of changing temperature settings—while displaying information, such as current and target temperatures. The thermostat interface can be mechanical with slide bars, digital with push buttons, or digital with touchscreen. New interfaces include web interfaces, mobile interfaces, TV interfaces, audio, and remote controls.
5. *Communication interface*: at a minimum, a thermostat must communicate with the HVAC system, generally through wired connections. Additional capabilities require communication using various protocols; examples include connection with a home area network, receiving price or reliability signals, streaming local weather forecast, receiving control signals through an external optimization service, or communication with interval meters.
6. *Memory*: programmable thermostats require memory for data storage; memory can be permanent or volatile (i.e., disappears when power is disconnected). These data, such as time of the day and target temperature for each program, are needed for the thermostat control logic.
7. *Power supply*: modern programmable and digital thermostats require electric power for operation. Batteries or low voltage ac power from the heating or cooling equipment typically provide this power; electric heating systems commonly use line voltage

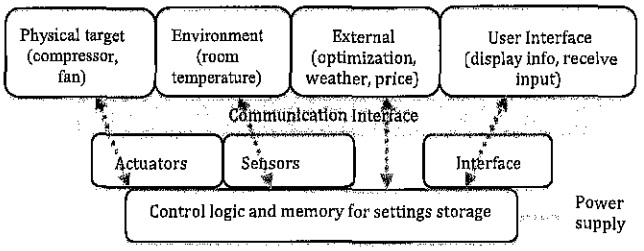

Fig. 2. Disaggregated components of a typical thermostat.

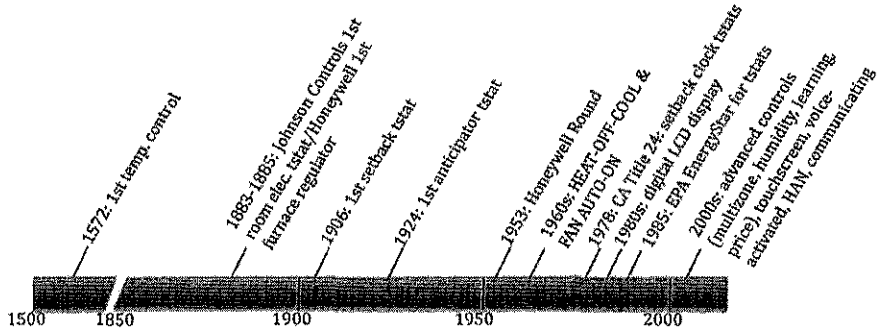

Fig. 1. Timeline of the history of residential thermostats.

power. Thermostats often employ both systems, using the batteries to preserve settings in the event of power outages or other failures.

3.1. Control features

Today's thermostats have a variety of features, both for control and the user interface, with different levels of sophistication. One range of features is related to *what* is under control. Thermostats typically control heating and cooling equipment, which can include forced air, radiant floor (typically using water) or radiant ceiling systems (water or electric), or radiators (typically steam). Some equipment, such as heat pumps, requires specialized control. Thermostats may also control related equipment, such as humidifiers/dehumidifiers, auxiliary heating systems, economizers, whole house fans, or other ventilation systems. High efficiency equipment often includes two stage systems with variable speed fans, which are controlled based on the difference in current and target temperature.

Another set of features of thermostats involves *where* the control lies. For example, a fan-delay relay at the equipment allows the blower fan to continue to run a few minutes after the compressor has turned off to take advantage of residual cooling. Some thermostats provide this control at the thermostat and allow adjustment of this time period. The anticipator, which turns off equipment before the setpoint is reached to prevent overshoot, may be adjustable (especially for heating) or not (cooling). Compressor protection, which requires the compressor to remain off for a few minutes minimum to protect equipment, is a typical feature often embedded at the HVAC controls.

A key issue is *how* these features work; some features with the same name (such as hold or recovery) have very different functions with different manufacturers. Some de facto standards have evolved, such as switches for heating/cooling mode (HEAT-COOL-OFF), auto switchover (automatically switch between use of heating and cooling equipment), and separate control of the blower fan (Fan-AUTO). For programmable thermostats, two push buttons to increase or decrease target temperature (as well as other functions) is fairly standard.

Some features have been driven by the EnergyStar program, such as default energy-saving and comfort setpoint temperatures and schedule, cycle rate setting, pre-comfort recovery, and hold and/or override options. Other policies, such as demand response dynamic pricing (described in [19]), are driving features such as communication and temperature setpoints that automatically respond to price. Other feature development is driven by increasing sophistication, such as multi-zone control, air filtering, and multi-stage HVAC equipment. While some thermostats do not indicate current time of day, programmable thermostats typically do—either allowing an internal clock to be set by the user or providing a means of updating the time automatically.

3.2. User interface features

Another set of features relates to the user interface of the thermostat. These features are categorized by what is displayed and how it is displayed. Typical information to be displayed includes current and target temperatures (in Fahrenheit or Celsius), day of week, time (12 or 24 h), and current schedule control mode (e.g., morning, day, evening or night); some displays show outside temperature, relative humidity, and/or local weather forecast. System status is often displayed by the position of a switch, or text or icon. Status information includes:

- thermostat is off or in heating, cooling, or auto switchover mode,
- fan is off or in auto mode,
- heating or cooling system, fan, or backup heating system is currently running,
- hold/temporary/vacation mode is active (supercedes regular programmed schedule).

Another type of display is an alert, such as indication of a low battery or that the filter needs changing. Other types of information include help (e.g., tips, other information for easy set up, instruction manual), energy usage and or cost, messages from utility and/or current price tier.

The user interfaces of thermostats have evolved over time, both in how information is displayed and the means of user interaction. Early thermostats presented a needle-type marker that indicated current and target temperatures within a range of possible temperatures in an analog display (Fig. 3). The majority of programmable thermostats now use digital numbers to display temperature; some recent models have returned to numbers on an analog scale. Many programmable thermostats display text or numerical information on some sort of Liquid Crystal Display (LCD). The early models had relatively small monochrome screens that had space dedicated to specific information. In some models, a marker such as an arrow pointed to text (such as day of the week) printed on the plastic enclosure of the thermostat; the displayed marker changed position to indicate change in status or information. In recent years, the LCDs have grown larger, multi-colored, and screen space is shared—different information can be displayed in the same area at different times. Some thermostats use menus in a framework similar to personal computer interfaces to provide many layers of information structured on the same screen. Many programmable thermostats now have backlights for reading the LCD screen at night (Fig. 4).

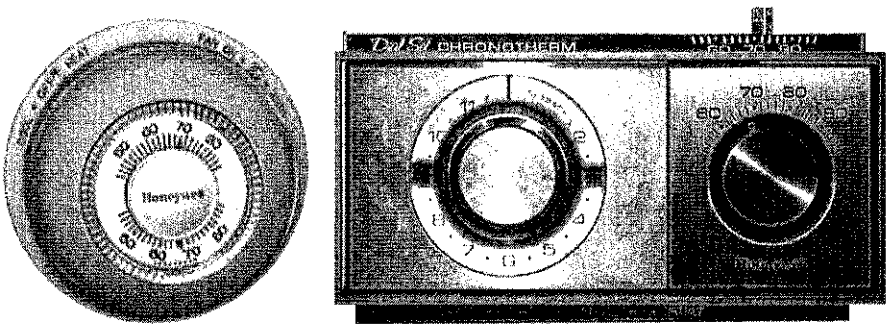

Fig. 3. Older thermostat designs with slider bars, dials, and analog displays; Honeywell Round [20] on left and Honeywell Chronotherm setback thermostat on right (photo by T. Peffer).

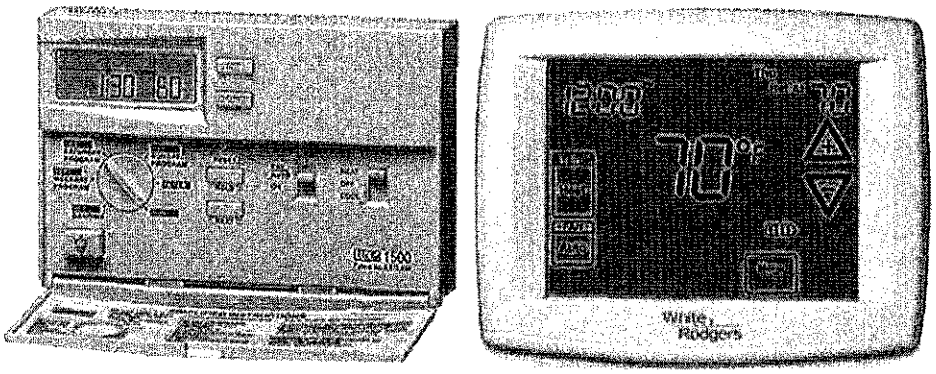

Fig. 4. The evolution of the programmable thermostat from small LCD on LUX 1500 [21] on left to full touchscreen on White Rodgers [22] on right.

The user interaction has changed from sliding needle-markers and turning dials to push buttons and even touchscreens on some models. While early models used push buttons to control a single use—up, down, hold, next, reset, clear—some thermostats rely on context-sensitive buttons, that is multi-use buttons that control different features in different modes. Physical slider switches are still commonly used, although in touchscreen and web interface models, these are replaced with a virtual switch. Other conventions borrowed from computer interfaces include using OK, Back, and Save buttons.[2]

Many thermostats have controls or settings meant to be used rarely and/or only at installation. These functions are often hidden from apparent view, such as locating the switch for temperature display in Fahrenheit or Celsius on the back of the thermostat. A separate installer mode might include setting cycle rate or temperature differential (deadband); these features may be only accessible via a specific sequence of button pushes.

Manufacturers are constantly offering new interfaces. Voice control thermostats allow a thermostat to be set up and controlled by spoken commands. Some thermostats offer the user a selection of multiple languages. Others provide great flexibility, such as custom names for various programmed schedules. Audible touch confirmation is a feature that imparts an audio prompt to confirm entries. Single button pushes allow easy program switches, such as changing to Daylight Savings Time versus Standard Time or changing to an occupied or energy-savings mode.

4. Thermostat ownership & usage

4.1. Thermostat ownership

We found data on thermostat ownership mainly from surveys. The Residential Energy Consumption Survey (RECS) is a national area-probability sample survey (about 4000 homes every four years) that includes several questions about presence, type, and usage of thermostats. The American Home Comfort Study (AHCS) also surveys 30,000 homeowners every two years; the 2008 survey was conducted via the Internet. About 86% of U.S. homes have a thermostat of some type controlling heating and/or cooling systems [24,25]. Over time, the penetration of programmable thermostats has increased in response to codes, decreased costs, needs for additional features (e.g., central air conditioning), and the desire to save energy. Building codes and other efficiency programs have accelerated the transition to programmable units.

Currently, about a third of U.S. homes have programmable thermostats [24,25]. The exact saturation is difficult to determine because the estimates rely on consumer responses to surveys. Consumers do not universally understand the distinction between the types of thermostats even though manual and programmable thermostats have very different capabilities. While two major categories of thermostats—manual or programmable—are generally recognized, several surveys have indicated that lay people do not understand these terms. Manual thermostats—those that require human intervention and have no automatic features—are often called standard or mechanical. However, manual thermostats can have digital displays and operate with electronic sensors and switches instead of mechanical ones. The early setback or clock thermostats look like manual thermostats with their analog displays, but they are categorized as programmable thermostats, since they can automatically change temperature based on a timed schedule. In both the national RECS and California-based Residential Appliance Saturation Survey (RASS), the authors noted problems with people understanding the term programmable thermostat [1,26]. In RECS, the authors noted that when a clarifying phrase was added to the question regarding type of thermostat, the number of households reporting a programmable thermostat nearly dropped in half compared to the previous survey, from 44.9 million in 1997 to 25.1 million in 2001 [27]. RASS noted that the numbers listed were lower than expected, that is, the response rate regarding programmable thermostats in post-1995 houses was expected to be 100% due to the energy code, but was underreported.

Although programmable thermostats have been available for more than 30 years, only 30% of U.S. households have installed them. In the 2005 RECS, 14% of U.S. households reported having no thermostat, 30% (34.6% of thermostat owners) had a programmable thermostat, and 56% had a manual thermostat [1]. According to the AHCS, 36% of households had programmable thermostats in 2004, and the percentage increased to 42% in 2008 [28]. In California, the 2005 RECS reported 19% of households with no thermostat, 44% (54% of thermostat owners) with a programmable thermostat, and 37% with a manual thermostat [24]. The percentage of houses in California without thermostats differs from the national percentages due to milder weather, whereas the increased number of programmable thermostats in California versus nationwide is likely attributed to the last 30 years of energy code requiring a setback or programmable thermostat. Of those that used central air conditioning in California, 68% had programmable thermostats; this most likely reflects the fact that homes built in the past 30 years were more likely to have central air conditioning (Fig. 5). Another survey conducted in Seattle, the Residential Customer Characteristics Survey 2009, reported that programmable thermostats were installed in approximately 51% of households [29].

[2] We note that Honeywell holds a patent on the saving changes indication, which poses a constraint on other thermostat designs [23].

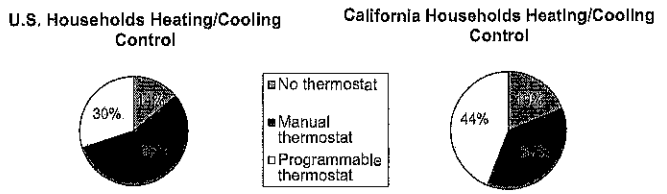

Fig. 5. Thermostat type in United States and California [1].

Thus, residential energy use (and savings) still depends largely on the settings of manual thermostats by the owners. This fraction will fall steadily in the next decade as older thermostats are upgraded through weatherization programs, utility incentives, and consumer initiatives to achieve energy savings and more features.

4.2. Thermostat usage patterns

Several studies show that programmable thermostats are set and programmed differently than manual thermostats. In a home with a programmable thermostat, the occupants can program a schedule to change the target temperature or setpoint. During the heating season, the temperature setpoint can be reduced ("set back") when the house is empty or at night; in the cooling season, the temperature setpoint can be increased ("set up") to prevent operation of the cooling system when not needed. In the 2005 heating season, about 60% of U.S. households with programmable thermostats reported using them to reduce temperature at night. Only 45% reduced the temperature during the day; the same survey indicated that approximately 51% of homes have someone home all day, which may explain why fewer household reduce temperature during the day than during the night [25]. During the cooling season, 55% of households with programmable thermostats set them to increase temperature at night as well as during the day [24]. According to the California 2003 Residential Appliance Saturation Survey (RASS), only 28% of households in California actively set up the temperature for air conditioning (AC) during the day, and the presence of programmable thermostats did not appear to dramatically affect setback behaviors [26]. Of the recent buyers of HVAC equipment, the American Home Comfort Study (AHCS) reported that 56% of homeowners always program their thermostats, 32% sometimes program, 9% never program their thermostats, and 3% do not know how [28].

In a study that compared the energy consumption of manual thermostats versus programmable thermostats in CA households, programmable thermostats were set slightly higher (i.e., 0.7–1.2 °F) than manual thermostats in the cooling season (which would save energy), but were not in OFF mode as often. In the heating season, programmable thermostats were set at higher temperatures than manual thermostats (which would cause more energy use), and far fewer were placed in OFF mode than manual thermostats [30]. A consumer survey conducted in Seattle revealed that a night setback was adopted by 86% of people with programmable thermostats and only by 60% of people with manual thermostats [29]. A study in California found that setpoints assumed in Title 24 energy code compliance software (similar to those required for EnergyStar eligibility) overestimated the cooling setpoint and underestimated the heating setpoints; in other words households in the study on average used a lower setpoint for cooling (used more energy) and a higher setpoint for heating (used less energy) than the default energy-saving setpoints [31].

Similarly, outside the U.S., setup and setback behaviors are not a common habit, as reported in several international studies. A cross-cultural study of energy behavior in Norway and Japan [32] reveals that less than 50% of Oslo's households setback temperature at night and 28% did not lower thermostat settings during weekends or vacations. Another northern European survey of 600 homes [33] showed that only 38% of the houses with thermostats lowered their temperature during the night.

Occupants regularly interrupt the programming of their programmable thermostat by selecting operating modes that suspend the programmed schedule: *hold* and *override* (sometime called temporary hold or temporary override) mode. *Override* allows the occupant to temporarily raise or lower the desired temperature typically until the next scheduled time program. The *hold* mode is a permanent change, and functionally transforms the programmable thermostat into a manual thermostat. A study conducted by thermostat manufacturer Carrier examined the operating mode of installed programmable thermostats in households within the jurisdiction of four utilities, LIPA, ConEd, SCE, SDG&E. Of the 35,471 thermostats monitored overall, only 47% were in program mode, in which the thermostat used the schedule previously input by the occupant to control temperature setpoints. The rest—53%—were in hold mode. The households within the two southern California utilities (SCE and SDG&E) showed a higher percentage (65%) in program mode, although it was unclear why [34]. In the AHCS, no distinction was made between override and hold. One question asked about the frequency of overrides for recent HVAC buyers (all the time 8%, often 12%, sometimes 36%, rarely 35%, never, 9%) [28]. It is difficult to know whether overriding "all the time" means the thermostat was in hold mode or not.

Several studies have examined temperature swings, comfort, and control within homes [31,35–39]. These indicated that thermal comfort preferences at home are very different from that in offices: there is a wider temperature range, because of greater control (i.e., occupants opened windows, and had greater freedom to change thermostat settings, clothing, and activity level) [40] and because of costs [41]. A recent national survey found that 49% of homeowners were very much satisfied with their home comfort systems, 43% somewhat satisfied, and 8% not at all satisfied [28]. There was a slight correlation between programmable thermostats and satisfaction: 45% of those very much satisfied had programmable thermostats compared to 32% of those who were not at all satisfied [28]. A preliminary study indicated that socioeconomic class may affect these responses: in a recent weatherization study by one of the authors (Meier) in low-income households, the top two complaints were mechanical ventilation and the programmable thermostat. However, thermal comfort throughout the home tends to be problematic—68% of homeowners found at least one room too hot in the summer and 60% found at least one room too cold in the winter [28]. When asked about seeking improvements to their home comfort system, 89% of homeowners listed greater energy efficiency as very important, but many listed issues with thermostat as very important as well: more even temperature (65%), better temperature control (68%), faster heating and cooling (64%) [28]. Other issues were listed as very important—such as better air purification (76%), improved air flow (69%), and better humidity control (64%) [28]. However, most commercially available thermostats (the main device to affect house thermal environment) control only air temperature, leaving all other parameters unmonitored and uncontrolled.

There are no set standards for thermal comfort in residences, although New York rental housing has a minimum indoor temperature requirement for the eight coldest months of the year [42]. A few have suggested the Adaptive Comfort Standard described in ASHRAE 55-2004 as an appropriate standard [40,43] since houses by law have operable windows for ventilation; this standard allows a wider comfort temperature range given the occupants' ability to adapt. Thermal comfort has been defined and studied both in the lab and field, primarily in the commercial sector

[44–49]. Many factors have been found to influence thermal comfort, such as air temperature, radiant temperature, air speed, humidity, level of clothing/activity [44,50,51] as well as psychological, behavioral, and physiological influences [52–56]. These may explain the difference in heating and cooling season temperature offsets [57]. In general, comfort temperatures have been increasing in winter and decreasing in summer over the past several decades [58,59]. Several studies indicated control as a major issue in thermal comfort at home [35,38,40,60]. However, most of the thermal comfort testing and surveys in residences have suffered from small sample size and not been representative of all socio-economic and demographic classes; even surveys such as AHCS, RECS and RASS still struggle with definition of terms (e.g., programmable thermostat, setpoint, zones).

5. Energy savings from programmable thermostats

Programmable thermostats have been promoted (and mandated) as a means of saving energy. But programmable thermostats differ from the traditional conservation measures, such as insulation or a more efficient refrigerator, where simply installing the measure will save energy. In contrast, the occupants must actively program the thermostat and select settings that result in savings. Furthermore, observing the programmable thermostat-induced energy savings is experimentally difficult since energy savings cannot be observed directly; instead one must examine the *difference* in energy use between two periods. Few studies directly meter the gas for heating or electricity for cooling separately from other appliances. In addition, the differences in energy use may be partially attributable to differences with other appliance energy use, seasonal weather variations, or changes in occupants or economic conditions. Alternatively, one can measure the difference in energy use between similar homes with and without programmable thermostats. This approach is sometimes simpler but introduces other kinds of uncertainties. Perhaps these difficulties in evaluations explain why field studies of thermostat savings have shown mixed results.

One recent analysis of energy bills in about 7000 households concluded that savings of about 6% in natural gas consumption could be attributed to programmable thermostat use [61]. In Quebec, 90% of houses are electrically heated with room thermostats; a billing analysis study (more than 25,000 households) estimated that the use of programmable thermostats reduced the energy consumption by 3.6% [62]. In a survey conducted in Seattle with 2300 respondents, houses with programmable thermostats had on average a 9% reduction in electricity consumption [29]. Studies of cooling energy savings are less common.

Several field studies showed no significant savings in households using programmable thermostats compared to households using non-programmable thermostats [30,63–65]. Some of these studies are summarized in Table 1. The availability of a programmable thermostat did not change setback behaviors: people who were accustomed to setting back with a manual thermostat kept doing so, and did not increase their energy savings. Those who had not previously changed the temperature setpoints did not set back with programmable thermostats. Some researchers argued that homes relying on programmable thermostats consumed more energy than those where the occupants set the thermostats manually [66], especially with heat pumps [67].

The EPA reviewed these studies and concluded that consumers were not using programmable thermostats effectively due to programming difficulties and lack of understanding of terms such as setpoint [69]. As a result, the EPA discontinued the EnergyStar programmable thermostat program in December 2009.

Table 1
Summary of thermostat behavior and energy savings studies [68].

Organization	Investigators	Location & year	Sample size	Conclusions
Southern California Edison	Paul Reeves, Jeff Hirsch, Carlos Haiad	CA 2004	N/A	Energy savings depend on behavior and can be + or –
Energy Center of Wisconsin	Monica Nevius, Scott Pigg	WI 1999	299 Homes	No significant savings. PT's don't change behavior.
Connecticut Natural Gas Corporation	David Cross, David Judd	CN 1996	100 Homes	PT's cause no significant behavior change.
BPA/PNNL	Craig Conner	NW 2001	150 Homes	No significant behavior change/savings.
Florida Solar Energy Center	Danny Parker	FL 2000	150 Homes	No savings, some increases.

6. Usability issues

Programmable thermostats have not seen great market penetration; only about half are actually programmed to adjust temperatures at night or unoccupied times, and thus they do not necessarily save energy. The EPA review and other studies indicate that people find programmable thermostats difficult to understand, and lack the confidence and motivation to overcome difficulties in programming [64,70–74].

We recognize that there are many factors involved in people adopting and using a new device that are applicable; here we discuss Rogers' technology diffusion theory, Nielsen's factors of system acceptability, and usability guidelines.

Rogers' diffusion of innovation curve (Fig. 6) defines different attributes that affect the willingness and ability of consumers to trying new technology [75]. Rogers' theory describes why seemingly advantageous innovations, like the programmable thermostat, can take some time to diffuse in a social system. In some cases, policy has created a tipping point in driving adoption, especially between early adopters and the early majority; this has certainly been the case in California's higher adoption of programmable thermostats compared to the rest of the U.S.

Jakob Nielsen outlines factors in system acceptability, in Fig. 7. This figure is targeted for web interfaces, however, we feel it is applicable since thermostats are becoming more like other consumer electronics.

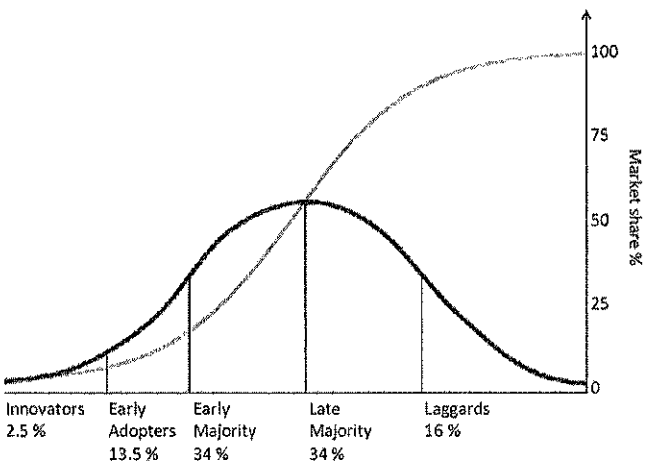

Fig. 6. Rogers' technology adoption or Diffusion of Innovation Curve [75].

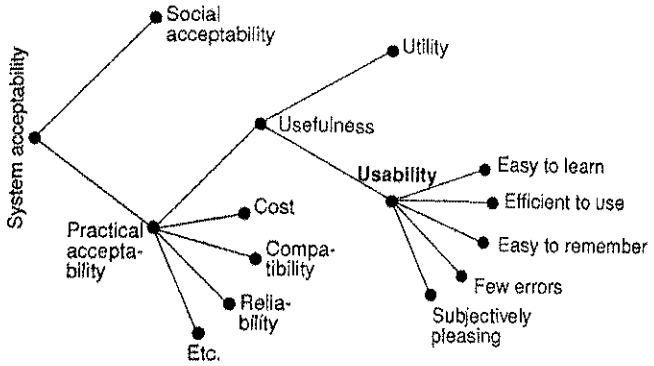

Fig. 7. Nielsens' factors in system acceptability [76].

In the International Organization for Standardization (ISO) Guidelines on Usability (ISO 9241-11 1998), usability refers to the extent to which a product can be used by specified users to achieve specified goals with *effectiveness* (the accuracy and completeness with which users achieve specified goals), *efficiency* (the resources expended in relation to the accuracy and completeness with which users achieve goals) and *satisfaction* (freedom from discomfort, and positive attitudes towards the use of the product) in a specified context of use [77]. In this section, we focus on some of issues mentioned in the literature on the use of programmable thermostats.

Our review of several U.S. and European studies collected a list of complaints and unexpected beliefs held by users on thermostats. Misconceptions about both energy and thermostats affect the use of thermostats, which arguably can be categorized under *social acceptability* in Nielsen's framework. Some people feel that heating all the time is more efficient than turning the heat off; in other words, they feel that turning down the thermostat for several hours per day actually consumes more energy because of the energy needed to heat the house back up to the comfort temperature [64,70]. Several studies have reported that consumers do not understand how their HVAC system works [36,78–82]. They may have incorrect mental models about creating comfortable indoor air temperature, especially since thermal feedback is delayed due to thermal inertia of the house. For example, they may think of the thermostat as an on–off switch or they may think the thermostat works as a valve: to accelerate heating, one must set the thermostat higher [80,83]. Many consumers do not know how much energy heating and cooling their home consumes or costs [70]. Other social acceptability issues may relate to priority of values: consumers may care about the environment, but value their comfort more [81,84]. In some cases, discomfort in entering a cold house discouraged people from lowering the temperature when they are away during the day [33]. In fact, in some countries a warm house is cozy and socially recognized [32]. Other social issues include gender differences in thermal perception or different needs and schedules of people in a household that make it more difficult to find agreement on the programmed temperature [53,54,80,81,85,86]. While some studies indicate residents found comfort in "fiddling" with their thermostats [35,60,87], other studies found that most people do not have interest in tinkering with their thermostats to optimize performance [38,78,88–90]. Other issues that are social in nature include a fear of the unknown: some people unfamiliar with a thermostat are afraid of using it in case there are terrible consequences [64,80,81,88].

The *practical acceptability* and *satisfaction* of using a programmable thermostat has many factors. Programmable thermostats cost more than manual thermostats, and consumers must expect enough value or *usefulness* (whether convenience, cost-savings, or some other *utility*) to warrant the time and money to purchase and install the new device. At least one study suggested that the payback and convenience are not worth the cost [64]. Other practical concerns include compatibility with the current system; there are a few anecdotal reports of people mounting their new programmable thermostat sideways to match the "footprint" of the old manual thermostat so they wouldn't need to repaint the wall. A few studies mention that the programmable thermostat was located in an inaccessible location [80,81]; many are located in hallways that are poorly lit. Current ADA standards require the placement of the thermostat 48 in. (1.2 m) above the floor which may be more usable for those in wheelchairs, but less usable for others than the 60 in. (1.5 m) de facto standard. In addition, many houses have alternative heating or cooling systems (e.g., woodstoves) not controllable by thermostats [64,81]. While many people have predictable schedules, others' schedules are more variable which makes the programming useless [64,81].

The poor *usability* of programmable thermostats and the necessity to improve their ergonomics was highlighted almost thirty years ago by Dale and Crawshaw, who stated that "it is easy to blame them [thermostat users] for stupidity, but is slowly being realized that the problem of efficiency in practice properly belongs to the engineers or the system designers" [91]. A report from 1982 illustrating the application of human factors techniques to heating controls interfaces listed several flaws, such as small text size and knobs, difficulties reading in poor lighting and distinguishing the current mode of the device, and lack of feedback on programming [92]. Although the technology of the interfaces has greatly improved over the past decades, little has been achieved in overcoming these problems.

One important aspect of usability is learnability: is operation of the device *easy to learn*? The EPA review and many other studies indicate that programmable thermostats are too complicated to use [33,64,71,73,74,80,81,83,93], especially for the elderly [73,81,88,94,95]. A consumer reports lab test stated that the subjects had difficulty setting the current time and day [71]; other studies indicate problems with programming desired temperature and schedule [33,64,81,94]. Several studies report that buttons and/or font size of text are too small [71,81,89,91,92]. Other studies point to poorly understood abbreviations (e.g., "Clk" for clock, "Prg" or "Prog" for program) and terminology (e.g., setpoint, program, default, zone) and confusing lights and symbols or icons [38,80,89,91,92].

Another aspect of usability is *efficiency*: how many steps does it take to achieve the objective? Boait and Rylatt reported the example of a thermostat that required a total of 28 steps to enter heating times, which were identical for each day of the week [74]. Freudenthal and Mook observed that programmable thermostat owners do not use all functions, even the ones they find valuable, due to poor interface design [94]. Several studies suggested that the layout of the interface itself was illogical, and thus difficult to navigate [89,91,92].

Since many thermostats at minimum require seasonal adjustment, the *easy to remember* factor of usability is important. Some thermostats have help or have a quick guide located on an inside cover. But many programmable thermostats require a manual, which can be 100+ pages long and are often unavailable when needed. Of the manuals themselves, Rathouse and Young reported that many people find them too technical, detailed and wordy, with not enough diagrams and attention on basics with procedural step-by-step instructions [81].

Another measure of usability is *few errors*. In a recent study in progress by one of the authors, Pritoni, nearly a fifth of households reported that the current time on their programmable thermostats

was incorrect by more than an hour. Poor feedback in setting a program was listed in a few studies as leading to errors [80,92].

We only found one study that addressed the aesthetics of the programmable thermostat (is it *subjectively pleasing*?) as a barrier to usability [17]. Anecdotally, one author has heard many complain of the lack of aesthetics, especially in the vein of, "it just looks complicated, I don't want to touch it."

7. Discussion

Programmable thermostats have largely fallen short of the goal of saving consumers energy. Some research suggests that improving usability may increase use and adoption of programmable thermostats towards facilitating energy-saving behavior. This section describes what usability testing has been done and what more is needed as well as describing what new features may help usability.

7.1. Usability testing

Although a wide range of studies has been conducted on temperature settings, thermal comfort, and efficiency of HVAC systems, little quantitative information is available on how people deal with temperature and environmental controls. A few researchers have performed quantitative usability tests on programmable thermostats.

Karjalainen completed qualitative and quantitative surveys on thermostat use in homes and offices in Finland, and then developed a prototype thermostat interface with usability guidelines and a user-centered design approach [80]. As an example of user-centered methods, six focus groups were conducted in the UK [81] to investigate issues in use of heating controls. Based on user experiences and complaints, a series of recommendations for manufacturers and installers was formulated to improve the next generation of thermostat interfaces, including the recommendation that manufacturers offer a variety of products of different complexity to suit different needs.

Freudenthal and Mook [94] developed a programmable thermostat interface with vocal messages that guide the users through the programming steps, in order to provide an interface usable for people with no knowledge of the device, even for elderly users. The device usability was tested by videotaping the interactions with a touchscreen computer of 14 people randomly selected among the population of Delft.

Sauer et al. investigated various types of enhanced user support (status, history, predictive, instructional and warning displays) on user performance [95]. Seventy-five subjects were asked to evaluate them. The highest scoring interface was the predictive display, which predicted the impact of heating setups on certain parameters, such as energy consumption, efficiency, and comfort level, thus helping users make informed decisions [95]. The more interactive and rich information displays (e.g. warnings) appeared to be useful for less experienced people. The results of this study suggested that different levels of support were appropriate for specific situations and groups of users.

A recent publication by the UK Building Control Industry Association [96] focused on the implementation of user interfaces of control devices for heating, cooling, and ventilation, analyzing the flaws of existing interfaces and providing usability guidelines for new products. The authors affirmed that usable controls improved not only user satisfaction and comfort, but also they provided higher energy efficiency (use of HVAC only when needed), helped to building management (local control versus central control) and provided users with faster response of the system (due to perceived control and feedback).

To our knowledge, the only comparative usability study on commercially available programmable thermostats was conducted by Consumer Reports [71].[3] Twenty-five different thermostats were lab-tested to assess their energy performance and their usability. As a result, programmable thermostats were ranked according to these criteria and a series of problems with using thermostats were highlighted. Consumer reports did not explicitly state what parameters were considered to assess thermostat usability, and it did not appear that quantitative tests were performed. Moreover, the thermostats were tested in unusual conditions; namely, the users evaluated the thermostats while sitting down and in a well-illuminated room.

7.2. Recommendations

What features might increase adoption and usability of programmable thermostats? We discuss below some recommended features listed in the literature, as well as standards. The current trend in consumer electronics may help thermostat usability. Certainly adding thermostat functionality to existing interfaces, such as on the television or smart phone, may improve the use and usability. While home automation has been around for many years, perhaps today's more compelling interfaces will encourage consumer acceptance of automation and intelligence in home controls. Educating consumers with better feedback may encourage programmable thermostat use, by revealing how much heating or cooling energy homes consume and how modifying the temperature setpoint can save energy.

Improved feedback: recently energy consumption feedback has received a great deal of attention [97–108] with respect to changing energy consumption behavior. Cost and energy consumption data can be obtained from interval meters, user-installed sensors on meters or appliances, smart appliances, and other intelligent systems. This information can help users understand the connection between temperature settings, HVAC use, cost, and the environment. Some recent studies indicate that the estimated time expected to reach the selected temperature is a useful indication for users [17,80]. This feature may also enhance the users' perception of control of the system and discourage the use of the thermostat as if it were a valve.

Intelligent systems: automated systems can, in theory, limit the need for human interaction, such as eliminating thermostat programming by systems that learn occupancy schedules and thermal preference. Different solutions have been suggested to monitor the location of household members ranging from occupancy sensors [57,109–112] to Mobile GPS [17]. Occupancy data can also be predicted from historic energy consumption [74]. Sensors can be complemented by an intelligent controller that uses learning algorithms to recognize patterns (e.g., preference in temperatures and characteristics of HVAC and house) [57,74,113]. Intelligent systems can theoretically overcome some of the problems associated with human-thermostat interaction, although some users may be reluctant to surrender control. Clearly the optimal path is to provide choices in the balance between user control and automated features [57].

Communication: the thermostat can use a home gateway to communicate with other devices in a Home Area Network such as smart appliances, in home energy displays, and energy detectors. A thermostat could in theory exchange data with utilities and other service providers. Web/mobile interfaces already enable the control

[3] While programmable thermostat manufacturers affirm they perform usability tests for their products, they do not disclose results because they consider the user interface a key feature for sales.

of thermostat configurations from personal computers, cell phones, and potentially Internet-connected television. Enhanced communication with other devices in the home and with the outside world may increase thermostat usability by piggybacking on other devices with more interesting and provocative user interfaces that are easy to use.

Other improvements: voice-controlled thermostats, such as by Talking Thermostats.com and Innotech, may improve thermostat usability for elderly or motion-disabled people [114,115]. Voice-activated devices could dramatically simplify the interaction with thermostats, especially in case of out-of-schedule requests [81]. Some researchers have proposed the development of goal-setting strategies for occupant interactions with programmable thermostats [85]. Some studies have suggested new functions considered useful to consumers. One is a "boost button" (an additional hour of heating or cooling) [81], similar to the plus-1-minute button commonly found on microwave ovens. This function could provide flexibility to a programmed schedule; in other words, a single button press could extend the space conditioning to accommodate an impromptu change in schedule. In the same vein, another potential function is a timer [90] to turn on or off heating or cooling for a specific amount of time. A third helpful function is an estimation of the time needed to reach the desired temperature [80]. These features are not currently available in any of the surveyed U.S. thermostats. In response to demands to simplify the interfaces, a single button push triggering an energy-saving mode has been proposed in EnergyStar Program Requirements. Aesthetically improved interfaces are suggested by several studies to improve social acceptability and increase likelihood of adoption. Another area of improvement is motivation: the "Green Machine" [116] is a mobile application that is an example of *persuasive technology*—defined by BJ Fogg as technology created for the purpose of changing people's attitudes or behaviors [117]. The Green Machine interface provides a visualization of energy consumption in comparison to user goals and utilizes social networking to motivate users to reduce their energy consumption.

In the long term, standardization can improve usability, because people have to learn a system only once. In our survey of thermostats currently available in the market we found a substantial lack of standardization not only in the interaction design, but also in symbols, icons, and text. The most basic functions and concepts are implemented in different ways. Standardization of interfaces, symbols, and icons has been successfully implemented in other sectors such as in car dashboards (SAE Standards [118]) and in power controls for electronic equipment (IEEE 1621 [119]).

7.3. Future work

We suggest that a "good" thermostat design is not only usable (easy to use/learn/remember), but also useful (provides needed functions for its users) in a way that is cost-effective and compatible with existing equipment. Arguably, a good programmable thermostat would facilitate energy-saving behavior as well as provide comfort and convenience for the people using it. But do thermostats really save energy? What else factors into their adoption and use? And what is good usable design? To whom?

We recognize several needed areas of research. Additional research is needed to determine the energy savings from programmable thermostats and link the amount of savings to initial conditions and usage of the thermostat's features. In addition, we uncovered little exploration of thermal comfort in homes; this is well studied in commercial buildings and has led to better control strategies. Understanding residential thermal comfort could improve comfort and save energy. Another issue entirely is addressing motivation to use the thermostat to save energy. Are there softer non-technical means of achieving the same goals, for example, with social networking with Facebook or encouraging behavior change by promoting positive social norms in utility bill inserts?

At the beginning of this section we listed the few quantitative usability studies we could find. While a few surveys and some studies point anecdotally to widespread user difficulties with programmable thermostats, the literature contains relatively few usability studies with quantitative data and analysis. (Access to the thermostat manufacturers' consumer telephone help lines would be invaluable.) Lack of usability studies is a critical weakness in the design of advanced thermostats because usability is among the most frequent complaints about them.

We have begun some initial exploratory usability studies which are described in [120]. We think that there is not a "one-size fits all" solution; we are exploring the elements of good thermostat design, and are currently outlining design principles of programmable thermostats. While we briefly mention technology adoption theory and guidelines for web user interface design in this review, we plan further research to look at usability in other fields, such as medical equipment and dashboards.

8. Conclusion

Thermostats play a vital role in both providing comfort to people in their homes and controlling the most energy intensive systems in the home—heating and cooling. This review began with a brief history of the thermostat, outlined the basic features, discussed ownership and use of manual and programmable thermostats in the U.S., described the energy savings—or rather lack thereof—and pointed out usability issues. Our review of thermostats indicates that the thermostats designed and promoted by energy conservation policies have had slow penetration into the market and are used as designed in only half of the homes in the U.S. In general, the energy savings from using programmable thermostats are less than predicted, although we acknowledge that these evaluations are difficult to perform.

The number and variety of new features for programmable thermostats is increasing, which further complicates the device. One example is the programmable communicating thermostat for residential demand response. Many utilities are exploring time-varying price tariffs to reduce peak electricity demand—driven primarily from space heating and cooling. Yet, overlaying price-response on the current functionality of programmable thermostats will only increase the complexity of this already misunderstood and underutilized device, much less introduce a tariff structure completely foreign to many consumers.

User complaints culled from the literature include misconceptions about energy use and how thermostats work, lengthy and obtuse operating manuals, and social and practical barriers to using programmable thermostats. The user misconceptions are particularly important since they may encourage incorrect usage that cannot be easily overcome by better interfaces. When users complained about the thermostats themselves, they noted in particular their complexity, small size of buttons and text, confusing terms and symbols, and the number of steps needed to program the devices.

Several studies indicated disparate attitudes towards thermostats. Some users preferred never to adjust their thermostats—to the point of being afraid of touching them; some believe that changes in thermostat settings consume more energy. Others tinkered with their thermostat several times per day, and prefer the control of manual adjustment to a set program. These groups will have different priorities for top-level features.

Our recommendations for improved usability include access through a web portal and use of audible commands and even voice

recognition. The literature revealed some functions that would be desirable to some users but are not available in U.S. models, such as a "boost" feature that would provide an extra hour of operation (similar to the "plus one minute" feature on a microwave oven). One study found that users liked a feature that would indicate how long it would take to achieve the desired temperature.

A goal of future thermostats will be to overcome the misconceptions about thermostat operation and to minimize the number of interface-related complaints. At present, however, designers lack the foundational research to determine which thermostat features succeed or fail. We are encouraged by EnergyStar's inclusion of usability metrics in the future thermostat specification and hope that this effort leads to more quantitative usability research as well as building on the success of intuitive popular consumer electronics.

Finally, we note that the thermostat is only one of many devices where human interaction plays a role in energy consumption. We expect a similar discourse in the future on in-home energy displays, lighting controls, as well as household appliances (such as televisions) that focus on making energy consumption more transparent and user interfaces more usable.

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Exhibit 8

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

April 1, 2011

Pauline Batarseh
Assistant Deputy Director
Office of Pollution Prevention and Green Technology
California Department of Toxic Substance Control
1001 "I" Street
Sacramento, CA 95812

Re: 2010 Thermostat Recycling Corporation's Annual Report

Dear Ms. Batarseh:

Attached is TRC's 2010 annual collection report for the Department. To the extent practicable TRC has made its best effort to be responsive to the Department's request for expense and collection data. A copy of this report will be posted on TRC's website at www.thermostat-recycle.org.

TRC would like to take the opportunity to summarize some of its major accomplishments in 2010.

- Notwithstanding continued economic challenges to the HVAC industry, the national recovery of thermostats increased by 29 percent, diverting almost 1,900 pounds of mercury from solid waste.
- Industry participation in TRC continued to grow and by the end of the year TRC represented 29 manufacturers that historically branded and distributed mercury switch thermostats.
- TRC continues to see substantial growth in access to the program, adding over 700 new collection locations in 2010. TRC saw solid growth in all collection location types in 2010.

TRC is now in its second year of the mandatory program in California. TRC saw a 77% increase in the number of intact mercury thermostats recovered through the program in California. TRC collected 13,340 whole thermostats in 2010 from California locations. Only one state, Maryland, had higher collections last year.

Looking towards 2011, we are looking forward to the continued expansion of the program and are always open to discussing strategies to help build the program.

Sincere Regards,

Mark Tibbetts
Executive Director

2010 Thermostat Recycling Corporation Annual Report

Collection Data

Table 1: 2010 California Collections by Brand

	Count Whole Hg Thermostats	Count Hg Switches
Honeywell	9,478	18,424
White Rogers	1,624	2,314
GE	89	255
Bard	86	294
Burnham	0	1
Carrier	578	1,844
Chromalox	0	0
ClimateMaster	3	12
Crane	0	0
Empire Comfort	1	1
Invensys	309	326
ITT	14	22
Lear Siegler	5	6
Lennox	182	427
Lux	155	156
McQuay	24	65
Nordyne	25	60
PSG	201	298
Rheem	56	129
Sears	47	41
Taco	0	0
Thomas & Betts	2	4
TPI	0	0
Trane	153	383
Uponor	0	0
Valliant	0	0
WW Grainger	8	11
York / JCI	43	117
Total Member Product Recovered	13,083	25,190
Orphan Waste	257	4,778
TOTAL	13,340	29,968

TRC recovered 185.8 pounds of mercury from 13,340 intact mercury thermostats and mercury switches from California collection locations in 2010. This is an increase of 77% over the 7,542 intact mercury thermostats collected in 2009. California ranked second among the 46 states from which TRC recovered thermostats in 2010.

Waste Mercury-Added Thermostat Management

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell International under contract with TRC.

Bins are received at the loading dock and sent to the TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name, city, state, zip code, date returned, number of thermostats and mercury switches by manufacturer and any non-conforming material.

The bin is returned to the business that sent it in with a new prepaid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to the TRC processing area to have the mercury switches removed from the plastic

housing. Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement. Small quantities of thermostats are removed from the container, which is then closed again, and placed at the switch removal workstation on a tray that contains any potential mercury spillage. The switches are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a switch breaks and mercury spills, the work area is designed to contain the spillage and the operators are trained in the clean up and disposal of mercury. TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury switches. Bethlehem Apparatus meets or exceeds all local, state, federal and EPA regulations for the management of the product. Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- EPA BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of the TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

Program Education and Outreach

TRC marketing and promotion efforts targeted key audiences in California. Our objective was to raise awareness of key components of California's mercury thermostat law and to affect recycling behavior of the generators of waste mercury thermostats. Below is a summary of activities and channels we utilized in support of this effort.

Wholesaler Recruitment/Engagement—TRC continued to engage wholesale distributers to ensure that they are aware of the 1) mandate to collect waste mercury thermostats in California, and 2) the availability of the TRC program as a simple, low-cost means of compliance.

Engagement with wholesalers took many forms (see below for information on specific activities by channel). Outreach included trade shows and industry meetings, direct outreach and

engagement of specific distributors, earned media through industry trade press, and paid advertising.

TRC expanded efforts with the Heating Airconditioning Refrigeration Distributors International (HARDI) trade association last year. HARDI members represent approximately 80% of the domestic wholesale market for HVACR equipment. Most significantly, in October, TRC and HARDI entered into a formal agreement to promote the TRC program to HARDI's members. Aspects of this agreement include the development of website content on mercury thermostat regulations and an annual award recognizing the contributions of HARDI member(s) to the program. TRC sent correspondence [see Appendix H(1) for a copy of correspondence] to the executives of all 450 HARDI member companies inviting them to meet with TRC staff at the HARDI annual meeting.

TRC attempted to engage with the American Supply Association both in writing and by phone [see appendix N for a copy of correspondence] as well.

HVAC Contractor Engagement (including utilities)—TRC joined the Institute of Heating and Air Conditioning Industries (IHACI) in April, 2010. IHACI is a non-profit trade association of contractors, manufacturers, distributors, utility firms, and related businesses actively engaged in the heating, ventilation, air conditioning, refrigeration, and sheet metal industries. TRC understands that IHACI is the largest HVAC trade association in California. TRC provided information on the California law and encouraged IHACI to inform its members on the need to recycle. This resulted in a number of articles on thermostat recycling in IHACI's Indoor Comfort News.

TRC engaged the California State Licensing Board (CSLB) and provided information on the California Mercury Thermostat Act for inclusion in CSLB's newsletter (see appendix M). Information on mercury thermostat recycling was provided to the California Public Utilities Commission and its staff. TRC provided similar information to the California Energy Commission [see appendix K and L for copies of the correspondence].

Retailer Engagement—TRC engaged with representatives of major thermostat retailers in 2010 to ensure they were aware TRC was open to their participation in the program.

Summary of Outreach by Channel

Local, Regional, and National Trade Shows—TRC attended and exhibited at the following trade shows relevant to California:

January 25-27: AHR Expo, Orlando, Florida. The largest national trade show for HVACR industry. TRC staff exhibited and promoted program to HVAC contractors, HVAC manufacturers, and HVAC distributors. The show had a total registered attendance of 44,000.

May 24-25: National Oil Heat Service Managers annual meeting and trade show, Providence, Rhode Island. TRC also sponsored the opening reception for additional visibility at the event.

June 23-24: National Town Meeting for Demand Response, Washington, DC. This was a two day event focusing on demand response and included both utilities and thermostat contractors. TRC exhibited at the event.

July 27-29: North American Hazardous Materials Management Association (NAHMMA) Annual Meeting, St. Pete Beach, Florida. TRC exhibited and also presented on the program.

September 23-24: Comfortech, Baltimore, Maryland. Comfortech is a national trade show for HVAC contractors sponsored by Penton Media, publishers of Contracting Business.

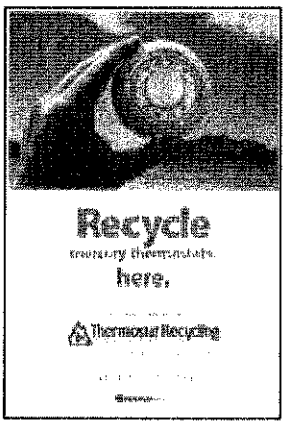
October 23-26: HARDI annual meeting, Houston, Texas. TRC exhibited at the event, which targets representatives of approximately 80% of the wholesale market for HVACR products.

November 17: IHACI Trade Show, Pasadena, California. TRC exhibited at the largest annual HVAC trade show in California. The show was sponsored by the Institute of Heating and Air Conditioning Industries Association. The one day show had a total attendance of over 3,600.

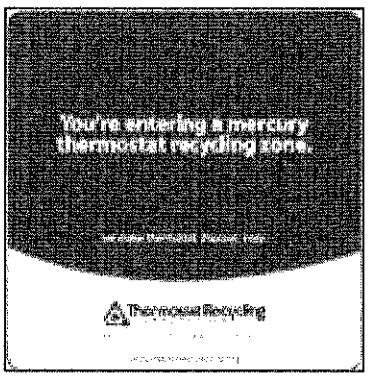
Program website—In October 2010 TRC launched a new website. The site updated and reorganized content; making pertinent information on the program to various audiences more accessible. The new website may be viewed at www.thermostat-recycle.org.

Promotional Took-kit—Concurrent with the launch of the new website, TRC added high-resolution templates of a number of promotional items. These items are free to use by TRC collection points. Developed for HVAC wholesale distributors, these items are available at no cost to TRC collection points to assist them in promoting the program to their customers. Items include a poster, bill stuffer, invoice template, cling sticker, banner, postcard, and print advertisement. Once the inventory of the current poster and window cling is used, TRC will replace those items with materials from the toolkit.

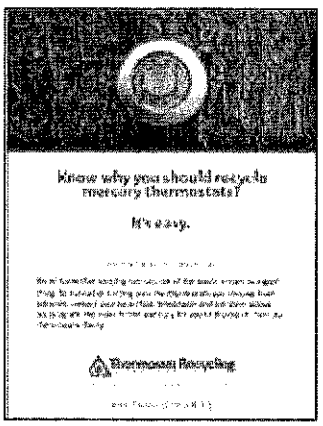
Poster



Window Cling



Advertisement



Earned Media

TRC sent letters to various stakeholders in California. They are as follows:

National Demolition Association (NDA): On May 4, 2010, TRC sent a letter to the Chair of the National Demolition Association's Environmental Committee as follow up to a phone conversation discussing TRC and NDA's promotion of the program [see appendix A]. The Chair presented information about TRC to the NDA's Board of Directors and ensured a link to TRC's website was included on NDA's website

American Public Works Association (APWA): On September 13, 2010, TRC sent a letter to eight California-based chapters of APWA to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix B]. The letter explained TRC's program and that participation is free for local governments.

Air Conditioning Contractors of America (ACCA): On September 13, 2010, TRC sent a letter to the West Coast chapter executive to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix C]. The letter articulated that all HVAC contractors were required to recycle waste mercury thermostats and prohibited from leaving the waste at the customer's home.

Plumbing, Heating, and Cooling Contractors of America (PHCC): On September 13, 2010, TRC sent a letter to eight California-based chapters of PHCC to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix D]. The letter articulated that all HVAC contractors were required to recycle waste mercury thermostats and prohibited from leaving the waste at the customer's home.

Sheet Metal and Air Conditioning Contractors' National Association (SMACNA): On September 13, 2010, TRC sent a letter to eight California-based chapters of SMACNA to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix E]. The letter articulated that all HVAC contractors were required to recycle waste mercury thermostats and prohibited from leaving the waste at the customer's home.

California Household Hazardous Waste Facilities: On December 1, 2010, TRC sent a letter to 177 Household Hazardous Waste Facilities in California to bring attention to the law (A.B. 2347) in California and TRC's program [see appendix F]. The letter explained TRC's program and that participation is free for local governments.

TRC also received coverage in national trade press on numerous occasions. For instance the program was covered in *Indoor Comfort News* (June 2010, July 2010, and October 2010). The HARDI/TRC media release (December, 2010) was covered in *Waste and Recycling News* and *Air Conditioning Today*. TRC's program also received extensive coverage in the HARDI Convention Daily (distributed to all HARDI annual convention attendees) and *HVACR Distributor* (see appendix G for examples of media coverage).

Paid Advertising

TRC ran rotating banner advertisements (Exhibit 1) on the websites contractingbusiness.com and Hvac-talk.com for the months of April, May and June. The advertisement was animated with scrolling images of thermostats, the final message directed contractors to TRC's website.

Both sites are national and target the HVAC contracting audience. Contractingbusiness.com averages 59,000 page views and 27,000 unique visitors per month. Hvac-talk.com averages 1.5 million page views and 221,000 unique visitors per month.
TRC ran a quarter page advertisements in *Indoor Comfort News* in the April, August, and November editions (see exhibit 2). *Indoor Comfort News* has 25,000 subscribers, primarily in the Western United States. It is sent to all licensed C-20 contractors in California and has a total audience of approximately 250,000.

Exhibit 1: Web Banner Advertisement

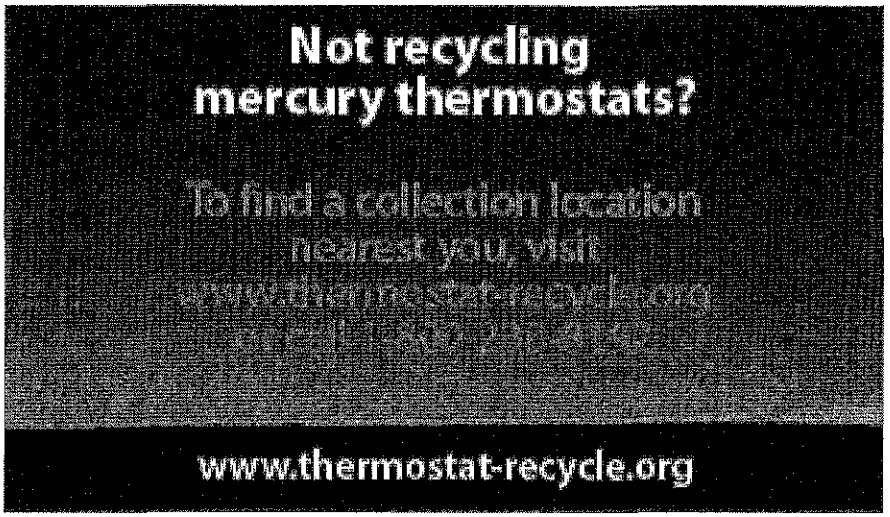
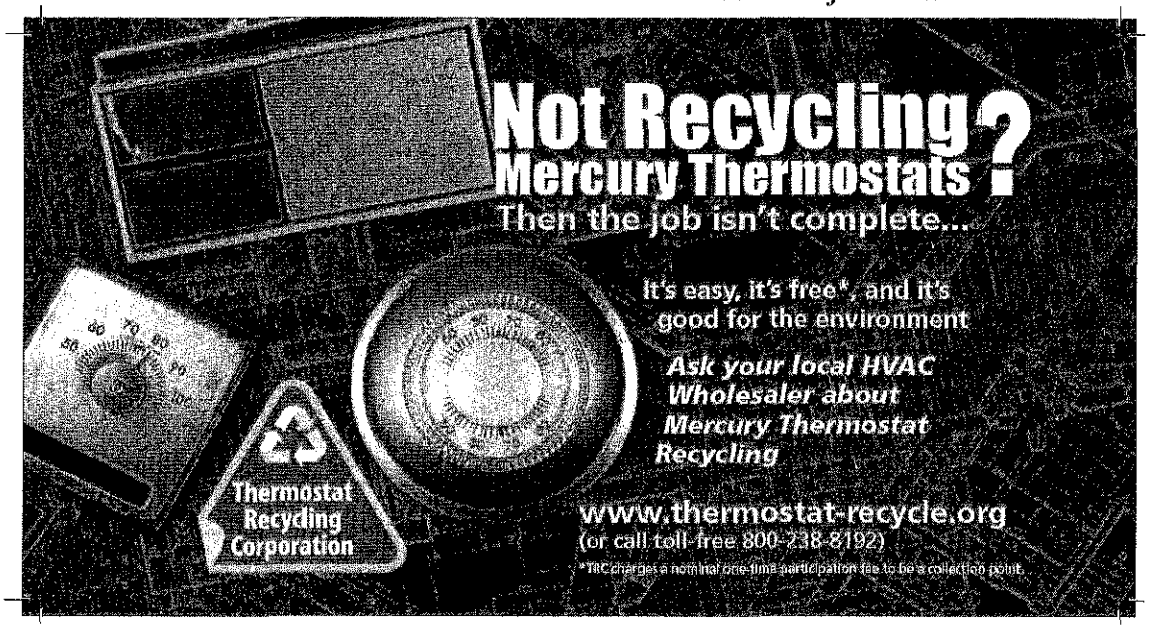


Exhibit 2: Print Advertisement *Indoor Comfort News*



Program Expenses

TRC program expenses for 2010 reflect changes in marketing strategy and certain one-time expenses that occurred in 2009. For instance, in 2009 TRC expended over $60,000 on the California study (reflected in "administration") on mercury thermostat disposal and over $20,000 in printing expense (reflected in "marketing") for incentive coupons as mandated by Maine and Vermont law.

TRC also shifted from certain paid advertising that was deemed not effective and instead emphasized industry events and trade shows. As such, travel increased significantly in 2010 as TRC staff (including a new full-time outreach staff person hired in November 2009) regularly attended both national and regional industry trade shows.

In 2010 TRC also began the development of new custom database and, while budgeted for 2010, less than 30% of the project expense was booked during the fiscal year and will be carried over to 2011.

Exhibit 3: 2010 Program Expenses

TRC Staff and Administration	$231,757
Recycling Costs	$300,096
Insurance	$17,771
Statutory Incentive Payments	$40,380
New Collection Containers	$18,219
Travel	$28,809
Direct Expenses for Marketing & Outreach	$76,696
Total	$713,728

TRC expenses include:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, legal, and other administrative expenses. Includes labor costs to implement California program.
- Insurance: Pollution and liability insurance.
- Travel: All travel in 2010 and includes travel to trade shows to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and data management.
- New Collection Containers: Direct cost for new containers ordered in 2010.
- Marketing/Outreach & Printing: Includes direct costs to develop and print program collateral; direct mail, website development, national and state advertising, sponsorships and other outreach activities. Marketing/Outreach does not include any TRC labor costs.

A copy of TRC's 2009 IRS Form 990 is attached in appendix H.

Recommendations/Next Steps

TRC was pleased with the program results in 2010. While in absolute numbers TRC still has much to accomplish, the rate in growth in collections is substantial.

In 2010 TRC recovered 13,340 whole thermostats from participating collection locations in California. TRC also recovered 4,207 mercury switches that had been removed from thermostats[1].

Overall, collections of whole thermostats are up 90% since the law's passage in 2008. Only collections in Maryland exceed California's total in 2010.

TRC also continued to add collection locations in 2010. At the end of 2009 there were 321 locations in California that had requested recycling containers. As of March 2010, the number had increased to 428. The majority of which were wholesale distributors.

Despite our success, much work remains to be done. The three most significant challenges to TRC are:

1. Collection point participation: TRC remains concerned with the level of participation among HVAC wholesale distributors. Out of the 500 plus recycling containers TRC had provided to collection points, only 144 were returned in 2010. While the program continues to add locations, it is the *active* collection of thermostats that is essential to the program's long term success. The program must be visible at the location and staff must be informed about the program and encourage participation.

TRC's challenge is that the collection locations are independent businesses that it has no control over. TRC has no enforcement authority and can not compel any collection location to take any action including ordering a container, shipping a container when full, or promoting the program.

2. Marketing to HVAC contractors and other stakeholders: Marketing to HVAC contractors remains challenging. The industry is diverse and is dominated by thousands of small contracting businesses that subsequently employee the technicians that are the primary generators of the waste.

3. Consumer facing promotion: As the Skumatz study indicated, the replacement of a mercury thermostat by a homeowner is likely a one-time event that may occur today or 15 years from now. Moreover, the study indicated that the vast majority of removals were conducted by professionals, not homeowners. Additionally, the disposal of waste thermostats occurs after the removal of the existing thermostat. As such, developing effective marketing strategies remains challenging.

[1] TRC strongly discourages the shipment of mercury switches removed from thermostats, however from time-to-time locations may ship them to TRC despite TRC policies prohibiting their shipment. TRC is unable to estimate the number of whole thermostats this represents as each thermostat may contain between 1 and 6 switches. Each switch contains 2.87 grams of mercury.

Looking towards 2011 and beyond, TRC has refined its marketing strategy and will be focusing on the following:

1. Directly engaging wholesale distributors: TRC has seen great success in California and other states where wholesale distributors actively promote the program to their customers. This entails doing more than required by law. TRC's new promotional tool-kit was the first step in this strategy. Our objective is to make it simple (and low-cost) for distributors to promote the program. Several large wholesale distributors see value in the TRC program and have embraced this concept. We see the cooperative partnership with HARDI as essential to this strategy. This relationship provides TRC direct access to key decision-makers at many wholesale distributors in the United States.

2. Leveraging member marketing channels: TRC is working with its member companies in developing strategies to leverage their marketing/sales channels to promote TRC. This may take the form of co-branded collateral promoting the program, award/recognition programs, or other activities that reinforce the importance and value of the program to distributors.

3. Expanding national and regional promotion of the program: In 2010 TRC attended ten national and/or regional industry events. TRC found significant value in attending national and some of the regional shows and will expand this effort in 2011. TRC also (see below for summary of specific activities) expanded the scope of its national/regional advertising in 2011.

4. At the state-level TRC sees opportunities to focus on key sectors in partnership with state regulators. Energy efficiency programs led to significant increases in collections in Maryland, Michigan, Kansas, and Texas in 2010 and we hope to build upon that in other states where opportunities exist. TRC also sees opportunities in encouraging collection point participation in collaboration with state regulators.

5. TRC is also committed to improvement in the program's "infrastructure." TRC will bring a new database into production in 2011 and this will lead to significant improvements in our ability to manage data (including the search tool on TRC's website). TRC is also developing additional collateral in 2011, including point-of-sale information, new advertising creative, and contractor materials.

6. TRC is exploring developing a consumer facing program that serves dual purpose of raising awareness among consumers on the need to recycle mercury thermostats and recognizing HVAC contractors that properly manage waste mercury thermostats. Initial plans are to leverage the channels afforded by new media, including social media in this effort.

In 2011, in support of this marketing strategy, TRC among other things will:

- Attend and exhibit at several national and regional industry trade shows (including the Greater Los Angeles Plumbing Heating Cooling Contractors trade show in March and the IAHCI show in November).

- Expand its advertising buy in www.contractingbusiness.com and www.hvac-talk.com to 4 months (spring and fall). TRC is also developing new creative for this campaign. TRC will repeat the advertising buy in *Indoor Comfort News* but with updated advertising copy

- Place a postcard insert in HVACR Business (April and September issues) that will go to 12,000 subscribers in states, including California, with mercury thermostat disposal bans and/or mandates for recycling.

- Update its website to recognize and promote HVAC distributor participation.

- Directly recruit HVAC distributor participation in the program and encourage distributors to actively promote the program to their customers.

- With HARDI, develop an award program that recognizes the HVAC distributors' contribution to the success of the program.

- Continue efforts to engage with other industry stakeholders and build support for the program.

Appendix A: Correspondence to National Demolition Association

[redacted] • [redacted] • [redacted]

Thermostat Recycling Corporation

www.[redacted]

May 4, 2010

John Lloyd
Vice President
Lloyd's Construction Services, Inc.
7207 West 128th Street
Savage, MN 55378

Dear Mr. Lloyd:

This letter is to serve as a follow-up to our email conversations regarding outreach efforts between the National Demolition Association (NDA) and the Thermostat Recycling Corporation (TRC).

We would like to thank you again for your efforts in presenting information about TRC to the Board of Directors as well as the Environmental Committee at the NDA 2010 Convention. We also appreciate NDA's website including a link and information on TRC's program. Once our website updates are complete, we plan on incorporating a link directing to NDA's website as well.

We look forward to continued collaboration on this issue. We welcome and appreciate the support and assistance.

Please feel free to contact me at mark_tibbetts@nemw.org or (703) 841-3243 if you need further assistance.

Thank you for your time.

Sincere Regards,

Mark Tibbetts
Executive Director

Appendix B: Correspondence to APWA Chapters

1333 North 17th Street • Suite 1102 • Arlington VA 22209 www.thermostat-recycle.org

September 20, 2010

Kevin McCune
President
APWA, Central Coast Chapter
100 Civic Center Plz # 8001
Lompoc, CA 93436

Dear Kevin McCune:

I am writing this letter to bring your attention to recently passed legislation (AB 2347) in California requiring the proper disposal of mercury thermostats. As you may be aware, mercury thermostats contain between 3 and 12 grams of mercury and it is illegal to throw them in the trash in California.

As an industry-supported non-profit, Thermostat Recycling Corporation (TRC) works to facilitate the collection and proper disposal of mercury thermostats. Under California law AB 2347, participation in TRC's waste mercury thermostat collection program is free for local governments. TRC will provide collection containers at no cost to any California local government for use at house hold hazardous waste collection facility or household hazardous waste event. Additionally, TRC assumes all costs to ship and recycle the waste mercury thermostats.

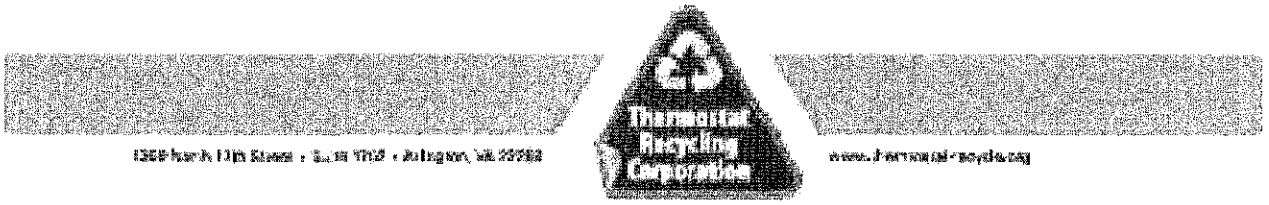
TRC seeks your assistance in getting the word out to your members to raise awareness about the issue and TRC's program. Included with this letter is the signup form for California HHW facilities to participate. Additionally, we have attached informational copy to use in a newsletter or online publication.

For more information on the TRC program, or to sign up for the program, please visit TRC's website at www.thermostat-recycle.org/California. TRC can be reached by email at TRC@thermostat-recycle.org or by calling the undersigned at 703-841-3243.

Sincere Regards,

Virginia Borchardt
Communications and Outreach

Appendix C, D, & E: Correspondence with HVAC Stakeholder Organizations



September 9, 2010

Dear :

This letter is to inform you of a law in California that may be of concern to your organization. The Mercury Thermostat Recycling Act of 2008 (A.B. 3347) requires all HVAC contractors that remove a mercury thermostat from service to take the waste thermostat to a collection location. Contractors are specifically prohibited from leaving mercury thermostats at a customers' premises.

As an industry-supported non-profit, Thermostat Recycling Corporation (TRC) works to facilitate the collection and proper disposal of this product at its end of life. The program provides HVAC contractors and homeowners a no-cost means to properly dispose of waste mercury thermostats. TRC accomplishes this through a simple reverse distribution program where HVAC wholesale distributors act as collection points for waste mercury thermostats. TRC is asking for your help in getting the word out to your members in California, with the goal of diverting as many mercury thermostats from the solid waste as possible.

Additionally, some HVAC contracting businesses have the option to directly participate in TRC. HVAC contracting businesses with 7 or more technicians or those that serve rural communities are eligible to sign up and collect mercury thermostats. After an initial fee of $25.00, TRC assumes all costs to ship and properly dispose of mercury thermostats as many times as collection locations find necessary.

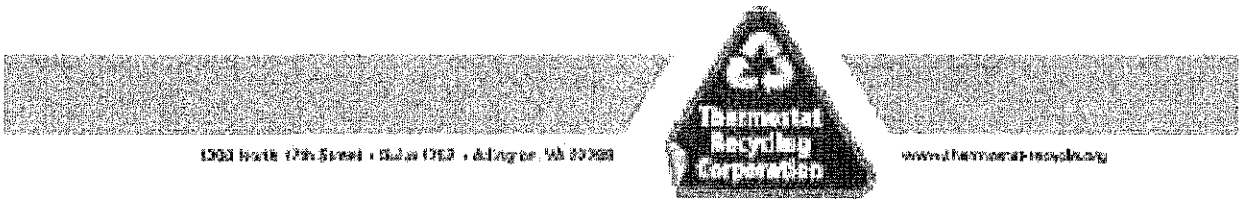
Included with this letter is short newsletter copy that can be used to bring awareness of California law and TRC. Though mercury thermostats aren't a significant source of pollution, they are an easily controlled one. We are asking your help in protecting California's environment by promoting the recycling of mercury thermostats to your members.

For more information on the TRC program, or to sign up for the program, please visit TRC's website at www.thermostat-recycle.org. TRC can be reached by email at TRC@thermostat-recycle.org or by calling the undersigned at 703-841-3243.

Sincere Regards,

Virginia Borcherdt
Communications and Outreach

Appendix F: Sample Correspondence to California HHW Locations



Contact
HHW Facility
Address
City, State Zip

Dear :

I am writing this letter to bring your attention to recently passed legislation (AB 2347) in California requiring the proper disposal of mercury thermostats. As you may be aware, mercury thermostats contain between 3 and 12 grams of mercury and it is illegal to throw them in the trash in California.

As an industry-supported non-profit, Thermostat Recycling Corporation (TRC) works to facilitate the collection and proper disposal of mercury thermostats. Under California law AB 2347, participation in TRC's waste mercury thermostat collection program is free for local governments. TRC will provide collection containers at no cost to any California local government for use at house hold hazardous waste collection facility or household hazardous waste event. Additionally, TRC assumes all costs to ship and recycle the waste mercury thermostats.

TRC encourages your location to sign-up to serve as a collection point. Included with this letter is the form for California HHW facilities to participate. Additionally, we have attached informational copy to use in a newsletter or online publication.

For more information on the TRC program, or to sign up for the program, please visit TRC's website at www.thermostat-recycle.org/California. TRC can be reached by email at TRC@thermostat-recycle.org or by calling the undersigned at 703-841-3243.

Sincere Regards,

Appendix G: Miscellaneous Media

IHACI NEWSbriefs

June 2010
Vol. 17 - Issue 6

The newsletter of the Institute of Heating & Air Conditioning Industries, Inc.
454 West Broadway Glendale, CA 818-551-1555 • E-mail: ihaci@ihaci.org • Internet: www.ihaci.org

Westlake Works With IHACI to Offer Property & Casualty, Liability & Workers Comp and Employee Benefits

Westlake Risk & Insurance Services (WRIS) in Westlake Village, Calif.-based independent insurance agency, whose goal is to assist policyholders in all insurance needs, from commercial coverage to personal lines. They have assessed the needs of members of the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) and offer a package of insurance products that properly either mitigate or transfer members' risk.

Steve Stanfield, CIC, president, WRIS, heads up the Property & Casualty, Liability & Workers Compensation for IHACI members. "Westlake Risk is dedicated to providing our commercial clients with the highest level of service they deserve," he said.

Included within the offered service platform are the following:

• Westlake Risk & Insurance along with IHACI have developed a customized insurance program with Golden Eagle Insurance, a subsidiary of Liberty Mutual for IHACI members. Members can maintain their prior relationships but need to provide information to agents on the coverage's offered;

• If Golden Eagle is unable to offer terms, Westlake Risk & Insurance has access to over 100 highly rated insurance carriers providing customized coverage's for

Continued on Page 8

IHACI's 26th Annual Spring Golf Tournament—Another Sellout!

By Peter Landau, Editor, Indoor Comfort News

On Monday, May 17, 2010, the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) celebrated its 26th Annual Spring Golf Tournament at the California Country Club in Whittier, Calif. Members of the heating, ventilation and air conditioning (HVAC) industry, from manufacturers and distributors to dealers, were on hand for a shotgun/scramble game of 18-hole golf, followed by cocktails, dinner and prizes.

An awards reception and raffle followed the awards dinner at which more than

First place winners, L-R: Ed Anderson, Steve Rustan and Mike Rustan. Rustan Brothers Air, Paul Alonso, WSJ CPA.

Continued on Page 8

Mercury Collection

The Department of Toxic Substances Control (DTSC) has issued a notice to contractors that the Mercury Thermostat Collection Act of 2008 became law on July 1, 2009. It requires that contractors and persons engaged in building demolition properly manage out-of-service mercury-added thermostats.

The Mercury Thermostat Collection Act of 2008 imposes requirements on "any contractor who installs heating, ventilation and air conditioning (HVAC) components and who removes a mercury-added thermostat." Contractors are required by law to handle and recycle out-of-service mercury-added thermostats in accordance with the Universal Waste Regulations found in California Code of Regulations, title 22, chapter 23. In addition, contractors must dispose of out-of-service mercury-added thermostats at a collection location that is operated in accordance with Universal Waste Regulations.

For information on the requirements for Universal Waste Regulations, please visit DTSC's universal waste web page at *www.dtsc.ca.gov/HazardousWaste/upload/UW_-thermostats_N3.pdf*.

Collection bins for out-of-service mercury-added thermostats are required by law to be provided at certain HVAC wholesaler locations in California. To find a HVAC wholesaler collection location near you, visit *www.thermostatrecycle.org*. Collection bins may also be found at local government agency household hazardous waste (HHW) collection facilities. To find a HHW collection facility near you, visit *www.dtsc.ca.gov/HazardousWaste/UniversalWaste/HHW.cfm*.

The DTSC has authority to enforce its requirements and will use this authority as appropriate to ensure compliance. Failure to comply may result in penalties up to $25,000 for each separate violation or, for continuing violations, for each day that a violation continues.

Additional information is available on DTSC's website at *www.dtsc.ca.gov/HazardousWaste/Mercury_Therm_Act.cfm*, or call (800) 728-6942.

WASTE & RECYCLING NEWS

RECYCLING BRIEFS

Scrap

Schnitzer to expand auto parts biz

A series of transactions will expand Schnitzer Steel Industries' auto parts business, the company said.

The company acquired most of the assets of Waco U-Pull-It Inc. of Waco, Texas; a facility in Stockton, Calif., that will be developed into a specialty self-service facility; and a property adjacent to one of the company's existing facilities in Portland, Ore., that will allow that facility to expand.

"These three transactions continue the expansion of the footprint of our auto parts business and demonstrate the disciplined execution of our stated strategy to develop scale in core supply regions to obtain scrap at the earliest stage of disposal," said Tamara Lundgren, CEO of Schnitzer Steel Industries.

The Waco acquisition adds to ESI's existing operations in the Dallas/Fort Worth area and in San Antonio. Lundgren called Texas "a high-growth market."

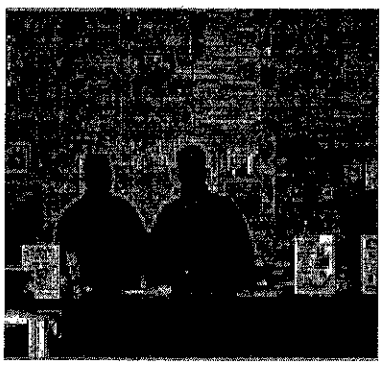
ESI's auto parts business sells used auto parts through 68 self-service facilities located in 14 states and in two Canadian provinces. The company also recycles and exports metals and has a steel manufacturing business.

Mercury Recycling

Two groups join to recycle thermostats

Two organizations are teaming up to properly dispose of old mercury-containing thermostats.

The Thermostat Recycling Corp. and Heating, Air Conditioning & Refrigeration Distributors International have formed a partnership



A Goodman customer service rep, Long Beach and Inset, Long Beach branch manager at Goodman and Her Cars and Coal Customers event.

d car show
ame time.
ith at one
ware on our

Hedges. "So, next May if you see in Long Beach and see lots of classic cars cruising down the road, drop in line behind them

Mercury Thermostat Collection Act of 2008

Sacramento, Calif.: The Department of Toxic Substances Control (DTSC) has issued a notice to contractors that the Mercury Thermostat Collection Act of 2008 became law on July 1, 2009. It requires that contractors and persons engaged in building demolition properly manage out-of-service mercury-added thermostats.

The Mercury Thermostat Collection Act of 2008 imposes requirements on "any contractor who installs heating, ventilation and air conditioning (HVAC) components and who removes a mercury-added thermostat." Contractors are required by law to handle and transport out-of-service mercury-added thermostats in accordance with the Universal Waste Regulations found in California Code of Regulations, title 22, chapter 23. In addition, contractors must dispose of out-of-service mercury-added thermostats at a collection location that is operated in accordance with Universal Waste Regulations.

For information on the requirements for Universal Waste Regulations, please visit DTSC's universal waste web page at

Continued on Page 8

Appendix H(1): Copy of Letter to HARDI Members

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

[redacted]

October 7, 2010

Dear Jess Hill:

If you have operations in California, Iowa, Illinois, Maine, Montana, New Hampshire, Pennsylvania, Rhode Island, or Vermont, please plan on visiting with Thermostat Recycling Corporation (TRC) staff at HARDI's Conference Booth Program on Monday, October 25, during HARDI's annual meeting in Houston, Texas. TRC staff will be at booth 429 and attending the full conference.

As you may be aware, these states have passed mercury thermostat legislation. Among other things, the legislation requires all HVAC wholesale distributors with facilities in these jurisdictions to act as a collection point for waste mercury-containing thermostats. While many wholesale distributors have taken advantage of TRC's program and ordered collection containers, many have not begun to actively collect mercury thermostats at all locations in these states.

Failing to act as a collection point could result in penalties that range from sales bans on residential controls to civil penalties up to $25,000 a day per facility.

TRC staff will be prepared to brief you on your specific legal requirements in each state, which of your facilities are signed up for the program, and the volume of thermostats collected at your locations. TRC staff will also explain how manufacturers, through TRC's take-back program, make compliance easy and nearly cost-free.

If you don't have legal obligations in the states where you have operations, participating in TRC's program is still a great way to promote your business as a "green business" and provide a valuable service to your customers with little direct cost to you. Please visit our booth and we can provide you with all the information you need to participate in and promote the TRC program.

For more information on TRC, please visit our website at www.thermostat-recycle.org. If you would like to speak with TRC staff in advance of HARDI's meeting, please do not hesitate to contact the undersigned at 703-841-3246 or at mark.tibbetts@nema.org.

Sincere Regards,

Mark Tibbetts
Executive Director

Appendix H: 2009 IRS 990

Form **990**

Department of the Treasury
Internal Revenue Service

Return of Organization Exempt From Income Tax

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except black lung benefit trust or private foundation)

▶ The organization may have to use a copy of this return to satisfy state reporting requirements.

OMB No. 1545-0047

2009

Open to Public Inspection

A For the 2009 calendar year, or tax year beginning and ending

B Check if applicable: ☐ Address change ☐ Name change ☐ Initial return ☐ Termin-ated ☐ Amended return ☐ Applica-tion pending

Please use IRS label or print or type. See Specific Instruc-tions.

C Name of organization: THERMOSTAT RECYCLING CORPORATION

Doing Business As: TRC

Number and street (or P.O. box if mail is not delivered to street address): 1300 NORTH 17TH STREET — Room/suite: 1752

City or town, state or country, and ZIP + 4: ARLINGTON, VA 22209

D Employer identification number: 54-1830284

E Telephone number: 703-841-3200

G Gross receipts $: 641,411.

F Name and address of principal officer: MARK TIBBETTS
SAME AS C ABOVE

H(a) Is this a group return for affiliates? ☐ Yes ☒ No

H(b) Are all affiliates included? ☐ Yes ☐ No
If "No," attach a list. (see instructions)

I Tax-exempt status: ☒ 501(c) (6) ◀ (insert no.) ☐ 4947(a)(1) or ☐ 527

J Website: ▶ WWW.THERMOSTAT-RECYCLE.ORG

H(c) Group exemption number ▶

K Form of organization: ☒ Corporation ☐ Trust ☐ Association ☐ Other ▶

L Year of formation: 1996 M State of legal domicile: DE

Part I Summary

1 Briefly describe the organization's mission or most significant activities: TO PROMOTE THE SAFE COLLECTION AND PROPER DISPOSAL OF MERCURY-CONTAINING THERMOSTATS.

2 Check this box ▶ ☐ if the organization discontinued its operations or disposed of more than 25% of its net assets.

Activities & Governance	3 Number of voting members of the governing body (Part VI, line 1a)	3	4
	4 Number of independent voting members of the governing body (Part VI, line 1b)	4	4
	5 Total number of employees (Part V, line 2a)	5	0
	6 Total number of volunteers (estimate if necessary)	6	0
	7a Total gross unrelated business revenue from Part VIII, column (C), line 12	7a	0.
	b Net unrelated business taxable income from Form 990-T, line 34	7b	0.

		Prior Year	Current Year
Revenue	8 Contributions and grants (Part VIII, line 1h)		
	9 Program service revenue (Part VIII, line 2g)	397,861.	640,464.
	10 Investment income (Part VIII, column (A), lines 3, 4, and 7d)	25.	847.
	11 Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)	475.	100.
	12 Total revenue - add lines 8 through 11 (must equal Part VIII, column (A), line 12)	398,361.	641,411.
Expenses	13 Grants and similar amounts paid (Part IX, column (A), lines 1-3)		
	14 Benefits paid to or for members (Part IX, column (A), line 4)		
	15 Salaries, other compensation, employee benefits (Part IX, column (A), lines 5-10)	69,358.	126,347.
	16a Professional fundraising fees (Part IX, column (A), line 11e)		
	b Total fundraising expenses (Part IX, column (D), line 25) ▶		
	17 Other expenses (Part IX, column (A), lines 11a-11d, 11f-24f)	311,186.	503,128.
	18 Total expenses. Add lines 13-17 (must equal Part IX, column (A), line 25)	380,544.	629,475.
	19 Revenue less expenses. Subtract line 18 from line 12	17,817.	11,936.

		Beginning of Current Year	End of Year
Net Assets or Fund Balances	20 Total assets (Part X, line 16)	91,519.	189,345.
	21 Total liabilities (Part X, line 26)	196,696.	282,586.
	22 Net assets or fund balances. Subtract line 21 from line 20	<105,177.>	<93,241.>

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

Sign Here

▶ Signature of officer — Date: 8/13/10

▶ MARK TIBBETTS, EXECUTIVE DIRECTOR
Type or print name and title

Paid Preparer's Use Only

Preparer's signature — Date: 8/12/10 — Check if self-employed ☐ — Preparer's identifying number (see instructions)

Firm's name (or yours if self-employed), address, and ZIP + 4: TATE AND TRYON
805 15TH STREET, NW SUITE 900
WASHINGTON, DC 20005

EIN ▶

Phone no. ▶ (202)293-2200

May the IRS discuss this return with the preparer shown above? (see instructions) ☒ Yes ☐ No

932001 02-04-10 LHA For Privacy Act and Paperwork Reduction Act Notice, see the separate instructions. Form 990 (2009)

Form **8868** (Rev. April 2009)
Department of the Treasury
Internal Revenue Service

Application for Extension of Time To File an Exempt Organization Return

▶ File a separate application for each return.

OMB No. 1545-1709

- If you are filing for an **Automatic 3-Month Extension, complete only Part I** and check this box ▶ [X]
- If you are filing for an **Additional (Not Automatic) 3-Month Extension, complete only Part II** (on page 2 of this form).

Do not complete Part II unless you have already been granted an automatic 3-month extension on a previously filed Form 8868.

Part I **Automatic 3-Month Extension of Time.** Only submit original (no copies needed).

A corporation required to file Form 990-T and requesting an automatic 6-month extension - check this box and complete Part I only ▶ [ ]

All other corporations (including 1120-C filers), partnerships, REMICs, and trusts must use Form 7004 to request an extension of time to file income tax returns.

Electronic Filing (e-file). Generally, you can electronically file Form 8868 if you want a 3-month automatic extension of time to file one of the returns noted below (6 months for a corporation required to file Form 990-T). However, you cannot file Form 8868 electronically if (1) you want the additional (not automatic) 3-month extension or (2) you file Forms 990-BL, 6069, or 8870, group returns, or a composite or consolidated Form 990-T. Instead, you must submit the fully completed and signed page 2 (Part II) of Form 8868. For more details on the electronic filing of this form, visit *www.irs.gov/efile* and click on *e-file for Charities & Nonprofits.*

Type or print	Name of Exempt Organization	Employer identification number
	THERMOSTAT RECYCLING CORPORATION	54-1830284
File by the due date for filing your return. See instructions.	Number, street, and room or suite no. If a P.O. box, see instructions. 1300 NORTH 17TH STREET, NO. 1752	
	City, town or post office, state, and ZIP code. For a foreign address, see instructions. ARLINGTON, VA 22209	

Check type of return to be filed (file a separate application for each return):

[X] Form 990	[ ] Form 990-T (corporation)	[ ] Form 4720
[ ] Form 990-BL	[ ] Form 990-T (sec. 401(a) or 408(a) trust)	[ ] Form 5227
[ ] Form 990-EZ	[ ] Form 990-T (trust other than above)	[ ] Form 6069
[ ] Form 990-PF	[ ] Form 1041-A	[ ] Form 8870

- The books are in the care of ▶ MARK TIBBETTS 1300 NORTH 17TH STREET, NO. 1752 - ARLINGTON, VA 22209
  Telephone No. ▶ 703-841-3200 FAX No. ▶
- If the organization does not have an office or place of business in the United States, check this box ▶ [ ]
- If this is for a Group Return, enter the organization's four digit Group Exemption Number (GEN) _____. If this is for the whole group, check this box ▶ [ ]. If it is for part of the group, check this box ▶ [ ] and attach a list with the names and EINs of all members the extension will cover.

1 I request an automatic 3-month (6-months for a corporation required to file Form 990-T) extension of time until AUGUST 15, 2010, to file the exempt organization return for the organization named above. The extension is for the organization's return for:
▶ [X] calendar year 2009 or
▶ [ ] tax year beginning _____, and ending _____.

2 If this tax year is for less than 12 months, check reason: [ ] Initial return [ ] Final return [ ] Change in accounting period

3a	If this application is for Form 990-BL, 990-PF, 990-T, 4720, or 6069, enter the tentative tax, less any nonrefundable credits. See instructions.	3a	$
b	If this application is for Form 990-PF or 990-T, enter any refundable credits and estimated tax payments made. Include any prior year overpayment allowed as a credit.	3b	$
c	**Balance Due.** Subtract line 3b from line 3a. Include your payment with this form, or, if required, deposit with FTD coupon or, if required, by using EFTPS (Electronic Federal Tax Payment System). See instructions.	3c	$ N/A

Caution. If you are going to make an electronic fund withdrawal with this Form 8868, see Form 8453-EO and Form 8879-EO for payment instructions.

LHA **For Privacy Act and Paperwork Reduction Act Notice, see instructions.** Form **8868** (Rev. 4-2009)

923831

Form 990 (2009) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 2

Part III Statement of Program Service Accomplishments

1 Briefly describe the organization's mission:
TO PROMOTE THE SAFE COLLECTION AND PROPER DISPOSAL OF MERCURY-CONTAINING THERMOSTATS.

2 Did the organization undertake any significant program services during the year which were not listed on the prior Form 990 or 990-EZ? ☐ Yes ☒ No
If "Yes," describe these new services on Schedule O.

3 Did the organization cease conducting, or make significant changes in how it conducts, any program services? ☐ Yes ☒ No
If "Yes," describe these changes on Schedule O.

4 Describe the exempt purpose achievements for each of the organization's three largest program services by expenses. Section 501(c)(3) and 501(c)(4) organizations and section 4947(a)(1) trusts are required to report the amount of grants and allocations to others, the total expenses, and revenue, if any, for each program service reported.

4a (Code:) (Expenses $ Including grants of $) (Revenue $)
TRC FACILITATES THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS BY PROVIDING RECYCLING CONTAINERS FOR THE COLLECTION AND TRANSPORT OF WASTE MERCURY THERMOSTATS TO ELIGIBLE COLLECTION SITES IN ALL US STATES, EXCEPT ALASKA AND HAWAII. TRC ALSO CONDUCTS AN EDUCATIONAL CAMPAIGN PROMOTING THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS. TRC RECOVERED 155,000 MERCURY THERMOSTATS IN 2009 FROM OVER 1000 COLLECTION SITES. THIS EFFORT DIVERTED ALMOST 1500 POUNDS OF MERCURY FROM SOLID WASTE.

4b (Code:) (Expenses $ Including grants of $) (Revenue $)

4c (Code:) (Expenses $ Including grants of $) (Revenue $)

4d Other program services. (Describe in Schedule O.)
(Expenses $ Including grants of $) (Revenue $)

4e Total program service expenses ▶ $

Part IV Checklist of Required Schedules

			Yes	No
1	Is the organization described in section 501(c)(3) or 4947(a)(1) (other than a private foundation)? *If "Yes," complete Schedule A*	1		X
2	Is the organization required to complete Schedule B, Schedule of Contributors?	2		X
3	Did the organization engage in direct or indirect political campaign activities on behalf of or in opposition to candidates for public office? *If "Yes," complete Schedule C, Part I*	3		X
4	**Section 501(c)(3) organizations.** Did the organization engage in lobbying activities? *If "Yes," complete Schedule C, Part II*	4		
5	**Section 501(c)(4), 501(c)(5), and 501(c)(6) organizations.** Is the organization subject to the section 6033(e) notice and reporting requirement and proxy tax? *If "Yes," complete Schedule C, Part III*	5		X
6	Did the organization maintain any donor advised funds or any similar funds or accounts where donors have the right to provide advice on the distribution or investment of amounts in such funds or accounts? *If "Yes," complete Schedule D, Part I*	6		X
7	Did the organization receive or hold a conservation easement, including easements to preserve open space, the environment, historic land areas, or historic structures? *If "Yes," complete Schedule D, Part II*	7		X
8	Did the organization maintain collections of works of art, historical treasures, or other similar assets? *If "Yes," complete Schedule D, Part III*	8		X
9	Did the organization report an amount in Part X, line 21; serve as a custodian for amounts not listed in Part X; or provide credit counseling, debt management, credit repair, or debt negotiation services? *If "Yes," complete Schedule D, Part IV*	9		X
10	Did the organization, directly or through a related organization, hold assets in term, permanent, or quasi-endowments? *If "Yes," complete Schedule D, Part V*	10		X
11	Is the organization's answer to any of the following questions "Yes"? *If so, complete Schedule D, Parts VI, VII, VIII, IX, or X as applicable*	11		X
	• Did the organization report an amount for land, buildings, and equipment in Part X, line 10? *If "Yes," complete Schedule D, Part VI.*			
	• Did the organization report an amount for investments - other securities in Part X, line 12 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VII.*			
	• Did the organization report an amount for investments - program related in Part X, line 13 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VIII.*			
	• Did the organization report an amount for other assets in Part X, line 15 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part IX.*			
	• Did the organization report an amount for other liabilities in Part X, line 25? *If "Yes," complete Schedule D, Part X.*			
	• Did the organization's separate or consolidated financial statements for the tax year include a footnote that addresses the organization's liability for uncertain tax positions under FIN 48? *If "Yes," complete Schedule D, Part X.*			
12	Did the organization obtain separate, independent audited financial statements for the tax year? *If "Yes," complete Schedule D, Parts XI, XII, and XIII.*	12		X
12A	Was the organization included in consolidated, independent audited financial statements for the tax year? *If "Yes," completing Schedule D, Parts XI, XII, and XIII is optional* (Yes / No: No)	12A		X
13	Is the organization a school described in section 170(b)(1)(A)(ii)? *If "Yes," complete Schedule E*	13		X
14a	Did the organization maintain an office, employees, or agents outside of the United States?	14a		X
b	Did the organization have aggregate revenues or expenses of more than $10,000 from grantmaking, fundraising, business, and program service activities outside the United States? *If "Yes," complete Schedule F, Part I*	14b		X
15	Did the organization report on Part IX, column (A), line 3, more than $5,000 of grants or assistance to any organization or entity located outside the United States? *If "Yes," complete Schedule F, Part II*	15		X
16	Did the organization report on Part IX, column (A), line 3, more than $5,000 of aggregate grants or assistance to individuals located outside the United States? *If "Yes," complete Schedule F, Part III*	16		X
17	Did the organization report a total of more than $15,000 of expenses for professional fundraising services on Part IX, column (A), lines 6 and 11e? *If "Yes," complete Schedule G, Part I*	17		X
18	Did the organization report more than $15,000 total of fundraising event gross income and contributions on Part VIII, lines 1c and 8a? *If "Yes," complete Schedule G, Part II*	18		X
19	Did the organization report more than $15,000 of gross income from gaming activities on Part VIII, line 9a? *If "Yes," complete Schedule G, Part III*	19		X
20	Did the organization operate one or more hospitals? *If "Yes," complete Schedule H*	20		X

Part IV Checklist of Required Schedules *(continued)*

			Yes	No
21	Did the organization report more than $5,000 of grants and other assistance to governments and organizations in the United States on Part IX, column (A), line 1? *If "Yes," complete Schedule I, Parts I and II*	21		X
22	Did the organization report more than $5,000 of grants and other assistance to individuals in the United States on Part IX, column (A), line 2? *If "Yes," complete Schedule I, Parts I and III*	22		X
23	Did the organization answer "Yes" to Part VII, Section A, line 3, 4, or 5 about compensation of the organization's current and former officers, directors, trustees, key employees, and highest compensated employees? *If "Yes," complete Schedule J*	23	X	
24a	Did the organization have a tax-exempt bond issue with an outstanding principal amount of more than $100,000 as of the last day of the year, that was issued after December 31, 2002? *If "Yes," answer lines 24b through 24d and complete Schedule K. If "No", go to line 25*	24a		X
b	Did the organization invest any proceeds of tax-exempt bonds beyond a temporary period exception?	24b		
c	Did the organization maintain an escrow account other than a refunding escrow at any time during the year to defease any tax-exempt bonds?	24c		
d	Did the organization act as an "on behalf of" issuer for bonds outstanding at any time during the year?	24d		
25a	**Section 501(c)(3) and 501(c)(4) organizations.** Did the organization engage in an excess benefit transaction with a disqualified person during the year? *If "Yes," complete Schedule L, Part I*	25a		
b	Is the organization aware that it engaged in an excess benefit transaction with a disqualified person in a prior year, and that the transaction has not been reported on any of the organization's prior Forms 990 or 990-EZ? *If "Yes," complete Schedule L, Part I*	25b		
26	Was a loan to or by a current or former officer, director, trustee, key employee, highly compensated employee, or disqualified person outstanding as of the end of the organization's tax year? *If "Yes," complete Schedule L, Part II*	26		X
27	Did the organization provide a grant or other assistance to an officer, director, trustee, key employee, substantial contributor, or a grant selection committee member, or to a person related to such an individual? *If "Yes," complete Schedule L, Part III*	27		X
28	Was the organization a party to a business transaction with one of the following parties, (see Schedule L, Part IV instructions for applicable filing thresholds, conditions, and exceptions):			
a	A current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28a		X
b	A family member of a current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28b		X
c	An entity of which a current or former officer, director, trustee, or key employee of the organization (or a family member) was an officer, director, trustee, or direct or indirect owner? *If "Yes," complete Schedule L, Part IV*	28c		X
29	Did the organization receive more than $25,000 in non-cash contributions? *If "Yes," complete Schedule M*	29		X
30	Did the organization receive contributions of art, historical treasures, or other similar assets, or qualified conservation contributions? *If "Yes," complete Schedule M*	30		X
31	Did the organization liquidate, terminate, or dissolve and cease operations? *If "Yes," complete Schedule N, Part I*	31		X
32	Did the organization sell, exchange, dispose of, or transfer more than 25% of its net assets? *If "Yes," complete Schedule N, Part II*	32		X
33	Did the organization own 100% of an entity disregarded as separate from the organization under Regulations sections 301.7701-2 and 301.7701-3? *If "Yes," complete Schedule R, Part I*	33		X
34	Was the organization related to any tax-exempt or taxable entity? *If "Yes," complete Schedule R, Parts II, III, IV, and V, line 1*	34		X
35	Is any related organization a controlled entity within the meaning of section 512(b)(13)? *If "Yes," complete Schedule R, Part V, line 2*	35		X
36	**Section 501(c)(3) organizations.** Did the organization make any transfers to an exempt non-charitable related organization? *If "Yes," complete Schedule R, Part V, line 2*	36		
37	Did the organization conduct more than 5% of its activities through an entity that is not a related organization and that is treated as a partnership for federal income tax purposes? *If "Yes," complete Schedule R, Part VI*	37		X
38	Did the organization complete Schedule O and provide explanations in Schedule O for Part VI, lines 11 and 19? Note. All Form 990 filers are required to complete Schedule O.	38	X	

Part V Statements Regarding Other IRS Filings and Tax Compliance

				Yes	No
1a	Enter the number reported in Box 3 of Form 1096, Annual Summary and Transmittal of U.S. Information Returns. Enter -0- if not applicable	1a	3		
b	Enter the number of Forms W-2G included in line 1a. Enter -0- if not applicable	1b	0		
c	Did the organization comply with backup withholding rules for reportable payments to vendors and reportable gaming (gambling) winnings to prize winners?		1c	X	
2a	Enter the number of employees reported on Form W-3, Transmittal of Wage and Tax Statements, filed for the calendar year ending with or within the year covered by this return	2a	0		
b	If at least one is reported on line 2a, did the organization file all required federal employment tax returns?		2b		
	Note. If the sum of lines 1a and 2a is greater than 250, you may be required to *e-file* this return. (see instructions)				
3a	Did the organization have unrelated business gross income of $1,000 or more during the year covered by this return?		3a		X
b	If "Yes," has it filed a Form 990-T for this year? *If "No," provide an explanation in Schedule O*		3b		
4a	At any time during the calendar year, did the organization have an interest in, or a signature or other authority over, a financial account in a foreign country (such as a bank account, securities account, or other financial account)?		4a		X
b	If "Yes," enter the name of the foreign country: ▶				
	See the instructions for exceptions and filing requirements for Form TD F 90-22.1, Report of Foreign Bank and Financial Accounts.				
5a	Was the organization a party to a prohibited tax shelter transaction at any time during the tax year?		5a		X
b	Did any taxable party notify the organization that it was or is a party to a prohibited tax shelter transaction?		5b		X
c	If "Yes," to line 5a or 5b, did the organization file Form 8886-T, Disclosure by Tax-Exempt Entity Regarding Prohibited Tax Shelter Transaction?		5c		
6a	Does the organization have annual gross receipts that are normally greater than $100,000, and did the organization solicit any contributions that were not tax deductible?		6a		X
b	If "Yes," did the organization include with every solicitation an express statement that such contributions or gifts were not tax deductible?		6b		
7	**Organizations that may receive deductible contributions under section 170(c).**				
a	Did the organization receive a payment in excess of $75 made partly as a contribution and partly for goods and services provided to the payor?		7a		
b	If "Yes," did the organization notify the donor of the value of the goods or services provided?		7b		
c	Did the organization sell, exchange, or otherwise dispose of tangible personal property for which it was required to file Form 8282?		7c		
d	If "Yes," indicate the number of Forms 8282 filed during the year	7d			
e	Did the organization, during the year, receive any funds, directly or indirectly, to pay premiums on a personal benefit contract?		7e		
f	Did the organization, during the year, pay premiums, directly or indirectly, on a personal benefit contract?		7f		
g	For all contributions of qualified intellectual property, did the organization file Form 8899 as required?		7g		
h	For contributions of cars, boats, airplanes, and other vehicles, did the organization file a Form 1098-C as required?		7h		
8	**Sponsoring organizations maintaining donor advised funds and section 509(a)(3) supporting organizations.** Did the supporting organization, or a donor advised fund maintained by a sponsoring organization, have excess business holdings at any time during the year?		8		
9	**Sponsoring organizations maintaining donor advised funds.**				
a	Did the organization make any taxable distributions under section 4966?		9a		
b	Did the organization make a distribution to a donor, donor advisor, or related person?		9b		
10	**Section 501(c)(7) organizations.** Enter:				
a	Initiation fees and capital contributions included on Part VIII, line 12	10a			
b	Gross receipts, included on Form 990, Part VIII, line 12, for public use of club facilities	10b			
11	**Section 501(c)(12) organizations.** Enter:				
a	Gross income from members or shareholders	11a			
b	Gross income from other sources (Do not net amounts due or paid to other sources against amounts due or received from them.)	11b			
12a	**Section 4947(a)(1) non-exempt charitable trusts.** Is the organization filing Form 990 in lieu of Form 1041?		12a		
b	If "Yes," enter the amount of tax-exempt interest received or accrued during the year	12b			

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Part VI Governance, Management, and Disclosure *For each "Yes" response to lines 2 through 7b below, and for a "No" response to line 8a, 8b, or 10b below, describe the circumstances, processes, or changes in Schedule O. See instructions.*

Section A. Governing Body and Management

				Yes	No
1a	Enter the number of voting members of the governing body	1a	4		
b	Enter the number of voting members that are independent	1b	4		
2	Did any officer, director, trustee, or key employee have a family relationship or a business relationship with any other officer, director, trustee, or key employee?	2			X
3	Did the organization delegate control over management duties customarily performed by or under the direct supervision of officers, directors or trustees, or key employees to a management company or other person?	3			X
4	Did the organization make any significant changes to its organizational documents since the prior Form 990 was filed?	4		X	
5	Did the organization become aware during the year of a material diversion of the organization's assets?	5			X
6	Does the organization have members or stockholders?	6		X	
7a	Does the organization have members, stockholders, or other persons who may elect one or more members of the governing body?	7a		X	
b	Are any decisions of the governing body subject to approval by members, stockholders, or other persons?	7b		X	
8	Did the organization contemporaneously document the meetings held or written actions undertaken during the year by the following:				
a	The governing body?	8a		X	
b	Each committee with authority to act on behalf of the governing body?	8b		X	
9	Is there any officer, director, trustee, or key employee listed in Part VII, Section A, who cannot be reached at the organization's mailing address? *If "Yes," provide the names and addresses in Schedule O*	9			X

Section B. Policies *(This Section B requests information about policies not required by the Internal Revenue Code.)*

			Yes	No
10a	Does the organization have local chapters, branches, or affiliates?	10a		X
b	If "Yes," does the organization have written policies and procedures governing the activities of such chapters, affiliates, and branches to ensure their operations are consistent with those of the organization?	10b		
11	Has the organization provided a copy of this Form 990 to all members of its governing body before filing the form?	11	X	
11A	Describe in Schedule O the process, if any, used by the organization to review this Form 990.			
12a	Does the organization have a written conflict of interest policy? *If "No," go to line 13*	12a	X	
b	Are officers, directors or trustees, and key employees required to disclose annually interests that could give rise to conflicts?	12b		X
c	Does the organization regularly and consistently monitor and enforce compliance with the policy? *If "Yes," describe in Schedule O how this is done*	12c		X
13	Does the organization have a written whistleblower policy?	13	X	
14	Does the organization have a written document retention and destruction policy?	14	X	
15	Did the process for determining compensation of the following persons include a review and approval by independent persons, comparability data, and contemporaneous substantiation of the deliberation and decision?			
a	The organization's CEO, Executive Director, or top management official	15a		X
b	Other officers or key employees of the organization	15b		X
	If "Yes" to line 15a or 15b, describe the process in Schedule O. (See instructions.)			
16a	Did the organization invest in, contribute assets to, or participate in a joint venture or similar arrangement with a taxable entity during the year?	16a		X
b	If "Yes," has the organization adopted a written policy or procedure requiring the organization to evaluate its participation in joint venture arrangements under applicable federal tax law, and taken steps to safeguard the organization's exempt status with respect to such arrangements?	16b		

Section C. Disclosure

17 List the states with which a copy of this Form 990 is required to be filed ▶ CA

18 Section 6104 requires an organization to make its Forms 1023 (or 1024 if applicable), 990, and 990-T (501(c)(3)s only) available for public inspection. Indicate how you make these available. Check all that apply.

☐ Own website ☐ Another's website ☒ Upon request

19 Describe in Schedule O whether (and if so, how), the organization makes its governing documents, conflict of interest policy, and financial statements available to the public.

20 State the name, physical address, and telephone number of the person who possesses the books and records of the organization: ▶

MARK TIBBETTS - 703-841-3200

1300 NORTH 17TH STREET, NO. 1752, ARLINGTON, VA 22209

Part VII Compensation of Officers, Directors, Trustees, Key Employees, Highest Compensated Employees, and Independent Contractors

Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees

1a Complete this table for all persons required to be listed. Report compensation for the calendar year ending with or within the organization's tax year. Use Schedule J-2 if additional space is needed.

- List all of the organization's **current** officers, directors, trustees (whether individuals or organizations), regardless of amount of compensation. Enter -0- in columns (D), (E), and (F) if no compensation was paid.
- List all of the organization's **current** key employees. See instructions for definition of "key employee."
- List the organization's five **current** highest compensated employees (other than an officer, director, trustee, or key employee) who received reportable compensation (Box 5 of Form W-2 and/or Box 7 of Form 1099-MISC) of more than $100,000 from the organization and any related organizations.
- List all of the organization's **former** officers, key employees, and highest compensated employees who received more than $100,000 of reportable compensation from the organization and any related organizations.
- List all of the organization's **former directors or trustees** that received, in the capacity as a former director or trustee of the organization, more than $10,000 of reportable compensation from the organization and any related organizations.

List persons in the following order: individual trustees or directors; institutional trustees; officers; key employees; highest compensated employees; and former such persons.

☐ Check this box if the organization did not compensate any current officer, director, or trustee.

(A) Name and Title	(B) Average hours per week	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
DAN O'DONNELL CHAIR	5.00	X		X				0.	0.	0.
JOHN SARTAIN VICE CHAIR/TREASURER	5.00	X		X				0.	0.	0.
MIKE DREVYANKO SECRETARY	5.00	X		X				0.	0.	0.
ROBERT JOHNSON TRUSTEE	5.00	X						0.	0.	0.
MARK TIBBETTS EXECUTIVE DIRECTOR	30.00			X				79,951.	0.	0.

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Part VII Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees *(continued)*

(A) Name and title	(B) Average hours per week	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
1b Total ▶								79,951.	0.	0.

2 Total number of individuals (including but not limited to those listed above) who received more than $100,000 in reportable compensation from the organization ▶ 0

		Yes	No
3	Did the organization list any former officer, director or trustee, key employee, or highest compensated employee on line 1a? *If "Yes," complete Schedule J for such individual*		X
4	For any individual listed on line 1a, is the sum of reportable compensation and other compensation from the organization and related organizations greater than $150,000? *If "Yes," complete Schedule J for such individual*		X
5	Did any person listed on line 1a receive or accrue compensation from any unrelated organization for services rendered to the organization? *If "Yes," complete Schedule J for such person*	X	

Section B. Independent Contractors

1 Complete this table for your five highest compensated independent contractors that received more than $100,000 of compensation from the organization. NONE

(A) Name and business address	(B) Description of services	(C) Compensation

2 Total number of independent contractors (including but not limited to those listed above) who received more than $100,000 in compensation from the organization ▶ 0

Form **990** (2009)

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Part VIII Statement of Revenue

			(A) Total revenue	(B) Related or exempt function revenue	(C) Unrelated business revenue	(D) Revenue excluded from tax under sections 512, 513, or 514
Contributions, gifts, grants and other similar amounts	1a Federated campaigns	1a				
	b Membership dues	1b				
	c Fundraising events	1c				
	d Related organizations	1d				
	e Government grants (contributions)	1e				
	f All other contributions, gifts, grants, and similar amounts not included above	1f				
	g Noncash contributions included in lines 1a-1f: $					
	h Total. Add lines 1a-1f					
Program Service Revenue		Business Code				
	2a MEMBERSHIP DUES	900099	613,364.	613,364.		
	b SITE PARTICIPATION FEE	900099	27,100.	27,100.		
	c					
	d					
	e					
	f All other program service revenue					
	g Total. Add lines 2a-2f		640,464.			
Other Revenue	3 Investment income (including dividends, interest, and other similar amounts)		847.			847.
	4 Income from investment of tax-exempt bond proceeds					
	5 Royalties					
		(i) Real	(ii) Personal			
	6a Gross Rents					
	b Less: rental expenses					
	c Rental income or (loss)					
	d Net rental income or (loss)					
		(i) Securities	(ii) Other			
	7a Gross amount from sales of assets other than inventory					
	b Less: cost or other basis and sales expenses					
	c Gain or (loss)					
	d Net gain or (loss)					
	8a Gross income from fundraising events (not including $ ____ of contributions reported on line 1c). See Part IV, line 18	a				
	b Less: direct expenses	b				
	c Net income or (loss) from fundraising events					
	9a Gross income from gaming activities. See Part IV, line 19	a				
	b Less: direct expenses	b				
	c Net income or (loss) from gaming activities					
	10a Gross sales of inventory, less returns and allowances	a				
	b Less: cost of goods sold	b				
	c Net income or (loss) from sales of inventory					
	Miscellaneous Revenue	Business Code				
	11a MISCELLANEOUS INCOME	900099	100.			100.
	b					
	c					
	d All other revenue					
	e Total. Add lines 11a-11d		100.			
	12 Total revenue. See instructions.		641,411.	640,464.	0.	947.

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Form 990 (2009)

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Part IX Statement of Functional Expenses

Section 501(c)(3) and 501(c)(4) organizations must complete all columns.
All other organizations must complete column (A) but are not required to complete columns (B), (C), and (D).

Do not include amounts reported on lines 6b, 7b, 8b, 9b, and 10b of Part VIII.	(A) Total expenses	(B) Program service expenses	(C) Management and general expenses	(D) Fundraising expenses
1 Grants and other assistance to governments and organizations in the U.S. See Part IV, line 21				
2 Grants and other assistance to individuals in the U.S. See Part IV, line 22				
3 Grants and other assistance to governments, organizations, and individuals outside the U.S. See Part IV, lines 15 and 16				
4 Benefits paid to or for members				
5 Compensation of current officers, directors, trustees, and key employees	79,951.			
6 Compensation not included above, to disqualified persons (as defined under section 4958(f)(1)) and persons described in section 4958(c)(3)(B)				
7 Other salaries and wages	46,396.			
8 Pension plan contributions (include section 401(k) and section 403(b) employer contributions)				
9 Other employee benefits				
10 Payroll taxes				
11 Fees for services (non-employees):				
a Management				
b Legal	15,745.			
c Accounting	7,875.			
d Lobbying				
e Professional fundraising services. See Part IV, line 17				
f Investment management fees				
g Other	66,848.			
12 Advertising and promotion	46,576.			
13 Office expenses	49,648.			
14 Information technology	10,533.			
15 Royalties				
16 Occupancy				
17 Travel	16,105.			
18 Payments of travel or entertainment expenses for any federal, state, or local public officials				
19 Conferences, conventions, and meetings	400.			
20 Interest				
21 Payments to affiliates				
22 Depreciation, depletion, and amortization				
23 Insurance	18,706.			
24 Other expenses. Itemize expenses not covered above. (Expenses grouped together and labeled miscellaneous may not exceed 5% of total expenses shown on line 25 below.)				
a HONEYWELL REIMBURSEMENT	222,755.			
b INCENTIVE PAYMENTS	27,331.			
c BINS EXPENSE	18,130.			
d SPONSORSHIP AND MEMBERS	1,080.			
e MISCELLANEOUS	846.			
f All other expenses	550.			
25 Total functional expenses. Add lines 1 through 24f	629,475.			
26 Joint costs. Check here ▶ ☐ if following SOP 98-2. Complete this line only if the organization reported in column (B) joint costs from a combined educational campaign and fundraising solicitation ...				

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Part X Balance Sheet

			(A) Beginning of year		(B) End of year
Assets	1	Cash - non-interest-bearing	91,519.	1	88,347.
	2	Savings and temporary cash investments		2	100,673.
	3	Pledges and grants receivable, net		3	
	4	Accounts receivable, net		4	325.
	5	Receivables from current and former officers, directors, trustees, key employees, and highest compensated employees. Complete Part II of Schedule L		5	
	6	Receivables from other disqualified persons (as defined under section 4958(f)(1)) and persons described in section 4958(c)(3)(B). Complete Part II of Schedule L		6	
	7	Notes and loans receivable, net		7	
	8	Inventories for sale or use		8	
	9	Prepaid expenses and deferred charges		9	
	10a	Land, buildings, and equipment: cost or other basis. Complete Part VI of Schedule D — 10a			
	b	Less: accumulated depreciation — 10b		10c	
	11	Investments - publicly traded securities		11	
	12	Investments - other securities. See Part IV, line 11		12	
	13	Investments - program-related. See Part IV, line 11		13	
	14	Intangible assets		14	
	15	Other assets. See Part IV, line 11		15	
	16	Total assets. Add lines 1 through 15 (must equal line 34)	91,519.	16	189,345.
Liabilities	17	Accounts payable and accrued expenses	196,696.	17	282,586.
	18	Grants payable		18	
	19	Deferred revenue		19	
	20	Tax-exempt bond liabilities		20	
	21	Escrow or custodial account liability. Complete Part IV of Schedule D		21	
	22	Payables to current and former officers, directors, trustees, key employees, highest compensated employees, and disqualified persons. Complete Part II of Schedule L		22	
	23	Secured mortgages and notes payable to unrelated third parties		23	
	24	Unsecured notes and loans payable to unrelated third parties		24	
	25	Other liabilities. Complete Part X of Schedule D		25	
	26	Total liabilities. Add lines 17 through 25	196,696.	26	282,586.
Net Assets or Fund Balances		Organizations that follow SFAS 117, check here ▶ [X] and complete lines 27 through 29, and lines 33 and 34.			
	27	Unrestricted net assets	<105,177.>	27	<93,241.>
	28	Temporarily restricted net assets		28	
	29	Permanently restricted net assets		29	
		Organizations that do not follow SFAS 117, check here ▶ [ ] and complete lines 30 through 34.			
	30	Capital stock or trust principal, or current funds		30	
	31	Paid-in or capital surplus, or land, building, or equipment fund		31	
	32	Retained earnings, endowment, accumulated income, or other funds		32	
	33	Total net assets or fund balances	<105,177.>	33	<93,241.>
	34	Total liabilities and net assets/fund balances	91,519.	34	189,345.

Form 990 (2009)

Part XI Financial Statements and Reporting

			Yes	No
1	Accounting method used to prepare the Form 990: ☐ Cash ☒ Accrual ☐ Other _____ If the organization changed its method of accounting from a prior year or checked "Other," explain in Schedule O.			
2a	Were the organization's financial statements compiled or reviewed by an independent accountant?	2a	X	
b	Were the organization's financial statements audited by an independent accountant?	2b		X
c	If "Yes" to line 2a or 2b, does the organization have a committee that assumes responsibility for oversight of the audit, review, or compilation of its financial statements and selection of an independent accountant? If the organization changed either its oversight process or selection process during the tax year, explain in Schedule O.	2c	X	
d	If "Yes" to line 2a or 2b, check a box below to indicate whether the financial statements for the year were issued on a consolidated basis, separate basis, or both: ☒ Separate basis ☐ Consolidated basis ☐ Both consolidated and separate basis			
3a	As a result of a federal award, was the organization required to undergo an audit or audits as set forth in the Single Audit Act and OMB Circular A-133?	3a		X
b	If "Yes," did the organization undergo the required audit or audits? If the organization did not undergo the required audit or audits, explain why in Schedule O and describe any steps taken to undergo such audits.	3b		

SCHEDULE J (Form 990)

Department of the Treasury
Internal Revenue Service

Compensation Information

For certain Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees

▶ Complete if the organization answered "Yes" to Form 990, Part IV, line 23.

▶ Attach to Form 990. ▶ See separate instructions.

OMB No. 1545-0047

2009

Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

Part I Questions Regarding Compensation

		Yes	No
1a	Check the appropriate box(es) if the organization provided any of the following to or for a person listed in Form 990, Part VII, Section A, line 1a. Complete Part III to provide any relevant information regarding these items.		
	☐ First-class or charter travel ☐ Travel for companions ☐ Tax indemnification and gross-up payments ☐ Discretionary spending account ☐ Housing allowance or residence for personal use ☐ Payments for business use of personal residence ☐ Health or social club dues or initiation fees ☐ Personal services (e.g., maid, chauffeur, chef)		
b	If any of the boxes on line 1a are checked, did the organization follow a written policy regarding payment or reimbursement or provision of all of the expenses described above? If "No," complete Part III to explain	1b		
2	Did the organization require substantiation prior to reimbursing or allowing expenses incurred by all officers, directors, trustees, and the CEO/Executive Director, regarding the items checked in line 1a?	2		
3	Indicate which, if any, of the following the organization uses to establish the compensation of the organization's CEO/Executive Director. Check all that apply.		
	☐ Compensation committee ☐ Independent compensation consultant ☐ Form 990 of other organizations ☐ Written employment contract ☐ Compensation survey or study ☐ Approval by the board or compensation committee		
4	During the year, did any person listed in Form 990, Part VII, Section A, line 1a, with respect to the filing organization or a related organization:		
a	Receive a severance payment or change-of-control payment?	4a		X
b	Participate in, or receive payment from, a supplemental nonqualified retirement plan?	4b		X
c	Participate in, or receive payment from, an equity-based compensation arrangement?	4c		X
	If "Yes" to any of lines 4a-c, list the persons and provide the applicable amounts for each item in Part III.			
	Only section 501(c)(3) and 501(c)(4) organizations must complete lines 5-9.			
5	For persons listed in Form 990, Part VII, Section A, line 1a, did the organization pay or accrue any compensation contingent on the revenues of:			
a	The organization?	5a		
b	Any related organization?	5b		
	If "Yes" to line 5a or 5b, describe in Part III.			
6	For persons listed in Form 990, Part VII, Section A, line 1a, did the organization pay or accrue any compensation contingent on the net earnings of:			
a	The organization?	6a		
b	Any related organization?	6b		
	If "Yes" to line 6a or 6b, describe in Part III.			
7	For persons listed in Form 990, Part VII, Section A, line 1a, did the organization provide any non-fixed payments not described in lines 5 and 6? If "Yes," describe in Part III	7		
8	Were any amounts reported in Form 990, Part VII, paid or accrued pursuant to a contract that was subject to the initial contract exception described in Regs. section 53.4958-4(a)(3)? If "Yes," describe in Part III	8		
9	If "Yes" to line 8, did the organization also follow the rebuttable presumption procedure described in Regulations section 53.4958-6(c)?	9		

LHA For Privacy Act and Paperwork Reduction Act Notice, see the Instructions for Form 990. Schedule J (Form 990) 2009

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5080811 790809 54-1830284 2009.04000 THERMOSTAT RECYCLING CORPOR 54-18301

Part II **Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees.** Use Schedule J-1 if additional space is needed.

For each individual whose compensation must be reported in Schedule J, report compensation from the organization on row (i) and from related organizations, described in the instructions, on row (ii). Do not list any individuals that are not listed on Form 990, Part VII.

Note. The sum of columns (B)(i)-(iii) must equal the applicable column (D) or column (E) amounts on Form 990, Part VII, line 1a.

(A) Name		(B) Breakdown of W-2 and/or 1099-MISC compensation			(C) Retirement and other deferred compensation	(D) Nontaxable benefits	(E) Total of columns (B)(i)-(D)	(F) Compensation reported in prior Form 990 or Form 990-EZ
		(i) Base compensation	(ii) Bonus & incentive compensation	(iii) Other reportable compensation				
MARK TIBBETTS	(i)	79,925.	0.	26.	0.	0.	79,951.	0.
	(ii)	0.	0.	0.	0.	0.	0.	0.
	(i)							
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	(ii)							
	(i)							
	(ii)							

Part III Supplemental Information

Complete this part to provide the information, explanation, or descriptions required for Part I, lines 1a, 1b, 4c, 5a, 5b, 6a, 6b, 7, and 8. Also complete this part for any additional information.

THE COMPENSATION REPORTED ON FORM 990, PART VII, SECTION A, LINE 1 WAS PAID BY THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION TO MARK TIBBETTS, THE EXECUTIVE DIRECTOR, FOR SERVICES RENDERED TO THE ORGANIZATION.

SCHEDULE O (Form 990)
Department of the Treasury
Internal Revenue Service

Supplemental Information to Form 990

Complete to provide information for responses to specific questions on Form 990 or to provide any additional information.
▶ Attach to Form 990.

OMB No. 1545-0047
2009
Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

FORM 990, PART VI, SECTION A, LINE 4: 1. ARTICLE IV: MEETINGS OF DIRECTORS WAS AMENDED TO PLACE LIMITATIONS ON THE ACTIONS OF THE BOARD OF DIRECTORS.

2. ARTICLE VII: FINANCIAL MATTERS WAS AMENDED TO ESTABLISH A BASE MEMBERSHIP FEE FOR ALL MEMBERS AND CHANGE THE METHODOLOGY FOR ASSESSING A PRORATED SHARE OF MEMBERSHIP FEES AMONG A SUBSET OF MEMBERS.

FORM 990, PART VI, SECTION A, LINE 6: THE INITIAL MEMBERS OF THIS CORPORATION SHALL BE GENERAL ELECTRIC CORPORATION, WHITE-RODGERS CORPORATION, AND HONEYWELL INC. EACH SUCH CORPORATION SHALL BE DEEMED AN ORIGINAL MEMBER OF THE CORPORATION, AND ALL THREE CORPORATIONS MAY BE REFERRED TO COLLECTIVELY IN THE BY-LAWS AS THE ORIGINAL MEMBERS.

FROM TIME TO TIME, THE BOARD OF DIRECTORS MAY INVITE OTHER THERMOSTAT MANUFACTURERS TO PARTICIPATE AS MEMBERS IN THE CORPORATION. SUCH A CORPORATION SHALL BECOME A MEMBER ONLY UPON PAYMENT OF FEES AS PROVIDED UNDER ARTICLE VII OF THE BY-LAWS.

FORM 990, PART VI, SECTION A, LINE 7A: THERE SHALL BE A NOMINATING COMMITTEE OF THE BOARD OF DIRECTORS, WHICH SHALL CONSIST OF THREE DIRECTORS, ALL OF WHOM ARE EMPLOYED BY ORIGINAL MEMBERS. ONE MONTH PRIOR TO THE ANNUAL MEETING OF THE CORPORATION, THE NOMINATING COMMITTEE SHALL

SCHEDULE O (Form 990)
Department of the Treasury
Internal Revenue Service

Supplemental Information to Form 990

Complete to provide information for responses to specific questions on Form 990 or to provide any additional information.
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APPROVE A SLATE OF NOMINEES MEETING THE QUALIFICATIONS SET FORTH IN SECTION 2 TO BE SUBMITTED TO THE MEMBERS FOR ELECTION AT THE ANNUAL MEETING.

FORM 990, PART VI, SECTION A, LINE 7B: THE BUSINESS AND AFFAIRS OF THE CORPORATION SHALL BE MANAGED BY BOARD OF DIRECTORS EXCEPT AS OTHERWISE PROVIDED BY LAW, BY THE ARTICLES OF INCORPORATION, OR BY THE BYLAWS.

FORM 990, PART VI, SECTION B, LINE 11: A COPY OF FORM 990 IS PROVIDED TO ALL GOVERNING MEMBERS BEFORE IT IS FILED.

FORM 990, PART VI, SECTION C, LINE 19: TRC MAKES ITS GOVERNING DOCUMENTS, CONFLICT OF INTEREST POLICY, AND FINANCIAL STATEMENTS AVAILABLE TO THE PUBLIC UPON REQUEST.

FORM 990, PART XI, LINE 2C

THIS PROCESS HAS REMAINED UNCHANGED FROM THE PRIOR YEAR.

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Appendix I: California Locations Requesting TRC Recycling Containers (as of March 2011)

Customer Type	Business Name	Address	City	State	ZIPCODE	ATTENTION	Total
CONTRACTOR	A-1 GUARANTEED	1768 BROADWAY	VALLEJO	CA	94589	RICHARD	1
CONTRACTOR	BILL HOWE HEATING & AIR	1364 MORENA BLVD #A	SAN DIEGO	CA	92110	MIGUEL SANCHEZ	1
CONTRACTOR	BUCKLEY PARNELL HEAT & AIR	5990 DEVECCHI AVE	CITRUS HEIGHTS	CA	95621	BRIAN	1
CONTRACTOR	CHIMNEY KRAFT	700 NORTHCREST DRIVE	CRESCENT CITY	CA	95531	DEANIE HANLON	1
CONTRACTOR	GOODCENTS	1322 DUPONT COURT	MANTECA	CA	95336	Tony CASTRO	1
CONTRACTOR	GOODCENTS	0	0	0	0	0	3
CONTRACTOR	GOODCENTS	1322 DUPONT CT.	MANTECA	CA	95336-0000	Tony CASTRO	2
CONTRACTOR	MAKI HEATING & AIR CONDITIONING, INC.	105B GI, A;ME	AUBURN	CA	95603	APRIL STEVENSON	1
CONTRACTOR	MATRIX HG, INC.	2355 WHITMAN RD. SUITE A	CONCORDIA	CA	94518	DEBBIE PULASKI	2
CONTRACTOR	MCCLELLAND Air CONDITIONING	801 MARAUDER STREET	CHICO	CA	95973	DENNIS MURAVEZ	2
CONTRACTOR	RICHARD HEATH & ASSOCIATES, INC	9480 TELSTAR AVENUE SUITE 2	El Monte	CA	91731-0000	ROBERT JAMES	2
CONTRACTOR	YUBA-SUTTER HHW FACILITY C/O YUBA-SUTTER DISPOSAL, INC	3001 N LEVEE ROAD	MARYSVILLE	CA	95901	MAGGIE JOHNSON	1
HHW FACILITY	ALAMEDA COUNTY HOUSEHOLD HAZ. WASTE PROGRAM	2091 W WINTON AVE	HAYWARD	CA	94545	BILL POLLOCK	6
HHW FACILITY	AMADOR COUNTY WASTE MANAGEMENT DEPT.	810 COURT STREET	JACKSON	CA	95642	JIM MCHARQUE	5
HHW FACILITY	BAY COUNTIES WASTE SERVICES	301 CARL ROAD	SUNNYVALE	CA	94089-0000	MAIRA SIMONE	2
HHW FACILITY	BUENA VISTA HHW FACILITY	150 ROUNDTREE LANE	WATSONVILLE	CA	95076-0000	KASEY KOLASSA	3

HHW FACILITY	BUTTE REGIONAL HHW COLLECTION FACILITY	1101 MARADER ST.	CHICO	CA	95973-0000	MALCOME MAXWELL	3
HHW FACILITY	CASTRO VALLEY SANITARY DISTRICT	21040 MARSHALL STREET	CASTRO VALLEY	CA	94546	NAOMI LUE	2
HHW FACILITY	Chicago Grade Landfill Household Hazardous Waste Drop-Off	HWY 41	Atascadero	CA	93422	(blank)	1
HHW FACILITY	CITY OF CARPINTERIA	5775 CARPINTERIA AVE.	CARPINTERIA	CA	93013	PAUL MEDEL	2
HHW FACILITY	CITY OF FREMONT PHHWCF	41149 BOYCE ROAD	FREMONT	CA	94538	BRUCE FRITZ	1
HHW FACILITY	CITY OF HIGHLAND	27215 BASELINE STREET	HIGHLAND	CA	92346	ANDREA SAAVEDRA	1
HHW FACILITY	CITY OF MADERA PUBLIC WORKS	1030 S. GATEWAY DRIVE	MADERA	CA	93637	Tony FREDE	1
HHW FACILITY	CITY OF REDDING SOLID WASTE	2255 ABERNATHY LANE	REDDING	CA	96003	CHRISTINA PILES	1
HHW FACILITY	CITY OF SACRAMENTO PHHWCF	8491 FRUITRIDGE ROAD	SACRAMENTO	CA	95826	SHARON SIMPSON	1
HHW FACILITY	CITY OF SAN DIEGO, HOUSEHOLD HAZARDOUS WASTE TRANSFER FACILITY	5161 CONVOY STREET	SAN DIEGO	CA	92111	JAMES CHEN	1
HHW FACILITY	CITY OF SAN DIEGO, MIRAMAR HHWCF	5161 CONVOY STREET	SAN DIEGO	CA	92111-0000	KIRK GALARNEAU	1
HHW FACILITY	CITY OF SANTA MARIA HHW FACILITY	2065 E. MAIN STREET	SANTA MARIA	CA	93454	RON VILANINO	2
HHW FACILITY	Cold Canyon Landfill Household Hazardous Waste Drop-Off	HWY 227	SAN LUIS OBISPO	CA	93401-0000	(blank)	1
HHW FACILITY	COLUSA COUNTY HHW PROGRAM	1215 MARKET STREET	COLUSA	CA	95932-0000	MIKE AZEVEDO	2
HHW FACILITY	COUNTY OF MARIPOSA	5593 HWY 49 NORTH	MARIPOSA	CA	95338	CALVIN JONES	6

HHW FACILITY	COUNTY OF SAN DIEGO HHW COLLECTION FACILITY, RAMONA	324 MAPLE STREET	RAMONA	CA	92065	REBECCA LAFRENIERE	1
HHW FACILITY	COUNTY OF SANTA CLARA	1555 BERGER DR SUITE 300	SAN JOSE	CA	95112	ROB D'ARCY	2
HHW FACILITY	COUNTY OF TUOLUMNE SOLID WASTE DIVISION	2 SOUTH GREEN ST.	SONORA	CA	95370	BELINDA	3
HHW FACILITY	COUNTY OF VENTURA-INTEGRATED WASTE MANAGEMENT DIVISION	800 SOUTH VICTORIA AVE	VENTURA	CA	93009-1650	Don Sheppard	2
HHW FACILITY	CV STRATEGIES	42600 CAROLINE COURT SUITE 102	PALM DESERT	CA	92211	(blank)	1
HHW FACILITY	CYPRESS CITY HALL	5275 ORANGE AVENUE	CYPRESS	CA	90630	ANTONIA CASTRO	4
HHW FACILITY	DEL NORTE COUNTY TRANSFER STATION	1700 STATE STREET	CRESCENT CITY	CA	95531	WES WHITE	1
HHW FACILITY	DELTA HHW COLLECTION FACILITY	2550 PITTSBURG-ANTIOCH HWY	Pittsburg	CA	94509-1373	JEFF IMACHI	1
HHW FACILITY	EL DORADO COUNTY ENVIRONMENTAL MGMT. DEPT.	2850 FOURLANE COURT	PLACERVILLE	CA	95667	DAVE JOHNSTON	1
HHW FACILITY	GLEN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	5700 COUNTY ROAD 33	ARTOIS	CA	95913-0000	MANDY KLEYKAMP	2
HHW FACILITY	HUMBOLDT WASTE MANAGEMENT AUTHORITY	1059 W. HAWTHORNE ST.	EUREKA	CA	95501-0000	CARLOS CHAVES	1
HHW FACILITY	KERN COUNTY SPECIAL WASTE FACILITY	17035 FINNIN AVE. #2	MOJAVE	CA	93501	ERIC CAMPBELL	1
HHW FACILITY	KERN COUNTY SPECIAL WASTE FACILITY	3301 BOWMAN ROAD	RIDGECREST	CA	93555	ERIC CAMPBELL	1
HHW FACILITY	KERN COUNTY SPECIAL WASTE FACILITY	4951 STANDARD ST.	BAKERSFIELD	CA	93308	ERIC CAMPBELL	1

HHW FACILITY	LUCIA MAR UNIFIED SCHOOL DISTRICT	222 STANLEY AVE	ARROYO GRANDE	CA	93420	MIKE BRUFFEY	1
HHW FACILITY	MADERA COUNTY HOUSEHOLD HAZARDOUS WASTE COLLECTION FACILITY	21739 ROAD 19	CHOWCHILLA	CA	93610	David Jones	2
HHW FACILITY	MADERA COUNTY PERMANENT HOUSEHOLD HAZ. WASTE FAC.	2037 W. CLEVELAND AVE	MADERA	CA	93637	KEITH QUINLAN	2
HHW FACILITY	MARIN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	565 JACOBY STREET	SAN RAFAEL	CA	94901	BRADLEY MARK	2
HHW FACILITY	MENDOCINO SOLID WASTE MANAGEMENT AUTHORITY	298A PLANT ROAD	UKIAH	CA	95482	MIKE SWEENEY	1
HHW FACILITY	MERCED COUNTY HHW	260 E 15TH ST.	MERCED	CA	95341-6216	WILLIAM PEELER	1
HHW FACILITY	MERCED COUNTY HHW	6040 N. HIGHWAY 59	MERCED	CA	95340	WILLIAM PEELER	1
HHW FACILITY	Morro Bay/Cayucos Waste Water Plant Household Hazardous Waste Drop-Off	160 Atascadero Road	Morro Bay	CA	93442	(blank)	1
HHW FACILITY	NEVADA COUNTY H.H.W. FACILITY	14741 WOLF MTN. RD.	GRASS VALLEY	CA	95949	Paul WILKIN	4
HHW FACILITY	Nipomo Household Hazardous Waste Drop-Off	509 Southland	Nipomo	CA	93444	(blank)	1
HHW FACILITY	ORO LOMA SANITARY DISTRICT	2600 GRANT AVE	SAN LORENZO	CA	94580-1838	Rodney Smith	2
HHW FACILITY	Palo Alto Public Works Dept	2501 Embarcadero Way	Palo Alto	CA	94303	Phil Bobel	1

HHW FACILITY	Paso Robles Landfill Household Hazardous Waste Drop-Off	Hwy 46 East	Paso Robles	CA	93446	(blank)	1
HHW FACILITY	PERMANENT HHW COLLECTION FACILITY	50 NATOMA ST.	FOLSOM	CA	95630	ROD MILLER	2
HHW FACILITY	PROFESSIONAL ASBESTOS REMOVEL CORPORATION dba PARC ENVIRONMENTAL	2706 S RAILROAD AVE	FRESNO	CA	93725	JEFF DAVIS	2
HHW FACILITY	RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	CA	91201-0000	CESAR CANTU	2
HHW FACILITY	SALINAS VALLEY SOLID WASTE HHWCF	139 SUN STREET	SALINAS	CA	93901	DAVID ROEL HHW	1
HHW FACILITY	SAN BERNADINO COUNTY HHW	2824 EAST W STREET, BLDG 302	SAN BERNADINO	CA	92408-0000	JONIE WALLACE	2
HHW FACILITY	SAN JOAQUIN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	7850 R.A. BRIDGEFORD STREET	STOCKTON	CA	95206	KIMBRA ANDREWS	3
HHW FACILITY	SAN LUIS OBISPO COUNTY INTEGRATED WASTE MANAGEMENT AUTHORITY	870 OSOS STREET	SAN LUIS OBISPO	CA	93401-0000	BILL WORRELL	2
HHW FACILITY	SAN MATEO COUNTY HHW FACILITY	32 TOWER ROAD	SAN MATEO	CA	94402	ELIZABETH ROYAN	1
HHW FACILITY	SONOMA COUNTY WASTE MANAGEMENT AG	500 MECHAM ROAD	PETALUMA	CA	94952	LISA STEINMAN	1
HHW FACILITY	SOUTH TAHOE REFUSE TRANSFER STATION	2140 Ruth AVE.	SOUTH LAKE TAHOE	CA	96150	JEREMY STEINHOUSE	2
HHW FACILITY	TEHAMA COUNTY/RED BLUFF LANDFILL MANAGEMENT AGENCY	19995 PLYMIRE ROAD	RED BLUFF	CA	96080	KRISTINA MILLER	4

HHW FACILITY	VENTURA HOUSEHOLD HAZARDOUS WASTE FACILITY	336 SAN JON ROAD	VENTURA	CA	93002	KAREN SEDLACEK	2
HHW FACILITY	WEST CONTRA COSTA PERMANENT HHW COLLECTION FACILITY	101 PITTSBURG AVENUE	RICHMOND	CA	94801-0000	NICOLE FORTE	2
HHW FACILITY	WESTERN PLACER WASTE MANAGEMENT AUTHORITY	NORTECH WASTE 3195 ATHENS AVE	LINCOLN	CA	95648	STEPHANIE THOMPSON	2
HHW FACILITY	YOLO COUNTY CENTRAL LANDFILL	44090 COUNTY ROAD 28H	WOODLAND	CA	95776	PAM HEDRICK	2
RETAIL	ANTIOCH ACE HARDWARE	501 SUNSET DRIVE	ANTIOCH	CA	94509-0000	JERRY THORPE	1
RETAIL	BERKELEY ACE HARDWARE	2145 UNIVERSITY AVENUE	BERKELEY	CA	94704-0000	JAMES CARPENTER	1
RETAIL	BILL'S ACE HARDWARE	3503 PACHECO BLVD.	MARTINEZ	CA	94553-0000	BILL WYGAL	2
RETAIL	BRENTWOOD ACE HARDWARE	8900 BRENTWOOD BLVD, STE J	BRENTWOOD	CA	94513-0000	JERRY THORPE	1
RETAIL	LAUREL ACE HARDWARE	4024 MACARTHUR BLVD	OAKLAND	CA	94619	ANDY CISNEROS	1
RETAIL	OAKLEY ACE HARDWARE	305 4TH STREET	OAKLEY	CA	94561-0000	JERRY THORPE	1
RETAIL	PITTSBURG ACE HARDWARE	125 E. LELAND ROAD	Pittsburg	CA	94565-0000	JERRY THORPE	1
RETAIL	SAN LUIS OBISPOS COUNTY INTEGRATED WASTE MANAGEMENT AUHTORITY	870 OSOS STREET	SAN LUIS OBISPO	CA	93401-0000	PATTI TOEWS	28
Wholesaler/Dist	AIR COLD SUPPLY	206 COMMERCIAL STREET	SAN JOSE	CA	95112	FERNANDO GIRARDI	1
Wholesaler/Dist	AIR COLD SUPPLY	640 AVON AVE	AZUSA	CA	91702-2044	ERIC S.	2
Wholesaler/Dist	AIR COLD SUPPLY # 1057	26470 SUMMIT CIRCLE	SANTA CLARITA	CA	91350-2991	ANDY SHIRLEY	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	11244 PLAYA COURT BRANCH 1048	CULVER CITY	CA	90230	JOHN BELLUCCI	1

Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	1144 WEST AVENUE, L-12 BRANCH 1053	LANCASTER	CA	93534	VYONEE SZALAI	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	1224 NORTH MARSHALL BRANCH 1581	EL CAJON	CA	92020	ROB SHERMAN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	0	0	0	92020-0000	TERRY BIERFREUND	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	12841 PRODUCTION PLACE BRANCH 1055	VICTORVILLE	CA	92395	DONALD PICKENS	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	1346 SOUTH CLAUDINA STREET BRANCH 692	ANAHEIM	CA	92805-6234	JOHN MAMOLA	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	13500 SATICOY STREET	VAN NUYS	CA	91402	David Jones	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	149 B GRANADA DRIVE BRANCH 1894	SAN LUIS OBISPO	CA	93401-7316	DAVID GUZMAN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	2750 SOUTH TOWNE AVENUE BRANCH 1183	POMONA	CA	91766	CARLOS SERRANO	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	2751 DURAHART STREET BRANCH 570	RIVERSIDE	CA	92507	STEVE GUTIERREZ	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	289 NORTH MCARTHUR WAY BRANCH 1081	UPLAND	CA	91786	TYLER BROWN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	3550 LA CRUZ WAY BRANCH 1893	Paso Robles	CA	93446	JIM WERN	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	429 MADERA STREET BRANCH 1059	SAN GABRIEL	CA	91776	ED FERNANDEZ	1
Wholesaler/Dist	AIR COLD-A FERGUSON ENTERPRISE	887 LAWRENCE DRIVE BRANCH 1056	NEWBURY PARK	CA	91320	GARY LANOUETTE	1
Wholesaler/Dist	ALLIED REFRIGERATION	1211 EAST EDINGER AVENUE	TUSTIN	CA	92780-0000	DAVID RIVERA	1
Wholesaler/Dist	ALLIED REFRIGERATION	1256 PRICE STREET	POMONA	CA	91767-5840	SCOTT MELTON	1
Wholesaler/Dist	ALLIED REFRIGERATION	1375 EAST 15TH STREET	LOS ANGELES	CA	90021-0000	VICTOR PEREZ	1
Wholesaler/Dist	ALLIED REFRIGERATION	15558 CABRITO ROAD	VAN NUYS	CA	91406-0000	AL ORTEGA	1
Wholesaler/Dist	ALLIED REFRIGERATION	1928 DON LEE PLACE	ESCONDIDO	CA	92029-0000	BRIAN JACKSON	1
Wholesaler/Dist	ALLIED REFRIGERATION	199 SOUTH MARSHALL STREET	EL CAJON	CA	92020-0000	TONY HAYMES	1
Wholesaler/Dist	ALLIED REFRIGERATION	2170 COMMERCE AVENUE, UNIT U	CONCORD	CA	94520-0000	CHARLEY KIM	1

Wholesaler/Dist	ALLIED REFRIGERATION	2175 ADAMS AVENUE	SAN LEANDRO	CA	94577-0000	NICK DEMAURI	1
Wholesaler/Dist	ALLIED REFRIGERATION	2300 EAST 28TH STREET	SIGNAL HILL	CA	90755-0000	MARC MEICHT	1
Wholesaler/Dist	ALLIED REFRIGERATION	306 SOUTH NINTH AVENUE	CITY OF INDUSTRY	CA	91746-0000	JOE RUIZ	1
Wholesaler/Dist	ALLIED REFRIGERATION	34660 DATE PALM DRIVE	CATHEDRAL CITY	CA	92234-0000	ED FITHIAN	1
Wholesaler/Dist	ALLIED REFRIGERATION	404 S. I STREET	SAN BERNADINO	CA	92410-0000	JEFF MELTON	1
Wholesaler/Dist	ALLIED REFRIGERATION	702 EAST GISH ROAD	SAN JOSE	CA	95112-0000	JEFF BELKNAP	1
Wholesaler/Dist	ALLIED REFRIGERATION	7823 OSTROW STREET	SAN DIEGO	CA	92111-0000	JOE ESKEY	1
Wholesaler/Dist	ALLIED REFRIGERATION	8480 HIGUERA STREET	CULVER CITY	CA	90232-0000	RENNY NICHOLS	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	1086 KRAEMER PL.	ANAHEIM	CA	92806-0000	LARRY LUCERO	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	1405-2 GRANITE LN.	MODESTO	CA	95351-0000	CHUCK EDDINGS	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	145 11TH ST.	SAN FRANCISCO	CA	94103-0000	BRUCE IRWIN	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	1501 POMONA RD. STE. 102	CORONA	CA	92880-0000	MARIO GRANADOS	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	245 SUTTON PL.	SANTA ROSA	CA	95407-0000	JIM CARTER	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	2703 5TH ST. STE 7	SACRAMENTO	CA	95818-0000	Paul CARROLL	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	325 5TH ST.	OAKLAND	CA	94607-0000	JESUS LERMA	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	399 S. ARROWHEAD AVE.	SAN BERNARDINO	CA	92408-0000	JEFF CLARK	1

Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	444 LITTLEFIELD	S SAN FRANCISCO	CA	94080-0000	BARRY SMITH	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	6110 VALLEY VIEW AVE.	BUENA PARK	CA	90620-0000	GARY GARNER	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	740 E. HAZELTON AVE.	STOCKTON	CA	95203-0000	MICHAEL FOX	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	7874 RONSON RD.	SAN DIEGO	CA	92111-0000	Steve EMORY	1
Wholesaler/Dist	AMERICAN REFRIGERATION SUPPLIES INC.	910 JUSTIN AVE.	GLENDALE	CA	91201-0000	Steve KONESS	1
Wholesaler/Dist	ATWATER SUPPLY	1903 FRIENDSHIP DRIVE	EL CAJUN	CA	92020	JOHN MAUTINO	1
Wholesaler/Dist	ATWATER SUPPLY	42655 RIO NEDO	TEMECALA	CA	92590	LARRY ROBINSON	1
Wholesaler/Dist	Baker Distributing Co.	1295 EMERALD AVE. SUITE D	MODESTO	CA	95351-0000	ROD BORBA	1
Wholesaler/Dist	Baker Distributing Co.	1351 OLD BAYSHORE	SAN JOSE	CA	95112-0000	DANNY CORONADO	1
Wholesaler/Dist	Baker Distributing Co.	1501 MINNESOTA ST.	SAN FRANCISCO	CA	94107-0000	JIM SEWELL	1
Wholesaler/Dist	Baker Distributing Co.	1853 E. MCKINLEY AVE.	FRESNO	CA	93703-0000	RUSS AVILA	1
Wholesaler/Dist	Baker Distributing Co.	2065 COMMERCE AVENUE	CONCORD	CA	94520-0000	STEVE LANFRI	1
Wholesaler/Dist	Baker Distributing Co.	2375 DAVIS ST.	SAN LEANDRO	CA	94577-2205	MARK JOHNSON	1
Wholesaler/Dist	Baker Distributing Co.	300 WEST ROBLES BLDG J.	SANTA ROSA	CA	95407-0000	DON MEIXSELL	1
Wholesaler/Dist	Baker Distributing Co.	3000 ORANGE GROVE AVE.	NORTH HIGHLANDS	CA	95660-0000	TAMI BENSON	1
Wholesaler/Dist	Baker Distributing Co.	6805 SIERRA COURT, #E	DUBLIN	CA	94568-0000	DAVID SCOTT	1
Wholesaler/Dist	Baker Distributing Co.	849 WEST 8TH ST.	CHICO	CA	95926-0000	BRIAN HUDSON	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	1225 NORTH FIFTH STREET	SAN JOSE	CA	95112-0000	TOM GLENN	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	1312 ALLEC ST.	ANAHEIM	CA	92805-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	155 W. VICTORIA ST.	LONG BEACH	CA	90805-0000	(blank)	1

Wholesaler/Dist	BURKE ENGINEERING COMPANY	1790 IOWA AVENUE	RIVERSIDE	CA	92507	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	3190 ORANGE GROVE AVE. A	NORTH HIGHLANDS	CA	95660	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	3190 ORANGE GROVE AVENUE	NORTH HIGHLANDS	CA	95660-0000	PAMELA VILLANUEVA	2
Wholesaler/Dist	BURKE ENGINEERING COMPANY	3190-A ORANGE GROVE AVE.	N. HIGHLANDS	CA	95660-5706	MIKE ALMANZA	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	4250 PEPSI DR # D	SAN DIEGO	CA	92111-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	6605 ODESSA AVENUE	VAN NUYS	CA	91406-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	7303 EDGEWATER DRIVE, #A	OAKLAND	CA	94621-3016	MICHAEL JONES	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	7303 EDGEWATER DRIVE, UNIT A	OAKLAND	CA	94621-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	74488 VILLAGE DR	CHINO	CA	90708-0000	(blank)	1
Wholesaler/Dist	BURKE ENGINEERING COMPANY	9700 FACTORIAL WAY	El Monte	CA	91733-1799	(blank)	10
Wholesaler/Dist	CALIFORNIA COOLING	1922 FRIENDSHIP DRIVE	EL CAJON	CA	92020-0000	BOB BIGLER	2
Wholesaler/Dist	CALIFORNIA COOLING	239 W. ORANGE AVE	EL CENTRO	CA	92243-0000	MIGUEL ROA	2
Wholesaler/Dist	CALIFORNIA COOLING	622 S. VINEWOOD ST.	ESCONDIDO	CA	92029-0000	PETE HARRIS	2
Wholesaler/Dist	CALIFORNIA COOLING SUPPLY	14718 RAYMER ST. SUITE C	VAN NUYS	CA	91405	ANTHONY GIST	2
Wholesaler/Dist	CALIFORNIA REFRIGERATION SUPPLY INC	1718 FAIRWAY DR	SAN LEANDRO	CA	94577-0000	KEVIN HUNTER	1
Wholesaler/Dist	CASS, INC	2730 PERALTA STREET	OAKLAND	CA	94607	BILL INMAN	1
Wholesaler/Dist	CFM EQUIPMENT DIST.	1644 MAIN AVE. SUITE 1	SACRAMENTO	CA	95838-0000	JIM GARRETT	1
Wholesaler/Dist	CONTROLCO	15375 BARRANCA PKWY, I - 104	IRVINE	CA	92618	GABE TRINIDAD	1
Wholesaler/Dist	CONTROLCO	210 VAN NESS	FRESNO	CA	93721-0000	JENNIE SCHWAN	1
Wholesaler/Dist	CONTROLCO	251 OPPORTUNITY STREET, B	SACRAMENTO	CA	95838	STEVE GALL	1

Wholesaler/Dist	CONTROLCO	320 KENTUCKY STREET	BAKERSFIELD	CA	93305	LARRY JOHNSON	1
Wholesaler/Dist	CONTROLCO	35 DORMAN, #2	SAN FRANCISCO	CA	94124	DAVE DOMINGUEZ	1
Wholesaler/Dist	CONTROLCO	5600 IMHOTT DRIVE, SUITE G	CONCORD	CA	94520	BRIDGET TURNER	1
Wholesaler/Dist	CONTROLCO	840 66TH AVENUE	OAKLAND	CA	96421	BILL PROMES	1
Wholesaler/Dist	D & D PLUMBING HEATING & COOLING	28 UNION WAY	VACAVILLE	CA	95687	DAN MOORE	1
Wholesaler/Dist	DAN GOETZ WHOLESALE OUTLET INC	335 O'HAIR COURT, SUITE A	SANTA ROSA	CA	95407	DAN GOETZ	1
Wholesaler/Dist	DIAL ONE -- SERVICE EXPERTS	4670 PACIFIC STREET, STE. 100	ROCKLIN	CA	95677-0000	BOB WIKSE	1
Wholesaler/Dist	FACSCO	1528 N. THESTA STREET	FRESNO	CA	93703-0000	JIM LITTLE	2
Wholesaler/Dist	FERGUSON HEATING & COOLING	605 EAST CERRITOS AVENUE	ANAHEIM	CA	92805	ERIC BAUSERMAN	1
Wholesaler/Dist	FERGUSON HEATING & COOLING	640 AYON AVENUE BRANCH 1050	AZUSA	CA	91702	CORNELIO ARREOLA	1
Wholesaler/Dist	FERGUSON HEATING & COOLING	903 NORTH MARKET BOULEVARD	SACRAMENTO	CA	95834	DEREK MURRAY	1
Wholesaler/Dist	FERGUSON HEATING & COOLING	9349 OSO AVENUE BRANCH 1049	CHATSWORTH	CA	91702	MICHAEL RITTNER	1
Wholesaler/Dist	FIX AIR AUTHORIZED Trane PARTS	890 SERVICE ST., UNIT A	SAN JOSE	CA	95112-0000	TONY V.	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	1161 W. BRADLEY AVE.	EL CAJON	CA	92030-1503	CLIFF PEEBLES	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	1162 W. BRADLEY AVE.	EL CAJON	CA	92030-1503	JACK CAMPAGNA	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	1200 E. CERRITOS AVENUE	ANAHEIM	CA	92805-0000	KEVIN CURTIN	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	31050 HUNTWOOD AVENUE	HAYWARD	CA	94544-0000	DENISE DOE	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	333 S. TEILMAN AVE.	FRESNO	CA	93706-0000	CLIFF PEEBLES	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	333 S. TEILMAN AVENUE	FRESNO	CA	93706-0000	CHRIS VILLHAUER	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	3443 NIKI WAY	RIVERSIDE	CA	92507-6812	MIKE WALLIS	1
Wholesaler/Dist	GEARY PACIFIC SUPPLY	4365 JETWAY COURT	NORTH HIGHLANDS	CA	95660-5701	KENNY STOVES	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	6421 BOX SPRINGS BLVD.	RIVERSIDE	CA	92507-0000	EFRAIN HURTADO	2
Wholesaler/Dist	GEARY PACIFIC SUPPLY	6918 VALJEAN AVENUE	VAN NUYS	CA	91406-0000	JESSE WILLIAMSON	2

Wholesaler/Dist	GEARY PACIFIC SUPPLY	8711 AIRPORT ROAD	REDDING	CA	96002-9223	JASON SANCHEZ	1
Wholesaler/Dist	GENIE AIR CONDITIONING & HEATING, INC	15035 CAUFA STREET	SHERMAN OAKS	CA	91411	YOLANDA	1
Wholesaler/Dist	GEORGE T. HALL	1257 GOODRICH BLVD	LOS ANGELES	CA	90022	RAY TORRES	1
Wholesaler/Dist	GEORGE T. HALL	15915 ARMINTA ST	VAN NUYS	CA	91406	DEE BUSS	1
Wholesaler/Dist	GEORGE T. HALL	1605 GENE AUTRY WAY	ANAHEIM	CA	95805	DINA HARRIS	1
Wholesaler/Dist	GEORGE T. HALL	4289 TAYLOR STREET	SAN DIEGO	CA	92110	BILL BRENNAN	1
Wholesaler/Dist	GOODMAN DISTRIBUTING	1070 COMMERCIAL STREET STE 103	SAN JOSE	CA	95112	RON	1
Wholesaler/Dist	Goodman Distribution	1070 Commercial Street, Suite 103	SAN JOSE	CA	95112	Ron Rodriguez	1
Wholesaler/Dist	Goodman Distribution	1101 Oates Court Ste 100	MODESTO	CA	95358	George Wanner	1
Wholesaler/Dist	Goodman Distribution	1150 McCullom Street	EL CENTRO	CA	92243	Javier Sanchez	1
Wholesaler/Dist	Goodman Distribution	1225 N. Kraemer Blvd.	ANAHEIM	CA	92806	Larry Baker	1
Wholesaler/Dist	Goodman Distribution	15024 Anacapa Road	VICTORVILLE	CA	92392	Don Johnston	1
Wholesaler/Dist	Goodman Distribution	1900 Compton Ave Suite 102	CORONA	CA	92881	Kesh Patel	1
Wholesaler/Dist	Goodman Distribution	1972 Essex Ct	Redlands	CA	92373	David Chadwick	1
Wholesaler/Dist	Goodman Distribution	2364 W Winton Ave	HAYWARD	CA	94545	Charlie Schwalb	1
Wholesaler/Dist	Goodman Distribution	2601 Teepee Dr.	STOCKTON	CA	95205	Don Carlson	1
Wholesaler/Dist	Goodman Distribution	2620 East Byrd Avenue	FRESNO	CA	93706	Joe Munoz	1
Wholesaler/Dist	Goodman Distribution	2823 Gibson Street	BAKERSFIELD	CA	93308	Jeremy Brown	1
Wholesaler/Dist	Goodman Distribution	300 N. Graves Avenue, Unit C	OXNARD	CA	93030	Greg Steele	1
Wholesaler/Dist	Goodman Distribution	30720 Gunther Street	Palm Springs	CA	92276	Dylan Weatherford	1
Wholesaler/Dist	Goodman Distribution	315 Cloverleaf Drive	BALDWIN PARK	CA	91706	Daniel Berliner	1
Wholesaler/Dist	Goodman Distribution	3334 San Fernando Rd #102	LOS ANGELES	CA	90065	Abraham Torres	1
Wholesaler/Dist	Goodman Distribution	3562 Ruffin Road	SAN DIEGO	CA	92123	Stephen Thoresen	1
Wholesaler/Dist	Goodman Distribution	3633 Lenawee Ave. Ste 180	LOS ANGELES	CA	90016	Anthony Chavis	1
Wholesaler/Dist	Goodman Distribution	3648 Industry Avenue	LAKEWOOD	CA	90712	Ryan Czudak	1
Wholesaler/Dist	Goodman Distribution	4020 Nelson Ave. Suite 100	CONCORD	CA	94520	Peter Meeker	1
Wholesaler/Dist	Goodman Distribution	40222a LaQuinta Lane, Suite 101	PALMDALE	CA	93551	Eric Denslow	1
Wholesaler/Dist	Goodman Distribution	41670 Reagan Way	MURRIETA	CA	92562	Abraham Alvarado	1
Wholesaler/Dist	Goodman Distribution	5160 Richton St. Suite A	Montclair	CA	91763	Heidi Richardson	1

Wholesaler/Dist	Goodman Distribution	525 Park Avenue Suite A	San Fernando	CA	91340	Larry Girton	1
Wholesaler/Dist	Goodman Distribution	840 N. 10th Street, Suite J	SACRAMENTO	CA	95811	Alex Iaconis	1
Wholesaler/Dist	Goodman Distribution	8825 Washington Boulevard, Suite 400	ROSEVILLE	CA	95678	TIM BRIGGS	1
Wholesaler/Dist	Goodman Distribution	9621 Oates Dr	SACRAMENTO	CA	95827	Joel Beyers	1
Wholesaler/Dist	HOWARD INDUSTRIES	8855 WASHINGTON	CULVER CITY	CA	90232-0000	LARRY WINTER	6
Wholesaler/Dist	INVENSYS CLIMATE CONTROLS, NORTH AMERICA	151 SOUTH PROMENADE AVENUE	CORONA	CA	92879-0000	DAVE WILSON	4
Wholesaler/Dist	JOHNSTONE SUPPLY #098	200 TALMADGE DRIVE	SANTA ROSA	CA	95407	GARY PERKINS	1
Wholesaler/Dist	JOHNSTONE SUPPLY #140	1335 DAYTON ST. SUITE A	SALINAS	CA	93901	TROY TAYLOR	1
Wholesaler/Dist	JOHNSTONE SUPPLY #328	870 PIPER AVE	MERCED	CA	95341	LARRY JOHNSON	1
Wholesaler/Dist	JOHNSTONE SUPPLY #329	1000 N. BURKE	VISALIA	CA	93292	JOHN SCOTT	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	1070 COMMERCIAL ST, STE 104	SAN JOSE	CA	95112-0000	JOANN GRAHAM	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	13211 SPRING STREET	BALDWIN PARK	CA	91706-2289	ERIN	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	1385 N. MAGNOLIA AVE	EL CAJON	CA	92020-0000	JOHN	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	1445 SAN MATEO AVENUE	SOUTH SAN FRANCISCO	CA	94080-0000	KRESH	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	2132 AVIATION DRIVE	UPLAND	CA	91786-5720	ERIN	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	23211 DEL LAGO DRIVE	LAGUNA HILLS	CA	92653-1307	AMANDA WILLS	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	2331 COMMERCE AVE #E	CONCORD	CA	94520-0000	JEMMA PARSONS	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	3015 S. KILSON DRIVE	SANTA ANA	CA	92707-0000	AMANDA WILLS	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	333 MARKET ST	OAKLAND	CA	94607-0000	JOANN GRAHAM	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	42342 10TH ST WEST SUITE A	LANCASTER	CA	93534	ADRIEN ROCHA	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	4320 PACIFIC HWY	SAN DIEGO	CA	92110	DAVE WILCOX	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	0	0	0	92110-0000	DAVID	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	477 QUILLCO CT	SANTA ROSA	CA	95407-0000	GARY PERKINS	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	5658 E. CLINTON AVE.	FRESNO	CA	93727-0000	CHRISTI	2
Wholesaler/Dist	JOHNSTONE SUPPLY CO	8639 TAMARACK AVE	SUN VALLEY	CA	91352-0000	JULIAN MOSER	1
Wholesaler/Dist	JOHNSTONE SUPPLY CO	900 S. ANDREASEN	ESCONDIDO	CA	92029-0000	Chris	1

Wholesaler/Dist	JOHNSTONE SUPPLY OF LONE BEACH	2810 TEMPLE AVE.	LONG BEACH	CA	90806-2213	(blank)	1
Wholesaler/Dist	JOHNSTONE SUPPLY OF REDDING	940 WALL STREET	REDDING	CA	96002	JAMES HOMEM	1
Wholesaler/Dist	JOHNSTONE SUPPLY UPLAND	2132 AVIATION DRIVE	UPLAND	CA	91786-5720	(blank)	1
Wholesaler/Dist	JOHNSTONE SUPPLY-ANAHEIM	518 E BALL ROAD	ANAHEIM	CA	92805-0000	PAUL	1
Wholesaler/Dist	JOHNSTONE-COMMERCE	8040 SLAUSON AVENUE	MONTEBELLO	CA	90640	LONNIE AGUILAR	1
Wholesaler/Dist	JOHNSTONE-SANTA BARBARA	220 WEST GUTIERREZ STREET	SANTA BARBARA	CA	93101	LEE FRAZIER	1
Wholesaler/Dist	JOHNSTONE-THOUSAND OAKS	2645 TOWNSGATE ROAD # 600	THOUSAND OAKS	CA	91361	JIM FAULKNER	1
Wholesaler/Dist	JOHNSTONE-VENTURA	5960 VALENTINE ROAD # 3	VENTURA	CA	93003	CARLOS PEREZ	1
Wholesaler/Dist	Lennox Industries Inc.	1021 STRIKER AVENUE	SACRAMENTO	CA	95835-0000	SHAWN PAPKE	2
Wholesaler/Dist	Lennox Industries Inc.	1059 VINE STREET, SUITE 108	SACRAMENTO	CA	95814-0321	TIM BRIGGS	2
Wholesaler/Dist	Lennox Industries Inc.	12775 RESERVOIR STREET	CHINO	CA	91710-2943	RICK BALDONADO	2
Wholesaler/Dist	Lennox Industries Inc.	2500 E. FRANCIS STREET	ONTARIO	CA	91761-0000	RICK BALDONADO	2
Wholesaler/Dist	Lennox Industries Inc.	3410 SAN FERNANDO ROAD, UNIT 5	LOS ANGELES	CA	90065-0000	CHARLIE DIAZ	2
Wholesaler/Dist	Lennox Industries Inc.	7670 TRADE STREET, STE. A - D	SAN DIEGO	CA	92121-0000	DAN TOPPINS	2
Wholesaler/Dist	MSI HVAC	11700 INDUSTRY	FONTANA	CA	92337	MARSHALL SCOTT	1
Wholesaler/Dist	MSI HVAC	2344 MEYERS AVE	ESCONDIDO	CA	92029	ERIC ROUSH	1
Wholesaler/Dist	MSI HVAC	23456 SOUTH POINTE #B	LAGUNA HILLS	CA	92653	ALONSO COBODA	1
Wholesaler/Dist	NORTHAIRE SUPPLY CO INC	1359 OAKLAND ROAD	SAN JOSE	CA	95112-0000	GREG	1
Wholesaler/Dist	PACIFIC HEATING & COOLING SUPPLY, INC,	3720 LA CRUZ WAY	TEMPLETON	CA	93465-0000	DON SCRIVNER	1
Wholesaler/Dist	R.S.D.	3355 McMAUDE PL	SANTA ROSA	CA	95407	(blank)	1
Wholesaler/Dist	RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	CA	91201	SILVIA/CESAR	1
Wholesaler/Dist	REFRIGERATION SUPPLIES DISTRIBUTOR	43300 BUSINESS PARK DR.	TEMECULA	CA	92590	MARK RAMIREZ	1

Wholesaler/Dist	REFRIGERATION SUPPLIES DISTRIBUTOR	43300 BUSINESS PARK DR. # A102	TEMECULA	CA	92590	MARK RAMIREZ	1
Wholesaler/Dist	RSD	10170 CROYDON WAY SUITE 1	SACRAMENTO	CA	95827-0000	JOHN PULLIN	2
Wholesaler/Dist	RSD	0	0	0	95827-2104	JOHN PULLIN	1
Wholesaler/Dist	RSD	1050 COMMERCIAL STREET, #105	SAN JOSE	CA	95112-0000	J.R. BUSTAMANTE	2
Wholesaler/Dist	RSD	110 EAST MAIN STREET	EL CENTRO	CA	92243-2589	LEE GRIDER	2
Wholesaler/Dist	RSD	1121 LONE PALM AVENUE, #A	MODESTO	CA	95351-0000	GREG SMITH	2
Wholesaler/Dist	RSD	1201 MONTEREY PASS ROAD	MONTEREY PARK	CA	91754-3616	ROB ACOSTA	1
Wholesaler/Dist	RSD	1340 GALAXY WAY, STE. H, I, J	CONCORD	CA	94520-0000	DAVE COBB	1
Wholesaler/Dist	RSD	1376 STEALTH STREET	LIVERMORE	CA	94551-0000	WILLIAM WALLACE	4
Wholesaler/Dist	RSD	14766 RAYMER STREET	VAN NUYS	CA	91405-0000	DAN SIMPSON	1
Wholesaler/Dist	RSD	14901 RAYMER ST	VAN NUYS	CA	91405-0000	DAN SIMPSON	1
Wholesaler/Dist	RSD	1615 EAST CYPRESS	REDDING	CA	96002-1369	BOB HUNT	1
Wholesaler/Dist	RSD	1670 INDUSTRIAL BLVD.	CHULA VISTA	CA	91911-0000	JEFF LEGGITT	2
Wholesaler/Dist	RSD	1721 LOGAN AVENUE	SAN DIEGO	CA	92113-1006	RANDY HORMAN	2
Wholesaler/Dist	RSD	1833 EAST MAIN STREET	VISALIA	CA	93292-6768	GARY GURON	2
Wholesaler/Dist	RSD	1933 S VINEYARD AVE	ONTARIO	CA	91761-0000	MIKE PETTIT	2
Wholesaler/Dist	RSD	2100 E. WILSHIRE AVE	SANTA ANA	CA	92705-0000	MIKE PETTIT	1
Wholesaler/Dist	RSD	2100 WILSHIRE AVENUE, UNIT A	SANTA ANA	CA	92705-0000	DAVE WATERS	1
Wholesaler/Dist	RSD	21727 NORDHOFF STREET	CHATSWORTH	CA	91311	DAVE LaMEAR	2
Wholesaler/Dist	RSD	2208 EAST MCKINLEY AVENUE	FRESNO	CA	93703-3005	TOMMY THOMPSON	2
Wholesaler/Dist	RSD	2350 LEXINGTON STREET	SACRAMENTO	CA	95815-3216	JIM BRANSCUM	2
Wholesaler/Dist	RSD	2551 S. TOWNWELL DRIVE	CONCORD	CA	94520-0000	DAVE COBB	1
Wholesaler/Dist	RSD	2601 ATLANTIC OCEAN DR.	LAKE FOREST	CA	92630	JEFF GAUDERN	1
Wholesaler/Dist	RSD	26021 ATLANTIC OCEAN DRIVE	LAKE FOREST	CA	92630-0000	MIKE PETTIT	1
Wholesaler/Dist	RSD	285 LAWRENCE AVENUE	SOUTH SAN FRANCISCO	CA	94080-6818	MIKE MCCORKHILL	2
Wholesaler/Dist	RSD	2882 TEEPEE DRIVE	STOCKTON	CA	95205-0000	CHAD MCAFEE	3
Wholesaler/Dist	RSD	2890 E CORONADO ST	ANAHEIM	CA	92806	DAN WEAVER	1
Wholesaler/Dist	RSD	2890 E. CORONADO ST.	ANAHEIM	CA	92806-1760	JOE LARSON	1
Wholesaler/Dist	RSD	3355 MCMAUDE PLACE	SANTA ROSA	CA	95407-0000	Scott Iverson	2
Wholesaler/Dist	RSD	4131 LATHAM STREET	RIVERSIDE	CA	92501-0000	JEFF BLANTON	2
Wholesaler/Dist	RSD	436 HESTER STREET	SAN LEANDRO	CA	94577-1024	MIKE PRETO	2

Wholesaler/Dist	RSD	527 BRUNKEN AVENUE	SALINAS	CA	93901-0000	HOWARD CHITWOOD	2
Wholesaler/Dist	RSD	5910 BOWCROFT STREET	LOS ANGELES	CA	90016-0000	JIM PINAULT	2
Wholesaler/Dist	RSD	621 EAST 21ST STREET	BAKERSFIELD	CA	93305-5109	MARK MIRANDA	2
Wholesaler/Dist	RSD	6391 ORANGETHORPE AVENUE	BUENA PARK	CA	90620-0000	SEAN MCGUIRE	2
Wholesaler/Dist	RSD	640 COMMERCE DRIVE, #200	ROSEVILLE	CA	95678-0000	JOHN PULLIN	2
Wholesaler/Dist	RSD	680 UNION AVE	POMONA	CA	91768-0000	DAN WEAVER	2
Wholesaler/Dist	RSD	702 WEST 190TH STREET	GARDENA	CA	90248-0000	JIM PINAULT	2
Wholesaler/Dist	RSD	715 SOUTH FLOWER STREET	BURBANK	CA	91502-2014	TIM WILBUR	2
Wholesaler/Dist	RSD	7332 CONVOY COURT, STE A	SAN DIEGO	CA	92111-0000	LEROY SABERS	2
Wholesaler/Dist	RSD	915 INDOSLAT AVE	REDDING	CA	96001-0000	BOB HUNT	1
Wholesaler/Dist	RSD	915 INDUSTRIAL AVENUE, STE 101	REDDING	CA	96002-0000	RICHARD ENGLISH	2
Wholesaler/Dist	RSD-48	702 W. 190TH STREET	GARDENA	CA	90248-0000	JIM PINAULT	1
Wholesaler/Dist	RSD-MONTEREY PARK	1201 MONTEREY PASS ROAD	MONTEREY PARK	CA	91754-3616	ROB ACOSTA	1
Wholesaler/Dist	RSD-TOTAL CONTROL	221 PANORAMA DRIVE	BENICIA	CA	94510-0000	JOE FRISINGER	2
Wholesaler/Dist	SIGLER INC	20680 NORDHOFF ST	CHATSWORTH	CA	91311	(blank)	1
Wholesaler/Dist	SIGLER INC	2301 ARNOLD INDUSTRIAL WAY	CONCORD	CA	94520	(blank)	2
Wholesaler/Dist	SIGLERS	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	CA	91744	(blank)	1
Wholesaler/Dist	SIGLERS	20680 NORDHOFF ST	CHATSWORTH	CA	91311	(blank)	1
Wholesaler/Dist	SLAKEY BROTHERS	1001 OATES COURT	MODESTO	CA	95352	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	111 MADRONE	SANTA CRUZ	CA	95060	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	1190 WESTERN STREET	FAIRFIELD	CA	94533	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	1200 INDUSTRIAL STREET	REDDING	CA	96002	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	12277 LOMA RICA DRIVE SUITE E	GRASS VALLEY	CA	95945	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	1400 SOUTH HIGHWAY 49	JACKSON	CA	95642	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	19450 INDUSTRIAL DRIVE	SONORA	CA	95370	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2201 EAST BRUNDAGE LANE	BAKERSFIELD	CA	93307	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2215 KAUSEN STE 1	ELK GROVE	CA	95758	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2301 PARK AVENUE	CHICO	CA	95927	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2460 BATES AVENUE	CONCORD	CA	94520	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2540 TEEPEE DRIVE	STOCKTON	CA	95208	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	26534 DANTI CT	HAYWARD	CA	91520	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	2845 DUKE COURT	SANTA ROSA	CA	95407	HVAC MANAGER	2

Wholesaler/Dist	SLAKEY BROTHERS	30 STEIN AM RHEIN CT STE F	REDWOOD CITY	CA	94063	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	CA	95660	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	321 ORANGE AVENUE	SAND CITY	CA	93955	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	328 ROEBLING ROAD	SOUTH SAN FRANCISCO	CA	94080	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	4333 NORTH EFFIE STREET	FRESNO	CA	93755	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	545 BOYD STREET	YUBA CITY	CA	95992	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	601 WORK STREET	SALINAS	CA	93901	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS	863 SAVAKER AVE	SAN JOSE	CA	95126-0000	MATT CHRISTY	1
Wholesaler/Dist	SLAKEY BROTHERS	863 SAVAKER STREET	SAN JOSE	CA	95126	HVAC MANAGER	1
Wholesaler/Dist	SLAKEY BROTHERS/BAKERSFIELD	2201 EAST BRUNDAGE LANE	BAKERSFIELD	CA	93307	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/CHICO	2301 PARK AVENUE	CHICO	CA	95927	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/ELK GROVE	2215 KAUSEN STE 1	ELD GROVE	CA	95758	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/FAIRFIELD	1190 WESTERN STREET	FAIRFIELD	CA	94533	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/FRESNO	4333 NORTH EFFIE STREET	FRESNO	CA	93755	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/GRASS VALLEY	12277 LOMA RICA DRIVE, STE E	GRASS VALLEY	CA	94945	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/JACKSON	1400 SOUTH HIGHWAY 49	JACKSON	CA	95642	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/MODESTO	1001 OATES COURT	MODESTO	CA	95352	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/NORTH HIGHLANDS	3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	CA	95660	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/REDDING	1200 INDUSTRIAL STREET	REDDING	CA	96049	JOE FRISINGER (SALES REP)	1

Wholesaler/Dist	SLAKEY BROTHERS/REDWOOD CITY	30 STEIN AM RHEIN COURT STE F	REDWOOD CITY	CA	94063	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/S. SAN FRANCISCO	328 ROEBLING ROAD	S. SAN FRANCISCO	CA	94080	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SALINAS	601 WORK STREET	SALINAS	CA	93901	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SAN JOSE	863 SAVAKER STREET	SAN JOSE	CA	95126	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SAND CITY	321 ORANGE AVENUE	SAND CITY	CA	93955	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SANTA CRUZ	111 MADRONE	SANTA CRUZ	CA	95060	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SANTA ROSA	2845 DUKE COURT	SANTA ROSA	CA	95407	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/SONORA	19450 INDUSTRIAL DRIVE	SONORA	CA	95370	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/STOCKTON	2540 TEEPEE DRIVE	STOCKTON	CA	95208	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SLAKEY BROTHERS/YUBA CITY	545 BOYD STREET	YUBA CITY	CA	95992	JOE FRISINGER (SALES REP)	1
Wholesaler/Dist	SOUTHERN CALIFORNIA AIR CON APPL	1000 N. JOHNSON AVE.	EL CAJON	CA	92020	RICK GIBSON	1
Wholesaler/Dist	SPECIALTY AC	5250 EAST SECOND STREET	BENICIA	CA	94510-0000	KEN WIBLE	3
Wholesaler/Dist	STANDARD SUPPLY USA	1820 "S" STREET	SACRAMENTO	CA	95811	R. J.	2
Wholesaler/Dist	T & A SUPPLY, INC.	1045 NORTH 10TH STREET	SAN JOSE	CA	95112	COUNTER	1
Wholesaler/Dist	THRIFTY SUPPLY	8541 23RD AVE.	SACRAMENTO	CA	95826	MIKE EDWARDS	1
Wholesaler/Dist	THRIFTY SUPPLY	8541 23RD AVENUE	SACRAMENTO	CA	95826-0000	MIKE EDWARDS	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	1070 COMMERCIAL STREET, SUITE 106	SAN JOSE	CA	95112	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	1090 E. COOLEY AVENUE	SAN BERNARDINO	CA	92408	(blank)	2

Wholesaler/Dist	TOTALINE OF CALIFORNIA	12819 TELEGRAPH RD.	SANTA FE SPRINGS	CA	90670	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	CA	91744	(blank)	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	18791 RANCHO WAY, UNIT A	RANCHO DOMINGUEZ	CA	90220	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	20191 WINDROW DR. UNIT B	LAKE FOREST	CA	92630	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	205 S. PUENTE ST	BREA	CA	92821	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2301 ARNOLD INDUSTRIAL WAY	CONCORD	CA	94520	(blank)	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2345 LOS ANGELES STREET	FRESNO	CA	92721	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2425 AUTO PKWY SUITE 200	ESCONDIDO	CA	92029	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	2641 LINDSAY PRIVADO DR.	ONTARIO	CA	91761	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	41710 REAGAN WAY	MURRIETA	CA	92562	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	421 S. LOMBARD ST.	OXNARD	CA	93030	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	4517 STANDARD STREET	BAKERSFIELD	CA	93308	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	4863 SHAWLINE STREET	SAN DIEGO	CA	92111	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	615 W. GROVE AVE.	ORANGE	CA	92865	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	6450 SYCAMORE CANYON BLVD.	RIVERSIDE	CA	92507	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	6650 TOP GUN ST.	SAN DIEGO	CA	92121	(blank)	2

Wholesaler/Dist	TOTALINE OF CALIFORNIA	7615 N. SAN FERNANDO RD.	BURBANK	CA	91352	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	78-305 DINAH SHORE, BLDG 1200	PALM DESERT	CA	92211	(blank)	2
Wholesaler/Dist	TOTALINE OF CALIFORNIA	8615 23RD AVENUE	SACRAMENTO	CA	95826	(blank)	1
Wholesaler/Dist	TOTALINE OF CALIFORNIA	99 SOUTHHILL DRIVE SUITE B	BRISBANE	CA	94005	(blank)	2
Wholesaler/Dist	TRANE PARTS CENTER	4145 DEL MAR AVENUE	ROCKLIN	CA	95677-0000	HAROLD HAYEK	1
Wholesaler/Dist	UNITED REFRIGERATION	1134 E. DOMINGUEZ STREET	CARSON	CA	90746-3518	CAMERON TRACY	1
Wholesaler/Dist	UNITED REFRIGERATION	1265 WEST MCCOY LANE, STE. C	SANTA MARIA	CA	93455-1058	RICK SMITH	1
Wholesaler/Dist	UNITED REFRIGERATION	134 NOPALITOS WAY	SANTA BARBARA	CA	93103-3629	ABEL ACOSTA	1
Wholesaler/Dist	UNITED REFRIGERATION	1413 GRANITE LANE	MODESTO	CA	95351-1121	MICHAEL POND	1
Wholesaler/Dist	UNITED REFRIGERATION	15054 KESWICK STREET	VAN NUYS	CA	91405-1132	VICTOR MARKLEY	1
Wholesaler/Dist	UNITED REFRIGERATION	1736 JANELLI COURT	VISALIA	CA	93292-6644	DANNY BAUTISTA	1
Wholesaler/Dist	UNITED REFRIGERATION	1848 EAST GRIFFITH WAY	FRESNO	CA	93726-4819	ALAN LEDGERWOOD	1
Wholesaler/Dist	UNITED REFRIGERATION	1920 EAST MCFADDEN AVENUE	SANTA ANA	CA	92705-4705	RANDY BOATMAN	1
Wholesaler/Dist	UNITED REFRIGERATION	1951 GARDENA AVENUE	GLENDALE	CA	91204-2910	J. C. CHRISTENSEN	1
Wholesaler/Dist	UNITED REFRIGERATION	2225 AUTO PARK WAY	ESCONDIDO	CA	92029-1348	RICH MALDONADO	1
Wholesaler/Dist	UNITED REFRIGERATION	230 EAST 21ST STREET	BAKERSFIELD	CA	93305-5115	MIKE SULLIVAN	1
Wholesaler/Dist	UNITED REFRIGERATION	2405 VERNA COURT	SAN LEANDRO	CA	94577-4222	CHARLEY KIM	1

Wholesaler/Dist	UNITED REFRIGERATION	2626 SOUTHPORT WAY, STE. G	NATIONAL CITY	CA	91950-8752	JOSE MONTELONGO	1
Wholesaler/Dist	UNITED REFRIGERATION	3120 PASEO MERCADO, STE. 101	OXNARD	CA	93036-8916	GREGG MEISEL	1
Wholesaler/Dist	UNITED REFRIGERATION	4060 EAST AIRPORT DRIVE	ONTARIO	CA	91761-1566	JOHN VASQUEZ	2
Wholesaler/Dist	UNITED REFRIGERATION	41573 CHERRY STREET	MURRIETA	CA	92562-9193	BILL MACK	1
Wholesaler/Dist	UNITED REFRIGERATION	4248 ROSEVILLE ROAD	SACRAMENTO	CA	95660-5710	JIM MCMANAMAN	1
Wholesaler/Dist	UNITED REFRIGERATION	510 EAST RANCHO VISTA BLVD.	PALMDALE	CA	93550-3005	JEFF HARRIS	1
Wholesaler/Dist	UNITED REFRIGERATION	5345 THIRD STREET	IRWINDALE	CA	91706-2085	JOHN GARDNER	1
Wholesaler/Dist	UNITED REFRIGERATION	6150 VALLEY VIEW STREET	BUENA PARK	CA	90620-1030	RICH SCOTT	1
Wholesaler/Dist	UNITED REFRIGERATION	625 LINCOLN AVENUE	SAN BERNADINO	CA	92408-2230	SCOTT RICHARDSON	1
Wholesaler/Dist	UNITED REFRIGERATION	77-670 SPRINGFIELD LANE, STE #5A	PALM DESERT	CA	92211-0474	KEVIN LABAR	1
Wholesaler/Dist	UNITED REFRIGERATION	8835 COMPLEX DRIVE	SAN DIEGO	CA	92123-1403	BILL SELLERS	1
Wholesaler/Dist	UNITED REFRIGERATION	904 COMMERCIAL STREET	SAN JOSE	CA	95112-1435	BILL DAVIDSON	1
Wholesaler/Dist	UNITED REFRIGERATION	933 WASHINGTON STREET	SAN CARLOS	CA	94070-5316	TOM DAVIDSON	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1002 INDUSTRY WAY	EL CENTRO	CA	92243	SANTIAGO ESTAVILLO	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1238-A SIMPSON WAY	ESCONDIDO	CA	92029-0000	ERIC J. PIERCY	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1250 NORTH MARSHALL AVENUE	EL CAJON	CA	92020-0000	VALERIE DEVEAU	1

Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1304 S, CLAUDINA STREET	ANAHEIM	CA	92805-0000	PAUL WOLFE	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	16900 CHESTNUT STREET	CITY OF INDUSTRY	CA	91748-0000	TONY GRANADOS	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	17615 CATALPA STREET	HESPERIA	CA	92345-0000	TODD PALMER	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	1951 FAIRWAY DRIVE	SAN LEANDRO	CA	94577-0000	GARY EPPERSON	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	2100 CHICAGO AVENUE	RIVERSIDE	CA	92507-0000	PERRY WALEK	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	27470 COLT COURT	TEMECULA	CA	92590-0000	RUSSELL J. TINGLEY	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	2751 TEMPLE AVE	SIGNAL HILL	CA	90755-2210	STEVE FREDRICK	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	3035 CROSSROADS DRIVE	REDDING	CA	96003	BILL HYRES	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	3333 ORANGE GROVE	NORTH HIGHLANDS	CA	95660-0000	CARLA VALLEJOS	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	4700 RUFFNER STREET	SAN DIEGO	CA	92111-0000	JEFF LEGGITT	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	720 WILLIAMS STREET	BAKERSFIELD	CA	93305-0000	ARNIE MORENO	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS	9250 OWENSMOUTH AVENUE	CHATSWORTH	CA	91311-0000	MIKE BOOKER	1
Wholesaler/Dist	US AIR CONDITIONING DISTRIBUTORS UC	495 MARQUITA AVENUE	Paso Robles	CA	93446	CESAR ABURTO	1
Wholesaler/Dist	USACD	16900 CHESTNUT STREET	CITY OF INDUSTRY	CA	91748	TONY ALBERS	1
Wholesaler/Dist	WESTERN NEVADA SUPPLY	10990 INDUSTRIAL WAY	TRUCKEE	CA	96161-0000	TED REUIGLIO	1
Wholesaler/Dist	WESTERN NEVADA SUPPLY	200 BELLA WAY	SUSANVILLE	CA	96130-9166	BRENDEN BOISE	1
Wholesaler/Dist	WESTERN NEVADA SUPPLY	515 SOUTH MAIN STREET	BISHOP	CA	93514-0000	MIKE GUIDO	1

Appendix J: California locations that shipped product in 2010

Bin Number	Customer Name	City	Zip	Sum of Total Stats	Sum of Total lbs mercury
F10362	REFRIGERATION SUPPLIES DISTRIBUTOR	TEMECULA	92590	33	0.403
M10754	HOWARD INDUSTRIES	CULVER CITY	(blank)	42	0.7874
M10992	GEARY PACIFIC SUPPLY	REDDING	96002-9223	46	0.682
M11059	FIX AIR AUTHORIZED Trane PARTS	SAN JOSE	95112	39	0.6572
M11070	HOWARD INDUSTRIES	CULVER CITY	90232-0000	40	0.806
M11071	HOWARD INDUSTRIES	CULVER CITY	90232-0000	41	0.837
M11072	HOWARD INDUSTRIES	CULVER CITY	90232-0000	42	0.6138
M11150	JOHNSTONE SUPPLY	UPLAND	91786	79	0.713
M11262	RSD	MONTEREY PARK	91754	53	0.5146
	RSD-MONTEREY PARK	MONTEREY PARK	91754-3616	27	0.3286
M11263	RSD	MONTEREY PARK	91754-3616	80	1.1222
M11272	RSD	FRESNO	93703-3005	74	1.3144
M11273	RSD	FRESNO	93703-3005	63	0.7564
M11274	RSD	ANAHEIM	92806	69	1.271
M11275	RSD	ANAHEIM	92806	73	1.1532

			92806-1760	80	1.1656
M11277	RSD	SACRAMENTO	95815-3216	42	0.5704
M11278	RSD	SAN LEANDRO	94577-1024	51	0.899
M11279	RSD	SAN LEANDRO	94577-1024	75	0.837
	RSD	SAN LEANDRO	94577	77	1.3578
M11298	RSD	REDDING	96002	45	0.6758
M11299	RSD	SAN JOSE	95112	44	0.899
			95112-0000	134	1.9902
M11300	RSD	SOUTH SAN FRANCISCO	94080-6818	35	0.6262
M11302	RSD	CONCORD	94520	46	0.6386
			94520-0000	57	0.9114
M11303	RSD	CONCORD	94520	57	0.992
M11305	RSD	VAN NUYS	91405-0000	75	0.837
	RSD	VAN NUYS	91405	28	0.3844
M11307	RSD	MODESTO	95351-0000	59	0.5704
M11310	RSD	SANTA ROSA	95407	50	0.7378
M11311	RSD	SANTA ROSA	95407	42	0.7378
M11312	RSD	POMONA	91768	57	0.5952
			91768-0000	94	1.0788
M11313	RSD	POMONA	91768-	136	1.8228

			0000		
M11315	R.S.D.	GARDENA	90248	30	0.5332
M11318	REFRIGERATION SUPPLIES DIST	SANTA ANA	92705	53	0.8618
	RSD	SANTA ANA	92705-0000	50	0.8122
M11320	RSD	REDDING	96002	31	0.4464
M11321	RSD	SAN JOSE	95112-0000	128	2.6474
M11348	RSD	EL CENTRO	92243	28	0.3286
M11352	RSD	LAKE FOREST	92630	47	0.7502
M11719	RSD	ONTARIO	91761-0000	44	0.6448
M11720	RSD	ONTARIO	91761-0000	93	1.705
M11944	JOHNSTONE SUPPLY-ANAHEIM	ANAHEIM	92805-0000	127	1.5686
M11945	JOHNSTONE SUPPLY CO	ESCONDIDO	92029-0000	87	1.4446
M12427	JOHNSTONE SUPPLY	SAN JOSE	95112-1070	71	0.7998
	JOHNSTONE SUPPLY CO	SAN JOSE	95112-0000	54	0.5704
M12428	JOHNSTONE SUPPLY CO	OAKLAND	94607-0000	39	0.3224
M12430	UNITED REFRIGERATION	BUENA PARK	90620	44	0.6572
			90620-1030	34	2.4118
M12445	JOHNSTONE SUPPLY	SUN VALLEY	91352	46	0.4464
	JOHNSTONE SUPPLY # 33	SUN VALLEY	91352	45	0.4898
	JOHNSTONE SUPPLY #33	SUN VALLEY	91352	44	0.4278

	JOHNSTONE SUPPLY CO	SUN VALLEY	91352-0000	156	1.4756
M12494	JOHNSTONE SUPPLY	FRESNO	93727	68	0.8122
	JOHNSTONE SUPPLY CO	FRESNO	93727-0000	40	0.4774
M12584	UNITED REFRIGERATION	GLENDALE	91204-2910	30	1.178
M12664	CALIFORNIA COOLING	EL CAJON	92020-0000	49	1.5748
	CALIFORNIA COOLING SUPPLY	EL CAJON	92020	52	0.744
M12665	CALIFORNIA COOLING	EL CAJON	92020-0000	45	0.5828
M12702	BURKE ENGINEERING CO.	OAKLAND	94621	48	0.6324
			94621-3016	65	0.5518
	BURKE ENGINEERING COMPANY	OAKLAND	94621-3016	46	0.4712
M12705	BURKE ENGINEERING CO.	NORTH HIGHLANDS	95660	38	0.403
M12861	CITY OF SACRAMENTO PHHWCF	SACRAMENTO	95826	40	0.372
M13148	BURKE ENGINEERING CO.	ANAHEIM	92805	31	0.3038
	BURKE ENGINEERING COMPANY	ANAHEIM	92805-0000	264	5.3134
M13156	BURKE ENGINEERING COMPANY	VAN NUYS	91406-0000	57	0.5642
M13158	BURKE ENGINEERING CO.	NORTH HIGHLANDS	95660	34	0.496
M13159	BURKE ENGINEERING CO.	RIVERSIDE	92507	41	2.2692
M13160	BURKE ENGINEERING COMPANY	LONG BEACH	90805-0000	54	0.6944
M13163	BURKE ENGINEERING CO.	OAKLAND	94621	36	0.5394
	BURKE ENGINEERING COMPANY	OAKLAND	94621-	98	0.8928

			0000		
M13698	CITY OF FREMONT PHHWCF	FREMONT	94538	34	0.3038
M13747	REFRIGERATION SUPPLIES DIST	LIVERMORE	94551	32	0.5766
	RSD	LIVERMORE	94551-0000	48	0.8866
M13749	RSD	LIVERMORE	94551	41	0.9052
M13850	JOHNSTONE SUPPLY CO	SOUTH SAN FRANCISCO	94080-0000	98	0.7936
M13851	JOHNSTONE SUPPLY CO	SOUTH SAN FRANCISCO	94080-0000	91	0.8308
M14118	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	40	0.372
M14172	SAN LUIS OBISPO COUNTY INTEGRATED WASTE MANAGEMENT AUTHORITY	SAN LUIS OBISPO	93401-0000	28	0.2418
M14177	MSI HVAC	FONTANA	92337	39	0.3782
M14178	MSI HVAC	ESCONDIDO	92029	35	0.3844
M14180	MSI HVAC	LAGUNA HILLS	92653	60	0.7502
M14188	MERCED COUNTY HHW	MERCED	95340	53	1.364
M14189	MERCED COUNTY HHW	MERCED	95341-6216	49	0.5642
M14194	A-1 GUARANTEED	VALLEJO	94589	55	0.4712
M14275	PARC ENVIRONMENTAL	FRESNO	93725	0	0
M14276	PARC ENVIRONMENTAL	FRESNO	93725	5	0.0992
M14343	KERN COUNTY SPECIAL WASTE FACILITY	RIDGECREST	93555	41	0.4154
M14373	UNITED REFRIGERATION	PALMDALE	93550-3005	33	0.3844
M14380	UNITED REFRIGERATION	SANTA BARBARA	93103-3629	43	0.5828
M14383	UNITED REFRIGERATION	VISALIA	93292-	60	1.1284

			6644		
M14461	BAY COUNTIES WASTE SERVICES	SUNNYVALE	94089-0000	23	0.1984
M14462	BAY COUNTIES WASTE SERVICES	SUNNYVALE	94089	17	0.1922
M14469	JOHNSTONE SUPPLY	LAGUNA HILLS	92653-1307	63	0.5952
M14495	US AIR CONDITIONING DISTRIBUTORS	ANAHEIM	92805-0000	70	1.1532
M14496	US AIR CONDITIONING DISTRIBUTORS	BAKERSFIELD	93305-0000	3	0.031
M14497	US AIR CONDITIONING DIST.	CHATSWORTH	91311	41	0.4898
	US AIR CONDITIONING DISTRIBUTORS	CHATSWORTH	91311-0000	192	3.224
M14498	US AIR CONDITIONING DISTRIBUTORS	EL CAJON	92020-0000	89	0.8432
M14499	US AIR CONDITIONING DISTRIBUTORS	CITY OF INDUSTRY	92397	119	1.2028
			91748-0000	748	17.6018
	USACD	CITY OF INDUSTRY	91748	153	2.1266
	USAIRCONDITIONING	CITY OF INDUSTRY	91748	37	0.4278
M14500	US AIR CONDITIONING DISTRIBUTORS	RIVERSIDE	92507-0000	276	4.1168
	USAIRCONDITIONING	RIVERSIDE	92507	24	0.2976
M14501	US AIR CONDITIONING	SAN DIEGO	92111	49	0.7068
	US AIR CONDITIONING DISTRIBUTORS	SAN DIEGO	92111-0000	97	1.5624
M14502	US AIR CONDITIONING DISTRIBUTORS	SIGNAL HILL	90755-0000	223	2.914
			90755-2210	383	6.4232

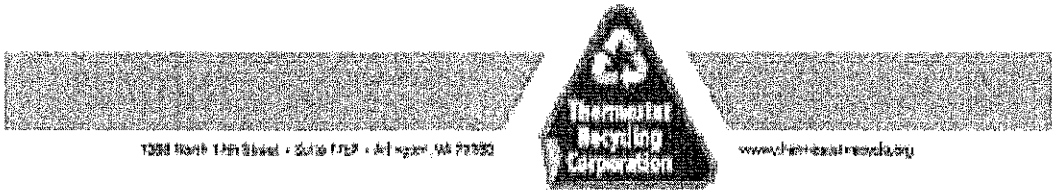
M14503	US AIR CONDITIONING DISTRIBUTORS	NORTH HIGHLANDS	95660-0000	14	0.1612
M14504	US AIR COND. DIST.	SAN LEANDRO	94577	52	0.5022
	US AIR CONDITIONING DISTRIBUTORS	SAN LEANDRO	94577-0000	42	0.3286
M14522	GOOD CENTS	MANECA	95336	49	0.4216
		MANTECA	95330	54	0.4712
	GOODCENTS	MANLECA	95336	41	0.4402
		MANTECA	95336	37	0.31
M14523	ENERTOUCH IN D/B/A GOODCENTS SOLUTIONS	MANTECA	95336-0000	174	1.86
	GOOD CENTS	MANTECA	95336	149	1.4942
	GOODCENTS	MANTECA	95336	129	1.6678
			95336-0000	53	0.5394
M14528	AMERICAN REFRIGERATION SUPPLIES INC.	SAN DIEGO	92111-0000	30	0.3596
M14530	AMERICAN REFRIGERATION SUPPLIES	SAN FRANCISCO	94103	27	0.4402
	AMERICAN REFRIGERATION SUPPLIES INC.	SAN FRANCISCO	94103-0000	25	0.4278
M14538	SAN BERNADINO COUNTY FIRE DEPT. HHW	SAN BERNADINO	92415	42	0.4836
	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	32	0.2976
M14544	SLAKEY BROTHERS	SAN JOSE	95126-0000	70	1.0664
M14545	US AIR CONDITIONING DISTRIBUTORS	ESCONDIDO	92029	80	0.9486
			92029-0000	116	1.4508
M14572	US AIR CONDITIONING DISTRIBUTORS	REDDING	96003	119	1.3702

M14577	SLAKEY BROS	ELK GROVE	95758	4	0.0558
M14578	SLAKEY BROTHERS	FAIRFIELD	94533	22	0.341
M14580	SLAKEY BROS	SANTA ROSA	95407	52	0.5394
M14582	SLAKEY BROTHERS	JACKSON	95642-2667	28	0.3162
M14584	SLAKEY BROS	NORTH HIGHLANDS	95660	27	0.2604
M14591	SLAKEY BROS	SANTA ROSA	95407	51	0.5084
	SLAKEY BROTHERS	SANTA ROSA	95407	33	0.3348
M14593	SLAKEY BROTHERS	SOUTH SAN FRANCISCO	94080	48	0.9114
M14594	SLAKEY BROTHERS	YUBA CITY	95992	25	0.1984
M14597	FERGUSON HEATING & COOLING	SACRAMENTO	95834	58	0.6882
M14600	FERGUSON HEATING & COOLING	NEWBURY PARK	91320	53	0.558
M14602	AIR COLD-A FERGUSON ENTERPRISE	SAN GABRIEL	91776	71	0.6758
M14607	AIR COLD-A FERGUSON ENTERPRISE	SAN LUIS OBISPO	93401-7316	58	0.5456
M14610	AIR COLD-A FERGUSON ENTERPRISE	EL CAJON	92020-0000	48	0.6944
M14645	US AIR CONDITIONING DISTRIBUTORS	HESPERIA	92345-0000	55	1.984
M14659	ALLIED REFRIGERATION	SIGNAL HILL	90755-0000	40	0.899
M14661	ALLIED REFRIGERATION	TUSTIN	92780-0000	33	0.6572
M14662	ALLIED REFRIGERATION	CONCORD	94520-0000	28	0.279
M14664	ALLIED REFRIGERATION	POMONA	91767-5840	218	3.2116
M14666	ALLIED REFRIGERATION	SAN JOSE	95112-0000	45	0.8928

	ALLIED REFRIGERATION INC.	SAN JOSE	95112	64	1.0664
M14668	ALLIED REFRIGERATION	VAN NUYS	91406-0000	217	1.5128
M14679	US AIR CONDITIONING DISTRIBUTORS	TEMECULA	92590-0000	61	0.9362
M14764	SIGLERS	CHATSWORTH	91311	35	0.3968
M14765	SIGLER INC	CHATSWORTH	91311	34	0.403
M14768	CARRIER CORP	CONCORD	94520	72	0.62
	TOTALINE OF CALIFORNIA	CONCORD	94520	34	0.2976
M14769	CARRIER CORP	CONCORD	84520	60	0.5332
	SIGLER INC	CONCORD	94520	24	0.2852
M14780	CARRIER CORP	ORANGE	92865	21	0.2294
M14781	CARRIER CORP	ORANGE	92865	27	0.3472
M14790	CARRIER CSD	CONCORD	94520	37	0.4898
	SIGLER INC	CONCORD	94520	30	0.2046
M14791	TOTALINE OF CALIFORNIA	SACRAMENTO	95826	43	0.3596
M14797	TOTALINE OF CALIFORNIA	SAN DIEGO	92121	111	0.7688
M14799	TOTALINE OF CALIFORNIA	SAN JOSE	95112	27	0.31
M14832	YUBA-SUTTER HHW FACILITY C/O YUBA-SUTTER DISPOSAL, INC	MARYSVILLE	95901	51	0.4836
M14918	SLAKEY BROTHERS	GRASS VALLEY	95945	34	0.3844
M14942	SLAKEY BROTHERS/FAIRFIELD	FAIRFIELD	94533	31	0.3534
M14952	SLAKEY BROTHERS/SAN JOSE	SAN JOSE	95126	22	0.2542
M14954	SLAKEY BROS	SANTA ROSA	95407	58	0.4898
M15004	ENERTOUCH INC. D/B/A GOOD CENTS SOLUTIONS	MANTECA	95336	149	1.4756
	GOOD CENTS	MANTECA	95336	50	0.5146
	GOODCENTS	MANTECA	95336	42	0.372
M15005	ENERTOUCH INC. D/B/A GOOD CENTS SOLUTIONS	MANTECA	95336	140	1.4632
	GOODCENTS	MANTECA	95336	117	1.3082

M15006	GOOD CENTS	MANTECA	95336	44	0.5084
	GOODCENTS	MANTECA	95336	44	0.4092
M15007	ENERTOUCH INC. D/B/A GOOD CENTS SOLUTIONS	MANTECA	95336	91	1.0416
	GOOD CENTS	MANTECA	95330	47	0.4402
	GOODCENTS	MANLECA	95336	40	0.465
		MANTECA	95330	86	0.9114
		MENTECA	95336	42	0.4216
M15065	CITY OF SAN DIEGO, MIRAMAR HHWCF	SAN DIEGO	92111-0000	81	0.7192
M15068	JOHNSTONE SUPPLY	UPLAND	91786-5720	70	0.527
	JOHNSTONE SUPPLY UPLAND	UPLAND	91786-5720	93	1.3206
M15074	US AIR CONDITIONING DISTRIBUTORS	EL CENTRO	92243	181	1.5314
	USAIRCONDITIONING	EL CENTRO	92243	169	1.643
M15123	RSD	CHATSWORTH	91311	46	0.5084
M15124	RSD	CHATSWORTH	91311	61	0.7874
M15143	JOHNSTONE SUPPLY OF LONE BEACH	LONG BEACH	90806-2213	102	1.2586
	JOHNSTONE SUPPLY OF LONG BEACH	LONG BEACH	90806	61	0.5766
M15457	ATWATER SUPPLY	SAN DIEGO	92110	66	0.7936
	JOHNSTONE SUPPLY	SAN DIEGO	92110	39	0.6944
M15462	RAHAC HTG & COOLING INC.	GLENDALE	91201	15	0.186
		LOS ANGELES	90063-0000	25	0.2976
M15645	USACD	CITY OF INDUSTRY	91748	50	1.2648
Grand Total				13340	185.8016

Appendix K: Correspondence to California Energy Commission



Contact
State Department
Address
City State Zip

Date

Dear _____:

This letter is intended to bring your attention to the issue of the proper disposal of end-of-use mercury-containing thermostats. As you may be aware, many older thermostats contain on average 3 grams of mercury and it is important that at the end-of-use these thermostats are properly disposed of to prevent release of mercury into the environment.

In fact, many states regulate the disposal of mercury-containing products and several go further requiring contractors to assume responsibility for the proper disposal of mercury-containing thermostats.

Fortunately, the proper end-of-life management of mercury thermostats is easy. Voluntarily founded by manufacturers, the Thermostat Recycling Corporation provides an easy and affordable way for contractors to properly dispose of mercury-containing thermostats. TRC has collection locations in 47 states that accept end-of-use thermostats at no charge. TRC absorbs all costs related to shipping, handling, and processing of the waste thermostats. To date, TRC has collected and recycled over 4 tons of mercury and nearly 1 million thermostats.

It is our understanding that many state energy programs are promoting the use of electronic programmable thermostats. We strongly encourage you to incorporate thermostat recycling into your programs. Additionally, adding a link to TRC's website from your own may encourage participation in the program.

To learn more about TRC and how it can support thermostat recycling in your state, please refer to the attached fact sheet that we've included with this letter. Also, you may visit our website at www.thermostat-recycle.org. To contact TRC directly, email Mark.Tibbetts@nema.org or call 703-841-3246.

Sincere Regards,

Mark Tibbetts
Executive Director
Thermostat Recycling Corporation

Appendix L: Correspondence with California PUC

NEMA
Setting Standards for Excellence

The Association of Electrical and Medical Imaging Equipment Manufacturers
www.nema.org

August 2010

Michael R. Peevey, President
California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

RE: Introduction to the Thermostat Recycling Corporation

Dear Commissioner Peevey:

The National Electrical Manufacturers Association (NEMA) is the primary trade association representing the interests of the US electrical products industry. Our 430 member companies supply the full spectrum of products used worldwide in the generation, transmission, distribution, control, and end-use of electricity.

In 1998, three NEMA member companies – Honeywell, White-Rodgers, and GE – voluntarily established the Thermostat Recycling Corporation (TRC), a nationwide non-profit designed to facilitate recycling of mercury-added thermostats. The TRC now has 29 corporate members and is the only national program of its kind in the US (see www.thermostat-recycle.org).

I am writing to introduce you to the TRC and its vital role in ensuring that heating, ventilation & air conditioning (HVAC) contractors and demolition workers who remove out-of-service mercury thermostats dispose of them in accordance with California law. The Mercury Thermostat Collection Act of 2008,[1] enacted with the support of Honeywell, the largest corporate member of the TRC, established a regulatory framework for the program aimed at increasing its effectiveness in the state. A key provision of this law is a ***legal obligation*** on HVAC contractors, the parties who handle end-of-life thermostats most frequently, to ensure they do not enter the solid waste stream (see Sec. 25214.8.15).

This requirement is particularly important for contractors implementing utility energy efficiency programs that involve the replacement of old thermostats with new demand response or smart grid enabled devices. Once a mercury thermostat is removed from service, under California law that thermostat can never be re-installed and must be taken by the contractor to a recycling location. Fortunately, the TRC program provides the means for contractors to meet this requirement.

I encourage you to familiarize yourself with this industry-funded and operated program, and to share this information with relevant CPUC offices and staff. The program is convenient, accessible, and virtually cost-free to participants and we are committed to working with state officials to ensure its continued success in California. If you have questions or would like additional information, please do not hesitate to contact me at 703-841-3249 or mar_kohorst@nema.org.

Very truly yours,

Mark A. Kohorst
Senior Manager, Environment Health & Safety

[1] Chaptered as article 10.2.2., chapter 6.5 of Division 20 of the California Health and Safety Code, relating to hazardous waste.

Appendix M: Correspondence with CSLB

Tibbetts, Mark

From: Tibbetts, Mark
Sent: Friday, August 27, 2010 10:38 AM
To: [redacted]@cslb.ca.gov'
Subject: Information on CA mercury thermostat Act
Attachments: CA CSLB Blurb.doc

Venus,

You may recall we spoke about a week ago regarding the CA Mercury Thermostat Act. As promised attached is a short article for CSLB's newsletter. The article summarizes CA contractors' legal obligations under the Act and how simple it is to comply with the law by taking advantage of the manufacturers' take-back program.

If you have any questions, or need additional information please do not hesitate to contact me.

We deeply appreciate your assistance in getting the word out to CA contractors.

Regards,

Mark Tibbetts
Executive Director
Thermostat Recycling Corporation

Direct: 703.841.3246
Fax: 703.841.3346
Mobile: 202.340.6232
www.nema.org
www.thermostat-recycle.org

Appendix N: Correspondence to American Supply Association

September 13, 2010

Mr. Michael Adelizzi
Executive Vice President
American Supply Association
222 Merchandise Mart, Suite 1400
Chicago, IL 60654

Subject: Legal Mandate in Nine States for HVAC Wholesale Distributors to Collect Waste Mercury Thermostats

Dear Mr. Adelizzi:

Thermostat Recycling Corporation (TRC) requests your assistance in informing your members about their legal obligations in several states to collect waste mercury thermostats.

As you maybe aware, many older thermostats contain between three and twelve grams of mercury. While safe when in use, these thermostats may pose a risk to human health and the environment when discarded in solid waste.

In an attempt to increase the number of thermostats diverted from solid waste, several states have passed laws relating to the collection and disposal of waste mercury thermostats. Currently seven states (California, Iowa, Maine, Montana, New Hampshire, Pennsylvania, and Vermont) require wholesale distributors of HVAC equipment to act as a collection point for waste mercury-containing thermostats. Two additional states (Illinois and Rhode Island) begin mandating collections in 2011.

Fortunately, for wholesale distributors who currently are not collecting mercury thermostats, a simple and low-cost collection/recycling program that satisfies most state legal obligations exists. Manufacturers of mercury-containing thermostats started the non-profit Thermostat Recycling Corporation in 1997 to facilitate the collection of all brands of mercury-containing thermostats.

For a modest one-time fee (currently $25 per collection container), TRC provides a sturdy plastic collection container, pre-paid shipping label, and educational materials to collection points. TRC assumes all on-going costs for shipping and processing of the thermostats. All that TRC requires is that collection locations only ship whole mercury-containing thermostats (no other mercury-containing products) with their covers, return the container at least once a year, and assistance in promoting the program.

Exhibit 9

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

April 1, 2012

VIA EMAIL

Ms. Debbie Raphael, Director
Department of Toxic Substances Control
10001 I Street
Sacramento, CA 95814

Subject: Thermostat Recycling Corporation's 2011 Annual Report for California

Dear Ms. Raphael:

Attached is TRC's annual collection report for calendar year 2011. TRC has made its best effort to provide a comprehensive report on its efforts to promote the collection program in California and improve the program's environmental outcomes. A copy of this report may be found on TRC's website at: http://www.thermostat-recycle.org/media/index.

While results are encouraging, much work remains. The program built upon 2010's growth and increased the number of thermostats recovered from California collection locations by nearly 50%.

TRC continues to aggressively market its program in California and the attached report describes a number of modifications to the program in an effort to increase the number of mercury switch thermostats recovered from California in 2012.

Sincere Regards,

Mark Tibbetts
Executive Director

Cc: TRC Member Representatives

Collection Data

Table 1: 2011 California Collections by Brand

	Thermostats	Switches	Lbs Mercury
Honeywell	13,732	28,465	176.48
White Rogers	1,994	2,717	16.85
GE	116	318	1.97
Bard	79	250	1.55
Burnham	9	19	0.12
Carrier	955	3,174	19.68
Chromalox	6	20	0.12
ClimateMaster	24	72	0.45
Crane	-	-	-
Empire Comfort	3	3	0.02
Goodman	33	75	0.47
WW Grainger	5	10	0.06
Hunter	3	3	0.02
Invensys	377	448	2.78
ITT	102	109	0.68
Lear Siegler	4	6	0.04
Lennox	166	346	2.15
Lux	336	410	2.54
Marley-Wylain	2	3	0.02
McQuay	33	99	0.61
Nordyne	27	76	0.47
PSG	23	53	0.33
Rheem	122	367	2.28
Sears	32	36	0.22
Taco	-	-	-
Thomas & Betts	1	2	0.01
TPI	3	6	0.04
Trane	247	788	4.89
Uponor	-	-	-
Valliant	-	-	-
York / JCI	90	275	1.71
Noms (orphans)	173	419	2.60
Whole Thermsotat Total	18,697	38,569	239
Switches (removed)		2,534	15.71
Switches		**41,103**	**254.84**
Total Thermostats			**19,927**

From California collection locations TRC recovered 255.84 pounds of mercury from 18,697 intact mercury thermostats and 2,534 mercury switches removed from thermostats.

Based upon 2011 returns, TRC estimates there are 2.05 switches per thermostat recovered from California. The 2,534 switches likely represent an additional 1,230 thermostats.

TRC recovered 16,529 thermostats from HVAC wholesale distributor collection locations, 1,403 from HVAC contractors and 765 from HHW locations in California. TRC received no thermostats from California retail locations in 2011.

Waste Mercury-Added Thermostat Management

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell International under contract with TRC.

Bins are received at the loading dock and sent to the TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name (location name), city, state, zip code, date returned, number of thermostats and

mercury switches by manufacturer and any non-conforming material. The bin is returned to the location that sent it in with a new pre-paid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to the TRC processing area to have the mercury switches removed from the plastic housing. Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement. Small quantities of thermostats are removed from the container, which is then closed again, and placed at the switch removal workstation on a tray that contains any potential mercury spillage. The switches are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a switch breaks and mercury spills the work area is designed to contain the spillage and the operators are trained in the clean-up and disposal of mercury. TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury switches. Bethlehem Apparatus meets or exceeds all local, state, federal regulations for the management of the product. Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- EPA BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of the TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

Program Education and Outreach

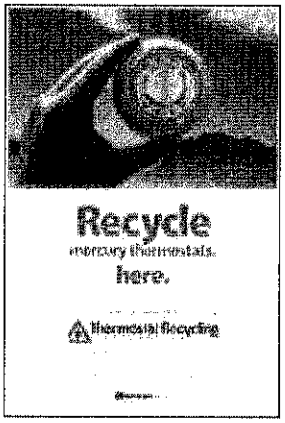
TRC marketing and promotion efforts targeted key audiences in California. TRC's objectives are to raise awareness of California's mercury thermostat law and to encourage the recycling of waste mercury thermostats. Below is a summary of many of the activities and the channels TRC utilized to support of this effort.

Development of Written Materials and Signage for Collection Points and Key stakeholders—TRC maintains on its website (www.thermostat-recycle.org) a Promotional

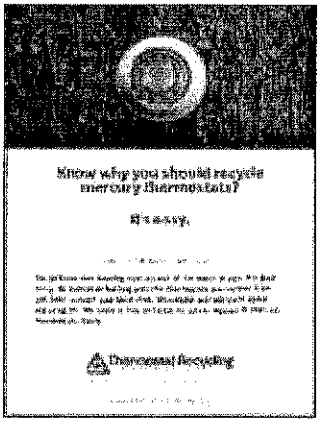
Toolkit which contains templates of a number of items for collection points to download and reproduce. In 2011 TRC **added three new** items to the toolkit. The new items include two posters and two versions of a point-of-sale card.

Exhibit 1: Examples of Toolkit Items

Poster



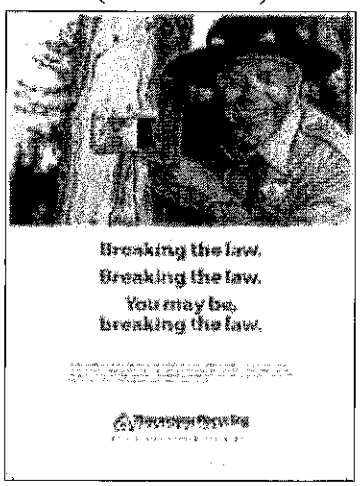
Advertisement



In addition to the templates on TRC's website, TRC placed the new window cling (ideal for the entrances of collection locations) into inventory along with the two new 11 x 17 posters and a postcard. TRC provided the cling and a copy of the "law" poster (or previous versions) to all California locations that ordered a new or additional bin in 2011. TRC actively promotes the availability of these items and will provide these materials to any participating collection location or HVAC contractor. These items are also distributed at trade shows. Finally, TRC provided copies of these materials to DTSC staff in support of the Department's educational efforts.

Exhibit 2: Examples of New Print Collateral

Poster (law version)



Window Cling

Wholesaler Recruitment/Engagement—All HVAC wholesale distributors with physical locations in California are required to act as a collection point for waste mercury thermostats and promote the availability of thermostat recycling at their location(s).

In an effort to increase the level of participation among California distributors TRC employed the following tactics:

- Direct engagement: TRC determined the most efficient and effective means of engaging distributors is not at the branch location level. TRC staff specifically targeted decision makers of distributors with multiple California locations in 2011. The primary message was it is the law and the Department is taking steps to enforce. TRC used industry meetings, member contacts, and other tactics to identify and contact decision makers at distributors.
- Creating competitive pressure: The distribution business is highly competitive and TRC used that to engage competitors. Marketing and media efforts highlighted certain distributors' participation in an effort to engage their competitors. Placing the logos of distributors on TRC's website is one of the best examples of this effort.
- Pushing contractors to collection locations: Paid and earned media emphasized to contractors to ask their distributors to collect; if distributors' customers request the service it is more likely they will offer it.

The following summarizes a few key projects conducted in 2011 targeting distributors.

- In partnership with Heating Airconditioning Refrigeration Distributors International (HARDI), TRC launched the inaugural *Mercury Thermostat Recycling Awards* in **May.** The awards were intended to incent participation in the program by recognizing the distributor(s) that recovered the most mercury thermostats and/or developed innovative strategies to promote the program at its location(s). The program was widely promoted by HARDI to its members and within the industry trade press. TRC also developed custom promotional materials for HARDI members and templates of those materials are available on TRC's website. The awards were presented at HARDI's annual meeting in **October.** California distributors **USACD** and **Baker Distributing** were among the winners.
- TRC placed a 5x7full-color insert in *HVACR Business* magazine (for greater detail see the advertising section below). TRC included the logos of several California distributors that have supported the program beyond the minimums in the law. California distributors **USACD, Baker Distributing, Goodman Distribution, and RE Michel** provided art to TRC.
- Following the Department's recommendation that TRC "pull" bins from collection locations, TRC sent correspondence (see Appendix A and B) to all California collection locations in **July** that had 1) never returned the bin or 2) had not returned the bin within the last 12 months.[1] TRC included a copy of its window cling sticker in the mailing to promote the availability of materials to participating collection locations.
- TRC added a scrolling bar with the logo of "collection partners" to its website. Several California distributors agreed to provide art to TRC.

[1] The impact of the mailing was significant as evidenced by the spike in returns in August.

Retailer Engagement— TRC continued to encourage large national retailers to participate in the program. During the implementation of San Louis Obispo County's retail ordinance, TRC again availed the program to large retailers.

Summary of Additional Education and Outreach by Channel

TRC conducted an array of activities intended to raise awareness of California's mercury thermostat disposal ban, mandatory HVAC contractor recycling, and the ease of compliance through TRC's collection program.

Website—TRC's maintains www.thermostat-recycle.org. The website contains participation forms, the previously mentioned outreach toolkit, safety and shipping information, media releases, and reports. The website includes a location search utility that provides for an easy search by zip-code of locations that have ordered TRC collection containers. TRC also promotes its national collection partners by scrolling their corporate logos on the homepage. In **September** TRC completed a *search engine optimization* (SEO) of its website. The objective of the SEO was to increase website traffic by making TRC easier to find on the internet. For instance if a person searches on the term "mercury thermostat recycling" or "thermostat recycling" the first search result in Google is TRC's website. The optimization nearly doubled TRC's monthly website traffic and also markedly shifted the manner in which the site is found, as a higher percentage are now finding TRC through "organic search."

Earned Media— TRC generated considerable positive media attention in 2011. TRC made a concerted effort in 2011 to generate stories on the program. Most notable was the four-page article in *The Air Conditioning, Heating, and Refrigeration News* (*The News*) which included a TRC provided table on mercury thermostat laws. *The News* is one of the leading industry publications.

Publication/Website	Month	Coverage	Readership/Reach
Air Conditioning, Heating & Refrigeration News	January	Article on thermostat recycling and TRC	111,000
RSES Journal	January	TRC & HARDI partnership	18,000
HVACR Business	April	Guest Column thermostat recycling	33,000
Indoor Comfort News	June		25,000
Air Conditioning Today	June	2010 TRC annual report	n/a
ACCA-Hot Air! Blog	July	TRC program	n/a
Wholesale Observations (HARDI)	July	TRC program	n/a
Demolition Magazine	July/August	Proper management of mercury	n/a
Indoor Comfort News	July	2010 TRC annual report	25,000
1800recycling.com	September	Recycling old thermostats	N/A
Contracting Business	October	Thermostat recycling awards	29,000
Indoor Comfort News	October	USACD thermostat recycling	n/a
Supply House Times	October	Thermostat recycling awards	12,800

The National Demolition Association (NDA) also ran a multi-page article authored by TRC's executive director on the proper management of mercury containing products found in residential and commercial structures in the **June/July** issue of *Demolition Magazine*. Select reprints of

these articles may be found on TRC's website at http://www.thermostat-recycle.org/media/index and have also been included in the Appendix.

Paid Advertising

ACCA Sponsorship—TRC sponsored the Air Conditioning Contractors of America (ACCA) 2011 Contracting Week in Nashville, Tennessee, **October** 18-21. The sponsorship included TRC's logo on attendee bags, the inclusion of TRC promotional materials in the bag, and TRC's logo on ACCA's website and signage at the event.

Trade channel web-based advertising— TRC developed new rotating banner advertisements and ran them (Exhibit 3) on the websites contractingbusiness.com (160x600 skyscraper) and hvac-talk.com (300x250 medium rectangle) during the months of **April, May, September** and **October**. Together, the websites average 1.8 million pages views and 280,000 unique visitors per month. HVAC-Talk.com, an online discussion community, boasts 122,000 registered users.

TRC strategically placed ads to coincide with the spring and fall HVAC business cycles. While the ads were featured, 701,528 impressions were delivered and 522 clicks on the advertisements were recorded. In September and October, clicks from HVAC-Talk.com ads accounted for 3% of TRC's website traffic.

Exhibit 3: Web Banner Advertisement (300 x 250 version)

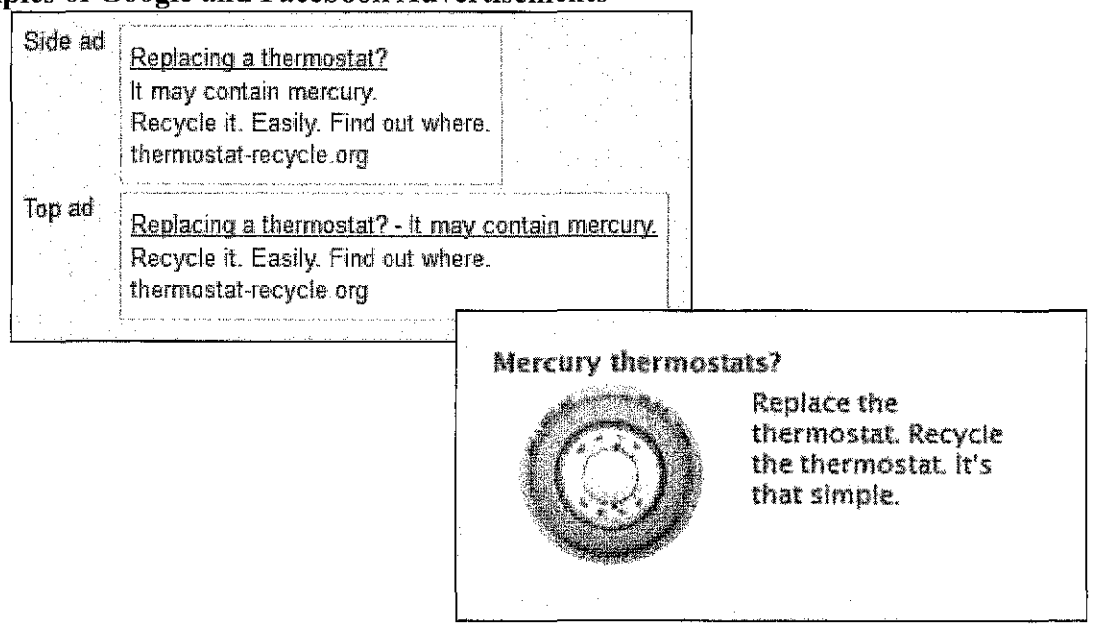
Facebook and Google— TRC developed and deployed a Social Media strategy that leveraged the power of Google and the popularity of Facebook. The campaign, which ran from **September** through **December,** geo-targeted contractors and consumers in California and other states with mercury thermostat disposal bans in an effort to create awareness and increase thermostat collections.

Ads (See Exhibit 4) were developed with variable messages targeting both audiences. Advertisements appeared on Google search results pages after an individual searched terms related to TRC's mission (E.g. thermostat replacement, contracting recycling regulations, mercury thermostat recycling, programmable thermostats, etc.). Similarly, the Facebook

campaign targeted users over 18 who "like" industry-relevant topics or organizations (i.e. renovating, renovators, HVAC, HVAC Technicians, home repair, etc.)

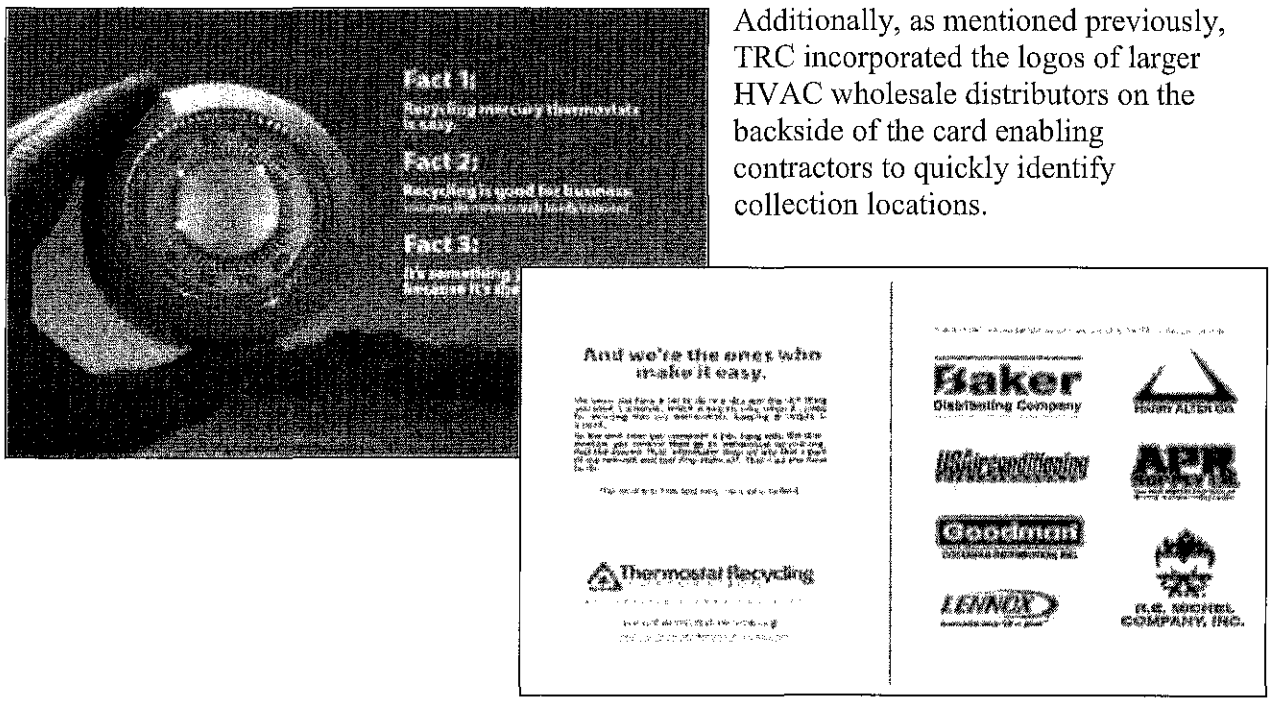
The campaign resulted in over **340,000 impressions** on Google and **8.1 million impressions** on Facebook.

Exhibit 4: Examples of Google and Facebook Advertisements



Tip-In Insert in HVAC Trade Press—TRC placed a 5x7 color insert in the **April** and **October** issues of *HVACR Business* (see Exhibit 5). The insert was included in issues received by approximately 12,000 subscribers in states with mercury thermostat disposal bans (including California). This enabled TRC to incorporate the message, "It's something you gotta do, because it's the law."

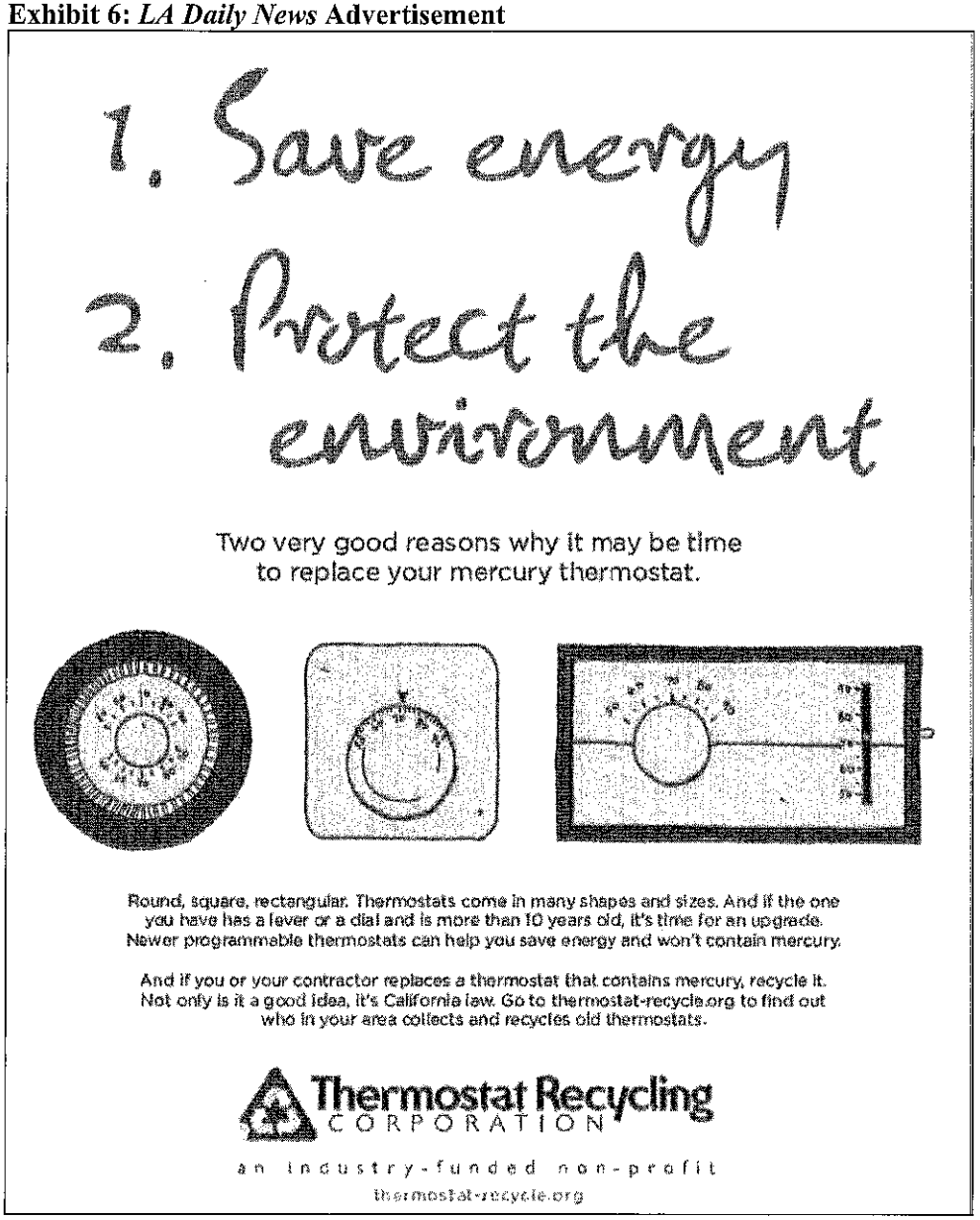
Exhibit 5: *HVACR Business* Insert



Additionally, as mentioned previously, TRC incorporated the logos of larger HVAC wholesale distributors on the backside of the card enabling contractors to quickly identify collection locations.

2011 IHACI Summer Energy Savings Guide, *Los Angeles Daily News*—TRC ran a full-page color advertisement in the guide (Exhibit 6). The guide reached over 400,000 readers of the *Daily News* and featured editorial and emphasis on quality installation practices, utility programs, and energy savings.

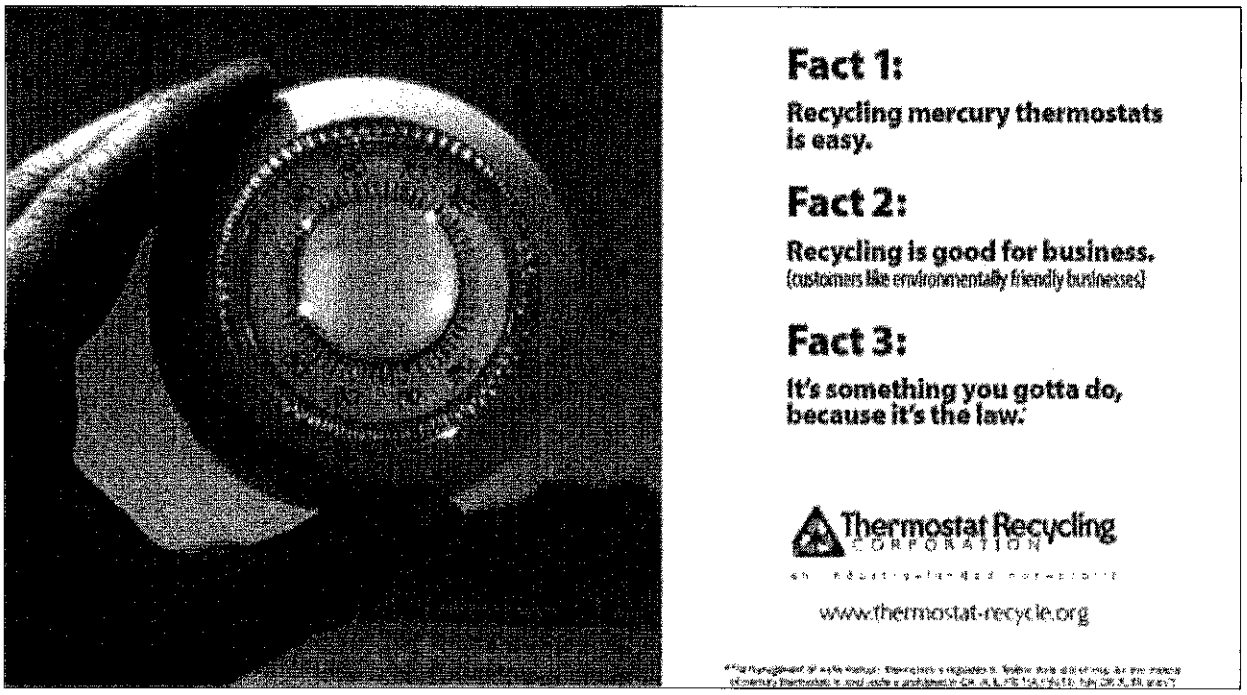
Exhibit 6: *LA Daily News* Advertisement



***Indoor Comfort News* Advertising—**TRC placed a quarter-page advertisement in the April, August, and November issues. *Indoor Comfort News* (*ICN*) has been published by the Institute of Heating and Air Conditioning Industries, Inc. (IHACI) since 1955 as a tool for attaining the trade association's goal of educating and promoting HVACR industry. *ICN's* audience includes

contractors, distributors, and manufacturers. Total circulation is 25,000 with a readership estimated over 100,000. **California circulation is approximately 17,000.**

Exhibit 7: *ICN* Advertisement



Tradeshows—TRC attended and exhibited at the following trade shows:

January 31-February 2: AHRExpo. Las Vegas. AHRExpo is the largest national trade show for the HVACR industry. TRC staff exhibited and promoted the program to HVAC contractors, manufacturers and distributors. The show had a total registered attendance of over 53,000.

February 15–17: Air Conditioning Contractors of America Indoor Air Expo, San Antonio, Texas. Representatives from over 200 HVAC contracting businesses attended the show.

March 1: Plumbing, Heating Cooling Contractors of Greater **Los Angles, California**. The "Flow Expo" was held at the Long Beach Convention Center and was attended by over 5,000 industry professionals.

May 22-26: Oil and Energy Service Professionals. Hershey, PA. This was OESP's annual convention and trade show. Nearly 2,700 HVAC professionals attended this show, which targeted service managers for HVAC firms that install and repair oil fired furnaces. TRC sponsored this event and its logo was displayed on event signage and website.

September 27-29: North American Hazardous Materials Management Association (NAHMMA), Portland, Oregon. This was NAHMMA's annual meeting. TRC exhibited and co-presented with a HARDI representative.

October 23-26: Heating Airconditioning and Refrigeration Distributors International (HARDI). Maui, Hawaii. TRC exhibited and participated in the "Booth Program," which provides for 1-on-1 sessions with senior executive staff from HARDI member companies. This event targeted representatives of approximately 80% of the wholesale market for HVACR products. TRC also presented the inaugural Thermostat Recycling Award to three HVACR distributors recognizing their support of the program.

November 16: Institute of Heating and Air Conditioning Industries, Inc. (IHACI) **Pasadena, California**. IHACI's trade show is attended by over 5,000 HVAC professionals; this show is the largest annual California trade show for the industry.

Public Service Announcement— TRC developed a new 30 second public service announcement in 2011 reflecting changes to the Energy Star program.

California

Did you know that by turning down your thermostat by ten to fifteen degrees for eight hours a day you could save ten percent a year on energy bills? That's according to The US Department of Energy. Installing a programmable thermostat makes this easy.

But remember many older thermostats contain mercury, and if you replace one, you must recycle it--it's California law. The good news is there are recycling locations all over the state. Go to thermostat dash recycle dot O R G to know more.

In **August** TRC requested (See Appendix D) radio stations serving the California market air the PSA. TRC monitored the airtime of the PSA through **December**. While the monitoring doesn't cover all stations within California, it does provide data on the frequency and audience for the PSA, particularly in larger markets.

Exhibit 8: PSA Summary:

Market	Stations	Audience Total
Bakersfield	KRAB, KDFO	5,600
Los Angles	KFRG	9,300
San Fransco	KLIV	74,400
San Deigo	KGB, KHTS, KIOZ, KMYI, KUSS	268,300
Fresno	KJZN	59,500
	Total	**417,100**

Stakeholder Outreach— TRC sent correspondence followed by a direct appeal via telephone (See Appendix E) to over **40** California trade groups in **August and September.** TRC targeted the California chapters of **Plumbing Heating Cooling Contractors Association** and **Sheet Metal and Air Conditioning Contractors' National Association.** TRC sent similar correspondence to the **Northern CA Mechanical Contractors Association** and the

Airconditioning, Refrigeration and Mechanical Contractors Association of Southern California. The California chapters of the **National Association of Residential Property Managers, Building Owners and Managers Association,** and **California Apartment Association** also received correspondence. Attached to the correspondence was a simple media release for use in association publications.

Operational Enhancements

TRC made a number of enhancements to its operations in 2011. Some enhancements include:

- To facilitate compliance with the one-year accumulation regulation and speed bin returns, TRC began including an adhesive label to record the accumulation start date in each container. TRC modified the label on the exterior of the bin to include the admonition to return bin within one year of receipt. TRC also updated instructions provided with every new and returned recycling container to explicitly require locations to record the accumulation start date and return the container within one year that date

- To improve customer service TRC began to directly handle customer service calls at program's HQ and included the new toll-free number and email address on instructions provided in each bin. This toll-free number was also provided in all correspondence to California distributors. The new number and email helpline was added to the footer and contact us page on TRC's website. TRC's goal is to return all calls and emails within one business day. TRC is also maintaining a log of all calls to ensure quality of service and that issues are resolved appropriately and in a timely manner.

- TRC updated the participation forms to capture more information from the collection location at the time the bin is ordered. **TRC is also now accepting orders via email and fax,** in an effort to both ease and speed up the order process. TRC also began explicitly offering to invoice bin fees. TRC found this is particularly helpful to larger distributors ordering multiple bins.

- Implemented a new data management system that provides for timely updates to collection location information on the website. TRC also modified the bin order process. **All orders are now initially processed by TRC staff at the corporate office.** This change results in faster processing of orders and fewer errors in processing and data entry.

- Engaged directly with several wholesale distributors with multiple locations in California to **update location information in the program's location database**. Maintaining accurate listings is an on-going and continual process.

- Updated its compliance assistance effort. As collections have increased, the frequency of bins with non-compliant materials has grown. **A new monitoring system was implemented increasing the frequency of contact to collection locations.** This effort has the additional benefit of pushing collateral to locations and updating location information.

Program Expenses

TRC is a national voluntary program that is also operating nine mandatory programs on behalf of its manufacturer members. As most promotional activities are run concurrently in multiple states, tracking and isolating expenses specifically to California is not possible. Below is a summary of TRC's national program expenses for 2011. A copy of TRC's 2010 IRS Form 990 is attached in the Appendix.

Exhibit 8: 2011 Program Administrative Expenses

TRC Staff and Administration	$	255,617
Recycling Costs	$	299,877
Insurance	$	13,945
Statutory Incentive Payments	$	37,860
New Collection Containers	$	18,859
Travel	$	28,108
Legal	$	93,272
Direct Expenses for Marketing & Outreach	$	123,221
Total	$	870,760

TRC expenses include:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, and other administrative expenses. Includes staff labor costs to implement California program.
- Insurance: Pollution and liability insurance.
- Travel: All travel in 2011 includes travel to trade shows to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and data management.
- New Collection Containers: Direct cost for new containers ordered in 2011.
- Marketing/Outreach & Printing: Includes direct costs to develop and print program collateral; direct mail, national and state advertising, sponsorships, marketing consultants, some web and IT consulting, and other outreach activities. Marketing/Outreach does not include any TRC labor costs.

Comments/Recommendations/Modifications

California's mandatory collection program will shortly be entering its third year of operation. Using 2008 as the base year, the cumulative increase in collections is 167%[2].

[2] Comparison uses whole thermostats recovered, actual growth higher if the totals include switches removed from thermostats.

While these results are encouraging, TRC recognizes significant work remains. There are also a number of challenges. Some more significant challenges include:

- Wholesale distributor participation remains problematic. As an example, TRC staff visited approximately 20 wholesale distributor collection locations in the Los Angeles area in **November.** Not surprisingly, several were still not collecting (even if TRC had record of a bin order for that location). Surprisingly, many of the locations not collecting had also been visited by DTSC staff, and were still not collecting. TRC speculates that the issue with wholesaler compliance is not awareness of the law's requirements within the channel, but rather it simply may not be considered a priority by some.

  However, in the months following, the perceived threat of enforcement has had an impact. The channel is aware that the Department is conducting inspections and risk of substantial fines for non-compliance is now making this program a priority. Both bin orders and requests for materials spiked in the last several months.

- Maintaining accurate information on collection locations. Staff turnover at distributors is high and location information quickly becomes dated. Additionally, locations rarely inform TRC if they move, close, or lose a bin. If anything occurs, locations simply order a new bin. Moreover, typically after the initial bin order the only contact with the collection location is the return of a full bin. The return address information on the pre-printed label from Federal Express is limited and does not allow us to update contact information such as name or phone number[3].

- Contractor and/or technician compliance with the disposal ban remain below desired levels. However, we are certain the level of awareness of California law is high within the channel.

- Compliance with TRC storage and shipping policies. TRC's policies are intended to protect the health and safety of program participants in compliance with state and federal regulations. The return of items other than whole mercury thermostats is a continual issue and as collection rates increase, the amount of time and effort now devoted to compliance assistance is significant.

In response, TRC will among other things make the following modifications to its program in 2012:

- Expand and modify aspects of its marketing efforts to the trade channel in California. TRC will **mail over 32,000** postcards to California HVAC contractors in 2012. TRC is also expanding its advertising buy in *Indoor Comfort News* and will run a full-color 5x7 insert in 3 consecutive issues of the magazine. The buy will reach **17,000 California subscribers per issue.**
- **Test a consumer-facing web-based advertising** campaign in California. Noteworthy, the campaign's primary objective will not target consumers' recycling behavior; rather it will attempt to get consumers to affect their HVAC contractors' behavior.

[3] Many locations do not even complete the return label. Additionally, locations may provide a main phone number or it may be a direct line to the staff person that ordered the bin(s).

- Develop a postcard reminder encouraging collection locations to ship TRC collection containers within a year of the accumulation date and contact the program with address changes. **TRC's goal is to "touch" collection locations more frequently** and this is one of several tactics that will be employed and/or tested in 2012.
- TRC's new database and changes to its participation forms and bin order processing will assist in the accuracy of collection location information forms moving forward. However, 10 years of legacy data remains a problem. **Cleaning TRC's database** will be one of several projects for the program's summer intern.
- TRC does not see value in conducting site visits to all, or even a substantial minority of locations. Efforts in other states have merely proven what is known; many are not actively collecting. Site visits have not yielded growth in location participation, as staff at the location generally does not have the authority to order bins. Rather, TRC will continue with its strategy of engaging decision makers at the corporate offices of wholesale distributors. Efforts are underway (dependent on the voluntary participation of the distributor) to engage certain distributors with a significant market presence in California on cooperative marketing efforts. Working with HARDI, TRC is also modifying the Thermostat Recycling Awards program to **incent the active promotion of the program** by collection locations.
- Develop additional collateral to **assist HVAC contractors** in promoting their support of the program and incent their participation.
- **Develop two short training videos.** One will be for use by HVAC training instructors to show prior to HVAC training classes. The other will be for wholesale distributors to train staff on the program and TRC's storage and shipping policies (e.g. compliance with universal waste regulations.)

Appendix A: Sample of Correspondence to HVAC Wholesale Distributor locations in California

[redacted]
1300 North 17th Street • Suite 1752 • Arlington, VA 22209
Thermostat Recycling Corporation
www.thermostat-recycle.org

July 29, 2011

COPY

[redacted]
SAN JOSE, CA 95112-0000

Dear [redacted]

Legislation passed in 2008 requires all HVAC wholesale distributors with facilities in California to act as a collection point for waste mercury-switch thermostats. Thermostat Recycling Corporation thanks you for participating in its program and acting as a collection site for waste mercury thermostats.

According to our records, your location has not returned a bin within the last 12 months. I want to remind you that California universal waste regulations require that wastes such as mercury thermostats be stored for no longer than 12 months from the start date of accumulations. If you have thermostats in the container, please ship it to us promptly. We have included an extra pre-paid shipping label in case you misplaced the one provided with the container. If you have questions about the program, please contact us using the information provided below.

Additionally, TRC recently updated the promotional materials available to collection sites. TRC has both printed cling stickers and posters available at no cost. Templates of materials are available on TRC's website at thermostat-recycle.org. We have included a window cling as an example. Please consider using this collateral as it serves to promote the program while showcasing your business as an environmental steward.

Please feel free to contact me with any questions about the law or TRC's program. Call 888-266-0550 or email us at trc@thermostat-recycle.org

Regards,

Neisha Johnson

Appendix B: Sample of Correspondence to HVAC Wholesale Distributors in California

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

August 1, 2011

[redacted]
SAN DIEGO, CA 92110

Dear [redacted]

Legislation passed in 2008 requires all HVAC wholesale distributors with facilities in California to act as a collection point for waste mercury-switch thermostats. I want to remind you that California universal waste regulations require that wastes such as mercury thermostats be stored for no longer than 12 months from the start date of accumulations.

According to our records, your location received container(s) in order to comply with California law. However, to date, our records indicate we have never received any waste mercury thermostats from this location. It has come to our attention that the California Department of Toxic Substances Control (DTSC) has been conducting inspections of HVAC wholesalers and has begun enforcement of this regulation. If you have thermostats in the container, please ship it to us promptly.

If you no longer have a container or if you need another pre-paid shipping label, please contact Neisha Johnson immediately at 888-266-0550 or by email at trc@thermostat-recycle.org.

Regards,

Mark Tibbetts
Executive Director

Appendix C: NDA Article

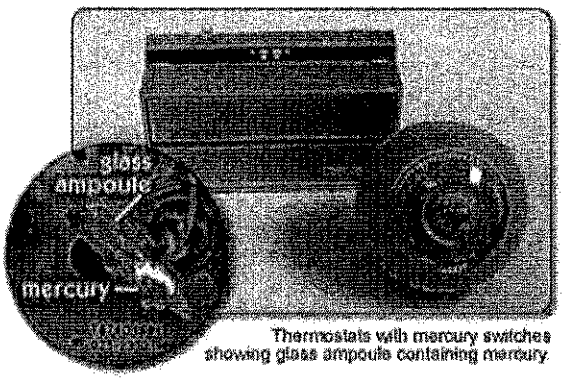
ENVIRONMENTAL **UPDATE**

SAFE HANDLING & DISPOSAL OF MERCURY-CONTAINING THERMOSTATS

Additional Regulations Affect Demolition Industry: Pre-Demolition Removal of Mercury-containing devices from Residential and Commercial Facilities

By MARK TIBBETTS
Executive Director
Thermostat Recycling Corporation
Arlington, VA

Mercury can be found in various devices in residential and commercial structures. If not managed properly at the end-of-life, these devices can break, releasing mercury into the environment. Prior to demolition, facilities should be inspected and these devices should be removed to ensure proper disposal.



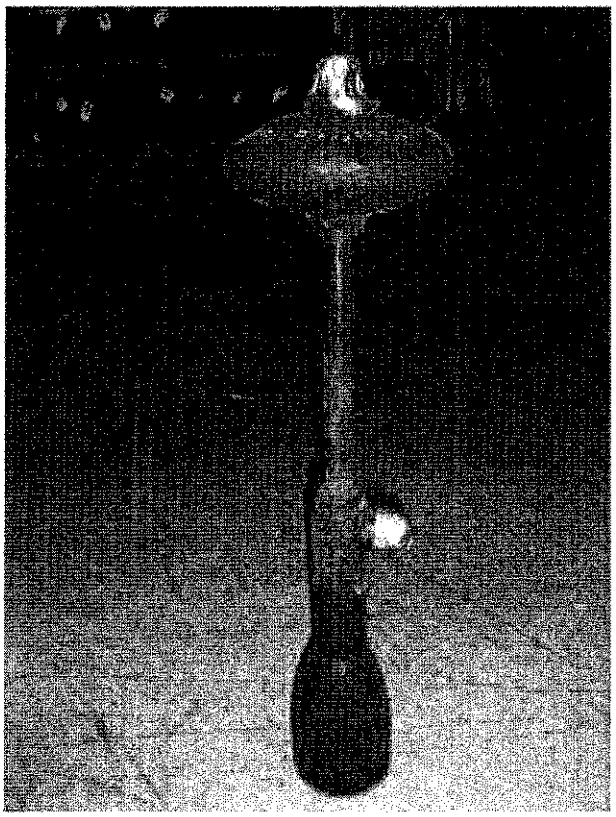
Thermostats with mercury switches showing glass ampoule containing mercury.

Mercury releases can present a serious environmental and health problem. Inhaling mercury vapors – which are colorless and odorless – can cause irreversible damage to the brain and kidneys. Even very small amounts of mercury (less than a gram) may cause adverse health effects.

The central nervous system, eyes and respiratory system can also be affected by mercury. Developing fetuses and children are the most sensitive to mercury exposure. Inhalation of mercury vapor is the most harmful means of exposure. Mercury can also enter the body through contact with the skin or by swallowing.

If released, mercury can pose a danger to people if not properly cleaned up and removed. It can easily spread by walking (tracking), sweeping or vacuuming, thereby presenting a potential health threat to others. Tracking throughout a building or into automobiles has spread mercury contamination to many other locations in many instances.

Health impacts will increase over time if the mercury is not properly removed. Mercury vapors are heavier than air and tend to remain near the floor or mercury source, but can get into the ventilation system and be spread throughout a house or business. Indoors, mercury vapors will accumulate in the air. Children five years of age and younger are considered to be particularly sensitive to the effects of mercury on the nervous



Mercury Seal Generator

system since their central nervous system is still developing. When pregnant women are exposed to mercury, the mercury can pass from the mother's body to the developing fetus; it can also be passed to a nursing infant through breast milk.

CLEANING UP MERCURY SPILLS

If released, clean-up costs are significant. It is not unusual for costs to range from $5,000 up to $300,000 for a single incident. Typical response to mercury releases in homes has consisted of relocating the residents and providing temporary housing, gathering visible mercury with a special vacuum, and heating and ventilating the house to drive off the harmful mercury vapors. In some instances, walls, carpeting and floors of houses have had to be removed because they were grossly contaminated. Personal possessions have also been discarded if they became contaminated and the mercury could not be removed. Contaminated materials are likely to be treated as hazardous waste and sent to a special landfill or a mercury retort facility. In a worst case scenario mercury is spread from the original release location into vehicles and other homes via shoes or clothing; spreading contamination and the scope of clean-up.

DEVICES THAT CONTAIN MERCURY

The three most common devices with significant amounts of mercury in them are mercury-switch thermostats, gas pressure regulators, and mercury pressure switches.

Facilities that were built prior to 1968 may have a mercury-containing gas pressure regulator adjacent to the gas meter. Most of these devices were manufactured and installed in the 1940s and 1950s. These devices contain approximately two teaspoons of mercury. Mercury spills have sometimes occurred during improper removal of these devices, causing a potentially significant health risk and resulting in costly cleanups.

Some older boiler heating systems have a mercury seal generator or mercury pressure switch(s). These devices may be found near the boiler or near a radiator on an upper floor. They can contain up to several fluid ounces of mercury. Mercury spills can occur as a result of improper removal of these devices. A spill can require a significant cleanup effort. In April 2011, EPA responded to a mercury spill at a home where an old 1920s boiler had been improperly removed, resulting in a spill of about four fluid ounces of mercury.

The most commonly found mercury-containing devices are mercury-switch thermostats. While it its more likely to find them in residential structures (single and multi-family), mercury-switch thermostats may also be

found in commercial and light-industrial facilities. Each thermostat contains up to 12 grams of elemental mercury and is one of the largest remaining reservoirs of mercury in residential buildings today.

Mercury Gas Regulator
(Courtesy of American Gas Association)

LEGAL ISSUES GOVERNING MANAGEMENT

The management of mercury-containing devices is regulated by both state and federal authorities.

The Superfund Law (Section 104 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 as amended, 42 U.S.C. Sec. 9604) provides the US Environmental Protection Agency (EPA) the legal authority to respond to mercury releases. The Superfund law also gives EPA the authority to identify the party responsible for the release, order those who improperly handle mercury to take appropriate response, and/or compel them to pay for a cleanup.

CERCLA also requires that any release amount above the quantity of one pound – one pound of mercury is approximately two tablespoons – must be reported to the National Response Center.

The Emergency Planning and Community Right-to-Know Act requires that any release of mercury greater than one pound be reported to the local emergency planning committee, state emergency response commission, or local response personnel by the owner/operator.

Disposal of these devices may also be regulated by federal law.

Additionally, many states also regulate the disposal of mercury-containing products. Twelve states specifically ban the disposal of mercury-containing products in solid waste. Additionally, some states, most notably California and Illinois, require demolition contractors to remove and properly manage all mercury-containing thermostats prior to a building's demolition.

PROPER MANAGEMENT

Facilities need to be inspected, and if mercury is present, these devices need to be removed and disposed of properly prior to a building's demolition. In the instance of mercury-containing gas pressure regulators, the removal needs to be coordinated with the gas utility.

In the case of mercury-switch thermostats, they can be managed as a universal waste, reducing costs associated with transport and disposal. In fact, the manufacturers of mercury-switch thermostats established a national program in which assumes all costs associated with the transport and disposal of whole mercury-switch thermostats. For more information on the management of waste mercury thermostats visit www.thermostat-recycle.org.

Appendix D: PSA cover letter

1200 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

July 29, 2011

Dear Public Service Director,

The Thermostat Recycling Corporation (TRC) is a not-for-profit organization that facilitates the collection and proper disposal of mercury-containing thermostats. Voluntarily founded by thermostat manufacturers, TRC's mission is to promote the safe collection and proper disposal of mercury-containing thermostats.

Mercury is a potent neurotoxin and by properly disposing mercury thermostats by recycling them is the best means of keeping it from the environment. Many people are replacing their old thermostats to save energy and it is important for them to know that many old thermostats contain mercury and should be recycled.

We would appreciate any support you can give us, within your community, by running this Radio PSA, giving your audience a chance to help protect California's environment.

Thank You for your time and consideration,

Mark Tibbetts
Executive Director

Appendix E: Stakeholder Correspondence

1300 North 17th Street - Suite 1752 - Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

September 19, 2011

COPY

Gary Schwenk
SMACNA
7677 Oakport St., #1100
Oakland, CA 94621

SUBJECT: IMPORTANT INFORMATION ON CALIFORNIA'S MERCURY THERMOSTAT DISPOSAL ACT

Dear Mr. Schwenk:

This letter is to remind you of a legal obligation in California that affects your members. The Mercury Thermostat Act, which went into effect in 2008, requires HVAC contractors to recycle all mercury-switch thermostats they removed from service. The law prohibits them from leaving them at the customer's premise.

The good news is that this law is very easy to comply with. Manufacturers must provide a no-cost recycling program in the state of California and every HVAC wholesale distributor in California is required to collect waste mercury thermostats. All contractors need to do is have their technicians hang-on to the mercury thermostats they remove from service and make arrangements to drop-off the waste thermostats at any HVAC wholesale distributor free-of-charge.

Thirty manufacturers are supporting the non-profit Thermostat Recycling Corporation (TRC) which is implementing and promoting the collection program in California and other states.

We are interested in working with your organization to increase awareness about the legal obligations of the HVAC industry and TRC's program. Currently less than 50% of all waste mercury thermostats are being recycled in California and it is critical for the HVAC industry to increase the number being recycled. The better this program performs decreases the likelihood of more onerous regulations on the HVAC industry. One has to look no further than the current rule-making by the Department of Toxic Substances Control's (DTSC) to see the risk to the HVAC industry in California.

We attached information on the program and we encourage you to share it with your members. We plan to follow-up with you to discuss ideas on further promoting the program and increasing HVAC contractor's participation in this program.

For more information, please call 703-841-3243 or email Neisha.johnson@nema.org. Additional information is also available at TRC's website at www.thermostat-recycle.org.

Sincerely,

Mark Tibbetts
Executive Director

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

September 19, 2011

COPY

Gary Schwenk
SMACNA
7677 Oakport St., #1100
Oakland, CA 94621

SUBJECT: IMPORTANT INFORMATION ON CALIFORNIA'S MERCURY THERMOSTAT DISPOSAL ACT

Dear Mr. Schwenk:

This letter is to remind you of a legal obligation in California that affects your members. The Mercury Thermostat Act, which went into effect in 2008, requires HVAC contractors to recycle all mercury-switch thermostats they removed from service. The law prohibits them from leaving them at the customer's premise.

The good news is that this law is very easy to comply with. Manufacturers must provide a no-cost recycling program in the state of California and every HVAC wholesale distributor in California is required to collect waste mercury thermostats. All contractors need to do is have their technicians hang-on to the mercury thermostats they remove from service and make arrangements to drop-off the waste thermostats at any HVAC wholesale distributor free-of-charge.

Thirty manufacturers are supporting the non-profit Thermostat Recycling Corporation (TRC) which is implementing and promoting the collection program in California and other states.

We are interested in working with your organization to increase awareness about the legal obligations of the HVAC industry and TRC's program. Currently less than 50% of all waste mercury thermostats are being recycled in California and it is critical for the HVAC industry to increase the number being recycled. The better this program performs decreases the likelihood of more onerous regulations on the HVAC industry. One has to look no further than the current rule-making by the Department of Toxic Substances Control's (DTSC) to see the risk to the HVAC industry in California.

We attached information on the program and we encourage you to share it with your members. We plan to follow-up with you to discuss ideas on further promoting the program and increasing HVAC contractor's participation in this program.

For more information, please call 703-841-3243 or email Neisha.johnson@nema.org. Additional information is also available at TRC's website at www.thermostat-recycle.org.

Sincerely,

Mark Tibbetts
Executive Director

Appendix F: 990

Form **990** — Department of the Treasury, Internal Revenue Service

Return of Organization Exempt From Income Tax

Under section 501(c), 527, or 4947(a)(1) of the Internal Revenue Code (except black lung benefit trust or private foundation)

▶ The organization may have to use a copy of this return to satisfy state reporting requirements.

OMB No. 1545-0047 — **2010** — Open to Public Inspection

A For the 2010 calendar year, or tax year beginning and ending

B Check if applicable: Address change; Name change; Initial return; Terminated; Amended return; Application pending

C Name of organization: THERMOSTAT RECYCLING CORPORATION

Doing Business As: TRC

Number and street (or P.O. box if mail is not delivered to street address): 1300 NORTH 17TH STREET — Room/suite: 1752

City or town, state or country, and ZIP + 4: ARLINGTON, VA 22209

D Employer identification number: 54-1830284

E Telephone number: 703-841-3200

G Gross receipts $: 672,104.

F Name and address of principal officer: MARK TIBBETTS
SAME AS C ABOVE

H(a) Is this a group return for affiliates? Yes [X] No

H(b) Are all affiliates included? Yes [ ] No

If "No," attach a list. (see instructions)

H(c) Group exemption number ▶

I Tax-exempt status: [ ] 501(c)(3) [X] 501(c) (6) ◀ (insert no.) [ ] 4947(a)(1) or [ ] 527

J Website: ▶ WWW.THERMOSTAT-RECYCLE.ORG

K Form of organization: [X] Corporation [ ] Trust [ ] Association [ ] Other ▶

L Year of formation: 1996 M State of legal domicile: DE

Part I Summary

1 Briefly describe the organization's mission or most significant activities: TO PROMOTE THE SAFE COLLECTION AND PROPER DISPOSAL OF MERCURY-CONTAINING THERMOSTATS.

2 Check this box ▶ [ ] if the organization discontinued its operations or disposed of more than 25% of its net assets.

Activities & Governance	3 Number of voting members of the governing body (Part VI, line 1a)	3	4
	4 Number of independent voting members of the governing body (Part VI, line 1b)	4	4
	5 Total number of individuals employed in calendar year 2010 (Part V, line 2a)	5	0
	6 Total number of volunteers (estimate if necessary)	6	0
	7a Total unrelated business revenue from Part VIII, column (C), line 12	7a	0.
	b Net unrelated business taxable income from Form 990-T, line 34	7b	0.

		Prior Year	Current Year
Revenue	8 Contributions and grants (Part VIII, line 1h)	0.	0.
	9 Program service revenue (Part VIII, line 2g)	640,464.	671,686.
	10 Investment income (Part VIII, column (A), lines 3, 4, and 7d)	847.	418.
	11 Other revenue (Part VIII, column (A), lines 5, 6d, 8c, 9c, 10c, and 11e)	100.	0.
	12 Total revenue - add lines 8 through 11 (must equal Part VIII, column (A), line 12)	641,411.	672,104.
Expenses	13 Grants and similar amounts paid (Part IX, column (A), lines 1-3)	0.	0.
	14 Benefits paid to or for members (Part IX, column (A), line 4)	0.	0.
	15 Salaries, other compensation, employee benefits (Part IX, column (A), lines 5-10)	126,347.	186,787.
	16a Professional fundraising fees (Part IX, column (A), line 11e)	0.	0.
	b Total fundraising expenses (Part IX, column (D), line 25) ▶ 0.		
	17 Other expenses (Part IX, column (A), lines 11a-11d, 11f-24f)	503,128.	526,907.
	18 Total expenses. Add lines 13-17 (must equal Part IX, column (A), line 25)	629,475.	713,694.
	19 Revenue less expenses. Subtract line 18 from line 12	11,936.	-41,590.

		Beginning of Current Year	End of Year
Net Assets or Fund Balances	20 Total assets (Part X, line 16)	189,345.	189,998.
	21 Total liabilities (Part X, line 26)	282,586.	324,829.
	22 Net assets or fund balances. Subtract line 21 from line 20	-93,241.	-134,831.

Part II Signature Block

Under penalties of perjury, I declare that I have examined this return, including accompanying schedules and statements, and to the best of my knowledge and belief, it is true, correct, and complete. Declaration of preparer (other than officer) is based on all information of which preparer has any knowledge.

Sign Here

▶ Signature of officer — Date: 5/11/11

▶ MARK TIBBETTS, EXECUTIVE DIRECTOR
Type or print name and title

Paid Preparer Use Only

Print/Type preparer's name: CHARLES DIETZ, III, CPA — Preparer's signature — Date: 5/9/11 — Check [ ] if self-employed — PTIN

Firm's name ▶ DIXON HUGHES GOODMAN LLP — Firm's EIN ▶

Firm's address ▶ 1430 SPRING HILL ROAD, STE 300
MCLEAN, VA 22102-3018 — Phone no. (703) 970-0400

May the IRS discuss this return with the preparer shown above? (see instructions) [X] Yes [ ] No

032001 02-23-11 LHA For Paperwork Reduction Act Notice, see the separate instructions. Form 990 (2010)

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Part III Statement of Program Service Accomplishments

Check if Schedule O contains a response to any question in this Part III ☐

1 Briefly describe the organization's mission:
NONE

2 Did the organization undertake any significant program services during the year which were not listed on the prior Form 990 or 990-EZ? ☐ Yes [X] No
If "Yes," describe these new services on Schedule O.

3 Did the organization cease conducting, or make significant changes in how it conducts, any program services? ☐ Yes [X] No
If "Yes," describe these changes on Schedule O.

4 Describe the exempt purpose achievements for each of the organization's three largest program services by expenses. Section 501(c)(3) and 501(c)(4) organizations and section 4947(a)(1) trusts are required to report the amount of grants and allocations to others, the total expenses, and revenue, if any, for each program service reported.

4a (Code:) (Expenses $ 620,299. including grants of $) (Revenue $)
TRC FACILITATES THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS BY PROVIDING RECYCLING CONTAINERS FOR THE COLLECTION AND TRANSPORT OF WASTE MERCURY THERMOSTATS TO ELIGIBLE COLLECTION SITES IN ALL US STATES, EXCEPT ALASKA AND HAWAII. TRC ALSO CONDUCTS AN EDUCATIONAL CAMPAIGN PROMOTING THE PROPER MANAGEMENT OF WASTE MERCURY THERMOSTATS. DURING 2010, TRC HAS COLLECTED OVER 200,000 MERCURY-CONTAINING THERMOSTATS. THIS TRANSLATES TO ALMOST 1,900 POUNDS OF MERCURY REMOVED OUT OF THE WASTE STREAM.

4b (Code:) (Expenses $ including grants of $) (Revenue $)

4c (Code:) (Expenses $ including grants of $) (Revenue $)

4d Other program services. (Describe in Schedule O.)
(Expenses $ including grants of $) (Revenue $)

4e Total program service expenses ▶ 620,299.

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12-21-10

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Part IV Checklist of Required Schedules

			Yes	No
1	Is the organization described in section 501(c)(3) or 4947(a)(1) (other than a private foundation)? *If "Yes," complete Schedule A*	1		X
2	Is the organization required to complete Schedule B, Schedule of Contributors?	2		X
3	Did the organization engage in direct or indirect political campaign activities on behalf of or in opposition to candidates for public office? *If "Yes," complete Schedule C, Part I*	3		X
4	**Section 501(c)(3) organizations.** Did the organization engage in lobbying activities, or have a section 501(h) election in effect during the tax year? *If "Yes," complete Schedule C, Part II*	4		
5	Is the organization a section 501(c)(4), 501(c)(5), or 501(c)(6) organization that receives membership dues, assessments, or similar amounts as defined in Revenue Procedure 98-19? *If "Yes," complete Schedule C, Part III*	5	X	
6	Did the organization maintain any donor advised funds or any similar funds or accounts where donors have the right to provide advice on the distribution or investment of amounts in such funds or accounts? *If "Yes," complete Schedule D, Part I*	6		X
7	Did the organization receive or hold a conservation easement, including easements to preserve open space, the environment, historic land areas, or historic structures? *If "Yes," complete Schedule D, Part II*	7		X
8	Did the organization maintain collections of works of art, historical treasures, or other similar assets? *If "Yes," complete Schedule D, Part III*	8		X
9	Did the organization report an amount in Part X, line 21; serve as a custodian for amounts not listed in Part X; or provide credit counseling, debt management, credit repair, or debt negotiation services? *If "Yes," complete Schedule D, Part IV*	9		X
10	Did the organization, directly or through a related organization, hold assets in term, permanent, or quasi-endowments? *If "Yes," complete Schedule D, Part V*	10		X
11	If the organization's answer to any of the following questions is "Yes," then complete Schedule D, Parts VI, VII, VIII, IX, or X as applicable.			
a	Did the organization report an amount for land, buildings, and equipment in Part X, line 10? *If "Yes," complete Schedule D, Part VI*	11a		X
b	Did the organization report an amount for investments - other securities in Part X, line 12 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VII*	11b		X
c	Did the organization report an amount for investments - program related in Part X, line 13 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part VIII*	11c		X
d	Did the organization report an amount for other assets in Part X, line 15 that is 5% or more of its total assets reported in Part X, line 16? *If "Yes," complete Schedule D, Part IX*	11d		X
e	Did the organization report an amount for other liabilities in Part X, line 25? *If "Yes," complete Schedule D, Part X*	11e		X
f	Did the organization's separate or consolidated financial statements for the tax year include a footnote that addresses the organization's liability for uncertain tax positions under FIN 48 (ASC 740)? *If "Yes," complete Schedule D, Part X*	11f		X
12a	Did the organization obtain separate, independent audited financial statements for the tax year? *If "Yes," complete Schedule D, Parts XI, XII, and XIII*	12a		X
b	Was the organization included in consolidated, independent audited financial statements for the tax year? *If "Yes," and if the organization answered "No" to line 12a, then completing Schedule D, Parts XI, XII, and XIII is optional*	12b		X
13	Is the organization a school described in section 170(b)(1)(A)(ii)? *If "Yes," complete Schedule E*	13		X
14a	Did the organization maintain an office, employees, or agents outside of the United States?	14a		X
b	Did the organization have aggregate revenues or expenses of more than $10,000 from grantmaking, fundraising, business, and program service activities outside the United States? *If "Yes," complete Schedule F, Parts I and IV*	14b		X
15	Did the organization report on Part IX, column (A), line 3, more than $5,000 of grants or assistance to any organization or entity located outside the United States? *If "Yes," complete Schedule F, Parts II and IV*	15		X
16	Did the organization report on Part IX, column (A), line 3, more than $5,000 of aggregate grants or assistance to individuals located outside the United States? *If "Yes," complete Schedule F, Parts III and IV*	16		X
17	Did the organization report a total of more than $15,000 of expenses for professional fundraising services on Part IX, column (A), lines 6 and 11e? *If "Yes," complete Schedule G, Part I*	17		X
18	Did the organization report more than $15,000 total of fundraising event gross income and contributions on Part VIII, lines 1c and 8a? *If "Yes," complete Schedule G, Part II*	18		X
19	Did the organization report more than $15,000 of gross income from gaming activities on Part VIII, line 9a? *If "Yes," complete Schedule G, Part III*	19		X
20a	Did the organization operate one or more hospitals? *If "Yes," complete Schedule H*	20a		X
b	If "Yes" to line 20a, did the organization attach its audited financial statements to this return? Note. Some Form 990 filers that operate one or more hospitals must attach audited financial statements (see instructions)	20b		

Form 990 (2010)

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12-21-10

Part IV Checklist of Required Schedules (continued)

			Yes	No
21	Did the organization report more than $5,000 of grants and other assistance to governments and organizations in the United States on Part IX, column (A), line 1? *If "Yes," complete Schedule I, Parts I and II*	21		X
22	Did the organization report more than $5,000 of grants and other assistance to individuals in the United States on Part IX, column (A), line 2? *If "Yes," complete Schedule I, Parts I and III*	22		X
23	Did the organization answer "Yes" to Part VII, Section A, line 3, 4, or 5 about compensation of the organization's current and former officers, directors, trustees, key employees, and highest compensated employees? *If "Yes," complete Schedule J*	23		X
24a	Did the organization have a tax-exempt bond issue with an outstanding principal amount of more than $100,000 as of the last day of the year, that was issued after December 31, 2002? *If "Yes," answer lines 24b through 24d and complete Schedule K. If "No", go to line 25*	24a		X
b	Did the organization invest any proceeds of tax-exempt bonds beyond a temporary period exception?	24b		
c	Did the organization maintain an escrow account other than a refunding escrow at any time during the year to defease any tax-exempt bonds?	24c		
d	Did the organization act as an "on behalf of" issuer for bonds outstanding at any time during the year?	24d		
25a	**Section 501(c)(3) and 501(c)(4) organizations.** Did the organization engage in an excess benefit transaction with a disqualified person during the year? *If "Yes," complete Schedule L, Part I*	25a		
b	Is the organization aware that it engaged in an excess benefit transaction with a disqualified person in a prior year, and that the transaction has not been reported on any of the organization's prior Forms 990 or 990-EZ? *If "Yes," complete Schedule L, Part I*	25b		
26	Was a loan to or by a current or former officer, director, trustee, key employee, highly compensated employee, or disqualified person outstanding as of the end of the organization's tax year? *If "Yes," complete Schedule L, Part II*	26		X
27	Did the organization provide a grant or other assistance to an officer, director, trustee, key employee, substantial contributor, or a grant selection committee member, or to a person related to such an individual? *If "Yes," complete Schedule L, Part III*	27		X
28	Was the organization a party to a business transaction with one of the following parties (see Schedule L, Part IV instructions for applicable filing thresholds, conditions, and exceptions):			
a	A current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28a		X
b	A family member of a current or former officer, director, trustee, or key employee? *If "Yes," complete Schedule L, Part IV*	28b		X
c	An entity of which a current or former officer, director, trustee, or key employee (or a family member thereof) was an officer, director, trustee, or direct or indirect owner? *If "Yes," complete Schedule L, Part IV*	28c		X
29	Did the organization receive more than $25,000 in non-cash contributions? *If "Yes," complete Schedule M*	29		X
30	Did the organization receive contributions of art, historical treasures, or other similar assets, or qualified conservation contributions? *If "Yes," complete Schedule M*	30		X
31	Did the organization liquidate, terminate, or dissolve and cease operations? *If "Yes," complete Schedule N, Part I*	31		X
32	Did the organization sell, exchange, dispose of, or transfer more than 25% of its net assets? *If "Yes," complete Schedule N, Part II*	32		X
33	Did the organization own 100% of an entity disregarded as separate from the organization under Regulations sections 301.7701-2 and 301.7701-3? *If "Yes," complete Schedule R, Part I*	33		X
34	Was the organization related to any tax-exempt or taxable entity? *If "Yes," complete Schedule R, Parts II, III, IV, and V, line 1*	34		X
35	Is any related organization a controlled entity within the meaning of section 512(b)(13)?	35		X
a	Did the organization receive any payment from or engage in any transaction with a controlled entity within the meaning of section 512(b)(13)? *If "Yes," complete Schedule R, Part V, line 2* ☐ Yes ☒ No			
36	**Section 501(c)(3) organizations.** Did the organization make any transfers to an exempt non-charitable related organizations? *If "Yes," complete Schedule R, Part V, line 2*	36		
37	Did the organization conduct more than 5% of its activities through an entity that is not a related organization and that is treated as a partnership for federal income tax purposes? *If "Yes," complete Schedule R, Part VI*	37		X
38	Did the organization complete Schedule O and provide explanations in Schedule O for Part VI, lines 11 and 19? Note. All Form 990 filers are required to complete Schedule O	38	X	

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Part V Statements Regarding Other IRS Filings and Tax Compliance

Check if Schedule O contains a response to any question in this Part V ☐

				Yes	No
1a	Enter the number reported in Box 3 of Form 1096. Enter -0- if not applicable	1a	5		
b	Enter the number of Forms W-2G included in line 1a. Enter -0- if not applicable	1b	0		
c	Did the organization comply with backup withholding rules for reportable payments to vendors and reportable gaming (gambling) winnings to prize winners?		1c	X	
2a	Enter the number of employees reported on Form W-3, Transmittal of Wage and Tax Statements, filed for the calendar year ending with or within the year covered by this return	2a	0		
b	If at least one is reported on line 2a, did the organization file all required federal employment tax returns?		2b		
	Note. If the sum of lines 1a and 2a is greater than 250, you may be required to e-file. (see instructions)				
3a	Did the organization have unrelated business gross income of $1,000 or more during the year?		3a		X
b	If "Yes," has it filed a Form 990-T for this year? *If "No," provide an explanation in Schedule O*		3b		
4a	At any time during the calendar year, did the organization have an interest in, or a signature or other authority over, a financial account in a foreign country (such as a bank account, securities account, or other financial account)?		4a		X
b	If "Yes," enter the name of the foreign country: ▶				
	See instructions for filing requirements for Form TD F 90-22.1, Report of Foreign Bank and Financial Accounts.				
5a	Was the organization a party to a prohibited tax shelter transaction at any time during the tax year?		5a		X
b	Did any taxable party notify the organization that it was or is a party to a prohibited tax shelter transaction?		5b		X
c	If "Yes," to line 5a or 5b, did the organization file Form 8886-T?		5c		
6a	Does the organization have annual gross receipts that are normally greater than $100,000, and did the organization solicit any contributions that were not tax deductible?		6a		X
b	If "Yes," did the organization include with every solicitation an express statement that such contributions or gifts were not tax deductible?		6b		
7	**Organizations that may receive deductible contributions under section 170(c).**				
a	Did the organization receive a payment in excess of $75 made partly as a contribution and partly for goods and services provided to the payor?		7a		
b	If "Yes," did the organization notify the donor of the value of the goods or services provided?		7b		
c	Did the organization sell, exchange, or otherwise dispose of tangible personal property for which it was required to file Form 8282?		7c		
d	If "Yes," indicate the number of Forms 8282 filed during the year	7d			
e	Did the organization receive any funds, directly or indirectly, to pay premiums on a personal benefit contract?		7e		
f	Did the organization, during the year, pay premiums, directly or indirectly, on a personal benefit contract?		7f		
g	If the organization received a contribution of qualified intellectual property, did the organization file Form 8899 as required?		7g		
h	If the organization received a contribution of cars, boats, airplanes, or other vehicles, did the organization file a Form 1098-C?		7h		
8	**Sponsoring organizations maintaining donor advised funds and section 509(a)(3) supporting organizations.** Did the supporting organization, or a donor advised fund maintained by a sponsoring organization, have excess business holdings at any time during the year?		8		
9	**Sponsoring organizations maintaining donor advised funds.**				
a	Did the organization make any taxable distributions under section 4966?		9a		
b	Did the organization make a distribution to a donor, donor advisor, or related person?		9b		
10	**Section 501(c)(7) organizations.** Enter:				
a	Initiation fees and capital contributions included on Part VIII, line 12	10a			
b	Gross receipts, included on Form 990, Part VIII, line 12, for public use of club facilities	10b			
11	**Section 501(c)(12) organizations.** Enter:				
a	Gross income from members or shareholders	11a			
b	Gross income from other sources (Do not net amounts due or paid to other sources against amounts due or received from them.)	11b			
12a	**Section 4947(a)(1) non-exempt charitable trusts.** Is the organization filing Form 990 in lieu of Form 1041?		12a		
b	If "Yes," enter the amount of tax-exempt interest received or accrued during the year	12b			
13	**Section 501(c)(29) qualified nonprofit health insurance issuers.**				
a	Is the organization licensed to issue qualified health plans in more than one state?		13a		
	Note. See the instructions for additional information the organization must report on Schedule O.				
b	Enter the amount of reserves the organization is required to maintain by the states in which the organization is licensed to issue qualified health plans	13b			
c	Enter the amount of reserves on hand	13c			
14a	Did the organization receive any payments for indoor tanning services during the tax year?		14a		X
b	If "Yes," has it filed a Form 720 to report these payments? *If "No," provide an explanation in Schedule O*		14b		

Form **990** (2010)

032005
12-07-10

Part VI Governance, Management, and Disclosure *For each "Yes" response to lines 2 through 7b below, and for a "No" response to line 8a, 8b, or 10b below, describe the circumstances, processes, or changes in Schedule O. See instructions.*

Check if Schedule O contains a response to any question in this Part VI ..... [X]

Section A. Governing Body and Management

				Yes	No
1a	Enter the number of voting members of the governing body at the end of the tax year	1a	4		
b	Enter the number of voting members included in line 1a, above, who are independent	1b	4		
2	Did any officer, director, trustee, or key employee have a family relationship or a business relationship with any other officer, director, trustee, or key employee?		2		X
3	Did the organization delegate control over management duties customarily performed by or under the direct supervision of officers, directors or trustees, or key employees to a management company or other person?		3		X
4	Did the organization make any significant changes to its governing documents since the prior Form 990 was filed?		4		X
5	Did the organization become aware during the year of a significant diversion of the organization's assets?		5		X
6	Does the organization have members or stockholders?		6	X	
7a	Does the organization have members, stockholders, or other persons who may elect one or more members of the governing body?		7a	X	
b	Are any decisions of the governing body subject to approval by members, stockholders, or other persons?		7b		X
8	Did the organization contemporaneously document the meetings held or written actions undertaken during the year by the following:				
a	The governing body?		8a	X	
b	Each committee with authority to act on behalf of the governing body?		8b	X	
9	Is there any officer, director, trustee, or key employee listed in Part VII, Section A, who cannot be reached at the organization's mailing address? *If "Yes," provide the names and addresses in Schedule O*		9		X

Section B. Policies *(This Section B requests information about policies not required by the Internal Revenue Code.)*

			Yes	No
10a	Does the organization have local chapters, branches, or affiliates?	10a		X
b	If "Yes," does the organization have written policies and procedures governing the activities of such chapters, affiliates, and branches to ensure their operations are consistent with those of the organization?	10b		
11a	Has the organization provided a copy of this Form 990 to all members of its governing body before filing the form?	11a	X	
b	Describe in Schedule O the process, if any, used by the organization to review this Form 990.			
12a	Does the organization have a written conflict of interest policy? *If "No," go to line 13*	12a	X	
b	Are officers, directors or trustees, and key employees required to disclose annually interests that could give rise to conflicts?	12b		X
c	Does the organization regularly and consistently monitor and enforce compliance with the policy? *If "Yes," describe in Schedule O how this is done*	12c		X
13	Does the organization have a written whistleblower policy?	13	X	
14	Does the organization have a written document retention and destruction policy?	14	X	
15	Did the process for determining compensation of the following persons include a review and approval by independent persons, comparability data, and contemporaneous substantiation of the deliberation and decision?			
a	The organization's CEO, Executive Director, or top management official	15a	X	
b	Other officers or key employees of the organization	15b	X	
	If "Yes" to line 15a or 15b, describe the process in Schedule O. (See instructions.)			
16a	Did the organization invest in, contribute assets to, or participate in a joint venture or similar arrangement with a taxable entity during the year?	16a		X
b	If "Yes," has the organization adopted a written policy or procedure requiring the organization to evaluate its participation in joint venture arrangements under applicable federal tax law, and taken steps to safeguard the organization's exempt status with respect to such arrangements?	16b		

Section C. Disclosure

17 List the states with which a copy of this Form 990 is required to be filed ▶ CA, MT

18 Section 6104 requires an organization to make its Forms 1023 (or 1024 if applicable), 990, and 990-T (501(c)(3)s only) available for public inspection. Indicate how you make these available. Check all that apply.

☐ Own website ☐ Another's website [X] Upon request

19 Describe in Schedule O whether (and if so, how), the organization makes its governing documents, conflict of interest policy, and financial statements available to the public.

20 State the name, physical address, and telephone number of the person who possesses the books and records of the organization: ▶

MARK TIBBETTS - 703-841-3200
1300 NORTH 17TH STREET, NO. 1752, ARLINGTON, VA 22209

Form 990 (2010) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 7

Part VII Compensation of Officers, Directors, Trustees, Key Employees, Highest Compensated Employees, and Independent Contractors

Check if Schedule O contains a response to any question in this Part VII ☐

Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees

1a Complete this table for all persons required to be listed. Report compensation for the calendar year ending with or within the organization's tax year.

- List all of the organization's **current** officers, directors, trustees (whether individuals or organizations), regardless of amount of compensation. Enter -0- in columns (D), (E), and (F) if no compensation was paid.
- List all of the organization's **current** key employees, if any. See instructions for definition of "key employee."
- List the organization's five **current** highest compensated employees (other than an officer, director, trustee, or key employee) who received reportable compensation (Box 5 of Form W-2 and/or Box 7 of Form 1099-MISC) of more than $100,000 from the organization and any related organizations.
- List all of the organization's **former** officers, key employees, and highest compensated employees who received more than $100,000 of reportable compensation from the organization and any related organizations.
- List all of the organization's **former directors or trustees** that received, in the capacity as a former director or trustee of the organization, more than $10,000 of reportable compensation from the organization and any related organizations.

List persons in the following order: individual trustees or directors; institutional trustees; officers; key employees; highest compensated employees; and former such persons.

☐ Check this box if neither the organization nor any related organization compensated any current officer, director, or trustee.

(A) Name and Title	(B) Average hours per week (describe hours for related organizations in Schedule O)	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
DAN O'DONNELL CHAIR	2.50	X		X				0.	0.	0.
JOHN SARTAIN VICE CHAIR/TREASURER	2.50	X		X				0.	0.	0.
ANDREW GRAHAM SECRETARY	2.50	X		X				0.	0.	0.
ROBERT JOHNSON DIRECTOR	2.50	X						0.	0.	0.
MARK TIBBETTS EXECUTIVE DIRECTOR	35.00			X				110,109.	0.	30,779.

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Part VII Section A. Officers, Directors, Trustees, Key Employees, and Highest Compensated Employees *(continued)*

(A) Name and title	(B) Average hours per week (describe hours for related organizations in Schedule O)	(C) Position (check all that apply)						(D) Reportable compensation from the organization (W-2/1099-MISC)	(E) Reportable compensation from related organizations (W-2/1099-MISC)	(F) Estimated amount of other compensation from the organization and related organizations
		Individual trustee or director	Institutional trustee	Officer	Key employee	Highest compensated employee	Former			
1b Sub-total ▶								110,109.	0.	30,779.
c Total from continuation sheets to Part VII, Section A ▶								0.	0.	0.
d Total (add lines 1b and 1c) ▶								110,109.	0.	30,779.

2 Total number of individuals (including but not limited to those listed above) who received more than $100,000 in reportable compensation from the organization ▶ 1

		Yes	No
3	Did the organization list any former officer, director or trustee, key employee, or highest compensated employee on line 1a? *If "Yes," complete Schedule J for such individual*		X
4	For any individual listed on line 1a, is the sum of reportable compensation and other compensation from the organization and related organizations greater than $150,000? *If "Yes," complete Schedule J for such individual*		X
5	Did any person listed on line 1a receive or accrue compensation from any unrelated organization or individual for services rendered to the organization? *If "Yes," complete Schedule J for such person*		X

Section B. Independent Contractors

1 Complete this table for your five highest compensated independent contractors that received more than $100,000 of compensation from the organization.

(A) Name and business address	(B) Description of services	(C) Compensation
HONEYWELL INTERNATIONAL, 1985 DOUGLAS DRIVE, GOLDEN VALLEY, MN 55422-3992	ADMINISTRATIVE AND RECYCLING SERVICES	240,974.

2 Total number of independent contractors (including but not limited to those listed above) who received more than $100,000 in compensation from the organization ▶ 1

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Part VIII Statement of Revenue

			(A) Total revenue	(B) Related or exempt function revenue	(C) Unrelated business revenue	(D) Revenue excluded from tax under sections 512, 513, or 514
Contributions, gifts, grants and other similar amounts	1a Federated campaigns 1a					
	b Membership dues 1b					
	c Fundraising events 1c					
	d Related organizations 1d					
	e Government grants (contributions) 1e					
	f All other contributions, gifts, grants, and similar amounts not included above 1f					
	g Noncash contributions included in lines 1a-1f $					
	h Total. Add lines 1a-1f					
Program Service Revenue		Business Code				
	2a MEMBERSHIP DUES	900099	655,186.	655,186.		
	b SITE PARTICIPATION FEE	900099	16,500.	16,500.		
	c					
	d					
	e					
	f All other program service revenue					
	g Total. Add lines 2a-2f		671,686.			
Other Revenue	3 Investment income (including dividends, interest, and other similar amounts)		418.			418.
	4 Income from investment of tax-exempt bond proceeds					
	5 Royalties					
		(i) Real	(ii) Personal			
	6a Gross Rents					
	b Less: rental expenses					
	c Rental income or (loss)					
	d Net rental income or (loss)					
		(i) Securities	(ii) Other			
	7a Gross amount from sales of assets other than inventory					
	b Less: cost or other basis and sales expenses					
	c Gain or (loss)					
	d Net gain or (loss)					
	8a Gross income from fundraising events (not including $ ____ of contributions reported on line 1c). See Part IV, line 18 a					
	b Less: direct expenses b					
	c Net income or (loss) from fundraising events					
	9a Gross income from gaming activities. See Part IV, line 19 a					
	b Less: direct expenses b					
	c Net income or (loss) from gaming activities					
	10a Gross sales of inventory, less returns and allowances a					
	b Less: cost of goods sold b					
	c Net income or (loss) from sales of inventory					
	Miscellaneous Revenue	Business Code				
	11a					
	b					
	c					
	d All other revenue					
	e Total. Add lines 11a-11d					
	12 Total revenue. See instructions.		672,104.	671,686.	0.	418.

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Form 990 (2010)

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Form 990 (2010) THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 10

Part IX Statement of Functional Expenses

Section 501(c)(3) and 501(c)(4) organizations must complete all columns.
All other organizations must complete column (A) but are not required to complete columns (B), (C), and (D).

Do not include amounts reported on lines 6b, 7b, 8b, 9b, and 10b of Part VIII.	(A) Total expenses	(B) Program service expenses	(C) Management and general expenses	(D) Fundraising expenses
1 Grants and other assistance to governments and organizations in the U.S. See Part IV, line 21				
2 Grants and other assistance to individuals in the U.S. See Part IV, line 22				
3 Grants and other assistance to governments, organizations, and individuals outside the U.S. See Part IV, lines 15 and 16				
4 Benefits paid to or for members				
5 Compensation of current officers, directors, trustees, and key employees	140,888.			
6 Compensation not included above, to disqualified persons (as defined under section 4958(f)(1)) and persons described in section 4958(c)(3)(B)				
7 Other salaries and wages	45,899.			
8 Pension plan contributions (include section 401(k) and section 403(b) employer contributions)				
9 Other employee benefits				
10 Payroll taxes				
11 Fees for services (non-employees):				
a Management				
b Legal	7,349.			
c Accounting	9,845.			
d Lobbying				
e Professional fundraising services. See Part IV, line 17				
f Investment management fees				
g Other	4,981.			
12 Advertising and promotion	36,034.			
13 Office expenses	40,164.			
14 Information technology	19,107.			
15 Royalties				
16 Occupancy				
17 Travel	28,809.			
18 Payments of travel or entertainment expenses for any federal, state, or local public officials				
19 Conferences, conventions, and meetings				
20 Interest				
21 Payments to affiliates				
22 Depreciation, depletion, and amortization				
23 Insurance	17,771.			
24 Other expenses. Itemize expenses not covered above. (List miscellaneous expenses in line 24f. If line 24f amount exceeds 10% of line 25, column (A) amount, list line 24f expenses on Schedule O.)				
a HONEYWELL REIMBURSEMENT	300,096.			
b INCENTIVE PAYMENTS	40,380.			
c BINS EXPENSE	18,219.			
d SPONSORSHIP AND MEMBERS	4,152.			
e				
f All other expenses				
25 Total functional expenses. Add lines 1 through 24f	713,694.			
26 Joint costs. Check here ▶ ☐ if following SOP 98-2 (ASC 958-720). Complete this line only if the organization reported in column (B) joint costs from a combined educational campaign and fundraising solicitation				

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Part X Balance Sheet

			(A) Beginning of year		(B) End of year
Assets	1	Cash - non-interest-bearing	88,347.	1	66,595.
	2	Savings and temporary cash investments	100,673.	2	100,905.
	3	Pledges and grants receivable, net		3	
	4	Accounts receivable, net	325.	4	16,000.
	5	Receivables from current and former officers, directors, trustees, key employees, and highest compensated employees. Complete Part II of Schedule L		5	
	6	Receivables from other disqualified persons (as defined under section 4958(f)(1)), persons described in section 4958(c)(3)(B), and contributing employers and sponsoring organizations of section 501(c)(9) voluntary employees' beneficiary organizations (see instructions)		6	
	7	Notes and loans receivable, net		7	
	8	Inventories for sale or use		8	
	9	Prepaid expenses and deferred charges		9	6,498.
	10a	Land, buildings, and equipment: cost or other basis. Complete Part VI of Schedule D — 10a			
	b	Less: accumulated depreciation — 10b		10c	
	11	Investments - publicly traded securities		11	
	12	Investments - other securities. See Part IV, line 11		12	
	13	Investments - program-related. See Part IV, line 11		13	
	14	Intangible assets		14	
	15	Other assets. See Part IV, line 11		15	
	16	Total assets. Add lines 1 through 15 (must equal line 34)	189,345.	16	189,998.
Liabilities	17	Accounts payable and accrued expenses	282,586.	17	324,829.
	18	Grants payable		18	
	19	Deferred revenue		19	
	20	Tax-exempt bond liabilities		20	
	21	Escrow or custodial account liability. Complete Part IV of Schedule D		21	
	22	Payables to current and former officers, directors, trustees, key employees, highest compensated employees, and disqualified persons. Complete Part II of Schedule L		22	
	23	Secured mortgages and notes payable to unrelated third parties		23	
	24	Unsecured notes and loans payable to unrelated third parties		24	
	25	Other liabilities. Complete Part X of Schedule D		25	
	26	Total liabilities. Add lines 17 through 25	282,586.	26	324,829.
Net Assets or Fund Balances		Organizations that follow SFAS 117, check here ▶ [X] and complete lines 27 through 29, and lines 33 and 34.			
	27	Unrestricted net assets	-93,241.	27	-134,831.
	28	Temporarily restricted net assets		28	
	29	Permanently restricted net assets		29	
		Organizations that do not follow SFAS 117, check here ▶ [ ] and complete lines 30 through 34.			
	30	Capital stock or trust principal, or current funds		30	
	31	Paid-in or capital surplus, or land, building, or equipment fund		31	
	32	Retained earnings, endowment, accumulated income, or other funds		32	
	33	Total net assets or fund balances	-93,241.	33	-134,831.
	34	Total liabilities and net assets/fund balances	189,345.	34	189,998.

Form 990 (2010)

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Part XI Reconciliation of Net Assets

Check if Schedule O contains a response to any question in this Part XI ☐

1	Total revenue (must equal Part VIII, column (A), line 12)	1	672,104.
2	Total expenses (must equal Part IX, column (A), line 25)	2	713,694.
3	Revenue less expenses. Subtract line 2 from line 1	3	-41,590.
4	Net assets or fund balances at beginning of year (must equal Part X, line 33, column (A))	4	-93,241.
5	Other changes in net assets or fund balances (explain in Schedule O)	5	
6	Net assets or fund balances at end of year. Combine lines 3, 4, and 5 (must equal Part X, line 33, column (B))	6	-134,831.

Part XII Financial Statements and Reporting

Check if Schedule O contains a response to any question in this Part XII ☒

			Yes	No
1	Accounting method used to prepare the Form 990: ☐ Cash ☒ Accrual ☐ Other _____ If the organization changed its method of accounting from a prior year or checked "Other," explain in Schedule O.			
2a	Were the organization's financial statements compiled or reviewed by an independent accountant?	2a	X	
b	Were the organization's financial statements audited by an independent accountant?	2b		X
c	If "Yes" to line 2a or 2b, does the organization have a committee that assumes responsibility for oversight of the audit, review, or compilation of its financial statements and selection of an independent accountant? If the organization changed either its oversight process or selection process during the tax year, explain in Schedule O.	2c	X	
d	If "Yes" to line 2a or 2b, check a box below to indicate whether the financial statements for the year were issued on a separate basis, consolidated basis, or both: ☒ Separate basis ☐ Consolidated basis ☐ Both consolidated and separate basis			
3a	As a result of a federal award, was the organization required to undergo an audit or audits as set forth in the Single Audit Act and OMB Circular A-133?	3a		X
b	If "Yes," did the organization undergo the required audit or audits? If the organization did not undergo the required audit or audits, explain why in Schedule O and describe any steps taken to undergo such audits.	3b		

Form 990 (2010)

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SCHEDULE C (Form 990 or 990-EZ)

Department of the Treasury Internal Revenue Service

Political Campaign and Lobbying Activities

For Organizations Exempt From Income Tax Under section 501(c) and section 527

▶ Complete if the organization is described below. ▶ Attach to Form 990 or Form 990-EZ. ▶ See separate instructions.

OMB No. 1545-0047

2010

Open to Public Inspection

If the organization answered "Yes," to Form 990, Part IV, line 3, or Form 990-EZ, Part V, line 46 (Political Campaign Activities), then

- Section 501(c)(3) organizations: Complete Parts I-A and B. Do not complete Part I-C.
- Section 501(c) (other than section 501(c)(3)) organizations: Complete Parts I-A and C below. Do not complete Part I-B.
- Section 527 organizations: Complete Part I-A only.

If the organization answered "Yes," to Form 990, Part IV, line 4, or Form 990-EZ, Part VI, line 47 (Lobbying Activities), then

- Section 501(c)(3) organizations that have filed Form 5768 (election under section 501(h)): Complete Part II-A. Do not complete Part II-B.
- Section 501(c)(3) organizations that have NOT filed Form 5768 (election under section 501(h)): Complete Part II-B. Do not complete Part II-A.

If the organization answered "Yes," to Form 990, Part IV, line 5 (Proxy Tax), or Form 990-EZ, Part V, line 35a (Proxy Tax), then

- Section 501(c)(4), (5), or (6) organizations: Complete Part III.

Name of organization	Employer identification number
THERMOSTAT RECYCLING CORPORATION	54-1830284

Part I-A Complete if the organization is exempt under section 501(c) or is a section 527 organization.

1 Provide a description of the organization's direct and indirect political campaign activities in Part IV.

2 Political expenditures ▶ $

3 Volunteer hours

Part I-B Complete if the organization is exempt under section 501(c)(3).

1 Enter the amount of any excise tax incurred by the organization under section 4955 ▶ $

2 Enter the amount of any excise tax incurred by organization managers under section 4955 ▶ $

3 If the organization incurred a section 4955 tax, did it file Form 4720 for this year? ☐ Yes ☐ No

4a Was a correction made? ☐ Yes ☐ No

b If "Yes," describe in Part IV.

Part I-C Complete if the organization is exempt under section 501(c), except section 501(c)(3).

1 Enter the amount directly expended by the filing organization for section 527 exempt function activities ▶ $

2 Enter the amount of the filing organization's funds contributed to other organizations for section 527 exempt function activities ▶ $

3 Total exempt function expenditures. Add lines 1 and 2. Enter here and on Form 1120-POL, line 17b ▶ $

4 Did the filing organization file Form 1120-POL for this year? ☐ Yes ☐ No

5 Enter the names, addresses and employer identification number (EIN) of all section 527 political organizations to which the filing organization made payments. For each organization listed, enter the amount paid from the filing organization's funds. Also enter the amount of political contributions received that were promptly and directly delivered to a separate political organization, such as a separate segregated fund or a political action committee (PAC). If additional space is needed, provide information in Part IV.

(a) Name	(b) Address	(c) EIN	(d) Amount paid from filing organization's funds. If none, enter -0-.	(e) Amount of political contributions received and promptly and directly delivered to a separate political organization. If none, enter -0-.

For Paperwork Reduction Act Notice, see the instructions for Form 990 or 990-EZ. Schedule C (Form 990 or 990-EZ) 2010

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Schedule C (Form 990 or 990-EZ) 2010 THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 2

Part II-A Complete if the organization is exempt under section 501(c)(3) and filed Form 5768 (election under section 501(h)).

A Check ▶ ☐ if the filing organization belongs to an affiliated group.

B Check ▶ ☐ if the filing organization checked box A and "limited control" provisions apply.

Limits on Lobbying Expenditures (The term "expenditures" means amounts paid or incurred.)	(a) Filing organization's totals	(b) Affiliated group totals
1a Total lobbying expenditures to influence public opinion (grass roots lobbying)		
b Total lobbying expenditures to influence a legislative body (direct lobbying)		
c Total lobbying expenditures (add lines 1a and 1b)		
d Other exempt purpose expenditures		
e Total exempt purpose expenditures (add lines 1c and 1d)		
f Lobbying nontaxable amount. Enter the amount from the following table in both columns.		
g Grassroots nontaxable amount (enter 25% of line 1f)		
h Subtract line 1g from line 1a. If zero or less, enter -0-		
i Subtract line 1f from line 1c. If zero or less, enter -0-		
j If there is an amount other than zero on either line 1h or line 1i, did the organization file Form 4720 reporting section 4911 tax for this year?	☐ Yes ☐ No	

If the amount on line 1e, column (a) or (b) is:	The lobbying nontaxable amount is:
Not over $500,000	20% of the amount on line 1e.
Over $500,000 but not over $1,000,000	$100,000 plus 15% of the excess over $500,000.
Over $1,000,000 but not over $1,500,000	$175,000 plus 10% of the excess over $1,000,000.
Over $1,500,000 but not over $17,000,000	$225,000 plus 5% of the excess over $1,500,000.
Over $17,000,000	$1,000,000.

4-Year Averaging Period Under Section 501(h)

(Some organizations that made a section 501(h) election do not have to complete all of the five columns below. See the instructions for lines 2a through 2f on page 4.)

Lobbying Expenditures During 4-Year Averaging Period Calendar year (or fiscal year beginning in)	(a) 2007	(b) 2008	(c) 2009	(d) 2010	(e) Total
2a Lobbying nontaxable amount					
b Lobbying ceiling amount (150% of line 2a, column(e))					
c Total lobbying expenditures					
d Grassroots nontaxable amount					
e Grassroots ceiling amount (150% of line 2d, column (e))					
f Grassroots lobbying expenditures					

Schedule C (Form 990 or 990-EZ) 2010

Schedule C (Form 990 or 990-EZ) 2010 THERMOSTAT RECYCLING CORPORATION 54-1830284 Page 3

Part II-B Complete if the organization is exempt under section 501(c)(3) and has NOT filed Form 5768 (election under section 501(h)).

		(a) Yes	(a) No	(b) Amount
1	During the year, did the filing organization attempt to influence foreign, national, state or local legislation, including any attempt to influence public opinion on a legislative matter or referendum, through the use of:			
a	Volunteers?			
b	Paid staff or management (include compensation in expenses reported on lines 1c through 1i)?			
c	Media advertisements?			
d	Mailings to members, legislators, or the public?			
e	Publications, or published or broadcast statements?			
f	Grants to other organizations for lobbying purposes?			
g	Direct contact with legislators, their staffs, government officials, or a legislative body?			
h	Rallies, demonstrations, seminars, conventions, speeches, lectures, or any similar means?			
i	Other activities? If "Yes," describe in Part IV			
j	Total. Add lines 1c through 1i			
2a	Did the activities in line 1 cause the organization to be not described in section 501(c)(3)?			
b	If "Yes," enter the amount of any tax incurred under section 4912			
c	If "Yes," enter the amount of any tax incurred by organization managers under section 4912			
d	If the filing organization incurred a section 4912 tax, did it file Form 4720 for this year?			

Part III-A Complete if the organization is exempt under section 501(c)(4), section 501(c)(5), or section 501(c)(6).

			Yes	No
1	Were substantially all (90% or more) dues received nondeductible by members?	1		X
2	Did the organization make only in-house lobbying expenditures of $2,000 or less?	2	X	
3	Did the organization agree to carryover lobbying and political expenditures from the prior year?	3		X

Part III-B Complete if the organization is exempt under section 501(c)(4), section 501(c)(5), or section 501(c)(6) if BOTH Part III-A, lines 1 and 2 are answered "No" OR if Part III-A, line 3 is answered "Yes."

1	Dues, assessments and similar amounts from members	1	
2	Section 162(e) nondeductible lobbying and political expenditures (do not include amounts of political expenses for which the section 527(f) tax was paid).		
a	Current year	2a	
b	Carryover from last year	2b	
c	Total	2c	
3	Aggregate amount reported in section 6033(e)(1)(A) notices of nondeductible section 162(e) dues	3	
4	If notices were sent and the amount on line 2c exceeds the amount on line 3, what portion of the excess does the organization agree to carryover to the reasonable estimate of nondeductible lobbying and political expenditure next year?	4	
5	Taxable amount of lobbying and political expenditures (see instructions)	5	

Part IV Supplemental Information

Complete this part to provide the descriptions required for Part I-A, line 1; Part I-B, line 4; Part I-C, line 5; and Part II-B, line 1i. Also, complete this part for any additional information.

Schedule C (Form 990 or 990-EZ) 2010

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SCHEDULE O (Form 990 or 990-EZ)
Department of the Treasury
Internal Revenue Service

Supplemental Information to Form 990 or 990-EZ

Complete to provide information for responses to specific questions on Form 990 or 990-EZ or to provide any additional information.
▶ Attach to Form 990 or 990-EZ.

OMB No. 1545-0047
2010
Open to Public Inspection

Name of the organization: THERMOSTAT RECYCLING CORPORATION

Employer identification number: 54-1830284

FORM 990, PART VI, SECTION A, LINE 6: THE INITIAL MEMBERS OF THIS CORPORATION SHALL BE GENERAL ELECTRIC CORPORATION, WHITE-RODGERS CORPORATION, AND HONEYWELL INC. EACH SUCH CORPORATION SHALL BE DEEMED AN ORIGINAL MEMBER OF THE CORPORATION, AND ALL THREE CORPORATIONS MAY BE REFERRED TO COLLECTIVELY IN THE BY-LAWS AS THE ORIGINAL MEMBERS.

FROM TIME TO TIME, THE BOARD OF DIRECTORS MAY INVITE OTHER THERMOSTAT MANUFACTURERS TO PARTICIPATE AS MEMBERS IN THE CORPORATION. SUCH A CORPORATION SHALL BECOME A MEMBER ONLY UPON PAYMENT OF FEES AS PROVIDED UNDER ARTICLE VII OF THE BY-LAWS.

FORM 990, PART VI, SECTION A, LINE 7A: THERE SHALL BE A NOMINATING COMMITTEE OF THE BOARD OF DIRECTORS, WHICH SHALL CONSIST OF THREE DIRECTORS, ALL OF WHOM ARE EMPLOYED BY ORIGINAL MEMBERS. ONE MONTH PRIOR TO THE ANNUAL MEETING OF THE CORPORATION, THE NOMINATING COMMITTEE SHALL APPROVE A SLATE OF NOMINEES MEETING THE QUALIFICATIONS SET FORTH IN SECTION 2 TO BE SUBMITTED TO THE MEMBERS FOR ELECTION AT THE ANNUAL MEETING.

FORM 990, PART VI, SECTION B, LINE 11: A COPY OF FORM 990 IS PROVIDED TO ALL GOVERNING MEMBERS BEFORE IT IS FILED. A REASONABLE AMOUNT OF TIME IS ALLOWED FOR THE GOVERNING MEMBERS TO REVIEW THE FORM 990 AND PROVIDE COMMENTS.

FORM 990, PART VI, SECTION B, LINE 15: COMPENSATION IS ESTABLISHED BY THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA). NEMA UTILIZES INDEPENDENT CONSULTANTS AND COMPARABILITY DATA, AMONG OTHER METHODS, TO

Name of the organization: THERMOSTAT RECYCLING CORPORATION | Employer identification number: 54-1830284

DETERMINE THE COMPENSATION OF THE ORGANIZATION'S EXECUTIVE DIRECTOR.

FORM 990, PART VI, SECTION C, LINE 19: TRC MAKES ITS GOVERNING DOCUMENTS, CONFLICT OF INTEREST POLICY, AND FINANCIAL STATEMENTS AVAILABLE TO THE PUBLIC UPON REQUEST (VIA E-MAIL OR MAIL).

PART XII, LINE 2C - THIS PROCESS HAS REMAINED UNCHANGED FROM THE PRIOR YEAR.

Form **8868** (Rev. January 2011)
Department of the Treasury
Internal Revenue Service

Application for Extension of Time To File an Exempt Organization Return

▶ File a separate application for each return.

OMB No. 1545-1709

* If you are filing for an **Automatic 3-Month Extension, complete only Part I** and check this box ▶ [X]
* If you are filing for an **Additional (Not Automatic) 3-Month Extension, complete only Part II** (on page 2 of this form).

Do not complete Part II unless you have already been granted an automatic 3-month extension on a previously filed Form 8868.

Electronic filing (e-file). You can electronically file Form 8868 if you need a 3-month automatic extension of time to file (6 months for a corporation required to file Form 990-T), or an additional (not automatic) 3-month extension of time. You can electronically file Form 8868 to request an extension of time to file any of the forms listed in Part I or Part II with the exception of Form 8870, Information Return for Transfers Associated With Certain Personal Benefit Contracts, which must be sent to the IRS in paper format (see instructions). For more details on the electronic filing of this form, visit *www.irs.gov/efile* and click on *e-file for Charities & Nonprofits*.

Part I **Automatic 3-Month Extension of Time.** Only submit original (no copies needed).

A corporation required to file Form 990-T and requesting an automatic 6-month extension - check this box and complete Part I only ▶ ☐

All other corporations (including 1120-C filers), partnerships, REMICs, and trusts must use Form 7004 to request an extension of time to file income tax returns.

Type or print	Name of exempt organization	Employer identification number
File by the due date for filing your return. See instructions.	THERMOSTAT RECYCLING CORPORATION	54-1830284
	Number, street, and room or suite no. If a P.O. box, see instructions. 1300 NORTH 17TH STREET, NO. 1752	
	City, town or post office, state, and ZIP code. For a foreign address, see instructions. ARLINGTON, VA 22209	

Enter the Return code for the return that this application is for (file a separate application for each return) 01

Application Is For	Return Code	Application Is For	Return Code
Form 990	01	Form 990-T (corporation)	07
Form 990-BL	02	Form 1041-A	08
Form 990-EZ	03	Form 4720	09
Form 990-PF	04	Form 5227	10
Form 990-T (sec. 401(a) or 408(a) trust)	05	Form 6069	11
Form 990-T (trust other than above)	06	Form 8870	12

* The books are in the care of ▶ MARK TIBBETTS 1300 NORTH 17TH STREET, NO. 1752 - ARLINGTON, VA 22209
  Telephone No. ▶ 703-841-3200 FAX No. ▶
* If the organization does not have an office or place of business in the United States, check this box ▶ ☐
* If this is for a Group Return, enter the organization's four digit Group Exemption Number (GEN) _____. If this is for the whole group, check this box ▶ ☐. If it is for part of the group, check this box ▶ ☐ and attach a list with the names and EINs of all members the extension is for.

1 I request an automatic 3-month (6 months for a corporation required to file Form 990-T) extension of time until AUGUST 15, 2011, to file the exempt organization return for the organization named above. The extension is for the organization's return for:
▶ [X] calendar year 2010 or
▶ ☐ tax year beginning _____, and ending _____.

2 If the tax year entered in line 1 is for less than 12 months, check reason: ☐ Initial return ☐ Final return ☐ Change in accounting period

3a	If this application is for Form 990-BL, 990-PF, 990-T, 4720, or 6069, enter the tentative tax, less any nonrefundable credits. See instructions.	3a	$ 0.
b	If this application is for Form 990-PF, 990-T, 4720, or 6069, enter any refundable credits and estimated tax payments made. Include any prior year overpayment allowed as a credit.	3b	$ 0.
c	**Balance due.** Subtract line 3b from line 3a. Include your payment with this form, if required, by using EFTPS (Electronic Federal Tax Payment System). See instructions.	3c	$ 0.

Caution. If you are going to make an electronic fund withdrawal with this Form 8868, see Form 8453-EO and Form 8879-EO for payment instructions.

LHA **For Paperwork Reduction Act Notice, see instructions.** Form **8868** (Rev. 1-2011)

923841
01-03-11

APPENDIX F: Locations Requesting Bins from TRC

Customer Type	Business Name	Address	City	ZIPCODE	Total
CONTRACTOR	A-1 GUARANTEED	1768 BROADWAY	VALLEJO	94589	1
	BUCKLEY PARNELL HEAT & AIR	5990 DEVECCHI AVE	CITRUS HEIGHTS	95621	1
	CHIMNEY KRAFT	700 NORTHCREST DRIVE	CRESCENT CITY	95531	1
	GOODCENTS	1322 DUPONT COURT	MANTECA	95336	6
	MAKI HEATING & AIR CONDITIONING, INC.	105 GUM LANE	AUBURN	95603	1
	MATRIX HG, INC.	2355 WHITMAN RD. SUITE A	CONCORDIA	94518	2
	MCCLELLAND Air CONDITIONING	801 MARAUDER STREET	CHICO	95973	2
	RICHARD HEATH & ASSOCIATES, INC	9480 TELSTAR AVENUE SUITE 2	El Monte	91731-0000	2
	YUBA-SUTTER HHW FACILITY	3001 N LEVEE ROAD	MARYSVILLE	95901	1
	BONNEY PLUMBING, HEATING & AIR	3906 KRISTI COURT	SACRAMENTO	95827	1
	BILL HOWE HEATING & AIR	1364 MORENA BLVD #A	SAN DIEGO	92110	1
	ONE HOUR HEATING & A/C	415 20TH STREET	BAKERSFIELD	93301	1
HHW FACILITY	ALAMEDA COUNTY HOUSEHOLD HAZ. WASTE PROGRAM	2091 W WINTON AVE	HAYWARD	94545	5
		2091 W. WINTON AVE.	HAYWARD	94545	1
	AMADOR COUNTY WASTE MANAGEMENT DEPT.	810 COURT STREET	JACKSON	95642	5
	BAY COUNTIES WASTE SERVICES	301 CARL ROAD	SUNNYVALE	94089-0000	2
	BUENA VISTA HHW FACILITY	150 ROUNDTREE LANE	WATSONVILLE	95076-0000	3
	BUTTE REGIONAL HHW COLLECTION FACILITY	1101 MARADER ST.	CHICO	95973-0000	3
	CASTRO VALLEY SANITARY DISTRICT	21040 MARSHALL STREET	CASTRO VALLEY	94546	2
	Chicago Grade Landfill HHW	HWY 41	Atascadero	93422	1
	CITY OF FREMONT PHHWCF	41149 BOYCE ROAD	FREMONT	94538	1
	CITY OF HIGHLAND	27215 BASELINE STREET	HIGHLAND	92346	1
	CITY OF MADERA PUBLIC WORKS	1030 S. GATEWAY DRIVE	MADERA	93637	1
	CITY OF SACRAMENTO PHHWCF	8491 FRUITRIDGE ROAD	SACRAMENTO	95826	1
	CITY OF SAN DIEGO, MIRAMAR HHWCF	5161 CONVOY STREET	SAN DIEGO	92111-0000	1
	CITY OF SANTA MARIA HHW FACILITY	2065 E. MAIN STREET	SANTA MARIA	93454	2
	Cold Canyon Landfill HHW	HWY 227	SAN LUIS OBISPO	93401-0000	1

COLUSA COUNTY HHW PROGRAM	1215 MARKET STREET	COLUSA	95932-0000	2
COUNTY OF MARIPOSA	5593 HWY 49 NORTH	MARIPOSA	95338	6
COUNTY OF SAN DIEGO HHW	324 MAPLE STREET	RAMONA	92065	1
COUNTY OF SANTA CLARA	1555 BERGER DR SUITE 300	SAN JOSE	95112	2
COUNTY OF TUOLUMNE SOLID WASTE DIVISION	2 SOUTH GREEN ST.	SONORA	95370	3
COUNTY OF VENTURA-	800 SOUTH VICTORIA AVE	VENTURA	93009-1650	2
CV STRATEGIES	42600 CAROLINE COURT SUITE 102	PALM DESERT	92211	1
CYPRESS CITY HALL	5275 ORANGE AVENUE	CYPRESS	90630	4
DEL NORTE COUNTY TRANSFER STATION	1700 STATE STREET	CRESCENT CITY	95531	1
DELTA HHW COLLECTION FACILITY	2550 PITTSBURG-ANTIOCH HWY	Pittsburg	94509-1373	1
EL DORADO COUNTY ENVIRONMENTAL MGMT. DEPT.	2850 FOURLANE COURT	PLACERVILLE	95667	1
GLEN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	5700 COUNTY ROAD 33	ARTOIS	95913-0000	2
HUMBOLDT WASTE MANAGEMENT AUTHORITY	1059 W. HAWTHORNE ST.	EUREKA	95501-0000	1
KERN COUNTY SPECIAL WASTE FACILITY	17035 FINNIN AVE. #2	MOJAVE	93501	1
	3301 BOWMAN ROAD	RIDGECREST	93555	1
	4951 STANDARD ST.	BAKERSFIELD	93308-4531	1
LUCIA MAR UNIFIED SCHOOL DISTRICT	222 STANLEY AVE	ARROYO GRANDE	93420	1
MADERA COUNTY HHW COLLECTION FACILITY	21739 ROAD 19	CHOWCHILLA	93610	2
MADERA COUNTY HHW COLLECTION FACILITY	2037 W. CLEVELAND AVE	MADERA	93637	2
MARIN COUNTY HOUSEHOLD HAZARDOUS WASTE FACILITY	565 JACOBY STREET	SAN RAFAEL	94901	2
MENDOCINO SOLID WASTE MANAGEMENT AUTHORITY	298A PLANT ROAD	UKIAH	95482	1
MERCED COUNTY HHW	260 E 15TH ST.	MERCED	95341-6216	1
	6040 N. HIGHWAY 59	MERCED	95340	1
Morro Bay/Cayucos Waste Water Plant	160 Atascadero Road	Morro Bay	93442	1
NEVADA COUNTY H.H.W. FACILITY	14741 WOLF MTN. RD.	GRASS VALLEY	95949	4
Nipomo Household Hazardous Waste Drop-Off	509 Southland	Nipomo	93444	1
ORO LOMA SANITARY DISTRICT	2600 GRANT AVE	SAN LORENZO	94580-1838	2
Palo Alto Public Works Dept	2501 Embarcadero Way	Palo Alto	94303	1
Paso Robles Landfill HHW	Hwy 46 East	Paso Robles	93446	1
PERMANENT HHW COLLECTION FACILITY	50 NATOMA ST.	FOLSOM	95630	2

	PARC ENVIRONMENTAL	2706 S RAILROAD AVE	FRESNO	93725	2
	RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	91201-0000	1
				91201-2305	1
	SALINAS VALLEY SOLID WASTE HHWCF	139 SUN STREET	SALINAS	93901	1
	SAN BERNADINO COUNTY HHW	2824 EAST W STREET, BLDG 302	SAN BERNADINO	92408-0000	2
	SAN JOAQUIN COUNTY HHW	7850 R.A. BRIDGEFORD STREET	STOCKTON	95206	3
	SAN LUIS OBISPO COUNTY IWA	870 OSOS STREET	SAN LUIS OBISPO	93401-0000	2
	SAN MATEO COUNTY HHW FACILITY	32 TOWER ROAD	SAN MATEO	94402	1
	SOUTH TAHOE REFUSE TRANSFER STATION	2140 Ruth AVE.	SOUTH LAKE TAHOE	96150	2
	TEHAMA COUNTY/RED BLUFF LANDFILL	19995 PLYMIRE ROAD	RED BLUFF	96080	4
	VENTURA HOUSEHOLD HAZARDOUS WASTE FACILITY	336 SAN JON ROAD	VENTURA	93002	2
	WEST CONTRA COSTA PERMANENT HHW	101 PITTSBURG AVENUE	RICHMOND	94801-0000	2
	YOLO COUNTY CENTRAL LANDFILL	44090 COUNTY ROAD 28H	WOODLAND	95776	2
		44090 COUNTY RD 28 H	WOODLAND	95776	1
	CLEAN HARBORS EVS	500 MECHAM ROAD	PETALUMA	94952	1
	WESTERN PLACER WASTE MANAGEMENT AUTHORITY	NORTECH WASTE 3195 ATHENS AVE	LINCOLN	95648	2
	CITY OF REDDING SOLID WASTE	2255 ABERNATHY LANE	REDDING	96003	1
	CITY OF CARPINTERIA	5775 CARPINTERIA AVE.	CARPINTERIA	93013	2
	CITY OF SAN DIEGO, HHW	5161 CONVOY STREET	SAN DIEGO	92111	1
	AAA AIR & HEATING	5644 E. WESTOVER	FRESNO	93727	1
	EDH FIRE STATION #86	3670 BASS LAKE ROAD	EL DORADO HILLS	95762	2
	RDC EM BUILDING C	2850 FAIRLANE COURT, BUILDING C	PLACERVILLE	95667	1
	CTY OF TUOLUMNE, CA SIERRA TRANSFER STATION	11111 SCOFIELD ST	BIG OAK FLAT	95305	1
	REGIONAL WATER QUALITY CONTROL PLANT	2501 EMBARCADERO WAY	Palo Alto	94303	1
	KERN COUNTY WASTE MANAGEMENT	4951 STANDARD ST.	BAKERSFIELD	93308	2
RETAIL	ANTIOCH ACE HARDWARE	501 SUNSET DRIVE	ANTIOCH	94509-0000	1
	BERKELEY ACE HARDWARE	2145 UNIVERSITY AVENUE	BERKELEY	94704-0000	1
	BILL'S ACE HARDWARE	3503 PACHECO BLVD.	MARTINEZ	94553-0000	2
	BRENTWOOD ACE HARDWARE	8900 BRENTWOOD BLVD, STE J	BRENTWOOD	94513-0000	1
	LAUREL ACE HARDWARE	4024 MACARTHUR BLVD	OAKLAND	94619	1

	OAKLEY ACE HARDWARE	305 4TH STREET	OAKLEY	94561-0000	1
	PITTSBURG ACE HARDWARE	125 E. LELAND ROAD	Pittsburg	94565-0000	1
	Orchard Supply Hardware	825 Oak Park Blvd	Pismo Beach	93449	1
		2005 Theatre Drive	Paso Robles	93446	1
	Miners (N)	553 W. Tefft	Nipomo	93444	1
	Cambria Hardware	2345 Village Ln.	Cambria	93428	1
	SAN LUIS OBISPOS COUNTY IWMA	870 OSOS STREET	SAN LUIS OBISPO	93401-0000	7
	Miner's Ace Hardware (LO)	1080 Los Osos Valley Rd.	Los Osos	93402	1
	Pismo Beach True Value Hardware	930 Price St.	Pismo Beach	93449	1
	Lowes	2445 Golden Hills Rd.	Paso Robles	93446	1
	Miner's Ace Hardware (MB)	510 Atascadero Rd.	Morro Bay	93442	1
	Home Depot	905 El Camino Real	Atascadero	93422	1
		1551 Froom Ranch Wy	SAN LUIS OBISPO	93405	1
	Miner's Ace Hardware (AT)	9370 El Camino Real	Atascadero	93422	1
	KMart	3980 El Camino Real	Atascadero	93422	1
		1570 W. Branch St.	ARROYO GRANDE	93420	1
	Costco	1540 Froom Ranch Rd.	SAN LUIS OBISPO	93405	1
	Miners (SLO) formerly Pac. Home & Garden	2034 Santa Barbara	SAN LUIS OBISPO	93401	1
	Brisco's True Value Hardware	1005 El Camino Real	ARROYO GRANDE	93420	1
	Decou Lumber & Ace Hardware (AT)	8965 El Camino Real	Atascadero	93422	1
	Hewitt Hardware	428 Main St.	TEMPLETON	93465	1
	Miner's Ace Hardware (AG)	186 Station Way	Arroyo Grande	93420	1
	Miner's Ace Hardware (GB)	1056 Grand Ave.	Grover Beach	93433	1
	Blake's True Value Home Center	1701 Riverside Ave.	Paso Robles	93446	1
Wholesaler/Dist	AIR COLD SUPPLY	206 COMMERCIAL STREET	SAN JOSE	95112	1
		640 AVON AVE	AZUSA	91702-2044	2
	AIR COLD-A FERGUSON ENTERPRISE	11244 PLAYA COURT BRANCH 1048	CULVER CITY	90230	1
		1144 WEST AVENUE, L-12 BRANCH 1053	LANCASTER	93534	1
		1224 NORTH MARSHALL BRANCH 1581	EL CAJON	92020	2
		12841 PRODUCTION PLACE BRANCH 1055	VICTORVILLE	92395	1

	1346 SOUTH CLAUDINA STREET BRANCH 692	ANAHEIM	92805-6234	1
	13500 SATICOY STREET	VAN NUYS	91402	1
	149 B GRANADA DRIVE BRANCH 1894	SAN LUIS OBISPO	93401-7316	1
	2750 SOUTH TOWNE AVENUE BRANCH 1183	POMONA	91766	1
	2751 DURAHART STREET BRANCH 570	RIVERSIDE	92507	1
	289 NORTH MCARTHUR WAY BRANCH 1081	UPLAND	91786	1
	3550 LA CRUZ WAY BRANCH 1893	Paso Robles	93446	1
	429 MADERA STREET BRANCH 1059	SAN GABRIEL	91776	1
	887 LAWRENCE DRIVE BRANCH 1056	NEWBURY PARK	91320	1
ALLIED REFRIGERATION	1211 EAST EDINGER AVENUE	TUSTIN	92780-0000	1
	1375 EAST 15TH STREET	LOS ANGELES	90021-0000	1
	15558 CABRITO ROAD	VAN NUYS	91406-0000	1
	1928 DON LEE PLACE	ESCONDIDO	92029-0000	1
	199 SOUTH MARSHALL STREET	EL CAJON	92020-0000	1
	2170 COMMERCE AVENUE, UNIT U	CONCORD	94520-0000	1
	2175 ADAMS AVENUE	SAN LEANDRO	94577-0000	1
	2300 EAST 28TH STREET	SIGNAL HILL	90755-0000	1
	306 SOUTH NINTH AVENUE	CITY OF INDUSTRY	91746-0000	1
	34660 DATE PALM DRIVE	CATHEDRAL CITY	92234-0000	1
	404 S. I STREET	SAN BERNADINO	92410-0000	1
	702 EAST GISH ROAD	SAN JOSE	95112-0000	1
	7823 OSTROW STREET	SAN DIEGO	92111-0000	1
	8480 HIGUERA STREET	CULVER CITY	90232-0000	1
	1256 PRICE AVE.	POMONA	91767-5840	1
AMERICAN REFRIGERATION SUPPLIES INC.	1086 KRAEMER PL.	ANAHEIM	92806-0000	1
	1405-2 GRANITE LN.	MODESTO	95351-0000	1
	145 11TH ST.	SAN FRANCISCO	94103-0000	1
	1501 POMONA RD. STE. 102	CORONA	92880-0000	1
	245 SUTTON PL.	SANTA ROSA	95407-0000	1
	2703 5TH ST. STE 7	SACRAMENTO	95818-0000	1

	325 5TH ST.	OAKLAND	94607-0000	1
	399 S. ARROWHEAD AVE.	SAN BERNARDINO	92408-0000	1
	444 LITTLEFIELD	S SAN FRANCISCO	94080-0000	1
	6110 VALLEY VIEW AVE.	BUENA PARK	90620-0000	1
	740 E. HAZELTON AVE.	STOCKTON	95203-0000	1
	7874 RONSON RD.	SAN DIEGO	92111-0000	1
	910 JUSTIN AVE.	GLENDALE	91201-0000	1
ATWATER SUPPLY	1903 FRIENDSHIP DRIVE	EL CAJUN	92020	1
	42655 RIO NEDO	TEMECALA	92590	1
	518 EAST BALL ROAD	ANAHEIM	92805	1
Baker Distributing Co.	1295 EMERALD AVE. SUITE D	MODESTO	95351-0000	1
	1351 OLD BAYSHORE	SAN JOSE	95112-0000	1
	1501 MINNESOTA ST.	SAN FRANCISCO	94107-0000	1
	2375 DAVIS ST.	SAN LEANDRO	94577-2205	1
	300 WEST ROBLES BLDG J.	SANTA ROSA	95407-0000	1
	849 WEST 8TH ST.	CHICO	95926-0000	1
	5449 EAST LAMONA AVE.	FRESNO	93703-0000	1
	6800 SIERRA COURT, SUITE N	DUBLIN	94568-0000	1
	2138 ZANKER ROAD	SAN JOSE	95131-2108	1
	428 NORTH CANAL ST.	SAN FRANCISCO	94107-0000	1
	3020 SOUTH KILSON DRIVE	SANTA ANA	92707-0000	1
	149 UNION AVENUE	BAKERSFIELD	93307-0000	1
	25978 BUSINESS CENTER DRIVE	Redlands	92374-0000	1
	575 CARDIFF STREET	CORONA	92879-0000	1
	9355 REMICK AVENUE	PACOMIA	91331-0000	1
	16253 OMELAS STREET	IRWINDALE	91706-0000	1
	9610 DESOTO AVENUE	CHATSWORTH	91311-0000	1
	849 WEST 8TH STREET	CHICO	95928	1
	180 HEGENBERGER LOOP, STE A & B	OAKLAND	94621-0000	1
Baker Distributing Company	5474 Complex Street Suite 502	SAN DIEGO	92123	1

	16253 ORNELAS ST	IRWINDALE	91706	1
BURKE ENGINEERING COMPANY	1225 NORTH FIFTH STREET	SAN JOSE	95112-0000	1
	1312 ALLEC ST.	ANAHEIM	92805-0000	1
	155 W. VICTORIA ST.	LONG BEACH	90805-0000	1
	3190 ORANGE GROVE AVE. A	NORTH HIGHLANDS	95660	1
	3190 ORANGE GROVE AVENUE	NORTH HIGHLANDS	95660-0000	2
	3190-A ORANGE GROVE AVE.	N. HIGHLANDS	95660-5706	1
	4250 PEPSI DR # D	SAN DIEGO	92111-0000	1
	6605 ODESSA AVENUE	VAN NUYS	91406-0000	1
	7303 EDGEWATER DRIVE, #A	OAKLAND	94621-3016	1
	74488 VILLAGE DR	CHINO	90708-0000	1
	9700 FACTORIAL WAY	El Monte	91733-1799	8
	1790 IOWA AVENUE	RIVERSIDE	92507	1
	1225 N. 5TH STREET	SAN JOSE	95112	1
	1225 N. FIFTH STREET	SAN JOSE	95112	1
CALIFORNIA COOLING	1922 FRIENDSHIP DRIVE	EL CAJON	92020-0000	1
	239 W. ORANGE AVE	EL CENTRO	92243-0000	2
	622 S. VINEWOOD ST.	ESCONDIDO	92029-0000	1
CALIFORNIA COOLING SUPPLY	14718 RAYMER ST. SUITE C	VAN NUYS	91405	1
CALIFORNIA REFRIGERATION SUPPLY INC	1718 FAIRWAY DR	SAN LEANDRO	94577-0000	1
CASS, INC	2730 PERALTA STREET	OAKLAND	94607	1
CFM EQUIPMENT DIST.	1644 MAIN AVE. SUITE 1	SACRAMENTO	95838-0000	1
CONTROLCO	15375 BARRANCA PKWY, I - 104	IRVINE	92618	1
	210 VAN NESS	FRESNO	93721-0000	1
	251 OPPORTUNITY STREET, B	SACRAMENTO	95838	1
	320 KENTUCKY STREET	BAKERSFIELD	93305	1
	35 DORMAN, #2	SAN FRANCISCO	94124	1
	5600 IMHOTT DRIVE, SUITE G	CONCORD	94520	1
	840 66TH AVENUE	OAKLAND	96421	1
DAN GOETZ WHOLESALE OUTLET INC	335 O'HAIR COURT, SUITE A	SANTA ROSA	95407	1

DIAL ONE -- SERVICE EXPERTS	4670 PACIFIC STREET, STE. 100	ROCKLIN	95677-0000	1
FACSCO	1528 N. THESTA STREET	FRESNO	93703-0000	2
FERGUSON HEATING & COOLING	605 EAST CERRITOS AVENUE	ANAHEIM	92805	1
	640 AYON AVENUE BRANCH 1050	AZUSA	91702	1
	903 NORTH MARKET BOULEVARD	SACRAMENTO	95834	1
	9349 OSO AVENUE BRANCH 1049	CHATSWORTH	91702	1
	81925 INDUSTRIAL PLACE	INDIO	92201	1
FIX AIR AUTHORIZED Trane PARTS	890 SERVICE ST., UNIT A	SAN JOSE	95112-0000	1
GEARY PACIFIC SUPPLY	1161 W. BRADLEY AVE.	EL CAJON	92030-1503	1
	1162 W. BRADLEY AVE.	EL CAJON	92030-1503	1
	1200 E. CERRITOS AVENUE	ANAHEIM	92805-0000	1
	31050 HUNTWOOD AVENUE	HAYWARD	94544-0000	2
	333 S. TEILMAN AVE.	FRESNO	93706-0000	2
	333 S. TEILMAN AVENUE	FRESNO	93706-0000	1
	3443 NIKI WAY	RIVERSIDE	92507-6812	1
	4365 JETWAY COURT	NORTH HIGHLANDS	95660-5701	2
	6421 BOX SPRINGS BLVD.	RIVERSIDE	92507-0000	2
	6918 VALJEAN AVENUE	VAN NUYS	91406-0000	2
	8711 AIRPORT ROAD	REDDING	96002-9223	1
GENIE AIR CONDITIONING & HEATING, INC	15041 CALVERT ST.	VAN NUYS	91411	1
GEORGE T. HALL	1257 GOODRICH BLVD	LOS ANGELES	90022	1
	15915 ARMINTA ST	VAN NUYS	91406	1
	1605 GENE AUTRY WAY	ANAHEIM	95805	1
	4289 TAYLOR STREET	SAN DIEGO	92110	1
HOWARD INDUSTRIES	8855 WASHINGTON BLVD	CULVER CITY	90232-0000	6
INVENSYS CLIMATE CONTROLS, NORTH AMERICA	151 SOUTH PROMENADE AVENUE	CORONA	92879-0000	4
JOHNSTONE SUPPLY	1661 MARKET ST	CORONA	92880	1
JOHNSTONE SUPPLY #098	200 TALMADGE DRIVE	SANTA ROSA	95407	1
JOHNSTONE SUPPLY #140	1335 DAYTON ST. SUITE A	SALINAS	93901	1
JOHNSTONE SUPPLY #328	870 PIPER AVE	MERCED	95341	1

JOHNSTONE SUPPLY #329	1000 N. BURKE	VISALIA	93292	1
JOHNSTONE SUPPLY CO	1070 COMMERCIAL ST, STE 104	SAN JOSE	95112-1408	1
	13211 SPRING STREET	BALDWIN PARK	91706-2289	2
	1385 N. MAGNOLIA AVE	EL CAJON	92020-0000	1
	1445 SAN MATEO AVENUE	SOUTH SAN FRANCISCO	94080-0000	2
	2132 AVIATION DRIVE	UPLAND	91786-5720	2
	23211 DEL LAGO DRIVE	LAGUNA HILLS	92653-1307	1
	2331 COMMERCE AVE #E	CONCORD	94520-0000	1
	3015 S. KILSON DRIVE	SANTA ANA	92707-0000	1
	333 MARKET ST	OAKLAND	94607-0000	1
	42342 10TH ST WEST SUITE A	LANCASTER	93534	1
	4320 PACIFIC HWY	SAN DIEGO	92110	1 1
	477 QUILLCO CT	SANTA ROSA	95407-0000	2
	5658 E. CLINTON AVE.	FRESNO	93727-0000	2
	900 S. ANDREASEN DR.	ESCONDIDO	92029-1914	1
JOHNSTONE SUPPLY OF LONE BEACH	2810 TEMPLE AVE.	LONG BEACH	90806-2213	1
JOHNSTONE SUPPLY OF REDDING	940 WALL STREET	REDDING	96002	1
JOHNSTONE SUPPLY UPLAND	2132 AVIATION DRIVE	UPLAND	91786-5720	1
JOHNSTONE SUPPLY-ANAHEIM	518 E BALL ROAD	ANAHEIM	92805-0000	1
JOHNSTONE-COMMERCE	8040 SLAUSON AVENUE	MONTEBELLO	90640	1
JOHNSTONE-SANTA BARBARA	220 WEST GUTIERREZ STREET	SANTA BARBARA	93101	1
JOHNSTONE-THOUSAND OAKS	2645 TOWNSGATE ROAD # 600	THOUSAND OAKS	91361	1
JOHNSTONE-VENTURA	5960 VALENTINE ROAD # 3	VENTURA	93003	1
Lennox Industries Inc.	1021 STRIKER AVENUE	SACRAMENTO	95835-0000	2
	1059 VINE STREET, SUITE 108	SACRAMENTO	95814-0321	2
	12775 RESERVOIR STREET	CHINO	91710-2943	2
	2500 E. FRANCIS STREET	ONTARIO	91761-0000	1
	3410 SAN FERNANDO ROAD, UNIT 5	LOS ANGELES	90065-0000	2
	7670 TRADE STREET, STE. A - D	SAN DIEGO	92121-0000	2

	4000 HAMNER AVE.	MIRA LOMA	91752	1
MSI HVAC	11700 INDUSTRY	FONTANA	92337	1
	2344 MEYERS AVE	ESCONDIDO	92029	1
	23456 SOUTH POINTE #B	LAGUNA HILLS	92653	1
NORTHAIRE SUPPLY CO INC	1359 OAKLAND ROAD	SAN JOSE	95112-0000	1
PACIFIC HEATING & COOLING SUPPLY, INC,	3720 LA CRUZ WAY	TEMPLETON	93465-0000	1
R.E. MICHEL COMPANY, INC	1922 FRIENDSHIP DRIVE	EL CAJON	92020-00	1
	14718 RAYMER ST. UNIT A	VAN NUYS	91405-1262	1
R.S.D.	3355 McMAUDE PL	SANTA ROSA	95407	1
RAHAC HTG & COOLING INC.	1326 BLOSSOM STREET	GLENDALE	91201	1
REFRIGERATION SUPPLIES DISTRIBUTOR	43300 BUSINESS PARK DR.	TEMECULA	92590	1
	43300 BUSINESS PARK DR. # A102	TEMECULA	92590	1
RSD	10170 CROYDON WAY SUITE 1	SACRAMENTO	95827-2104	3
	1050 COMMERCIAL STREET, #105	SAN JOSE	95112-0000	1
	110 EAST MAIN STREET	EL CENTRO	92243-2589	2
	1121 LONE PALM AVENUE, #A	MODESTO	95351-0000	2
	1201 MONTEREY PASS ROAD	MONTEREY PARK	91754-3616	1
	1376 STEALTH STREET	LIVERMORE	94551-0000	4
	14766 RAYMER STREET	VAN NUYS	91405-0000	1
	14901 RAYMER ST	VAN NUYS	91405-0000	1
	1670 INDUSTRIAL BLVD.	CHULA VISTA	91911-0000	2
	1721 LOGAN AVENUE	SAN DIEGO	92113-1006	2
	1833 EAST MAIN STREET	VISALIA	93292-6768	2
	1933 S VINEYARD AVE	ONTARIO	91761-0000	2
	2100 E. WILSHIRE AVE	SANTA ANA	92705-0000	1
	2100 WILSHIRE AVENUE, UNIT A	SANTA ANA	92705-0000	1
	21727 NORDHOFF STREET	CHATSWORTH	91311	2
	2208 EAST MCKINLEY AVENUE	FRESNO	93703-3005	2
	2350 LEXINGTON STREET	SACRAMENTO	95815-3216	2
	2601 ATLANTIC OCEAN DR.	LAKE FOREST	92630	1

		26021 ATLANTIC OCEAN DRIVE	LAKE FOREST	92630-0000	1
		285 LAWRENCE AVENUE	SOUTH SAN FRANCISCO	94080-6818	2
		2882 TEEPEE DRIVE	STOCKTON	95205-0000	3
		2890 E CORONADO ST	ANAHEIM	92806-2503	1
		2890 E. CORONADO ST.	ANAHEIM	92806-2503	1
		3355 MCMAUDE PLACE	SANTA ROSA	95407-0000	2
		4131 LATHAM STREET	RIVERSIDE	92501-0000	2
		436 HESTER STREET	SAN LEANDRO	94577-1024	2
		527 BRUNKEN AVENUE	SALINAS	93901-0000	2
		5910 BOWCROFT STREET	LOS ANGELES	90016-0000	2
		621 EAST 21ST STREET	BAKERSFIELD	93305-5109	2
		6391 ORANGETHORPE AVENUE	BUENA PARK	90620-0000	1
		640 COMMERCE DRIVE, #200	ROSEVILLE	95678-0000	2
		680 UNION AVE	POMONA	91766	1
				91768-0000	1
		702 WEST 190TH STREET	GARDENA	90248-0000	2
		715 SOUTH FLOWER STREET	BURBANK	91502-2014	1
		915 INDOSLAT AVE	REDDING	96001-0000	1
		915 INDUSTRIAL AVENUE, STE 101	REDDING	96002-0000	1
		2551 S. TOWNWELL DRIVE	CONCORD	94520-0000	2
		915 INDUSTRIAL ST	REDDING	96002-1369	1
		640 COMMERCE DRIVE	ROSEVILLE	95678-0000	2
	RSD-48	702 W. 190TH STREET	GARDENA	90248-0000	1
	RSD-MONTEREY PARK	1201 MONTEREY PASS ROAD	MONTEREY PARK	91754-3616	1
	RSD-TOTAL CONTROL	221 PANORAMA DRIVE	BENICIA	94510-0000	2
	SIGLER INC	20680 NORDHOFF ST	CHATSWORTH	91311	1
		2301 ARNOLD INDUSTRIAL WAY	CONCORD	94520	2
	SIGLERS	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	91744	1
		20680 NORDHOFF ST	CHATSWORTH	91311	1
	SLAKEY BROTHERS	1001 OATES COURT	MODESTO	95352	1

		111 MADRONE	SANTA CRUZ	95060	1
		1190 WESTERN STREET	FAIRFIELD	94533	1
		1200 INDUSTRIAL STREET	REDDING	96002	1
		12277 LOMA RICA DRIVE SUITE E	GRASS VALLEY	95945	1
		2201 EAST BRUNDAGE LANE	BAKERSFIELD	93307	1
		2215 KAUSEN STE 1	ELK GROVE	95758	1
		2301 PARK AVENUE	CHICO	95927	1
		2460 BATES AVENUE	CONCORD	94520	1
		2540 TEEPEE DRIVE	STOCKTON	95208	1
		26534 DANTI CT	HAYWARD	91520	1
		2845 DUKE COURT	SANTA ROSA	95407	2
		30 STEIN AM RHEIN CT STE F	REDWOOD CITY	94063	1
		3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	95660	1
		321 ORANGE AVENUE	SAND CITY	93955	1
		4333 NORTH EFFIE STREET	FRESNO	93755	1
		545 BOYD STREET	YUBA CITY	95992	1
		601 WORK STREET	SALINAS	93901	1
		863 SAVAKER AVE	SAN JOSE	95126-0000	1
		863 SAVAKER STREET	SAN JOSE	95126	2
		111 MADRANOE STREET	SANTA CRUZ	95060	1
	SLAKEY BROTHERS/BAKERSFIELD	2201 EAST BRUNDAGE LANE	BAKERSFIELD	93307	1
	SLAKEY BROTHERS/CHICO	2301 PARK AVENUE	CHICO	95927	1
	SLAKEY BROTHERS/ELK GROVE	2215 KAUSEN STE 1	ELD GROVE	95758	1
	SLAKEY BROTHERS/FAIRFIELD	1190 WESTERN STREET	FAIRFIELD	94533	1
	SLAKEY BROTHERS/FRESNO	4333 NORTH EFFIE STREET	FRESNO	93755	1
	SLAKEY BROTHERS/GRASS VALLEY	12277 LOMA RICA DRIVE, STE E	GRASS VALLEY	94945	1
	SLAKEY BROTHERS/JACKSON	1400 SOUTH HIGHWAY 49	JACKSON	95642	1
	SLAKEY BROTHERS/MODESTO	1001 OATES COURT	MODESTO	95352	1
	SLAKEY BROTHERS/NORTH HIGHLANDS	3201 ORANGE GROVE AVENUE	NORTH HIGHLANDS	95660	1
	SLAKEY BROTHERS/REDDING	1200 INDUSTRIAL STREET	REDDING	96049	1

SLAKEY BROTHERS/REDWOOD CITY	30 STEIN AM RHEIN COURT STE F	REDWOOD CITY	94063	1
SLAKEY BROTHERS/S. SAN FRANCISCO	328 ROEBLING ROAD	S. SAN FRANCISCO	94080	1
SLAKEY BROTHERS/SALINAS	601 WORK STREET	SALINAS	93901	1
SLAKEY BROTHERS/SAN JOSE	863 SAVAKER STREET	SAN JOSE	95126	1
SLAKEY BROTHERS/SAND CITY	321 ORANGE AVENUE	SAND CITY	93955	1
SLAKEY BROTHERS/SANTA CRUZ	111 MADRONE	SANTA CRUZ	95060	1
SLAKEY BROTHERS/SANTA ROSA	2845 DUKE COURT	SANTA ROSA	95407-7844	1
SLAKEY BROTHERS/SONORA	19450 INDUSTRIAL DRIVE	SONORA	95370	1
SLAKEY BROTHERS/STOCKTON	2540 TEEPEE DRIVE	STOCKTON	95208	1
SLAKEY BROTHERS/YUBA CITY	545 BOYD STREET	YUBA CITY	95991	1
SOUTHERN CALIFORNIA AIR CON APPL	1000 N. JOHNSON AVE.	EL CAJON	92020	1
SPECIALTY AC	5250 EAST SECOND STREET	BENICIA	94510-0000	3
T & A SUPPLY, INC.	1045 NORTH 10TH STREET	SAN JOSE	95112	1
THRIFTY SUPPLY	8541 23RD AVE.	SACRAMENTO	95826	1
	8541 23RD AVENUE	SACRAMENTO	95826-0000	1
TOTALINE OF CALIFORNIA	1070 COMMERCIAL STREET, SUITE 106	SAN JOSE	95112	1
	1090 E. COOLEY AVENUE	SAN BERNARDINO	92408	2
	12819 TELEGRAPH RD.	SANTA FE SPRINGS	90670	2
	18791 RANCHO WAY, UNIT A	RANCHO DOMINGUEZ	90220	1
	20191 WINDROW DR. UNIT B	LAKE FOREST	92630	2
	205 S. PUENTE ST	BREA	92821	2
	2301 ARNOLD INDUSTRIAL WAY	CONCORD	94520	1
	2345 LOS ANGELES STREET	FRESNO	92721	2
	2425 AUTO PKWY SUITE 200	ESCONDIDO	92029	1
	2641 LINDSAY PRIVADO DR.	ONTARIO	91761	1
	41710 REAGAN WAY	MURRIETA	92562	2
	421 S. LOMBARD ST.	OXNARD	93030	2
	4517 STANDARD STREET	BAKERSFIELD	93308	2
	4863 SHAWLINE STREET	SAN DIEGO	92111	1
	615 W. GROVE AVE.	ORANGE	92865	2

	6450 SYCAMORE CANYON BLVD.	RIVERSIDE	92507	2
	6650 TOP GUN ST.	SAN DIEGO	92121	2
	7615 N. SAN FERNANDO RD.	BURBANK	91352	2
	78-305 DINAH SHORE, BLDG 1200	PALM DESERT	92211	2
	8615 23RD AVENUE	SACRAMENTO	95826	1
	99 SOUTHHILL DRIVE SUITE B	BRISBANE	94005	2
TRANE	5595 N GOLDEN STATE BLVD	FRESNO	93722	1
TRANE PARTS CENTER	4145 DEL MAR AVENUE	ROCKLIN	95677-0000	1
UNITED REFRIGERATION	1134 E. DOMINGUEZ STREET	CARSON	90746-3518	1
	1265 WEST MCCOY LANE, STE. C	SANTA MARIA	93455-1058	1
	1413 GRANITE LANE	MODESTO	95351-1121	1
	1736 JANELLI COURT	VISALIA	93292-6644	1
	1848 EAST GRIFFITH WAY	FRESNO	93726-4819	1
	1920 EAST MCFADDEN AVENUE	SANTA ANA	92705-4705	1
	2225 AUTO PARK WAY	ESCONDIDO	92029-1348	1
	230 EAST 21ST STREET	BAKERSFIELD	93305-5115	1
	2405 VERNA COURT	SAN LEANDRO	94577-4222	1
	2626 SOUTHPORT WAY, STE. G	NATIONAL CITY	91950-8752	1
	3120 PASEO MERCADO, STE. 101	OXNARD	93036-8916	1
	4060 EAST AIRPORT DRIVE	ONTARIO	91761-1566	2
	41573 CHERRY STREET	MURRIETA	92562-9193	1
	510 EAST RANCHO VISTA BLVD.	PALMDALE	93550-3005	1
	5345 THIRD STREET	IRWINDALE	91706-2085	1
	6150 VALLEY VIEW STREET	BUENA PARK	90620-1030	1
	625 LINCOLN AVENUE	SAN BERNADINO	92408-2230	1
	77-670 SPRINGFIELD LANE, STE #5A	PALM DESERT	92211-0474	1
	8835 COMPLEX DRIVE	SAN DIEGO	92123-1403	1
	904 COMMERCIAL STREET	SAN JOSE	95112-1435	1
	933 WASHINGTON STREET	SAN CARLOS	94070-5316	1
	134 NOPALITAS WAY	SANTA BARBARA	93103-3629	1

US AIR CONDITIONING DISTRIBUTORS	4770 RUFFNER STREET	SAN DIEGO	92111-1520	1
USACD	1002 INDUSTRY WAY	EL CENTRO	92243	1
	1238-A SIMPSON WAY	ESCONDIDO	92029-0000	1
	1250 NORTH MARSHALL AVENUE	EL CAJON	92020-0000	1
	1304 S, CLAUDINA STREET	ANAHEIM	92805-0000	1
	16900 CHESTNUT STREET	CITY OF INDUSTRY	91748	1
			91748-0000	1
	17615 CATALPA STREET	HESPERIA	92345-0000	1
	1951 FAIRWAY DRIVE	SAN LEANDRO	94577-0000	1
	27470 COLT COURT	TEMECULA	92590-0000	1
	2751 TEMPLE AVE	SIGNAL HILL	90755-2210	1
	3035 CROSSROADS DRIVE	REDDING	96003	1
	3333 ORANGE GROVE	NORTH HIGHLANDS	95660-0000	1
	495 MARQUITA AVENUE	Paso Robles	93446	1
	720 WILLIAMS STREET	BAKERSFIELD	93305-0000	1
	9250 OWENSMOUTH AVENUE	CHATSWORTH	91311-0000	1
	2670 E. BYRD AVE	FRESNO	93706	1
	8620 HAYDEN PL.	CULVER CITY	90232	1
	3826 TEEPEE DRIVE SUITE 103	STOCKTON	95205	1
WESTERN NEVADA SUPPLY	10990 INDUSTRIAL WAY	TRUCKEE	96161-0000	1
	200 BELLA WAY	SUSANVILLE	96130-9166	1
	515 SOUTH MAIN STREET	BISHOP	93514-0000	1
RDS-BURBANK	715 SOUTH FLOWER STREET	BURBANK	91502-2014	1
RSD 25	7332 CONVOY COURT, STE A	SAN DIEGO	92111-1110	2
RDS-SAN JOSE	1050 COMMERCIAL STREET, #105	SAN JOSE	95112-0000	1
JOHNSTONE SUPPLY # 33	8639 TAMARACK AVE	SUN VALLEY	91352-2505	1
R.E. MICHEL CO. INC. #381	1922 FRIENDSHIP DRIVE	EL CAJON	92020-0000	1
RSD-22	915 INDUSTRIAL AVENUE, STE 101	REDDING	96002-0000	1
UNITED REFRIGERATION # D5	3421 N. SAN FERNANDO RD. # E & F	LOS ANGELES	90065	1
UNITED REFRIGERATION # P1	4248 ROSEVILLE ROAD	NORTH HIGHLANDS	95660-5710	1

UNITED REFRIGERATION # C4	16606 Schoenborn St	North Hills	91343	1
US AIRCONDITIONING DIST.	2100 CHICAGO AVENUE	RIVERSIDE	92507-0000	1
MOUNTAIN AIR	14441 SPURLOCK LANE	PINE GROVE	95665	1
AIR COLD SUPPLY # 1057	26470 SUMMIT CIRCLE	SANTA CLARITA	91350-2991	1
RUSSELL SIGLER INC.	17745 E. VALLEY BLVD.	CITY OF INDUSTRY	91744	1
	2425 AUTO PKWY SUITE 200	ESCONDIDO	92029	1
	19801 RANCHO WAY UNIT A	COMPTON	90220	1
SIGLER-ONTARIO	2641 LINDSAY PRIVADO DR.	ONTARIO	91761	1
RUSSELL SIGLER	4863 SHAWLINE STREET	SAN DIEGO	92111	1
SIGLER	1070 COMMERCIAL STREET, SUITE 106	SAN JOSE	95112	1
GOODMAN DISTRIBUTION, INC.	1070 COMMERCIAL STREET STE 103	SAN JOSE	95112	1
	1900 Compton Ave Suite 102	CORONA	92881	1
	315 Cloverleaf Drive	BALDWIN PARK	91706	1
	525 Park Avenue Suite A	San Fernando	91340	1
	3562 Ruffin Road	SAN DIEGO	92123	1
	1225 N. Kraemer Blvd.	ANAHEIM	92806	1
	3648 Industry Avenue	LAKEWOOD	90712	1
	1972 Essex Ct	Redlands	92373	1
	30720 Gunther Street	Palm Springs	92276	1
	300 N. Graves Avenue, Unit C	OXNARD	93030	1
	15024 Anacapa Road	VICTORVILLE	92392	1
	41670 Reagan Way	MURRIETA	92562	1
	40222a LaQuinta Lane, Suite 101	PALMDALE	93551	1
	3633 Lenawee Ave. Ste 180	LOS ANGELES	90016	1
	3334 San Fernando Rd #102	LOS ANGELES	90065	1
	9621 Oates Dr	SACRAMENTO	95827	1
	4020 Nelson Ave. Suite 100	CONCORD	94520	1
	2601 Teepee Dr.	STOCKTON	95205	1
	8825 WASHINGTON BLVD. STE 400	ROSEVILLE	95678-5935	1
	2364 W Winton Ave	HAYWARD	94545	1

	1070 Commercial Street, Suite 103	SAN JOSE	95112	1
	840 N. 10th Street, Suite J	SACRAMENTO	95811	1
	2823 Gibson Street	BAKERSFIELD	93308	1
	2620 East Byrd Avenue	FRESNO	93706	1
	1101 Oates Court Ste 100	MODESTO	95358	1
	1150 McCullom Street	EL CENTRO	92243	1
GOODMAN DIST. # 706	5160 RICHTON ST. "A"	MONTCLAIR	91763	1
STANDARD SUPPLY USA	1820 "S" STREET	SACRAMENTO	95811	2
COAST APPLIANCE PARTS	1404 29TH STREET	BAKERSFIELD	93301-0000	1
	6909 SOUTH WESTERN AVENUE	LOS ANGELES	90047-0000	1
	2606 LEE AVENUE	SOUTH EL MONTE	91733-0000	1
	948 COLTON AVENUE	COLTON	92324-0000	1
	4408 TWAIN AVENUE	SAN DIEGO	92120-0000	1
	9515 KESTER AVENUE	VAN NUYS	91411-0000	1
	3260 EAST MCKINLEY	FRESNO	93703-0000	1
	1702 SOUTH LYON STREET	SANTA ANA	92705-0000	1
	312 EAST TULARE STREET	VISALIA	93277-0000	1
	6250 CHERRY AVENUE	LONG BEACH	90805-0000	1
	15700 SOUTH BROADWAY	GARDENA	90248-0000	1
	12503 VENICE BLVD.	CULVER CITY	90066-0000	1
GLOBAL HVAC	900 SPRECKLES AVENUE	MANTECA	95336	2
Lennox Parts Plus	299 GODDARD	IRVINE	92618	1
CATHEDRAL CITY #7	68713 PEREZ RD. BLDG. B-7	CATHEDRAL CITY	92234	1
GOODMAN DISTRIBUTION, INC #764	18085 EUCLID STREET	FOUNTAIN VALLEY	92708	1
SO. CAL A/C SUPPLY CO. INC	1000 NORTH JOHNSON AVENUE	EL CAJON	92020	1
GOODMAN DISTRIBUTION INC. # 768	16300 STAGG STREET	VAN NUYS	91406	1
HEATING & COOLING LLC #811	3970 HOME AVENUE	SAN DIEGO	92105	1
HEATING & COOLING LLC #813	629 ALPINE WAY	ESCONDIDO	92029	1
HEATING & COOLING LLC #815	2350 MULBERRY STREET	RIVERSIDE	92501	1
HEATING & COOLING LLC #812	11661 RIVERSIDE DRIVE STE. 185	LAKESIDE	92040	1

HEATING & COOLING LLC #817	72110 CORPORATE WAY	THOUSAND PALMS	92276	1
HEATING & COOLING LLC #831	6510 SIERRA COURT	DUBLIN	94568	1
HEATING & COOLING LLC #832	5357 EAST HOME AVENUE	FRESNO	93727	1
HEATING & COOLING LLC #834	301 S. 9TH STREET-BLDG. C	MODESTO	95351	1
HEATING & COOLING LLC #833	3324 LANDCO DRIVE	BAKERSFIELD	93308	1
HEATING & COOLING LLC #835	7321 ROSEVILLE RD., SUITE 1	SACRAMENTO	95842	1
HEATING & COOLING LLC #821	685 N. POPLAR STREET	ORANGE	92868	1
HEATING & COOLING LLC #822	910 CANAL PLACE	CITY OF INDUSTRY	91746	1
HEATING & COOLING LLC #823	2650 N. INDUSTRY DRIVE	LAKEWOOD	90712	1
HEATING & COOLING LLC #824	14742 RAYMER STREET	VAN NUYS	91405	1
HEATING & COOLING LLC #826	320 LAMBERT STREET #8	OXNARD	93036	1
HEATING & COOLING LLC #825	9714 DEERING AVENUE	CHATSWORTH	91311	1
CFM EQUIPMENT	1744 SOUTH PEARL ST.	FRESNO	93721	1
BAKER DISTRIBUTING COMPANY #982	929 SEABOARD COURT	UPLAND	91786	1
LENNOX	30575 HILL ST.	THOUSAND PALMS	92276	1
ARCTIC SUPPLY	213 CIVIC CENTER DRIVE	NATIONAL CITY	91950	1
INDIO COOLING & HEATING SUPPLY	45-100 GOLF CENTER PARKWAY SUITE C	INDIO	92201	1
J W WOOD CO., INC/ALL AIR SUPPLY	224 MEYERS STREET	CHICO	95928	1
	3676 OLD HWY 44 DRIVE	REDDING	96004	1
TRANE PARTS - SOUTH SACRAMENTO	5440 FLORIN PERKINS RD	SACRAMENTO	95826	1
TRANE - LONG BEACH 549	1930 E CARSON ST #101	LONG BEACH	90810	1
TRANE - TUSTIN 544	1451 EDINGER AVE STE E	TUSTIN	92780	1
INGERSOLL RAND / TRANE	3565 CORPORATE CT	SAN DIEGO	92123	1
Trane INDUSTRY SITE 547	17760 ROWLAND ST.	CITY OF INDUSTRY	91748	1
MSI HVAC 08	75220 MERLE DR.	PALM DESERT	92211	1
MSI HVAC 01	11700 INDUSTRY AVE.	FONTANA	92337	1
Trane RIVERSIDE	2222 KANSAS AVE. SUITE C	RIVERSIDE	92507	1
Trane COMPANY GLENDALE	3631 SAN FERNANDO ROAD	GLENDALE	91204	1

APPENDIX G: Returns by location

Bin Number	Customer Name	City	Zip	Data	Grand Total
M10992	GEARY PACIFIC SUPPLY	REDDING	96002-9223	Sum of Total Stats Sum of Total lbs mercury	30 0.3596
M11059	FIX AIR AUTHORIZED Trane PARTS	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	45 0.5828
M11070	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	115 1.7732
M11071	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	66 0.8308
M11072	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	104 1.4322
M11150	JOHNSTONE SUPPLY CO	UPLAND	91786-5720	Sum of Total Stats Sum of Total lbs mercury	83 0.8742
M11262	RSD-MONTEREY PARK	MONTEREY PARK	91754-3616	Sum of Total Stats Sum of Total lbs mercury	51 0.6634
M11263	RSD	MONTEREY PARK	91754-	Sum of Total Stats	25

			3616	Sum of Total lbs mercury	0.31
M11273	RSD	FRESNO	93703-3005	Sum of Total Stats	74
				Sum of Total lbs mercury	1.3268
M11274	RSD	ANAHEIM	92806	Sum of Total Stats	76
				Sum of Total lbs mercury	1.1966
			92806-2503	Sum of Total Stats	147
				Sum of Total lbs mercury	2.511
M11275	RSD	ANAHEIM	92806-1760	Sum of Total Stats	61
				Sum of Total lbs mercury	1.1842
			92806-2503	Sum of Total Stats	126
				Sum of Total lbs mercury	1.8662
M11278	RSD	SAN LEANDRO	94577-1024	Sum of Total Stats	102
				Sum of Total lbs mercury	1.7794
M11279	RSD	SAN LEANDRO	94577-1024	Sum of Total Stats	63
				Sum of Total lbs mercury	1.1408
M11299	RSD	SAN JOSE	95112-0000	Sum of Total Stats	43
				Sum of Total lbs mercury	0.806

	RDS-SAN JOSE	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	52 0.8742
M11302	RSD	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	73 1.55
M11303	RSD	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	121 2.356
	RSD CONCORD	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	51 0.7688
M11305	RSD	VAN NUYS	91405-0000	Sum of Total Stats Sum of Total lbs mercury	166 1.86
M11312	RSD	POMONA	91768-0000	Sum of Total Stats Sum of Total lbs mercury	108 1.1656
M11313	RSD	POMONA	91766	Sum of Total Stats Sum of Total lbs mercury	109 1.7794
M11315	RSD	GARDENA	90248	Sum of Total Stats Sum of Total lbs mercury	41 0.713
M11318	RSD	SANTA ANA	92705-0000	Sum of Total Stats Sum of Total lbs mercury	78 1.302

M11321	RSD	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	212 3.596
M11719	RSD	ONTARIO	91761-0000	Sum of Total Stats Sum of Total lbs mercury	45 0.8432
M11720	RSD	ONTARIO	91761-0000	Sum of Total Stats Sum of Total lbs mercury	51 0.7502
M11944	JOHNSTONE SUPPLY-ANAHEIM	ANAHEIM	92805-0000	Sum of Total Stats Sum of Total lbs mercury	239 2.6846
M11945	JOHNSTONE SUPPLY CO	ESCONDIDO	92029-0000	Sum of Total Stats Sum of Total lbs mercury	166 1.5562
			92029-1914	Sum of Total Stats Sum of Total lbs mercury	146 2.1886
M12427	JOHNSTONE SUPPLY CO	SAN JOSE	95112-1408	Sum of Total Stats Sum of Total lbs mercury	107 1.8166
M12428	JOHNSTONE SUPPLY CO	OAKLAND	94607-0000	Sum of Total Stats Sum of Total lbs mercury	39 0.372
M12430	UNITED REFRIGERATION	BUENA PARK	90620-1030	Sum of Total Stats	181

				Sum of Total lbs mercury	2.5916
M12445	JOHNSTONE SUPPLY # 33	SUN VALLEY	91352-0000	Sum of Total Stats	183
				Sum of Total lbs mercury	1.7422
			91352-2505	Sum of Total Stats	42
				Sum of Total lbs mercury	0.5518
	JOHNSTONE SUPPLY CO	SUN VALLEY	91352-0000	Sum of Total Stats	185
				Sum of Total lbs mercury	1.6554
M12494	JOHNSTONE SUPPLY CO	FRESNO	93727-0000	Sum of Total Stats	43
				Sum of Total lbs mercury	0.6572
M12584	UNITED REFRIGERATION	LOS ANGELES	90065	Sum of Total Stats	38
				Sum of Total lbs mercury	0.4464
	UNITED REFRIGERATION # D5	LOS ANGELES	90065	Sum of Total Stats	50
				Sum of Total lbs mercury	0.6138
M12664	R.E. MICHEL CO. INC. #381	EL CAJON	92020-0000	Sum of Total Stats	44
				Sum of Total lbs mercury	0.5952
M13148	BURKE ENGINEERING COMPANY	ANAHEIM	92805-0000	Sum of Total Stats	46
				Sum of Total lbs mercury	0.6386
M13156	BURKE ENGINEERING COMPANY	VAN NUYS	91406-0000	Sum of Total Stats	33

				Sum of Total lbs mercury	0.3162
M13158	BURKE ENGINEERING COMPANY	NORTH HIGHLANDS	95660	Sum of Total Stats Sum of Total lbs mercury	18 0.1798
M13159	BURKE ENGINEERING COMPANY	RIVERSIDE	92507	Sum of Total Stats Sum of Total lbs mercury	228 2.0336
M13160	BURKE ENGINEERING COMPANY	LONG BEACH	90805-0000	Sum of Total Stats Sum of Total lbs mercury	36 0.62
M13163	BURKE ENGINEERING COMPANY	SAN JOSE	95112	Sum of Total Stats Sum of Total lbs mercury	47 0.558
M13698	CITY OF FREMONT PHHWCF	FREMONT	94538	Sum of Total Stats Sum of Total lbs mercury	48 0.4278
M13747	RSD	LIVERMORE	94551-0000	Sum of Total Stats Sum of Total lbs mercury	29 0.4154
M13749	RSD	LIVERMORE	94551-0000	Sum of Total Stats Sum of Total lbs mercury	77 1.147
M14118	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	Sum of Total Stats Sum of Total lbs mercury	76 0.775
M14178	MSI HVAC	ESCONDIDO	92029	Sum of Total Stats Sum of Total lbs mercury	75 1.6678

M14180	MSI HVAC	LAGUNA HILLS	92653	Sum of Total Stats Sum of Total lbs mercury	145 1.55
M14194	A-1 GUARANTEED	VALLEJO	94589	Sum of Total Stats Sum of Total lbs mercury	103 2.3312
M14380	UNITED REFRIGERATION	SANTA BARBARA	93103-3629	Sum of Total Stats Sum of Total lbs mercury	90 1.3888
M14461	BAY COUNTIES WASTE SERVICES	SUNNYVALE	94089-0000	Sum of Total Stats Sum of Total lbs mercury	15 0.1054
M14469	JOHNSTONE SUPPLY	LAGUNA HILLS	92653-1307	Sum of Total Stats Sum of Total lbs mercury	47 0.4588
	JOHNSTONE SUPPLY CO	LAGUNA HILLS	92653-1307	Sum of Total Stats Sum of Total lbs mercury	47 0.4402
M14495	USACD	ANAHEIM	92805-0000	Sum of Total Stats Sum of Total lbs mercury	191 2.9264
M14496	USACD	BAKERSFIELD	93305-0000	Sum of Total Stats Sum of Total lbs mercury	8 0.0806
M14497	USACD	CHATSWORTH	91311	Sum of Total Stats Sum of Total lbs mercury	60 0.682
			91311-	Sum of Total Stats	607

			0000	Sum of Total lbs mercury	6.8634
M14498	USACD	EL CAJON	92020-0000	Sum of Total Stats	96
				Sum of Total lbs mercury	1.3454
M14499	USACD	CITY OF INDUSTRY	91748-0000	Sum of Total Stats	1377
				Sum of Total lbs mercury	18.1722
M14500	USACD	RIVERSIDE	92507-0000	Sum of Total Stats	176
				Sum of Total lbs mercury	1.7918
	US AIRCONDITIONING DIST.	RIVERSIDE	92507-0000	Sum of Total Stats	90
				Sum of Total lbs mercury	0.9858
M14501	US AIR CONDITIONING DISTRIBUTORS	SAN DIEGO	92111-1520	Sum of Total Stats	41
				Sum of Total lbs mercury	0.5208
	USACD	SAN DIEGO	92111-0000	Sum of Total Stats	95
				Sum of Total lbs mercury	1.5748
			92111-1520	Sum of Total Stats	115
				Sum of Total lbs mercury	1.9344
	US AIRCONDITIONING DIST.	SAN DIEGO	92111-1520	Sum of Total Stats	184
				Sum of Total lbs	2.9636

				mercury	
M14502	USACD	SIGNAL HILL	90755-2210	Sum of Total Stats Sum of Total lbs mercury	380 5.2266
M14503	USACD	NORTH HIGHLANDS	95660-0000	Sum of Total Stats Sum of Total lbs mercury	35 0.4402
M14504	USACD	SAN LEANDRO	94577-0000	Sum of Total Stats Sum of Total lbs mercury	125 1.0168
M14522	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	96 1.085
M14523	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	83 0.9982
			95336-0000	Sum of Total Stats Sum of Total lbs mercury	46 0.4588
M14530	AMERICAN REFRIGERATION SUPPLIES INC.	SAN FRANCISCO	94103-0000	Sum of Total Stats Sum of Total lbs mercury	76 1.1098
M14538	SAN BERNADINO COUNTY HHW	SAN BERNADINO	92408-0000	Sum of Total Stats Sum of Total lbs mercury	66 0.5146
M14544	SLAKEY BROTHERS	SAN JOSE	95126-0000	Sum of Total Stats Sum of Total lbs	35 0.2914

				mercury	
M14545	USACD	ESCONDIDO	92029-0000	Sum of Total Stats Sum of Total lbs mercury	108 1.55
M14572	USACD	REDDING	96003	Sum of Total Stats Sum of Total lbs mercury	25 0.2852
M14582	MOUNTAIN AIR	PINE GROVE	95665	Sum of Total Stats Sum of Total lbs mercury	47 0.5952
M14593	SLAKEY BROTHERS	SAN JOSE	95126	Sum of Total Stats Sum of Total lbs mercury	101 1.4818
		SOUTH SAN FRANCISCO	94080	Sum of Total Stats Sum of Total lbs mercury	32 0.3472
M14600	AIR COLD-A FERGUSON ENTERPRISE	NEWBURY PARK	91320	Sum of Total Stats Sum of Total lbs mercury	207 2.0274
M14602	AIR COLD-A FERGUSON ENTERPRISE	SAN GABRIEL	91776	Sum of Total Stats Sum of Total lbs mercury	243 2.3312
M14607	AIR COLD-A FERGUSON ENTERPRISE	SAN LUIS OBISPO	93401-7316	Sum of Total Stats Sum of Total lbs mercury	39 0.3286
M14645	USACD	HESPERIA	92345-0000	Sum of Total Stats Sum of Total lbs mercury	58 1.5872
M14659	ALLIED REFRIGERATION	SIGNAL HILL	90755-	Sum of Total Stats	73

			0000	Sum of Total lbs mercury	1.0106
M14661	ALLIED REFRIGERATION	TUSTIN	92780-0000	Sum of Total Stats Sum of Total lbs mercury	37 0.6386
M14664	ALLIED REFRIGERATION	POMONA	91767-5840	Sum of Total Stats Sum of Total lbs mercury	130 2.108
M14666	ALLIED REFRIGERATION	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	86 1.705
M14668	ALLIED REFRIGERATION	VAN NUYS	91406-0000	Sum of Total Stats Sum of Total lbs mercury	37 0.3782
M14679	USACD	TEMECULA	92590-0000	Sum of Total Stats Sum of Total lbs mercury	60 1.0168
M14781	TOTALINE OF CALIFORNIA	ORANGE	92865	Sum of Total Stats Sum of Total lbs mercury	33 1.9158
M14799	SIGLER	SAN JOSE	95112	Sum of Total Stats Sum of Total lbs mercury	42 0.527
M14918	SLAKEY BROTHERS	GRASS VALLEY	95945	Sum of Total Stats Sum of Total lbs mercury	30 0.3596
M14952	SLAKEY BROTHERS/SAN JOSE	SAN JOSE	95126	Sum of Total Stats	47

				Sum of Total lbs mercury	0.6076
M14954	SLAKEY BROTHERS/SANTA ROSA	SANTA ROSA	95407-7844	Sum of Total Stats Sum of Total lbs mercury	33 0.3534
M15004	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	294 3.4782
M15005	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	219 2.4862
M15006	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	132 1.5748
M15007	GOODCENTS	MANTECA	95336	Sum of Total Stats Sum of Total lbs mercury	287 3.2054
M15065	CITY OF SAN DIEGO, MIRAMAR HHWCF	SAN DIEGO	92111-0000	Sum of Total Stats Sum of Total lbs mercury	53 0.5642
M15068	JOHNSTONE SUPPLY UPLAND	UPLAND	91786-5720	Sum of Total Stats Sum of Total lbs mercury	103 1.1346
M15074	USACD	EL CENTRO	92243	Sum of Total Stats Sum of Total lbs mercury	133 1.2338
M15124	RSD	CHATSWORTH	91311	Sum of Total Stats Sum of Total lbs mercury	83 1.3578
M15143	JOHNSTONE SUPPLY OF LONE BEACH	LONG BEACH	90806-	Sum of Total Stats	60

			2213	Sum of Total lbs mercury	0.7874
M15462	RAHAC HTG & COOLING INC.	GLENDALE	91201	Sum of Total Stats	13
				Sum of Total lbs mercury	0.1364
M15645	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats	1265
				Sum of Total lbs mercury	18.7302
M13164	BURKE ENGINEERING COMPANY	SAN JOSE	95112	Sum of Total Stats	40
				Sum of Total lbs mercury	0.7068
		EL MONTE	91733-1799	Sum of Total Stats	63
				Sum of Total lbs mercury	0.6138
M15034	THRIFTY SUPPLY	SACRAMENTO	95826	Sum of Total Stats	30
				Sum of Total lbs mercury	0.2728
M13153	BURKE ENGINEERING COMPANY	SAN DIEGO	92111	Sum of Total Stats	30
				Sum of Total lbs mercury	0.372
			92111-0000	Sum of Total Stats	32
				Sum of Total lbs mercury	0.4216
M14601	AIR COLD SUPPLY # 1057	SANTA CLARITA	91350-2991	Sum of Total Stats	57
				Sum of Total lbs mercury	0.5952
M12703	RSD	SACRAMENTO	95827-2104	Sum of Total Stats	70
				Sum of Total lbs	1.2524

				mercury	
M11268	RSD	RIVERSIDE	92501-0000	Sum of Total Stats Sum of Total lbs mercury	50 0.6634
M14919	NEVADA COUNTY H.H.W. FACILITY	GRASS VALLEY	95949	Sum of Total Stats Sum of Total lbs mercury	43 0.4588
M14922	NEVADA COUNTY H.H.W. FACILITY	GRASS VALLEY	95949	Sum of Total Stats Sum of Total lbs mercury	59 0.6324
M14614	AIR COLD-A FERGUSON ENTERPRISE	CULVER CITY	90230	Sum of Total Stats Sum of Total lbs mercury	48 0.4402
M15057	WESTERN NEVADA SUPPLY	TRUCKEE	96161-0000	Sum of Total Stats Sum of Total lbs mercury	51 0.4402
M14947	SLAKEY BROTHERS/NORTH HIGHLANDS	NORTH HIGHLANDS	95660	Sum of Total Stats Sum of Total lbs mercury	51 0.4712
M14798	TOTALINE OF CALIFORNIA	SAN JOSE	95112	Sum of Total Stats Sum of Total lbs mercury	20 0.217
M14795	TOTALINE OF CALIFORNIA	SAN DIEGO	92111	Sum of Total Stats Sum of Total lbs mercury	40 0.5394
M15668	USACD	PASO ROBLES	93446	Sum of Total Stats Sum of Total lbs mercury	62 0.6758
M13135	GEARY PACIFIC SUPPLY	RIVERSIDE	92507-0000	Sum of Total Stats Sum of Total lbs	39 0.3224

				mercury	
M14510	GEARY PACIFIC SUPPLY	RIVERSIDE	92507-0000	Sum of Total Stats Sum of Total lbs mercury	39 0.3534
M14567	JOHNSTONE SUPPLY #140	SALINAS	93901	Sum of Total Stats Sum of Total lbs mercury	53 0.7192
M15600	RAHAC HTG & COOLING INC.	GLENDALE	91201-0000	Sum of Total Stats Sum of Total lbs mercury	38 0.2852
M14766	SIGLERS	CITY OF INDUSTRY	91744	Sum of Total Stats Sum of Total lbs mercury	15 0.2046
M14585	SLAKEY BROTHERS	REDDING	96002	Sum of Total Stats Sum of Total lbs mercury	46 0.465
M10125	RSD-48	GARDENA	90248-0000	Sum of Total Stats Sum of Total lbs mercury	85 1.4012
M11316	RSD	BUENA PARK	90620-0000	Sum of Total Stats Sum of Total lbs mercury	133 2.1576
M14592	SLAKEY BROTHERS	SANTA CRUZ	95060	Sum of Total Stats Sum of Total lbs mercury	56 0.4154
M11947	JOHNSTONE SUPPLY CO	SAN DIEGO	92110	Sum of Total Stats Sum of Total lbs mercury	129 1.674
			92110-	Sum of Total Stats	28

			0000	Sum of Total lbs mercury	0.4526
M12669	R.E. MICHEL COMPANY, INC	EL CAJON	92020-00	Sum of Total Stats Sum of Total lbs mercury	95 1.3764
M12429	JOHNSTONE SUPPLY CO	CONCORD	94520-0000	Sum of Total Stats Sum of Total lbs mercury	58 0.6324
M11074	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	103 2.6474
M12704	BURKE ENGINEERING COMPANY	SAN JOSE	95112-0000	Sum of Total Stats Sum of Total lbs mercury	48 0.5332
M13748	RSD	LIVERMORE	94551-0000	Sum of Total Stats Sum of Total lbs mercury	50 1.0478
M14917	ALAMEDA COUNTY HHW	HAYWARD	94545	Sum of Total Stats Sum of Total lbs mercury	15 0.2542
M13475	CLEAN HARBORS EVS	PETALUMA	94952	Sum of Total Stats Sum of Total lbs mercury	66 0.589
M12864	COUNTY OF TUOLUMNE	SONORA	95370	Sum of Total Stats Sum of Total lbs mercury	7 0.062
M14789	TOTALINE OF CALIFORNIA	RIVERSIDE	92507	Sum of Total Stats Sum of Total lbs	13 0.1612

				mercury	
M12887	RSD-22	REDDING	96002-0000	Sum of Total Stats Sum of Total lbs mercury	44 0.7812
M14531	AMERICAN REFRIGERATION SUPPLIES INC.	OAKLAND	94607-0000	Sum of Total Stats Sum of Total lbs mercury	18 0.2914
M16044	Baker Distributing Co.	CHICO	95928	Sum of Total Stats Sum of Total lbs mercury	77 0.8618
M14779	SIGLER-ONTARIO	ONTARIO	91761	Sum of Total Stats Sum of Total lbs mercury	15 0.1054
M16454	RSD	ROSEVILLE	95678-0000	Sum of Total Stats Sum of Total lbs mercury	59 0.9982
M16453	RSD	ROSEVILLE	95678-0000	Sum of Total Stats Sum of Total lbs mercury	132 2.3002
M11281	RDS-BURBANK	BURBANK	91502-2014	Sum of Total Stats Sum of Total lbs mercury	31 0.3596
M11410	LENNOX INDUSTRIES INC.	CHINO	91710-2943	Sum of Total Stats Sum of Total lbs mercury	42 0.5208
M13339	LENNOX INDUSTRIES INC.	ONTARIO	91761-0000	Sum of Total Stats Sum of Total lbs	36 0.4588

				mercury	
		MIRA LOMA	91752	Sum of Total Stats Sum of Total lbs mercury	19 0.2356
M15872	GOODMAN DISTRIBUTION, INC.	Montclair	91763	Sum of Total Stats Sum of Total lbs mercury	23 0.3782
	GOODMAN DIST. # 706	Montclair	91763	Sum of Total Stats Sum of Total lbs mercury	29 0.2666
M14374	UNITED REFRIGERATION	SAN BERNADINO	92408-2230	Sum of Total Stats Sum of Total lbs mercury	51 0.6882
M13146	BURKE ENGINEERING COMPANY	EL MONTE	91733-1799	Sum of Total Stats Sum of Total lbs mercury	53 0.6386
M14382	UNITED REFRIGERATION # C4	North Hills	91343	Sum of Total Stats Sum of Total lbs mercury	41 0.403
M16705	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	133 1.5004
M16706	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	79 0.9424
M16704	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	74 0.9362
M16703	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	109 1.4136

M16702	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	69 1.0106
		CULVER CITY	90232	Sum of Total Stats Sum of Total lbs mercury	41 2.1266
M16700	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	147 1.984
M16701	USACD	CITY OF INDUSTRY	91748	Sum of Total Stats Sum of Total lbs mercury	80 0.992
	CATHEDRAL CITY #7	CATHEDRAL CITY	92234	Sum of Total Stats Sum of Total lbs mercury	85 3.7138
M14958	SLAKEY BROTHERS/YUBA CITY	YUBA CITY	95991	Sum of Total Stats Sum of Total lbs mercury	33 0.3162
M14915	ALAMEDA COUNTY HHW	HAYWARD	94545	Sum of Total Stats Sum of Total lbs mercury	41 0.3348
M16234	USACD	FRESNO	93706	Sum of Total Stats Sum of Total lbs mercury	47 0.434
M14913	ALAMEDA COUNTY HHW	OAKLAND	94602	Sum of Total Stats Sum of Total lbs mercury	44 0.403
M14794	RUSSELL SIGLER	SAN DIEGO	92111	Sum of Total Stats Sum of Total lbs mercury	53 0.6076
M14162	SPECIALTY AC	BENICIA	94510-0000	Sum of Total Stats Sum of Total lbs	14 0.2728

				mercury	
M14634	R.E. MICHEL COMPANY, INC	VAN NUYS	91406	Sum of Total Stats Sum of Total lbs mercury	33 0.3472
			91405-1262	Sum of Total Stats Sum of Total lbs mercury	17 0.1736
M11149	JOHNSTONE SUPPLY CO	BALDWIN PARK	91706-2289	Sum of Total Stats Sum of Total lbs mercury	65 0.6076
M14787	RUSSELL SIGLER INC.	COMPTON	90220	Sum of Total Stats Sum of Total lbs mercury	30 0.3286
M12817	MCCLELLAND Air CONDITIONING	CHICO	95973	Sum of Total Stats Sum of Total lbs mercury	23 0.31
M14767	RUSSELL SIGLER INC.	CITY OF INDUSTRY	91744	Sum of Total Stats Sum of Total lbs mercury	4 0.062
M14518	CFM EQUIPMENT DIST.	SACRAMENTO	95838-0000	Sum of Total Stats Sum of Total lbs mercury	22 0.217
M14366	UNITED REFRIGERATION	MURRIETA	92562-9193	Sum of Total Stats Sum of Total lbs mercury	11 0.1426
M11075	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	14 0.217

M14770	RUSSELL SIGLER INC.	ESCONDIDO	92029	Sum of Total Stats Sum of Total lbs mercury	15 0.248
M14583	SLAKEY BROTHERS	MODESTO	95352	Sum of Total Stats Sum of Total lbs mercury	10 0.1054
M14372	UNITED REFRIGERATION	PALM DESERT	92211-0474	Sum of Total Stats Sum of Total lbs mercury	53 0.496
M14464	FACSCO	FRESNO	93703-0000	Sum of Total Stats Sum of Total lbs mercury	86 1.3144
M11073	HOWARD INDUSTRIES	CULVER CITY	90232-0000	Sum of Total Stats Sum of Total lbs mercury	46 0.3844
M15187	BUCKLEY PARNELL HEAT & AIR	CITRUS HEIGHTS	95621	Sum of Total Stats Sum of Total lbs mercury	20 0.2356
M13877	CHIMNEY KRAFT	CRESCENT CITY	95531	Sum of Total Stats Sum of Total lbs mercury	26 0.372
M14381	UNITED REFRIGERATION	SANTA MARIA	93455-1058	Sum of Total Stats Sum of Total lbs mercury	37 0.434
M11725	RSD	SACRAMENTO	95827-2104	Sum of Total Stats Sum of Total lbs mercury	63 1.0292
M15198	MATRIX HG, INC.	CONCORDIA	94518	Sum of Total Stats	24

				Sum of Total lbs mercury	0.4154
M14663	ALLIED REFRIGERATION	SAN BERNADINO	92410-0000	Sum of Total Stats	44
				Sum of Total lbs mercury	0.434
M14605	AIR COLD-A FERGUSON ENTERPRISE	EL CAJON	92020	Sum of Total Stats	41
				Sum of Total lbs mercury	0.4278
M12770	DAN GOETZ WHOLESALE OUTLET INC	SANTA ROSA	95407	Sum of Total Stats	59
				Sum of Total lbs mercury	0.7812
M14371	UNITED REFRIGERATION	OXNARD	93036-8916	Sum of Total Stats	11
				Sum of Total lbs mercury	0.1488
M14341	KERN COUNTY SPECIAL WASTE FACILITY	BAKERSFIELD	93308-4531	Sum of Total Stats	50
				Sum of Total lbs mercury	0.3286
M14571	GEARY PACIFIC SUPPLY	NORTH HIGHLANDS	95660-5701	Sum of Total Stats	72
				Sum of Total lbs mercury	1.4632
M14286	COUNTY OF VENTURA-	VENTURA	93009-1650	Sum of Total Stats	6
				Sum of Total lbs mercury	0.0372
M15948	BILL HOWE HEATING & AIR	SAN DIEGO	92110	Sum of Total Stats	26
				Sum of Total lbs mercury	0.2666
M16222	AAA AIR & HEATING	FRESNO	93727	Sum of Total Stats	55
				Sum of Total lbs mercury	0.4464

M15041	MAKI HEATING & AIR CONDITIONING, INC.	AUBURN	95603	Sum of Total Stats Sum of Total lbs mercury	24 0.2046
M16041	Baker Distributing Co.	PACOMIA	91331-0000	Sum of Total Stats Sum of Total lbs mercury	35 0.5828
M11276	RSD	SACRAMENTO	95815-3216	Sum of Total Stats Sum of Total lbs mercury	45 0.682
M16043	Baker Distributing Co.	CHATSWORTH	91311-0000	Sum of Total Stats Sum of Total lbs mercury	24 0.2232
M14379	UNITED REFRIGERATION	SANTA ANA	92705-4705	Sum of Total Stats Sum of Total lbs mercury	25 0.3472
M14086	D & D PLUMBING HEATING & COOLING	VACAVILLE	95687	Sum of Total Stats Sum of Total lbs mercury	1 0.0062
M14375	UNITED REFRIGERATION	SAN CARLOS	94070-5316	Sum of Total Stats Sum of Total lbs mercury	121 2.4986
M16771	Baker Distributing Company	IRWINDALE	91706	Sum of Total Stats Sum of Total lbs mercury	63 0.7006
M15189	GENIE AIR CONDITIONING & HEATING, INC	VAN NUYS	91411	Sum of Total Stats Sum of Total lbs mercury	9 0.248
M14587	SLAKEY BROTHERS	SALINAS	93901	Sum of Total Stats	9

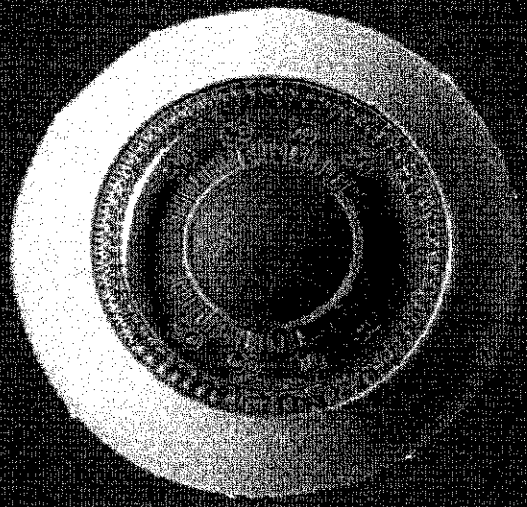
				Sum of Total lbs mercury	0.0682
M12660	Baker Distributing Co.	SAN JOSE	95131-2108	Sum of Total Stats Sum of Total lbs mercury	52 0.837
M14575	SLAKEY BROTHERS	CHICO	95927	Sum of Total Stats Sum of Total lbs mercury	62 0.5952
M14468	JOHNSTONE SUPPLY CO	SANTA ANA	92707-0000	Sum of Total Stats Sum of Total lbs mercury	79 1.1594
M14921	NEVADA COUNTY H.H.W. FACILITY	GRASS VALLEY	95949	Sum of Total Stats Sum of Total lbs mercury	74 0.8246
M12655	Baker Distributing Co.	SANTA ROSA	95407-0000	Sum of Total Stats Sum of Total lbs mercury	26 0.2852
M11288	RSD	SAN DIEGO	92111-1110	Sum of Total Stats Sum of Total lbs mercury	42 0.8432
	RSD 25	SAN DIEGO	92111-1110	Sum of Total Stats Sum of Total lbs mercury	35 0.6882
M11289	RSD	SAN DIEGO	92111-1110	Sum of Total Stats Sum of Total lbs mercury	37 0.6758
	RSD 25	SAN DIEGO	92111-1110	Sum of Total Stats	26

				Sum of Total lbs mercury	0.5022
M13190	TRANE PARTS CENTER	ROCKLIN	95677-0000	Sum of Total Stats Sum of Total lbs mercury	39 0.6262
M14376	UNITED REFRIGERATION	SAN DIEGO	92123-1403	Sum of Total Stats Sum of Total lbs mercury	23 0.3596
M15599	RAHAC HTG & COOLING INC.	GLENDALE	91201-2305	Sum of Total Stats Sum of Total lbs mercury	9 0.0682
M14529	AMERICAN REFRIGERATION SUPPLIES INC.	CORONA	92880-0000	Sum of Total Stats Sum of Total lbs mercury	40 0.4526
M14608	FERGUSON HEATING & COOLING	AZUSA	91702	Sum of Total Stats Sum of Total lbs mercury	28 0.2852
M12545	UNITED REFRIGERATION	IRWINDALE	91706-2085	Sum of Total Stats Sum of Total lbs mercury	14 0.124
M11362	RSD	REDDING	96002-1369	Sum of Total Stats Sum of Total lbs mercury	56 1.4756
M12495	JOHNSTONE SUPPLY CO	FRESNO	93727-0000	Sum of Total Stats Sum of Total lbs mercury	35 0.3596
M15894	GOODMAN DISTRIBUTION, INC.	ROSEVILLE	95678-	Sum of Total Stats	53

			5935	Sum of Total lbs mercury	0.5704
M14633	CALIFORNIA COOLING SUPPLY	VAN NUYS	91405	Sum of Total Stats	34
				Sum of Total lbs mercury	0.4216
Total Sum of Total Stats					18697
Total Sum of Total lbs mercury					254.8386

Exhibit 10

California's Mercury Thermostat Collection Act: an EPR Approach



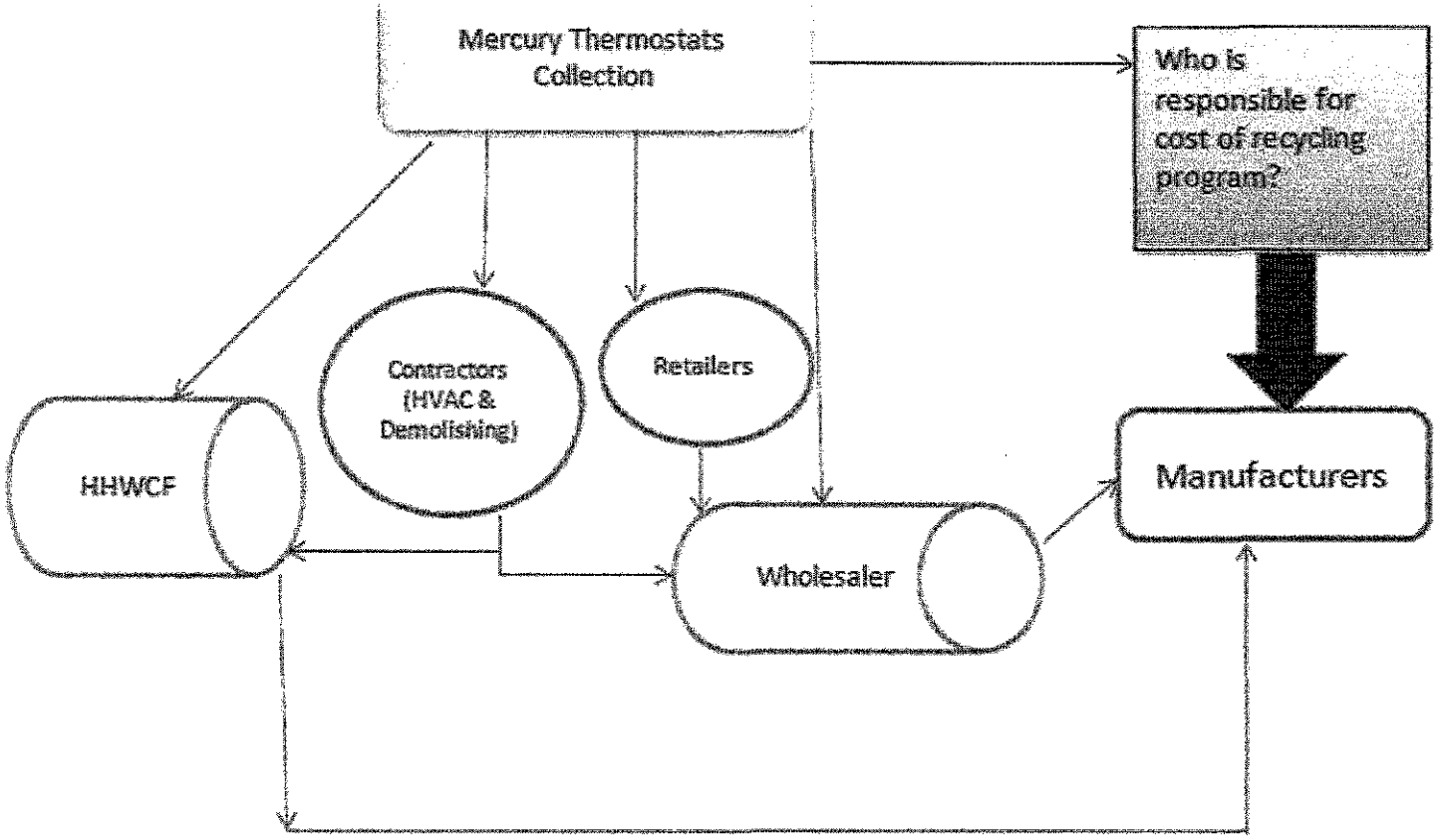
André Algazi
Toxics in Products Branch
California Department of Toxic Substances Control

First some background...

- In California, out-of-service mercury-added thermostats are hazardous waste
  - Regulated as universal waste since 2000
  - Disposal is banned, even for household-generated
- Mercury-added thermostats have been banned from sale since 2006

California's Law is EPR => The Focus is on Manufacturers...

- Individually, or as a group, they must establish and operate a program to collect out-of-service mercury-added thermostats
  - Provide bins to wholesalers of HVAC equipment and to HHW collection programs
  - Cover recycling process including cost
  - Beginning April 1,2010, submit an annual report to the Department



Acronyms:

HHWCF- HOUSEHOLD HAZAZARDOUS WASTE COLLECTION FACILITY

HVAC- HEATING, VENTILATION AND AIRCONDITIONING

Manufacturer Requirements

- One-time Survey
  - By March 2009, submit survey plan and methodology for a survey to provide statistically-valid data on the number thermostats that become waste annually in California
  - By December 1, 2009: complete the survey
  - By December 31, 2009: Present all survey data to the State (DTSC)

Manufacturer Outreach Requirements

- Develop Public Service Announcements
- Provide education and outreach materials to wholesalers, retailers and others
- These prescriptive requirements expired in December 2011 in expectation of DTSC's regulations...

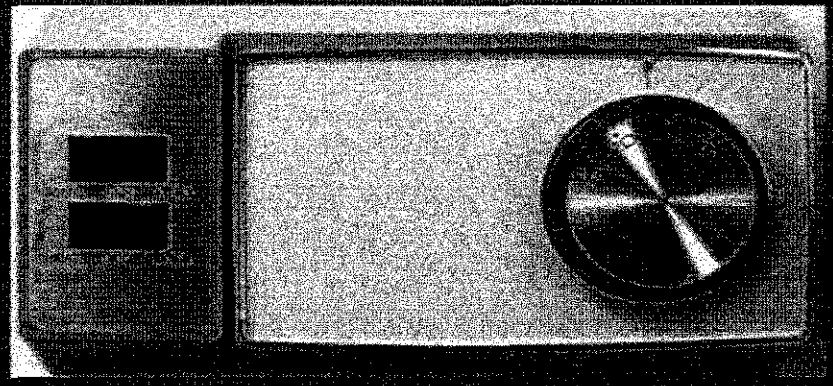
Who Else Has Obligations under California's Thermostat Law?

- HVAC contractors, building demolishers (contractors and others)
  - Remove and bring thermostats to a collection location
- Wholesalers
  - Collect thermostats
  - Don't sell noncompliant brands
- Retailers
  - Don't sell thermostats from noncompliant manufacturers

How is TRC Doing in California?

In 2011, TRC reports collecting:

- 18,697 intact mercury thermostats, containing 255.84 pounds of mercury
- This represents 8.4 percent of thermostats available and a 40 percent increase over 2010 collections



TRC Collection Trend…

Year of Collection	2009	2010	2011
Thermostats	7,542	13,340	18,697
Pounds of mercury	104.82	185.80	255.84

TRC Results in Context: vs. Thermostats Available*

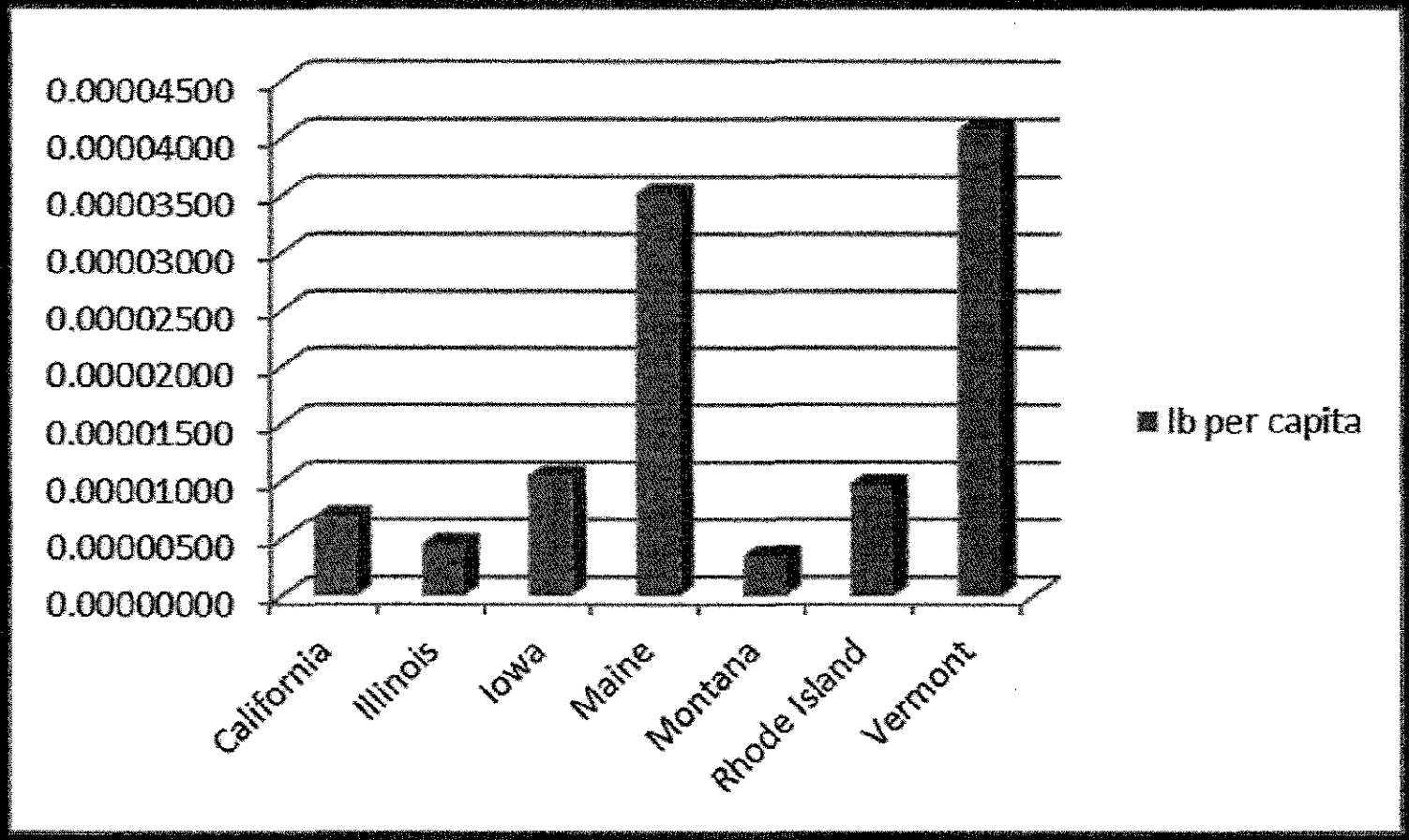
Collection Year	2009	2010	2011
TRC data (Thermostats collected)	7,542	13,340	18,697
Available for recycling (SERA Estimates)	237,000	233,000	222,000

*Source: *Mercury-Containing Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings*. December 28, 2009. Skumatz Economic Research Associates.

California Results in Context: 2011 Data for Some Other States

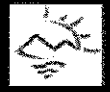
State	Total Intact Thermostats	Pounds of Mercury
California	18,697	255.84
Illinois	7,229	58.53
Iowa	3,850	31.63
Maine	6,616	46.36
Montana	274	3.46
Rhode Island	1,068	10.32
Vermont	3,572	25.37

California Results in Context: Mercury Recovered *per capita*



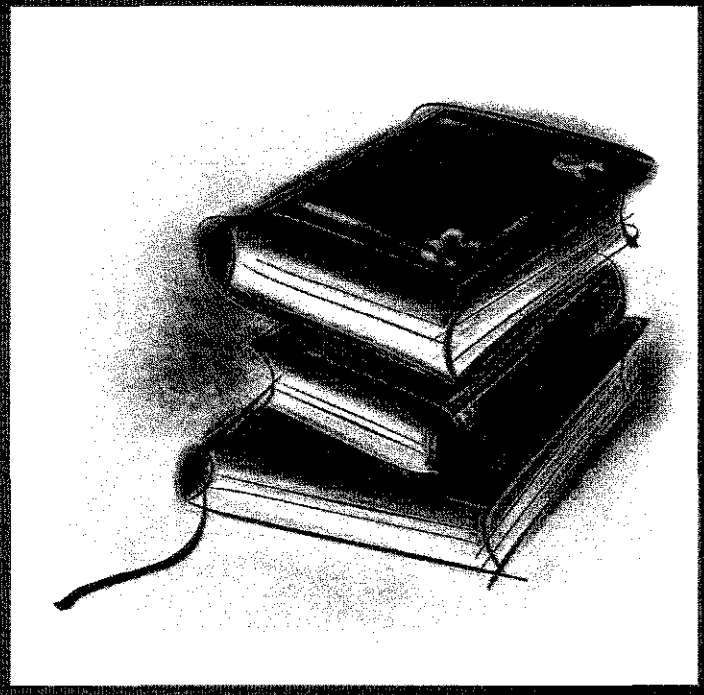
DTSC Efforts to Promote Thermostat Collection

- Outreach to supplement TRC's
  - Web postings
  - Educational Video for Contractors
  - Postcards, flyers, counter signs for wholesalers
- Field visits in 2010 and 2011
  - Some (many?) wholesalers not participating
    - Inadequate manufacturer outreach and education?
  - HVAC contractors feel burdened with various regulatory requirements...



DTSC's Draft Regulations...

- Projected public notice: Early Summer, 2012

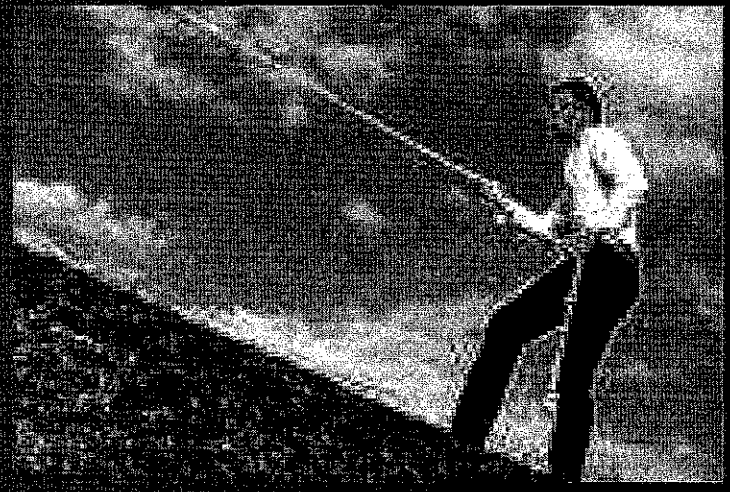


Key Elements of the Current Draft Regulations

- The methodology for determining the annual number of mercury-added thermostats becoming waste based on the manufacturer-funded SERA study
  - Previous proposal relied on contractor reporting after the first two years
- Ambitious collection rate goals from 2013
- Provides for a negotiated agreement on program modification if collection goal is not met

Improving Thermostat Collection Results ...

- Awareness
- Access to program
- Accountability



Thank you...

André Algazi
Section Chief
Consumer Products Section
Toxics in Products Branch
(916) 324-3114
aalgazi@dtsc.ca.gov

Exhibit 11

Eisenberg, Sara J.

From: Chuck Halnan [chuck@halnan.com]
Sent: Monday, October 01, 2012 1:31 PM
To: Eisenberg, Sara J.
Subject: Mercury Thermostat Regulations

In May and June of 2012 I had numerous discussions with DTSC officials concerning the proposed mercury thermostat collection requirements. These meetings were either on the phone or in person and were both one on one meetings as well as group meetings with DTSC staff and the contract lobbyists for manufacturers. From these discussions, it was clear to me that DTSC did not believe manufacturers would be able to achieve the ambitious collection rates set forth in the draft regulations and would likely be forced into some sort of enforcement proceedings almost immediately.

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Sacramento, CA 95814
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(916) 441-6504 fax
chuck@halnan.com
www.halnan.com

Exhibit 12

Amend Appendix XII of the California Code of Regulations, title 22, div 4.5, chapter 11.

Insert, in numerical and in alphabetical order within the existing section to read as follows:
(a) Subdivisions (b) and (c) of this appendix establish the California Hazardous Waste Code Numbers assigned to wastes which have been identified as hazardous wastes pursuant to the characteristics of hazardous waste as set forth in article 3 of this chapter or pursuant to the lists of hazardous wastes in article 4 of this chapter. These Waste Code Numbers shall be used in complying with the notification requirements of Health and Safety Code section 25153.6 and, where applicable, in the recordkeeping and reporting requirements under chapters 12 through 15, 18, and 20 of this division.
***
(b) List of California Hazardous Waste Codes arranged in numerical order:
***
614 Treated wood waste
(5) California Restricted Wastes:
615 Out-of-service mercury-added thermostats
711 Liquids with cyanides ≥ 1000 mg/l
***
(c) List of California Hazardous Waste Codes arranged alphabetically within each numbered category in this subdivision:
***
551 Laboratory waste chemicals
512 Other empty containers 30 gallons or more
615 Out-of-service mercury-added thermostats
541 Photochemical/photoprocessing waste
(5) California Restricted Wastes:
721 Liquids with arsenic > 500 mg/l
***
NOTE: Authority cited: Sections 25150 and 58012, Health and Safety Code. Reference: Sections 25117.9, 25122.7, and 25150, Health and Safety Code.

Chapter 35 Mercury Thermostat Collection Requirements

§67388.1 Scope

(a) This chapter establishes the requirements for the collection of out-of-service mercury-added thermostats.
(b) Nothing in this chapter is a limitation on the power of any other governmental agency to adopt or enforce additional requirements related to the management of the mercury-added thermostat materials.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.17, Health and Safety Code.

§67388.2 Applicability

Effective January 1, 2012 the requirements of this chapter shall apply to
(a) Manufacturers as described in section 67388.3.
(b) HVAC contractors as described in section 67388.3.
(c) Demolition contractors as described in section 67388.3.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.17, Health and Safety Code.

§67388.3 Definitions

The definitions set forth in section 66260.10 of this division shall apply unless otherwise defined. The following terms shall apply to the definitions used in this chapter. The definitions of the following terms are stated the Health and Safety Code sections unless otherwise noted.
"Collection Rate" means the number of out-of-service mercury added thermostats collected, as reported by a manufacturer or group of manufacturers divided by the calculated number of out of service mercury added thermostats becoming waste annually, as defined in section 67388.4, expressed as a percentage.
"Demolition contractor" has the meaning of a C-21 contractor as defined in Cal. Code Regs., title 16, section 832.21.
"Household hazardous waste collection facility (HHWCF)" has the meaning of a facility as defined in Health and Safety Code, section 25218.1(f).
"Heating, ventilating and air-conditioning (HVAC) Contractor" has the meaning as defined in Cal. Code Regs., title 16, section 832.20.
"Manufacturer" has the meaning as defined in Health and Safety Code, section 25214.8.11(a).
"Mercury-added thermostat" has the meaning as defined in Health and Safety Code, section 25214.8.11(b)
"Out-of-service mercury-added thermostat" has the meaning as defined in Health and Safety Code, section 25214.8.11(c).
"Program" has the meaning as defined in Health and Safety Code, section 25214.8.11(d).
"Retailer" has the meaning as defined in Health and Safety Code, section 25214.8.11(e).
"Thermostat" has the meaning as defined in Health and Safety Code, section 25214.8.11(f).
"Wholesaler" has the meaning as defined in Health and Safety Code, section 25214.8.11(g).
Authority: Section 58012 and,25150 Health and Safety Code. Reference: Section 25214.8.11 and 25218.1, and 25214.8.17 Health and Safety Code. Reference: Cal. Code Regs., tit. 16, §832.20 and 832.21.

§67388.4 Methodology for Calculation of Number of Out-of-Service Mercury Added Thermostats Becoming Waste Annually

(a) For the purpose of the calculation in section 67388.5 the number of out-of-service mercury-added thermostats becoming waste are 222,000 for the 2012 calendar year .
(b) Beginning on March 1, 2013, the department shall post the number of out-of-service mercury-added thermostats that became waste for the previous year based on the following methodology:

Methodology of calculating the annual generation of Waste Mercury Thermostats

$$T_{AW} = T_{HVAC} + T_{UHWM} + T_{HHWCF}$$

T_{AW} = Number of out-of-service mercury-added thermostats that become waste annually

T_{HVAC} = Number of mercury thermostats removed from service as reported by licensed HVAC contractors.

T_{UHWM} = Number of out-of-service mercury reported on Uniform Hazardous Waste Manifests under California Waste Code 615.

T_{HHWCF} = Number of out-of-service mercury thermostats report in the California Household Hazardous Waste Collection Facilities form 303(b).

$$T = (T_{lbs} \times 453.6 \text{grams/lb}) \div 100 \text{ grams per thermostat}$$

T - Number of out-of-service thermostats collected
Tlbs - Weight of out-of-service thermostats collected
k - Conversion factor for weight of thermostat = 100 grams per thermostat
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.15, 25214.8.16 and 25214.8.17 Health and Safety Code.

§67388.5 Manufacturers' Annual Collection Rate

(a) The annual target collection rate for a manufacturer or a group of manufacturers shall be 20% of the number of out of service mercury added thermostats becoming waste annually.
(b) When the 20% target collection rate is met, the target collection rate for the next calendar year shall increase to 30% of the out-of-service mercury thermostats projected to become waste that year. Each time a target collection rate standard is met in a subsequent year, the target collection rate in the next calendar shall increase by 10% of the out-of-service mercury thermostats projected to become waste that year until the maximum feasible collection rate is achieved.
(c) The department shall assign a percentage of the collection rate to each manufacturer or group of manufacturers based upon each manufacturer's or group of manufacturers' share of total thermostats collected, less orphan product reported by all manufacturers or group of manufacturers.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25218.8.13 Health and Safety Code.

§67388.6 Manufacturer Program Requirements
(a) The Department may order a manufacturer or a group of manufacturers operating a program to revise its program and to undertake actions to comply with Article 10.2.2 of Chapter 6.5, Division 20, of the Health and Safety Code.

(b) The Department may review each manufacturer's or group of manufacturers' program each year, beginning in 2014, to determine whether revisions are needed to each program
(b) In order to assess whether revisions are needed to the program implemented by a manufacturer or a group of manufacturers, the Department shall:
(1) Compare the results of each program with the annual target collection rate specified in section 67388.5;
(2) Compare the results of the program(s) to those of other states where mercury added thermostat collection programs are mandated by law;
(3) .Assess economic factors or market conditions that may adversely affect program results;
(4) Assess contractor compliance with sections 67388.7 and 67388.9 and other relevant and applicable provisions of law.
(c) If a manufacturer or group of manufacturers fails to revise its program as directed by the Department, the Department shall post a notice on its Internet Website listing the manufacturer or group of manufacturers as out of compliance pursuant to Health and Safety Code section 25214.8.12.

(d) (1) A manufacturer or group of manufacturers may petition the department to reinstate the manufacturer or group of manufacturers.
(2) A petition submitted pursuant to this subsection shall include an updated plan correcting the deficiencies identified by the department.
(3) The sales prohibition specified in Health and Safety Code section 25214.8.12 shall be suspended during the department's review of the updated plan. This suspension of the sales prohibition shall be posted on the department's Internet Web site.
(4) If the department determines that the updated plan corrects the deficiencies identified pursuant to Section 42992, the department shall list the manufacturer or group of manufacturers as no longer banned. If the updated plan does not correct the deficiencies, the sales prohibition shall be reinstated, and the manufacturer or group of manufacturers shall be posted as non-compliant on the department's Internet Web site.

Authority: Section 58012, 25150, Health and Safety Code. Reference: Section 25180, 25187, 25189.2, 25218.8.13 and 25214.8.17 Health and Safety Code.

67388.7 Contractor Compliance Requirements

(a) Any HVAC contractor or Demolition contractor that removes a thermostat from any location shall determine if the thermostat is a mercury-added thermostat.
(b) Notwithstanding any other provision of law, any mercury-added thermostat removed from service in California by a contractor shall be taken to collection location with a collection container operating in accordance with these regulations.
(c) Notwithstanding any other provision of law, any mercury-added thermostat removed from service in California by a Demolition contractor shall be taken to a location that is authorized to collect out-of-service mercury-added thermostats
(c) A licensed HVAC contractor or a Demolition contractor that takes an out-of-service mercury added thermostat to a location with a collection bin and who properly reports in accordance with section 67388.7 shall not be deemed a generator of that thermostat under title 22, division 4.5 of the California Code of Regulations.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.15 and 25214.8.16, Health and Safety Code.

67388.8 Household Compliance Requirements

(a) Any person who maintains a household as defined in section 66273.9 and who removes a mercury added thermostat from that household without the assistance of a licensed contractor is subject to the requirements of section 66273.8.
(b) Any person who maintains a household as defined in section 66273.9 and hires a licensed contractor to remove a mercury added thermostat from that household shall relinquish possession of the thermostat to the contractor for proper handling.
Authority: Section 58012, 25150 and 25154, Health and Safety Code. Reference: Section 25154, 25214.8.15 and 25214.8.16, Health and Safety Code.

§67388.7 9 Reporting Requirements

(a) Thermostat Manufacturer Group Programs: In the annual report submitted to the department, each group of manufacturers operating a program collectively shall include the following information: (1) Household Hazardous Waste Collection Facility, Retailer, HVAC contactor, or HVAC wholesaler name and physical street address.
(2) For the previous calendar year, the date(s) the program received waste shipment(s) of mercury thermostats from the collection points, the collection point name, count of thermostats, count of mercury switches from collection point, number of loose switches, and pounds of mercury.
(3) For the previous calendar year, the number of whole thermostats collected by the name of manufacturer participating in the program.
(4) For the previous calendar year, the number of thermostats collected of indeterminate manufacturer.
(5) For the previous calendar year, the number of loose mercury switches recovered and the conversion factor for determining the number of whole thermostats the loose mercury switches represent.
(b) Thermostat Manufacturer Individual Programs: In the annual report submitted to the department, each manufacturer operating a program individually shall include the following information:
(1) Household Hazardous Waste Collection Facility, Retailer, HVAC contactor, or HVAC wholesaler name and physical street address (e.g. shipping address).
(2) The date(s) the thermostat manufacturer received waste shipment(s) of mercury thermostats from the collection point(s), collection point name, count of thermostats, count of mercury switches from collection point, number of loose switches, and pounds of mercury.
(3) The number of thermostats collected by the name of manufacturer. The number of thermostats collected of indeterminate manufacturer.
(4) The number of loose mercury switches recovered
(c) Thermostat Retailers/Wholesalers Distributing by Mail
(1) In the annual report submitted to the department, each thermostat retailer or wholesaler that distributes new thermostats by mail in the state shall include the following information:(2) The number of requests for pre-paid shipping labels.(3) For the previous calendar year, the number of thermostats collected and when identifiable the brand name of the manufacturer

(d) Contractor Reporting Requirements: Beginning January 1, 2013, each HVAC contractor shall submit, to the department, an annual report for period beginning January 1 and ending December 31 for the previous calendar year. Annual reports shall be submitted in an electronic format provided by the department within 60 days of the end of each reporting period.
(1) Each annual report shall include the following:
(A) The business location and mailing address;
(B) Contractors state license number;
(C) Name, address and telephone number of contact person with knowledge of reported mercury thermostat removals;
(D) The current number of service technicians employed by the contractor;
(E) The number of mercury thermostats removed from service by the contractor name and location of the collection point(s) where mercury thermostats are disposed of.
(2) Notwithstanding the exemption provided for by section 66273.8, a HVAC contractor shall keep a record of annual reports on site for 3 years.
(3) In addition to the reporting requirements in subsection (c), HVAC contractors shall keep written records on site for the following information:
(A) Date and customer location of each mercury thermostat replacement;
(B) Count of mercury thermostat(s) removed from each location;
(C) Location, date, and count of mercury thermostats disposed of at collection location.
Authority: Section 58012 and 25150, Health and Safety Code. Reference: Section 25214.8.13, 25214.8.15, 25214.8.16 and 25214.8.17 Health and Safety Code.

October 2, 2012

Director Debbie Raphael
California Department of Toxic Substances Control
State of California
1001 I Street
Sacramento, CA 95812

Subject: Initial Statement of Reasons for Mercury Thermostat Collection and Performance Requirement

Dear Ms. Raphael:

On behalf of Johnson Controls, Inc., Lennox International Inc., Trane U.S., Inc., and UTC Climate, Controls & Security, we want to thank the California Department of Toxic Substances Control (DTSC) for this opportunity to comment on the Initial Statement of Reasons for Mercury Thermostat Collection and Performance Requirement (ISOR). We appreciate the openness of staff and the Director to discuss the development of the proposed regulation. Although DTSC has been open to our input, serious flaws remain in this proposed regulation. Specifically, the targets outlined in the regulation are not achievable and will put all affected manufacturers in an immediate enforcement context with your department.

As manufacturers of thermostats, we acknowledge that mercury must be handled and disposed of properly. In a proactive response to this risk, thermostat manufacturers took action long before the enactment of AB 2347 (Ruskin, 2008) to collect and properly dispose of mercury-added thermostats by forming the Thermostat Recycling Corporation (TRC). TRC was formed in 1998 with the specific goal of removing all waste mercury-added thermostats in an effective and efficient manner. Thirty-one manufacturers support the TRC, a voluntary, non-profit organization that facilitates and promotes the collection, transport, and recycling of waste mercury-added thermostats.

Background

All states require the handling of waste mercury-added thermostats in accordance with state and federal regulations. Waste mercury-added thermostats are regulated as "universal wastes" in order to streamline their collection and transport. Federal universal waste regulations are set forth in 40 CFR Part 273. States may modify federal regulations and add additional or more restrictive requirements.

Eighteen states currently regulate the sale and/or disposal of mercury-added thermostats. In California, AB 1415 (Pavley, Chapter 578, Statues 2005) banned the sale of mercury-added thermostats in California. Prior to AB 1415, Title 24 regulations began to require "setback thermostats" in 1978, with further definition in 1992, thus significantly limiting the number of mercury-added thermostats in commerce to approximately 5%. TRC has been actively working with contractors and wholesalers since 1998 and currently has over 350 collection sites in the State. TRC assumes all costs to ship and process mercury-added thermostats collected through the program. There are absolutely no fees for contractors or homeowners to discard thermostats in TRC recycling containers.

AB 2347 (Ruskin, Chapter 572, Statutes 2008), mandated a program for the collection by contractors and manufacturers of mercury-added thermostats in California. This bill requires the manufacturers to administer a program that contractors and wholesalers are required to participate in, as prescribed by the promulgated regulations.

Our industry has proactively sought to reduce the number of mercury thermostats entering the waste stream and remains committed to a successful recycling program in California. However, our companies are but one component of a thermostat's life cycle and when forced to meet the Department's unachievable goals, we immediately find ourselves in an enforcement context with the DTSC. For the reasons below, we believe the proposed regulations are unachievable and will put all affected manufacturers in an immediate enforcement context with DTSC:

Lack of HVAC or Demolition Contractor Participation

The critical point at which a thermostat is either directed toward appropriate recycling or the waste stream is when either the HVAC or demolition contractor comes in contact with the device during construction, service and/or replacement. If contractors are not mandated to participate in the collection and recycling of mercury thermostats there is no assurance they will comply within the required constructs of the program.

For this program to be successful, contractors must be mandated to participate.

The ISOR states that:

> The current proposed regulations are part of California's first full "extended producer responsibility" (EPR) law. The premise of EPR is that a person

> who manufactures and/**or puts a product into commerce** that poses waste management challenges at end-of-life (often because it contains components or ingredients that render it a hazardous waste) should take responsibility for its safe recycling or disposal.

It is our assertion that all parties included in the supply chain share responsibility in this definition. Manufacturers, distributors, retailers and contractors are equally accountable for the installation, function, and waste of thermostats, however, contractors and wholesalers are largely precluded from the regulations. While the argument has been made that many of these are small businesses, HVAC contractors must currently comply with other regulations requiring collection and reporting of refrigerants. Given that these contractors must already comply with certain collection requirements, we do not believe that this minor responsibility to collect and document a hazardous waste is an undue burden.

Also of note are the comments from California Association of Sheet Metal and Air Conditioning Contractors' National Association (CAL SMACNA), California Legislative Conference of the Plumbing, Heating and Piping Industry (CLC), and Air Conditioning Sheet Metal Association (ACSMA) that state:

> Thermostats containing mercury are collected by the HVAC workers from the customer's structure. The device is brought back to the small business. The mercury switch is removed from the thermostat. The switches are then placed into a non-breakable jar that provides containment for the mercury. When these jars are full they are physically taken to an approved collection site for mercury.

These collected thermostats are not recognized by this regulation and are not counted towards the performance requirements. With this being the stated common practice, it begs the question why the metrics provided in the CalRecycle 303a and CalRecycle 303b data are not allocated towards the annual performance requirements or even acknowledged in this regulation. Mercury-added thermostats handled in the manner described above are manifested and should be included in DTSC's evaluation of recycling performance. Even DTSC's Office of Criminal Investigation stated, in a May 31, 2011 letter, that:

> "Eventually, the government and private landfills need to be contacted to determine thermostat collection rates at these facilities. Create a waste code for mercury thermostats in order to track via manifests."

It is unreasonable to expect the objectives of an extended producer recycling program will be achieved without including thermostats collected outside of the TRC. It is not reasonable or equitable to expect manufacturers to be solely responsible for all collections when DTSC, CalRecycle, and others agree that thermostats are present in the universal waste and household hazardous waste streams. DTSC and proponents may argue that the collection of thermostats through other programs is accounted for by only requiring a 75%

collection rate. However, we believe this 25% gap will be filled by those who are not licensed contractors, handymen, and Do-It-Yourself homeowners.

Collection Rates are Unrealistic

This regulation lacks achievable recovery goals when compared to other recycling and collection programs. Furthermore, it lacks the necessary shared responsibility throughout the supply chain and forces manufacturers into an enforcement context within the first year of implementation.

We have performed a cursory review of other recycling programs and that review demonstrates that the collection rates in this proposed regulation are impossible to achieve. This program mandates that manufacturers collect 30% of the known thermostats by 2013, 45% by 2014, 55% by 2015, 65% by 2016, and 75% by 2017 and every year thereafter. DTSC states on page 3 of the ISOR:

> "The proposed regulations establish a reasonable methodology for determining the number of out-of-service mercury-added thermostats becoming waste annually and establish ambitious but achievable collection rate goals for the former manufacturers of mercury thermostats. Thermostat Recycling Corporation (TRC) collected 19,927 mercury thermostats in 2011, containing a total of 254.84 pounds of mercury. The 2013 collection rate goal established by these regulations, 30 percent, represents 73,888 thermostats—3.7 times the number collected in 2011. Assuming the quantity of mercury per thermostat remains consistent, the thermostats required to be collected in 2013 will contain nearly 945 pounds of mercury—690 pounds more mercury than was collected in 2011."

The matrix enclosed in this letter describes other programs that have either a low collection rate or took many years to reach a high level of collection (75%). Beverage containers are one of the only recycling programs to achieve those rates and it took over two-decades. With the proposed regulations, DTSC requires manufacturers to achieve similar results in just 5 years. Other programs like electronic waste, car tires, and others, do not include denominators and thus lack the hard performance requirements found in the mercury-added thermostats program. All of those other programs have the benefit of significant infrastructure and/or a more cohesive supply chain that contributed significantly to reaching their collection goals. In contrast, this proposed program has a critical link in the chain broken by the absence of contractors. Furthermore, the proposed program disregards existing mercury thermostat recycling streams and mandates an impossibly short time frame to reach the required recycling rates. The proposed also overlooks the declining presence of mercury thermostats in California since 1978, 1992, and 2006 as well as a lack of public awareness for existing mercury thermostats.

Destined to Fail

Our industry was closely involved in the negotiations for the enabling legislation, AB 2347. We have a vested interest in this program and we are eager to see it succeed. Many of the key players in the industry formed the Thermostat Recycling Corporation in 1998, long before this bill, demonstrating their commitment to the recycling of mercury-added thermostats. However, the impractical requirements of this regulation cannot be met and they will force an adversarial relationship between industry and the DTSC within the first year of the term of the regulations. This is poor public policy and it ultimately undermines the objectives California originally set out to achieve and that is the reduction of mercury thermostats entering our waste streams.

Solution

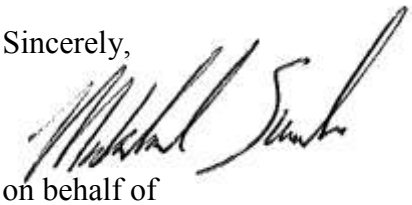
Given that the primary concern is our ability to achieve DTSC's proposed collection rates, we urge DTSC to work with CalRecycle and the State Auditor to complete a performance audit that would identify and evaluate current mercury collections through the universal hazardous waste program.

Mercury thermostats enter the universal hazardous waste stream are not accounted for in the DTSC thermostat regulations. Additionally, the data collected on universal hazardous waste is variable and a performance audit by the State Auditor or other government audit agency could provide recommendations to enhance data collection and provide reliable numbers that could be referenced in the ISOR and included in the proposed performance requirements. This information could then be used to help DTSC determine more realistic goals for this program. Without accounting for thermostats recovered from the universal waste stream, this program will not be able to clearly articulate success and manufacturers will be further exposed to unnecessary enforcement action.

DTSC should also create a more intrinsic connection between contractors, wholesalers, and manufacturers with shared responsibility throughout the chain-of-custody. While DTSC and AB 2347 lay out justification for an Enhance Producer Responsibility for recovery of mercury-added thermostats, the goals set forth are unattainable without clear requirements and responsibilities for contractors and wholesalers.

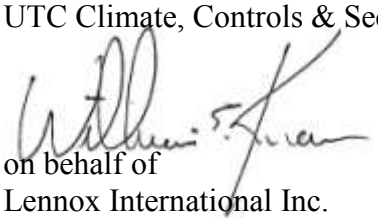
Johnson Controls, Inc., Lennox International Inc., Trane U.S., Inc., and UTC Climate & Controls, and Security, would like to thank DTSC for considering its comments on the revisions to formal draft regulations for Mercury Thermostat Collection and Performance Requirements. We look forward to additional changes in the draft regulation in the near future. We also look forward to playing a constructive role in the development and implementation of the Mercury Thermostat Collection and Performance Requirements.

Sincerely,



on behalf of
UTC Climate, Controls & Security

on behalf of
Johnson Controls, Inc.



on behalf of
Lennox International Inc.

on behalf of
Trane U.S., Inc.

Enclosure

cc: Matthew Rodriguez, Secretary, California Environmental Protection Agency
Odette Madriago, Chief Deputy Director, DTSC
Krysia Von Burg, Regulations Coordinator, DTSC

Attachment: Recycling 101

PRODUCT	RESPONSIBILITY	ESTABLISHED	AVERAGE IN MARKET	AVERANGE RATE OF RETURN	GOALS and/or PERFORMANCE REQUIREMENTS
Mercury Thermostat Recycling (DTSC and Thermostat Recycling Corp.) (California)	Manufacturer	2012	5-10 million	19,927 (2011)	65,000(30%) in 2013; Will increase by 15% each year for the next 5 years until 2017. Goal will be 75% or 147,000 by 2017
Beverage Container (CalRecycle) (California)	Consumer	1986	20,419,471,508 (2011)	82% (2011) [75% in 2008]	80% (goal)
E-Waste (US EPA) (Federal)	Consumer	2003 (CA)	Computers: 47.4 M TV's: 27.2 M Mobile devices: 141 M units (2009)	Computers: 38% TV's: 17% Mobile devices: 8% (% by weight)	No.
Tires (CalRecycle) (California)	Consumer	1989	41.1 M (2010)	33.2 M or 81% (2010)	No. (eventual goal of 100%)
Paper (AF&PA)	Consumer	1989	2.56 M tons (August 2011)	66.8% (2011)	70% by 2020

National Electrical Manufacturers Association

Representing Electrical and Medical
Imaging Equipment Manufacturers
www.nema.org

October 2, 2012

Krysia Von Burg, Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

SENT VIA EMAIL TO: regs@dtsc.ca.gov

RE: NEMA Comments on Proposed Regulations: DIVISION 4.5, TITLE 22, CALIFORNIA CODE OF REGULATIONS - CHAPTER 24. MERCURY THERMOSTAT COLLECTION AND PERFORMANCE REQUIREMENTS: Department Reference Number: R-2010-03

Dear Ms. Von Burg:

The National Electrical Manufacturers Association (NEMA) is the primary trade association representing the interests of the US electrical products industry. Our 400 member companies manufacture products, including thermostats, used in the generation, transmission, distribution, control, and end-use of electricity, constituting the very foundation of the worldwide infrastructure for supplying electrical power.

In 1998, three NEMA member companies – Honeywell, White-Rodgers, and GE – launched the Thermostat Recycling Corporation (TRC), a non-profit enterprise designed to facilitate recycling of mercury-added thermostats. The TRC now has more than 30 corporate members and is the only national program of its kind in the US (see www.thermostat-recycle.org). The TRC program has recycled more than 1.5 million mercury thermostats nationwide since its inception, thereby diverting nearly 7 tons of mercury from the solid waste stream.

NEMA appreciates the opportunity to comment on the proposed regulations referenced above. Our membership supports product stewardship and the formation of the TRC long before any legislative mandates concerning mercury thermostats were enacted testifies to that commitment. In general, NEMA supports state legislation that ***complements and strengthens*** our industry's proactive efforts to recycle thermostats over the past 15 years. We were therefore hopeful that the mandatory framework established by the Mercury Thermostat Collection Act of 2008 (AB 2347, Ruskin), would serve a sound basis for growing the program in California through collaborative efforts by manufacturers, state authorities, and other stakeholders, particularly the waste generators in the supply channel and other channel participants who provide collection points.

Regrettably, however, DTSC's proposed rule does not serve as a roadmap for a successful program. It is punitive more than supportive of the existing program, relies on flawed assumptions and limited understanding of thermostat installation and disposal channels, and sets a disturbing precedent for other product stewardship programs. We are particularly disappointed by DTSC's apparent decision to not propose collection rates that are capable of being carried out successfully.

NEMA's specific comments are as follows.

1. Determination of Thermostats Becoming Waste and Industry Performance Standards: §66274.4 - §66274.5

NEMA's principal concern lies with the overly ambitious Performance Standards manufacturers would be obligated to attain under the regulation, under threat of enforcement measures. These standards are problematic for the following reasons.

- **The proposed annual increases in the percentage collection rates have no precedent or historical basis in recycling programs and they are arbitrary.**

  Section 66274.5 proposes a rapidly rising collection scenario over a very short period of time: a 30% collection rate in 2013, rising to 45% in 2014, and then further increments of 10% per year to 55% (2015), 65% (2016) and 75% (2017-2022). In aggregate units, collections of used mercury thermostats would increase from a base of about 20,000 in 2012 to 65,100 in 2013, then by an additional 30,000 to 95,000 in 2014 and another 20,000 units to 113,850 units in 2015. This represents an overall increase of nearly 100,000 units over a three year period. There is no precedent for anticipating that kind of behavior, and we note that compliance is in the control of waste generators who are not otherwise regulated except by a requirement to dispose of thermostats properly. As far as NEMA can tell, these incremental, rapidly rising percentages over a short period of time have been pulled out of the air. They are not feasible.

  Reams of data and articles reveal that improvements in recycling behavior generally do not take place in large, annual, stepwise jumps over a handful of years such as those proposed by DTSC in Section 66274.5, and there is absolutely no precedent in experience for expecting that kind of growth. Improvements in recycling behavior occur gradually over a lengthy period of time.[1] We do know that appropriate incentives and facilitators can influence recycling behavior, and that legislation and regulation (if adequately enforced) can help motivate proper behavior by waste generators. But nothing in the documented performance of recycling programs generally, in California or any other state or in TRC's program, provides a basis for believing that the rapid incremental increases over a very short period of time, as proposed by DTSC (shown in the table below for 2013 through 2017) are capable of being achieved successfully.

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[1] For example, it took 20 years for newsprint recycling to go from 35% to 73%. http://www.conservatree.org/paper/PaperTypes/newsoverview.shtml. It took 33 years for the number of aluminum cans recycled to double from 27% to 54%. http://www.aluminum.org/Content/NavigationMenu/NewsStatistics/StatisticsReports/FactsAtAGlance/factsataglance.pdf. Glass bottle recycling has only reached about 25% after many years of recycling. http://earth911.com/news/2009/06/22/truth-about-glass-recycling/. National plastic bottle recycling rate has remained steady at about 27% (2008) for a number of years, despite growing in volume each year, http://earth911.com/recycling/plastic/plastic-bottle-recycling-facts/ and increasing 0.8% from 2008 – 2009 to 27.8%. http://www.plasticsrecycling.org/news/news-archives/58-press-release/106-2009-us-national-post-consumer-plastic-bottle-recycling-report. While California has apparently experienced recycling rates for consumer household disposables well above national figures because of its laws and long-term programs, the point is true for California as well: annual growth is gradual and occurs in small increments over a very long period of time. http://www.calrecycle.ca.gov/bevcontainer/Rates/BiannualRpt/12MonPeriod.htm

Year	T-Stats Collected/Projected[2]	Tstats Per 100,000	Annual % Growth
2008	7007	19	13%
2009[3]	7542	20	22%
2010	13,340	35	77%
2011	18,687	50	40%
2012 (P)[4]	20,000	54	8%
2013 (P)	65,000	173	220%
2014 (P)	95,400	253	46%
2015 (P)	113,850	302	19%
2016 (P)	131,300	348	15%
2017 (P)	147,750	392	12%
2018 (P)	144,750	384	-2%
2019 (P)	140,250	370	-3%
2020 (P)	135,750	360	-3%
2021(P)	130,500	346	-4%
2022(P)	126,000	334	-3%

NEMA's experience in evaluating recycling behavior --- drawn from thermostat and battery and lamp programs ---- has shown there is typically a first-year "boost" effect following a legal mandate that waste generators recycle a particular product. Recycling tends to jump because there is a desire among many regulated parties to comply with the law. Improvement also occurs when recycling is made more convenient because the waste generators have access to recycling and the waste generators' time cost of recycling has been substantially reduced. Curbside collection and single stream recycling have greatly incentivized and facilitated household recycling of certain consumer materials, for example, but these strategies are not applicable to mercury-containing products. TRC's collection data from California and other states shows that triple digit and even high double digit growth occurs *only* in the earliest years of a program and/or where the thermostat collections show very low numbers: e.g., increasing thermostat collections by 600 from 300 to 900 in 1-year is a 200% increase; increasing thermostat collections by 600 from 13,200 to 13,800 in 1-year is a 4.5% increase. Furthermore, a "recycling rate" can jump up even though the number of collections of used product is stable (slightly up, slightly down, same), but the denominator represented by new material coming into the waste stream falls more significantly. This has certainly been the case in recent years in the case of newsprint and aluminum cans.[5]

What DTSC fails to account for is that the kinds of incentives and facilitators that prompt higher annual growth rates for thermostats have already been introduced in California for some time. TRC's program in California began in 2002 and grew modestly at first. The statute

[2] Counts of whole mercury-added thermostats—does not include mercury thermostat equivalents derived from loose mercury switches recovered by the program.

[3] California's mandatory thermostat collection law became effective July 2009

[4] (P) indicates projected. Data for 2008-2009 provided by TRC; the projection for 2012 is an estimate provided to NEMA from TRC based on collections to date; for 2013 and thereafter it is what is statutorily deemed "feasible" by Section 66274.5 of the proposed regulation.

[5] http://www.aluminum.org/Content/NavigationMenu/NewsStatistics/StatisticsReports/UsedBeverageCanRecyclingRate/UBCRecyclingRate.pdf

that required contractors to begin recycling used mercury thermostats in 2009, and the distribution of wholesale collection points has been increasing since the law was enacted to the point where most of the early "access" gains have been achieved. DTSC cannot expect that these important stimulants of additional recycling of thermostats are going to have a big bang in 2013 and thereafter. California is now beyond baseline collections in very low numbers. The bang derived from the enactment of the law and its initial implementation has already occurred, and future improvements are going to be gradual at much lower percentages.

This fact is borne out by Thermostat Recycling Corporation's data from other states where mandatory recycling has been enacted, including those with financial incentives, which have not had significant impact on recycling of thermostats.[6] The more reasonable conclusion from the data is that California may see some increase in thermostat recycling in the next few years, but it will be relatively flat, slow growth. This is what is likely, reasonable to expect, and capable of being dealt with successfully .

Manufacturers have found that other policies not directly tied to recycling can have a temporary impact on the amount of thermostats recycled. The TRC has reported the experience of Maryland, where a substantial, but temporary increase in mercury thermostat collections occurred because of a state public policy initiative aimed at improving utilities' demand-response capabilities. The program led to the removal and replacement of older, mercury switch thermostats with programmable models earlier than would have occurred in the absence of the Maryland demand-response program.[7] There is no expectation at this time that California will adopt a similar program, which is the kind of event that might drive a sudden, albeit temporary jump in the recovery of used thermostats. That being the case, there is no basis for anticipating the rapidly rising collection scenario described in Section 66274.5.

NEMA also knows from lamp recycling that general economic conditions can cause the amount of recycling to decline significantly in a given year. We successfully demonstrated this phenomenon in Massachusetts for the recent years in which residential and commercial construction fell precipitously nationwide, leading to a wide divergence between what was projected to occur based on averages and what in reality occurred because of economic conditions. The DTSC has evidently made no allowance for the possibility of an impact of external economic conditions on its proposed collection targets, and this factor is just another reason that speaks to the wisdom of anticipating slower, gradual growth over time.

With respect to lamp recycling, NEMA regularly confers with the Association of Lighting and Mercury Recyclers (ALMR, see www.ALMR.org) concerning factors that influence lamp recycling behavior --- in ALMR's experience, a key element, in addition to mandating recycling by waste generators, is law enforcement. This is relevant to thermostats because, like thermostats,[8] the commercial/industrial sector is the largest generator of waste fluorescent lamps and that is where lamp recycling companies obtain the largest volume of waste lamps. ALMR members have advised NEMA about the initial positive impact a mandatory recycling

[6] Thermostat Recycling Corporation's comments in this rulemaking on the effectiveness of financial incentives to contractors shows that they are not effective in significantly inducing additional collections of mercury thermostats. NEMA incorporates those comments by reference.

[7] *See* Thermostat Recycling Corporation's more detailed explanation of this Maryland program in their comments in this rulemaking. NEMA incorporates them by reference in these comments.

[8] In the case of thermostats, commercial contractors/technicians and property managers are the principal generators of waste units and thus constitute the primary target group for collection by wholesale distributors.

law typically has on those who want to comply with the law. But they primarily stress the importance of enforcement and note the significant increase in recycling observed in the commercial sector after the US Environmental Protection Agency brought two well-publicized enforcement actions.[9] NEMA contends that enforcement of thermostat waste disposal laws in California would have a similar impact on recovery of used thermostats, but our experience is that States are reluctant to enforce these laws given limited budgets and resources.

- **The empirical evidence underlying the baseline estimate of the number of thermostats available for collection is insufficient**.

  DTSC's methodology for determining how many thermostats are expected to become waste in forthcoming years is founded on one independent, non-peer reviewed study.[10] This analysis (the SERA study), represents the only existing effort in California to determine a value that is continually changing and impossible to quantify with any reasonable degree of certainty. The study has not been replicated and more than anything illustrates the futility of seeking precision where it cannot be found. Specific problems with the SERA study are presented below.

  a) <u>"Self-assessments" are inherently unreliable</u>

  The SERA study employed a web-based survey to query a sample of California residences and businesses on the presence, quantity, and type of thermostats in the building, the age of the building and the year thermostats were installed, remodeling history, type of heating fuel used, as well as demographic and "firmographic" factors. These data were used to estimate the "*annual flow of thermostats into the market*," a key parameter for the sake of setting performance rates. The SERA study acknowledged that it could "not accurately project the share of these total thermostats that are mercury-containing."

  As SERA concedes in a footnote: " . . *the data used for this analysis is necessarily imperfect. It is based on* ***recall of current occupants****, some of whom have been in the location a long time, and some were newer"* (emphasis added).[11] While the data are somewhat consistent with state energy program data bases, the study's findings rest entirely on the ability of mostly untrained, non-technical homeowners to make the critical distinction between mercury and non-mercury thermostats. The latter category often includes mechanical, non-programmable thermostats that are very difficult to differentiate from mercury switch units, as shown in the photograph below.

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[9] http://yosemite.epa.gov/opa/admpress.nsf/dc57b08b5acd42bc852573c90044a9c4/7d2ea808b4ed975c852574b20059b774!OpenDocument ; http://lamprecycling.veoliaes.com/July2009/6

[10] "A Study to Meet Requirements for State of California Thermostat Recycling Legislation-Mercury-Containing Thermostats: Estimating Inventory and Flow from Existing Residential & Commercial Buildings," prepared for the Thermostat Recycling Corporation by Lisa A. Skumatz, Ph.D., Skumatz Economic Research Associates, Inc. (SERA), December 2009 (hereinafter "SERA Study").

[11] *ibid, pg 18*

The picture on the right shows both a mercury (Meridian) and non-mercury (Miller) thermostat. Without removing the covers, which respondents were not asked to do, it is easy to see how identification errors could occur.

b) <u>The study findings were not sufficiently validated</u>

Responses to the SERA survey on critical issues such as "*How many of each type (of thermostat) have been removed" from the building,"* plus estimations on when they were installed or removed undoubtedly relied on speculation in many cases more than actual records. SERA, at the last minute at the request of DTSC, attempted to verify the integrity of the responses through field validation exercises, but they were admittedly "small scale" – constituting only 30 site visits restricted geographically to "the Bay Area." A second "camera validation" study was conducted as well, but had not been completed at the time the study was released.

NEMA contends that the very small sample used for the validation study, coupled with the fact it was limited to a few, relatively homogeneous counties in Northern California, is an insufficient basis to conclude with respect to everyone who responded to initial survey that the "*self-reports were correct in the majority of cases."* California is the largest, most diverse and most populous state in the continental US. It is not possible to affirm the findings of a statewide analysis through such a limited follow-up in a limited geographic area of the State.

The fact that the validation efforts, minimal as they were, uncovered errors in the self-reported survey values further underscores the need for more extensive verification measures.[12] Until those measures are implemented, NEMA strongly recommends against using the data collected by SERA as the basis for regulatory performance standards, particularly if they are inordinately high and enforceable against the regulated parties.

c) <u>The SERA methodology cannot account sufficiently for changing market factors</u>

SERA's analysis is an estimation procedure based on a sample – it is not a census designed to produce an actual count of thermostats in place or entering the waste stream. The findings are therefore an estimated "snapshot" of a situation that is constantly changing and affected by numerous factors that the study does not address.

There is no allowance in the "estimated annual flow" figures, for example, for the potential impact of economic downturns.[13] Sales of new heating systems and upgrades to programmable thermostats will decline in a recession, which in turn will lead to fewer older units entering the waste stream. Market conditions as severe as the recession of 2008-

[12] *Ibid,* pg 15
[13] *Ibid,* footnote, pg 20

2009, in the midst of which U.S.GDP fell by nearly 9%,[14] will greatly depress home improvement and commercial upgrade activities that result in thermostat replacements.

The principal outcome of the SERA study is paired, high-low estimates of the anticipated annual flow of mercury thermostats into the waste stream over a 25-year time horizon. Even without accounting for economic conditions, the high and low figures vary each year by more than 100%.

NEMA respectfully contends that the SERA study alone does not constitute a sufficient scientific basis for setting performance standards in a state regulation.

d) The SERA Report says nothing about the arbitrary collection rates proposed by DTSC.

The SERA report was solely designed to provide a methodology for estimating the flow of waste thermostats in California, and contains no information that DTSC can rely upon for the arbitrary, rapidly rising collection rates over a short period of time, which it has proposed in its regulation.

- **California's thermostat collection program has performed well to date**

California's thermostat collection program has been successful in comparison with other mandatory state programs. According to the TRC's 2011-2012 Progress Report, California's 4 year growth in the program's Mercury Recovery Index[15] of 206% is 3rd highest among states with mandatory programs, far exceeding those of Maine (25%) and Vermont (128%), which are often portrayed as model state programs because they feature "bounty" payments to HVAC contractors.[16]

California's success is also apparent when measured by the rate of growth of thermostats collected per 100,000 residents. The contention that the number of mercury thermostats collected per 100,000 population is higher in a couple of states such as Maine and Vermont than the collections proposed by DTSC for California is true, but it is readily explained by factors that are not applicable to California. In fact, the baseline number of mercury thermostats per portion of the population ***should be expected*** to be much higher in these two states than in California for a variety of reasons.

Oil heating systems, for instance, are widespread in New England states yet almost nonexistent in California, and fuel oil systems are far more likely to be controlled by mechanical, mercury switch thermostats. Homes in northern New England do not use air conditioning units, and electronic thermostats are more common when air conditioning is available, as in California. In addition, California's early transition to electronic programmable thermostats was greatly accelerated by the California Building Standards Code (Title 24), which has no counterpart in Maine or Vermont.[17] Installations of mercury switch thermostats in new construction in California virtually ceased in the early 1990s.

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[14] See http://www.tradingeconomics.com/united-states/gdp-growth

[15] The Mercury Recovery Index tracks the growth in the quantity of mercury recovered through the TRC measured against a base year quantity.

[16] Keeping Mercury out of the Waste Stream – One Thermostat at a Time: 2011-2012 Progress Report, the Thermostat Recycling Corporation, pg. 13. Available at http://www.thermostat-recycle.org/files/media/20120808125856.pdf.

[17] Peffer et al, *How people use thermostats in homes: A review*. 46 Building and Environment 2529, 2533 (2011)(showing that California has 33% more homes than national average *without thermostats*, and of homes with thermostats California

Due to these and many other factors, it is not surprising that the number of mercury thermostats collected per 100,000 residents is higher in two northern New England states than in California. This baseline difference will be reflected in collections data in a given year. Comparisons of state programs that fail to take these key factors into account are therefore misleading.

DTSC has undertaken no analysis to determine whether its comparison to Maine or Vermont is justifiable or not. This requires a thorough examination of whether the conditions being measured are comparable and, if they differ, determining what adjustments to the measurement are therefore appropriate based on the magnitude of the differences. DTSC is apparently satisfied, without any analysis whatsoever, that its proposed measurement for thermostat collections is a "modest" discount[18] compared to Maine or Vermont, but the factors differentiating Maine and Vermont from California cited above are so great and so significant they plainly warrant a much more significant discount in the case of mercury thermostats in California.[19]

DTSC's effort to justify its proposed percent collections based on collection data from Vermont, Maine, and Maryland constitutes a "*foundation of a rule that [is] premised upon, or derived from, empirical data or other scientific findings, conclusions, or assumptions establishing a regulatory level, standard, or other requirement for the protection of public health or the environment."* That being true, there is a legal requirement that the comparison be subject to peer review under California Health & Safety Code §57004, and DTSC has provided for nothing to be peer reviewed on this subject.

This is important for the following reason. DTSC has selected a baseline of the purported number of thermostats becoming waste each year from the SERA Report, which has its limitations as noted above. DTSC then applied arbitrary, rapidly rising percentage collection rates to this number, which we have explained have no historical precedent. This led to the mandated number of mercury thermostats to be collected between 2013 and 2022. As apparent justification for applying arbitrary collection rates to a baseline that may not be accurate, DTSC purports to standardize the number of thermostats to be collected in terms of thermostats collected per 100,000 residents. This metric is then employed as the basis for comparing the proposed rates to performance of programs in three states without any consideration whatsoever to the differences or similarities between those jurisdictions and how to measure the impact of those differences. As noted above, those differences are very, very substantial. This exercise is a house of cards.

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was 50% higher than national average in use of programmable thermostats that do not contain mercury. "The percentage of houses in California without thermostats differs from the national percentage due to milder weather, whereas the increased number of programmable thermostats in California versus nationwide is likely attributed to the last 30 years of energy code requiring setback or programmable thermostat. Of those that used central air conditioning in California, 68% had programmable thermostats; this most likely reflects the fact that homes built in the last 30 years were more likely to have central air conditioning.").

[18] DTSC, Initial Statement of Reasons at 11 (DTSC Control Ref. No. R-2010-3).

[19] NEMA has received a copy of the comments that Thermostat Recycling Corporation is submitting in this rulemaking, and we note that TRC has made some additional factual points about the differences between Vermont and Maine, on the one hand, and California. NEMA incorporates by reference TRC's comments on this subject, which are supportive of NEMA's point. Similarly, we have already noted above that the other state cited by DTSC at footnote 10 of its Initial Statement of Reasons on this point --- Maryland --- had a unique circumstance that drove substantial thermostat collections that would not have ordinarily occurred but for the event that was described earlier. There is no expectation that this will occur in California at this time. NEMA incorporates TRC's comments and data on Maryland as well.

- **The exorbitant performance standards included in the regulation as performance requirements rest on flawed assumptions of compliance behavior**

  To stay in compliance with the proposed regulation, manufacturers would need to increase thermostat collections by an estimated 220% in 2013 (based on TRC's anticipated collections in 2012), followed by 46% the second year, ultimately reaching an aggregate increase of ***2000%*** in five years. These collection rates result from the "house of cards" calculation described earlier, which all experience suggests will put force manufacturers into default instantly.

  In this regulation, DTSC clearly does not propose a systems approach to achieving its public policy objective.[20] The underlying statute, however, clearly outlined the actors in the waste thermostat collection *system* who are critical to its successful implementation insofar as it recognizes that

  (a) waste generators (*i.e.,* installers, technicians, contractors) are legally responsible for taking the used thermostat out of service and ensuring that it placed in the alternative waste stream,

  (b) wholesalers provide the collection point for waste generators to bring the used thermostat, thereby serving as "convenience facilitator" and ensuring access by generators, and

  (c) manufacturers must sponsor the program, generating awareness and minimizing economic costs to the generator.

  The aggressive thermostat collection rates proposed in the rule presupposes that there will be ***substantial compliance*** by the other actors in the waste collection system, outside of the control of manufacturers, in fulfilling their responsibilities under the statute.

  The regulation fails critically in this respect, however, by not assigning any channel participant accountability prior to the manufacturer sponsored program receiving the waste thermostats. Without regulatory accountability and enforcement for the other channel participants, the collection system is not optimally designed to achieve collection rates, whether the unattainable rates proposed by DTSC, or even more modest rates. It is logically inconsistent with the statute that clearly acknowledges that parties at each stage of the process have important responsibilities that DTSC would do nothing to ensure that those other parties are accountable, particularly where those other parties are going to be more influential than the manufacturers in influencing behavior.

  In setting collection rates, DTSC failed to incorporate incentives and facilitators contained in the underlying statute, thereby placing very real limitations on the feasibility of the proposed rates. The rule places no requirements on employers of contractors, technicians, and installers of HVAC equipment to educate their employees or stress that their employment depends on compliance with the law. There is no indication that the state plans to bring enforcement actions against contractor/technicians who fail to return mercury thermostats to a wholesaler with a collection bin. Absent a system of shared responsibility, for all in the supply

[20] DTSC, Initial Statement of Reasons at 8 (DTSC Control Ref. No. R-2010-3).

chain as well as public authorities, the overall structure of the incentives and facilitators for thermostat recycling in California is simply not conducive to anything approaching the kind of arbitrary collection rates proposed by DTSC.

NEMA therefore urges DTSC to revise the collection rates downward to levels that are capable of being successfully achieved for the following reasons:

- The rapidly rising collection rates over a short period of time reflected in the proposed regulation are contradicted by all data --- from recycling programs generally in California, in other states, and TRC's mercury-thermostat program. They don't reflect the gradual nature of changing waste generator behavior that has been documented with all other recycling programs. They don't reflect the fact that this is not the first year of implementation of the Mercury Thermostat Collection Act of 2008, but it is already the 4th year and 2013 will be the 5th year. The incremental percentage gains that tend to ensue after a legislative mandate or when collection numbers are low have already occurred.

- DTSC cannot expect to see anywhere near the recovery of thermostats per hundred thousand population in States where mercury thermostats are far more prevalent than in California or where a special policy temporarily inflated the removal and collection of mercury thermostats. If DTSC continues to make that justification, DTSC will need to undertake an extensive peer-reviewed analysis of the differences with other states and quantitatively substantiate how those differences relate to what is feasible in California.

- DTSC must acknowledge the fact that its proposed rule does not optimize the collection of mercury thermostats from waste generators who are responsible for recycling, because DTSC has not incorporated regulatory accountability or contractor/technician/employer education into all the key points in the collection system, and has not included shared responsibility into the overall system so that more logical, reasonable collection rates can be able be attained successfully.

- DTSC must acknowledge that the SERA Report contains only limited verification of its statistical analysis --- limited in number of persons contacted and limited to a homogenous geographic area that does not reflect the diversity of California, and what little verification was accomplished in a short period of time suggests the number of thermostats becoming waste may be lower than what the statistical analysis would suggest.

2. DTSC's projection of benefits from this rule is overstated and has no empirical support.

In accordance with California Government Code section 11346.3(b), DTSC presented a description of anticipated benefits to accrue from promulgation of the proposed regulation.[21] The department references OEHHA's inventory of fish consumption advisories for CA waterways due to potential mercury contamination as the basis for benefits of this rule. But they offer no evidence whatsoever that would connect the prevalence of CA waterway advisories to recycling higher numbers of mercury thermostats. The relationship is simply implied – *i.e.,* exposure to mercury in

[21] INITIAL STATEMENT OF REASONS, Mercury Thermostat Collection and Performance Requirement Department of Toxic Substances Control; Reference Number: R-2010-3, Office of Administrative Law Notice File Number: Z-2012-0807-05, pg 3-4

the environment is potentially harmful; thermostats contain mercury, therefore recovering more thermostats from the waste stream will necessarily reduce harm to the population.

In fact, thermostats are undoubtedly far down the list of factors that could affect blood mercury levels in CA residents due to fish consumption. OEHHA's web site notes that

> *"Mercury, a metal, is **widely found in nature** in rock and soil, and is washed into surface waters during storms. Mercury evaporates from rock, soil, and water into the air, and then falls back to the earth in rain, often far from where it started. Human activities redistribute mercury and can increase its concentration in the aquatic environment. **The coastal mountains in northern California are naturally rich in mercury in the form of cinnabar ore, which was processed to produce quicksilver, a liquid form of inorganic mercury. This mercury was taken to the Sierra Nevada, Klamath mountains, and other regions, where it was used in gold mining. Historic mining operations and the remaining tailings from abandoned mercury and gold mines have contributed to the release of large amounts of mercury into California's surface waters.** Mercury can also be released into the environment from industrial sources, including the burning of fossil fuels and solid wastes, and disposal of mercury-containing products."* (emphasis added)

The extensive and long-lasting wildfires of recent years are clearly another significant source of mercury in the environment in California. Wildfires release mercury contained in soil and plant matter, where it accumulates as a result of natural and industrial processes worldwide, the latter primarily being coal-fired utility plants. An average of 3.4 tons of mercury was estimated to be released in CA each year by vast wildfires between 2002 and 2006, more than any other state except Alaska.[22] In addition to domestic California sources of mercury, there are also international sources.[23]

OEHHA also admits on its website that mercury poisoning from fish consumption is virtually nonexistent in California.

> *"No case of mercury poisoning has been reported from eating California sport fish. The levels of mercury in California fish are much lower than those that occurred during the Japanese outbreak. Therefore, overt poisoning resulting from sport fish consumption in California would not be expected. At the levels of mercury found in California fish, symptoms associated with methylmercury are unlikely unless someone eats much more than what is recommended or is particularly sensitive. The fish consumption guidelines are designed to protect against subtle effects that would be difficult to detect but could still occur following unrestricted consumption of California sport fish. This is especially true in the case of fetuses and children."*

NEMA concurs that mercury-containing products should be handled appropriately at end of life, which is why three NEMA member companies voluntarily instituted the TRC in 1998 and now operate it nationally. Proper handling and disposal can in fact prevent mercury in the products from ultimately being released to the environment in some form, fashion, and time frame. So while there are some benefits and substantial costs from recycling mercury thermostats, the benefits are **not** the benefits cited by DTSC.

DTSC presents no model of how and where mercury emanating from thermostats disperses, accumulates in the California environment, and ultimately contributes to fish consumption advisories or elevated mercury blood levels in Californians. Thus there is no basis for demonstrating that collecting more thermostats will somehow reverse these phenomena.

There are, in other words***, no measurable benefits*** associated with this rule to offset the considerable cost to NEMA members and other companies that once supplied thermostats to the market. The Department has produced no quantitative statement of benefits aside from estimated

[22] http://www.nsf.gov/news/news_summ.jsp?cntn_id=110320

[23] http://www.nytimes.com/2006/06/11/business/worldbusiness/11chinacoal.html?pagewanted=all&_r=0

quantity of mercury that *could be* diverted from the state's waste stream if the rule is adopted and the program succeeds in capturing the full quantity of mercury thermostats that DTSC estimates are still in use. The question of how and to what extent this diversion will manifest in terms of health and environmental impacts is not addressed. DTSC has therefore not satisfied its obligation under California Government Code Section 11346.3(b) to assess "*the benefits of the regulation to the health and welfare of California residents, worker safety, and the state's environment."*

3. DTSC has underestimated compliance costs associated with the proposed rule

DTSC conducted an economic impact assessment of this proposed rule, as required by Government Code section 11346.3. The department concluded that "*the regulation would require thermostat manufacturers operating a collection program an estimated $ 2,916,638 over the next 10 years*."[24] No information is given to explain how this figure was determined.

In an earlier version of this proposed rule, as well as through discussions with NEMA and other industry representatives, DTSC has indicated that failure to achieve the performance standards could compel the department to impose a financial incentive, or "bounty" requirement on manufacturers.[25] As discussed above, a financial incentive mechanism is in place in two states (VT and ME) and ***has not*** stimulated significant incremental collections. We assume DTSC, by its calculation, has not undertaken any evaluation of whether it would require revisions in the manufacturers' program pursuant to Cal. Health & Safety Code §25214.8.17(b), because if DTSC did contemplate revisions, for example, that included a financial incentive (see Initial Statement of Reasons at page 8 discussing definition of "incentive"), this rule would become a "major regulation" under Cal. Health & Safety Code 57005 and require DTSC to consider whether there is a less costly alternative or combination of alternatives which would be equally as effective in achieving increments of environmental protection in a manner that ensures full compliance with statutory mandates.

Because the performance standards proposed in the rule are for all intents and purposes unattainable, NEMA assumes that its members (and other thermostat manufacturers) will be judged noncompliant as early as 2014, the year after the first year of the proposed percent collection rates go into effect, and DTSC should now consider this to be a major regulation and undertake the required analysis. One of the outcomes of that analysis will likely be a substantial re-evaluation of the arbitrary collection rates in the proposed rule and a reduction in those rates to levels that are feasible in order to "ensure full compliance with the statutory mandates." Cal. Health & Safety Codes §57005.

[24] DTSC Notice: 45-DAY PUBLIC NOTICE AND COMMENT PERIOD, *Mercury Thermostat Collection and Performance Requirement;* Department Reference Number: R-2010-03; Office of Administrative Law Notice File Number: Z-2012-0807-05; issued Aug. 16, 2012; pg 6

[25] The underlying statute requires industry collection programs to include "***incentives*** and *education*" to contractors and other parties to encourage them to recycle out-of-service thermostats, but is silent on the question of what form the incentives should take.

Moreover, as noted earlier, DTSC has failed to document any measurable benefits that would result from this rule, aside from generalized claims that it would prevent a quantity of mercury from entering the environment. There is no discussion of how, even if this were true, it would result in fewer fish advisories, less consumer exposure, or improved public health.

NEMA is also concerned that compliance costs will not be imposed on all past sellers of mercury thermostats into the CA market. NEMA is aware of at least one company[26] that has not joined the TRC and, to our knowledge, has not completed the survey plan and methodology required under Sec. 25214.8.18 of the statute.[27] In addition, Companies that sell thermostats through the mail (internet) are required under Sec. 25214.8.14 of the law to alert purchasers and facilitate mail-back disposal of used thermostats with each sale, but NEMA is not aware of DTSC efforts to enforce this requirement.

Finally, NEMA is distressed by the uncertain time-horizon for implementation of and compliance with this regulation. DTSC surely is aware that companies plan their corporate strategies and establish financial plans and budgets based on expectations of market conditions, government action, consumer trends, and other factors. This proposal includes a performance standard for 2013, but it appears unlikely the rule will be finalized before the end of 2012. Manufacturers are therefore unable to incorporate their expected compliance burden into financial projections and budget accordingly.

Thank you for your consideration of these comments.

Sincerely,

Kyle Pitsor
Vice President, Government Relations

[26] See www.ewccontrols.com
[27] See www.ewccontrols.com

PRODUCT STEWARDSHIP INSTITUTE

Sustainable Solutions to Protect Our Environment

October 2, 2012

Debbie Raphael, Director
CA Department of Toxic Substances Control
1001 I Street
Sacramento, CA 95814

Regarding: DTSC Proposed Regulations for Mercury Thermostat Collection and Performance Requirements

Dear Director Raphael:

The Product Stewardship Institute, Inc. (PSI) is pleased to support the proposed regulations for California's 2008 Mercury Thermostat Collection Act, the *Mercury Thermostat Collection and Performance Requirements*, released for public comment on August 17, 2012.

PSI a national environmental institute with membership from 47 states, including California, over 200 local governments, and more than 75 companies, organizations, universities, and non-U.S. governments.

PSI supports the methodology established by the California Department of Toxics Substances Control (DTSC) to determine the number of mercury thermostats available for collection, which sets the basis for a baseline collection rate. This methodology is the same one developed by the Thermostat Recycling Corporation's (TRC) own consultant (Skumatz Economic Research Associates).

PSI also supports the performance requirements proposed by DTSC, which are based on a *conservative* estimate of the number of mercury thermostats available for collection in California. Given that the number of mercury thermostats in use are declining each year, particularly as replacements for energy conservation increase, we need strong collection targets in the near term to capture the remaining mercury thermostats. The 2017 collection requirement also aligns with the state's overall goal to reduce, recycle, or compost 75 percent of solid waste generated statewide by 2020.

PSI also supports DTSC's clarification of the term "incentive" to include "a cash payment or provision of a coupon, discount, or rebate." Financial incentives have proven successful in Maine and Vermont, the only two states with EPR laws for mercury thermostats that require that thermostat manufacturers offer a $5 per thermostat collection incentive. The 2010 collection rate in Maine (540 mercury thermostats per 100,000 population) and Vermont (517 mercury thermostats per 100,000 population) are among the highest collection rates in the country, and are above the 75 percent collection rate proposed for California. If TRC does not meet the performance requirements in a given year, DTSC can require TRC to offer a financial incentive to increase thermostat collection.

In addition, PSI supports DTSC's requirement that TRC report data in its annual report on thermostat collections from states with EPR laws. However, PSI also recommends that DTSC require TRC to report state-by-state data on thermostat collection *from all states.* As stated in the Initial Statement of Reasons, DTSC will need access to state-specific data to assess its performance against those states with and without EPR laws. Through its national voluntary program, TRC already compiles state-specific data on thermostat collections, although TRC currently does not make this information public.

We commend DTSC's diligence on this issue and encourage you to finalize the regulations in a timely manner. This process has fallen behind the timeline set in the 2008 law that required collection rates to be established by January 1, 2012. According to its annual report, TRC collected 19,927 mercury thermostats in California in 2011,which captured only between 4.1 – 8.5 percent of the number of mercury thermostats becoming waste for that year. Therefore, we hope that the regulations will be finalized soon so that TRC can focus on improving its collection efforts in the state.

Sincerely,

Scott Cassel

Scott Cassel
Chief Executive Office/Founder

Von Burg, Krysia@DTSC

From: Mikhael Skvarla <mikhael.skvarla@calobby.com>
Sent: Tuesday, October 02, 2012 4:22 PM
To: Algazi, Andre@DTSC
Subject: Hg T-stat Peer Review

Andre,

Are you able to share the questions DTSC asked the peer-review?

Also have you seen this study indicating that 19% of households in California did not have any thermostats. The study: http://eec.ucdavis.edu/publications/How_people_use_thermostats_in_homes.pdf could help inform the denominator used in this regulation. This study also notes the differences in California, explaining why there are less thermostats in California on a percentage basis than the Northeast states often referenced in this proceeding.

Although programmable thermostats have been available for more than 30 years, only 30% of U.S. households have installed them. In the 2005 RECS, 14% of U.S. households reported having no thermostat, 30% (34.6% of thermostat owners) had a programmable thermostat, and 56% had a manual thermostat [1]. According to the AHCS, 36% of households had programmable thermostats in 2004, and the percentage increased to 42% in 2008 [28]. In California, the 2005 RECS reported 19% of households with no thermostat, 44% (54% of thermostat owners) with a programmable thermostat, and 37% with a manual thermostat [24]. The percentage of houses in California without thermostats differs from the national percentages due to milder weather, whereas the increased number of programmable thermostats in California versus nationwide is likely attributed to the last 30 years of energy code requiring a setback or programmable thermostat. Of those that used central air conditioning in California, 68% had programmable thermostats; this most likely reflects the fact that homes built in the past 30 years were more likely to have central air conditioning (Fig. 5). Another

It is also important to note the California Energy Commission regulations on "setback thermostats" starting in 1978 and further defined again in 1992, drastically reduced the number of mercury-added thermostats entering commerce. My understanding is that roughly 95% of setback thermostats did NOT contain mercury. In that light other regulatory efforts on energy efficiency did a lot to curb the use of these products well before the 2006 ban.

I was hoping over there would be a way of looking at this additional information. Is there a process for this?

Thanks,

Mik

Mikhael Skvarla
Advocate

Lucas Advocates

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Thermostat Recycling Corporation

www.thermostat-recycle.org

October 1, 2012

VIA EMAIL and OVERNIGHT MAIL

Krysia Von Burg, Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
1001 I Street
22nd Floor
Sacramento, CA 95814-2828
E-mail: regs@dtsc.ca.gov

Re: DTSC's "Mercury Thermostat Collection and Performance Requirement (August 2012) Division 4.5, Title 22, California Code of Regulations, Chapter 24"

Dear Ms. Von Burg:

Thermostat Recycling Corporation (TRC) appreciates the opportunity to provide comments on the proposed Mercury Thermostat Collection and Performance Requirement (August 2012) Division 4.5, Title 22, California Code of Regulations, Chapter 24 (hereafter referred to as the "Proposed Regulations"). We ask that TRC's comments and all of our attachments that accompany these comments be included in the rulemaking file, along with all other comments, in accordance with Government Code §11347.3(b)(6).

TRC is a non-profit membership organization that facilitates the collection and proper disposal of mercury-added thermostats. Today thirty-one manufacturers support the program nationally. TRC's collection network includes over 3,000 HVAC wholesale distributors, HVAC contracting businesses, local governments, and thermostat retailers. Nationally, TRC has recovered over 1,500,000 million mercury thermostats, keeping nearly seven tons of mercury out of solid waste. On behalf of its members that historically branded mercury-added thermostats sold in California, TRC has been and is implementing the collection program required to comply with the Act. TRC provides these comments from the perspective of an entity that actually implements a thermostat collection program every day, and has 15 years of practical knowledge in doing that.

TRC has made significant progress expanding its program and increasing collections of mercury thermostats in California since the enactment of AB 2347. In the intervening thirty-eight months, access to the program (represented by collection bins located with wholesalers) has increased by over 300% and the collection of mercury-add thermostats by TRC have increased by 167%. TRC now recovers more mercury-added thermostats in California than any other state in the United States.

TRC and the thirty-one manufacturers supporting its program in California and forty-seven other states are committed to implementing a recycling program that achieves meaningful environmental results. TRC's goal is to collect and properly dispose of as many waste mercury thermostats as practicable. TRC and its members encourage the development of public policies that complement and enhance its recycling program. In fifteen years of national operations TRC determined the most successful thermostat recycling programs embody the concept of shared responsibility. Achieving high collection rates requires the participation, support, and accountability among all supply channel participants.

TRC believes the regulation proposed by DTSC will not enhance its program in California, and some aspects of the proposed regulation will in fact have a deleterious effect on recycling of mercury thermostats in California.

- First, the empirical basis for establishing the performance requirements (percent rates) is nowhere to be found in the Initial Statement of Reasons. DTSC has not demonstrated the proposed collection rates will likely be attained, certainly in the short-period of time mapped out by DTSC in the proposed regulation. All experience indicates that they will not be. As such, TRC sees no reasonable pathway for manufacture compliance with the performance requirements that are not feasible.

- Second, TRC fears the reporting requirements in the proposed regulation will deter desired recycling behavior and likely lead to greater non-compliance with both the disposal ban and contractor requirements to recycle.

- Finally, the proposed regulation critically fails to provide for channel participant accountability and that will have an impact on program performance.

TRC has additional detailed comments (see attachment to this letter) on these and several other key issues that we believe the State must address in developing a regulation that will enhance program outcomes in a meaningful way.

Finally, TRC urges the Department to be mindful of impacts of this regulation beyond its borders. It is well understood mercury pollution is a national issue. TRC's mercury thermostat program is a national program. In an attempt to achieve the unachievable in California, TRC fears it will be compelled to withdraw resources from programs in other States where they may be more effective in terms of reducing mercury.

Please feel free to contact me (mark.tibbetts@thermostat-recycle.org) if you have any questions or require clarification on any areas of our comments.

Sincere Regards,

Mark R. Tibbetts
Executive Director
Thermostat Recycling Corporation

cc: Mathew Rodriguez, Secretary, CalEPA
Debbie Raphael, Director, DTSC

Attachment: Specific Comments of Thermostat Recycling Corporation (TRC) on DTSC's Mercury Thermostat Collection and Performance Requirement (August 2012) Division 4.5, Title 22, California Code of Regulations, Chapter 24"

Attachment 1

Specific Comments of Thermostat Recycling Corporation (TRC) on Mercury Thermostat Collection and Performance Requirement (August 2012) Division 4.5, Title 22, California Code of Regulations, Chapter 24"

I. The Empirical Basis for Establishing the Regulation's Proposed Performance Requirements is Flawed.

TRC's experience in operating thermostat collection programs in 48 states brings a considerable appreciation for how different statutory/regulatory regimes (disposal bans and recycling mandates vs. no regulation at all) and market and energy regimes and demographics impacts collection of mercury thermostats. None of this experience is reflected in DTSC's Initial Statement of Reasons.

First, the proposed regulation's annual "percent rate" in Section 66274.5 over a ten year period from 2013-2022 is set initially at 30% and then increases by 15% to 45% in 2014, by 10% per year to 55% (2015), 65% (2016), and 75% (2017 – 2022). The "percent rates" are not based on any experience that would suggest what kind of annual increase (if any) is reasonably likely to be attained. They are arbitrary round numbers that increase in large annual increments over a very short period of time that have been arbitrarily inserted into the regulation. DTSC has provided no analysis of whether such percentage increases have any basis in experience or whether they are contradicted by experience. Since the feasibility of the rising annual percentage rates cannot be empirically justified based on any experience, DTSC indirectly attempts to justify the number of thermostats that might be collected in terms of those rates through comparison to TRC's collection in a limited number of other states by normalizing thermostat collections on the number of mercury thermostats collected per 100,000 population. DTSC's analysis of the "comparables," however, is non-existent. The DTSC's Initial Statement of Reasons is devoid of any facts or analysis of how the "comparable" states (Maine, Vermont, and Maryland) are similar to or different than California. In fact, they are very different. In relying on comparables, it is standard practice that if no comparable can be found, some effort and analysis to explain the differences would be undertaken that would support a premium or discount from the results of the measurement that is being compared. DTSC has not done that.

A. DTSC Undertaken No Analysis of the Comparable States to Justify its Percent Rates

DTSC attempts to justify its proposed percentage mercury thermostat recovery rates based on per capita mercury thermostat recovery rates in two New England states, Maine and Vermont. Noting that these two small states are able to collect >500 thermostats per 100,000 population, DTSC concluded that because its proposed performance requirements did not exceed 392 per 100,000 population the proposed performance requirements for California were quite "modest."[1] The percentage rates proposed in Section 66274.5 over ten years yields an average per-capita collection per 100,000 population of 326 per year, with a range of 173 per 100,000 to 392 per 100,000. Without explaining why or providing any data in support of its claim that California's

[1] DTSC, Initial Statement of Reasons at 11, n.10.

requirement is "modest," TRC respectfully points out that "modesty" is a legally insufficient basis for justifying a comparable. Essentially what DTSC has done in its claim of modesty is to conclude that it can discount California's projected performance on average 40% (326/540) off of Maine and Vermont's collection performance. If the DTSC is making such a discount, it should say so and provide the specific reasons why that number and not some other number makes sense. This is standard practice in justifying a result when making comparables. Due to radical differences between the demographics and weather, the building and energy infrastructure, and the marketplaces in Maine, Vermont and California, a substantially deeper discount is warranted off the Maine and Vermont comparables, and TRC submits that it would be well over 85%.

For the reasons explained below, TRC respectfully disagrees with DTSC's assessment and recommends that DTSC substantially revise its percent rate performance requirements downward. Simply because the program achieved certain per capita rates in one state (Maine or Vermont) does not mean it can achieve specific discounted results in another very different state (California), unless DTSC can establish that conditions among the states warrant that specific discount. Otherwise, DTSC is setting rates based on guesswork without substantial evidence. If DTSC is going to undertake that analysis, TRC suggests DTSC account for 1) differences in the historic and current installed base of mercury-added thermostats in northern New England and California; 2) the impact of specific time limited programs or market changes on collections; and 3) the fact actual program performance (year-to year growth) between Maine, Vermont and California is not dissimilar.[2]

To illustrate this point, TRC refers DTSC to data compiled by the U.S. Census and U.S. DOE's Energy Information Agency, Residential Energy Consumption Survey (RECS)[3] and other sources to illustrate the substantive differences in the historic and current installed base of mercury-added thermostat between the two northern New England states cited in the Statement of Reasons and California.

For instance:

- In Maine fuel oil heats 70- 80% of homes and 59% in Vermont, while the use of fuel oil is almost nonexistent in California.[4] This is meaningful as mercury-added thermostats were the most commonly used thermostat to control oil furnaces. Additionally, unlike the replacements of other heating systems, replacing an oil furnace/boiler with another oil furnace/boiler often does not necessitate a new thermostat, meaning many older mercury-added thermostats remained in service and are only now being replaced.

[2] TRC asserts that DTSC's comparables analysis, when completed, will have to be externally peer reviewed pursuant to Cal. Health & Safety Code §57004.
[3] Residential energy consumption survey 2009: Housing characteristics tables. Energy Information Agency. Available from http://www.eia.gov/consumption/residential/data/2009/.
[4] U.S. Census, Historical Census of Housing Tables, House Heating Fuel. Available at: http://www.census.gov/hhes/www/housing/census/historic/fuels.html.

- A study conducted for the Vermont Department of Public service indicated, "statewide three out of four (71%) of owner-occupied homes and about four out of five (79%) of rentals have manual thermostats (e.g. non-programmable thermostats)."[5]

- Less than 17% of homes in New England use central air-conditioning.[6] In contrast, 40% of homes in California use central air-conditioning and of those homes, 68% have programmable thermostats (vast majority of which are electronic and do not contain mercury due to Title-24 requirements).[7]

- Maine and Vermont have dissimilar building codes. There is no equivalent of California's Title-24 in Maine and Vermont. Thirty years of California's Title 24's requirement for the installation of set-back or programmable thermostats radically transformed the market away from mercury thermostats in California ahead of other sections of the country.[8] Mercury-added thermostats were never installed in many California homes.

- A recent study, citing federal Energy Information Agency data for 2005, revealed that California has over 33% more homes without thermostats than the national average and, for homes that do have thermostats, California has almost 50% more homes with electronic programmable thermostats than the national average.[9]

With respect to the first point, DTSC should consider the impact of market trends and other policy measures on collection rates in Maine. TRC notes a recent article in the *Portland Press Herald* indicating fuel oil consumption in Maine declined by half between 2004 and 2010[10]. The article noted many homeowners are replacing older oil furnaces with new higher efficiency equipment due to high fuel oil prices.[11] This stimulates thermostat replacement in Maine at a rate that California will not replicate, because of the radical infrastructure, energy policy, and demographic differences in California from Maine.

Similarly, DTSC cited TRC's "per-capita" collections in Maryland, but ignored the fact that an exogenous regulatory event temporally stimulated replacement of thermostats in Maryland and there is no expectation that a similar regulatory event will occur in California. From 2009 to 2012, TRC recycled nearly 70,000 mercury-added thermostats removed from service through the

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[5] *Analysis of Onsite Audits in Existing Homes in Vermont*, (2009), Nexus Market Research, Inc., Available at: http://publicservice.vermont.gov/energy/ee_files/efficiency/eval/VT%20Existing%20Home%20Onsite%20final%20report%20062409.pdf.

[6] The percentage is likely lower in Maine and Vermont as this includes data from Rhode Island and Connecticut; two southern New England states that are warmer climatically, more suburban, and are more wealthy.

[7] Therese Peffer, et al, *How People use Thermostats in Homes: A Review*, Building and Environment 46 (2011) 2529-2541.

[8] *Ibid*.

[9] Peffer et al, *How people use thermostats in homes: A review*, 46 Building and Environment 2529, 2533 (2011).

[10] Portland Press Herald, September 13, 2012. Available at: http://www.pressherald.com/news/mainers-gain-on-oil-free-objective-_2012-09-13.html .

[11] *Id.,* Another article from the Bangor Daily News notes that the number of conversions from oil to gas in the Bangor area of Maine has increased substantially since 2008. http://bangordailynews.com/2012/09/23/business/more-homeowners-cooking-heating-with-bangor-gas/

implementation of a demand response program by Baltimore Gas and Electric (BGE).[12] BGE offered free set-back/communicating thermostats and discounts on utility bills in exchange for allowing the utility to adjust the thermostat during periods of peak demand. The program was funded by ratepayers. To date over 300,000 BGE customers have participated in the program.

The contractor for BGE's program, Honeywell Utility Solutions, (HUS), offered participants free recycling of all mercury-added thermostats removed from service and subsequently arranged transport using TRC's recycling bins. As a result, TRC achieved very high collection rates in Maryland during the three years this program operated (see Table 1.1). The BGE program has subsequently scaled down and TRC projects 2012 collections in Maryland similar to the collections achieved prior to BGE program in Maryland.[13] TRC points out the Initial Statement of Reasons overlooked the unique and transitory nature of the Maryland program and that the high collection rates in Maryland have not been sustained.

DTSC should consider the likelihood of a demand response program being implemented in California between 2013 and 2022. TRC notes that even if a program were implemented, there is still no guarantee TRC would enjoy similar outcomes in California. TRC benefited from its existing relationship with Honeywell International, Inc., who was contracted to establish and manage the BGE program. Likewise, the BGE program emphasized thermostats as opposed to an outdoor switch installed on the air-conditioner increasing the number of thermostats recycled in Maryland. Moreover, there are likely more mercury-added thermostats in service in Maryland for many of the same reasons mentioned such as no Title-24 requirements.

Table 1.1: Thermostat Collections Maryland

Year	Maryland Collections	HUS Share	Maryland Collection less HUS Share	Thermosats per 100,000 poplulation w/ HUS	Thermosats per 100,000 poplulation w/out HUS
2007	8,765	-	8,765	150	150
2008	10,207	-	10,207	175	175
2009	36,622	27,722	8,900	628	153
2010	43,489	32,624	10,865	746	186
2011	23,709	8,735	14,974	407	257
2012*	15,000	565	14,435	257	248
* Projected					

B. California's Growth Projections Derived from the Proposed Percent Rate Collections in the Regulations Are Not Empirically Sanctioned

[12] Legislation, passed in 2008, required the Maryland's electric utilities to achieve a 15% reduction in per capita peak demand by 2015, compared to 2007 levels. Most utilities opted to use thermostats to control peak demand

[13] Other utilities offered programs similar to BGE and TRC has made similar arrangements with their contractors. Some of these programs remain active and continue to contribute to TRC's performance in 2012.

Finally, while the per capita collection rates will differ substantially between northern New England and California, program performance as measured by growth is not dissimilar. TRC refers to Table 1.2 which tracks actual collections, per capita collections, and growth of collections in all three states from 2002 – 2011. Using DTSC's own per capita rate, TRC's collections in Vermont have increased by 161% since the implementation of the mandatory manufacturer program. California's increased by 167%. Maine's has only increased by 42%, reflecting the incremental implementation of its mandatory program.

TRC finds this significant. All three programs achieved similar levels of early growth subsequent to the implementation of mandatory programs. All have experienced a flattening of growth after a high initial growth. In Maine and Vermont, both programs saw high initial growth and collections flattened quickly. TRC is seeing similar results in California. None have achieved the kind of growth contemplated by DTSC's proposed regulation. This suggests the positive impact of the legislative mandates on collections in California has already been enjoyed by the program and the future increases contemplated in the Section 66274.5 of the proposed regulation are highly unlikely.

Table 1.2: Comparisons of Collections Maine, Vermont and California

Year	Maine	Tstats per 100,000	Growth	Vermont	Tstats per 100,000	Growth	California	Tstats Per 100,000	Growth
2002	280	21		54	9		702	2	
2003	482	36	72%	194	31	259%	2,395	6	241%
2004	**1,078**	81	124%	131	21	-32%	3,025	8	26%
2005	1,290	97	20%	371	59	183%	3,945	10	30%
2006	2,924	220	127%	223	36	-40%	5,110	14	30%
2007	4,656	351	59%	1,665	266	647%	5,750	15	13%
2008	5,555	418	19%	1,367	218	-18%	7,007	19	22%
2009	6,374	480	15%	**1,890**	302	38%	**7,542**	20	8%
2010	6,523	491	2%	3,349	535	77%	13,340	35	77%
2011	6,616	498	1%	3,572	570	7%	18,687	50	40%

(*Red indicates start of mandatory HVAC wholesaler collections)*

Mandatory collection of mercury thermostats by wholesalers went into effect in Maine in July 2004, in Vermont in April 2009, and in California in July 2009. You can see that in the first full year following the effective date of the mandatory thermostat collection requirement, there is an expected increase in thermostat collections[14] in each state that is roughly comparable in terms of its annual growth rate --- Vermont and California are identical at 77%, Maine's was higher. California's growth rate is now decelerating, which was the case in Maine and Vermont as well.

As displayed in Table 1.3, the DTSC is projecting an unheard of 220% increase in the growth rate of thermostat collections in the fourth full year (2013) following mandated wholesale

[14] S. Sidque et al, *Factors influencing the rate of recycling: An analysis of Minnesota counties*, 54 Resources, Conservation and Recycling 242, 248 (2010)("Our findings also indicate that regulations can be an effective means of increasing recycling. We found that the enactment of recycling ordinances making residential recycling mandatory increase the rate of recycling.").

collection of used mercury thermostats, after California already experienced its first year surge in collection with typical declining rates thereafter. In its Initial Statement of Reasons, DTSC provides no justification why a 220% increase in 2013 over 2012 collections is either feasible or reasonable. As documented above, experience elsewhere cannot support the kind of growth contemplated by DTSC's proposed collection rates. This growth rate analysis supports the conclusion that the annual "percent goals" for 2013 – 2022, are simply a set of rising round numbers in arbitrary increments with no factual foundation. Not only is the 220% annual growth rate for 2013 unreasonable and factually unsupportable, but the projected growth rates in later years is unreasonable and factually unsupportable as well.

Table 1.3: DTSC's Projected Growth Rate for California Collections (2013-2022)

Year	T-Stats Collected/Projected	Tstats Per 100,000	Annual Growth Rate
2009[1]	7542	20	
2010	13,340	35	77%
2011	18,687	50	40%
2012 (P)[2]	20,000	54	8%
2013 (P)	65,000	173	220%
2014 (P)	95,400	253	46%
2015 (P)	113,850	302	19%
2016 (P)	131,300	348	15%
2017 (P)	147,750	392	12%
2018 (P)	144,750	384	-2%
2019 (P)	140,250	370	-3%
2020 (P)	135,750	360	-3%
2021 (P)	130,500	346	-4%
2022(P)	126,000	334	-3%

[1] California's mandatory thermostat collection law effective July 2009
[2] (P) indicates projected. The projection for 2012 is an estimate from TRC based on collections to date; for 2013 and thereafter it is what is projected by Section 66274.5 of the proposed regulation.

It is noteworthy that researchers have found that the enactment of statutory or regulatory recycling goals does "not have a statistically significant positive effect on recycling." W.K. Viscusi et al, *Discontinuous Behavioral Responses to Recycling Laws and Plastic Water Bottle Deposits* at 11 (NBER Working Paper 15585[15], 2009)(ruled out classifying recycling laws with recycling goals as "effective recycling law." An effective recycling law is one with "mandatory recycling, opportunities for recycling, or regional waste management plans with recycling considerations."). In short, the existence of a recycling goal is ineffective in changing behavior

[15] Available from the National Bureau of Economic Research. http://www.nber.org/papers/w15585.pdf

and improving recycling, and DTSC cannot count on the existence of a goal as an incentive or facilitator in promoting recycling, particularly the increased volume of thermostat recycling in Section 66274.5 of the proposed regulation.

II. TRC Sees No Reasonable Pathway for Compliance with the Performance Requirements

DTSC's collection rate performance requirement assumes significant percentage increases in collections in 2013, 2014, and beyond. Table 1.3 above shows the absolute number of thermostats manufacturers' would be required to collect and the number per 100,000 population. TRC's California program is currently collecting ~50 per 100,000 population and projects a similar level of collections in 2012.

As mentioned previously, TRC's California collections have increased by 167% since the 2008 Act was passed. To keep manufacturers in compliance, the program will have to increase collections by another **220%** in 2013 and by an additional **46%** in 2014. By the end of 2017 TRC will need to recover **140,000** more thermostats *per year* over current levels. This a **2000%** cumulative increase over collections achieved prior to the implementation of the mandatory program.

TRC fails to see any reasonable basis for the proposed performance requirements. The requirements do not reflect thermostat recycling program outcomes in any other state,[16] including those with disposal bans, mandatory collection programs and other incentives. No state, with a high baseline number (<5,000 units) has achieved the proposed growth rates. Even Maryland, at its peak with its special program, failed to achieve these rates, and as referenced above, the high rates were not sustained after the special energy program was curtailed. The proposed annual growth rates are not only not supported by any other experience with collecting and recycling thermostats, but they enjoy no credibility based on consumer recycling data, which likewise demonstrates that annual increases in recycling rates in a given state occur gradually over a considerable period of time (decades).[17]

Recognizing DTSC must envision a reasonable path to compliance TRC believes it is instructive to review recent enhancements to the program; enhancements advocated for by others; and how these enhancement may affect collections in California.

2012 Enhancements

TRC expanded advertising in 2012 that targeted both California HVAC contractors and consumers generally. Enhancements included but were not limited to:

- Placing full-color tip-in inserts in the May, June, and July issues of *Indoor Comfort News*, the only California specific HVAC trade magazine. Each issue reached 17,000 subscribers in California.

[16] See TRC's 2011/2012 Progress Report, Appendix- Mercury Recovery Index. Available at: http://www.thermostat-recycle.org/media/index.

[17] http://www.calrecycle.ca.gov/bevcontainer/Rates/BiannualRpt/12MonPeriod.htm

- Running consumer-facing banner ads on www.sacbee.com, www.latimes.com, and www.sfgate.com.

- Implementing an aggressive direct-mail campaign targeting California HVAC contactors. Over 16,000 postcards have been mailed, with another 16,000 planned this month.

To date, TRC has seen no impact in 2012 collections from this significant increase in direct outreach. In fact, as of last month, collections were down 8% compared to the same period last year.

While awareness can be an important factor in influencing recycling behavior, it is not the only factor. TRC believes awareness of California's disposal ban, contractor mandate to recycle, and program availability at HVAC wholesale distributors is very high. TRC's recent experiences in California suggest increased investments in its awareness programs will have a small impact on future collections.

TRC Field Staff

TRC currently does not have staff assigned to a specific state or like some other national stewardship organizations regional staff. TRC explored retaining a consultant to conduct site visits to California HVAC wholesalers this year and opted not to pursue this tactic. A number of factors influenced this decision and TRC believes DTSC should consider these factors in establishing performance requirements. For instance:

- There are over 380 HVAC wholesale collection locations in California. It is not practical, as has been suggested by others, to physically visit all locations within a calendar year. TRC notes the sales representatives of its manufacturer members do not visit every customer location in the state annually.

- TRC site visits have little impact on locations that are not participating in the program or are minimally participating (meaning little or no evidence of active collections). For non-participating locations the most frequent refrain is branch staff is not empowered to order containers. For those showing minimal participation, again it reflects either disinterest at the location or that corporate has not stressed the program. Again, our experience is that TRC will not affect this during a field visit. It must be recognized TRC has no authority, real or perceived, to enforce the requirement to collect.

- Routine site visits condition undesired behaviors. For instance, Maine Department of Environmental Protection staff routinely visited locations and shipped their recycling containers. This conditioned staff to expect others to prepare and ship their bins which is a basic responsibility of the collection location. Now, TRC frequently receives calls requesting when TRC staff will come and pick up the bin.

- TRC can achieve similar outcomes as site visits through phone, mail, and engaging corporate offices. TRC's experience is the only value in field visits is accelerating the shipment of bins, not signing up new collection locations. It is more efficient to use

postcards, staff training, and engaging corporate offices than physically visiting each location.

It was also suggested TRC staff attend local contractor meetings. TRC has researched various marketing opportunities in California and determined this is not a viable strategy. National trade groups have state and in many cases regional or local chapters that host a number of activities. TRC determined that these groups generally represent a very small subset of the industry and their meetings are social events that provide little or no opportunity to promote the program. TRC has exhibited at a number of regional trade shows in California and determined the attendees at most of these events are not the targeted audience and or attendance is poor providing little justification for future participation.

Financial Incentive

A certain mythology has developed over the positive impact of a financial incentive on program outcomes. Some continue to maintain an incentive significantly increases collections. That has not been TRC's experience in Maine and Vermont. TRC has found the increases in collections achieved in those states are no greater than in other states with similar mandatory programs and no financial incentive. Likewise, as explained elsewhere in these comments, the per-capita collection rates result from the high installed base of mercury-added thermostats remaining and the relatively low populations of both states.

DTSC should not assume that the imposition of a financial incentive program would lead to a meaningful impact on mercury-thermostat collections. It certainly will not lead to the kind of percentage or absolute collections envisioned by Section 66274.5 of the proposed regulation. DTSC indicated that it relied on select publications on mercury-add thermostat collection programs in developing the proposed regulations. TRC cautions DTSC on the utility of these publications. TRC notes the HVAC industry was not consulted in the drafting of any of these reports. TRC suggests DTSC expand its scope of its literature review and include TRC's annual reports to the Maine Department of Environmental Protection and Vermont Department of Environmental Conservation in order to better understand the programs in each state. TRC has appended the 2009, 2010, and 2011 reports to these comments.

TRC also believes a more thorough review of the incentive programs is also instructive. TRC urges DTSC to consider the following in assessing the potential impact of a financial incentive on program outcomes:

- **Supply Channel Barriers:** Incentive payments to contractors, technicians, and homeowners participating through HVAC wholesale distributors and HHW facilities are neither timely nor direct. It is important to recognize TRC has no means to make direct payment. TRC relies on cumbersome mail-back coupons to remit incentive payments via check. The coupon system has a number of faults; the biggest being as it often takes months to fill and return a bin to TRC delaying payment. Particularly for an HVAC technician, a check in the amount fifteen dollars for three thermostats is not much of an incentive if it takes nine months to receive payment. For a consumer, $5.00 off the purchase of a $75.00 thermostat is also not significant.

- There are no easy fixes to this issue. HVAC distributors oppose making direct cash incentive payments to customers. For distributors, discounts on purchases do not work either. They would apply to the account holder, frequently not the person whose behavior TRC is trying to affect. Clearly cash is also not an option at HHW locations.

  TRC's retail programs in Maine and Vermont address this issue by offering a $5.00 discount on any purchase. However, TRC cautions DTSC from assuming a similar program could be developed in California. Both Maine and Vermont had retail mercury-added lamp programs in place and many retailers were familiar with operating a take-back program for mercury devices. It is also important to recognize that there is no big-box retail participation in this program and only local hardware stores participate. Relying only on small retailers is negated to some extent in Maine and more so in Vermont because both states are very rural.[18] TRC purposefully targets HVAC wholesaler as they remain the most convenient location for HVAC contractors/technicians to recycle. In small rural communities these local retailers may offer similar convenience. However, this is unlikely the case in California. Finally, both state agencies took very active roles in developing these programs by recruiting retailers, providing recycling bins, and by providing regular technical assistance.[19] Recognizing the geographic scale, lack of DTSC staff support, and the marketplace TRC does not foresee similar program support from state agencies in California. The absence of such support suggests little likelihood of developing a similar program in California.

- **Level of Participation in Incentive Programs is low:** Only a small subset of contractors/technicians actually participate and take advantage of the incentive program. This is despite over three years of operations in Vermont and five in Maine and extensive direct outreach to the channel (direct mail, paid advertising, and active collection at HVAC wholesale distributors).

  In Vermont approximately 30% of all thermostats recovered did not request incentive payment. The number of those not requesting incentive payments was higher at locations using the "coupon," where only 55% of the thermostats returned requested payment. It's important to recognize the desired behavior of recycling occurred, but program participants chose not to claim the $5.00 incentive.

  Likewise, individual contractor/technician participation remains low. In three years less than 500 persons have requested payment in Vermont, of which well less than 50% are contractors/technicians (according to state licensing records there are at least 1,000 licensed technicians in Vermont). TRC's experiences in Maine are similar. And this experience is not unique to Vermont and Maine. The Product Stewardship Institute's

[18] See New York Times, May 13, 2012. Available at: http://www.nytimes.com/2012/05/14/us/dollar-store-plans-divide-vermont-residents.html

[19] In both states, agency staff routinely visit retail locations and facilitate participation by assisting in packing the recycling bin and preparing it for shipment. In the absence of such support a majority of locations fail to regularly return the bin.

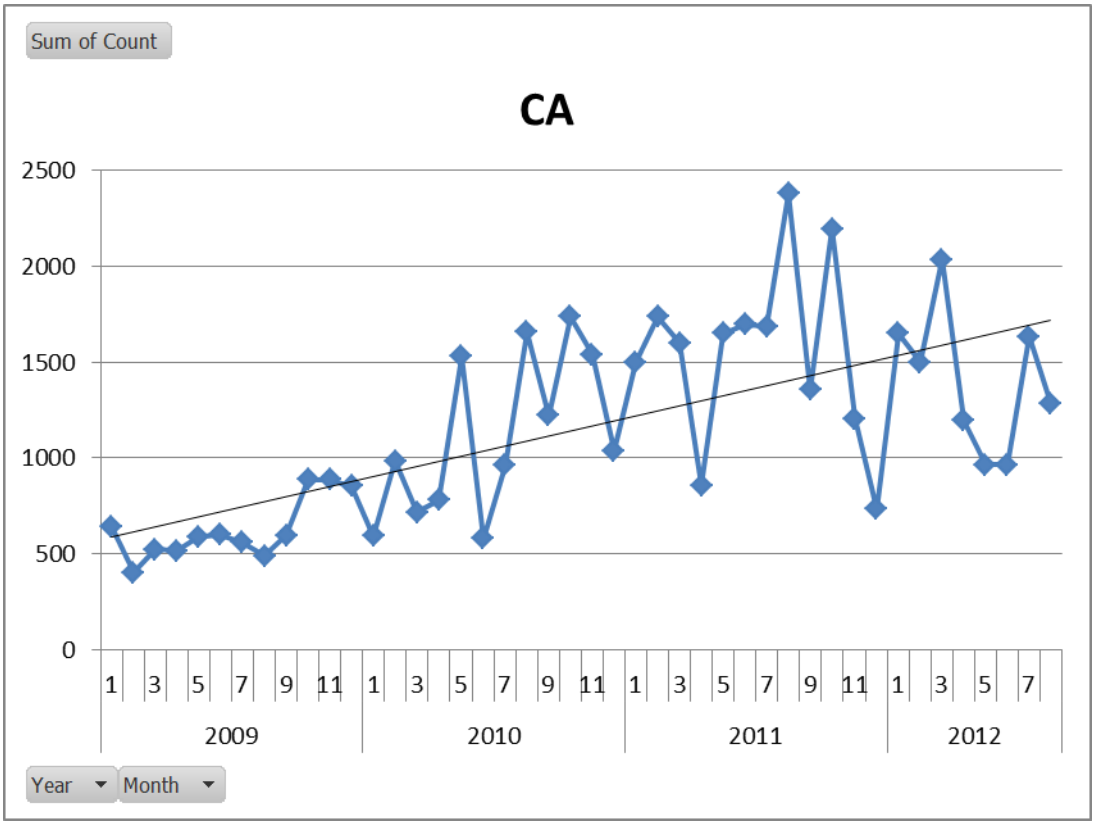
final report of the 2006 incentive pilot documented overall program participation was low.[20]

In part this reflects the program's inability to make direct and timely payments. TRC believes it also reflects economic choice. The average hourly wage of an HVAC technician in Maine is $20.00 per hour and $19.00 in Vermont.[21] For many technicians the incentive is insufficient to have a meaningful effect on recycling behavior.

To further illustrate fundamental problems with the assumption a financial incentive will have a meaningful impact on collection rates; TRC encourages DTSC to revisit the April 11, 2012 presentation given by TRC staff to Karl Palmer, Andre Algazi, Robert Sullivan, and Ed Benelli.

The following charts, updated to include 2012 collection data through August, demonstrate the impact of an incentive of collections.

Chart 1.1: California Thermostat Collections by Month 2009-2012



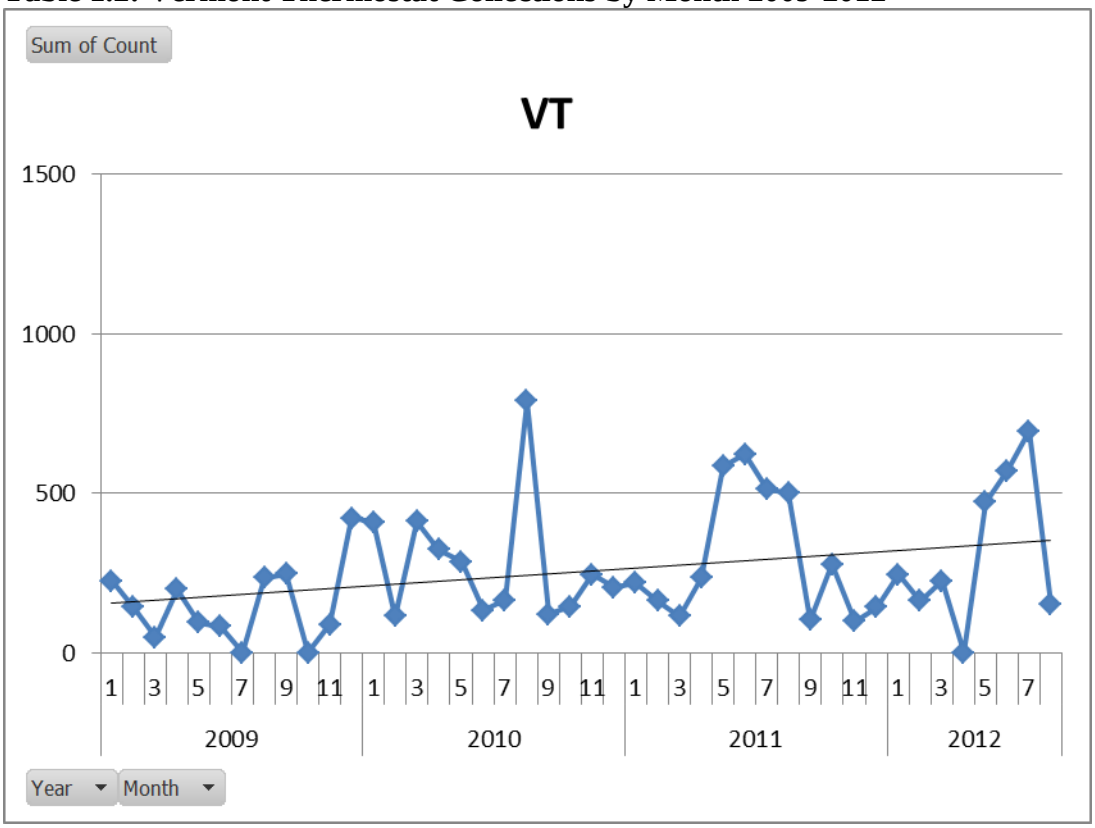
[20] *Mercury Thermostat Recycling Final Report on Effect of Financial Incentive for HVAC Contractors in Two-State Pilot*, Product Stewardship Institute, November 2007.

[21] Mean hourly wages in Vermont and Maine are ~$20.00 an hour. In California they are ~$25.00 an hour. Data on HVAC technicians is available at: http://www.bls.gov/oes/current/oes499021.htm.

In California, collections were approximately 500 units per month prior to the implementation of the mandatory program (HVAC wholesalers had to act as collection points by July 1, 2009). Collections accelerated within a year and increased to over 1400 units per month through 2012.

In Vermont, collections were approximately 150 units per month prior to the implementation of the mandatory program (HVAC wholesaler had to act as collection points by April 1, 2009). Collections accelerated within a year and currently average around 300 units per months. Two additional data points are extremely important: 1) only 22% of the thermostats recovered in 2009 had a claim for incentive, most likely a result of thermostats collected prior to the incentive program and contractors/technicians opting out of the program and 2) in 2010 30% still opted out of the incentive program.

Table 1.2: Vermont Thermostat Collections by Month 2009-2012



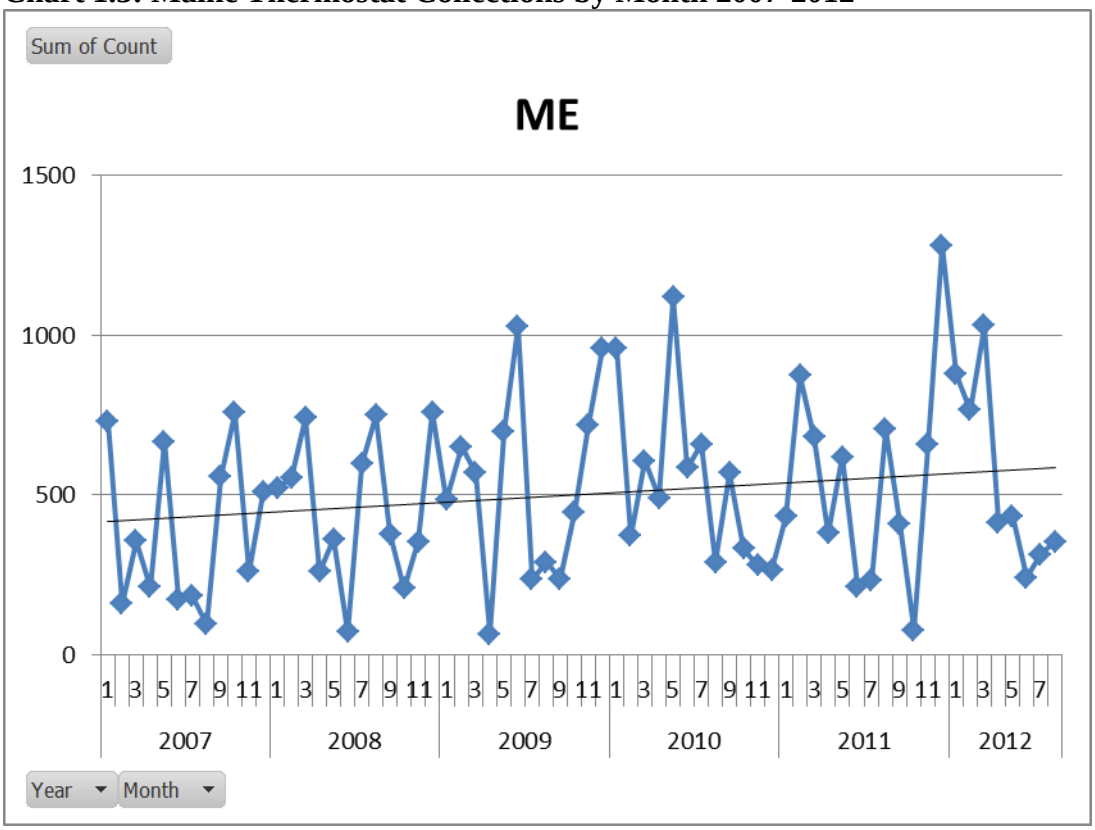
Maine provides a more interesting case. Maine's mercury-added thermostat law was amended several times and one is able to isolate the impact of different aspects of a mandatory program (such as requiring HVAC wholesaler distributors to act as collection points).

The contractor/technician phase (through distributors) of the financial incentive program was implemented in the spring of 2007 and the homeowner (mail-back) was implemented by early 2008. The previously discussed retailer program was implanted during the winter of 2008/2009. Note collections increased by 59% from 2006 to 2007 and by 19% from 2007 to 2008 and have subsequently remained relatively flat. Importantly, the big increase in collections typically seen

with the implementation of a mandatory program occurred from 2004 -2006 (see Table 1.2), when Maine DEP provided TRC recycling containers to approximately 70 wholesale distributors that had been required to collect waste mercury-added thermostats since 2004.

Moreover, TRC saw recycling behavior similar to Vermont. TRC notes its annual reports to Maine DEP in which we highlighted that 44% of the thermostats collected in 2007 had no claim for incentive and subsequent review of payees to the program noted that by 2009 well over 20% of the payments had gone to persons other than those the law intended to incent (namely staff at collection points).

Chart 1.3: Maine Thermostat Collections by Month 2007-2012



Again, TRC cautions DTSC against assuming a financial incentive will have a meaningful impact on collection rates in California. The impact of the incentive has clearly been overstated, as actual collection and payment data indicate the impact was minimal in Maine. All the incentive achieves is to pay people to do what they are already doing and there is no data that suggests imposing an incentive independent of or in concert with other modifications will enable manufacturers to reach the proposed collection rates.

IV. Concerns with Reporting Requirements Imposed on Manufacturers, HVAC Wholesale Distributors, HVAC Contractors, Demolition Contractors, and others

A. Section 66274.7 and Section 66274.8 (C)(2)(g) Identification Requirements when Delivering Mercury Thermostats to a Collection Location

§66274.7 of the proposed regulation DTSC requires HVAC and demolition contractors or their staffs and others to provide the collection location with the contractor's State Licensing Board Identification Number (CSLB Number).

In our earlier comments on the proposed regulation we pointed out meaningful increases in collection rates are unlikely in the absence of additional public policy measures aimed at increasing compliance with California's mercury-added thermostat disposal ban and recycling requirement. Ostensively this reporting requirement is an attempt to create accountability by providing DTSC with data to monitor compliance and enforce disposal/recycling requirements on contractors/technicians and others.

Unfortunately, this requirement is not well conceived and TRC fears it will be counter-productive. In exploring options regarding using reporting as means to monitor compliance with California's disposal/ recycling requirements DTSC should consider the following:

- Any step that fundamentally alters the simplicity of the program needs to be weighed against any perceived benefits of the change. Currently recycling a thermostat at any of TRC's collection locations in California requires nothing more than dropping the thermostat in the collection bin. For the collection location it takes ~5 minutes to prepare the collection bin for shipment. It is well understood that economics and convenience are critical factor in any recycling program[22]. Adding the additional step of reporting CSLB Number at a collection location fundamentally alters the process for both the collection point and program participant. Additional transaction costs (e.g. providing number, recording number, requiring staff assistance with recycling) will result in less recycling rather than more.

- The logistics and burden associated with collecting this data. It remains ambiguous how CSLB Numbers will be captured and reported to TRC. Would the collection points use log sheets and include them in the bin or would they create electronic records and transmit them to TRC? TRC notes the potential volume of data to be captured and reported. There are 11,449 active C-20 licenses in California and according to the Bureau of Labor Statistics a minimum of 17,000 HVAC technicians.[23] Assuming an average of 3 thermostats per transaction, under the proposed performance requirements the regulation contemplates approximately 49,000 transactions be recorded and reported annually.

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[22] Shaufique F. Sidique, et al, The Effects of Behavior and Attitudes on Drop-off Recycling Activities, Resource Conservation and Recycling 54 (2010) 163-170.

[23] Estimate undercounts total number of technicians as it does not include self-employed workers. Available at: http://www.bls.gov/oes/current/oes499021.htm#(1).

- Contractors and others simply place whole thermostats in the provided collection container—other containers are not used in the manner contemplated by the proposed regulation in where a technician could record a CSLB Number on container with thermostats. Beyond its incongruence with current practice, the use of additional package would decrease bin volume requiring more frequent bin shipments and add to TRC's administrative costs with additional handling and disposal of the packaging.

- The utility of the data collected. It is unclear to TRC how the CSLB Number or the absence of a CSLB Number (or the frequency the number was reported) is valid indicator of compliance with the requirement to recycle mercury-added thermostats. By example, assume a CSLB Number is reported twice in a calendar year from a location that shipped 100 thermostats annually to TRC. By one measure this is an indication of compliance. What if the contractor holding that license employees 100 technicians and core business is service/repair? Under this scenario it suggests substantial non-compliance. TRC suggests DTSC better familiarize itself with CSLB licensing requirements as it is important to understand, CSLB licenses are business licenses not technician licenses.

- Enforcement of the reporting requirement on program participants other than manufacturers. How does DTSC envision enforcing this requirement? TRC notes there is no definition of contractor in the statute or regulation. Recognizing that it is a business license not an individual license (unlike other states that require technician licensing) who would be subject to enforcement—the contractor or the technicians employed by the contractor? In the absence of any meaningful consequence for non-compliance TRC sees little likelihood that 1) CSLB Numbers or names will be provided to collection points or that 2) collection points will collect and transmit data to TRC.[24]

- For persons other than HVAC and demolition contractors (homeowners, handymen, others) it is unclear how the name, address and telephone number will be collected and reported to TRC and how TRC will report it to DTSC. Is DTSC contemplating that HHW locations and retailers to collect and provide this data to TRC? TRC notes that HHW and retailers have no obligation to participate in its program and suggests DTSC consider this reporting requirement is likely a significant disincentive for their participation in its program.

- No consideration has been given to the likely proprietary nature of this data. In effect DTSC is requiring TRC to report customer lists of its collection sites.

- Creating a perverse incentive not to recycle. Ironically, any meaningful consequence with the reporting requirement may lead to less compliance with the

[24] See "Contractors Walk on the Wild Side: Why?" Heinemeir, Kristin, University of California-Davis. Available at: http://www.aceee.org/files/proceedings/2012/data/papers/0193-000249.pdf.

recycling requirement. TRC fears a perverse logic may result—less risk in improper disposal than from the failure to provide CSLB number.

B. Subsection 66274.8 (a) and (c)

TRC is concerned with the requirement to specifying the brand name of each thermostat recovered. TRC represents 31 manufacturers that historically distributed 91 brands of mercury-added thermostats in the United States. Currently TRC records the count of the number of thermostats in each recycling container returned to the program by the manufacturer not the brand. If the manufacturer of a brand is not immediately known, staff uses a reference guide to identify the manufacturer. For those thermostats where the manufacturer is indeterminate or is not participating in the program the thermostat is recorded as "not our manufacturer" (NOM).

The proposed regulations would require significant changes in how TRC processes bin receipts by requiring TRC staff to pick from 91 brands of thermostats rather from a list of 31 manufacturers when recording recycling container receipts. TRC is concerned with the impact of this requirement on productivity and accuracy of data.

TRC believes knowing the brand of thermostat is unnecessary to proportion performance requirements among programs. Knowing the manufacturer is sufficient. If DTSC desires information on the brands manufactures' owned or own, a program can include a list of manufacturers and the brand(s) that manufacturer owns or owned in its annual report. Likewise, program(s) can report the count of thermostats recovered by manufacturer, something TRC has done voluntary in each of its reports to DTSC.

C. Subsection 66274.8 (1)(A), (2)(A), (3)(A), (3)(C)(f)

TRC is pleased to note DTSC included the opportunity for the program to "get credit" for mercury switches recovered by the program. In 2011 TRC recovered 2,534 switches and representing an estimated 1,230 thermostats or 6% of the total thermostats recovered for the year.

However, TRC has a number of concerns with DTSC's augmenting the annual report beyond the statutory reporting requirements. TRC previously communicated many of these concerns to DTSC on September 7, 2010 and March 1, 2011 and requests DTSC review these comments.

Much of the request for additional data seems to be driven in an effort by DTSC to assess HVAC wholesaler compliance with section 25214.8.14 of the Health and Safety Code. TRC disagrees with DTSC's assessment that current reporting is inadequate to determine compliance with section 25214.8.14 and provides insufficient justification for the additional reporting requirements in the proposed regulation.

TRC notes it has provided data on the names, address, and zip code of all participating collection locations (records of locations where TRC shipped recycling containers) and

the number of out-of-service mercury-added thermostats collected at each location for three years (including collection container numbers with bin receipts for the last two).

Knowing which location has ordered recycling containers and those that demonstrated active collection by the shipment of waste mercury-added thermostats to TRC is more than adequate data determine which locations have ordered recycling containers and which locations are regularly shipping thermostats to TRC in compliance with section 25214.8.14. Logically this assumes DTSC has independently developed and maintains records of all facilities in California that have obligations under section 25214.8.14.

In an obvious effort to shift the burden of enforcement upon TRC, DTSC failed to consider the inherent limitations of the program to collect and maintain certain records on collection locations beyond what is already collected and reported to DTSC and the retroactive nature of these requirements. For instance:

- TRC data is limited to the information it collects through transactions with collection sites. TRC collects data from locations when recycling container(s) are ordered. This data includes a location name, contact person, street address, phone number, and email address. TRC also records the date the bin order is fulfilled. Subsequent to the initial order, the only data collected is the return address on the pre-printed Federal Express label provided with the recycling container. This data is limited name of the location and the street address and the date the collection container was received.

  If the return address is different from the address in the system, then TRC updates its record for the location with the different address. The mailing label is provided by Federal Express and does not provide the opportunity to capture additional data like a contact phone number as being required by DTSC. Likewise, even if TRC could collect additional data on the label, the completeness or accuracy of that data is outside of its control.

- The program has not maintained records on all locations to which it shipped recycling containers. As records relating to a specific collection bin changed, the practice was to overwrite and update the record for the location now in possession of that collection bin. Additionally, the phone number (whether main branch number or direct line for staff person ordering recycling container) was not required to complete order.

- TRC notes it has been operating the program in California since 2002, well prior to the mandatory program. The statutory reporting requirements were developed recognizing this fact. TRC cannot provide data it never collected or could be reasonably expected to collect retroactively.

- TRC has no reliable means of knowing the location of a collection container unless 1) TRC is first provided location information with the initial order to ship collection container(s); 2) collection containers are returned from a collection

location and the return address (if different from the initial order or subsequent collection container returns) is provided to TRC on the pre-printed Federal Express shipping label; or if 3) the location is responsive to program inquiries related to location address, contact information, and collection container(s) assigned to that location.

- TRC's data on locations is transitory. Locations move, businesses are acquired and consolidate, cease operations, staff change, etc. At best, the program's data on collection locations are snap-shots in time. TRC stresses even items such as a street address, which one would assume to be stable, change with surprising frequency.

- When a collection location's name and/or and address change it is difficult to determine if it is a new location or if an existing location that has moved. Until recently TRC did not request a "branch number" with the bin order which assists TRC in determining if it is a new location or an existing location that moved (note not all locations have branch numbers or provide them). Likewise, consolidation within the industry has resulted in the acquisition of distributors in California by others. In some cases the name of the location has changed, but it others it has not. Additionally, staff commonly continues to refer to the location by the previous name confounding efforts to update records.

- A distributor or HHW may have ordered multiple collection bins over time using different location names and/or addresses. Many of the older bins from these locations have never been returned and remain in the TRC database often appearing as separate locations where they are not. Rarely (>10 in the last 24 months nationally), do collection locations proactively inform the program of address changes. The fact a single recycling container has not been returned does not mean a HVAC wholesale location is not in compliance with the requirement to collect or with regulations on the storage of universal wastes.

- Requiring the inclusion of data as the "date of report" does not afford TRC the opportunity to compile, analyze, and error check the data. This why the statute affords TRC three months to compile data and prepare its report for the previous 12 months.

- The unique identification number of a container is not a viable means for tracking collection locations. Many locations have more than one recycling container and recycling containers are lost, move, and/or reassigned. While TRC still assigns container(s) to a collection location, the movement of bins among locations limits its utility as an identification number for a collection location. The weakness of the bin unique identification number became apparent in developing TRC's new data management system. As such TRC no longer uses the unique identification number of each bin to track collection locations.

TRC emphasizes that maintaining records on collection locations is continuing challenge to the program. Recent upgrades in TRC's data management system provide significant improvements in the program's ability to manage and track location information and collection container receipt information. However, TRC remains dependent on others for much of the data DTSC is requesting. By example, in May 2012 TRC sent 385 letters to HVAC wholesale distribution collection locations in California. The letter contained a simple form requesting location information and the bin number(s) currently at the location. To incent response, respondents were entered into a drawing for a $100 visa gift card. The initial mailing had a 35% response rate. In July correspondence was sent to unresponsive locations and TRC received 70 additional responses—for a total response rate of 53%. Staff follow-up via phone was also conducted to validate and clarify responses.

Finally, TRC notes inconsistencies in the reporting requirements outlined the Initial Statement of reasons and the proposed regulations. Specifically, the Initial Statement of Reasons indicates a contact person is to be reported in addition to the items in the proposed regulations. DTSC should address this issue in the final regulations.

D. Subsection 67388.8 (i)

This subsection will require TRC on an annual basis summarize information on programs it operates in other states. TRC fails to see any reasonable basis for this requirement as DTSC failed to adequately justify the burden of this significant expansion to the annual report.

TRC notes that DTSC states that "some of the information in the subsection *may* be publically available." In fact, <u>all</u> of this information is publically available. For all states with mandatory programs TRC submits reports for the preceding year beginning with Maine's by January 30. Others follow with the majority due April 1. These reports are part of the public record and available upon request from each state and many are posted on TRC's website. Recognizing only Pennsylvania's report would not be complete by California's April 1 deadline, conflicts with DTSC's assertion that such information would not be available in a timely fashion by the May 1 posting date.

Table 1.4: State Reporting Requirements

State	Due Date
Maine	30-Jan
New Hampshire	1-Mar
Rhode Island	1-Mar
Iowa	1-Apr
California	1-Apr
Illinois	1-Apr
Montana	1-Apr
Vermont	1-Apr
Pennsylvania	1-Jun

Likewise, information on each states' statutory requirements is widely available with a simple web search of each state's mercury thermostat law. Moreover, TRC notes that statutory provisions are unlikely to change from year to year, yet DTSC is requiring TRC to report the same information on an annual basis.

Finally, TRC questions DTSC rationalization this requirement is driven by the need to meet the May 1 Web posting deadline. How does this additional information affect the determination the program achieve its performance requirement? It seems such a determination is a simple calculation of the number of thermostats collected by the program compared against the program's performance requirement. Unless DTSC is suggesting it will unilaterally order manufacturers to modify their program(s) within 30 days of the submission of the annual report there is no urgency for this additional information and the requirement places an unreasonable and poorly justified obligation on the program.

V. The Performance Requirements Inadequately Address the Inherent Limitations of Awareness Strategies and the Impact of Lack of Channel Participant Accountability

As documented above, DTSC's proposed performance requirements contemplate a 639% increase in the number of mercury-added thermostats recovered during the period of 2012-2017[25]. This is in addition to the 167% increase achieved during the period of 2008 – 2011.

To put it simply, the growth rates do not make sense, are divorced from all experience around the United States, and the numbers do not add up. TRC cannot imagine, even under a perfect regulatory and market environment whereby incentives (positive and negative) and facilitators align to achieve the kind of thermostat collection numbers that DTSC is imagining by its proposed regulation. In addition to the limitations that TRC has already described above, DTSC should also take note of other limitations as well.

There is a body of research literature that has examined the determinants of recycling behavior, primarily in the consumer/residential channel.[26] The determinants include an array of extrinsic and intrinsic incentives, and extrinsic and intrinsic facilitators. Incentives could include monetary rewards, social influence, enactment and enforcement of laws and regulations, personal pro-environmental attitudes and attachment to a cause. Facilitators can include education and awareness, and minimizing barriers to recycling (providing access).[27] The literature also indicates that demographic variables, such as education, income, age, and geography can explain to some extent whether the waste generator will be influenced by specific incentives or facilitators and become a diligent recycler or not. Whether the waste generator is a residential consumer or a business can influence whether specific incentives or facilitators are actually

[25] TRC is projecting collections of ~20,000 mercury-added thermostats in 2012 in California.

[26] See e.g., J. Hornik et al, *Determinants of Recycling Behavior: A Synthesis of Research Results,* 24 The J. of Socio-Economics 105 (1995); Sebastian Bamberg, et al, *Twenty years after Hines, Hungerford, and Tomera: A NewMeta-Analysis of Pyscho-Social Determinants of Pro-Environmental Behavior,* 27 Journal of Environmental Psychology 14 (2007).

[27] J. Hornik et al, *id.*

influential in affecting recycling behavior. Certain incentives and facilitators can accomplish so much, and beyond some point they are no longer effective and cannot be justified.

Mercury thermostat collections might be improved, although not to the levels imagined by DTSC in its proposed regulation, by some additional steps that may or may not be authorized by statute. The point TRC is making here is that the absence of additional incentives and facilitators, including weaknesses in the underlying regulation, should be factored into determining what is practicable.

Access to recycling is no longer going to be a major issue. TRC sees no substantial increases in access going forward in California, as wholesaler compliance has reached a level in which lack of access is not a mitigating factor for contractors and technicians. While collection bins will continue to be distributed to new locations in 2013 and beyond, that increase will not substantially affect program performance, particularly within the time-frame envisioned by the proposed regulation. The collection rates should not be based on prospects for increased access to thermostat recycling.

TRC urges DTSC to consider 1) the inherent limitation of awareness strategies 2) high levels of HVAC contractor/technician noncompliance with other regulations in the absence of meaningful enforcement, and 3) the level of enforcement (or lack thereof).

Regarding the first point, there is a substantial body of research regarding psychological and social determinants of recycling behavior.[28] This research suggests there are outer limits to which marketing and promotional strategies can achieve environmental outcomes by recognizing the receptiveness of the audience to the messages. In other words, due to factors beyond TRC's control there are segments within the HVAC contractor/technician community that will not alter their behavior despite awareness of the moral and/or legal obligation to do so.

The proposed regulations make no effort to account for HVAC contractor/technician attitudes and TRC recommends DTSC consider HVAC contractor/technician demographics in assessing the likelihood of the behavior change needed to meet or exceed the collection rates. By example, according to the Bureau of Labor Statistics less than 5% of HVAC technicians have a Bachelor's degree or higher and 13% failed to earn a high school diploma; the median wage is $20.00/hour and over 15% are self-employed.

TRC's program performance to date (particularly in comparison to other states with mandatory programs) suggest significant behavioral change by technicians and contractors in California as a result of improved access to recycling at wholesale drop-off locations and channel education Notwithstanding these existing facilitators and incentives, many technicians and contractors still have not altered their behavior. While TRC believes that there will be some additional investment on its part in these types facilitators and incentives that can continue to incrementally increase collection of mercury thermostats for recycling in California up to a point, without additional types of incentives *coming from other actors in the system who are likely to influence*

[28] Sebastian Bamberg, et al, *Twenty years after Hines, Hungerford, and Tomera: A NewMeta-Analysis of Pyscho-Social Determinants of Pro-Environmental Behavior, Journal of Environmental Psychology 27 (2007) 14 -25.*

contractor/technician/wholesaler behavior more than TRC can influence their behavior, the kind of aggressive collection results contemplated by the proposed regulation will never be achieved. For example, the statute imposes no requirements on contractors to offer or require attendance at any educational programs that would include thermostat recycling content. The statute imposes no mandatory communication programs upon the technician's employer. Employers are in a very effective position --- the most effective position of all ---- to explain to their employees that return of mercury thermostats is a requirement of their job and they could face sanctions for failure to comply with this legal requirement. This could be supplemented by something as simple as requiring the placement of a sign on the dashboard of every contractor's work vehicle that used mercury thermostats must be returned to a wholesale location with a collection bin for recycling under penalty of law. This would daily reinforce in the mind of the waste generator --- the person whose compliance is critical to the used mercury thermostat collection system --- that used mercury thermostats must not go into the waste stream. The statute's failure to include obligations on other persons in the collection system --- persons who are in a far better to influence behavior than manufacturers or TRC --- is a factor that weighs against setting collection rates that have not basis in reality.

TRC suggests DTSC look at two analogous regulatory issues to further illustrate this point. The first is the management of HCFC-22 (R-22). US EPA regulates R-22 under Section 608 of the Clean Air Act and R-22 is also regulated by the California Air Resources Board. A complex regulatory scheme has been developed to both restrict the supply of R-22 in the market to effect a transition towards more environmentally friendly refrigerants and to limit the amounts of R-22 released into the environment through system leaks and intentional venting.

EPA restricts the supply of R-22 by limiting the amount of virgin R-22 available in the market in effort to stimulate the reclamation of R-22. Interestingly, despite recent significant price increases in R-22 (tripling in some cases in the last 12 months), reports from within the industry continue to suggest the contractor/technician behavior remains unchanged as there is no indication that contractors/technicians are reclaiming significantly higher amounts of refrigerant despite economic incentives to do so. TRC notes that there has never been any meaningful enforcement on contractors/technicians.[29]

The second analogous issue is compliance with California's Title-24 by the HVAC industry. One study conducted by Southern California Edison indicated the non-compliance rate in residential building for duct improvement was 73% and in nonresidential 100%.[30] By most estimates permits are obtained for fewer than 5% of air-conditioning replacements in California homes.[31]

The Western HVAC Alliance conducted a survey of HVAC contractors focusing on residential replacements (service and repair).[32] TRC notes the vast majority of respondents indicated a little

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[29] Lori Kasallis, *R-22, Where Are You?* RSES Journal, April 2012, 28-32.
[30] M. Sami Khawaja, *Statewide Codes and Standards Market Adoption and Noncompliance Rates,* Final Report CPUC Program No. 1134-04 SCE0224.01, May 2007.
[31] Kristin Heinemeier, *Contractors Walk on the Wild Side Why?* University of California Davis, (2012) Available at: http://wcec.ucdavis.edu/wp-content/uploads/2012/05/Kristin-Heinemeier-ACEEE-2012.pdf.
[32] *Ibid*

probability or certainty for getting caught not complying with requirements to failing to obtain a building permit? Likewise the perceived consequences for getting caught are insignificant.

Finally, DTSC should also consider whether it is going to devote significant resources for a robust or non-existent enforcement program directed at waste generators. This is a powerful incentive if it is robust, but if it is non-existent it diminishes the likelihood that collections will be higher than experienced elsewhere.

TRC believes DTSC should consider demographic/cultural factors, and the channel's history of non-compliance in analogous regulatory regimes, and the DTSC's regulatory enforcement program directed at waste generators. This is a critical weakness in the proposed regulation. DTSC should acknowledge these limitations in the system created by the statute and the demographics of the population that are being counted upon for compliance, and discount the feasibility of its proposed collection rates substantially.

CONCLUSION

While these comments are pointed, TRC offers them constructively in the spirit of the legislative intent. Like the statute, TRC's mission is to maximize the collection of mercury thermostats for recycling, and as documented by TRC's annual reports TRC has a record of steadily increasing collections.

For the reasons set forth above, DTSC should reduce the collection rates to what is feasible; DTSC should revisit the proposed reporting requirements, because they are likely to have a deleterious impact on TRC's collection program, and DTSC should look at what legal measures should be required by other actors in the thermostat collection system that would have a greater impact on collection system performance including contractor/technician education programs undertaken by contractors and their employers.

Attachment 2

Annual Reports Submitted to the Vermont Agency of Natural Resources for the Years 2009, 2010, and 2011 and Annual Reports Submitted to the Maine Department of Environmental Protection for the Years 2008, 2009, 2010, and 2011

Attachment 1

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

January 30, 2012

VIA EMAIL

Ron Dyer
Maine DEP
Bureau of Remediation and Waste Management
17 State House Station
Augusta, Maine 04333-0017

Ms. Ann Pistell
Department of Environmental Protection
17 State House Station
Augusta, ME 04333

Subject: Thermostat Recycling Corporation's 2011 Annual Report

Dear Mr. Dyer and Ms. Pistell:

Attached is TRC's annual collection report for calendar year 2011. TRC has made its best effort to be responsive to the Department's request for expense and collection data.

In recent correspondence to the Department we made a number of recommendations that will improve the efficiency and effectiveness of this program. We look forward to engaging with the Department and others in a constructive dialogue in the future.

Sincere Regards,

Mark Tibbetts
Executive Director

I. Thermostat Data

Table 1. Thermostat Count by Manufacturer

	Total Number of Thermostats by Brand Holder	Total Mecury Switches	Pounds of Mercury
Honeywell	5694	6187	38.3594
White Rogers	371	442	2.7404
GE	12	36	0.2232
Bard	13	20	0.124
Burnham	62	62	0.3844
Carrier	77	109	0.6758
Chromalox	2	2	0.0124
ClimateMaster	0	0	0
Crane	0	0	0
Empire Comfort	27	27	0.1674
Goodman	2	4	0.0248
WW Grainger	12	19	0.1178
Hunter	0	0	0
Invensys	26	26	0.1612
ITT	3	3	0.0186
Lear Siegler	2	2	0.0124
Lennox	15	21	0.1302
Lux	20	20	0.124
Marley-Wylain	6	6	0.0372
McQuay	23	63	0.3906
Nordyne	33	35	0.217
PSG	12	17	0.1054
Rheem	2	2	0.0124
Sears	22	26	0.1612
Taco	1	1	0.0062
Thomas & Betts	0	0	0
TPI	0	0	0
Trane	45	87	0.5394
Uponor	4	4	0.0248
Valliant	7	7	0.0434
York / JCI	40	112	0.6944
Noms	83	94	0.5828
Loose Switches		44	0.2728
Total	6616	7478	46.36

Table 2. 2011 Thermostat Recovery Totals by Location Type

Please See Appendix A

Table 3. 2011 Non-Qualifying Thermostat Totals

	Mail-back (homeowner Program)	Retail	Wholesale	Contractor	HHW
Total Received	5	2607	3139	92	773
Non-Qualifying due to no Cover[†]	n/a	n/a	n/a	n/a	n/a
Non-Qualifying due to other Reason[††]	n/a	n/a	n/a	n/a	n/a
Total	5	2607	3139	92	773

1. Please list towns from which TRC received Homeowner thermostats through mail-back program. Use Separate sheet.

Athens, Harborside, Belgrade, Waldoboro, and Orono

2. Number of TRC thermostats qualifying for incentive payment?

5976[†††]

TRC voluntarily pays the incentive on thermostats received without covers. It has since the program's inception in 2007. If an eligible (i.e. thermostat containers mercury and has coupon attached) is received without a matching remittance coupon, that thermostat remains in the system until such a time a remittance coupon is received that matches coupon that was attached to the thermostat. Likewise, if TRC receives a remittance coupon and has yet to receive a thermostat with a matching coupon the coupon remains in the system. At that point TRC will issue payment.

TRC recovered 48 items in 2011 with incentive coupons attached that were deemed ineligible (e.g. non-mercury thermostat, other mercury containing device, non-mercury containing device, mercury thermostats collected through a retail collection point or mercury thermostats collected at EcoMaine). TRC received 5 remittance coupons that were incomplete, damaged, or otherwise illegible that resulted or will result in nonpayment. Finally, TRC voided over 20 checks in 2011 that were undeliverable or stale checks.

[†] TRC did not track returns in this manner. See response to question 3.
[††] TRC did not track collections in this manner. See response to question 3.
[†††] This figure represents the count of mercury thermostats received at TRCs' processing facility in 2010 that either had an incentive coupon attached or came from sources that do not require coupons for payment (retail and mail-back).

II. Costs

Table 4. Thermostat Recycling Program Costs*

Program Component	TRC Program	Maine Incentive Program
TRC Staff and Administration†	$266,580	n/a
Postage	$2,831	n/a
Phone	$138	n/a
Recycling Costs	$299,877	n/a
Maine Incentive Payments		$25,775
Maine Collateral Design		n/a
Printing of Maine Materials		n/a
Maine Marketing and Promotion††		n/a
Marketing and Promotion†††	$123,221	
Legal Fees	$69,252	$24,020
Other††††	$59,065	n/a
Total	$820,965	$49,795

* TRC allocates expenses supporting the Maine program when it is able to isolate costs that may be solely attributable to the Maine program. Certain materials are used and/or activities are conducted concurrently in other states (i.e. development or printing of collateral or direct mail) and TRC cannot isolate the costs for those activities strictly to Maine. TRC is also unable to apportion recycling costs to Maine, as it would underreport actual costs to process thermostats as additional labor is required to process thermostats due to the incentive program.

† TRC staff and administration includes expenses for staff, corporate fees, copying, shipping/next day air (does not include costs to ship recycling containers), toll free line, wireless services, conference calls, software/hardware, banking fees, recycling container expense, and annual audit.

†† As the following section will highlight TRC carried out a number of activities in 2011, but is unable to allocate the expenses solely to Maine.

††† Marketing and promotion includes direct costs to promote the program nationally and in certain states, including Maine. It does not include TRC staff time devoted to promoting the program (TRC estimates at minimum 50% of staff time is expended on promoting the program). These costs include expenses for marketing consultants, website development/maintenance, paid advertising, graphic design, trade show (not including travel expense), public service announcements, direct mail, printing, meeting registration fees, and sponsorships.

†††† Other includes costs for travel, overhead, insurance, memberships/subscriptions, Vermont incentive payments, and miscellaneous expenses.

III. Education and Outreach

Paid Advertising: Please include ad copy, a list of papers and dates

Web-based advertising— TRC developed new rotating banner advertisements for 2011 and ran them (Exhibit 1) on the websites contractingbusiness.com (160x600 skyscraper) and hvac-talk.com (300x250 medium rectangle) during the months of April, May, September and October. Together, the websites average 1.8 million pages views and 280,000 unique visitors per month. HVAC-Talk.com, an online discussion community, boasts 122,000 registered users.

TRC strategically placed ads to coincide with the spring and fall HVAC business cycles. While the ads were featured, 701,528 impressions were delivered and 522 clicks on the advertisements were recorded.

Exhibit 1: Web Banner Advertisement (300x250 version)

Social Media— TRC developed and deployed a Social Media strategy that leveraged the power of Google and the popularity of Facebook. This campaign, which ran from mid-September through early December, geo-targeted contractors and consumers in states with mercury thermostat disposal bans, including Maine, in an effort to create awareness and increase thermostat collections.

Ads and landing pages were developed with variable messages targeting both audiences. What makes this campaign so interesting is the fact it was targeted. Advertisements appeared on Google search results pages after an individual searched terms related to TRC's mission (E.g. thermostat replacement, contracting recycling regulations, mercury thermostat recycling, programmable thermostats, etc.). Similarly, the Facebook campaign targeted users over 18 who "like" industry-relevant topics or organizations (i.e. renovating, renovators, HVAC, HVAC Technicians, home repair, etc.)

The campaign was very successful. The campaign resulted in over 340,000 impressions on Google and 8.1 million on Facebook.

Exhibit 2: Google and Facebook Advertisements and Landing pages

Side ad

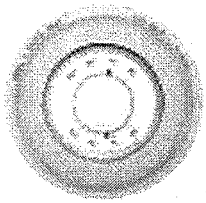
Replacing a thermostat?
It may contain mercury.
Recycle it. Easily. Find out where.
thermostat-recycle.org

Top ad

Replacing a thermostat? - It may contain mercury.
Recycle it. Easily. Find out where.
thermostat-recycle.org

Contractor Ad Example

Mercury thermostats?



Replace the thermostat. Recycle the thermostat. It's that simple.

Consumer Ad Example

Side ad

Replacing a thermostat?
It may contain mercury.
Recycle it. Easily. Find out where.
thermostat-recycle.org

Top ad

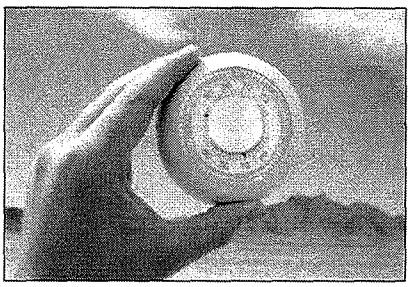
Replacing a thermostat? - It may contain mercury.
Recycle it. Easily. Find out where.
thermostat-recycle.org

Contractor Landing Page Example

Thermostat Recycling CORPORATION

an industry-funded non-profit

Don't know how easy it is to recycle mercury thermostats?



You do now.

We know that when it comes to getting the job done, the last thing you need is another hassle. But the simple fact is recycling old mercury thermostats in your state is the law. You can just toss them in the dumpster and be done with it.

And we're here to make compliance with said law easy. Very easy indeed.

Find a Drop Off Location!

Click. Locate. Drop-off.

Yep, it's that simple. Just click here to locate the drop-off point near you (or your job site) and take the old mercury thermostat - or your stockpile of old thermostats - to them and drop them off. Not only will you walk away knowing you've done the right thing, you'll know you're not breaking any state laws.

Tip-In Insert in HVAC Trade Press—TRC placed an insert in the April and October issues of *HVACR Business* (see Exhibit 3). The insert was included in issues received by approximately 12,000 subscribers in states with mercury thermostat disposal bans (including Maine). This enabled TRC to incorporate the message, "It's something you gotta do, because it's the law." Additionally, TRC incorporated the logos of larger HVAC wholesale distributors on the backside of the card enabling contractors to quickly identify collection locations.

2. PSA and Radio & TV: Please include a description of any changes to the PSA's resubmission to the stations, or relevant information.

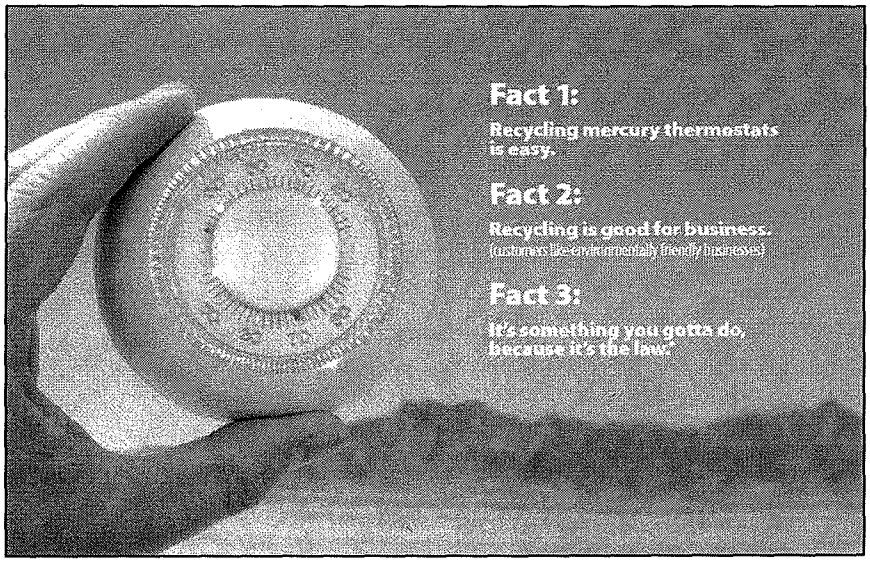
TRC did not resubmit radio PSA's to stations in the Maine market in 2011.

3. Please specify what additional educational and outreach activities were conducted in this reporting year.

Direct Mail—TRC mailed a postcard to approximately 650 contacts at HVAC contracting businesses in Maine. The mailing list was sourced from D&B Zap data. TRC conducted the mailing in the spring and repeated it in the fall.

The spring mailing used the same art as the previous year. For the fall mailing TRC redesigned the card (see Exhibit 4) to better align it with the current branding and improve the messaging.

Exhibit 3: Tip-in Insert *HVACR Business* (front and back)



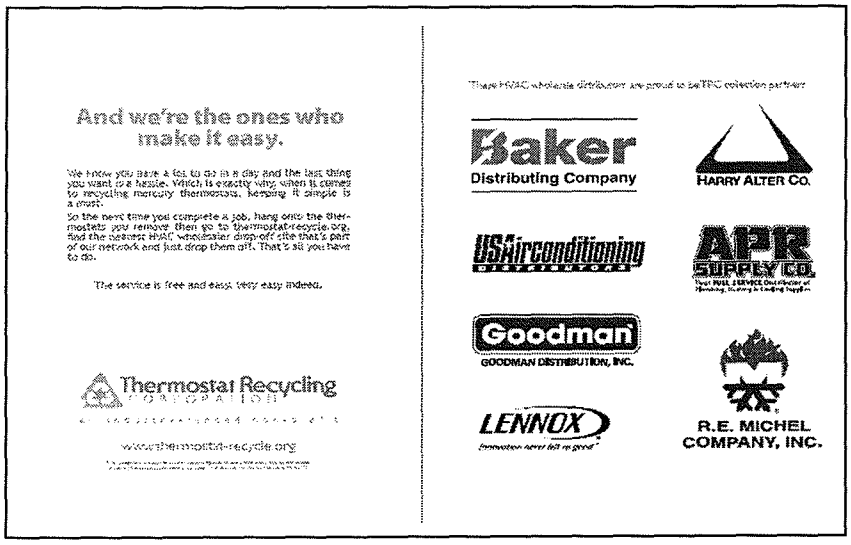
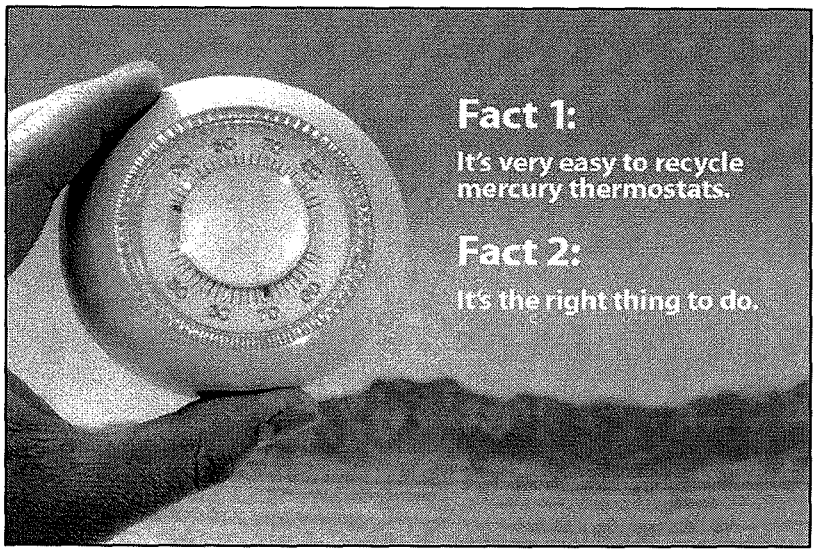


Exhibit 4: Updated Postcard Art



There's $5 in it for you for every thermostat you recycle.

(We think that's a fact you can live with.)

While we know you're all about complying with state law, we also know that sometimes a little incentive doesn't hurt. Which is why when you properly recycle mercury thermostats through us, you'll get a coupon worth $5 for each one you drop off. Go to thermostat-recycle.org to find the drop-off site near you. The service is free and it helps us help you preotect the environment.

Recycle thermostats through TRC, it's smart and easy. And there's five bucks in it for you.

Thermostat Recycling CORPORATION

an industry-funded non-profit

888.266.0550 | www.thermostat-recycle.org

Tradeshows—TRC attended and exhibited at the following trade shows relevant to Maine:

January 31-February 2: AHR Expo. Las Vegas. AHR Expo is the largest national trade show for the HVACR industry. TRC staff exhibited and promoted the program to HVAC contractors, manufacturers and distributors. The show had a total registered attendance of over 53,000. Specifically, 944 attendees were from New England.

February 15 – 17: Air Conditioning Contractors of America Indoor Air Expo, San Antonio, Texas. Representatives from over 200 HVAC contracting businesses attended the show.

May 22-26: National Association of Oil and Energy Service Professionals. Hershey, PA. This was OESP's annual convention and trade show. Nearly 2,700 HVAC professionals attended this show, which targeted service managers for HVAC firms that install and repair oil fired furnaces (about 80% of Maine homes heat with oil).

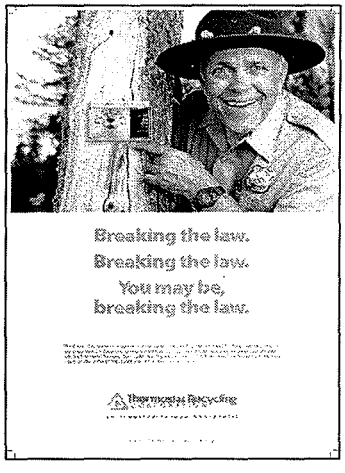
October 23-26: Heating Airconditioning and Refrigeration Distributors International (HARDI). Maui, Hawaii. TRC exhibited and participated in the "Booth Program," which provides for 1-on-1 sessions with senior executive staff from HARDI member companies. This event targeted representatives of approximately 80% of the wholesale market for HVACR products. TRC also presented the inaugural Thermostat Recycling Award to three HVACR distributors recognizing their support of the program.

Website—TRC continued to update the website with information pertinent to its various audiences. Notably, a scrolling banner was added to the homepage which showcases the logos of TRC's major collection partners. TRC also added materials co-branded with the Heating Air Conditioning Refrigeration International (HARDI) to the site. HARDI members represent over 80% of the HVAC wholesale distribution market in the U.S. and these materials were designed specifically for its members use.

TRC continued to update its data management systems in 2011. It is now able to make real-time edits to collection locations listed on the site, improving both the timeliness of changes and their accuracy.

Promotional Tool Kit—Concurrent with the launch of the website in 2010, TRC added high resolution templates of a number of promotional items. These items are available for use by TRC collection points at no additional cost to aid them in promoting the program to their customers. Items include a poster, bill stuffer, invoice template, cling sticker, banner, postcard and print advertisement. In 2011, TRC added point of sale cards and two new posters to the kit. TRC also put the new posters and this version of the cling-sticker in inventory and began distributing these items to collection sites.

Exhibit 5: New Program Collateral



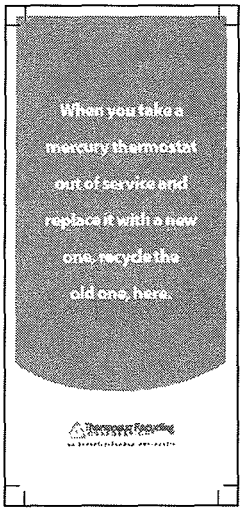


Table 1: Earned Media

Publication/Website	Month	Coverage	Readership/Reach
Air Conditioning, Heating & Refrigeration News	January	Article on thermostat recycling and TRC	111,000
RSES Journal	January	TRC & HARDI partnership	18,000
HVACR Business	April	Guest Column thermostat recycling	33,000
Indoor Comfort News	June		25,000
Air Conditioning Today	June	2010 TRC annual report	n/a
ACCA-Hot Air! Blog	July	TRC program	n/a
Wholesale Observations (HARDI)	July	TRC program	n/a
Demolition Magazine	July/August	Proper management of mercury	n/a
Indoor Comfort News	July	2010 TRC annual report	25,000
1800recycling.com	September	Recycling old thermostats	N/A
Contracting Business	October	Thermostat recycling awards	29,000
Indoor Comfort News	October	USACD thermostat recycling	n/a
Supply House Times	October	Thermostat recycling awards	12,800

Earned Media—TRC generated considerable positive media attention in 2011. TRC made a concerted effort in 2011 to generate stories on the program. Most notable was the four page article in the *Air Conditioning, Heating, and Refrigeration News* (*The News)* which included a TRC provided table on mercury thermostat laws. *The News* is the leading industry publication.

4. Please specify what additional education and outreach activities are planned for the next calendar year.

As part of its overall marketing strategy, TRC among other things will:

- Continue to attend and exhibit at national and regional trade shows in 2012.
- Continue to maintain and update its website in an effort to increase traffic and provide more on the program.
- Continue efforts to engage HVAC wholesale distributors to increase the level of participation in the program.
- Continue bi-annual postcard mailings to Maine HVAC contractors.
- Continue the mercury thermostat recycling awards with HARDI.

Due to the early reporting deadline in Maine (the majority of TRC's annual reports are due April 1) TRC has yet to complete its 2012 marketing plans and at this time is unable to commit to a specific paid advertising strategy.

5. Please provide a list of TRC members and their contact information

Please see Appendix B

6. Other comments or recommendations.

By statute the mercury-containing thermostat program goal for 2010 is 160 pounds of mercury. TRC efforts will contribute 46.36 pounds to the collective goal.

Maine remains the most costly and difficult recycling program for TRC to administer. TRC and its members fully support the Department's efforts to review this program and explore ways of improving both its efficacy and efficiency of the Maine program. Below TRC reiterates and in some cases expands on recent comments to the Department.

- Department Compliance Assistance: It is our view the current contractor and wholesaler compliance assistance program lacks structure. We have found guidance offered to generators and collection sites has been incomplete, inconsistent, and unfortunately in many cases interfered with TRC program operations.

- Coordination/Collaboration with the Department: TRC deeply appreciates your willingness to engage in a constructive dialogue. The next step is to begin to coordinate and collaborate on program activities. Areas where there are opportunities for collaboration include program outreach, collection site assessment, and stakeholder engagement.

- Reducing Abuse within the Incentive Program: We appreciate the Department's acknowledgement that the program has been abused by some. We remain concerned by allowing, and in some cases encouraging, collection site staff to collect incentive payments the Department has created an incentive not to promote the program.

We respectfully disagree with the July 11, 2011 guidance provided to the Department by Assistant Attorney General Nancy Macirowski. Reading the statute as whole, it is quite clear the intended recipients of the incentive are the generators of the waste, meaning the person who removed the thermostat from service.

We note the statute (§ 1665-B(2)(E) and § 1665-B(2)(F)) specifically states the financial incentive is for the "return" by a technician, contractor, or homeowner of each mercury thermostat to an established recycling collection point. Once the thermostat has been delivered to that point (e.g. HVAC wholesale distributor) there is nothing further to incent.

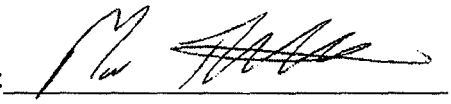
As we have previously reported, the generator returns the thermostat(s) to a collection point but forgoes the incentive; subsequently an employee of the collection location claims the payment. Contractors, technicians, and homeowners have well defined meanings within the trade and are understood not to include staff at HVAC wholesale distributors, retail establishments, or transfer stations. As such, employees of recycling collection points were never intended to be recipients of the incentive payments since the thermostat had already been "returned" to the collection point.

We again note, the Vermont Department of Conservation concurred with our interpretation of the statute and in Vermont, collection point staff is prohibited from collecting incentive payments.

- Simplifying the Administration of the Incentive Program: TRC has documented numerous problems with the incentive program in prior correspondence and reports. The system is complex and has multiple points of failure outside of TRC's control. TRC has made a best effort to work within these limitations, but some simple changes to make it consistent with Vermont's program would ease the administrative burden.

- Developing better performance metrics: The current performance goal of 160 pounds is based upon a flawed metric. The assumptions used to develop this goal were not empirically based and represent little more than guesses. Other states including Vermont, New Hampshire, Iowa, and California have all recognized this methodology's deficiencies and opted not to emulate it. No one knows the remaining installed base of mercury thermostats in Maine or the number that become waste annually. As the program has matured there is a need for a better means of assessing performance.

Respectfully Submitted by: Mark Tibbetts
Executive Director
January 30, 2012

Signature: 

APPENDIX A—2011 Returns by Location

Customer Name	Location Type	City	Zip	Values	Grand Total
AMES SUPPLY TRUE VALUE	Retail	WISCASSET	04578	Sum of Total Stats	262
				Sum of Total lbs mercury	1.6244
				Sum of Loose Bulbs	0
AUBUCHON #133	Retail	AUGUSTA	04333	Sum of Total Stats	8
				Sum of Total lbs mercury	0.0496
				Sum of Loose Bulbs	0
AUBUCHON HARDWARE	Retail	Belfast	04915	Sum of Total Stats	44
				Sum of Total lbs mercury	0.2728
				Sum of Loose Bulbs	0
		BREWER	04412	Sum of Total Stats	4
				Sum of Total lbs mercury	0.0248
				Sum of Loose Bulbs	0
		BUXTON	04093	Sum of Total Stats	9
				Sum of Total lbs mercury	0.1302
				Sum of Loose Bulbs	0
		FARMINGTON	04938	Sum of Total Stats	14
				Sum of Total lbs mercury	0.0868
				Sum of Loose Bulbs	0
		NEWPORT	04953	Sum of Total Stats	56
				Sum of Total lbs mercury	0.3658
				Sum of Loose Bulbs	0
		OLD TOWN	04408	Sum of Total Stats	30
				Sum of Total lbs mercury	0.1984
				Sum of Loose Bulbs	0
		PORTLAND	04103	Sum of Total Stats	44
				Sum of Total lbs mercury	0.2852
				Sum of Loose Bulbs	0

		RAYMOND	04071-0000	Sum of Total Stats	13
				Sum of Total lbs mercury	0.0806
				Sum of Loose Bulbs	0
		RUMFORD	04276	Sum of Total Stats	13
				Sum of Total lbs mercury	0.0806
				Sum of Loose Bulbs	0
		SANFORD	04073	Sum of Total Stats	121
				Sum of Total lbs mercury	0.7688
				Sum of Loose Bulbs	0
		Skowhegan	04976	Sum of Total Stats	12
				Sum of Total lbs mercury	0.0744
				Sum of Loose Bulbs	0
		WELLS	04090	Sum of Total Stats	56
				Sum of Total lbs mercury	0.3782
				Sum of Loose Bulbs	0
		WINDHAM	04062	Sum of Total Stats	14
				Sum of Total lbs mercury	0.0868
				Sum of Loose Bulbs	0
AUBUCHON HARDWARE # 128	Retail	LEWISTON	04240	Sum of Total Stats	56
				Sum of Total lbs mercury	0.3472
				Sum of Loose Bulbs	0
AUBUCHON HARDWARE #097	Retail	LISBON FALLS	04252	Sum of Total Stats	76
				Sum of Total lbs mercury	0.558
				Sum of Loose Bulbs	0
AUBUCHON HARDWARE #133	Retail	Waterville	04901	Sum of Total Stats	49
				Sum of Total lbs mercury	0.3038
				Sum of Loose Bulbs	0
			04901-4521	Sum of Total Stats	9
				Sum of Total lbs mercury	0.0558

				Sum of Loose Bulbs	0
BANGOR PIPE & SUPPLY	Wholesale	BANGOR	04401	Sum of Total Stats	41
				Sum of Total lbs mercury	0.5394
				Sum of Loose Bulbs	0
Bell / Simons Co	Wholesale	Waterville	04901-0000	Sum of Total Stats	305
				Sum of Total lbs mercury	1.9778
				Sum of Loose Bulbs	8
BELL SIMONS CO.	Wholesale	Waterville	04901	Sum of Total Stats	143
				Sum of Total lbs mercury	0.8866
				Sum of Loose Bulbs	0
BELL/SIMONS CO	Wholesale	AUBURN	04210	Sum of Total Stats	56
				Sum of Total lbs mercury	0.3472
				Sum of Loose Bulbs	0
			04210-0000	Sum of Total Stats	170
				Sum of Total lbs mercury	1.4074
				Sum of Loose Bulbs	0
		BANGOR	04401-0000	Sum of Total Stats	25
				Sum of Total lbs mercury	0.1736
				Sum of Loose Bulbs	0
		BREWER	04412-0000	Sum of Total Stats	21
				Sum of Total lbs mercury	0.1364
				Sum of Loose Bulbs	0
		PORTLAND	04103-0000	Sum of Total Stats	38
				Sum of Total lbs mercury	0.5394
				Sum of Loose Bulbs	20
		SANFORD	04073-2850	Sum of Total Stats	109
				Sum of Total lbs mercury	0.7006
				Sum of Loose Bulbs	0
COASTAL HARDWARE INC.	Retail	YARMOUTH	04096	Sum of Total Stats	107

				Sum of Total lbs mercury	0.713
				Sum of Loose Bulbs	0
Daigle Oil Co	Contractor	Presque Isle	04769	Sum of Total Stats	15
				Sum of Total lbs mercury	0.093
				Sum of Loose Bulbs	0
DEAD RIVER COMPANY	Contractor	Biddeford	04005-0000	Sum of Total Stats	43
				Sum of Total lbs mercury	0.2666
				Sum of Loose Bulbs	0
		BREWER	04412	Sum of Total Stats	73
				Sum of Total lbs mercury	0.4712
				Sum of Loose Bulbs	0
		MADAWASKA	04756-0000	Sum of Total Stats	34
				Sum of Total lbs mercury	0.2108
				Sum of Loose Bulbs	0
DENMARK TRANSFER STATION	HHW	DENMARK	04022	Sum of Total Stats	31
				Sum of Total lbs mercury	0.1922
				Sum of Loose Bulbs	0
DISTRIBUTOR CORPORATION	Wholesale	WESTBROOK	04092-0000	Sum of Total Stats	23
				Sum of Total lbs mercury	0.155
				Sum of Loose Bulbs	0
DUPUIS HARDWARE	Retail	Biddeford	04005	Sum of Total Stats	180
				Sum of Total lbs mercury	1.1222
				Sum of Loose Bulbs	0
ECOMAINE	HHW	PORTLAND	04102	Sum of Total Stats	506
				Sum of Total lbs mercury	3.9804
				Sum of Loose Bulbs	2
ENVIRONMENTAL PROJECTS INC.	HHW	AUBURN	04210	Sum of Total Stats	144
				Sum of Total lbs mercury	0.9238
				Sum of Loose Bulbs	0

ENVIRONMENTAL PROTECTION	???	AUGUSTA	04333-0017	Sum of Total Stats	24
				Sum of Total lbs mercury	0.2604
				Sum of Loose Bulbs	0
F.W. WEBB	Wholesale	SOUTH PORTLAND	04106	Sum of Total Stats	6
				Sum of Total lbs mercury	0.0372
				Sum of Loose Bulbs	0
F.W. WEBB CO.	Wholesale	AUGUSTA	04330-0000	Sum of Total Stats	397
				Sum of Total lbs mercury	3.6146
				Sum of Loose Bulbs	0
		Biddeford	04005-0000	Sum of Total Stats	148
				Sum of Total lbs mercury	0.9982
				Sum of Loose Bulbs	4
		CARIBOU	04736-0000	Sum of Total Stats	73
				Sum of Total lbs mercury	0.4774
				Sum of Loose Bulbs	0
		LEWISTON	04240-0000	Sum of Total Stats	134
				Sum of Total lbs mercury	0.8308
				Sum of Loose Bulbs	0
		ROCKLAND	04841-0000	Sum of Total Stats	65
				Sum of Total lbs mercury	0.4154
				Sum of Loose Bulbs	0
		SOUTH PORTLAND	04106-0000	Sum of Total Stats	39
				Sum of Total lbs mercury	0.3596
				Sum of Loose Bulbs	3
		WEST BATH	04530-0000	Sum of Total Stats	164
				Sum of Total lbs mercury	1.0602
				Sum of Loose Bulbs	0
FALMOUTH PUBLIC WORKS	HHW	FALMOUTH	04105	Sum of Total Stats	26
				Sum of Total lbs mercury	0.1612

				Sum of Loose Bulbs	0
FARMINGTON FARMERS UNION	Retail	FARMINGTON	04938-5806	Sum of Total Stats	22
				Sum of Total lbs mercury	0.1364
				Sum of Loose Bulbs	0
GOSLINE'S HARDWARE	Retail	FARMINGDALE	04394	Sum of Total Stats	158
				Sum of Total lbs mercury	0.9858
				Sum of Loose Bulbs	0
JOHNSTONE SUPPLY CO	Wholesale	BANGOR	04401	Sum of Total Stats	35
				Sum of Total lbs mercury	0.2604
				Sum of Loose Bulbs	0
LIMERICK TRANSFER STATION	HHW	LIMERICK	04048	Sum of Total Stats	19
				Sum of Total lbs mercury	0.1178
				Sum of Loose Bulbs	0
Maine ACE HARDWARE	Retail	PORTLAND	04102	Sum of Total Stats	328
				Sum of Total lbs mercury	2.263
				Sum of Loose Bulbs	0
MAINE HARDWARE	Retail	PORTLAND	04102	Sum of Total Stats	304
				Sum of Total lbs mercury	2.1638
				Sum of Loose Bulbs	0
MAINE HOMEOWNER BIN	???	AUGUSTA	04333	Sum of Total Stats	4
				Sum of Total lbs mercury	0.0248
				Sum of Loose Bulbs	0
ME HOMEOWNERS	???	#N/A	#N/A	Sum of Total Stats	1
				Sum of Total lbs mercury	0.0062
				Sum of Loose Bulbs	0
MEMCO	Wholesale	JAY	04239	Sum of Total Stats	90
				Sum of Total lbs mercury	0.5642
				Sum of Loose Bulbs	0
NORTHERN BURNER SUPPLY CO. INC.	Wholesale	PORTLAND	04101-0000	Sum of Total Stats	80

				Sum of Total lbs mercury	0.5022
				Sum of Loose Bulbs	0
OAKHILL HARDWARE	Retail	SCARBOROUGH	04074	Sum of Total Stats	102
				Sum of Total lbs mercury	0.6696
				Sum of Loose Bulbs	0
P & E ENTERPRISES	Wholesale	SANFORD	04073-0000	Sum of Total Stats	56
				Sum of Total lbs mercury	0.3844
				Sum of Loose Bulbs	0
PARADIS TRUE VALUE	Retail	BAR HARBOR	04609-1499	Sum of Total Stats	14
				Sum of Total lbs mercury	0.0868
				Sum of Loose Bulbs	0
PLUMMER'S HARDWARE	Retail	BUXTON	04093-0000	Sum of Total Stats	14
				Sum of Total lbs mercury	0.093
				Sum of Loose Bulbs	0
REDLON & JOHNSON	Wholesale	AUGUSTA	04330-0000	Sum of Total Stats	33
				Sum of Total lbs mercury	0.2046
				Sum of Loose Bulbs	0
		LEWISTON	04240-0000	Sum of Total Stats	51
				Sum of Total lbs mercury	0.6448
				Sum of Loose Bulbs	3
		PORTLAND	04102-4755	Sum of Total Stats	34
				Sum of Total lbs mercury	0.2108
				Sum of Loose Bulbs	0
		Presque Isle	04769-0000	Sum of Total Stats	22
				Sum of Total lbs mercury	0.1426
				Sum of Loose Bulbs	0
		ROCKLAND	04841-0000	Sum of Total Stats	19
				Sum of Total lbs mercury	0.1178
				Sum of Loose Bulbs	0

		WINDHAM	04062	Sum of Total Stats	18
				Sum of Total lbs mercury	0.1116
				Sum of Loose Bulbs	0
Rockingham Electrical Supply	Wholesale	AUGUSTA	04330	Sum of Total Stats	19
				Sum of Total lbs mercury	0.1178
				Sum of Loose Bulbs	0
S. W. COLLINS CO	Retail	CARIBOU	04736	Sum of Total Stats	157
				Sum of Total lbs mercury	0.9734
				Sum of Loose Bulbs	0
		Presque Isle	04769-2266	Sum of Total Stats	17
				Sum of Total lbs mercury	0.1054
				Sum of Loose Bulbs	0
S.W. COLLINS CO.	Retail	HOULTON	04730-0000	Sum of Total Stats	94
				Sum of Total lbs mercury	0.6014
				Sum of Loose Bulbs	3
Sid Harvey Industries	Wholesale	BREWER	04412-0000	Sum of Total Stats	34
				Sum of Total lbs mercury	0.217
				Sum of Loose Bulbs	0
		Presque Isle	04769-0000	Sum of Total Stats	25
				Sum of Total lbs mercury	0.1798
				Sum of Loose Bulbs	0
SPORTSMAN'S TRUE VALUE HARDWARE	Retail	WESTBROOK	04092-0000	Sum of Total Stats	63
				Sum of Total lbs mercury	0.5146
				Sum of Loose Bulbs	0
STANDISH HARDWARE	Retail	STANDISH	04084	Sum of Total Stats	19
				Sum of Total lbs mercury	0.1178
				Sum of Loose Bulbs	0
STEVENS HARDWARE	Retail	SABATTUS	04280-4022	Sum of Total Stats	50
				Sum of Total lbs mercury	0.31

				Sum of Loose Bulbs	0
TOWN OF MILFORD	HHW	MILFORD	04461	Sum of Total Stats	14
				Sum of Total lbs mercury	0.0868
				Sum of Loose Bulbs	0
TOWN OF TURNER	HHW	TURNER	04282	Sum of Total Stats	10
				Sum of Total lbs mercury	0.062
				Sum of Loose Bulbs	0
TOWNHOUSE SUPPLY	Retail	Waterville	04901-0000	Sum of Total Stats	88
				Sum of Total lbs mercury	0.5704
				Sum of Loose Bulbs	1
Trane Co.	Wholesale	WESTBROOK	04092-0000	Sum of Total Stats	23
				Sum of Total lbs mercury	0.3038
				Sum of Loose Bulbs	0
Tri-county	HHW	Union	04862	Sum of Total Stats	37
				Sum of Total lbs mercury	0.2418
				Sum of Loose Bulbs	0
WEBBER SUPPLY INC.	Wholesale	BANGOR	04401-6819	Sum of Total Stats	381
				Sum of Total lbs mercury	2.3932
				Sum of Loose Bulbs	0
		SOUTH PORTLAND	04106-0000	Sum of Total Stats	141
				Sum of Total lbs mercury	0.9796
				Sum of Loose Bulbs	0
WESCO/Standard Electric Company	Wholesale	ROCKLAND	04841-0000	Sum of Total Stats	10
				Sum of Total lbs mercury	0.0682
				Sum of Loose Bulbs	0

APPENDIX B—Member Contact Information

Manufacturer	Contact L_Name	Contact F_Name	Suffix	Address_1	Address_2	City	State	Zip
Bard Manufacturing	Hanna	Dick	Mr.	1914 Randolf Drive	PO Box 607	Bryan	OH	43506
Burnham Holdings, Inc.	Hainley	Gary	Mr.	US Boiler Company	PO Box 3020	Lancaster	PA	17603
Carrier Corporation	Hotaling	Peggy	Ms.	TR-4	PO Box 4808	Syracuse	NY	13221
Chromalox	Cook	Gary	Mr.	103 Gamma Drive Ext		Pittsburg	PA	15238
Climate Master, Inc.	Ellis	Mark	Mr.	7300 SW 44th Street		Oklahoma City	OK	73179
Crane Company	D'Iorio	Anthony	Mr.	100 First Stamford Place		Stamford	CT	06092
White Rodgers	Sartain	John	Mr.	8100 W. Florissant Ave.	PO Box 36922	St. Louis	MO	63136-9022
Empire Comfort Systems	Belding	Ken	Mr.	918 Freeburg Avenue		Belleville	IL	62222
General Electric	Graham	Drew	Mr.	1 River Road	Building 43, 2*19	Schenectady	NY	12345
Goodman Global, Inc.	Bunk	Sean	Mr.	5151 San Felipe	Suite 500	Houston	TX	77056
Honeywell Inc.	O'Donnell	Dan	Mr.	101 Columbia Road	Nichols-2	Morristown	NJ	07962
Hunter Fan Company	Heckmann	Martin	Ms.	7130 Goodlett Farms Prkwy	Suite 400	Memphis	TN	38016
Invensys Controls	Szewczyk	Steve	Mr.	191 E. North Avenue		Carol Stream	IL	60188
ITT Corporation	Daves	Fern	Ms.	1133 Westchester Avenue		Westchester	NY	10604
Johnson Controls	Werwie	Jeff	Mr.	507 E. Michigan Street		Milwaukee	WI	53202
Lear Seigler	Mathews	Jim	Mr.	PO Box 34		Green Village	NJ	07935
Lennox Corporation	Johnson	Robert	Mr.	2140 Lake Park Blvd		Richardson	TX	75080
Lux Products	Milley	Roger	Mr.	6000-1 Commerce Parkway		Mount Laurel	NJ	08054
The Marley-Wylain Company	Cauley	James	Mr.	400 South Prairie Ave.		Waukesha	WI	53186
McQuay International	Fleser	Ryan	Mr.		13600 Industrial Park Blvd	Plymouth	MN	55441
Nordyne	Bentz	Bob	Mr.	8000 Phoenix	PO Box 8809	O'Fallon	MO	63366

				Parkway				
PSG Controls	McFadden	Terry	Mr.	1225 Runnel Road		Perkasie	PA	18944
Rheem Manufacturing Company	Steffens	Charles	Mr.	5600 Old Greenwood Road	PO Box 17010	Ft Smith	AR	72917
Sears Holding Company	Olsen	Mike	Mr.	3333 Beverly Road	B5-339A	Hoffman Estates	IL	60179
Taco, Inc.	Grof	David	Mr.	1160 Cranston Street		Cranston	RI	02920
Thomas & Betts Corporation	Chopra	Om	Mr.	8155 T&B Boulevard		Memphis	TN	38125
TPI Corporation	Stratton	Sharon	Ms	PO Box 4973		Johnson City	TN	37602
Trane Residential Systems	Storm	Tim	Mr.	6200 Troup Highway		Tyler	TX	75707
Uponor, Inc.	Stroud	Dale	Mr.	5925 148th Street W.		Apple Valley	MN	55124
Vaillant Corporation	Carr	Colin	Mr.	855 Industrial Hwy.	Unit # 10	Cinnaminson	NJ	08077
W. W. Grainger Inc	Jagiello	Terrance	Mr.	100 Grainger Parkway		Lake Forest	IL	60045

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

January 31, 2011

Mr. James Brooks, Acting Commissioner
Department of Environmental Protection
17 State House Station
Augusta, ME 04333

Ms. Ann Pistell
Department of Environmental Protection
17 State House Station
Augusta, ME 04333

Subject: Thermostat Recycling Corporation's 2010 Annual Report

Dear Mr. Brooks and Ms. Pistell:

Attached is TRC's annual collection report for calendar year 2010. TRC has made its best effort to be responsive to the Department's request for expense and collection data.

TRC would like to take the opportunity to summarize a few of its major accomplishments in 2010.

- Notwithstanding continued economic challenges for the HVAC industry, the national recovery of thermostats increased by 29 percent, keeping almost 1,900 pounds of mercury out of landfills and municipal solid waste incinerators.
- Industry participation in TRC continued to grow and by year end, TRC represented 29 manufacturers that historically branded and distributed mercury switch thermostats.
- TRC continues to see substantial growth in access to the program, adding over 700 new collection locations in 2010. TRC saw solid growth in all collection location types in 2010.

Unfortunately, we did not see similar results in Maine. Collection growth in Maine was relatively flat in 2010, despite our and the Department's efforts to promote and expand the program.

Since legal requirements to ensure waste mercury thermostats are diverted from landfills and municipal solid waste incinerators in Maine have now been in force for over nine years, we respectfully suggest it is appropriate to review Maine's mercury thermostat recycling program at this time. While TRC continues to strongly support the intent of the law, we have been and remain critical of certain aspects, including, by way of example, the cumbersome financial incentive program imposed on manufacturers, and urge the Department to review the program and to work with us to make recommendations for simplifying its administration.

We look forward to working with the Department and other stakeholders if it opts to conduct such a review.

Sincere Regards,

Mark Tibbetts
Executive Director

Maine DEP Thermostat Collection Report Form For Calendar Year 2010 Activities.
Due January 31, 2010

Directions: This form may be completed electronically. Please provide the following information on thermostat collection and recycling efforts in Maine.

I. Thermostat Data

Table 1. Thermostat Count by Manufacturer

	Total number of Thermostats by Brand Holder	Total Mercury Switches	Pounds of Mercury
Honeywell	5593	5848	36.26
White Rogers	261	310	1.92
GE	7	25	0.16
Bard	2	2	0.01
Burnham	49	49	0.30
Carrier	137	149	0.92
Chromalox	3	3	0.02
ClimateMaster	2	2	0.01
Crane	1	4	0.02
Empire Comfort	26	26	0.16
Invensys	2	3	0.02
ITT	1	1	0.01
Lear Siegler	9	9	0.06
Lennox	24	32	0.20
Lux	15	15	0.09
McQuay	86	253	1.57
Nordyne	23	23	0.14
PSG	22	63	0.39
Rheem	0	0	0.00
Sears	16	17	0.11
Taco	8	8	0.05
Thomas & Betts	0	0	0.00
TPI	0	0	0.00
Trane	29	61	0.38
Uponor	0	0	0.00
Valliant	0	0	0.00
WW Grainger	2	3	0.02
York / JCI	27	50	0.31
Other	178	257	1.59
Loose Bulbs		29	0.18
Total	6523	7242	44.90

Table 2. 2010 Thermostat Recovery Totals by Location

Please copy the attached table in an Excel spreadsheet format with the following information, please use font 12.

Please See Appendix B

Table 3. 2010 Non-Qualifying Thermostat Totals

	Mail-back (Homeowner Program)	Retail	Wholesale	Contractor	HHW
Total Received	32	1011	4635	554	291
Non-Qualifying due to no Cover[1]	n/a	n/a	n/a	n/a	n/a
Non-Qualifying due other reason[2]	n/a	n/a	n/a	n/a	n/a
Total	32	1011	4653	554	291

1. Please list towns from which TRC received Homeowner thermostats through mail-back program. Use separate sheet.

   Please See Appendix C

2. Number of TRC Thermostats qualifying for incentive payment?

   4,490[3] (84% of total received)

3. Number of thermostats not qualifying for payment?

   990 thermostats were recovered without incentive coupon bar-code.

TRC voluntarily pays the incentive on thermostats received without covers. If an eligible (i.e., contains mercury and has coupon attached) thermostat is received without a matching remittance coupon, that thermostat remains in the system until such a time a remittance coupon is received that matches that thermostat. At that point TRC will issue payment.

TRC recovered 37 items with bar-coded stickers attached that were deemed ineligible (e.g., non-mercury thermostat, other mercury containing device, non-mercury containing device, or mercury thermostats collected through retail outlet). Additionally, TRC received 113 remittance coupons that were incomplete, damaged,

[1] TRC did not track collections in this manner. See response to question 3.

[2] TRC did not track collections in this manner. See response to question 3.

[3] This figure represents the count of mercury thermostats received at TRC's processing facility in 2010 that either had an incentive coupon attached or came from sources that do not require coupons for payment (retail and mail-back).

or otherwise illegible that resulted or will result in non-payment.

II. Costs

Table 4. Thermostat Recycling Program Costs

Program Component	TRC Program	Maine Incentive Program*
TRC Staff and Administration†	$236,063	$1,294
Postage	$1,848	n/a
Phone	$186	n/a
Recycling Costs	$300,096	n/a
Maine Incentive Payments		$31,610
Maine Collateral Design		n/a
Printing of Maine Materials		n/a
Maine Marketing and Promotion††		$505
Marketing and Promotion†††	$74,897	
Legal Fees	n/a	$7,349
Other††††	$59,845	n/a
Total	**$672,935**	**$40,758**

* TRC allocates costs supporting the Maine Program when practicable. It is unable to allocate most costs to Maine as TRC has no ready means to isolate and apportion costs for activities in Maine. Certain materials are used and/or activities are conducted concurrently in other states (i.e. printing of collateral such as posters or direct mail) and TRC cannot isolate the costs for those activities strictly to Maine. TRC is also unable to apportion recycling costs to Maine, as it would underreport actual costs to process thermostats as additional labor is necessary to process thermostats from Maine due to the incentive program.

† TRC Staff and Administration includes costs for staff, certain consulting services, corporate fees, copying, shipping/next day (does not include costs to ship recycling containers), toll-free line for Maine/Vermont, wireless, conference calls, software/hardware, banking fees, recycling container expense, and audit.

†† Maine Marketing and Promotion includes costs associated with advertising in the Maine "weeklies." Costs associated with other Maine promotional activities including direct mail, trade shows, etc. could not be isolated and apportioned to Maine.

††† Marketing and promotion includes direct costs to promote the program nationally and in certain states, including Maine. It does not include TRC staff time devoted to promoting the program (TRC estimates at minimum 50% of staff time is expended on promoting the program). These include costs for marketing consulting, website development, advertising, graphic design, trade shows (not including travel to these events), public service announcements, direct mail, printing, meeting

registration fees, and sponsorships. As a small state, there are limited direct channels to market to Maine contractors. As such, TRC also conducts marketing and promotion targeting HVAC contactors and distributors nationally, some of which operate in Maine.
†††† "Other" includes costs for travel, overhead, insurance, supplies, memberships/subscriptions, Vermont incentive payments, and miscellaneous expenses.

III. Education and Outreach

1. *Paid Advertising: Please include ad copy, a list of papers and dates*

Weeklies: TRC conducted paid advertising (Exhibit 1) in the following Maine "weeklies:" *Rumford Times, Courier Gazette, Camden Herald, Moosehead Messenger, and Ellsworth American.* The ads ran in February 2010.

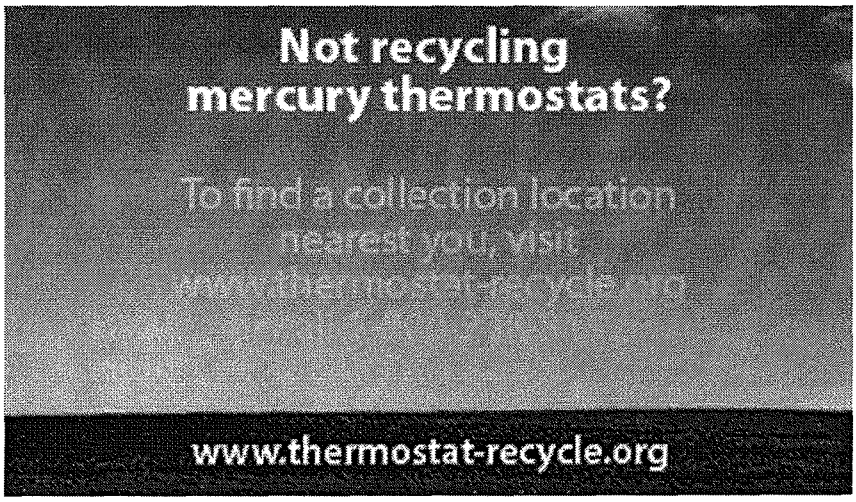
Exhibit 1: Image of Maine "Weekly" Advertisement

Websites: TRC also ran rotating banner advertisements (Exhibit 2) on the websites contractingbusiness.com and Hvac-talk.com for the months of April, May and June. Both sites are national and target the HVAC contracting audience. Contractingbusiness.com averages 59,000 page views and 27,000 unique visitors

per month. Hvac-talk.com averages 1.5 million page views and 221,000 unique visitors per month.

The advertisement was animated with scrolling images of thermostats, the final message directed contractors to TRC's website.

Exhibit 2: Web Banner Advertisement



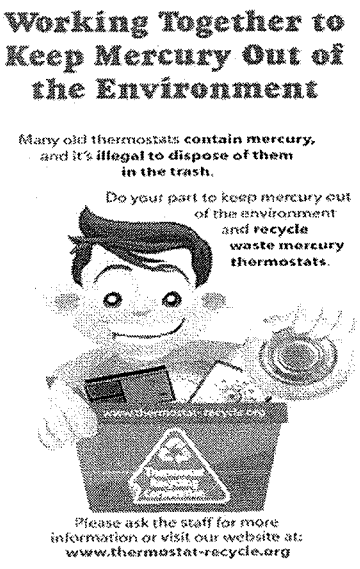
2. PSA and Radio & TV: Please include a description of any changes to the PSA's, resubmission to the stations, or relevant information.

TRC did not resubmit radio PSA's to stations in the Maine market in 2010.

3. *Please specify what additional education and outreach activities were conducted in this reporting year.*

TRC Recycling Poster: TRC mailed two (2) copies of its "consumer" poster (Exhibit 3) to each town office in Maine (approximately 500 towns) requesting the

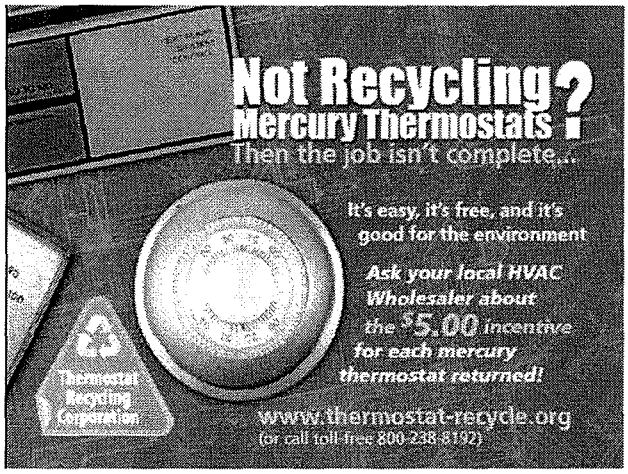
Exhibit 3: Recycling Poster



poster be hung at the transfer station or other appropriate location within the community. The letter also served as a reminder of Maine's disposal ban on mercury-containing products. A copy of the transmittal letter is available in Appendix A.

Direct Mail: TRC developed and mailed a postcard (Exhibit 4) to approximately 625 HVAC contractors in Maine. The mailing list was sourced from D&B Zap data. TRC conducted the mailing in the spring and again in the fall of 2010.

Exhibit 4: Front of Postcard for Direct Mail to Maine HVAC contractors



Earned Media: TRC drafted and submitted a short article on Maine's recycling law to the following stakeholder groups in Maine: Maine Energy Marketers (formerly Maine Oil Dealers Association) and Maine Plumbing, Heating Cooling Contractors Association (MPHCCA). MPHCCA acknowledged receipt of the article and indicated they would email an update to its members and include information on the program in an upcoming newsletter.

TRC also received coverage in national trade press on numerous occasions. The program was covered in *Indoor Comfort News* (June 2010, July, 2010, and October 2010. The HARDI/TRC media release (December, 2010) was covered in *Waste and Recycling News* and *Air Conditioning Today.* TRC's program also received extensive coverage in the *HARDI Convention Daily* (distributed to all HARDI annual convention attendees).

Local, Regional, and National Trade Shows: TRC attended and exhibited at the following trade shows relevant to Maine:

January 25-27: AHRExpo: Largest national trade show for HVACR industry. Event was held at Orlando Convention center. TRC staff exhibited and promoted program to representatives of both HVAC contractors and HVAC distributors.

March 19: Maine Plumbing, Heating and Cooling Contractors Association annual trade show at the Augusta Civic Center. Event targeted Maine-based plumbing and heating contractors

May 24 and 25: National Oil Heat Service Managers annual meeting and trade show, Providence, Rhode Island. Event targeted service managers for oil fired furnaces and drew New England based contractors due to show's location in Providence. TRC also sponsored the opening reception for additional visibility at the event.

September 23-24: Comfortech. Comfortech is a national trade show for HVAC contractors sponsored by Penton Media, publishers of *Contracting Business*.

October 23-26. Heating Airconditioning and Refrigeration Distributors International (HARDI) annual meeting. TRC exhibited at the event, which targets representatives of approximately 80% of the wholesale market for HVACR products.

New Website: In October 2010 TRC launched a new website. The site updated and reorganized content; making pertinent information on the program to various audiences more accessible.

Promotional Took-kit: Concurrent with the launch of the new website, TRC added high-resolution templates of a number of promotional items. These items are free to use by TRC collection points. Developed expressly for HVAC wholesale distributors, these items are available at no cost to TRC collection points to assist them in promoting the program to their customers. Items include a poster, bill stuffer, invoice template, cling sticker, banner, postcard, and print advertisement.

4. *Please specify what additional education and outreach activities are planned for next calendar year.*

See recommendation number three below regarding Maine-specific activities.

As part of it overall marketing strategy, TRC among other things will:

- Attend several national and regional industry trade shows in 2011.
- Expand its advertising buy in www.contractingbusiness.com and www.hvac-talk.com to 4 months (spring and fall). TRC is also developing a new advertisement for this campaign.
- Place a postcard insert in *HVACR Business* (April and September issues) that will go to 12,000 subscribers in certain states, including Maine, with mercury thermostat disposal bans and/or mandates for recycling.
- Update its website to recognize and promote HVAC distributor participation.
- Directly recruit HVAC distributor participation into the program and encourage distributors to actively promote the program to their customers.
- Conduct direct mail in certain states, including Maine, informing contractors on mandate to recycle and availability of TRC program.

- With HARDI, develop an annual award program that recognizes the HVAC distributors' contributions to the success of the program.

5. *Please provide a current list of TRC members and their contact information.*

Please See Appendix D

6. *Other comments or recommendations?*

By statute the mercury-containing thermostat collection program goal for 2010 is 160 pounds of mercury[4]. TRC efforts will contribute 44.9 pounds to the collective goal.

TRC recovered 149 more thermostats in 2010 than 2009, or the equivalent of 2 or 3 more containers. Growth in recovered thermostats from wholesale locations and HVAC contractors were down and retail collections were flat compared to 2009. The only area in which TRC saw an increase was from the HVAC contractors directly participating in the program. Recoveries from the mail-back program continued to decline, with only 32 thermostats being recovered through this channel in 2010.

The flattening of growth occurred despite expanded education efforts in 2009 and 2010. TRC continued its direct mail campaign in 2010; attended the only in-state trade show for the industry; provided recycling posters to all Maine municipalities in 2010; and, despite reservations on its utility, TRC also advertised in the Maine "weekly" newspapers. In addition to TRC's marketing and promotion efforts, the Department sent letters to approximately 9500 licensed contractors in Maine promoting the retail program. It is notable that the Department's marketing effort had no appreciable impact on retail collections for 2010. Retail collections increased by 14 thermostats last year.

The slowing in growth to some degree likely reflects the maturation of the program. The collection of this product has been actively promoted in Maine since at least 2005. However, because there is no reliable means to estimate the number of thermostats that annually become waste, it is challenging to characterize the program's performance.

Aspects of Maine's thermostat law have been in effect since 2002 and TRC suggests it is appropriate to review and assess various stakeholders efforts and the resources they are allocating in Maine to divert waste mercury thermostats from the solid waste stream.

TRC continues to support the intent of Maine law, and does not seek to debate the continuation of manufacturer-funded efforts to collect waste mercury thermostats in Maine or in other states. However, from the onset TRC and its member manufacturers have opposed aspects of the Maine program, as unnecessary,

[4] TRC respectfully suggests this goal is arbitrary. The data used to generate this goal are anecdotal and never have been validated.

administratively complex, and vulnerable to abuse. Examples of issues we have encountered include:

- The Department, in the past, has insisted TRC engage in marketing strategies that we advised would not yield benefits commensurate with the cost. The debate has primarily revolved around consumer-facing promotion of the program. Because 90% of new thermostats are sold at wholesale, TRC places a priority on marketing to the HVAC trades. However, the Department has insisted TRC market directly to consumers through print advertising, an effort we view as inappropriate and not effective.

- A singular focus on manufacturers as the root cause of problems with the program and the only party that has responsibility to address them. TRC relies on others to collect and arrange transport of waste thermostats to our facility. Additionally, manufacturers are not the generators of the waste. In our view there are demonstrable conceptual flaws with aspects of the collection program in Maine. In the past, we believe our reports on problems with the program were viewed by Staff as attempts to obstruct the implementation of the program as opposed to reasonable attempts to engage in a constructive dialogue.

- Administrative costs of providing the financial incentive are greater than the value of most payments. The majority of payments have been between $5 and $15. However, TRC estimates it costs upwards of $15 to administer the handling of coupons and the issuance of each check.

- Further we have not seen analytical data demonstrating that the incentive is in itself is contributing to increased mercury recycling in Maine. As TRC notes below, TRC has seen equal, if not greater growth in collections in other states without the imposition of the incentive. In fact, we believe the incentive unfairly burdens the manufacturers, diverts resources, and has limited benefit.

- Given the mercury disposal ban in Maine, the thermostats need to be recycled and TRC acknowledges its important role in providing cost free mercury thermostat recovery. However, the incentive payments are neither timely nor direct, creating little independent incentive to recycle. TRC members do not have a direct contractual relationship with contractors and homeowners who are not TRC's members' customers. As a result, we must rely on the coupons distributed by the collection points and on the collection points to ship us the recycling containers containing the thermostats. As it may take months to fill a container, HVAC contractors recycling thermostats at HVAC wholesale distributors are sometimes forced to wait months for payment, which discourages participation in the incentive. Significantly, on average 20% of the thermostats collected over the last three years had *no* request for an incentive payment. Moreover, as reported to the Department in TRC's 2009 report, at minimum, 20% of incentive payments since the program's inception have gone to either individuals or businesses that are either HVAC wholesale collection points or their staff, persons the law did not intend to incent.

Recycling behavior has changed in Maine, but the change in behavior is not solely attributable to the incentive, if at all. The change of behavior is more related to the disposal ban, to TRC providing an avenue for cost-free mercury recovery, and to the targeted education and outreach program funded by TRC.

- At face value, the results of the program seem positive: collections are up in Maine and the state enjoys one of the highest collection rates in the nation by some measures. However, if one looks at the data in more detail, the results of the financial incentive are not so clear: TRC examined the results of other mandatory collection programs and found in the first two years of operations, the average increase in collections in all states was 46%. Of the five states, the two with incentive programs ranked 4 and 5 in growth of collections (Maine 39% and Vermont 38%).

- TRC has documented to DEP clear instances of abuse, if not fraud, within the program. TRC informed Maine DEP of these activities in its official 2009 program report, noting that a significant percentage of payments had gone to parties not specified in the law. At least 20% of payments have gone to staff at collection points, rather than to HVAC contractors/technicians or homeowners, the intended recipients. Moreover, TRC has documented to DEP the outright theft of thermostats at one location. To our knowledge, the Department has not investigated these issues.

TRC has reported direct expenses of over $230,000 on the Maine program during its four years of operations, including $88,000 in direct payments for the return of waste mercury thermostats. This figure does not include the costs to transport and process the waste, TRC staff time, or any of TRC members' time spent engaged on the program. The program in Maine is the most costly of <u>any</u> of the nine mandatory mercury thermostat collection programs TRC is administering.

Evidence continues to build that refutes the contention the financial incentive is an effective policy tool for increasing and/or maintaining the recovery rate of mercury thermostats. TRC sees scant evidence the incentive payment is in fact motivating significant numbers of HVAC contractors to participate in the TRC program.

<u>TRC Recommendations.</u>

1. TRC seeks guidance from the Department on the eligibility of certain individuals and organizations to receive incentive payments that seem contrary to the intent of the law. TRC also recommends the Department open an investigation into payments to individuals and/or businesses that seem contrary to the intent of the law and take appropriate action upon a determination of wrongdoing.

2. TRC again recommends the immediate suspension of the mail-back program. The limited numbers of thermostats coming in through the mail-back program are, with few exceptions, coming from southern and central Maine. The mail-back program

was created to provide access to the program in northern and eastern Maine. The combination of HHW and retail collections now provides convenient access to all Maine residents. At this point the program is duplicative and no longer justifiable.

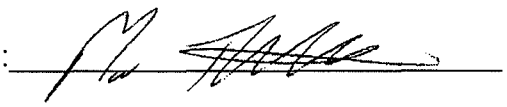
3. TRC respectfully suggests the key to maximizing collections is maintaining a high level of visibility of the program where HVAC contractors conduct business—HVAC wholesale distributors. TRC has enjoyed recent success in engaging HVAC distributors to voluntarily expand promotion of the program to their customers and is pursuing this approach nationally. This approach works, as the basic voluntary TRC program is simple to administer and the distributor recognizes the value of offering the program to their customers.

   TRC recommends the Department, in consultation with HVAC contractors, HVAC distributors, manufacturers and other industry stakeholders, identify collaborative strategies for stakeholders to employ to ensure widespread compliance with Maine's mercury thermostat disposal ban and contractor mandate to recycle. These strategies should be used to inform and guide TRC and Departmental efforts in promoting the program in Maine.

4. TRC respectfully suggests the Department reevaluate the statutory goals for the program. The basis for these goals is a "methodology" that relies on anecdotal data that has not be independently corroborated.

5. TRC requests the Department review its guidance for the both the "contractor" and "homeowner" program and make recommendations to streamline the administration of the program. This review should include an assessment on the effectiveness of the incentive program.

Respectfully Submitted by: Mark Tibbetts
Executive Director
January 31, 2011

Signature: 

APPENDIX A: LETTER TO MAINE LOCAL GOVERNMENTS

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

March 16, 2010

RE: Educating Maine residents on the proper disposal of mercury-containing thermostats

Dear Local Government Leader:

On behalf of Thermostat Recycling Corporation (TRC), enclosed are two copies of a poster promoting the recycling of mercury-containing thermostats.

As you may be aware, under Maine law it is illegal to dispose of mercury-containing products in solid waste.

TRC, in accordance with its statutory education and outreach efforts, has developed the enclosed poster to help local governments inform their communities on the requirement to properly dispose mercury-containing thermostats, as well as the available resources to help residents comply with the law. Please display these posters at your community's solid waste or household hazardous waste collection site or other appropriate locations.

For more information on TRC's efforts to promote the recycling of mercury containing thermostats, please visit www.thermostat-recycle.org. If you have questions about manufactures' efforts to prevent mercury from being released to the environment, please contact Mark Tibbetts at 703-841-3246.

Respectfully,

Mark Tibbetts
Executive Director

Enclosures

APPENDIX B: 2010 THERMOSTAT RECOVERY TOTALS BY LOCATION

Customer Name	City	Zip	Data	Grand Total
AMES SUPPLY TRUE VALUE	WISCASSET	4578	Sum of Total Stats	32
			Sum of Total lbs mercury	0.1984
ANCO INC HOULE'S PLB/HTG	WATERVILLE	04901-0000	Sum of Total Stats	109
			Sum of Total lbs mercury	0.7564
AUBUCHON HARDWARE	FARMINGTON	4938	Sum of Total Stats	4
			Sum of Total lbs mercury	0.0248
	LEWISTON	4240	Sum of Total Stats	5
			Sum of Total lbs mercury	0.031
	OLD TOWN	4408	Sum of Total Stats	108
			Sum of Total lbs mercury	0.6944
	WINDHAM	4062	Sum of Total Stats	28
			Sum of Total lbs mercury	0.248
AUBUCHON HARDWARE #095	SANFORD	4073	Sum of Total Stats	14
			Sum of Total lbs mercury	0.0868
AUBUCHON HARDWARE #103	RUMFORD	4276	Sum of Total Stats	17
			Sum of Total lbs mercury	0.1054
AUBUCHON HARDWARE #106	LINCOLN	4457	Sum of Total Stats	31
			Sum of Total lbs mercury	0.1984
AUBUCHON HARDWARE #133	WATERVILLE	4901	Sum of Total Stats	26
			Sum of Total lbs mercury	0.1612
BANGOR PIPE SUPPLY INC	BANGOR	04401-0000	Sum of Total Stats	76
			Sum of Total lbs mercury	0.5022
BELL SIMONS CO	AUBURN	4210	Sum of Total Stats	74
			Sum of Total lbs mercury	0.558
	SANFORD	4073	Sum of Total Stats	104
			Sum of Total lbs mercury	0.9734
BELL/SIMONS CO	AUBURN	04210-0000	Sum of Total Stats	94
			Sum of Total lbs mercury	0.5952
	BANGOR	4401	Sum of Total Stats	43

			Sum of Total lbs mercury	0.3224
	BIDDEFORD	04005-0000	Sum of Total Stats	140
			Sum of Total lbs mercury	1.147
BELL/SIMONS CO.	AUBURN	4210	Sum of Total Stats	76
			Sum of Total lbs mercury	0.7316
CLARK & CO. Div of Bell/Simons Co	WATERVILLE	04901-0000	Sum of Total Stats	76
			Sum of Total lbs mercury	0.4712
Coastal Winair Division	BIDDEFORD	04005-0000	Sum of Total Stats	55
			Sum of Total lbs mercury	0.3472
DAIGLE OIL CO.	PRESQUE ISLE	4769	Sum of Total Stats	16
			Sum of Total lbs mercury	0.0992
DEAD RIVER	BREWER	4412	Sum of Total Stats	111
			Sum of Total lbs mercury	0.6944
DEAD RIVER CO	MADAWASKA	4756	Sum of Total Stats	25
			Sum of Total lbs mercury	0.1612
DEAD RIVER CO.	BRUNSWICK	4011	Sum of Total Stats	77
			Sum of Total lbs mercury	0.4774
DEAD RIVER COMPANY	BIDDEFORD	04005-0000	Sum of Total Stats	43
			Sum of Total lbs mercury	0.2666
	MILLINOCKET	04462-0000	Sum of Total Stats	108
			Sum of Total lbs mercury	0.6758
DOWNEAST ENERGY	KENNEBUNK	4043	Sum of Total Stats	41
			Sum of Total lbs mercury	0.2542
		04043-0000	Sum of Total Stats	27
			Sum of Total lbs mercury	0.1736
DRILLEN TRUE VALUE	SOUTH PORTLAND	4106	Sum of Total Stats	40
			Sum of Total lbs mercury	0.2976
DUPUIS HARDWARE	BIDDEFORD	4005	Sum of Total Stats	15
			Sum of Total lbs mercury	0.093
F.W. WEBB	AUGUSTA	4330	Sum of Total Stats	138

			Sum of Total lbs mercury	0.868
	ELLSWORTH	4605	Sum of Total Stats	208
			Sum of Total lbs mercury	1.4322
	LEWISTON	4240	Sum of Total Stats	98
			Sum of Total lbs mercury	0.6262
	SOUTH PORTLAND	4106	Sum of Total Stats	32
			Sum of Total lbs mercury	0.2852
	WEST BATH	4530	Sum of Total Stats	93
			Sum of Total lbs mercury	0.5952
F.W. WEBB CO.	AUGUSTA	04330-0000	Sum of Total Stats	170
			Sum of Total lbs mercury	1.5996
	LEWISTON	04240-0000	Sum of Total Stats	133
			Sum of Total lbs mercury	0.8432
FALMOUTH PUBLIC WORKS	FALMOUTH	4105	Sum of Total Stats	32
			Sum of Total lbs mercury	0.1984
FARMINGTON FARMERS UNION	FARMINGTON	4938	Sum of Total Stats	99
			Sum of Total lbs mercury	0.6262
FW WEBB CO.	AUGUSTA	04330-0000	Sum of Total Stats	40
			Sum of Total lbs mercury	0.248
		04364-0000	Sum of Total Stats	29
			Sum of Total lbs mercury	0.186
	BIDDEFORD	04005-0000	Sum of Total Stats	62
			Sum of Total lbs mercury	0.3906
	LEWISTON	04240-0000	Sum of Total Stats	53
			Sum of Total lbs mercury	0.3286
	ROCKLAND	04841-0000	Sum of Total Stats	125
			Sum of Total lbs mercury	0.8618
	SOUTH PORTLAND	04101-0000	Sum of Total Stats	43

			Sum of Total lbs mercury	0.2666
	WEST BATH	04530-0000	Sum of Total Stats	63
			Sum of Total lbs mercury	0.4154
GARRET PILLSBURY PLUMBING & HEAT	KENNCHUNK	4043	Sum of Total Stats	73
			Sum of Total lbs mercury	0.496
GOSLINE'S HARDWARE	FARMINGDALE	4394	Sum of Total Stats	57
			Sum of Total lbs mercury	0.3596
GRAINGER	PORTLAND	04103-0000	Sum of Total Stats	10
			Sum of Total lbs mercury	0.1054
GRANITE GROUP	OAKLAND	4963	Sum of Total Stats	156
			Sum of Total lbs mercury	0.9672
Graybar Electric Company Inc.	PORTLAND	04104-0000	Sum of Total Stats	2
			Sum of Total lbs mercury	0.0124
HAMMOND LUMBER	BRUNSWICK	4011	Sum of Total Stats	59
			Sum of Total lbs mercury	0.3658
HOULES PLUMBING	WATERVILLE	4901	Sum of Total Stats	109
			Sum of Total lbs mercury	0.7564
Maine ACE HARDWARE	PORTLAND	4102	Sum of Total Stats	215
			Sum of Total lbs mercury	1.4694
Maine HARDWARE	PORTLAND	4102	Sum of Total Stats	444
			Sum of Total lbs mercury	2.79
MAINE HOMEOWNER BIN	AUGUSTA	4333	Sum of Total Stats	10
			Sum of Total lbs mercury	0.0682
Maine Homeowners	CAMDEN	4843	Sum of Total Stats	3
			Sum of Total lbs mercury	0.0186
	(blank)	(blank)	Sum of Total Stats	6
			Sum of Total lbs mercury	0.0372
ME HOMEOWNERS	(blank)	(blank)	Sum of Total Stats	13
			Sum of Total lbs mercury	0.0806
MEMCO	JAY	4239	Sum of Total Stats	30
			Sum of Total lbs mercury	0.2108
MEMCO, INC.	JAY	4239	Sum of Total Stats	118
			Sum of Total lbs mercury	0.8122

NORTHERN BURNER SUPPLY CO. INC.	PORTLAND	04101-0000	Sum of Total Stats	52
			Sum of Total lbs mercury	0.5828
OAK HILL HARDARE	SCARBOROUGH	4074	Sum of Total Stats	28
			Sum of Total lbs mercury	0.1736
OAKHILL HARDWARE	SCARBOROUGH	4074	Sum of Total Stats	42
			Sum of Total lbs mercury	0.2666
P & E SUPPLY	SANFORD	4073	Sum of Total Stats	38
			Sum of Total lbs mercury	0.2356
PARADIS TRUE VALUE	BAR HARBOR	4609	Sum of Total Stats	35
			Sum of Total lbs mercury	0.2232
PRSWDD	COLUMBIA FALLS	4623	Sum of Total Stats	25
			Sum of Total lbs mercury	0.155
RANKIN INC	CAMDEN	4843	Sum of Total Stats	74
			Sum of Total lbs mercury	0.4774
REDLON & JOHNSON	LEWISTON	4243	Sum of Total Stats	64
			Sum of Total lbs mercury	0.3968
		04240-0000	Sum of Total Stats	65
			Sum of Total lbs mercury	0.4774
	PORTLAND	4102	Sum of Total Stats	95
			Sum of Total lbs mercury	0.589
		04102-4755	Sum of Total Stats	169
			Sum of Total lbs mercury	1.0664
	PRESQUE ISLE	4769	Sum of Total Stats	78
			Sum of Total lbs mercury	0.4836
		04769-0000	Sum of Total Stats	38
			Sum of Total lbs mercury	0.2356
	ROCKLAND	04841-0000	Sum of Total Stats	8
			Sum of Total lbs mercury	0.0496
	WICASSET	4578	Sum of Total Stats	60
			Sum of Total lbs mercury	0.3782
RICHARD P. WALTZ PLUMB & HEAT	PORTLAND	4103	Sum of Total Stats	64

			Sum of Total lbs mercury	0.4216
RIVERSIDE RECYCLE	PORTLAND	8103	Sum of Total Stats	122
			Sum of Total lbs mercury	0.775
RIVERSIDE RECYCLING	PORTLAND	4103	Sum of Total Stats	89
			Sum of Total lbs mercury	0.5952
Rockingham Electrical Supply	AUGUSTA	04330-0000	Sum of Total Stats	58
			Sum of Total lbs mercury	0.3782
ROGERS ACE HARDWARE	BATH	4530	Sum of Total Stats	47
			Sum of Total lbs mercury	0.2914
S. W. COLLINS CO	CARIBOU	4736	Sum of Total Stats	40
			Sum of Total lbs mercury	0.248
	PRESQUE ISLE	4769	Sum of Total Stats	28
			Sum of Total lbs mercury	0.1736
SID HARVEY INDUSTRIES	PORTLAND	04102-0000	Sum of Total Stats	65
			Sum of Total lbs mercury	0.4154
TOWN OF FREEPORT	FREEPORT	4032	Sum of Total Stats	48
			Sum of Total lbs mercury	0.2976
TOWN OF TURNER	TURNER CENTER	4282	Sum of Total Stats	12
			Sum of Total lbs mercury	0.0806
TOWN OF WATERBORO T.S.	WATERBORO	4030	Sum of Total Stats	29
			Sum of Total lbs mercury	0.1798
Trane Co.	Westbrook	04092-0000	Sum of Total Stats	103
			Sum of Total lbs mercury	1.4446
TRANSFER STATION	WALDOBORO	4572	Sum of Total Stats	24
			Sum of Total lbs mercury	0.1488
VAN BUREN HOUSING AUTHORITY	VAN BUREN	4785	Sum of Total Stats	86
			Sum of Total lbs mercury	0.5332
W.E. AUBUCHON INC CO.	BUXTON	4093	Sum of Total Stats	6
			Sum of Total lbs mercury	0.0372
	LISBON FALLS	4252	Sum of Total Stats	15
			Sum of Total lbs mercury	0.0992
	WELLS	4090	Sum of Total Stats	26
			Sum of Total lbs mercury	0.1612

WEBBER SUPPLY	BANGOR	4401	Sum of Total Stats	107
			Sum of Total lbs mercury	0.682
WEBBER SUPPLY INC.	BANGOR	4401	Sum of Total Stats	174
			Sum of Total lbs mercury	1.4074
		04401-6819	Sum of Total Stats	89
			Sum of Total lbs mercury	0.5518
	SO. PORTLAND	4106	Sum of Total Stats	70
			Sum of Total lbs mercury	0.4464
Winslow Supply Co	Winslow	4901	Sum of Total Stats	12
			Sum of Total lbs mercury	0.0744
Total Sum of Total Stats				6523
Total Sum of Total lbs mercury				44.9004

APPENDIX C: MAINE COMMUNITIES TRC RECEIVED THERMOSATATS VIA THE MAIL-BACK PROGRAM

Lewiston, Westbrook, E. Waterboro, Scarborough, Liberty, Wales, Sabattus, Sanford, Wells, Camden, Biddeford, Garfield Plantation, Rumford.

APPENDIX D: TRC MEMBER CONTACT INFORMATON

Manufacturer	Contact Last Name	Contact First Name	Address_1	Address_2	City	State	Zip
Bard Manufacturing	Hanna	Dick	1914 Randolf Drive	PO Box 607	Bryan	OH	43506
Burnham Holdings, Inc.	Hainley	Gary	US Boiler Company	PO Box 3020	Lancaster	PA	17603
Carrier Corporation	Minahan	David	TR-4; Room 1303	PO Box 4808	Syracuse	NY	13221
Chromalox	Cook	Gary	103 Gamma Drive Ext		Pittsburg	PA	15238
Climate Master, Inc.	Ellis	Mark	7300 SW 44th Street		Oklahoma City	OK	73179
Crane Company	D'Iorio	Anthony	100 First Stamford Place		Stamford	CT	06092
White Rodgers	Sartain	John	8100 W. Florissant Ave.	PO Box 36922	St. Louis	MO	63136-9022
Empire Comfort Systems	Belding	Ken	918 Freeburg Avenue		Belleville	IL	62222
General Electric	Graham	Drew	1 River Road	Building 43, 2*19	Schenectady	NY	12345
Goodman Global, Inc.	Bunk	Sean	5151 San Felipe	Suite 500	Houston	TX	77056
Honeywell Inc.	O'Donnell	Dan	101 Columbia Road	Solvay-G	Morristown	NJ	07962
Invensys Controls	Szewczyk	Steve	191 E. North Avenue		Carol Stream	IL	60188
ITT Corporation	Daves	Fern	1133 Westchester Avenue		Westchester	NY	10604
Johnson Controls	Werwie	Jeff	507 E. Michigan Street		Milwaukee	WI	53202
Lear Seigler	Mathews	Jim	469 Morris Avenue		Summit	NJ	07928
Lennox Corporation	Johnson	Robert	2140 Lake Park Blvd		Richardson	TX	75080
Lux Products	Milley	Roger	6000-1 Commerce Parkway		Mount Laurel	NJ	08054
McQuay International	Fleser	Ryan	13600 Industrial Park Blvd		Plymouth	MN	55441
Nordyne	Bentz	Bob	8000 Phoenix Parkway	PO Box 8809	O'Fallon	MO	63366
PSG Controls	McFadden	Terry	1225 Runnel Road		Perkasie	PA	18944
Rheem Manufacturing Company	Steffens	Charles	5600 Old Greenwood Road	PO Box 17010	Ft Smith	AR	72917
Sears Holding Company	Olsen	Mike	3333 Beverly Road	B5-339A	Hoffman Estates	IL	60179
Taco, Inc.	Grof	David	1160 Cranston Street		Cranston	RI	02920
Thomas & Betts Corporation	Chopra	Om	8155 T&B Boulevard		Memphis	TN	38125
TPI Corporation	Stratton	Sharon	PO Box 4973		Johnson City	TN	37602
Trane Residential Systems	Storm	Tim	6200 Troup Highway		Tyler	TX	75707
Uponor, Inc.	Stroud	Dale	5925 148th Street W.		Apple Valley	MN	55124
Vaillant Corporation	Carr	Colin	855 Industrial Hwy.	Unit # 10	Cinnaminson	NJ	08077
W. W. Grainger Inc	Jagiello	Terrance	100 Grainger Parkway		Lake Forest	IL	60045

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

January 30, 2010

Ms Ann Pistell
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Subject: Thermostat Recycling Corporation's 2009 Annual Report

Dear Ann:

Attached is TRC's 2009 annual collection report for the Department. To the extent practicable TRC has made its best effort to be responsive to the Department's request for expense and collection data.

TRC would like to take the opportunity to summarize some of its major accomplishments in 2009.

- Notwithstanding a severe recession that depressed the replacement market for thermostats, the national recovery of thermostats increased by 14.8 percent, keeping almost 1500 pounds of mercury out of solid waste.
- Industry participation in TRC continued to grow and by the end of the year TRC represented 28 manufacturers that historically branded and distributed mercury switch thermostats.
- TRC also saw substantial growth in access to the program, the number of recycling containers at participating collection locations increased by 30%. TRC saw solid growth in all collection location types in 2009.

TRC built upon the prior years efforts in Maine and saw a 14% increase in the number of recovered mercury thermostats over the prior year. TRC was pleased to see the increase in light of our targeted outreach efforts in 2009.

However, TRC remains troubled by many aspects of the Maine program. Entering into what will be the third year of the incentive program; evidence continues to mount demonstrating that the financial incentive, as implemented in accordance with Department guidance, fails to achieve its purported public policy objective. For instance:

- TRC determined that, at minimum, 20% of incentive payments have gone to persons that the law had not intended to incent.
- Significant numbers of program participants are recycling thermostats but opting to forgo the financial incentive (28% in 2009).

Data suggests that the generator (homeowner or contractor) opted to forgo the financial incentive on almost half of all returns.

After expending over $250,000, the incremental growth in mercury recovered in Maine remains disappointing. TRC recommends the Department, in consultation with stakeholders, review this program and also investigate payments that are made that appear contrary to the intent of the law.

Regards,

Mark Tibbetts
Executive Director

Maine DEP Thermostat Collection Report Form For Calendar Year 2009 Activities.
Due January 31, 2010

Directions: This form may be completed electronically. Please provide the following information on thermostat collection and recycling efforts in Maine.

I. Thermostat Data

Table 1

	Stats	Bulbs	lbs of Hg
Honeywell	5563	6012	37.2744
White Rogers	213	256	1.5872
GE	14	40	0.248
Bard	7	7	0.0434
Burnham	46	46	0.2852
Carrier	96	146	0.9052
Chromalox	2	2	0.0124
ClimateMaster	0	0	0
Crane	1	1	0.0062
Emprie Comfort	17	17	0.1054
Invensys	2	2	0.0124
ITT	0	0	0
Lear Siegler	3	3	0.0186
Lennox	13	20	0.124
Lux	10	10	0.062
McQuay	43	99	0.6138
Nordyne	30	30	0.186
PSG	11	12	0.0744
Rheem	1	1	0.0062
Sears	12	16	0.0992
Taco	0	0	0
Thomas & Betts	1	1	0.0062
TPI	0	0	0
Trane	33	65	0.403
Uponor	1	1	0.0062
Valliant	0	0	0
WW Grainger	2	2	0.0124
York / JCI	36	68	0.4216
Other[1]	217	273	1.6926
Loose Bulbs		40	0.248
Total	6374	7170	44.454

[1] Other included thermostats manufactured by non-TRC members, and "orphan" product where no brand was identifiable or manufacturer is defunct.

Table 2 – Please copy the attached table in an Excel spreadsheet format with the following information, please use font 12.

SEE APPENDIX A

Table 3.

	Mail-back (Homeowner Program)	Retail	Wholesale	Contractor	HHW
Total Received	116	997	4760	234	267
Non-Qualifying due to no Cover[2]	n/a	n/a	n/a	n/a	n/a
Non-Qualifying due other reason[3]	n/a	n/a	n/a	n/a	n/a
Total	116	997	4760	234	267

1. Please list towns from which TRC received Homeowner thermostats through mail-back program. Use separate sheet.

   See Appendix B

2. Number of TRC Thermostats qualifying (e.g. mercury-switch thermostat with bar-coded sticker attached) for incentive payment?

   4,579 (72% of total thermostats collected)

3. Number of thermostats not qualifying for payment?

No Cover: **n/a**
No bar-coded sticker: **1,795**

TRC recovered 75 items with bar-coded stickers attached that were deemed ineligible (e.g. non-mercury thermostat, other mercury containing device, non-mercury containing device, or mercury thermostats collected through retail outlet). Additionally, TRC received 63 remittance coupons that were incomplete, damaged, or otherwise illegible that resulted or will result in non-payment.

II. Costs

[2] TRC did not track collections in this manner. See response to question 3.
[3] TRC did not track collections in this manner. See response to question 3.

Table 4

Program Component	TRC Program*	Maine Incentive Program*
TRC Staff and Administration[4]	$ 151,184.00	$ 3,755.00
Postage[5]	$ 1,449.00	n/a
Phone	$ 150.00	n/a
Recycling Costs[6]	$ 222,700.00	n/a
Maine Incentive Payments		$ 25,485.00
Maine Collateral Design[7]		n/a
Printing of Maine Materials[8]		$ 9,310.00
Maine Marketing and Promotion[9]		$ 4,000.00
Membership Income	n/a	
Other	$ 174,373.00	$ 14,543.00
Total	$ 549,856.00	$ 57,093.00

* TRC allocates all costs supporting Maine Program when practicable. It is unable to allocate staff and general administrative expenses to Maine with the exception of contractor that assists in processing incentive payments.

III. Education and Outreach

1. Paid Advertising: Please include ad copy, a list of papers and dates

TRC placed animated banner advertisements in Maine's major daily newspapers. The ad (a copy of the static image is below) had a scrolling message that stated:

"If you install a new thermostat you may be replacing one that contains mercury".

Scrolling to:

[4] TRC Staff and Administration includes staff, corporate fees, copying, shipping (excluding shipping recycling containers), telecommunications (excludes telephone), software/hardware, website, banking fees, bins expense, and audit.

[5] TRC has no means to isolate postage costs for Maine. However, the mailing of incentive payments and related activities is accounts for 40% - 60% of TRC's annual postage cost.

[6] This includes costs to fulfill orders for new recycling containers, collection/transport of waste, dismantling of thermostats, recycling of waste, database management, and administration of these activities.

[7] TRC has no means of isolating design costs for Maine as TRC designs materials for use in multiple states.

[8] This includes costs for printing incentive coupons, retail coupons, and postcards mailed to Maine HVAC contractors. It excludes cling stickers and other program collateral such as instruction sheets.

[9] This is the cost of web-based advertisements and does not include direct mail costs, TRC staff time to place advertisements, development/placement of PSA, and efforts to attract earned-media. Allocating these costs is not possible for instance TRC used the same PSA in Vermont.

"For more information on the proper disposal of mercury thermostats & drop-off locations visit www.thermostat-recycle.org.

TRC placed online banner advertisement on www.pressherald.com, www.kjonline.com, www.onlinesenetinal.com. TRC placed two different sizes 728x90 and 160x600 and ordered a minimum of 200,000 impressions. The advertisement started on September 21, 2009 and ran for approximately 30 days.

TRC also placed the online banner advertisement on www.bangordailynews.com. TRC placed a homepage advertisement sized 300x250 and ordered a minimum of 200,000 impressions. The advertisement started on September 20, 2009 and ran for approximately 30 days.

Exhibit 1: Static Image of Web Advertisement

TRC also placed a print advertisement in the August issue of *Contracting Business* and ran a 30 day web ad on www.hvactalk.com.

2. PSA radio and TV: Please include a description of any changes to the PSAs, resubmission to the stations and other relevant information.

TRC contracted VNR-1 communications to update and record a new PSA for Maine and Vermont. The script for the PSA is below.

Script

(UP-TEMPO MUSIC, UNDER THROUGHOUT)

ANNCR: Everyone looks for ways to save money and go green these days and one of the smartest and simplest ways to save on energy costs and protect the environment is to replace your old thermostat with a new ENERGY STAR rated programmable model.

Just remember that the thermostat you're replacing may contain mercury, and Maine and Vermont residents' are eligible to receive five dollars from the Thermostat Recycling Corporation, for each mercury thermostat recycled.

Get information on how and where to recycle your mercury thermostats by visiting the Thermostat Recycling Corporation's website at Thermostat-dash-recycle-dot-O-R-G.

www.thermostat-recycle.org.

TRC submitted the new PSA to Maine radio stations in July, 2009.

Exhibit 2: Maine Radio Station List

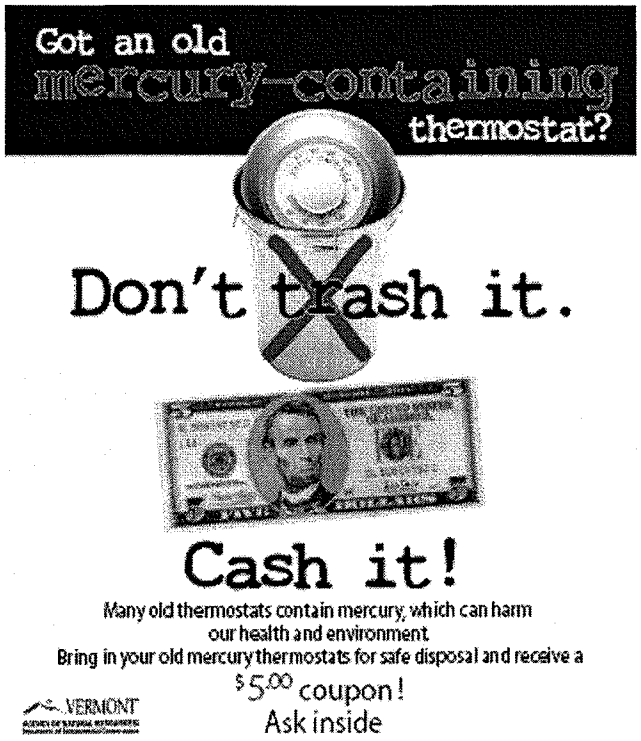
Radio company	Stations	Radio company	Stations
Citadel Communications	92 Moose	Cumulus Broadcasting	WQCB-FM
	WJZN-AM		WBZN FM
	WCYY FM		WWMJ FM
	WJBQ-FM		WEZG FM
	WBLM-FM		WDEA-AM
	WQHR FM		
	WOZI FM		
	WTLV AM	SAGA Communications	WGAN AM
			WZAN AM
			WBAE AM/HD
Blueberry Broadcasting LLC	WVQM FM		WMGX FM
	WAEI AM		WPOR FM
	WAEI FM		WCLZ FM/HD
	WLKE FM		WYNZ FM/HD
	WBFB FM		
	WTQX FM		
	WQSS FM	Atlantic Coast Radio	WRED AM
	WKSQ FM		WLOB FM
	WFAU AM		WPEI FM
	WABK FM		WLOB AM
	WVOM FM		WJJB FM
	WLEK FM		WJAB AM
	WIGY FM		
	WRKD AM	Zone Broadcasting	620 AM
	WMCM FM		WKIT FM
	WTOS FM		WDME FM
			WLVP AM
			WBYA FM
Light of Life Ministries	WMDR AM		WLAM AM
	WMDR FM		WFNK FM
	WWWA FM		WXHR FM
			WHXQ FM
Nassau Broadcasting	WBACH FM		
	WBQQ FM		
	WBQW FM		

WBQX FM
WBQI FM
WTHT FM

3. Please specify what additional education and outreach activities were conducted in this reporting year.

Cling Sticker—TRC developed and printed a multi-purpose cling sticker (7.5 x 6") for collection locations to post at their facility. The sticker was designed for use on a location's service counter, door, window, or wall.

Exhibit 3: Cling Sticker (ME version had no agency logo at base)



Direct Mail—TRC developed and mailed a postcard to approximately 625 HVAC contractors in Maine. The mailing list was sourced from D&B Zap data.

The initial mailing was in August 2009 and TRC repeated the mailing again in October 2009.

Exhibit 4: Front of Postcard for Direct Mail to Maine HVAC contractors

Earned Media: TRC drafted and submitted a short article and media release to the following stakeholder groups in Maine: Natural Resources Council of Maine, Maine Oil Dealers Association, Associated Builders and Contractors, and Maine Plumbing, Heating Cooling Contractors.

4. Please specify what additional education and outreach activities are planned for next calendar year.

TRC will complete the tasks remaining from its agreement with the Department. This includes:

- Print Advertising: TRC will place print ads in Maine "weekly" newspapers in February 2010.
- Poster: TRC will develop, print and distribute 2 copies of a poster promoting mercury thermostat recycling to Maine municipalities.
- Bill Stuffer: TRC will explore option for utility bill stuffer.

Additionally, TRC will conduct the following activities in Maine in 2010

- Attend and exhibit at Maine Plumbing Heating Cooling Contractor annual meeting in Augusta in March 2010.
- Attend and exhibit at National Association of Oil Heat Service Managers Annual Meeting Providence, Rhode Island in May 2010.
- Draft and submit a short article and media release to stakeholder groups in Maine promoting the program.
- Reprint and mail postcard to HVAC contractors (approximately 600 contractors) two times in 2010.

5. Other comments or recommendations?

By statute the mercury-containing thermostat collection program goal for 2009 is 125 pounds of mercury. TRC efforts will contribute 44.454 pounds to the collective goal.

TRC, with the Department's concurrence, expanded outreach efforts in Maine in 2009 targeting both HVAC contractors and homeowners. TRC recovered 819 more thermostats over 2008, or the equivalent of 10 to 15 more shipments. Growth in recovered thermostats from wholesale locations and HVAC contractors were almost flat and TRC saw a slight increase from HHW locations. While recoveries from the mail-back program declined by 72%.

The results from the retail program are more encouraging. TRC recovered 997 thermostats through the retail program in 2009 albeit a majority of participating retail locations have yet to return a container.

The increase in recovered mercury is disappointing in light the extraordinary amount of time and expense incurred by TRC to administer the program in Maine. Since 2007, TRC has expended well over $250,000, including $58,000 in incentive payments, to support the collection program.

Evidence continues to build that refutes the contention the financial incentive is an effective policy tool for increasing the recovery rate of mercury thermostats. TRC sees scant evidence the incentive payment is in fact motivating significant numbers of HVAC contractors to participate in the TRC program. For instance in 2009 1,795 (27%) of thermostats recovered by TRC from Maine collection locations using the mail-back coupon[10] had no request for payment—up from 13% in 2008.

Moreover, TRC is very concerned with the program's implementation in the state. The Maine statute, 38 M.R.S. §1665-B provides in paragraphs 2E, 2F, and 4 for the payment by manufacturers of a $5.00 incentive payment to "contractors, service technicians, and homeowners" for the "return of each mercury-added thermostat to an established recycling collection point." The statute is clear that it is this limited group of persons who were to be incented to bring mercury thermostats to a collection point. Data suggests that a significant number of incentive payments are not going the persons who were to be incented to "return ... mercury-added thermostats to an established recycling collection point" — contractors/service technicians or homeowners. TRC has determined since the program's inception that collection locations and/or their staff --- persons in the chain of recycling *after the thermostat has reached an established collection point* --- received payments for 2,274 thermostats after they have been returned by someone else. At minimum, 20% of incentive payments since the program's inception have gone to either individuals or businesses that are either HVAC wholesale collection points or their staffs (See Exhibit 5 for analysis of payments to the top 60 recipients of payments). Additionally, there are a number of other persons who could not be identified as "contractors/service technicians

[10] Individuals or businesses returning thermostats to participating retailers receive a $5.00 discount on a purchase at the retailer for each qualifying thermostat returned.

or homeowners" who received incentive payments for an additional 1,132 returned thermostats. (See Exhibit 5). It is estimated that at least thirty percent (and maybe more) of the incentive payments have not gone to persons the law was designed to incent.

Both data points suggest that a substantial number of thermostats (potentially 50% or more in a given year) are being recovered by TRC where the contractor or homeowner either were 1) not informed of the financial incentive at the point of collection, or 2) opted to forgo the incentive.

TRC Recommendations

1) TRC recommends the Department, in consultation with manufacturers, wholesalers, and HVAC contractors amend its Guidance (December 2006) and modify the program to ensure its implementation is consistent with the statute including, but not limited to, ensuring that mechanisms are in place to protect against fraudulent claims on the return of thermostats and that administrative costs of the plan are minimized.

2) TRC recommends the Department open an investigation into payments to individuals and/or businesses that seem contrary to the intent of the law and take appropriate action upon a determination of wrongdoing.

3) TRC again recommends the suspension of the mail-back program. The limited numbers of thermostats coming in through the mail-back program are, with few exceptions, coming from southern and central Maine. The mail-back program was created to provide access to the program in northern and eastern Maine. The combination of HHW and retail collections now provides convenient access to all Maine residents. At this point the program is duplicative and no longer justifiable.

Submitted by: Mark Tibbetts, Executive Director Date: January 30, 2010

Signature

Exhibit 5: Analysis of Payments to Top 60 Payees (yellow indicates payee type unknown)

Payee	Total Coupons	Total Due	Type	Collection Location	City
Keystone Management	251	$ 1,255.00	Property Management Firm		Concord, NH
Bangor Housing Authority	234	$ 1,170.00	Public Housing Authority		Bangor
Chris Bennett	220	$ 1,100.00	Wholesaler Staff	FW Webb	Lewiston
Jeffrey Thompson	190	$ 950.00	Wholesaler Staff	FW Webb	Portland
Clif Meadows	189	$ 945.00	Wholesaler Staff	Northern Burner Supply	Portland
John Killinger	182	$ 910.00	Wholesaler Staff	Sid Harvey	Brewer
Warren Grant	170	$ 850.00	???	FW Webb	Bangor
Kevin Hachey	161	$ 805.00	Wholesaler Staff	Webber Supply	Bangor
Tim Erwin	139	$ 695.00	Wholesaler Staff	Northern Burner Supply	Portland
The Bell/Simons Companies	138	$ 690.00	Wholesaler	Bell Simons	
Richard McIntyre	132	$ 660.00	????	FW Webb	Biddeford
The Bell/Simons Company	126	$ 630.00	Wholesaler	Bell Simons	
Darren Pettegrow	121	$ 605.00	????	Webber Supply	Bangor
Dexter Flemming	121	$ 605.00	Wholesaler Staff	Redlon & Johnson	Portland
Portland Housing Authority	109	$ 545.00	Public Housing Authority		Portland
F.W. Webb Co.	103	$ 515.00	Wholesaler	FW Webb	W. Bath
P Gagnon & Son, Inc.	102	$ 510.00	HVAC Contractor		
Pine State Sudden Service	102	$ 510.00	HVAC Contractor		
Kosta Suli	100	$ 500.00	HVAC Contractor		Westbrook
David Kilgore	99	$ 495.00	????	Clark & Co (Bell Simons)	Waterville
Northern Burner Supply Co., Inc.	96	$ 480.00	Wholesaler	Northern Burner Supply	Portland

Brad (Bradford) Christopher	96	$ 480.00	?????	Multiple locations in Southern and Central Maine	Gardiner
Lee Roy	86	$ 430.00	???	FW Webb	Caribou
Richard Breton	86	$ 430.00	Wholesaler Staff	Clark & Co (Bell Simons)	Waterville
Paul LaBonte	85	$ 425.00	Wholesaler Staff	Bell Simons	Auburn
Brian's Plumbing and Electric	81	$ 405.00	HVAC Contractor		
Down East Energy	81	$ 405.00	HVAC Contractor		
Haley's Metal Shop Inc.	81	$ 405.00	HVAC Contractor		
CPRC Management	78	$ 390.00	Waste Management Firm		Portland
Chris Petitpierre	77	$ 385.00	HVAC Contractor		
Guy Langelier	72	$ 360.00	????	Redlon & Johnson	Lewiston
Marc Gilbert	69	$ 345.00	???	FW Webb	Winslow
Julie Glover	69	$ 345.00	HVAC Contractor		
Webber Energy Fuels	65	$ 325.00	HVAC Contractor		
Donald Legare	64	$ 320.00	Transfer Station Staff	Denmark Transfer Station	Denmark
Kevin Spaulding	64	$ 320.00	Wholesaler Staff	Webber Supply	South Portland
Jeff Blackwell	62	$ 310.00	Wholesaler Staff	Redlon & Johnson	Augusta
Tim Erwin	59	$ 295.00	Wholesaler Staff	Northern Burner Supply	Portland
Harbison Plumbing & Heating	58	$ 290.00	HVAC Contractor		
Tim Heutz	58	$ 290.00	HVAC Contractor		
Chris Andre	57	$ 285.00	Wholesaler Staff	DCNE Westbrook	Westbrook
Traun Boucher	56	$ 280.00	????	FW Webb	Caribou
Corey Blanchard	55	$ 275.00	HVAC Contractor	FW Webb	Biddeford
Jeff Brooks	54	$ 270.00	Wholesaler Staff	FW Webb	Winslow
Normand Roy	54	$ 270.00	????	FW Webb	Biddeford

Mike McDonald Heating Service, LLC.	51	$ 255.00	HVAC Contractor		
Brian Jensen	49	$ 245.00	????	Webber Supply	Bangor
Meadowview Condo Assoc.	49	$ 245.00	Property Management Firm		
Gary Glidden	48	$ 240.00	HVAC Contractor	Dead River	Brunswick
Ethan Werner	47	$ 235.00	?????	Redlon & Johnson	Bath
Shawn Cohen	45	$ 225.00	?????	DCNE Westbrook	Westbrook
Downeast Energy	43	$ 215.00	HVAC Contractor		
Fred Todd	43	$ 215.00	?????	Multiple locations in Southern, Western & Central Maine	Pittston
Bruce Strout, Jr.	41	$ 205.00	????	Bangor Pipe and Supply	Ellsworth
Mike Levenseller	41	$ 205.00	HVAC Contractor	Dead River	
Carol Aberle	42	$ 210.00	HVAC Contractor	Dead River	Biddeford
Ted Adams	39	$ 195.00	HVAC Contractor	Dead River	Brunswick
Miles Hafner	38	$ 190.00	????	FW Webb	Augusta
Estes Oil Burner Svc	37	$ 185.00	HVAC Contractor		

APPENDIX A—Table 2: 2009 Collections by Location Type

Bin Number	Date Returned	Classification	Customer Name	City	Zip	Total Stats	Total Bulbs	Total lbs mercury
M11796	1/12/2009	Wholesaler	F. W. WEBB	PORTLAND	04106	11	18	0.1116
M13068	1/12/2009	HHW	FALMOUTH PUBLIC WORKS	FALMOUTH	04105	22	22	0.1364
M11830	1/15/2009	Contractor	DEAD RIVER COMPANY	BIDDEFORD	04005	43	43	0.2666
M11754	1/21/2009	Contractor	HOULE'S PLUMBING, HTG & A/C	WATERVILLE	04901	125	128	0.7936
M13066	1/23/2009	Wholesaler	WEBBER SUPPLY INC	SOUTH PORTLAND	04106	117	118	0.7316
M10824	1/30/2009	Wholesaler	REDLON & JOHNSON CO	BATH	04530	34	35	0.217
M11871	1/30/2009	Wholesaler	REDLON & JOHNSON CO	ROCKLAND	04841	72	73	0.4526
M10819	1/30/2009	Wholesaler	F. W. WEBB	BANGOR	04401	25	25	0.155
M13061	2/11/2009	HHW	RIVERSIDE RECYCLING	PORTLAND	04103	97	137	0.8494
M13573	2/16/2009	Retail	MAINE HARDWARE	Portland	04102	80	84	0.5208
M13059	2/18/2009	Wholesaler	ENVIRONMENTAL PROJECTS INC	AUBURN	04210	97	100	0.62
M10789	2/19/2009	Wholesaler	WEBBER SUPPLY INC	BANGOR	04401	94	101	0.6262
M11897	2/19/2009	Wholesaler	REDLON & JOHNSON CO	BANGOR	04401	20	20	0.124
M13236	2/23/2009	HHW	TOWN OF WEST GARDINER	WEST GARDINER	04345	8	8	0.0496
M11835	2/23/2009	Wholesaler	F.W. WEBB	AUGUSTA	04430	50	65	0.403
M11056	2/25/2009	Wholesaler	F.W. WEBB	LEWISTON	04240	90	92	0.5704
M11056	2/27/2009	Wholesaler	F.W. WEBB	LEWISTON	04240	85	87	0.5394
M11900	3/3/2009	Wholesaler	F.W. WEBB	BIDDEFORD	04005	41	41	0.2542
M11826	3/13/2009	Wholesaler	REDLUN & JOHNSON	PORTLAND	04102	90	90	0.558
M11832	3/13/2009	Wholesaler	BELL PUMP CO.	AUBURN	04210	60	61	0.3782
M11751	3/19/2009	Wholesaler	SID HARVEY INDUSTRIES	BREWER	04412	116	121	0.7502
M13658	3/24/2009	Retail	MAINE HARDWARE	PORTLAND	04102	124	128	0.7936
M13777	3/24/2009	Contractor	DOWNEAST ENERGY	KENNEBUNK	04043	26	26	0.1612
M11858	3/25/2009	Contractor	DEAD RIVER COMPANY	BRUNSWICK	04011	48	48	0.2976
M11796	3/27/2009	Wholesaler	F.W. WEBB	SOUTH PORTLAND	04106	50	78	0.4836
M12648	4/21/2009	Wholesaler	REDLON & JOHNSON CO	LOUISTON	04240	41	47	0.2914
M10817	5/5/2009	Wholesaler	F.W. WEBB	AUGUSTA	04330	63	63	0.3906
M11859	5/8/2009	Retail	AUBUCHON HARDWARE #133	WATERVILLE	04901	28	30	0.186
M13634	5/20/2009	Retail	DUPUIS HARDWARE	BIDDEFORD	04005	46	47	0.2914
M11868	5/20/2009	Wholesaler	BELL/SIMONS CO.	AUBURN	04210	36	68	0.4216
M11870	5/26/2009	Wholesaler	F. W. WEBB	WEST BATH	04530	42	42	0.2604
M13060	5/26/2009	Wholesaler	DCNE	WESTBROOK	04092	55	103	0.6386
M13573	5/26/2009	Retail	MAINE ACE HARDWARE	PORTLAND	04102	110	112	0.6944
M11864	5/28/2009	Wholesaler	CLARK & CO.	WATERVILLE	04901	120	127	0.7874
M11861	5/29/2009	Wholesaler	F. W. WEBB	WINSLOW	04901	83	83	0.5146

Bin Number	Date Returned	Classification	Customer Name	City	Zip	Total Stats	Total Bulbs	Total lbs mercury
M11866	5/29/2009	Wholesaler	BELL/SIMONS CO.	WATERVILLE	04901	113	118	0.7316
M11865	6/2/2009	Wholesaler	WINSLOW SUPPLY	WINSLOW	04901	37	38	0.2356
M13221	6/2/2009	Wholesaler	MEMCO	JAY	04239	32	32	0.1984
M11880	6/3/2009	Wholesaler	WESCO	ROCKLAND	04841	22	22	0.1364
M11871	6/3/2009	Wholesaler	REDLON & JOHNSON CO	ROCKLAND	04841	17	21	0.1302
M11749	6/5/2009	Wholesaler	BANGOR PIPE AND SUPPLY	BANGOR	04401	91	128	0.7936
M13066	6/9/2009	Wholesaler	WEBBER SUPPLY INC	SOUTH PORTLAND	04106	76	79	0.4898
M11807	6/9/2009	Wholesaler	DCNE	WESTBROOK	04092	69	119	0.7378
M10506	6/9/2009	Wholesaler	F. W. WEBB	ROCKLAND	04841	66	68	0.4216
M11228	6/12/2009	Wholesaler	NORTHERN SUPPLY CO. INC.	PORTLAND	04101	96	103	0.6386
M11822	6/12/2009	Wholesaler	THE GRANITE GROUP	PORTLAND	04102	61	66	0.4092
M11227	6/12/2009	Wholesaler	NORTHERN SUPPLY CO. INC.	PORTLAND	04101	102	108	0.6696
M11856	6/12/2009	Wholesaler	WESCO/STANDARD ELECTRIC	PORTLAND	04101	17	20	0.124
M13548	6/15/2009	Retail	WILBER G. SHAW HARDWARE	SANFORD	04073	24	24	0.1488
M11836	6/16/2009	Wholesaler	JOHNSTONE SUPPLY	PORTLAND	04102	31	75	0.465
M13068	6/16/2009	HHW	FALMOUTH PUBLIC WORKS	FALMOUTH	04105	24	24	0.1488
M13580	6/23/2009	Retail	AUBUCHON HARDWARE	SKOWHEGAN	04976	10	10	0.062
M13600	6/23/2009	Retail	AUBUCHON HARDWARE	PORTLAND	04103	25	25	0.155
M11815	6/23/2009	Wholesaler	JOHNSTONE SUPPLY	BANGOR	04401	64	134	0.8308
M11899	6/23/2009	Wholesaler	BELL/SIMONS CO.	BANGOR	04401	27	30	0.186
M11826	6/23/2009	Wholesaler	REDLON & JOHNSON CO	PORTLAND	04102	61	61	0.3782
M10787	6/23/2009	Wholesaler	WEBBER SUPPLY INC	BANGOR	04401	77	90	0.558
M11830	7/14/2009	Contractor	DEAD RIVER COMPANY	BIDDEFORD	04005	35	35	0.217
M13654	7/14/2009	Retail	SPORTMAN'S TRUE VALUE	WESTBROOK	04092	31	31	0.1922
M13609	7/16/2009	Retail	OAK HILL HARDWARE	SCARBOROUGH	04074	31	31	0.1922
M10786	7/24/2009	Wholesaler	WEBBER SUPPLY INC	SOUTH PORTLAND	04106	129	130	0.806
M11796	8/7/2009	Wholesaler	FW WEBB CO.	SOUTH PORTLAND	04106	11	25	0.155
M13588	8/11/2009	Retail	FARMINGTON FARMERS UNION	FARMINGTON	04938	71	71	0.4402
M11799	8/14/2009	Wholesaler	F.W. WEBB	CARIBOU	04736	96	98	0.6076
M10789	8/14/2009	Wholesaler	WEBBER SUPPLY INC	BANGOR	04401	101	104	0.6448
M11900	9/4/2009	Wholesaler	F.W. WEBB	AUGUSTA	04330	28	57	0.3534
M11898	9/23/2009	Wholesaler	NEW ENGLAND TRANE	WESTBROOK	04092	36	42	0.2604
M13609	9/25/2009	Retail	OAK HILL HARDWARE	SCARBOROUGH	04074	12	12	0.0744
M11835	9/25/2009	Wholesaler	F.W. WEBB	AUGUSTA	04330	39	42	0.2604
M13592	9/28/2009	Retail	GOSLINE'S HARDWARE	FARMINGDALE	04394	28	28	0.1736

Bin Number	Date Returned	Classification	Customer Name	City	Zip	Total Stats	Total Bulbs	Total lbs mercury
M13658	9/30/2009	Retail	MAINE HARDWARE	PORTLAND	04102	90	94	0.5828
M13558	10/2/2009	Wholesaler	AUBUCHON HARDWARE	FAMINGTON	04938	11	11	0.0682
M11814	10/7/2009	Wholesaler	BELL SIMONS	SANFORD	04073	87	97	0.6014
M13255	10/8/2009	HHW	LIMERICK TRANSFER STATION	LIMERICK	04048	27	27	0.1674
M11879	10/16/2009	Retail	HOMANS	PORTLAND	04102	37	43	0.2666
M13668	10/16/2009	Retail	AUBUCHON HARDWARE	BANGOR	04401	28	28	0.1736
M11868	10/19/2009	Wholesaler	BELL SIMONS	AUBURN	04210	35	87	0.5394
M13573	10/19/2009	Retail	MAINE ACE HARDWARE	PORTLAND	04102	107	109	0.6758
M13226	10/28/2009	HHW	DENMARK TRANSFER STATION	DENMARK	04022	89	89	0.5518
M13557	10/29/2009	Retail	AUBUCHON HARDWARE	RUMFORD	04276	24	24	0.1488
M10817	11/6/2009	Wholesaler	F.W. WEBB	AUGUSTA	04330	36	36	0.2232
M13060	11/6/2009	Wholesaler	DISTRIBUTOR CORP	WESTBROOK	04092	53	119	0.7378
M13066	11/13/2009	Wholesaler	WEBBER SUPPLY INC	SOUTH PORTLAND	04103	55	59	0.3658
M13685	11/13/2009	Retail	AUBUCHON HARDWARE	OLD TOWN	04468	4	4	0.0248
M13573	11/13/2009	Retail	MAINE HARDWARE	PORTLAND	04102	76	95	0.589
M11813	11/24/2009	Wholesaler	F.W. WEBB	BIDDEFORD	04005	126	126	0.7812
M11871	11/24/2009	Wholesaler	REDLON & JOHNSON	ROCKLAND	04841	38	39	0.2418
M11820	11/24/2009	Wholesaler	BELL/SIMONS	BREWER	04412	24	24	0.1488
M10787	11/24/2009	Wholesaler	WEBBER SUPPLY INC.	BANGOR	04401	120	134	0.8308
M13609	11/24/2009	Retail	OAK HILL HARDWARE	SCARBOROUGH	04074	20	20	0.124
M13676	11/24/2009	Retail	W.E. AUBUCHON INC CO.	LINCOLN	04457	2	2	0.0124
M11868	11/25/2009	Wholesaler	WINSLOW SUPPLY	WINSLOW	04901	57	57	0.3534
M11864	11/25/2009	Wholesaler	CLARK & CO.	WATERVILLE	04901	42	42	0.2604
M11835	11/25/2009	Wholesaler	F.W.WEBB	AUGUSTA	04330	32	32	0.1984
M13551	11/25/2009	Retail	AUBUCHON HARDWARE	AUGUSTA	04330	35	36	0.2232
M13658	12/2/2009	Retail	MAINE HARDWARE	PORTLAND	04102	82	102	0.6324
M13570	12/2/2009	Retail	DUNSTAN HARDWARE	SCARBOROUGH	04076	9	9	0.0558
M13681	12/2/2009	Retail	AUBUCHON HARDWARE	BREWER	04412	6	6	0.0372
M11897	12/3/2009	Wholesaler	REDLON & JOHNSON	BANGOR	04401	121	123	0.7626
M11792	12/3/2009	Wholesaler	REDLON & JOHNSON	PRESQUE ISLE	04769	21	21	0.1302
M13591	12/10/2009	Wholesaler	REDLON & JOHNSON	BANGOR	04401	108	112	0.6944
M13245	12/10/2009	Wholesaler	BELL/SIMONS	BANGOR	04401	144	153	0.9486
M10817	12/11/2009	Wholesaler	F.W. WEBB	AUGUSTA	04330	62	87	0.5394
M11845	12/11/2009	Wholesaler	REDLON & JOHNSON	AUGUSTA	04330	44	64	0.3968
M13599	12/11/2009	Wholesaler	GRANITE GROUP	OAKLAND	04963	123	123	0.7626

Bin Number	Date Returned	Classification	Customer Name	City	Zip	Total Stats	Total Bulbs	Total lbs mercury
M13614	12/11/2009	Wholesaler	BANGOR PIPE & SUPPLY	BANGOR	04401	59	64	0.3968
M13619	12/11/2009	Wholesaler	GRANITE GROUP	OAKLAND	04963	114	114	0.7068
M11839	12/21/2009	Wholesaler	BELL SIMONS CO	AUBURN	04240	64	65	0.403

Appendix B: Maine communities in which TRC receive thermostats by mail

Communities	Participants	Communities	Participants
Auburn	6	Oxford	1
Bangor	1	Poland	1
Belgrade	2	Poland Spring	1
Bethel	1	Portland	4
Biddeford	2	Rumford	1
Blue Hill	2	S. Portland	1
Bowdoin	1	Saco	2
Brownfield	1	Scarborough	1
Damariscotta	1	Skowhegan	3
Durham	2	South Paris	1
Edgecomb	1	Standish	1
Cape Elizabeth	1	Thomaston	1
Falmouth	1	Topsham	2
Farmingdale	1	Trenton	1
Gardiner	1	Union	1
Gorham	2	Waldoboro	2
Gray	2	Wales	1
Hampden	1	Waterford	1
Jay	1	Wayne	2
Lewiston	3	West Gardiner	1
Lincolnville	1	West Paris	1
Millinocket	2	Windham	2
New Gloucester	1	Woolwich	1
Orono	2	Yarmouth	1

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

January 30, 2009

Ms Ann Pistell
Maine Department of Environmental Protection
17 State House Station
Augusta, ME 04333-0017

Subject: Thermostat Recycling Corporation's 2008 Annual Report

Dear Ann:

Attached is TRC's 2008 annual collection report for the Department. To the extent practicable TRC has made its best effort to be responsive to the Department's request for expense and collection data.

TRC would like to take the opportunity to summarize some of its major accomplishments in 2008.

- National collections increased by 18 percent and TRC recovered almost 1300 pounds of mercury in 2008.
- TRC expanded from four to over twenty members last year. TRC now represents approximately two-thirds of the manufacturers who historically sold over 60 different brand names of mercury thermostats.
- TRC also saw real growth in access to the program, the number of recycling containers at participating collection locations increased by 20%. TRC saw its best growth at household hazardous waste locations, with the number more than doubling to nearly 400 containers.

TRC also made significant strides in Maine in 2008.

- With a successful recruitment effort, TRC was able to eliminate the need for the multiple collection programs and streamlined collections for non-member brands.
- TRC implemented a new financial management system which facilitates both financial reporting and administration of the incentive program.
- TRC updated operating procedures and improved program performance on remittance of incentive payments.
- TRC, working with the Department, developed a program to facilitate thermostat collections at retail locations.
- TRC implemented the education and outreach program as agreed to and made additional efforts to raise awareness of the program in Maine.

TRC is continuing efforts on implementing the new website and implementing a national market effort. As the attached report indicates, we remain concerned with collection rates in Maine and the costs of implementing the program. Moving forward, we look to engaging the Department in a constructive dialogue on the best means to build on the previous year's efforts.

Regards,

Mark Tibbetts
Executive Director

Maine DEP Thermostat Collection Report Form for Calendar Year 2008 Activities
Due January 30, 2009

Directions: This form may be completed electronically. Please provide the following information on thermostat collection and recycling efforts in Maine

I. Thermostat Data

	TSTATS	BULBS	Lbs. Mercury
Honeywell	5174	5653	35.05
White-Rodgers	300	359	2.23
GE	27	70	0.43
Nordyne	2	2	0.01
NOMS (other manufacturers)[1]	52	59	0.37
Loose Bulbs		73	0.45
Totals	**5555**	**6220**	**38.54**

1) TRC began tracking recovered mercury thermostats by brand in October 2008.

Table 2 – Please copy the attach[ed] table in an Excel spreadsheet format with the following information. (Please use font 12).

See Appendix A

Table 3

	T-Stat # mail-back	T-stat # Retail[1]	T-stat # Wholesale	T-stat # HHW	T-stat # Contractor
TRC Brands	422	n/a	4625	110	236
EPI Brands[2]	n/a	n/a	n/a	n/a	n/a
Non-qualifying due to no cover[3]	n/a	n/a	n/a	n/a	n/a
Non-Qualifying to other reasons[4]	n/a	n/a	n/a	n/a	n/a
Total	422		4625	110	236

1) DEP did not begin retail bin distribution until December 2008, no retail collections in 2008
2) TRC did not track EPI thermostats by source- TRC received 162 thermostats from EPI in 2008. Please Note as of October 2008 TRC membership increased to 19 manufacturers and the EPI program was substantially modified. EPI is no longer collecting thermostats for non-TRC member companies, rather it is reimbursing TRC for TRC's costs associated with collecting and recycling non-member brand thermostats
3) TRC did not track collections in this manner. See response below.
4) TRC did not track collections in this manner. See response below.

1. Please list towns from which TRC received home owner thermostats though the mail-back program. Use Separate sheet.

See Appendix B

2. Number of non-TRC mercury thermostats received and forwarded to EPI

n/a

3. Number of TRC thermostats qualifying for incentive payment

4731

4. Number of thermostats not qualifying for payment—excluding those shipped to EPI

No cover: n/a No sticker: 662 No coupon: n/a Other: 31*

*TRC receives other mercury containing products or non-mercury thermostats with incentive stickers. For instance it received 14 thermometers with incentive stickers in bin from Falmouth Public Works.

II. Costs
Table 4

Program Component	TRC Program*	Maine Incentive Program
TRC Staff and Administration[1]	$ 77,542	$ 6,090
Postage	$ 955	
Phone	$ 1,751	$ 6
Recycling Costs[2]	$ 160,405	
Maine Incentive Payments		$ 22,605
Maine Collateral Design		
Printing of Maine Materials		$ 6,053
Maine Marketing and Promotion[3]		$ 14,971
Membership Income	n/a	
Other[4]	$ 34,412	$ 33,239
Total	$ 275,064	$ 82,965

* TRC classifies all direct costs supporting the Maine incentive program when practicable. It is unable to allocate general office expenses, labor (excluding contractor that assists in processing payments), and program overhead (for example insurance). TRC estimates that between 15 and 20% of the executive director's effort in 2008 was spent on Maine related activities.

1) TRC Staff and Administration includes TRC professional staff, supplies, and software/hardware.

2) Recycling Costs are paid in arrears- 2008 costs are actual 2007 costs and include costs for recycling containers and costs associated with fulfilling new bin orders, collection/transport of waste thermostats, maintaining collection database, and processing/recycling of waste thermostats.

3) Includes advertising costs and contractual costs for Maine based public relations consultant.

4) Includes corporate fees, insurance, website development, memberships/subscriptions, travel, banking fees, legal, printing, registration and miscellaneous expenses.

II. Education and Outreach

1. Newspaper Ads: TRC placed ads in all major Maine daily and weekly newspapers in February 2008 and again in October 2008. Generally the ad was 3.00rowcolumn x 5.50 inch. A total of 30 placements occurred.

Newspaper	1st Insertion	2nd Insertion	3rd Insertion	4th Insertion
Portland Press Herald	10-Feb	13-Feb	19-Oct	22-Oct
Bangor Daily News	23-Feb	27-Feb	18-Oct	22-Oct
Rumford Times	27-Feb		22-Oct	
Courier Gazette/Village Soup	28-Feb		23-Oct	
Camden Herald	28-Feb		23-Oct	
Kennebec Journal/Waterville Sentinel	24-Feb	25-Feb	23-Oct	25-Oct
Moosehead Messenger	26-Feb		24-Oct	
Ellsworth American	28-Feb		23-Oct	
Lewiston Sun Journal	24-Feb	25-Feb	19-Oct	20-Oct
Biddeford Journal	23-Feb	25-Feb	18-Oct	20-Oct

A copy of the approved advertisement is in Appendix C.

2. PSA Radio

See Appendix D for a list of radio stations contacted for the PSA. The Maine Media website was used as a reference (www.maineinfo/). Stations that accept PSAs received a copy of the PSA script and audio. Each station was called for the appropriate email address and contact and then sent the materials via email. The PSAS was sent to 34 contacts, but many of the contacts manage the PSAs on more than one station. For example, Clear Channel is located in Augusta and Bangor and has several radio stations but only one program director in charge of PSAs.

TRC's Maine-based public relations representative heard the PSA on several radio stations. This work was completed in February and March. It was made clear to the stations that the PSA was appropriate to use for the next year.

As indicated to the Department previously, PSA's are not paid placements and the stations contacted do not provide information on air time and/or time slots. A copy of the script is in Appendix E.

3. PSA – TV

All seven major television stations received the public service announcement in March 2008– Fox, NBC, CBS, ABC in the Bangor, Lewiston, Portland markets. Two TV stations did not return our representative repeated phone messages. However, the materials were sent to them with a self-explanatory cover letter. Maine Public Television does not air public service announcements and did not receive the materials. As indicated to the Department previously, PSA's are not paid placements and the stations contacted do not provide information on air time and/or time slots.

List of Television Stations Provided PSA

WABI-TV (CBS) CHANNEL 5	Bangor
WCSH-TV (NBC) CHANNEL 6	Portland
WGME-TV (CBS) CHANNEL 13	Portland
WLBZ-TV (NBC) CHANNEL 2	Bangor
WMTW-TV (ABC) CHANNEL 8	Portland
WMTW-TV (ABC) Channel 8	Auburn
WPFO TV - Fox 23	Portland
WVII-TV (ABC) CHANNEL 7	Bangor
WVFW Channel 22 Fox	Bangor

4. Please specify what additional education and outreach activities were conducted in this reporting year.

Press Releases

TRC issued press releases in February, April, and again in October promoting the program. The October release was picked up by the Portland Press Herald and a minor story ran. In all cases follow-up calls to statehouse reporters and the major outlets were conducted, but there was no interest in a feature story on the program. See Appendix G for copies of the releases.

Organizational Outreach

Personal contact and emails to distribute the TRC newsletter article (see Appendix F) were distributed to 96 local and statewide organizations. In addition to the 96, several of these organizations, like the Maine Council of Churches and the Maine Land Trust Network, have many affiliates to whom the article and graphic will be sent by the organization. Included were environmental groups like Natural Resources Council of Maine, Appalachian Mountain Club, Environment Health and Maine People's Alliance.

Outdoor organizations targeted were land trusts, lake associations and conservation groups. Chamber of commerce organizations were included, as were groups like Sierra Club and Appalachian Mountain Club.

The response TRC received was mixed – some groups we had anticipated would welcome the information, would not make a commitment to use the materials. Other groups were eager to help educate the public. Some organizations we could not reach via phone to confirm use of the article, despite several attempts.

5. Please specify what additional educational and outreach activities are planned for the next calendar year.

Please see TRC comments and recommendations below. TRC strongly recommends the Department reevaluates the program and considers a number of changes to the outreach efforts. TRC is prepared to implement the following in 2009.

1) Conduct a web advertising campaign in major Maine daily newspapers to promote the retail collections of thermostats. This would be in conjunction with the start of the fall heating season.

2) Develop program collateral previously agreed to in support of both wholesale and retail collections. TRC suggests retail collateral be coordinated with Vermont DEC. TRC is prepared to move forward with a peg-talker promoting both the $5 incentive and proper disposal.

3) Develop coordinated strategy with the Department to illicit greater contractor participation by engaging other stakeholders. Either the amount of mercury available has been grossly over estimated, or the incentive has not altered behavior sufficiently to increase collections. Contractor participation is critical if collections are to increase.

6. Other comments or recommendations.

By statute the mercury-containing thermostat collection program collection goal for 2008 is 125 pounds of mercury. TRC efforts will contribute 38.5 pounds to the collective goal. It is notable in the first full year of both phases of the incentive program, collections by weight, have increased by only four percent.

It seems apparent there are two significant problems with the program. One, the statute grossly over estimates the amount of mercury available to capture through this program and two, many HVAC contractors still continue to violate Maine law and improperly dispose mercury-containing thermostats.

TRC has sustained over $150,000 in expenses in Maine in the last two years. The incentive program is labor intensive and inefficient. TRC issued slightly over 700 incentive payments by

check in 2008. Thirty-one percent were for $5.00 and an additional 19% were for $10.00. TRC estimates it costs between $10 and $15 to issue each payment.

For a program that has not markedly increased collections, TRC questions the environmental benefits in comparison to the costs.

TRC recommends several changes to the program.

1. The Department should reassess the collection goals. TRC and NEMA, during recent Product Stewardship Institute stakeholder meetings, clearly demonstrated the methodology used to establish collection goals is flawed. The methodology uses erroneous assumptions to establish the mercury available to recover from both residential and commercial buildings in Maine.

2. The Department should consider other means for ensuring HVAC contractors comply with the law. It was assumed the incentive and outreach efforts would influence contactor behavior and increase compliance with Maine law.

TRC has no enforcement authority and beyond the financial incentive has limited means to change behavior of HVAC contractors. TRC suggests the Department explore options requiring Maine HVAC contractors to certify compliance with disposal regulations and use the process to engage in enforcement among other stakeholders.

3. TRC recommends the suspension of the mail-back program. Approximately seven percent of 2008 collections are attributed to the mail-back program. The mail-back program was created to provide access to the program for northern and eastern Maine. A limited number of thermostats were collected through this effort from communities in these areas. The mail-back program is inefficient and draws resources away from collection activites that will yield better results. The expansion of retail and HHW programs now provide convenient access to all Maine residents.

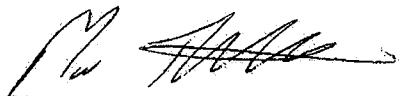
4. Despite TRC recommendation for an alternative approach, the Department mandated print advertising. TRC ran print advertisements in all major Maine daily papers and regional weekly papers. The February advertising buy resulted in less than 100 email and telephones requests for mailing labels (requests within the month of the buy) and the October advertising buy yielded less than 140 requests. TRC collected 422 mercury thermostats through the mail-back program in Maine, from approximately 180 individuals, while spending more than $11,000 on the advertising placements alone. This is an unacceptably low rate of return relative to the expenditure.

TRC strongly suggests the Department approve TRC's initial recommendation for web-based advertising. TRC maintains that web-based advertising is the superior approach. This approach has been approved in New Hampshire, Vermont and Iowa. Web-based advertising extends the length of the buy and facilitates evaluation of the effectiveness of the advertising. A link to TRC's website will be included in the ad allowing a simple click-through for more

information on the TRC recycling program. TRC can track the number of click- throughs and the number of times the ad is viewed. TRC would run internet ads during September and October 2009, corresponding to the start of the heating season.

5. TRC recommends its education and outreach efforts focus on contractor participation. TRC is exploring options for collateral for wholesalers to use to promote the program. The cling sticker will be printed in the first quarter of 2008 for use at both retail and wholesale locations. TRC is also exploring developing a poster (initial feedback from some wholesalers is for 8 x 11 poster). Engaging with the Maine Fuel Oiler Dealers and other stakeholder groups in Maine is also recommended.

Submitted by: Mark Tibbetts, Executive Director Date: January 30, 2009



Signature

Appendix A—Bin Returns for 2008

Bin Number	Date Returned	Type	Customer Name	City	Zip	Total Stats	Total Bulbs	Total lbs mercury
M11854	4-Jan-08	Wholesaler/Dist	DEAD RIVER CO.	MILLINOCKET	04462	26	26	0.1612
M11839	7-Jan-08	Wholesaler/Dist	BELL/SIMONS CO.	AUBURN	04210	78	79	0.4898
M11796	10-Jan-08	Wholesaler/Dist	F.W. WEBB CO	SOUTH PORTLAND	04106	26	36	0.2232
M13060	16-Jan-08	Wholesaler/Dist	DCNE - WESTBROOK	WESTBROOK	04092	63	146	0.9052
G12852	17-Jan-08	Alt Recycling Co	EPI	AUBURN	04211	74	126	0.7812
M10789	17-Jan-08	Wholesaler/Dist	WEBBER SUPPLY INC.	BANGOR	04401	142	145	0.899
M12648	24-Jan-08	Wholesaler/Dist	REDLON & JOHNSON CO	LEWISTON	04240	36	36	0.2232
M10817	28-Jan-08	Wholesaler/Dist	F.W. WEBB CO	AUGUSTA	04330	77	88	0.5456
M11826	6-Feb-08	Wholesaler/Dist	REDLON & JOHNSON CO	PORTLAND	04102	81	92	0.5704
M11790	8-Feb-08	Wholesaler/Dist	REDLON & JOHNSON CO	PRESQUE ISLE	04769	16	18	0.1116
M11813	18-Feb-08	Wholesaler/Dist	F.W. WEBB CO	BIDDEFORD	04005	68	68	0.4216
M11796	19-Feb-08	Wholesaler/Dist	F.W. WEBB CO	SOUTH PORTLAND	04106	37	37	0.2294
M11865	22-Feb-08	Wholesaler/Dist	ROCKINGHAM ELECTRIC SUPPLY	AUGUSTA	04330	57	59	0.3658
M11866	22-Feb-08	Wholesaler/Dist	CLARK & COMPANY	WATERVILLE	04901	108	113	0.7006
M11842	26-Feb-08	Wholesaler/Dist	F.W. WEBB CO	LEWISTON	04240	69	72	0.4464
M11861	29-Feb-08	Wholesaler/Dist	F.W. WEBB CO	WINSLOW	04901	100	101	0.6262
M13066	4-Mar-08	Wholesaler/Dist	WEBBER SUPPLY INC.	SOUTH PORTLAND	04106	115	117	0.7254
M11826	14-Mar-08	Wholesaler/Dist	REDLON & JOHNSON CO	PORTLAND	04102	7	11	0.0682
M11832	14-Mar-08	Wholesaler/Dist	BELL/SIMONS CO.	AUBURN	04210	36	38	0.2356
M11227	19-Mar-08	Wholesaler/Dist	NORTHERN BURNER SUPPLY	PORTLAND	04101	64	79	0.4898
M11751	19-Mar-08	Wholesaler/Dist	SID HARVY INDUSTRIES	BREWER	04412	118	120	0.744
M11815	19-Mar-08	Wholesaler/Dist	JOHNSTONE SUPPLY	BANGOR	04401	38	62	0.3844
M13057	19-Mar-08	CONTRACTOR	BANGOR HOUSING AUTHORITY	BANGOR	04401	114	114	0.7068
M13070	19-Mar-08	CONTRACTOR	BANGOR HOUSING AUTHORITY	BANGOR	04401	122	122	0.7564
M11830	27-Mar-08	Wholesaler/Dist	DEAD RIVER CO.	BIDDEFORD	04005	50	1	0.0062
G12852	14-Apr-08	Alt Recycling Co	EPI	AUBURN	04210	59	73	0.4526
M11056	14-Apr-08	Wholesaler/Dist	F.W. WEBB CO	LEWISTON	04240	38	38	0.2356
M11228	14-Apr-08	Wholesaler/Dist	NORTHERN BURNER SUPPLY	PORTLAND	04101	45	47	0.2914
M11796	14-Apr-08	Wholesaler/Dist	F.W. WEBB CO	SOUTH PORTLAND	04106	21	33	0.2046
M11868	14-Apr-08	Wholesaler/Dist	BELL/SIMONS CO.	AUBURN	04210	37	63	0.3906
M11858	1-May-08	Wholesaler/Dist	DEAD RIVER CO.	BRUNSWICK	04011	68	68	0.4216

M11796	15-May-08	Wholesaler/Dist	F.W. WEBB CO	SOUTH PORTLAND	04106	30	30	0.186
M11827	21-May-08	Wholesaler/Dist	BANGOR PIPE & SUPPLY	ELLSWORTH	04605	46	46	0.2852
M10506	29-May-08	Wholesaler/Dist	F.W. WEBB CO	AUGUSTA	04330	111	184	1.1408
M11876	29-May-08	Wholesaler/Dist	F.W. WEBB CO	ROCKLAND	04841	94	120	0.744
M11796	27-Jun-08	Wholesaler/Dist	F.W. WEBB CO	SOUTH PORTLAND	04106	13	15	0.093
M11870	27-Jun-08	Wholesaler/Dist	F.W. WEBB CO	WEST BATH	04530	33	33	0.2046
M11828	11-Jul-08	Wholesaler/Dist	WEBBER SUPPLY INC.	BANGOR	04401	101	102	0.6324
M11795	16-Jul-08	Wholesaler/Dist	TRANE CO.	WESTBROOK	04092	29	62	0.3844
M11807	16-Jul-08	Wholesaler/Dist	DCNE TOTALINE PARTS	WESTBROOK	04092	48	92	0.5704
M13060	16-Jul-08	Wholesaler/Dist	DCNE TOTALINE PARTS	WESTBROOK	04092	60	101	0.6262
M11228	18-Jul-08	Wholesaler/Dist	NORTHERN BURNER SUPPLY	PORTLAND	04101	121	121	0.7502
M11826	18-Jul-08	Wholesaler/Dist	REDLON & JOHNSON CO	PORTLAND	04102	75	75	0.465
M11833	22-Jul-08	Wholesaler/Dist	THE BELL/SIMONS CO	AUBURN	04210	73	0	0
M13056	22-Jul-08	Wholesaler/Dist	SID HARVY INDUSTRIES	PORTLAND	04102	40	42	0.2604
M11817	25-Jul-08	Wholesaler/Dist	P & E SUPPLY	SANFORD	04073	28	28	0.1736
M13068	25-Jul-08	HHW FACILITY	FALMOUTH PUBLIC WORKS	FALMOUTH	04105	15	15	0.093
M11811	1-Aug-08	Wholesaler/Dist	BELL/SIMONS CO.	SANFORD	01073	92	103	0.6386
G12852	11-Aug-08	Alt Recycling Co	EPI	AUBURN	04210	29	34	0.2108
M11849	11-Aug-08	Wholesaler/Dist	DEAD RIVER CO.	ELLSWORTH	04605	53	55	0.341
M11864	11-Aug-08	Wholesaler/Dist	CLARK & COMPANY	WATERVILLE	04901	108	108	0.6696
M11866	11-Aug-08	Wholesaler/Dist	CLARK & COMPANY	WATERVILLE	04901	112	112	0.6944
M13641	11-Aug-08	Wholesaler/Dist	MEMCO, INC.	JAY	04239	91	91	0.5642
M11835	12-Aug-08	Wholesaler/Dist	F.W. WEBB CO	AUGUSTA	04330	81	112	0.6944
M10789	15-Aug-08	Wholesaler/Dist	WEBBER SUPPLY INC.	MANGOR	04401	43	43	0.2666
M11845	15-Aug-08	Wholesaler/Dist	REDLON & JOHNSON CO	AUGUSTA	04330	78	98	0.6076
M11749	27-Aug-08	Wholesaler/Dist	BANGOR PIPE & SUPPLY	BANGOR	04401	41	44	0.2728
M10786	11-Sep-08	Wholesaler/Dist	WEBBER SUPPLY INC.	S PORTLAND	04106	117	136	0.8432
M11790	19-Sep-08	Wholesaler/Dist	REDLON & JOHNSON CO	PRESALA ISLE	94769	31	31	0.1922
M11796	19-Sep-08	Wholesaler/Dist	F.W. WEBB CO	SOUTH PORTLAND	04106	83	83	0.5146
M10822	26-Sep-08	Wholesaler/Dist	F.W. WEBB CO	CARIBOU	54736	29	29	0.1798
M11812	26-Sep-08	Wholesaler/Dist	F.W. WEBB CO	CARIBOU	54736	100	102	0.6324
M11839	2-Oct-08	Wholesaler/Dist	BELL/SIMONS CO.	AUBURN	04210	60	61	0.3782
M11227	8-Oct-08	Wholesaler/Dist	NORTHERN BURNER SUPPLY	PORTLAND	04101	41	42	0.2604
M13058	8-Oct-08	HHW FACILITY	TOWN OF FREEPORT	FREEPORT	04032	20	21	0.1302
M11796	21-Oct-08	Wholesaler/Dist	F.W. WEBB CO	SO PORTLAND	04106	28	28	0.1736
M13224	31-Oct-08	Wholesaler/Dist	F.W. WEBB CO	ELLSWORTH	04605	32	38	0.2356
M11900	13-Nov-08	Wholesaler/Dist	ENVIRONMENTAL PROTECTION	AUGUSTA	04333	38	120	0.744
M11841	14-Nov-08	Wholesaler/Dist	DEAD RIVER CO.	MADAWASKA	04756	33	33	0.2046

M11863	14-Nov-08	Wholesaler/Dist	F.W. WEBB CO	WEST BATH	04530	32	41	0.2542
M10817	18-Nov-08	Wholesaler/Dist	F.W. WEBB CO	AUGUSTA	04330	69	69	0.4278
M11792	20-Nov-08	Wholesaler/Dist	REDLON & JOHNSON CO	PRESQUE ISLE	04769	29	50	0.31
M11800	21-Nov-08	Wholesaler/Dist	WW GRAINGER	PORTLAND	04103	35	60	0.372
M11797	4-Dec-08	Wholesaler/Dist	COASTAL WINAIR CO,.	BIDDEFORD	04005	63	65	0.403
M11805	4-Dec-08	Wholesaler/Dist	BELL/SIMONS CO.	BIDDEFORD	04005	117	130	0.806
M13061	4-Dec-08	HHW FACILITY	RIVERSIDE RECYCLING	PORTLAND	04103	75	79	0.4898
M10787	10-Dec-08	Wholesaler/Dist	WEBBER SUPPLY INC.	BANGOR	04401	105	105	0.651
M11813	10-Dec-08	Wholesaler/Dist	F.W. WEBB CO	BIDDEFORD	04005	78	80	0.496
M11857	15-Dec-08	Wholesaler/Dist	SONDIK SUPPLY	PORTLAND	04101	30	31	0.1922
M11814	17-Dec-08	Wholesaler/Dist	BELL/SIMONS CO.	SANFORD	04073	72	72	0.4464
M11842	29-Dec-08	Wholesaler/Dist	F.W. WEBB CO	LEWISTON	04240	101	101	0.6262
M11873	29-Dec-08	Wholesaler/Dist	ROCKINGHAM ELECTRIC	AUGUSTA	04330	34	34	0.2108
M10817	31-Dec-08	Wholesaler/Dist	F.W. WEBB CO	AUGUSTA	04345	46	48	0.2976

Appendix B—List of Towns from which TRC received thermostats in mail

City	Number of persons shipping from Community	City	Number of persons shipping from Community	City	Number of persons shipping from Community
Appleton	1	Gardiner	1	Scarborough	5
Ashland	1	Gorham	5	Sebago	1
Athens	1	Gray	3	Sedgwick	1
Auburn	6	Hallowell	2	Sidney	1
Bangor	2	Hampden	2	Smithfield	1
Belfast	3	Hancock	1	South Portland	6
Berwick	1	Holden	1	South Thomaston	1
Bethel	1	Hollis	2	Southwest Harbor	2
Biddeford	9	Houlton	1	Thorndike	1
Blaine	1	Jefferson	1	Turner	1
Blue Hill	2	Kennebunk	1	Union	1
Boothbay	1	Lewiston	9	Unity	1
Brewer	1	Levant	1	Vassalboro	1
Bridgton	1	Lincoln	1	W. Gardiner	1
Brunswick	4	Machiasport	1	Waldoboro	1
Buxton	1	Manchester	1	Wales	2
Calais	1	Mechanic Falls	1	Waltham	1
Camden	2	Milford	1	Waterville	6
Cape Elizabeth	2	Milo	1	Wayne	1
Cape Neddick	1	Montville	1	West Enfield	1
Cape Porpoise	1	Morrill	1	West Gardiner	1
Cheslea	1	Newburgh	1	West Paris	1
Clinton	1	Newport	1	Westbrook	1
Corrina	1	Norridgewock	1	Whitefield	1
Cumberland	3	Norway	1	Windham	3
Cumberland Foreside	1	Oakland	2	Winslow	3
Cushing	2	Orono	2	Winthrop	2
Dixfield	1	Penobscot	1	Winthrop	2
Dover-Foxcroft	1	Port Clyde	1	Yarmouth	5
Durham	1	Portland	7		
East Winthrop	1	Randolph	1		
Eddington	1	Raymond	1		
Ellsworth	1	Readfield	1		
Fairfield	1	Rockport	1		
Falmouth	2	S. Portland	2		
Farmingdale	1	Saco	1		
Fort Kent	1	Sanford	2		

Appendix C— Approved Advertisement

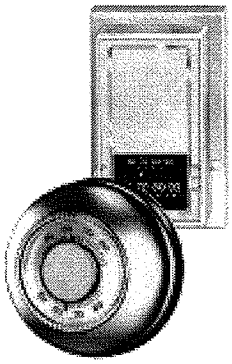
THERMOSTAT RECYCLING CORPORATION

Recycle your old mercury thermostat and receive $5 back

If you are purchasing a new thermostat, you may be replacing one that contains mercury.

For more information and proper disposal, contact the Thermostat Recycling Corporation:

Call 1-800-238-8192 or visit our website at www.nema.org/TRC



The TRC is issuing a payment of $5.00 to anyone in Maine who returns a mercury thermostat to the TRC for recycling. Participants can request a mailing label by phone at 1-800-238-8192 or email at trc@nema.org.

DEPARTMENT OF
Environmental
Protection
STATE OF MAINE

Appendix D- List of Stations contacted for regarding radio PSA

Station	City	State	Date Contacted
WABK-FM (104.3 Mhz)	Augusta	ME	19-Feb
WCME-FM (96.7 Mhz)	Augusta	ME	19-Feb
WEBB-FM (98.5 Mhz)	Augusta	ME	21-Feb
WFAU-AM (1280 Khz)	Augusta	ME	22-Feb
WIGY-FM (97.5 Mhz)	Augusta	ME	27-Feb
WKCG-FM (101.3 Mhz)	Augusta	ME	19-Feb
WMDR-AM (1340 Khz) & WMDR-FM (88.9 Mhz)	Augusta	ME	27-Feb
WMME-FM (92.3 Mhz)	Augusta	ME	21-Feb
WTOS-FM (105.1 Mhz)	Augusta	ME	19-Feb
WTVL-AM (1400 Khz)	Augusta	ME	21-Feb
WKSQ-FM (94.5 Mhz)	Bangor	ME	19-Feb
WVOM-FM (103.9 Mhz)	Bangor	ME	19-Feb
WBZN-FM (107.3 Mhz)	Brewer	ME	27-Feb
WDEA-AM (1370 Khz)	Brewer	ME	27-Feb
WEZQ-FM (92.9 Mhz)	Brewer	ME	27-Feb
WQCB-FM (106.5 Mhz)	Brewer	ME	27-Feb
WWMJ-FM (95.7 Mhz)	Brewer	ME	27-Feb
WCRQ-FM (102.9 Mhz)	Calais	ME	27-Feb
WQDY-FM (92.7 Mhz)	Calais	ME	27-Feb
WFST-AM (600 Khz)	Caribou	ME	27-Feb
WLKE-FM (99.1 Mhz)	Ellsworth	ME	19-Feb
WKTJ-FM (99.3 Mhz)	Farmington	ME	27-Feb
WHOU-FM (100.1 Mhz)	Houlton	ME	27-Feb
WBQQ-FM (WBACH)(99.3 Mhz)	Kennebunk	ME	25-Feb
WALZ-FM (95.30 Mhz)	Machias	ME	27-Feb
WKTQ-AM (1450 Khz)	Norway	ME	19-Feb
WOXO-FM (92.7 Mhz)	Norway	ME	3-Mar
WTBM-FM (100.7 Mhz)	Norway	ME	3-Mar
WBLM-FM (102.9 Mhz)	Portland	ME	27-Feb
WBQW-FM (106.3 Mhz)	Portland	ME	25-Feb
WCYY-FM (94.3 Mhz)	Portland	ME	27-Feb
WFNK-FM (107.5 Mhz)	Portland	ME	21-Feb
WHOM-FM (94.9 Mhz)	Portland	ME	27-Feb
WHXQ-FM (104.70 Mhz)	Portland	ME	21-Feb
WHXR-FM (106.7 Mhz)	Portland	ME	21-Feb
WJBQ-FM (97.9 Mhz)	Portland	ME	27-Feb
WLAM-AM (1470 Khz)	Portland	ME	25-Feb
WLOB-AM/FM (1310 Khz & 96.3 FM)	Portland	ME	21-Feb
WTHT-FM (99.9 Mhz)	Portland	ME	25-Feb
WBPW-FM (96.9 Mhz)	Presque Isle	ME	27-Feb
WOZI-AM (101.9 Mhz)	Presque Isle	ME	27-Feb
WQHR-FM (96.1 Mhz)	Presque Isle	ME	27-Feb
WBQX-FM (106.9 Mhz)	Rockland	ME	25-Feb
WBYA-FM (105.5 Mhz)	Rockland	ME	25-Feb
WMCM-FM (103.3 Mhz)	Rockland	ME	27-Feb
WQSS-FM (102.5 Mhz)	Rockland	ME	19-Feb
WRKD-AM (1450 Khz)	Rockland	ME	27-Feb
WHQO-FM (107.9 Mhz)	Skowhegan	ME	27-Feb
WBAE-AM (1490 Khz)	South Portland	ME	4-Mar
WGAN-AM (560 Khz)	South Portland	ME	4-Mar
WMGX-FM (93.1 Mhz)	South Portland	ME	5-Mar

WPOR-FM (101.9 Mhz)	South Portland	ME	6-Mar
WYNZ-FM (100.9 Khz)	South Portland	ME	7-Mar
WZAN-AM (970 Khz)	South Portland	ME	8-Mar

Appendix E— PSA Script

(UP-TEMPO MUSIC, UNDER THROUGHOUT)

ANNCR: One of the smartest and simplest ways to save on energy costs and protect the environment is to replace your old thermostat with a new ENERGY STAR rated programmable model. Just remember that the thermostat you're replacing may contain mercury, and every Maine resident who properly recycles an old mercury thermostat is eligible to receive five dollars from the Thermostat Recycling Corporation, an industry funded non-profit. Get the details about recycling your mercury thermostats by calling the Maine Department of Environmental Protection's toll free 800 number or visiting their web site at MaineDEP.com.

The broadcast television PSA will feature a similar script, but also include graphics of mercury thermostats and the TRC and Maine DEP logos. And instead of referring viewers to the Maine DEP, it will feature the url for the web site and the TRC toll-free number.

Appendix F—Copy of "Canned" Newsletter Article

$5 Rebate for Mercury Thermostats

Maine homeowners can now receive $5 for each mercury-containing thermostat they return for recycling to the TRC – Thermostat Recycling Corporation. The rebate process is easy. Homeowners can order a TRC mailing packet at nema.org/TRC or by calling 1-800-238-8192. After the thermostat is received, the homeowner gets a $5 check in the mail.

As part of a Maine law enacted in 2006, the rebate program offers homeowners another alternative for ensuring mercury is safely recycled. Many towns and cities in Maine have mercury collection programs where thermostats can also be recycled. The TRC program allows homeowners to recycle their old thermostats directly with the thermostat manufacturers

Appendix G— TRC 2008 Press Releases

Thermostat Recycling Corporation

1300 North 17th Street, Suite 1847 Rosslyn, VA 22209

For Immediate Release Contact: Leann Diehl 207-626-9099

Augusta, Maine – July 1, 2008 -- Maine homeowners can receive a $5 payment by recycling their old mercury thermostat, which cannot legally be disposed in household trash. Under a program initiated under a new Maine law, thermostat manufacturers will provide pre-paid UPS mailing labels to any homeowner who requests them. The mailing labels allow consumers to ship thermostats to be recycled. In return, the manufacturer provides a payment of $5 for each thermostat received. By simply recycling five thermostats, in other words, a homeowner can receive a check for $25.

The program is operated by Thermostat Recycling Corporation (TRC), an industry-funded non-profit that recycles mercury thermostats throughout the continental United States.

Mark Kohorst, executive director of TRC, said, "It is now not only environmentally responsible, but profitable for Maine residents to avoid throwing old thermostats in the trash. Homeowners can obtain mailing labels from us either by phone or email and we encourage them to do so."

Homeowners can request a mailing label by calling 1-800-238-8192 or sending an electronic request to trc@nema.org. No special packaging is required to ship the thermostat, although TRC recommends that it be placed inside a zip-lock bag and shipped in a well-sealed box. Homeowners should include the entire thermostat, with its cover intact, and under no circumstances try to loosen or remove the mercury bulbs contained inside. After entering a name and return address on the prepaid label, the homeowner may drop the package at any UPS outlet or call UPS to arrange pick-up.

The TRC recycling facility is located in Golden Valley, MN. Once the thermostat is received and processed, the TRC issues a check to the homeowner, which generally arrives within six weeks after the date of shipment. Payments are also provided to contractors who recycle thermostats through their local wholesale suppliers.

"We're trying to get word of the program out all around the state," said Kohorst. "Over time, we hope to work with some large retailers to make it easy for homeowners to drop off old thermostats when they shop, rather than rely on the mail."

The TRC is funded by Honeywell, Emerson White-Rodgers, GE, and Nordyne, all of which sold mercury thermostats in Maine when it was legal to do so. Electronic, non-mercury thermostats have largely replaced the old mercury variety, which are banned from sale in Maine and approximately ten other states. More information can be obtained from the TRC web site, www.nema.org/trc.

- end -

Thermostat Recycling Corporation

1300 North 17th Street, Suite 1847 Rosslyn, VA 22209

For Immediate Release
Contact: Mark Tibbetts
Executive Director
Thermostat Recycling Corporation
703-841-3246
Mark_Tibetts@nema.org

Leann Diehl
Public Affairs Group
207-333-8640

Some Maine Retail Stores Now Thermostat Collection Sites

Maine -- The Thermostat Recycling Corporation (TRC) announced today an expansion to its Maine recycling program for mercury-containing thermostats.

Under the expansion, Maine homeowners will soon be able to drop off mercury-containing thermostats at participating Maine retail stores. The stores will accept the thermostats for recycling and provide customers with a $5 coupon, gift card, or credit per thermostat to be used toward any purchase in the store.

Maine law requires the recycling of all mercury-containing thermostats. It is illegal to dispose of them in household trash. The TRC collection program offers several ways for homeowners to safely dispose of out-of-service thermostats.

"This new retail option provides Do-it-Yourselfer's with a convenient way to responsibly manage mercury thermostats they take out of service," says Mark Tibbetts, TRC executive director.

"It's illegal in Maine for contractors to leave mercury thermostats with homeowners when the thermostats are taken out service. Contractors can already dispose of thermostats in Maine at wholesale supply businesses through the existing TRC program for contractors," he adds.

"Over time, we hope to have many more large and small retailers participating," Tibbetts says. The Maine Department of Environmental Protection is supplying the collection bins for the stores. The TRC assumes all other costs of the program including the cost to reimburse retailers for the $5 coupon, gift card or credit.

"We expect more than 100 retailers to participate statewide," Tibbetts adds. Today, the stores that have agreed to participate are Home Design Center, Bangor; Dover True Value, Dover-Foxcroft; Paradis True Value, Bar Harbor; Bond Brothers Lumber, Jefferson; Calais Ace Home Center, Calais; Blake Family

Hardware, Oakland; Sportsman True Value, Westbrook and Coastal Ace Hardware, Yarmouth, and Aubuchon hardware stores statewide.

"Customers should call the stores before taking their thermostats for collection to ensure the store has its collection bin and has started the in-store rebate program," Tibbetts advises.
TRC also provides recycling containers to municipal hazardous waste collection programs and heating and cooling equipment wholesalers throughout Maine. Maine homeowners may also mail their waste mercury thermostats to the TRC. Pre-paid UPS mailing labels are available to any Maine homeowner who requests them by calling 1-800-888-0550 or sending an email request to trc@nema.org. Homeowners who use the direct TRC mail-in program are eligible for a $5.00 incentive for each mercury thermostat returned .

The TRC is a non-profit corporation founded by Honeywell, Emerson White-Rodgers, and General Electric. It recycles mercury thermostats throughout the United States. The TRC currently represents 17 of the nearly 30 manufacturers which distributed mercury thermostats in Maine when it was legal to do so.

- end -

Attachment 2

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

April 1, 2012

VIA EMAIL

Gary Gulka
Vermont Department of Environmental Conservation
103 South Main Street
Waterbury, VT 05671

Subject: Thermostat Recycling Corporation's 2011 Annual Report

Dear Mr. Gulka:

Attached is TRC's annual collection report for calendar year 2011. TRC has made its best effort to provide a comprehensive report on its efforts to promote the collection program in Vermont and improve the program's environmental outcomes.

TRC continues to market its program in Vermont. We are working with HVAC wholesalers and others to increase the visibility of the program at their locations and will continue to push information about the program to HVAC contractors, technicians, homeowners, and others in the state.

TRC welcomes the opportunity to review this report with you and discuss our 2012 marketing efforts. I may be reached at 703-841-3246 or by email at mark.tibbetts@thermostat-recycle.org.

Sincere Regards,

Mark Tibbetts
Executive Director

Collection Data

Table 1: 2011 Vermont Collections by Brand

	Stats	Bulbs	Pounds Mercury
Honeywell	2963	3222	19.9764
White Rogers	191	229	1.4198
GE	3	10	0.062
Bard	1	1	0.0062
Burnham	32	32	0.1984
Carrier	92	130	0.806
Chromalox	0	0	0
ClimateMaster	3	11	0.0682
Crane	3	3	0.0186
Emprie Comfort	21	21	0.1302
Goodman	0	0	0
WW Grainger	9	11	0.0682
Hunter	2	2	0.0124
Invensys	9	9	0.0558
ITT	8	10	0.062
Lear Siegler	0	0	0
Lennox	19	26	0.1612
Lux	9	9	0.0558
Marley-Wylain	16	26	0.1612
McQuay	13	42	0.2604
Nordyne	19	19	0.1178
PSG	1	1	0.0062
Rheem	0	0	0
Sears	18	19	0.1178
Taco	2	2	0.0124
Thomas & Betts	0	0	0
TPI	0	0	0
Trane	8	10	0.062
Uponor	0	0	0
Valliant	0	0	0
York / JCI	17	40	0.248
NoMs (orphan)	113	192	1.1904
Switches (loose)		15	0.093
Total	3572	4092	25.3704

TRC recovered 25.37 pounds of mercury from 3,572 intact mercury thermostats and 15 mercury switches from Vermont collection locations in 2011.

TRC recovered 1,670 thermostats from wholesale distributors, 1,268 from retailers, 94 from contractors, and 540 from household hazardous waste collection locations.

Similar to 2010, approximately 30% of all thermostats recovered did not request incentive payment. The rate was higher at locations using the "coupon," where only 55% of the thermostats returned requested payment.

TRC recovered 17 items with bar-coded stickers attached that were deemed ineligible for payment (e.g. non-mercury thermostat, other mercury containing device, non-mercury containing device, etc.). Of 1,038 coupons received in 2011, 63 were deemed ineligible (incomplete, damaged, illegible, or not eligible for payment).

Waste Mercury-Added Thermostat Management

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell International under contract with TRC.

Bins are received at the loading dock and sent to the TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name (location name), city, state, zip code, date returned, number of thermostats and mercury switches by manufacturer and any non-conforming material. The bin is returned to the location that sent it in with a new pre-paid address label within 72 hours of

receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to the TRC processing area to have the mercury switches removed from the plastic housing. Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement. Small quantities of thermostats are removed from the container, which is then closed again, and placed at the switch removal workstation on a tray that contains any potential mercury spillage. The switches are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a switch breaks and mercury spills the work area is designed to contain the spillage and the operators are trained in the clean-up and disposal of mercury. TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury ampoules (switches). Bethlehem Apparatus meets or exceeds all local, state, and federal regulations for the management of the product. Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- DNR BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of the TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

Program Education and Outreach

TRC marketing and promotion efforts targeted key audiences in Vermont. Our objectives are to raise awareness of key components of Vermont's mercury thermostat law and to encourage the recycling of waste mercury thermostats. Below is a summary of activities and channels we utilized in support of this effort.

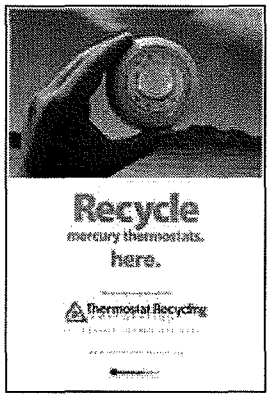
Development of Written Materials and Signage for Collection Points and Key stakeholders—TRC developed and posted on its website (www.thermostat-recycle.org) a Promotional Toolkit which contains templates of a number of items for collection points to

download and reproduce. In 2011 TRC added three new items to the toolkit. The items include two posters and two versions of a point-of-sale card (See exhibits 1 and 2).

In addition to the templates on TRC's website, TRC placed the new window cling (ideal for the entrances of collection locations) into inventory along with the two 11 x 17 posters and a postcard. TRC provided the cling and a copy of the "law" poster (or previous versions) to all new locations. TRC actively promotes the availability of these items and provides copies upon request to any participating collection location, HVAC contractor or local government agency. These items are also distributed at trade shows.

Exhibit 1: Examples of Toolkit Items

Poster



Advertisement

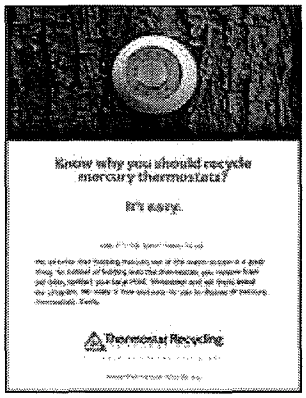
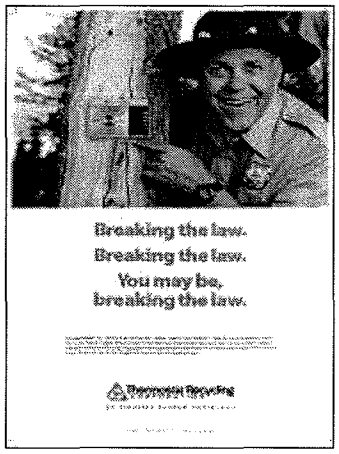
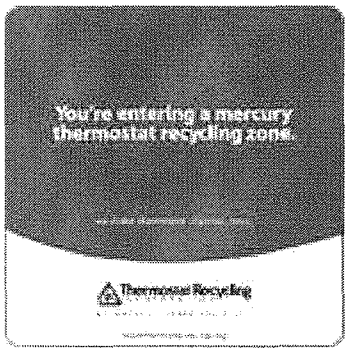


Exhibit 2: Examples of Print Collateral

Poster (law)



Window Cling



Wholesaler Recruitment/Engagement—Under Vermont law, manufacturers are required to avail collection containers to HVAC wholesale distributors, thermostat retailers, and local governments upon request.

TRC continued to promote the program to HVAC wholesale distributors. In partnership with the Heating Airconditioning, Refrigeration Distributors International (HARDI) TRC launched the inaugural Mercury Thermostat Recycling Awards in May 2011. The awards were intended to incent participation in the program by recognizing the distributor(s) that recovered the most mercury thermostats and/or developed innovative strategies to promote the program at its location(s). The program was widely promoted by HARDI to its members and within the industry trade press. TRC also developed custom promotional materials for HARDI members and templates of those materials are available on TRC's website. The awards were presented at HARDI's annual meeting in **October**.

Retailer Engagement— TRC continued to encourage large national retailers to participate in the program.

Summary of Additional Education and Outreach by Channel

TRC conducted a broad array of activities intended to raise awareness of Vermont's mercury thermostat disposal ban, mandatory HVAC contractor recycling, and the ease of compliance through TRC's collection program.

Website—TRC's maintains www.thermostat-recycle.org. The website contains participation forms, the previously mentioned outreach toolkit, safety and shipping information, media releases, and reports. The website includes a location search utility that provides for an easy search by zip-code of locations that have ordered TRC collection containers. TRC also promotes its national collection partners by scrolling their corporate logos on the homepage. Vermont distributor R.E. Michel provided its logo for use by TRC

In **September** TRC completed a *search engine optimization* (SEO) of its website. The objective of the SEO was to increase website traffic by making TRC easier to find on the internet. For instance if a person searches on the term "mercury thermostat recycling" or "thermostat recycling" the first search result in Google is TRC's website.

Earned Media— TRC generated considerable positive media attention in 2011 (See Exhibit 3). TRC made a concerted effort in 2011 to generate stories on the program. Most notable was the four- page article in *The Air Conditioning, Heating, and Refrigeration News* (*The News*) which included a TRC provided table on mercury thermostat laws. *The News* is one of the leading industry publications.

The National Demolition Association (NDA) also ran a multi-page article authored by TRC's executive director on the proper management of mercury containing products found in residential and commercial structures in the **June/July** issue of *Demolition Magazine*. Reprints of several of these articles may be found on TRC's website at http://www.thermostat-recycle.org/media/index.

ACCA Sponsorship—TRC sponsored the Air Conditioning Contractors of America (ACCA) 2011 Contracting Week in Nashville, Tennessee, October 18-21. The sponsorship included TRC's logo on attendee bags, the inclusion of TRC promotional materials in the bag and TRC's logo on ACCA's website and signage at the event.

Vermont Fuel Oil Dealers Association—TRC sponsored the Vermont Fuel Oil Dealers Association annual meeting in **May.** Sponsorship included the inclusion of TRC's logo in event marketing materials, website and a ½ page ad in the conference brochure.

Exhibit 3: Earned Media

Publication/Website	Month	Coverage	Readership/Reach
Air Conditioning, Heating & Refrigeration News	January	Article on thermostat recycling and TRC	111,000
RSES Journal	January	TRC & HARDI partnership	18,000
HVACR Business	April	Guest Column thermostat recycling	33,000
Indoor Comfort News	June		25,000
Air Conditioning Today	June	2010 TRC annual report	n/a
ACCA-Hot Air! Blog	July	TRC program	n/a
Wholesale Observations (HARDI)	July	TRC program	n/a
DNRolition Magazine	July/August	Proper management of mercury	n/a
Indoor Comfort News	July	2010 TRC annual report	25,000
1800recycling.com	September	Recycling old thermostats	N/A
Contracting Business	October	Thermostat recycling awards	29,000
Indoor Comfort News	October	USACD thermostat recycling	n/a
Supply House Times	October	Thermostat recycling awards	12,800

Web-based advertising— TRC developed new rotating banner advertisements for 2011 and ran them (Exhibit 4) on the websites contractingbusiness.com (160x600 skyscraper) and hvac-talk.com (300x250 medium rectangle) during the months of **April, May, September** and **October**. Together, the websites average 1.8 million pages views and 280,000 unique visitors per month. HVAC-Talk.com, an online discussion community, boasts 122,000 registered users.

TRC strategically placed ads to coincide with the spring and fall HVAC business cycles. While the ads were featured, 701,528 impressions were delivered and 522 clicks on the advertisements were recorded.

Exhibit 4: Web Banner Advertisement (300 x 250 version)

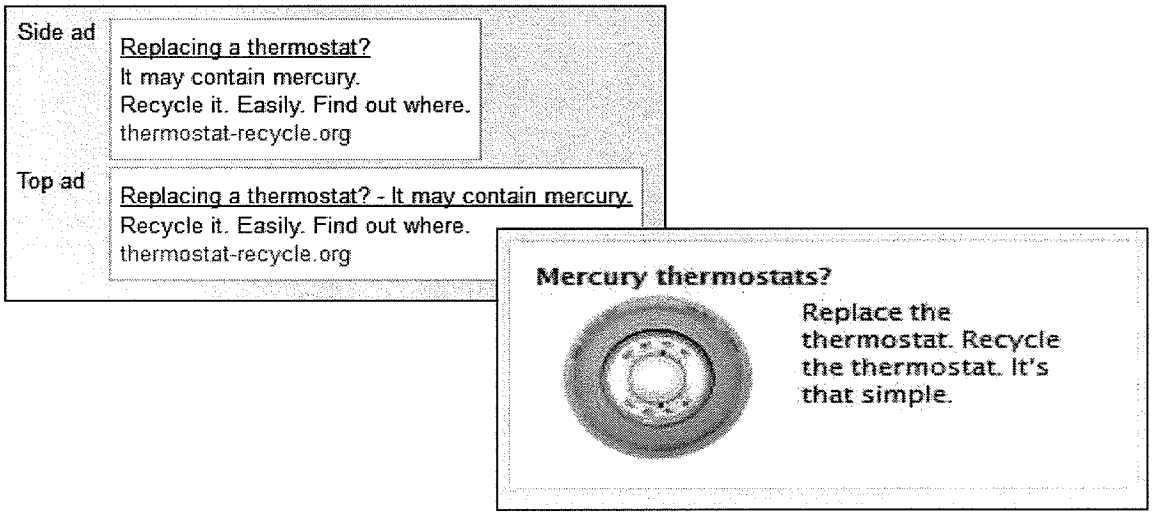
Social Media— TRC developed and deployed a Social Media strategy that leveraged the power of Google and the popularity of Facebook. This campaign, which ran from **mid-September** through early **December**, geo-targeted contractors and consumers in states with mercury thermostat disposal bans, including Vermont, in an effort to create awareness and increase thermostat collections.

Ads and landing pages (See Exhibit 5) were developed with variable messages targeting both audiences. Advertisements appeared on Google search results pages after an individual searched terms related to TRC's mission (E.g. thermostat replacement, contracting recycling regulations, mercury thermostat recycling, programmable thermostats, etc.). Similarly, the Facebook campaign targeted users over 18 who "like" industry-relevant topics or organizations (i.e. renovating, renovators, HVAC, HVAC Technicians, home repair, etc.)

The campaign was very successful. The campaign resulted in over 340,000 impressions on Google and 8.1 million on Facebook.

Tip-In Insert in HVAC Trade Press—TRC placed a 5x7 full color insert in the **April** and **October** issues of *HVACR Business* (see Exhibit 6). The insert was included in issues received by approximately 12,000 subscribers in states with mercury thermostat disposal bans (including Vermont). This enabled TRC to incorporate the message, "It's something you gotta do, because it's the law." Additionally, TRC incorporated the logos of larger HVAC wholesale distributors on the backside of the card enabling contractors to quickly identify collection locations.

Exhibit 5: Examples of Google and Facebook Advertisements



Tradeshows—TRC attended and exhibited at the following trade shows relevant to Vermont:

> **January 31-February 2:** AHRExpo. Las Vegas. AHR Expo is the largest national trade show for the HVACR industry. TRC staff exhibited and promoted the program to HVAC contractors, manufacturers and distributors. The show had a total registered attendance of over 53,000.

February 15–17: Air Conditioning Contractors of America Indoor Air Expo, San Antonio, Texas. Representatives from over 200 HVAC contracting businesses attended the show.

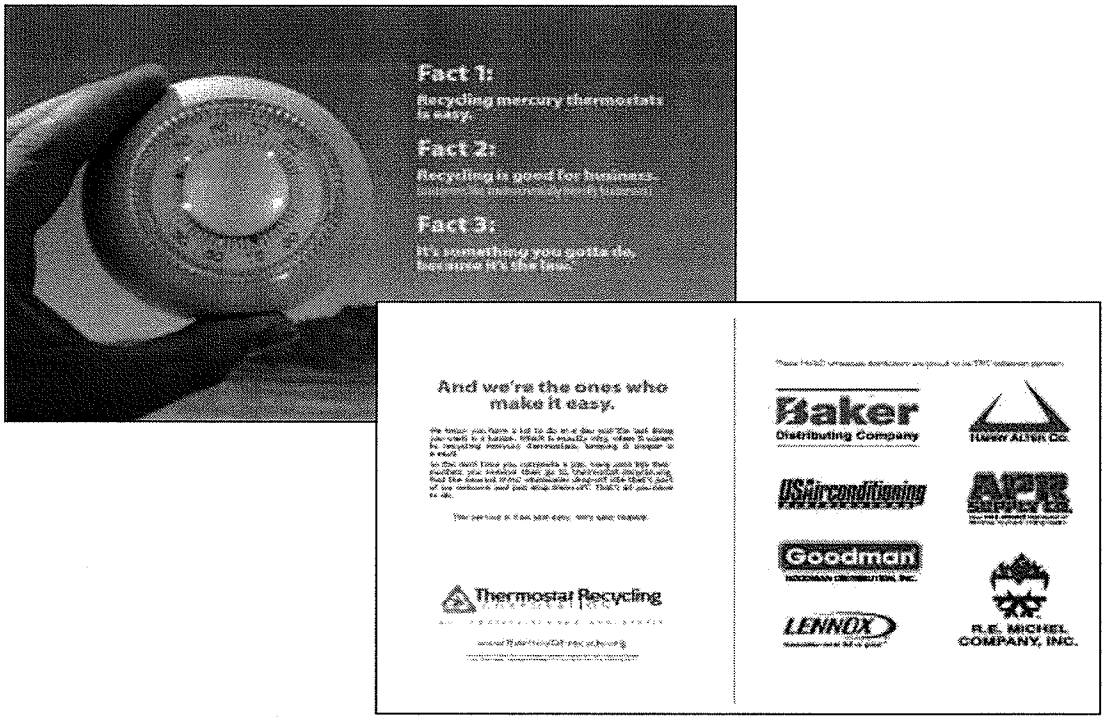
May 22-26: Oil and Energy Service Professionals. Hershey, PA. This was OESP's annual convention and trade show. Nearly 2,700 HVAC professionals attended this show, which targeted service managers for HVAC firms that install and repair oil fired furnaces. TRC sponsored this event and its logo was displayed on event signage and website.

September 27-29: North American Hazardous Materials Management Association (NAHMMA), Portland, Oregon. This was NAHMMA's annual meeting. TRC exhibited and co-presented with a HARDI representative.

October 23-26: Heating Airconditioning and Refrigeration Distributors International (HARDI). Maui, Hawaii. TRC exhibited and participated in the "Booth Program," which provides for 1-on-1 sessions with senior executive staff from HARDI member companies. This event targeted representatives of approximately 80% of the wholesale market for HVACR products. TRC also presented the inaugural Thermostat Recycling Award to three HVACR distributors recognizing their support of the program.

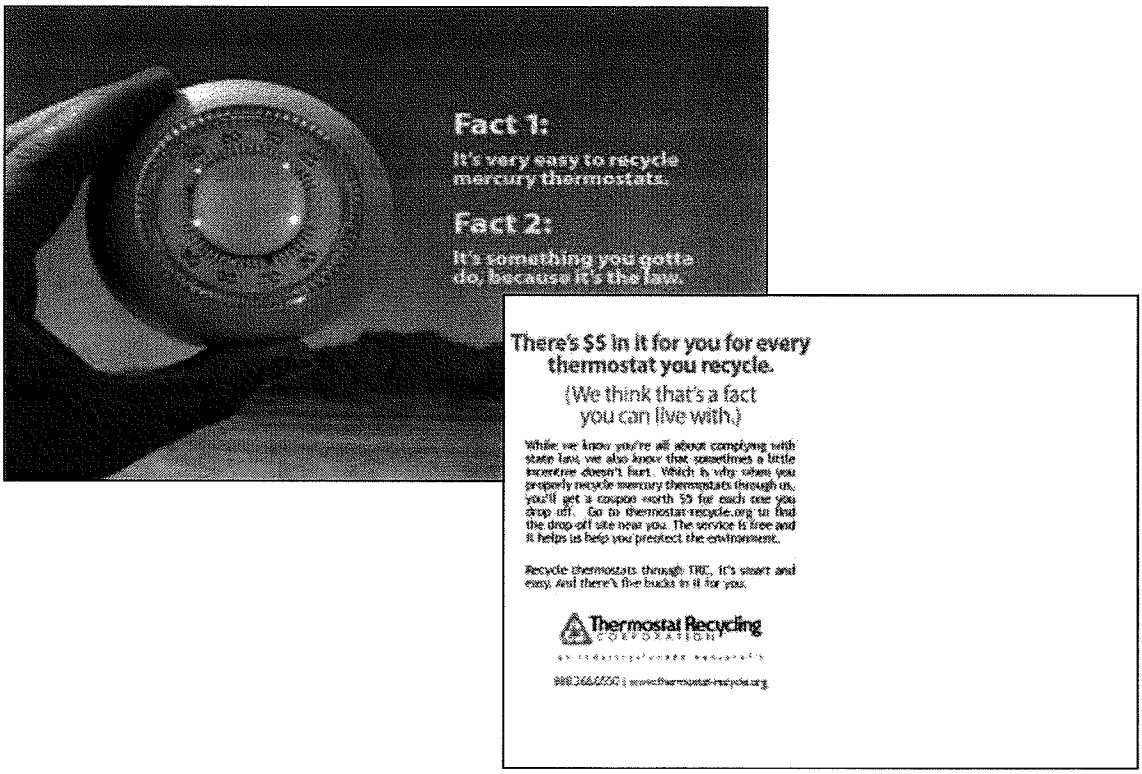
Direct Mail— TRC implemented a direct-mail campaign in Vermont in 2011. TRC mailed a postcard (see Exhibit 7) to approximately 300 Vermont based HVAC contractors in **March, October, and December**. TRC sourced the list of HVAC contractors from a commercial list supplier.

Exhibit 6: Tip-in Insert *HVACR Business*



Stakeholder Outreach— TRC sent correspondence (See Appendix A) to the Vermont Fuel Oil Dealers Association in **December** encouraging it to use TRC provided copy in their member newsletters or in other communications.

Exhibit 7: Front & Back of Postcard



Operational Enhancements

TRC made a number of enhancements to its operations in 2011. Some changes include:

- To facilitate compliance with the one-year accumulation regulation and speed up returns, TRC began including an adhesive label to record the accumulation start date in each container. TRC also modified the label on the exterior of the bin to include admonition to return bin within one year of receipt. TRC also updated instructions provided with every new and returned recycling container to explicitly require locations to record the accumulation start date and return the container within one year of that date.

- To improve customer service TRC began to directly handle customer service calls at program's HQ and put the new toll-free number and email address on instructions provided in each bin. The website and the new number and email helpline were added to the footer and contact page on TRC's website.

- Modified participation forms for program to capture more information from the collection location at the time the bin is ordered. TRC also began explicitly offering to

invoice bin fees (this was a particular issue for local governments needing a PO). TRC began accepting bin orders via fax.

- Implemented a new data management system that provides for timely updates to collection location information on the website. With the new database, the program migrated data entry for new orders to HQ to improve the accuracy of data entry.

- Engaged directly with several large wholesale distributors with locations in Vermont to update location information in the program's location database. That effort is on-going and continual.

- Updated its compliance assistance effort. As collections have increased, the frequency of bins with non-compliant materials has grown. A new monitoring system has been implemented increasing the frequency of contact to collection locations. This effort has the secondary benefit of pushing collateral to locations and updating location information.

Program Expenses

TRC is a national voluntary program that is also operating nine mandatory programs on behalf of its manufacturer members. As most promotional activities are run concurrently in multiple states tracking and isolating expenses specifically to Vermont is not possible. Below is a summary of TRC's national program expenses for 2011. A copy of TRC's 2010 IRS Form 990 is also available for inspection.

Exhibit 8: 2011 Program Administrative Expenses

TRC Staff and Administration	$	255,617
Recycling Costs	$	299,877
Insurance	$	13,945
Statutory Incentive Payments	$	37,860
New Collection Containers	$	18,859
Travel	$	28,108
Legal	$	93,272
Direct Expenses for Marketing & Outreach	$	123,221
Total	$	870,760

TRC expenses include:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, and other administrative expenses. Includes staff labor costs to implement Vermont program.
- Insurance: Pollution and liability insurance.

- TRC made $37,860 in direct incentive payments on behalf of manufacturers as required by Maine and Vermont law. This does not reflect the administrative costs associated with the incentive program.
- Travel: All travel in 2011 includes travel to trade shows to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and data management.
- New Collection Containers: Direct cost for new containers ordered in 2011.
- Marketing/Outreach & Printing: Includes direct costs to develop and print program collateral; direct mail, national and state advertising, sponsorships, marketing consultants, some web and IT consulting, and other outreach activities. Marketing/Outreach does not include any TRC labor costs.

Evaluation and Program Modifications

Vermont's thermostat law went into effect in January 2009. In comparison to the year prior to the law's passage, collections have increased by 161%. This is similar to the results of other states with mandatory programs. However, collections were up only 7% in 2011, whereas other programs continued to increase (with similar marketing and promotional efforts). It is unclear at this point whether additional growth is possible or the program has matured (Maine's growth flattened appreciably within the third year of the program).

In 2012 TRC's main priorities in Vermont are:

- Building distributor support for the program. The program must be visible and actively promoted at HVAC wholesale distribution locations. TRC wants to see more bins returned from more locations in 2012.
- Engaging utilities and energy efficiency programs. TRC needs to capture more of the thermostats being removed through these kinds of programs.
- Educating contractors on the need to make recycling mercury thermostats a priority for their technicians. The message is every mercury thermostat, every time, by all a contractor's technicians.

Some changes to the scope and expansion of activities include:

- Expanding direct mail to HVAC contractors from three to four mailings in 2012.
- Developing a postcard to send to collection locations reminding them to ship TRC a bin. TRC tested this approach with letters to locations in several states in 2011 and will expand this effort in 2012. The objective is increase the frequency of returns, remind locations of the program (high staff turnover at locations affects continuity of operations), and improve the accuracy of TRC's location database.
- Add additional collateral to TRC's toolkit including an adhesive cling for contractors' vehicles to acknowledge their participation in the program.
- TRC plans on restarting its Google ad words campaign but not Facebook. Also, TRC will make a number of buys in the trade press. Depending on results in other markets, TRC may also test a consumer-facing ad campaign in Vermont during the fall.

- Targeting specific HVAC distributors on collaborative marketing efforts. This effort not only improves collections through specific distributors but creates competitive pressure within the industry incenting participation.
- Has arranged for a summer intern in 2012 that will, among other projects, work on addressing legacy data issues in the program's location database.

Appendix A: Fuel Oil Dealers Letter

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

December 1, 2011

Matt Cota
Vermont Fuel Dealers Assn.
250 Main Street
Montpelier, VT 05602

Dear Matt Cota:

This letter is to inform you of a legal requirement that may affect your members. Legislation that bans the disposal of mercury thermostat in the trash was amended and now provides easy and free recycling of waste mercury thermostats. It also requires HVAC contractors to recycle all thermostats they remove from service. Contractors may not leave them at the customer's premise.

The good news is that this mandate is very easy to comply with. Manufacturers must provide a no-cost recycling program to contractors and all HVAC wholesale distributors in Vermont must act as a collection point. The Thermostat Recycling Corporation (TRC) is an industry funded not-for-profit organization that is implementing manufacturers' program in Vermont and other states.

We are interested in working with your organization to increase awareness about the legal obligations of the HVAC industry and TRC's program. We attached information we hope you will share with your members. We plan to follow-up with you to discuss ideas on further promoting the program and ways to help protect Vermont's environment.

For more information, please call 703-841-3243 or email Neisha.johnson@nema.org. Additional information is also available at TRC's website at www.thermostat-recycle.org.

Regards,

Mark Tibbetts
Executive Director

Go Green, Get Green!

Many old thermostats contain between 3-12 grams of mercury and they shouldn't be thrown in the trash. In fact, in several states, including Vermont, it is now the law.

Fortunately, the Thermostat Recycling Corporation (TRC), an industry funded non-profit, makes it easy to comply. As part of manufacturer's obligation under the law, they provide a recycling program to all HVAC wholesalers in Vermont. Contractors have to do no more than hang on to waste thermostats that they remove from service and bring them to their local HVAC wholesaler. There is no cost to the contractor, as all ongoing costs to ship and process the mercury-containing thermostats are covered by the manufacturers.

As an added bonus, for every thermostat recycled, contractors are eligible to receive $5. For more information on the program and participating locations, visit www.thermostat-recycle.org.

APPENDIX B: 2010 THERMOSTAT RECOVERY TOTALS BY LOCATION

Bin Number	Customer Name	City	Zip	Data	Grand Total
M10801	F.W. WEBB CO.	Brattleboro	05301-0000	Sum of Total Stats Sum of Total lbs mercury	38 0.2356
M10807	BLODGETT SUPPLY	Williston	05495-0000	Sum of Total Stats Sum of Total lbs mercury	155 1.1718
M10809	BLODGETT SUPPLY	WHITE RIVER JCT.	05001-0000	Sum of Total Stats Sum of Total lbs mercury	31 0.2728
M10814	F.W. WEBB CO.	SPRINGFIELD	05156-0000	Sum of Total Stats Sum of Total lbs mercury	21 0.1426
M10853	F.W. WEBB CO.	RUTLAND	05701-0000	Sum of Total Stats Sum of Total lbs mercury	74 0.5208
M10858	MacINTYRE PLMG. & HTG.	MIDDLEBURY	05753-0000	Sum of Total Stats Sum of Total lbs mercury	8 0.0558
M12798	CHITTENDEN SOLID WASTE DISTRICT	SOUTH BURLINGTON	05403-5804	Sum of Total Stats Sum of Total lbs mercury	225 1.5872
M12837	MAD RIVER RESOURCE MANAGEMENT	WATERBURY CENTER	05677-	Sum of Total Stats	15

			7070	Sum of Total lbs mercury	0.093
M12895	ADDISON COUNTY SOLID WASTE MANAGEMENT	MIDDLEBURY	5753	Sum of Total Stats Sum of Total lbs mercury	57 0.3596
M12896	ROCKINGHAM TRANSFER STATION	WESTMINSTER	5158	Sum of Total Stats Sum of Total lbs mercury	2 0.0186
M12897	CAVENDISH TRANSFER STATION	CAVENDISH	5142	Sum of Total Stats Sum of Total lbs mercury	2 0.0124
M12898	SPRINGFIELD TRANSFER STATION	SPRINGFIELD	5156	Sum of Total Stats Sum of Total lbs mercury	12 0.0992
M12899	WEATHERSFIELD TRANSFER STATION	PERKINSVILLE	5151	Sum of Total Stats Sum of Total lbs mercury	7 0.0434
M12901	LUDLOW TRANSFER STATION	LUDLOW	05149-9483	Sum of Total Stats Sum of Total lbs mercury	10 0.062
M13277	THE SIMONS COMPANY	S. BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	100 1.2896
M13857	CED Twin State Electric Supply	Barre	5641	Sum of Total Stats Sum of Total lbs mercury	62 0.3844
M13860	CED Twin State Electric Supply	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	32 0.341
	CED/TWIN STATE ELECTRIC SUPLY	RUTLAND	5701	Sum of Total Stats Sum of Total lbs	4 0.0248

				mercury	
M13864	F.W. WEBB CO.	Barre	5641	Sum of Total Stats Sum of Total lbs mercury	38 0.2356
M13865	F.W. WEBB CO.	St. Albans	5478	Sum of Total Stats Sum of Total lbs mercury	51 0.3286
M13868	The Granite Group	Burlington	5401	Sum of Total Stats Sum of Total lbs mercury	228 1.7112
M13886	CHITTENDEN SOLID WASTE DISTRICT	SOUTH BURLINGTON	05403-5804	Sum of Total Stats Sum of Total lbs mercury	204 1.4942
M13888	NELSON ACE HARDWARE	Barre	05641-4124	Sum of Total Stats Sum of Total lbs mercury	51 0.3224
M13889	Brown and Roberts	Brattleboro	5301	Sum of Total Stats Sum of Total lbs mercury	36 0.2294
	BROWN AND ROBERTS	Brattleboro	5301	Sum of Total Stats Sum of Total lbs mercury	53 0.3348
M13891	LAKESHORE ACE	COLCHESTER	5446	Sum of Total Stats Sum of Total lbs mercury	74 0.589
M13897	BIBEN'S HOME CENTER	N. SPRINGFIELD	5150	Sum of Total Stats Sum of Total lbs mercury	39 0.2418
M13900	BIBENS ACE HARDWARE #11390-E	SOUTH BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	18 0.1364

M13901	St. Albans ACE Hardware #11307-E	St. Albans	5478	Sum of Total Stats Sum of Total lbs mercury	27 0.1674
M13909	Aubuchon Hardware #053	Bradford	5033	Sum of Total Stats Sum of Total lbs mercury	20 0.124
M13913	Aubuchon Hardware #045	Montpelier	05602-2930	Sum of Total Stats Sum of Total lbs mercury	53 0.3286
M13923	AUBUCHON HARDWARE # 102	NORTHFIELD	5663	Sum of Total Stats Sum of Total lbs mercury	3 0.0186
M13928	Aubuchon Hardware #072	St. Albans	5478	Sum of Total Stats Sum of Total lbs mercury	4 0.0248
M13935	H. Greenberg & Son, Inc.	Bennington	5201	Sum of Total Stats Sum of Total lbs mercury	38 0.31
M13936	ESTEY DO IT BEST HARDWARE	HINESBURG	5461	Sum of Total Stats Sum of Total lbs mercury	5 0.031
M13937	Pick & Shovel	NEWPORT	5855	Sum of Total Stats Sum of Total lbs mercury	55 0.341
M13938	The Hardware at Rochester	ROCHESTER	5767	Sum of Total Stats Sum of Total lbs mercury	10 0.062
M13939	R. K. Miles, Inc.	Manchester Center	5255	Sum of Total Stats Sum of Total lbs mercury	16 0.0992
M13943	Martin's Hardware & Building Supply, Inc.	BRISTOL	05443-1225	Sum of Total Stats	8

				Sum of Total lbs mercury	0.0496
M13945	JERIHILL HOME CENTER	JERICHO	05465-9641	Sum of Total Stats Sum of Total lbs mercury	11 0.0682
M13947	Martin's Hardware & Building Supply, Inc.	MIDDLEBURY	5753	Sum of Total Stats Sum of Total lbs mercury	11 0.0806
M13960	WELCH'S WOODSTOCK TRUE VALUE	WOODSTOCK	5091	Sum of Total Stats Sum of Total lbs mercury	39 0.248
M14713	F.W. WEBB CO.	Williston	5495	Sum of Total Stats Sum of Total lbs mercury	157 1.5624
M14714	F.W. WEBB CO.	Bennington	5201	Sum of Total Stats Sum of Total lbs mercury	112 0.7192
M14983	Greens ACE Hardware	Enosburg Falls	5450	Sum of Total Stats Sum of Total lbs mercury	19 0.1178
M15028	GILMORE HOME CENTER	BOMOSEEN	5732	Sum of Total Stats Sum of Total lbs mercury	10 0.062
M15030	FIRESIDE TRUE VALUE	Brattleboro	5301	Sum of Total Stats Sum of Total lbs mercury	31 0.1922
M15480	LYNDONVILLE HARDWARE	LYNDONVILLE	5851	Sum of Total Stats Sum of Total lbs mercury	50 0.3162
M13879	LONDONERRY HARDWARE	LONDONDERRY	5148	Sum of Total Stats Sum of Total lbs mercury	25 0.1612

M13863	D.T. SUPPLY	RUTLAND	05701-3953	Sum of Total Stats Sum of Total lbs mercury	17 0.1054
M13912	Aubuchon Hardware #099	Essex Center	5452	Sum of Total Stats Sum of Total lbs mercury	5 0.0372
M13904	Bisbee's Hardware	Waitsfield	5673	Sum of Total Stats Sum of Total lbs mercury	80 0.496
M13853	BLODGETT SUPPLY	NEWPORT	5855	Sum of Total Stats Sum of Total lbs mercury	27 0.1674
M13896	Country Home Center	Morrisville	5661	Sum of Total Stats Sum of Total lbs mercury	21 0.1302
M14981	J & L Hardware	FAIRFAX	5454	Sum of Total Stats Sum of Total lbs mercury	20 0.124
M15027	CENTRAL SUPPLIES	RANDOLPH	5060	Sum of Total Stats Sum of Total lbs mercury	4 0.0248
M13929	Aubuchon Hardware #025	St. Johnsbury	5819	Sum of Total Stats Sum of Total lbs mercury	20 0.1364
M13866	F.W.WEBB	ST. JOHNSBURG	5819	Sum of Total Stats Sum of Total lbs mercury	42 0.279
M13933	Aubuchon Hardware #039	Windsor	5089	Sum of Total Stats Sum of Total lbs mercury	6 0.0372
M13898	Fogg's Hardware	Norwich	5055	Sum of Total Stats Sum of Total lbs	60 0.3844

				mercury	
M13934	J & H Hardware	Bellows Falls	5101	Sum of Total Stats Sum of Total lbs mercury	21 0.1302
M15206	BOURNE'S ENERGY.	Morrisville	05661-0000	Sum of Total Stats Sum of Total lbs mercury	16 0.0992
M10797	APPALACHIAN SUPPLY	ST JOHNSBURY	5819	Sum of Total Stats Sum of Total lbs mercury	5 0.031
M13854	Bourne's Energy/Hopkins Oil	LYNDONVILLE	5851	Sum of Total Stats Sum of Total lbs mercury	70 0.4588
M10777	R.E. MICHEL COMPANY, INC	Williston	05495-0000	Sum of Total Stats Sum of Total lbs mercury	89 0.6944
M14715	SID HARVEY IND # 82	Williston	05495-0000	Sum of Total Stats Sum of Total lbs mercury	69 0.4278
M10813	F.W. WEBB CO.	Bennington	05201-0000	Sum of Total Stats Sum of Total lbs mercury	101 0.6262
M13893	BIBENS ACE HARDWARER ESSEX	ESSEX	5452	Sum of Total Stats Sum of Total lbs mercury	95 0.589
M13875	R.J. MURRAY CO.	Williston	5495	Sum of Total Stats Sum of Total lbs mercury	26 0.2604
M15119	AUBUCHON STORE #173	SHELBURNE	05482-	Sum of Total Stats	11

			7400	Sum of Total lbs mercury	0.0682
M14709	GRANITE CITY ELECTRIC SUPPLY	Bennington	5201	Sum of Total Stats Sum of Total lbs mercury	10 0.062
M12801	CENTRAL VERMONT SWMD	Montpelier	05602-3527	Sum of Total Stats Sum of Total lbs mercury	21 0.1364
M10798	The Granite Group	Barre	5641	Sum of Total Stats Sum of Total lbs mercury	32 0.1984
M13957	HALLORAN HARDWARE TV	WATERBURY	05676-9730	Sum of Total Stats Sum of Total lbs mercury	16 0.0992
M13921	AUBUCHON HARDWARE # 071	ESSEX JUNCTION	05452-3625	Sum of Total Stats Sum of Total lbs mercury	29 0.1922
M14270	SID HARVEY INDUSTRIES	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	100 0.651
M13959	W.W. BUILDING SUPPLY	WILMINGTON	5363	Sum of Total Stats Sum of Total lbs mercury	8 0.0496
M13907	AUBUCHON HARDWARE #049	Barre	05641-4126	Sum of Total Stats Sum of Total lbs mercury	86 0.5394
M13861	CED Twin State Electric Supply	Wilder	5088	Sum of Total Stats Sum of Total lbs	3 0.0186

				mercury	
M13899	Noble ACE Hardware	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	24 0.1488
M13944	Willeys True Value	GREENSBORO	05841-8000	Sum of Total Stats Sum of Total lbs mercury	6 0.0372
M13949	Williams Hardware	Poultney	5764	Sum of Total Stats Sum of Total lbs mercury	3 0.0186
M14926	Goodro Lumber & True Value	Killington	5751	Sum of Total Stats Sum of Total lbs mercury	2 0.0124
M13914	Aubuchon Hardware #079	Fair Haven	5743	Sum of Total Stats Sum of Total lbs mercury	11 0.0682
M14711	BLODGETT SUPPLY	White River Junction	5001	Sum of Total Stats Sum of Total lbs mercury	31 0.1922
M13919	Aubuchon Hardware #063	MIDDLEBURY	05753-1447	Sum of Total Stats Sum of Total lbs mercury	10 0.062
M13927	Aubuchon Hardware #098	SOUTH BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	8 0.0496
M14929	Johnson Hardware & Rental	Johnson	5656	Sum of Total Stats Sum of Total lbs mercury	3 0.0186
M13951	RICHMOND HOME SUPPLY	RICHMOND	5477	Sum of Total Stats Sum of Total lbs mercury	11 0.0744

M13910	Aubuchon Hardware #046	Brandon	05733-1108	Sum of Total Stats Sum of Total lbs mercury	2 0.0124
Total Sum of Total Stats					3572
Total Sum of Total lbs mercury					25.3704

Appendix C: Locations Requesting Collection Bins

Customer Type	Business Name	Address	City	State	ZIPCODE	Total
CONTRACTOR	BOURNE'S ENERGY.	72 LOWER MAIN ST	MORRISVILLE	VT	05661-0000	1
	Bourne's Energy/Hopkins Oil	230 Main Street	Lyndonville	VT	05851	1
	DUNDONS PLMG. & HTG.	PO BOX 100, ROUTE 22A	ORWELL	VT	05760-0000	1
	MacINTYRE PLMG. & HTG.	213 EXCHANGE STREET	MIDDLEBURY	VT	05753-0000	1
HHW FACILITY	ADDISON COUNTY SOLID WASTE MANAGEMENT	1223 ROUTE 7 SOUTH	MIDDLEBURY	VT	05753	1
	CAVENDISH TRANSFER STATION	354 ROUTE 131	CAVENDISH	VT	05142	1
	CENTRAL VT SOLID WASTE MANAGEMENT DISTRICT	137 BARRE ST	MONTPELIER	VT	05602	1
					05602-3527	1
	CHITTENDEN SOLID WASTE DISTRICT-ENVIRONMENTAL DEPOT	1011 AIRPORT PARKWAY	SOUTH BURLINGTON	VT	05403-5804	2
						1
	GREATER UPPER VALLEY SOLID WASTE MANAGEMENT DISTRICT	96 MILL STREET	NORTH HARLAND	VT	05052	1
	LAMOILLE REGIONAL SOLID WASTE MANAGEMENT DISTRICT	29 SUNSET DRIVE	MORRISVILLE	VT	05661	4
	Londonary Solid Waste Group	7060 ROUTE 100	Londonderry	VT	05148	1
	NORTHEAST KINGDOM WASTE MANAGEMENT DISTRICT	224 CHURCH STREET	LYNDONVILLE	VT	05851	7
	NORTHWEST VT SOLID WASTE MANAGEMENT DISTRICT	54 N MAIN STREET	ST. ALBANS	VT	05478	2
	ROCKINGHAM TRANSFER STATION	7446 ROUTE 5	WESTMINSTER	VT	05158	1
	SOUTHERN WINDSOR/WINDHAM COUNTIES SOLID WASTE MANAGEMENT DISTRICT	ASCUTNEY PROFESSIONAL BLDG-ROUTE 5 SOUTH	ASCUTNEY	VT	05030	1
	SPRINGFIELD TRANSFER STATION	135 FAIRGROUND ROAD	SPRINGFIELD	VT	05156	1
	VT DEPT. OF ENVIRONMENTAL CONSERVATION	THE CANNERY 103 SOUTH MAIN STREET	Waterbury	VT	05671-4911	1
	WEATHERSFIELD TRANSFER STATION	5024 ROUTE 106	PERKINSVILLE	VT	05151	1
	WINDHAM SOLID WASTE MANAGEMENT DISTRICT	327 OLD FERRY ROAD	BRATTLEBORO	VT	05301	7
	LUDLOW TRANSFER STATION	336 ROUTE 100 N	LUDLOW	VT	05149-9483	1
RETAIL	J & L Hardware	(blank)	FAIRFAX	VT	05454	1

AUBUCHON HARDWARE	172 SOUTH MAIN ST.	Rutland	VT	05701	1
Aubuchon Hardware #025	664 Memorial Drive, Suite 2	St. Johnsbury	VT	05819	1
Aubuchon Hardware #039	2745 US Route 5, North	WINDSOR	VT	05089	1
Aubuchon Hardware #042	142 Main Street	LUDLOW	VT	05149-0092	1
Aubuchon Hardware #045	40 Main Street	MONTPELIER	VT	05602-2930	1
Aubuchon Hardware #046	10 Center Street	BRANDON	VT	05733-1108	1
Aubuchon Hardware #047	122 West Street	Rutland	VT	05701	1
Aubuchon Hardware #051	Aubuchon Plaza, 149 South Main Street	Waterbury	VT	05676-1516	1
Aubuchon Hardware #053	204 Main Street	Bradford	VT	05033	1
Aubuchon Hardware #057	925-A Brooklyn Street	MORRISVILLE	VT	05661-8623	1
Aubuchon Hardware #062	222 Junction Road, Box 464	Hardwick	VT	05843	1
Aubuchon Hardware #063	Village Court, 40 Court Street, Unit 2	MIDDLEBURY	VT	05753-1447	1
Aubuchon Hardware #072	204 Swanton Rd.	ST. ALBANS	VT	05478	1
Aubuchon Hardware #076	26 Canada Street	Swanton	VT	05488	1
Aubuchon Hardware #079	654 VT Rte 22A	Fair Haven	VT	05743	1
Aubuchon Hardware #083	113 Unit F Monkton Road	Vergennes	VT	05491-9305	1
Aubuchon Hardware #086	107 VT Route 12 South	Randolph	VT	05060	1
Aubuchon Hardware #091	Manchester Shopping Center Route 11 & 30	Manchester Center	VT	05255-0638	1
Aubuchon Hardware #098	Commerce Square, 47 Hinesburg Road	SOUTH BURLINGTON	VT	05403	1
Aubuchon Hardware #100	Milton Plaza, RFD #1, PO Box 100	Milton	VT	05468	1
Aubuchon Hardware #161	4879 Route 15	Jeffersonville	VT	05464	2
Aubuchon Hardware #l73	50 Shelburne Shopping Park	Shelburne	VT	05482	1
AUBUCHON STORE #173	50 SHELBURNE SHOPPING PLAZA	Shelburne	VT	05482-7400	1
Bibens ACE Hill's Hardware	1127 North Avenue, Ste 60	BURLINGTON	VT	05408	1
BIBEN'S HOME CENTER	362 RIVER STREET	N. SPRINGFIELD	VT	05150	1
Bisbee's Hardware	PO Box 1029, 109 Mad River Green	Waitsfield	VT	05673	1
CENTRAL SUPPLIES	ROUTE 12 S.	Randolph	VT	05060	1

Cobbs Hardware	(blank)	West Rutland	VT	05777	1
Country Home Center	85 Center Road	MORRISVILLE	VT	05661	1
DEERFIELD VALLEY SUPPLY	211A ROUTE 9 WEST	WILMINGTON	VT	05363	1
Estey Do it Best Hardware	22 Commerce Street, Unit 1	Hinesburg	VT	05461	1
EVANSVILLE TRADING POST	645 EVANSVILLE ROAD	ORLEANS	VT	05860	1
FARM N COUNTRY HARDWARE	2383 VT ROUTE 14	WILLIAMSTOWN	VT	05679	1
FIRESIDE TRUE VALUE	895 PUTNEY ROAD	BRATTLEBORO	VT	05301	1
FOGG'S HARDWARE	50 LAKE MOREY ROAD	FAIRLEE	VT	05045	1
Fogg's Hardware	301 Route 5 South	Norwich	VT	05055	1
Gervais ACE Hardware	62 Cross St	Island Pond	VT	05846	1
GILMORE HOME CENTER	427 ROUTE 4A WEST	BOMOSEEN	VT	05732	1
Goodro Lumber & True Value	4489 Rte 4	Killington	VT	05751	1
Greens ACE Hardware	10 RAILROAD STREET	Enosburg Falls	VT	05450	1
H. Greenberg & Son, Inc.	321 Main Street	BENNINGTON	VT	05201	1
HARRY'S HARDWARE	3087 MAIN STREET	CABOT	VT	05647	1
Island Hardware and Feed	3 North Main Street	Alburgh	VT	05440	1
ISLAND POND TRUE VALUE	257 RAILROAD STREET	Island Pond	VT	05846	1
J & H Hardware	20 The Square	Bellows Falls	VT	05101	1
JERIHILL HOME CENTER	249 VT Route 15, PO Box 298	JERICHO	VT	05465-9641	1
Johnson Hardware & Rental	1442 VT RTE 15W	Johnson	VT	05656	1
KENYON'S HARDWARE	93 NORTH MAIN STREET	Northfield	VT	05663-0000	1
Kenyon's Variety	3337 Main Street	Waitsfield	VT	05673	1
Larrabees Building Supply	1410 Route 2, PO Box 67	West Danville	VT	05873	1
Leonards True Value	7358 Route 7	Pownal	VT	05261	1
LONDONERRY HARDWARE	5700 VT. RTE. 100	Londonderry	VT	05148	1
LYNDONVILLE HARDWARE	583 BROAD ST.	Lyndonville	VT	05851	1
MARTIN'S HARDWARE & BUILDING SUPPLY, INC.	859 Route 7 South	MIDDLEBURY	VT	05753	1
	68 WEST ST.	BRISTOL	VT	05443-1225	1
Miles Lumber Company, Inc.	178 Chittenden Drive	ARLINGTON	VT	05250	1

Noble ACE Hardware	261 N Main St	Rutland	VT	05701	1
O C McCuin & Sons True Value	(blank)	Highgate Center	VT	05459	1
Parker & Stearns, Inc	(blank)	Johnson	VT	05656	1
Pick & Shovel	54 Coventry Street	NEWPORT	VT	05855	1
Poulin Lumber	3639 US Route 5	Derby	VT	05829	1
	439 Wolcott Street	Hardwick	VT	05843	1
R. K. Miles, Inc.	618 Depot Street, PO Box 1125	Manchester Center	VT	05255	1
	88 Exchange Street	MIDDLEBURY	VT	05753	1
Signa Home Center	2046 Vt Rte 100	Londonderry	VT	05155	1
St. Jay Hardware, Inc.	74 Eastern Avenue	St. Johnsbury	VT	05819	1
STICKS & STUFF	13 GALLAGHER ROAD	MIDDLESEX	VT	05602	1
Sticks & Stuff	4 Lower Newton Street	ST. ALBANS	VT	05478-1907	1
	(blank)	Enosburg Falls	VT	05450	1
Stowe Hardware	151 Main Street	Stowe	VT	05672	1
Swanton Lumber	11 N River Street	Swanton	VT	05488	1
The Hardware at Rochester	56 Main St, PO Box 38	Rochester	VT	05767	1
VT DEPT OF ENVIRONMENTAL CONSERVATION	103 SOUTH MAIN STREET	Waterbury	VT	05671	5
W.W. Building Supply	434 ROUTE 100 NORTH	WILMINGTON	VT	05363	1
	7 Loop Road, Route 30	Newfane	VT	05345-0299	1
Waitsfield True Value	Village Square, 5121 Main Street	Waitsfield	VT	05673-9709	1
WELCH'S WOODSTOCK TRUE VALUE	5244 WOODSTOCK RD.	WOODSTOCK	VT	05091	1
WESCH'S TRUE VALUE	3626 VT ROUTE 14	SOUTH ROYALTON	VT	05068	1
Wheeler True Value	152 Church Street, PO Box 72	Lyndonville	VT	05851	1
Willeys True Value	7 Breezy Avenue	GREENSBORO	VT	05841-8000	1
Williams Hardware	51 Main Street, Ste. 1	Poultney	VT	05764	1
Woodstock Home and Hardware	452 Woodstock Rd	WOODSTOCK	VT	05091	1
Yankee Supply	(blank)	MORRISVILLE	VT	05661	1
NELSON ACE HARDWARE	190 N. MAIN STREET	BARRE	VT	05641-4124	1

	BROWN AND ROBERTS	182 MAIN ST.	BRATTLEBORO	VT	05301	1
	LAKESHORE ACE	713 W. LAKESHORE DR.	Colchester	VT	05446	1
	BIBENS ACE HARDWARER ESSEX	15 ESSEX WAY	ESSEX	VT	05452	1
	BIBENS ACE HARDWARE #11390-E	1961 WILLISTON ROAD	SOUTH BURLINGTON	VT	05403	1
						1
	St. Albans ACE Hardware #11307-E	133 N Main St #2	ST. ALBANS	VT	05478	1
	AUBUCHON HARDWARE #049	220 NORTH MAIN STREET	BARRE	VT	05641-4126	1
	AUBUCHON HARDWARE # 071	Essex Junction Shopping Center, 87 Pearl Street	ESSEX JUNCTION	VT	05452-3625	1
	AUBUCHON HARDWARE # 102	63 PLAZA DRIVE UNITE # 2	Northfield	VT	05663	1
	RICHMOND HOME SUPPLY	99 RAILROAD ST.	RICHMOND	VT	05477	1
	HALLORAN HARDWARE TV	838 WATERBURY-STOWE ROAD	Waterbury	VT	05676-9730	1
	Bournes	10 Canada Drive	Swanton	VT	05488	1
Wholesaler	APPALACHIAN SUPPLY	4581 Memorial Drive	ST JOHNSBURY	VT	05819-0000	1
	BLODGETT SUPPLY	100 AVE D	WILLISTON	VT	05495-0000	1
		127 QUALITY LANE	Rutland	VT	05701-0000	2
		26 GALLISON HILL RD	MONTPELIER	VT	05601-0000	1
		26 Gallison Hill Road	MONTPELIER	VT	05602	1
		606 HARTFORD AVE	WHITE RIVER JCT.	VT	05001-0000	1
		606 Hartland Ave	White River Junction	VT	05001	1
		832 PLEASANT AVE	NEWPORT	VT	05857-0000	1
		832 Pleasant Street	NEWPORT	VT	05855	1
	Bourne's Energy	17 North Main Street	Waterbury	VT	05676	1
	BOURNE'S ENERGY.	72 LOWER MAIN ST	MORRISVILLE	VT	05661-0000	1
	BURGESS ELECTRICAL	102 ARCHIBALD ST	BURLINGTON	VT	05402-0000	1
	Catamount Winnelson	921 Hercules Drive	Colchester	VT	05446	1
	CED Twin State Electric	4 Calkins Court	SOUTH BURLINGTON	VT	05403	1

CED Twin State Electric Supply	138 Occott Drive	Wilder	VT	05088	1
	4 Calkins Court	SOUTH BURLINGTON	VT	05403	1
	413 Industrial Lane	BARRE	VT	05641	1
	416 Back Center Road	St. Johnsbury	VT	05819	1
CHAMPLAIN WINAIR	57 HERCULES DRIVE	COLSCHESTER	VT	05446-0000	1
COLLETTES PLMG & HTG.	PO BOX 239, 17 MAIN STREET	ORLEANS	VT	05860-0000	1
Collette's Plumbing & Heating	(blank)	ORLEANS	VT	05860	1
CONTROL TECHNOLOGIES	78 ETHAN ALLEN DRIVE	SOUTH BURLINGTON	VT	05403-0000	2
Densmore Electrical Supply, Inc.	90 Cleveland Avenue	Rutland	VT	05701	1
DT SUPPLY	65 River Street	Rutland	VT	05701	1
F.W. WEBB CO.	10 CLARK ROAD	BARRE	VT	05641	1
	217 AVE C.	WILLISTON	VT	05495-0000	1
	231 JOHN SEITZ DR.	BRATTLEBORO	VT	05301-0000	1
	240 EAST RD.	BENNINGTON	VT	05201	1
	2409 Portland Street	St. Johnsbury	VT	05819	1
	25-27 STEBBINS	ST. ALBANS CITY	VT	05478-0000	1
	3091 COLD RIVER ROAD	Rutland	VT	05701-0000	1
	5 CHARLESTOWN ROAD	SPRINGFIELD	VT	05156-0000	1
	5 Franklin Park West	ST. ALBANS	VT	05478	1
	80 Park Ave	WILLISTON	VT	05495	1
	240 EAST ROAD	BENNINGTON	VT	05201-0000	1
Grainger Industrial Supply	20 Gregory Drive	SOUTH BURLINGTON	VT	05403	1
GRANITE CITY ELECTRIC SUPPLY	435 MORSE	BENNINGTON	VT	05201	1
	435 MORSE ROAD	BENNINGTON	VT	05201	1
Green Mountain Electric Supply	102 ARCHIBALD ST	BURLINGTON	VT	05401	1
	5452 US Route 5 #G	NEWPORT	VT	05855	1

	659 Bay Street	West Waterford	VT	05819	1
	7506 Ethan Allen Hwy Unit 5	ST. ALBANS	VT	05478	1
	709 Portland Street	St. Johnsbury	VT	05819	1
GTM Electric Supply	362 Swanton Road	ST. ALBANS	VT	05478	1
Hulbert Supply	(blank)	BURLINGTON	VT	05401	1
HULBERT SUPPLY CO. INC	2544 FRANKLIN STREET	BRANDON	VT	05733-0000	1
	332 PINE STREET	BURLINGTON	VT	05401-0000	1
	70 SOUTH MAIN STREET	BARRE	VT	05641-0000	1
ISABELLE ELECTRIC	PO BOX 236	SOUTH BARRE	VT	05670-0000	1
J.G. TEMPLE ELEC. SUPPLY	14 MORSE ROAD	BENNINGTON	VT	05201-0000	1
	21 WILLIAMS STREET	BRATTLEBORO	VT	05301-0000	1
Midstate Electric Supply Corp	59 Piper Road	BARRE	VT	05641	1
Northeast Electrical Distributers	340 Avenue D, Suite 10	WILLISTON	VT	05495	1
R.E. MICHEL COMPANY, INC	340 AVE D SUITE 20	WILLISTON	VT	05495-0000	1
	552 AVENUE D SUITE 10	WILLISTON	VT	05495-0000	1
Sid Harvey Industries	55 QUALITY LANE	Rutland	VT	05701	1
	55 QUALITY LN	Rutland	VT	05701	1
	86 LEROY ROAD	WILLISTON	VT	05495-0000	1
The Granite Group	160 SEWARD RD	Rutland	VT	05701	1
	180 FLYNN AVE	BURLINGTON	VT	05401-0000	1
	180 FLYNN AVENUE	BURLINGTON	VT	05401	1
	1193 US ROUTE 302	BARRE	VT	05641	1
THE SIMONS COMPANY	3 CALKINS COURT	S. BURLINGTON	VT	05403	1
UNITED REFRIGERATION	2 RANDBURY ROAD	Rutland	VT	05701-4902	1
VALLEY ELECTRIC SUPPLY	24 OSSIE ROAD	EAST MIDDLEBURY	VT	05740-0000	1
VT Plumbing Supply	22 Browne Ct.	BRATTLEBORO	VT	05301	1

	VT DEPT. OF ENVIRONMENTAL CONSERVATION	THE CANNERY 103 SOUTH MAIN STREET	WATERBURG	VT	05671	1
	Walsh Electric Supply	30 Champlain Drive	Colchester	VT	05446	1
	YANKEE ELECTRIC SUPPLY	106 GOODELL AVENUE	MORRISVILLE	VT	05661-0000	1
	Yankee Electric Supply, Inc	106 GOODELL AVENUE	MORRISVILLE	VT	05661	1
		201 Main Street	Winooski	VT	05404	1
		276 E. Allen Street	Winooski	VT	05404	1
		55 Alturi Place	Rutland	VT	05701	1
	MAD RIVER RESOURCE MANAGEMENT	425 THATCHER BROOK ROAD	WATERBURY CENTER	VT	05677-7070	1
	CED/TWIN STATE ELECTRIC SUPLY	207 RANDBURY ROAD #B	Rutland	VT	05701	1
	D.T. SUPPLY	65 River Street	Rutland	VT	05701-3953	1
	R.J. MURRAY CO.	79 HOLLY COURT	WILLISTON	VT	05495	1
	SID HARVEY IND # 82	86 LEROY ROAD	WILLISTON	VT	05495-0000	1
Grand Total						221

APPENDIX G: Vermont locations have requested or been provided recycling containers.

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

April 1, 2011

Gary Gulka
Vermont Department of Environmental Conservation
103 South Main Street
Waterbury, VT 05671

Subject: Thermostat Recycling Corporation's 2010 Annual Report

Dear Mr. Gulka:

Attached is TRC's annual collection report for calendar year 2010. TRC has made its best effort to be responsive to the Department's request for expense and collection data.

TRC would like to take the opportunity to summarize a few of its major accomplishments in 2010.

- Notwithstanding continued economic challenges for the HVAC industry, the national recovery of thermostats increased by 29 percent, keeping almost 1,900 pounds of mercury out of landfills and municipal solid waste incinerators.
- Industry participation in TRC continued to grow and by year end, TRC represented 29 manufacturers that historically branded and distributed mercury switch thermostats.
- TRC continues to see substantial growth in access to the program, adding over 700 new collection locations in 2010. TRC saw solid growth in all collection location types in 2010.

TRC implemented year two of its effort to build and sustain collections of waste mercury thermostats in Vermont. TRC collected 3,349 whole thermostats from Vermont locations in 2010. TRC was pleased with the results in light of its targeted outreach efforts in 2010.

TRC looks forward to continuing the collaborative working relationship with the Department. The Department's engagement on this issue contributed to the program's success last year and demonstrates the value and need for state support of mercury thermostat collection programs.

Sincere Regards,

Mark Tibbetts
Executive Director

Collection Data

Table 1: 2010 Vermont Collections by Brand

	Count Thermostats	Count Switches	Lbs of Hg
Honeywell	2802	3091	19.1642
White Rogers	159	190	1.178
GE	20	42	0.2604
Bard	2	2	0.0124
Burnham	31	32	0.1984
Carrier	50	54	0.3348
Chromalox	0	1	0.0062
ClimateMaster	16	48	0.2976
Crane	1	1	0.0062
Emprie Comfort	10	10	0.062
Invensys	5	7	0.0434
ITT	2	0	0
Lear Siegler	3	2	0.0124
Lennox	10	17	0.1054
Lux	5	5	0.031
McQuay	73	152	0.9424
Nordyne	6	4	0.0248
PSG	0	0	0
Rheem	0	0	0
Sears	7	7	0.0434
Taco	1	1	0.0062
Thomas & Betts	0	0	0
TPI	0	0	0
Trane	15	20	0.124
Uponor	4	3	0.0186
Valliant	0	0	0
WW Grainger	3	3	0.0186
York / JCI	7	17	0.1054
Ophans	117	244	1.5128
Total	**3232**	**3953**	**24.51**

TRC recovered 24.5pounds of mercury from 3,349 intact mercury thermostats and mercury switches from Vermont collection locations in 2010.

TRC recovered 1575 thermostats from wholesale distributors, 933 from retailers, and 841 from household hazardous waste collection locations.

Over 30% of all thermostats recovered did not request incentive payment. The rate was higher at locations using the "coupon," where only 55% of the thermostats returned requested payment.

TRC recovered 6 items with bar-coded stickers attached that were deemed ineligible for payment (e.g. non-mercury thermostat, other mercury containing device, non-mercury containing device, etc.). Of 1169 coupons received in 2010, 68 were deemed ineligible (incomplete, damaged, illegible, or not eligible for payment).

Waste Mercury-Added Thermostat Management

Bins with waste mercury-switch thermostats are received at the fulfillment/processing center in Golden Valley, Minnesota. The facility is owned and operated by Honeywell International under contract with TRC.

Bins are received at the loading dock and sent to the TRC processing area. The bin and plastic liner are opened and the contents are identified, sorted, and tallied. The following data is recorded for each bin returned and processed: bin number, business name, city, state, zip code, date returned, number of thermostats and bulbs by manufacturer and any non-conforming material.

The bin is returned to the business that sent it in with a new prepaid address label within 72 hours of receipt. The thermostats are stored and staged in a plastic lined carton in a storage area for final processing. The containers are dated and processed in order received, first in-first out.

The containers are returned from the storage area to the TRC processing area to have the mercury bulbs removed from the plastic housing. Universal Waste Regulations require the disposal of waste within 12 months of generation. TRC's processor requires that the disposal occur within 6 months of generation and TRC follows the more stringent requirement. Small quantities of thermostats are removed from the container, which is then closed again, and placed at the bulb removal workstation on a tray that contains any potential mercury spillage. The bulbs are removed from the thermostats and placed into a 2 quart container at the work station. In the event that a bulb breaks and mercury spills, the work area is designed to contain the spillage and the operators are trained in the clean up and disposal of mercury. TRC processing area is equipped with special mercury vacuum cleaners and the work area is vacuumed at the end of the work day to assure that any spillage is cleaned up and not left to evaporate.

The 2 quart container is emptied into a special 55 gallon drum which is labeled and dated according to regulations. The drum is sealed with a band and is only opened when contents are being added to it. Special negative pressure venting assures any fumes are drawn away and vented when the drum is opened.

The 55 gallon drum is then shipped to Bethlehem Apparatus Corporation in Hellertown, Pennsylvania for final processing of the mercury ampoules (switches). Bethlehem Apparatus meets or exceeds all local, state, federal and EPA regulations for the management of the product. Bethlehem's approvals for mercury recovery/recycling include:

- EPA - identification No. PAD002390961 (Bethlehem Apparatus Co., Inc.)
- EPA BDAT Requirement - satisfied by all recovery operations
- CERCLA (Comprehensive Environmental Response Compensation and Liability Act)
- Pennsylvania Department of Environmental Protection

The facilities' processing follows all EPA guidelines and regulations. TRC has a facility license from Hennepin County Minnesota for the operation of the TRC. Honeywell, Inc. has a Hazardous Waste Generator license from Hennepin County. All persons who handle mercury thermostats as part of the TRC operation receive training in the handling of Hazardous Waste and Universal Waste.

Program Education and Outreach

TRC marketing and promotion efforts targeted key audiences in Vermont. Our objective was to raise awareness of key components of Vermont's mercury thermostat law and to affect recycling behavior of the generators of waste mercury thermostats. Below is a summary of activities and channels we utilized in support of this effort.

Wholesaler Recruitment/Engagement—TRC continued with efforts to engage wholesale distributers to ensure that they are aware of the 1) mandate to collect waste mercury thermostats

in Vermont, and 2) the availability of the TRC program as a simple, low-cost means of compliance.

TRC continued working with the Heating Airconditioning Refrigeration Distributors International (HARDI) trade association. HARDI members represent approximately 80% of the domestic wholesale market for HVACR equipment. Most significantly, in October TRC and HARDI entered into a formal agreement to promote the TRC program to HARDI's members.

TRC also sent correspondence (see Appendix A for a copy of correspondence) to the executives of all 450 HARDI member companies inviting them to meet with TRC staff the HARDI annual meeting.

TRC attempted to engage with the American Supply Association both in writing and by phone (see Appendix B for a copy of correspondence) as well.

Retailer Engagement—TRC engaged with representatives of large retailers in 2010 to ensure they were aware TRC was open to their participation in the program.

Demolition Contractor Engagement—TRC engaged with the National Demolition Association, informing them about the program (See Appendix C for copy of correspondence) and the legal obligation to recycle waste thermostats in certain states.

State Energy Office Outreach—TRC sent letters to state energy office officials in most US states, including Vermont informing them on the need to recycle waste mercury thermostats and the availability of the program (see Appendix D for copy of correspondence).

Summary of Outreach by Channel

Regional and National Trade Shows—TRC attended and exhibited at the following trade shows relevant to Vermont:

January 25-27: AHR Expo, Orlando, Florida. AHR Expo is the largest national trade show for HVACR industry. TRC staff exhibited and promoted program to HVAC contractors, HVAC manufacturers, and HVAC distributors. The show had a total registered attendance of 44,000.

May 24-25: National Oil Heat Service Managers annual meeting and trade show, Providence, Rhode Island. TRC also sponsored the opening reception for additional visibility at the event.

June 23-24: National Town Meeting for Demand Response, Washington, DC. This was a two day event focusing on demand response and included both utilities and thermostat contractors. TRC exhibited at the event.

July 27-29: North American Hazardous Materials Management Association (NAHMMA) Annual Meeting, St. Pete Beach, Florida. TRC exhibited and also presented on the program.

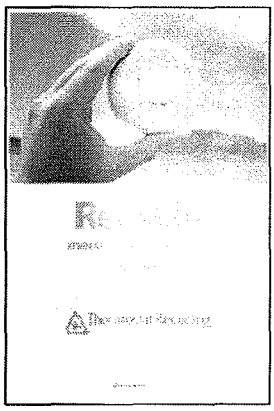
September 23-24: Comfortech, Baltimore, Maryland. Comfortech is a national trade show for HVAC contractors sponsored by Penton Media, publishers of Contracting Business.

October 23-26: HARDI annual meeting, Houston, Texas. TRC exhibited at the event, which targets representatives of approximately 80% of the wholesale market for HVACR products.

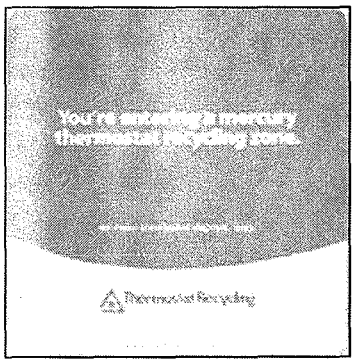
Program website—In October 2010 TRC launched a new website. The site updated and reorganized content; making pertinent information on the program to various audiences more accessible. The new website may be viewed at www.thermostat-recycle.org.

Promotional Took-kit—Concurrent with the launch of the new website, TRC added high-resolution templates of a number of promotional items. These items are free to use by TRC collection points. Developed for HVAC wholesale distributors, these items are available at no cost to TRC collection points to assist them in promoting the program to their customers. Items include a poster, bill stuffer, invoice template, cling sticker, banner, postcard, and print advertisement. Once the inventory of the current poster and window cling is used, TRC will replace those items with materials from the toolkit.

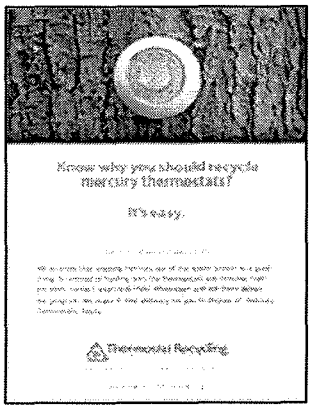
Poster:



Window Cling



Advertisement



Earned Media

TRC again contacted Vermont Fuel Oil Dealers Association in October and provided them content for their newsletter.

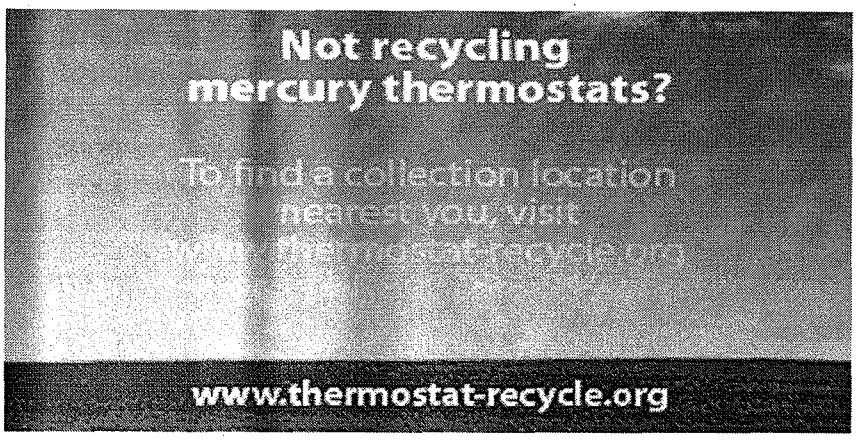
TRC also received coverage in national trade press on numerous occasions. For instance the program was covered in *Indoor Comfort News* (June 2010, July 2010, and October 2010). The HARDI/TRC media release (December, 2010) was covered in *Waste and Recycling News* and *Air Conditioning Today*. TRC's program also received extensive coverage in the HARDI Convention Daily (distributed to all HARDI annual convention attendees) and *HVACR Distributor* (see appendix E for examples of media coverage).

Paid Advertising

TRC ran rotating banner advertisements (Exhibit 1) on the websites contractingbusiness.com and Hvac-talk.com during the months of April, May and June. The advertisement was animated with scrolling images of thermostats, the final message directed contractors to TRC's website.

Both sites are national and target the HVAC contracting audience. Contractingbusiness.com averages 59,000 page views and 27,000 unique visitors per month. Hvac-talk.com averages 1.5 million page views and 221,000 unique visitors per month.

Exhibit 1: Web Banner Advertisement

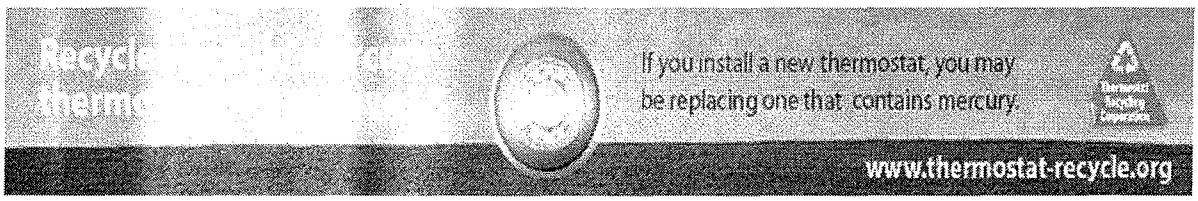


TRC placed animated banner advertisements on the websites of the major Vermont newspapers at the start of fall heating season (see table 1). Web-based advertisements began in late September and ran for approximately 30 days (see exhibit 2 below). TRC purchased a minimum of 250,000 impressions on both websites.

Table 1: Web Advertisements

Website	Type of Advertisement	Size	Number of impressions
Burlington Free Press	Skyscraper	160x600 Pixels	250,000 over one month
Times Argus	Skyscraper	160x600 Pixels	250,000 over one month
Rutland Herald	Skyscraper	160x600 Pixels	
Vermont Today	Skyscraper	160x600 Pixels	
New England Business Journals	Skyscraper	160x600 Pixels	

Exhibit 2: Consumer Web Advertisement



Direct Mail— TRC developed and mailed a postcard (Exhibit 3) to approximately 500 HVAC contractors in Vermont. The mailing list was sourced from D&B Zap data. TRC conducted the mailing in the spring and repeated it in the fall of 2010.

Exhibit 3: Front of Postcard

Program Expenses

TRC program expenses for 2010 reflect changes in marketing strategy and certain one-time expenses that occurred in 2009. For instance, in 2009 TRC expended over $60,000 on the California study (reflected in "administration") on mercury thermostat disposal and over $20,000 in printing expense (reflected in "marketing") for incentive coupons as mandated by Maine and Vermont law.

Exhibit 3: 2010 Program Expenses

TRC Staff and Administration	$231,757
Recycling Costs	$300,096
Insurance	$17,771
Statutory Incentive Payments	$40,380
New Collection Containers	$18,219
Travel	$28,809
Direct Expenses for Marketing & Outreach	$76,696
Total	$713,728

TRC also shifted from certain paid advertising that was deemed ineffective and instead emphasized industry events and trade shows. As such, travel increased significantly in 2010 as TRC staff (including a new full-time outreach staff person hired in November 2009) regularly attended both national and regional industry trade shows.

In 2010 TRC also began the development of new custom database and, while budgeted for 2010, less than 30% of the project expense was booked during the fiscal year and will be carried over to the 2011.

TRC expenses include:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, legal, and other administrative expenses. Includes labor costs to implement Vermont program.
- Insurance: Pollution and liability insurance.
- TRC made $8,770 in direct incentive payments as mandated by Vermont law. This does not reflect the costs associated with administering the incentive program.
- Travel: All travel in 2010 includes travel to trade shows to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and data management.
- New Collection Containers: Direct cost for new containers ordered in 2010.
- Marketing/Outreach & Printing: Includes direct costs to develop and print program collateral; direct mail, website development, national and state advertising, sponsorships and other outreach activities. Marketing/Outreach does not include any TRC labor costs. TRC expended $4,175 on consumer advertising in Vermont in 2010.

Recommendations/Next Steps

Vermont's thermostat law went into effect in April 2009 and collections have increased on par with those of other states that have passed mandatory collection programs for waste mercury thermostats. Overall in the five states (CA, IA, ME, NH, and VT) collections have increased by 47% (two year average increase), whereas Vermont's have increased by 38%.

The impact of the incentive on collections remains ambiguous at best. Over 30% of the thermostats returned came with no request for payment last year. TRC remains concerned that resources that could be put to better use are being diverted to the incentive program that is only marginally increasing collection rates as compared to programs in other states.

Additionally, challenges remain. Of the 193 locations that have been provided containers by Vermont DC, only 68 returned one or more containers in 2010 and we remain concerned about the level of participation by both collection points and contractors in the state.

TRC's challenge is that the collection locations are independent businesses that it has no control over. TRC has no enforcement authority and can not compel any collection location to take any action including ordering a container, shipping a container when full, or promoting the program. As such, TRC recommends the Department continue the practice of periodic visits to collection points throughout the state.

Moreover, TRC believes efforts need to be made to better engage wholesale collection points and larger HVAC contractors in the state. To support this effort, TRC among other things will:

- Attend and exhibit at several national and regional industry trade shows.

- Expand its advertising buy in www.contractingbusiness.com and www.hvac-talk.com to 4 months (spring and fall). TRC is also developing new creative for this campaign. TRC will repeat the advertising buy in *Indoor Comfort News* but with updated advertising copy

- Place a postcard insert in HVACR Business (April and September issues) that will go to 12,000 subscribers in states, including Vermont, with mercury thermostat disposal bans and/or mandates for recycling.

- Update its website to recognize and promote HVAC distributor participation.

- Continue with its direct mail campaign.

- Directly recruit HVAC distributor participation in the program and encourage distributors to actively promote the program to their customers.

- With HARDI, develop an award program that recognizes the HVAC distributors' contribution to the success of the program.

- Continue efforts to engage with other industry stakeholders and build support for the program.

Appendix A: Correspondence to HARDI Members

1300 North 17th Street • Suite 1752 • Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

[redacted]

October 7, 2010

Dear Jess Hill:

If you have operations in California, Iowa, Illinois, Maine, Montana, New Hampshire, Pennsylvania, Rhode Island, or Vermont, please plan on visiting with Thermostat Recycling Corporation (TRC) staff at HARDI's Conference Booth Program on Monday, October 25, during HARDI's annual meeting in Houston, Texas. TRC staff will be at booth 429 and attending the full conference.

As you may be aware, these states have passed mercury thermostat legislation. Among other things, the legislation requires all HVAC wholesale distributors with facilities in these jurisdictions to act as a collection point for waste mercury-containing thermostats. While many wholesale distributors have taken advantage of TRC's program and ordered collection containers, many have not begun to actively collect mercury thermostats at all locations in these states.

Failing to act as a collection point could result in penalties that range from sales bans on residential controls to civil penalties up to $25,000 a day per facility.

TRC staff will be prepared to brief you on your specific legal requirements in each state, which of your facilities are signed up for the program, and the volume of thermostats collected at your locations. TRC staff will also explain how manufacturers, through TRC's take-back program, make compliance easy and nearly cost-free.

If you don't have legal obligations in the states where you have operations, participating in TRC's program is still a great way to promote your business as a "green business" and provide a valuable service to your customers with little direct cost to you. Please visit our booth and we can provide you with all the information you need to participate in and promote the TRC program.

For more information on TRC, please visit our website at www.thermostat-recycle.org. If you would like to speak with TRC staff in advance of HARDI's meeting, please do not hesitate to contact the undersigned at 703-841-3246 or at mark.tibbetts@nema.org.

Sincere Regards,

Mark Tibbetts
Executive Director

Appendix B: Correspondence to American Supply Association

September 13, 2010

Mr. Michael Adelizzi
Executive Vice President
American Supply Association
222 Merchandise Mart, Suite 1400
Chicago, IL 60654

Subject: Legal Mandate in Nine States for HVAC Wholesale Distributors to Collect Waste Mercury Thermostats

Dear Mr. Adelizzi:

Thermostat Recycling Corporation (TRC) requests your assistance in informing your members about their legal obligations in several states to collect waste mercury thermostats.

As you maybe aware, many older thermostats contain between three and twelve grams of mercury. While safe when in use, these thermostats may pose a risk to human health and the environment when discarded in solid waste.

In an attempt to increase the number of thermostats diverted from solid waste, several states have passed laws relating to the collection and disposal of waste mercury thermostats. Currently seven states (California, Iowa, Maine, Montana, New Hampshire, Pennsylvania, and Vermont) require wholesale distributors of HVAC equipment to act as a collection point for waste mercury-containing thermostats. Two additional states (Illinois and Rhode Island) begin mandating collection in 2011.

Fortunately, for wholesale distributors who currently are not collecting mercury thermostats, a simple and low-cost collection/recycling program that satisfies most state legal obligations exists. Manufacturers of mercury-containing thermostats started the non-profit Thermostat Recycling Corporation in 1997 to facilitate the collection of all brands of mercury-containing thermostats.

For a modest one-time fee (currently $25 per collection container), TRC provides a sturdy plastic collection container, pre-paid shipping label, and educational materials to collection points. TRC assumes all on-going costs for shipping and processing of the thermostats. All that TRC requires is that collection locations only ship whole mercury-containing thermostats (no other mercury-containing products), with their covers, return the container at least once a year, and assistance in promoting the program.

Appendix C: Correspondence to American Demolition Association

May 4, 2010

John Lloyd
Vice President
Lloyd's Construction Services, Inc.
7207 West 128th Street
Savage, MN 55378

Dear Mr. Lloyd:

This letter is to serve as a follow-up to our email conversations regarding outreach efforts between the National Demolition Association (NDA) and the Thermostat Recycling Corporation (TRC).

We would like to thank you again for your efforts in presenting information about TRC to the Board of Directors as well as the Environmental Committee at the NDA 2010 Convention. We also appreciate NDA's website including a link and information on TRC's program. Once our website updates are complete, we plan on incorporating a link directing to NDA's website as well.

We look forward to continued collaboration on this issue. We welcome and appreciate the support and assistance.

Please feel free to contact me at mark_tibbetts@nema.org or (703) 841-3243 if you need further assistance.

Thank you for your time.

Sincere Regards,

Mark Tibbetts
Executive Director

Appendix D: Sample Correspondence with State Energy Office Officials

Contact
State Department
Address
City State Zip

Date

Dear _____:

This letter is intended to bring your attention to the issue of the proper disposal of end-of-use mercury-containing thermostats. As you may be aware, many older thermostats contain on average 3 grams of mercury and it is important that at the end-of-use these thermostats are properly disposed of to prevent release of mercury into the environment.

In fact, many states regulate the disposal of mercury-containing products and several go further requiring contractors to assume responsibility for the proper disposal of mercury-containing thermostats.

Fortunately, the proper end-of-life management of mercury thermostats is easy. Voluntarily founded by manufacturers, the Thermostat Recycling Corporation provides an easy and affordable way for contractors to properly dispose of mercury-containing thermostats. TRC has collection locations in 47 states that accept end-of-use thermostats at no charge. TRC absorbs all costs related to shipping, handling, and processing of the waste thermostats. To date, TRC has collected and recycled over 4 tons of mercury and nearly 1 million thermostats.

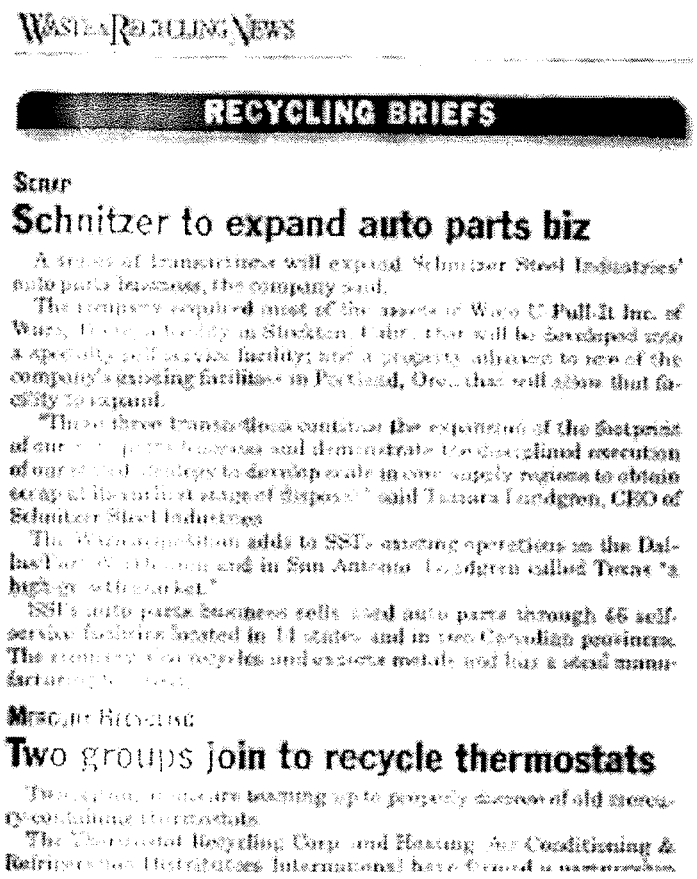
It is our understanding that many state energy programs are promoting the use of electronic programmable thermostats. We strongly encourage you to incorporate thermostat recycling into your programs. Additionally, adding a link to TRC's website from your own may encourage participation in the program.

To learn more about TRC and how it can support thermostat recycling in your state, please refer to the attached fact sheet that we've included with this letter. Also, you may visit our website at www.thermostat-recycle.org. To contact TRC directly, email Mark.Tibbetts@nema.org or call 703-841-3246.

Sincere Regards,

Mark Tibbetts
Executive Director
Thermostat Recycling Corporation

Appendix E: Sample of Earned Media



WASTE RECYCLING NEWS

RECYCLING BRIEFS

Steel

Schnitzer to expand auto parts biz

A series of transactions will expand Schnitzer Steel Industries' auto parts business, the company said.

The company acquired most of the assets of Wm. C. Pull-It Inc. of Waco, Texas, including its Stockton, Calif., that will be developed into a specialty self-service facility; and a property adjacent to one of the company's existing facilities in Portland, Ore., that will allow that facility to expand.

"These three transactions continue the expansion of the footprint of our [illegible] business and demonstrate the disciplined execution of our capital strategy to develop scale in our supply regions to obtain ever-greater leverage at the front end of the process," said Tamara Lundgren, CEO of Schnitzer Steel Industries.

The Pull-It acquisition adds to SSI's existing operations in the Dallas/Fort Worth area and in San Antonio. Lundgren called Texas "a high-growth market."

SSI's auto parts business sells used auto parts through 46 self-service facilities located in 11 states and in two Canadian provinces. The company also recycles and processes metals and has a steel manufacturing [illegible].

Mercury Recycling

Two groups join to recycle thermostats

Two organizations are teaming up to properly dispose of old mercury-containing thermostats.

The Thermostat Recycling Corp. and Heating, Air Conditioning & Refrigeration Distributors International have formed a partnership.

APPENDIX F: 2010 THERMOSTAT RECOVERY TOTALS BY LOCATION

Customer Name	City	Zip	Data	Grand Total
ACE HARDWARE #11390-E	S. BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	21 0.1302
ACSWMD	MIDDLEBURG	5753	Sum of Total Stats Sum of Total lbs mercury	80 0.5332
ADDISON COUNTY SOLID WASTE MANAGEMENT	Middlebury	5753	Sum of Total Stats Sum of Total lbs mercury	35 0.217
Aubuchon Hardware #045	MONTPELIER	05602-2930	Sum of Total Stats Sum of Total lbs mercury	93 0.6386
Aubuchon Hardware #053	Bradford	5033	Sum of Total Stats Sum of Total lbs mercury	6 0.0372
Aubuchon Hardware #062	Hardwick	5843	Sum of Total Stats Sum of Total lbs mercury	9 0.0558
Aubuchon Hardware #072	St. Albans	5478	Sum of Total Stats Sum of Total lbs mercury	24 0.1488
Aubuchon Hardware #078	Enosburg Falls	5450	Sum of Total Stats Sum of Total lbs mercury	5 0.031
Aubuchon Hardware #102	NORTHFIELD	5663	Sum of Total Stats Sum of Total lbs mercury	8 0.0496
BIBBINS ACE HARDWARE #11390-E	SOUTH BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	75 0.4836
BIBEN'S HOME CENTER	N. SPRINGFIELD	5150	Sum of Total Stats Sum of Total lbs mercury	13 0.0992

	S. SPRINGFIELD	5150	Sum of Total Stats Sum of Total lbs mercury	16 0.0992
BLODGETT SUPPLY	WHITE RIVER JCT.	05001-0000	Sum of Total Stats Sum of Total lbs mercury	111 0.7564
	WILLISTON	5495	Sum of Total Stats Sum of Total lbs mercury	95 0.6386
		05495-0000	Sum of Total Stats Sum of Total lbs mercury	107 0.744
BLODGETT SUPPLY CO	MONTPELIER	5602	Sum of Total Stats Sum of Total lbs mercury	24 0.1488
BOURNES ENERGY	MORRISVILLE	5661	Sum of Total Stats Sum of Total lbs mercury	22 0.1364
Brown and Roberts	BRATTLEBORO	5301	Sum of Total Stats Sum of Total lbs mercury	43 0.3038
BROWN ROBERTS	BRATTLEBORO	5301	Sum of Total Stats Sum of Total lbs mercury	50 0.3162
CAVENDISH TRANSFER STATION	CAVENDISH	5142	Sum of Total Stats Sum of Total lbs mercury	4 0.0248
CED / TWIN STATE ELECTRIC	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	7 0.062
CED Twin State Electric Supply	BARRE	5641	Sum of Total Stats Sum of Total lbs mercury	3 0.0186
Chittenden Solid Waste District	SOUTH BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	102 0.6944
CHITTENDEN SOLID WASTE DISTRICT-ENVIRONMENTAL	SOUTH	5403	Sum of Total Stats	160

DEPOT	BURLINGTON		Sum of Total lbs mercury	1.0168
CSWD	S. BURLINGTON	3403	Sum of Total Stats Sum of Total lbs mercury	91 0.6572
	SO. BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	89 0.62
	SOUTH BURLINGTON	5403	Sum of Total Stats Sum of Total lbs mercury	95 0.6324
DEERFIELD VALLEY SUPPLY	WILMINGTON	5363	Sum of Total Stats Sum of Total lbs mercury	25 0.1612
Estey Do it Best Hardware	Hinesburg	5461	Sum of Total Stats Sum of Total lbs mercury	13 0.0806
F.W. WEBB	BARRE	5641	Sum of Total Stats Sum of Total lbs mercury	31 0.2294
	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	89 0.5642
	SPRINGFIELD	5156	Sum of Total Stats Sum of Total lbs mercury	16 0.9052
	WILLISTON	5495	Sum of Total Stats Sum of Total lbs mercury	75 0.8742
F.W. WEBB CO.	BENNINGTON	5201	Sum of Total Stats Sum of Total lbs mercury	59 0.3844
	RUTLAND	05701-0000	Sum of Total Stats Sum of Total lbs mercury	77 0.558
	SPRINGFIELD	05156-0000	Sum of Total Stats	6

			Sum of Total lbs mercury	0.0372
	St. Albans	5478	Sum of Total Stats	60
			Sum of Total lbs mercury	0.372
FIRESIDE TRUE VALUE	BRATTLEBORO	572	Sum of Total Stats	21
			Sum of Total lbs mercury	0.1302
FW WEBB	BRATTLEBURN	5301	Sum of Total Stats	80
			Sum of Total lbs mercury	0.5456
FW WEBB CO.	WILLISTON	5495	Sum of Total Stats	69
			Sum of Total lbs mercury	0.5456
GILMORE HOME CENTER	BOMOSEEN	5732	Sum of Total Stats	10
			Sum of Total lbs mercury	0.062
GRAINGER	SOUTH BURLINGTON	5403	Sum of Total Stats	75
			Sum of Total lbs mercury	0.4712
Grainger Industrial Supply	SOUTH BURLINGTON	5403	Sum of Total Stats	5
			Sum of Total lbs mercury	0.031
GRANITE GROUP	BURLINGTON	5401	Sum of Total Stats	46
			Sum of Total lbs mercury	0.2914
Greens ACE Hardware	Enosburg Falls	5450	Sum of Total Stats	12
			Sum of Total lbs mercury	0.0744
H. Greenberg & Son, Inc.	BENNINGTON	5201	Sum of Total Stats	58
			Sum of Total lbs mercury	0.4154
H. GREENBERGS & SON	BENNINGTON	5201	Sum of Total Stats	29
			Sum of Total lbs mercury	0.1798
HARDWARE AT ROCHESTER	ROCHESTER	5767	Sum of Total Stats	17

			Sum of Total lbs mercury	0.1054
JERIHILL HOME CENTER	JERICHO	05465-0298	Sum of Total Stats Sum of Total lbs mercury	16 0.0992
KENYON'S HARDWARE	NORTHFIELD	05663-0000	Sum of Total Stats Sum of Total lbs mercury	28 0.1736
Lakeshore Hardware and Marine (aka Bibens ACE Hardware)	COLCHESTER	5446	Sum of Total Stats Sum of Total lbs mercury	31 0.1922
LAMOILLE REGIONAL SOLID WASTE MANAGEMENT DISTRICT	MORRISVILLE	5661	Sum of Total Stats Sum of Total lbs mercury	91 0.5828
Londonary Solid Waste Group	LONDONDERRY	5148	Sum of Total Stats Sum of Total lbs mercury	29 0.1798
LUDLOW TRANSFER STATION	LUDLOW	5149	Sum of Total Stats Sum of Total lbs mercury	20 0.1364
LYNDONVILLE HARDWARE	LYNDONVILLE	5851	Sum of Total Stats Sum of Total lbs mercury	11 0.0744
MacINTYRE PLMG. & HTG.	Middlebury	05753-0000	Sum of Total Stats Sum of Total lbs mercury	19 0.1178
MAD RIVER SOLID WASTE ALLIANCE	WATERBURY CENTER	5677	Sum of Total Stats Sum of Total lbs mercury	23 0.1426
Martins Hardware & Building Supply	Bristol	05443-1225	Sum of Total Stats Sum of Total lbs mercury	15 0.093
Martin's Hardware & Building Supply, Inc.	Middlebury	5753	Sum of Total Stats Sum of Total lbs mercury	27 0.1674
Midstate Electric Supply Corp	BARRE	5641	Sum of Total Stats Sum of Total lbs	16 0.3038

			mercury	
Nelson Ace Hardware	BARRE	5641	Sum of Total Stats Sum of Total lbs mercury	76 0.4898
O C McClain & Sons True Value	Highgate Center	5459	Sum of Total Stats Sum of Total lbs mercury	5 0.031
PICK & SHOVEL	NEWPORT	5855	Sum of Total Stats Sum of Total lbs mercury	83 0.5146
Poulin Lumber	Derby	5829	Sum of Total Stats Sum of Total lbs mercury	21 0.1302
R. K. Miles, Inc.	Manchester Center	5255	Sum of Total Stats Sum of Total lbs mercury	21 0.1302
ROCKINGHAM TRANSFER STATION	WESTMINSTER	5158	Sum of Total Stats Sum of Total lbs mercury	1 0.0062
SID HARVEY IND.	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	99 1.364
Sid Harvey Industries	RUTLAND	5701	Sum of Total Stats Sum of Total lbs mercury	132 0.93
SPRINGFIELD TRANSFER STATION	SPRINGFIELD	5156	Sum of Total Stats Sum of Total lbs mercury	26 0.1736
St. Albans ACE Hardware	St. Albans	5478	Sum of Total Stats Sum of Total lbs mercury	14 0.0868
SWANTON LUMBER CO.	SWANTON	5488	Sum of Total Stats Sum of Total lbs mercury	4 0.0248
THE GRANITE GROUP	BURLINGTON	5401	Sum of Total Stats Sum of Total lbs mercury	149 0.9238
		5478	Sum of Total Stats	44

			Sum of Total lbs mercury	0.372
The Hardware at Rochester	ROCHESTER	5767	Sum of Total Stats	6
			Sum of Total lbs mercury	0.0372
THE SIMONS COMPANY	S. BURLINGTON	5403	Sum of Total Stats	36
			Sum of Total lbs mercury	0.403
W.W. Building Supply	Newfane	05345-0299	Sum of Total Stats	2
			Sum of Total lbs mercury	0.0124
WEATHERSFIELD TRANSFER STATION	PERKINSVILLE	5151	Sum of Total Stats	18
			Sum of Total lbs mercury	0.1488
WELCH'S WOODSTOCK TRUE VALUE	WOODSTOCK	5091	Sum of Total Stats	5
			Sum of Total lbs mercury	0.031
WESCH'S TRUE VALUE	SOUTH ROYALTON	5068	Sum of Total Stats	18
			Sum of Total lbs mercury	0.1116
WOODSTOCK HOME AND HARDWARE	WOODSTOCK	05091-9759	Sum of Total Stats	2
			Sum of Total lbs mercury	0.0124
Total Sum of Total Stats				3349
Total Sum of Total lbs mercury				24.5086

APPENDIX G: Vermont locations have requested or been provided recycling containers.

Customer Type	Business Name	Address	City	State	ZIPCODE	ATTENTION
HHW FACILITY	ADDISON COUNTY SOLID WASTE MANAGEMENT	1223 ROUTE 7 SOUTH	MIDDLEBURY	VT	5753	DONALD MAGLIENTI
HHW FACILITY	CAVENDISH TRANSFER STATION	354 ROUTE 131	CAVENDISH	VT	5142	MARY T. O'BRIEN
HHW FACILITY	CENTRAL VERMONT SOLID WASTE MANAGEMENT DISTRICT	137 BARRE ST	MONTPELIER	VT	5602	LIZ HELRICH
HHW FACILITY	Chittenden Solid Waste District	1011 AIRPORT PARKWAY	SOUTH BURLINGTON	VT	05403-5804	Jennifer Holiday
HHW FACILITY	CHITTENDEN SOLID WASTE DISTRICT-ENVIRONMENTAL DEPOT	1011 AIRPORT PARKWAY	SOUTH BURLINGTON	VT	05403-5804	GARRY WINNIE/BRIAN HODGE
HHW FACILITY	GREATER UPPER VALLEY SOLID WASTE MANAGEMENT DISTRICT	96 MILL STREET	NORTH HARLAND	VT	5052	JOHN HURD
HHW FACILITY	LAMOILLE REGIONAL SOLID WASTE MANAGEMENT DISTRICT	29 SUNSET DRIVE	MORRISVILLE	VT	5661	JOYCE MAJORS
HHW FACILITY	Londonary Solid Waste Group	7060 ROUTE 100	Londonderry	VT	5148	Esther Fishman
HHW FACILITY	NORTHEAST KINGDOM WASTE MANAGEMENT DISTRICT	224 CHURCH STREET	LYNDONVILLE	VT	5851	COREY RAYMOND
HHW FACILITY	NORTHWEST VERMONT SOLID WASTE MANAGEMENT DISTRICT	54 N MAIN STREET	ST. ALBANS	VT	5478	BARRY DOMINA
HHW FACILITY	ROCKINGHAM TRANSFER STATION	7446 ROUTE 5	WESTMINSTER	VT	5158	MARY T. O'BRIEN
HHW FACILITY	SOUTHERN WINDSOR/WINDHAM COUNTIES SOLID WASTE MANAGEMENT DISTRICT	ASCUTNEY PROFESSIONAL BLDG-ROUTE 5 SOUTH	ASCUTNEY	VT	5030	MARY T. O'BRIEN
HHW FACILITY	SPRINGFIELD TRANSFER STATION	135 FAIRGROUND ROAD	SPRINGFIELD	VT	5156	MARY T. O'BRIEN
HHW FACILITY	VT DEPT. OF ENVIRONMENTAL CONSERVATION	THE CANNERY 103 SOUTH MAIN STREET	Waterbury	VT	05671-4911	GARY GULKA
HHW FACILITY	WEATHERSFIELD TRANSFER STATION	5024 ROUTE 106	PERKINSVILLE	VT	5151	MARY T. O'BRIEN
HHW FACILITY	WINDHAM SOLID WASTE MANAGEMENT DISTRICT	327 OLD FERRY ROAD	BRATTLEBORO	VT	5301	CINDY STERLING

RETAIL	J & L Hardware	(blank)	FAIRFAX	VT	5454	GARY GULKA
RETAIL	AUBUCHON HARDWARE	172 SOUTH MAIN ST.	Rutland	VT	5701	Mark Kardas
RETAIL	Aubuchon Hardware #025	664 Memorial Drive, Suite 2	St. Johnsbury	VT	5819	Patrick Hussey
RETAIL	Aubuchon Hardware #039	3745 US Route 5, North	WINDSOR	VT	5089	Dennis Herschel
RETAIL	Aubuchon Hardware #042	142 Main Street	Ludlow	VT	05149-0092	Tom Bissonnette
RETAIL	Aubuchon Hardware #045	40 Main Street	MONTPELIER	VT	05602-2930	Gary Law
RETAIL	Aubuchon Hardware #046	10 Center Street	BRANDON	VT	05733-1108	Vincent Muro
RETAIL	Aubuchon Hardware #047	122 West Street	Rutland	VT	5701	Naomi Bierly
RETAIL	Aubuchon Hardware #051	Aubuchon Plaza, 149 South Main Street	Waterbury	VT	05676-1516	Dana Dunn
RETAIL	Aubuchon Hardware #053	204 Main Street	Bradford	VT	5033	Gary Brochu
RETAIL	Aubuchon Hardware #057	925-A Brooklyn Street	MORRISVILLE	VT	05661-8623	Gary Baker
RETAIL	Aubuchon Hardware #062	222 Junction Road, Box 464	Hardwick	VT	5843	Alan Michaud
RETAIL	Aubuchon Hardware #063	Village Court, 40 Court Street, Unit 2	MIDDLEBURY	VT	05753-1447	Diane Smith
RETAIL	Aubuchon Hardware #071	Essex Junction Shopping Center, 87 Pearl Street	Essex Junction	VT	05452-3625	Scott Law
RETAIL	Aubuchon Hardware #072	204 Swanton Rd.	ST. ALBANS	VT	5478	Glen Spears
RETAIL	Aubuchon Hardware #076	26 Canada Street	Swanton	VT	5488	Troy Staples
RETAIL	Aubuchon Hardware #078	33 Depot Street	Enosburg Falls	VT	5450	Todd Dansereau
RETAIL	Aubuchon Hardware #079	Shaw's Plaza, Route 22A	Fair Haven	VT	5743	Sharon Wood
RETAIL	Aubuchon Hardware #083	113 Unit F Monkton Road	Vergennes	VT	05491-9305	Dennis Torrey
RETAIL	Aubuchon Hardware #086	107 VT Route 12 South	Randolph	VT	5060	Wendell Magoon
RETAIL	Aubuchon Hardware #088	120 Depot Street, Ste. 3	BENNINGTON	VT	5201	Larry Shapiro
RETAIL	Aubuchon Hardware #091	Manchester Shopping Center Route 11 & 30	Manchester Center	VT	05255-0638	Mark Kardas
RETAIL	Aubuchon Hardware #098	Commerce Square, 47 Hinesburg Road	SOUTH BURLINGTON	VT	5403	Nicholas Boudreau
RETAIL	Aubuchon Hardware #099	Essex Square, 90 Center Street	Essex Center	VT	5452	Rally Cotton

RETAIL	Aubuchon Hardware #100	Milton Plaza, RFD #1, PO Box 100	Milton	VT	5468	Paul Williams
RETAIL	Aubuchon Hardware #102	63 Plaza Drive, Unit 2	Northfield	VT	5663	Donald Doyon
RETAIL	Aubuchon Hardware #161	4870 Route 15	Jeffersonville	VT	5464	Chad Herschel
RETAIL	Aubuchon Hardware #173	50 Shelburne Shopping Park	Shelburne	VT	5482	Damien Barnes
RETAIL	Aubuchon Hardware Store #049	220 North Main Street	ESSEX	VT	05641-4126	Josaih Gates
RETAIL	AUBUCHON STORE #173	50 SHELBURNE SHOPPING PLAZA	Shelburne	VT	5482	Damien Barnes
RETAIL	BIBBINS ACE HARDWARE #11290-5	1062 WILLISTON ROAD	SOUTH BURLINGTON	VT	5403	Roland Ostrout
RETAIL	Bibens ACE Hardware	15 Essex Way - PO Box 12	Essex	VT	5452	David Abell
RETAIL	Bill's ACE Hill's Hardware	1127 North Avenue, Unit 10	BURLINGTON	VT	5408	Jack Margro
RETAIL	BIBEN'S HOME CENTER	362 RIVER STREET	N. SPRINGFIELD	VT	5150	Pete Torney
RETAIL	Bisbee's Hardware	PO Box 1029, 109 Mad River Green	Waitsfield	VT	5673	John Wilson
RETAIL	Brown and Roberts	182 Main St	BRATTLEBORO	VT	5301	Paul Putnam
RETAIL	CENTRAL SUPPLIES	ROUTE 12 S.	Randolph	VT	5679	GARY GULKA
RETAIL	Cobbs Hardware	(blank)	West Rutland	VT	5777	GARY GULKA
RETAIL	Country Home Center	85 Center Road	MORRISVILLE	VT	5661	Lee Sturdezant
RETAIL	DEERFIELD VALLEY SUPPLY	211A ROUTE 9 WEST	WILMINGTON	VT	5363	Lynn Bucossi
RETAIL	Estey Do it Best Hardware	22 Commerce Street, Unit 1	Hinesburg	VT	5461	Trichia or David
RETAIL	EVANSVILLE TRADING POST	645 EVANSVILLE ROAD	ORLEANS	VT	5860	GARY GULKA
RETAIL	FARM N COUNTRY HARDWARE	2383 VT ROUTE 14	WILLIAMSTOWN	VT	5679	GARY GULKA
RETAIL	FIRESIDE TRUE VALUE	895 PUTNEY ROAD	BRATTLEBORO	VT	5301	GARY GULKA
RETAIL	FOGG'S HARDWARE	50 LAKE MOREY ROAD	FAIRLEE	VT	5045	(blank)
RETAIL	Fogg's Hardware	301 Route 5 South	Norwich	VT	5055	Rhett Scrugs
RETAIL	Gervais ACE Hardware	62 Cross St	Island Pond	VT	5846	Jeanne Gervais
RETAIL	GILMORE HOME CENTER	427 ROUTE 4A WEST	BOMOSEEN	VT	5732	GARY GULKA
RETAIL	Goodro Lumber & True Value	(blank)	Killington	VT	5751	GARY GULKA

RET	[illegible]	[illegible]	Enosburg Falls	VT	5450	GARY GULKA
[illegible]	[illegible] & Son, Inc.	[illegible]	BENNINGTON	VT	5201	Tim Hutton
[illegible]	HARRY'S HARDWARE	3087 MAIN STREET	CABOT	VT	5647	(blank)
[illegible]	[illegible] Hardware and [illegible]	3 North Main Street	Alburgh	VT	5440	(blank)
[illegible]	ISLAND POND TRUE VALUE	257 RAILROAD STREET	Island Pond	VT	5846	(blank)
RETAIL	J & H Hardware	20 The Square	Bellows Falls	VT	5101	Jeremy Haskins
RETAIL	JERIHILL HOME CENTER	249 Vermont Route 15, PO Box 298	JERICHO	VT	05465-0298	Karen Tuthill
RETAIL	Johnson Hardware & Rental	(blank)	Johnson	VT	5656	GARY GULKA
[illegible]	KENYON'S HARDWARE	93 NORTH MAIN STREET	Northfield	VT	05663-0000	GARY GULKA
[illegible]	Kenyon's Variety	3337 Main Street	Waitsfield	VT	5673	Doug Kenyon
RETAIL	LAKESHORE ACE	713 W. LAKESHORE DR.	Colchester	VT	5446	Brian Baird
[illegible]	Larrabees Building Supply	1410 Route 2, PO Box 67	West Danville	VT	5873	Jason or Nick
RETAIL	Leonards True Value	7358 Route 7	Pownal	VT	5261	Shane Leonard
RETAIL	LONDONERRY HARDWARE	5700 VT. RTE. 100	Londonderry	VT	5148	(blank)
RETAIL	LYNDONVILLE HARDWARE	583 BROAD ST.	Lyndonville	VT	5851	GARY GULKA
RETAIL	Martins Hardware & Building Supply	68 West Street	BRISTOL	VT	05443-1225	Martin K. Clark
RETAIL	Martin's Hardware & Building Supply, Inc.	859 Route 7 South	MIDDLEBURY	VT	5753	Martin K. Clark
RETAIL	Miles Lumber Company, Inc.	178 Chittenden Drive	ARLINGTON	VT	5250	David Farrar
RETAIL	Nelson Ace Hardware	190 N Main St	BARRE	VT	5641	Bob Nelson
RETAIL	Noble ACE Hardware	261 N Main St	Rutland	VT	5701	Matt Philo
RETAIL	O C McCuin & Sons True Value	(blank)	Highgate Center	VT	5459	GARY GULKA
RETAIL	Parker & Stearns, Inc	(blank)	Johnson	VT	5656	GARY GULKA
RETAIL	Pick & Shovel	54 Coventry Street	NEWPORT	VT	5855	Chris Hamblett
RETAIL	Poulin Lumber	3639 US Route 5	Derby	VT	5829	Brad Richardson
RETAIL	Poulin Lumber	439 Wolcott Street	Hardwick	VT	5843	Melissa Patnoe
RETAIL	R. K. Miles, Inc.	618 Depot Street, PO Box 1125	Manchester Center	VT	5255	Zack Dupuis
RETAIL	R. K. Miles, Inc.	88 Exchange Street	MIDDLEBURY	VT	5753	John J. Fish

RETAIL	Richmond Home Supply, Inc.	68 Railroad Street	RICHMOND	VT	5477	Dan Noyes
RETAIL	Claps Home Center	2046 Vt Rte 100	Londonderry	VT	5155	(blank)
RETAIL	[illegible]	[illegible]	[illegible]	VT	5478	Mike Duffy
RETAIL	[illegible]	[illegible]	[illegible]	VT	5819	[illegible]
RETAIL	[illegible]	13 GALLAGHER ROAD	MIDDLEBURY	VT	5602	GARY GULKA
RETAIL	Sticks & Stuff	4 Lower Newton Street	ST. ALBANS	VT	05478-1907	Mark Deso
RETAIL	Sticks & Stuff	(blank)	Enosburg Falls	VT	5450	Ed Druke
RETAIL	Stowe Hardware	151 Main Street	Stowe	VT	5672	Martha Mask
RETAIL	Swanton Lumber	11 N River Street	Swanton	VT	5488	Alvin
RETAIL	[illegible]	[illegible]	[illegible]	VT	5657	Donna McIntyre
RETAIL	VT DEPT OF FISH & WILDLIFE	103 SOUTH MAIN STREET	Waterbury	VT	5671	GARY GULKA
RETAIL	W.W. Building Supply	434 Route 100 North	WILMINGTON	VT	5363	Maddy Klein
RETAIL	W.W. Building Supply	7 Loop Road, Route 30	Newfane	VT	05345-0299	Greg Underwood
RETAIL	Waitsfield True Value	Village Square, 5121 Main Street	Waitsfield	VT	05673-9709	Pat Halloran
RETAIL	Waterbury True Value	838 Waterbury Stowe Road	Waterbury	VT	05676-9730	John Halloran
RETAIL	Welches True Value	3626 Route 14	South Royalton	VT	5068	Charlie Welch
RETAIL	WELCH'S WOODSTOCK TRUE VALUE	5244 WOODSTOCK RD.	WOODSTOCK	VT	5091	Lee Pratt
RETAIL	WESCH'S TRUE VALUE	3626 VT ROUTE 14	South Royalton	VT	5068	GARY GULKA
RETAIL	Wheeler True Value	152 Church Street, PO Box 72	Lyndonville	VT	5851	Mike Wheeler
RETAIL	Willeys True Value	7 Breezy Avenue	GREENSBORO	VT	05841-8000	Frank Holloway
RETAIL	Williams Hardware	51 Main Street, Ste. 1	Poultney	VT	5764	Bob Williams
RETAIL	Woodstock Home and Hardware	452 Woodstock Rd	WOODSTOCK	VT	5091	Mary Oldenburg
RETAIL	Yankee Supply	(blank)	MORRISVILLE	VT	5661	GARY GULKA
Wholesaler/Dist	APPALACHIAN SUPPLY	RR 5	ST JOHNSBURY	VT	05819-0000	JACK DEKOYER
Wholesale	BLODGETT SUPPLY	100 AVE D	WILLISTON	VT	05495-	STEVE COSS

r/Dist					0000	
Wholesale r/Dist	BLODGETT SUPPLY	127 QUALITY LANE	Rutland	VT	05701-0000	CHARLES LaCROIX
Wholesale r/Dist	BLODGETT SUPPLY	26 GALLISON HILL RD	MONTPELIER	VT	05601-0000	GEORGE THOMPSON
Wholesale r/Dist	BLODGETT SUPPLY	26 Gallison Hill Road	MONTPELIER	VT	5602	Randy Larivee
Wholesale r/Dist	BLODGETT SUPPLY	606 HARTFORD AVE	WHITE RIVER JCT.	VT	05001-0000	JAMES GELINAS
Wholesale r/Dist	BLODGETT SUPPLY	606 Hartland Ave	White River Junction	VT	5001	GARY GULKA
Wholesale r/Dist	BLODGETT SUPPLY	832 PLEASANT AVE	NEWPORT	VT	05857-0000	DAVE ELKO
Wholesale r/Dist	BLODGETT SUPPLY	832 Pleasant Street	NEWPORT	VT	5855	Dave Elko
Wholesale r/Dist	Bourne's Energy	17 North Main Street	Waterbury	VT	5676	Michael
Wholesale r/Dist	BOURNE'S ENERGY.	72 LOWER MAIN ST	MORRISVILLE	VT	05661-0000	D. CAMPBELL
Wholesale r/Dist	Bourne's Energy/Hopkins Oil	810 Red Village Road	Lyndonville	VT	5851	Jeff Bean
Wholesale r/Dist	BURGESS ELECTRICAL	102 ARCHIBALD ST	BURLINGTON	VT	05402-0000	DENA WAGER
Wholesale r/Dist	Catamount Winnelson	921 Hercules Drive	Colchester	VT	5446	Jerry Metivier
Wholesale r/Dist	CED Twin State Electric	4 Calkins Court	SOUTH BURLINGTON	VT	5403	GARY GULKA
Wholesale r/Dist	CED Twin State Electric Supply	138 Occott Drive	Wilder	VT	5088	John Fosdick
Wholesale r/Dist	CED Twin State Electric Supply	207 Randbury Road	Rutland	VT	5701	Jim LaCoille
Wholesale r/Dist	CED Twin State Electric Supply	4 Calkins Court	SOUTH BURLINGTON	VT	5403	Jack Bessette
Wholesale r/Dist	CED Twin State Electric Supply	413 Industrial Lane	BARRE	VT	5641	Jessica Lamperle
Wholesale r/Dist	CED Twin State Electric Supply	416 Back Center Road	St. Johnsbury	VT	5819	Andy Gagnon

Wholesale r/Dist	CHAMPLAIN WINAIR	57 HERCULES DRIVE	COLCHESTER	VT	05446-0000	CHRIS WADE
Wholesale r/Dist	COLLETTES PLMG & HTG	PO BOX 220, 17 MAIN STREET	ORLEANS	VT	05860-0000	CARLENE LANOUE
Wholesale r/Dist	Collette's Plumbing & Heating	(blank)	ORLEANS	VT	5860	GARY GULKA
Wholesale r/Dist	CONTROL TECHNOLOGIES	78 ETHAN ALLEN DRIVE	SOUTH BURLINGTON	VT	05403-0000	(blank)
Wholesale r/Dist	D.T. SUPPLY	65 River Street	Rutland	VT	05701-3953	Charles Conaway
Wholesale r/Dist	Densmore Electrical Supply, Inc.	90 Cleveland Avenue	Rutland	VT	5701	Dick Densmore
Wholesale r/Dist	DT SUPPLY	65 River Street	Rutland	VT	5701	Charles Conaway
Wholesale r/Dist	DUNDONS PLMG. & HTG.	PO BOX 100, ROUTE 22A	ORWELL	VT	05760-0000	CHRIS DUNDON
Wholesale r/Dist	F.W. WEBB CO.	10 Clark Road	BARRE	VT	5641	David Guinard
Wholesale r/Dist	F.W. WEBB CO.	108 MORSE ROAD	BENNINGTON	VT	05201-0000	DALE LONG
Wholesale r/Dist	F.W. WEBB CO.	217 AVE C.	WILLISTON	VT	05495-0000	PETER MACK
Wholesale r/Dist	F.W. WEBB CO.	231 JOHN SEITZ DR.	BRATTLEBORO	VT	05301-0000	MARK MCALLESTER
Wholesale r/Dist	F.W. WEBB CO.	240 EAST RD.	BENNINGTON	VT	5201	GARY GULKA
Wholesale r/Dist	F.W. WEBB CO.	2409 Portland Street	St. Johnsbury	VT	5819	Jim Hale
Wholesale r/Dist	F.W. WEBB CO.	25-27 STEBBINS	ST. ALBANS CITY	VT	05478-0000	RAY NADEAU
Wholesale r/Dist	F.W. WEBB CO.	3091 COLD RIVER ROAD	Rutland	VT	05701-0000	LEE TURNER
Wholesale r/Dist	F.W. WEBB CO.	5 CHARLESTOWN ROAD	SPRINGFIELD	VT	05156-0000	KEITH KELLOM
Wholesale r/Dist	F.W. WEBB CO.	5 Franklin Park West	ST. ALBANS	VT	5478	Jennifer Blake
Wholesale	F.W. WEBB CO.	80 Park Ave	WILLISTON	VT	5495	(blank)

r/Dist						
Wholesale r/Dist	Grainger Industrial Supply	20 Gregory Drive	SOUTH BURLINGTON	VT	5403	Nicole Juiffre
Wholesale r/Dist	GRANITE CITY ELECTRIC SUPPLY	425 MORSE	BENNINGTON	VT	5201	JEFF
Wholesale r/Dist	Granite Group	180 FLYNN AVE	BURLINGTON	VT	05401-0000	BOB MARSHALL
Wholesale r/Dist	Green Mountain Electric Supply	102 ARCHIBALD ST	BURLINGTON	VT	5401	SHERRI McCOY
Wholesale r/Dist	Green Mountain Electric Supply	5452 US Route 5 #G	NEWPORT	VT	5855	
Wholesale r/Dist	Green Mountain Electric Supply	659 Bay Street	West Waterford	VT	5819	
Wholesale r/Dist	Green Mountain Electric Supply	7506 Ethan Allen Hwy Unit 5	ST. ALBANS	VT	5478	
Wholesale r/Dist	GTM Electric Supply	362 Swanton Road	ST. ALBANS	VT	5478	Mark Bourbeau
Wholesale r/Dist	Hulbert Supply	(blank)	BURLINGTON	VT	5401	GARY GULKA
Wholesale r/Dist	HULBERT SUPPLY CO. INC	2544 FRANKLIN STREET	BRANDON	VT	05733-0000	GARY CRAM
Wholesale r/Dist	HULBERT SUPPLY CO. INC	332 PINE STREET	BURLINGTON	VT	05401-0000	DOUG HULBERT
Wholesale r/Dist	HULBERT SUPPLY CO. INC	70 SOUTH MAIN STREET	BARRE	VT	05641-0000	JOHN SAXBY
Wholesale r/Dist	ISABELLE ELECTRIC	PO BOX 236	SOUTH BARRE	VT	05670-0000	GREG ISABELLE
Wholesale r/Dist	J.G. TEMPLE ELEC. SUPPLY	14 MORSE ROAD	BENNINGTON	VT	05201-0000	MARK TIMMERMAN
Wholesale r/Dist	J.G. TEMPLE ELEC. SUPPLY	21 WILLIAMS STREET	BRATTLEBORO	VT	05301-0000	STEVE CHAMBERLIN
Wholesale r/Dist	MacINTYRE PLMG. & HTG.	213 EXCHANGE STREET	MIDDLEBURY	VT	05753-0000	KEN CAUL
Wholesale r/Dist	MAD RIVER SOLID WASTE ALLIANCE	425 THATCHER BROOK ROAD	WATERBURY CENTER	VT	5677	JOHN MALTER
Wholesale r/Dist	Midstate Electric Supply Corp	59 Piper Road	BARRE	VT	5641	Barry Spencer

Wholesale r/Dist	Northeast Electrical Distributers	340 Avenue D, Suite 10	WILLISTON	VT	5495	John Corbin
Wholesale r/Dist	R.E. MICHEL COMPANY, INC	340 AVENUE D SUITE 10	WILLISTON	VT	05495-0000	S. LABOMBARD
Wholesale r/Dist	R.E. MICHEL COMPANY, INC	340 AVENUE D SUITE 10	WILLISTON	VT	05495-0000	S. LABOMBARD
Wholesale r/Dist	RJ Murray Co.	79 Holly Court	WILLISTON	VT	5495	Gary Keefe
Wholesale r/Dist	Sid Harvey Industries	55 QUALITY LANE	Rutland	VT	5701	Doug Ross
Wholesale r/Dist	Sid Harvey Industries	55 QUALITY LN	Rutland	VT	5701	Russell Tumsudan
Wholesale r/Dist	Sid Harvey Industries	86 LEROY ROAD	WILLISTON	VT	05495-0000	TOM ROSS
Wholesale r/Dist	THE GRANITE GROUP	160 SEWARD RD	Rutland	VT	5701	GEORGE BURKETT
Wholesale r/Dist	THE GRANITE GROUP	180 Flynn Avenue	BURLINGTON	VT	5401	Robert Marshall
Wholesale r/Dist	THE GRANITE GROUP	344 BARRE-MONTPELIER RD.	BARRE	VT	05641-0000	RAY CROSS
Wholesale r/Dist	THE SIMONS COMPANY	3 CALKINS COURT	S. BURLINGTON	VT	5403	KEN BOWEN
Wholesale r/Dist	UNITED REFRIGERATION	2 RANDBURY ROAD	Rutland	VT	05701-4902	TODD HOTCHKISS
Wholesale r/Dist	VALLEY ELECTRIC SUPPLY	24 OSSIE ROAD	EAST MIDDLEBURY	VT	05740-0000	TOM HOOKER
Wholesale r/Dist	Vermont Plumbing Supply	22 Browne Ct.	BRATTLEBORO	VT	5301	Shawn Knight
Wholesale r/Dist	VT DEPT. OF ENVIRONMENTAL CONSERVATION	THE CANNERY 103 SOUTH MAIN STREET	WATERBURG	VT	5671	GARY GULKA
Wholesale r/Dist	Walsh Electric Supply	30 Champlain Drive	Colchester	VT	5446	Bob King
Wholesale r/Dist	YANKEE ELECTRIC SUPPLY	106 GOODELL AVENUE	MORRISVILLE	VT	05661-0000	SCOTT ADAMS
Wholesale r/Dist	Yankee Electric Supply, Inc	106 GOODELL AVENUE	MORRISVILLE	VT	5661	SCOTT ADAMS
Wholesale	Yankee Electric Supply, Inc	201 Main Street	Winooski	VT	5404	Bonnie Pelkey

r/Dist						
Wholesale r/Dist	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Wholesale r/Dist	Yankee Electric Supply, Inc	55 Alburt Place	Rutland	VT	5701	Bill Mangan

APPENDIX D: TRC MEMBER CONTACT INFORMATON

[illegible]	Contact Last Name	Contact First Name	Address_1	Address_2	City	State	Zip
[illegible]	[illegible]	[illegible]	[illegible]	P.O. Box 367	Ryan	OH	43503
Burnham Holdings, Inc.	Hrabsky	Gary	US Boiler Company	PO Box 3020	Lancaster	PA	17603
Carrier Corporation	Minahan	David	TR-4; Room 1303	PO Box 4808	Syracuse	NY	13221
Chromalox	Cook	Gary	103 Gamma Drive Ext		Pittsburg	PA	15238
Climate Master, Inc.	Ellis	Mark	7300 SW 44th Street		Oklahoma City	OK	73179
Crane Company	D'Iorio	Anthony	100 First Stamford Place		Stamford	CT	06092
White Rodgers	Sartain	John	9100 W. Florissant Ave.	PO Box 36922	St. Louis	MO	63136-9022
Empire Comfort Systems	Belding	Ken	918 Freeburg Avenue		Belleville	IL	62222
General Electric	Graham	Drew	1 River Road	Building 43, 2*19	Schenectady	NY	12345
Goodman Global, Inc.	Bunk	Sean	5151 San Felipe	Suite 500	Houston	TX	77056
Honeywell Inc.	O'Donnell	Dan	101 Columbia Road	Solvay-G	Morristown	NJ	07962
Invensys Controls	Szewczyk	Steve	191 E. North Avenue		Carol Stream	IL	60188
ITT Corporation	Daves	Fern	1133 Westchester Avenue		Westchester	NY	10604
Johnson Controls	Werwie	Jeff	507 E. Michigan Street		Milwaukee	WI	53202
Lear Seigler	Mathews	Jim	469 Morris Avenue		Summit	NJ	07928
Lennox Corporation	Johnson	Robert	2140 Lake Park Blvd		Richardson	TX	75080
Lux Products	Milley	Roger	6000-1 Commerce Parkway		Mount Laurel	NJ	08054
McQuay International	Fleser	Ryan	13600 Industrial Park Blvd		Plymouth	MN	55441
Nordyne	Bentz	Bob	8000 Phoenix Parkway	PO Box 8809	O'Fallon	MO	63366
PSG Controls	McFadden	Terry	1225 Runnel Road		Perkasie	PA	18944
Rheem Manufacturing Company	Steffens	Charles	5600 Old Greenwood Road	PO Box 17010	Ft Smith	AR	72917
Sears Holding Company	Olsen	Mike	3333 Beverly Road	B5-339A	Hoffman Estates	IL	60179
Taco, Inc.	Grof	David	1160 Cranston Street		Cranston	RI	02920
Thomas & Betts Corporation	Chopra	Om	8155 T&B Boulevard		Memphis	TN	38125
TPI Corporation	Stratton	Sharon	PO Box 4973		Johnson City	TN	37602
Trane Residential Systems	Storm	Tim	6200 Troup Highway		Tyler	TX	75707
Uponor, Inc.	Stroud	Dale	5925 148th Street W.		Apple Valley	MN	55124
Vaillant Corporation	Carr	Colin	855 Industrial Hwy.	Unit # 10	Cinnaminson	NJ	08077
W. W. Grainger Inc	Jagiello	Terrance	100 Grainger Parkway		Lake Forest	IL	60045

1300 North 17th Street · Suite 1752 · Arlington, VA 22209

Thermostat Recycling Corporation

www.thermostat-recycle.org

March 31, 2010

Gary Gulka
Vermont Department of Environmental Conservation
103 South Main Street
Waterbury, VT 05671

Re: Annual Report Thermostat Recycling Corporation

Dear Mr. Gulka:

Attached is TRC's 2009 annual collection report for the Department. To the extent practicable TRC has made its best effort to be responsive to the Department's request for expense and collection data.

TRC would like to take the opportunity to summarize some of its major accomplishments in 2009.

- Notwithstanding a severe recession that depressed the replacement market for thermostats, the national recovery of thermostats increased by 14.8 percent keeping almost 1500 pounds of mercury out of solid waste.
- Industry participation in TRC continued to grow and by the end of the year TRC represented 28 manufacturers that historically branded and distributed mercury switch thermostats.
- TRC also saw substantial growth in access to the program, with the number of recycling containers increasing at participating collection locations by 30%. TRC saw solid growth in all collection location types in 2010.

TRC implemented year one of its effort to build and sustain collections of waste mercury thermostats in Vermont. TRC saw a 36.9% increase in the volume of mercury recovered through the program in Vermont last year. TRC was pleased to see the increase in light of our targeted outreach efforts in 2009.

Looking towards 2010, TRC plans on continuing to target HVAC contractors and consumers to build upon the program's success last year. TRC would also like to recognize the Department's contributions to the program in 2009. The active engagement and support by the Department is essential and welcomed.

Sincere Regards,

Mark Tibbetts
Executive Director

2009 Thermostat Recycling Corporation Annual Report

Collection Data

TRC recovered 13.460 pounds of mercury from intact mercury thermostats and mercury switches from Vermont collection locations in 2009. This is an increase of 36.9% over 2008. TRC recovered 1,890 whole thermostats in 2009, an increase of 38% over the previous year.

Table 1: 2009 Vermont Collections by Brand

TRC Member Manufacturer	Vermont
Bard Manufacturing	2
Burnham Holdings, Inc.	10
Carrier Corporation	35
Chromalox	1
Climate Master, Inc.	0
Crane	0
Empire Comfort Systems	4
General Electric	0
Honeywell Inc.	1,517
Invensys Controls	8
ITT Corporation	0
Johnson Controls	4
Lear Seigler	1
Lennox Corporation	10
Lux Products	7
McQuay International	9
Nordyne	1
PSG Controls	0
Rheem Manufacturing Company	1
Sears Holding Company	5
Taco, Inc.	0
Thomas & Betts Corporation	0
TPI Corporation	0
Trane Residential Systems	13
Uponor, Inc.	3
Vaillant Corporation	0
W. W. Grainger Inc	4
White Rodgers	136
Not-Our-Manufacture/Orphans	**119**
Loose Mercury Switches	**13**
TOTAL Thermostats Recovered	***1,890***
TOTAL Pounds Mercury Recovered	***13.64***

Table 2: Collections by Location Type

	Retail	Wholesale	HHW
Total Received	42	874	974

As Table 1 indicates the majority of thermostats recovered came from wholesale or HHW locations.

Additional data on program is as follows.

1. Number of TRC Thermostats qualifying (e.g. mercury-switch thermostat with bar-coded sticker attached) for incentive payment?

   424 (22.4% of total thermostats collected in 2009[1])

2. Number of thermostats not qualifying for payment?

   No Cover: **n/a**
   No bar-coded sticker: **1,466**

TRC recovered 6 items with bar-coded stickers attached that were deemed ineligible (e.g. non-mercury thermostat, other mercury containing device, non-mercury containing device, or mercury thermostats collected through retail outlet). Additionally, of the 344 remittance coupons received in 2009, 22 were incomplete, damaged, or otherwise illegible that resulted or will result in non-payment.

Program Education and Outreach

Wholesaler/Retailer Recruitment—

In the majority of states, collection location recruitment is left to TRC, with a modest level of support from the state regulatory agency. Vermont DEC (DEC) approached wholesaler recruitment differently, resulting in a very high-level of initial compliance with the collection mandate.

Working collaboratively with TRC, DEC indentified all HVAC wholesale locations in the state[2] and determined whether the location still had a TRC collection container. DEC also contacted retail locations and regional HHW locations. DEC identified 63 collection locations that either

[1] The incentive program started April 1, 2009. The first bin with included thermostats with incentive stickers was returned in May, 2009.
[2] DEC had previously provided collection containers to HVAC wholesalers in the state under the voluntary program in 2006 or 2007.

needed a replacement container[3] or were new locations. DEC also voluntarily paid the participation fee for all locations.

Upon receiving the list from DEC, TRC shipped 63 collection containers directly to new locations. For existing locations, TRC shipped new program collateral directly to each location. TRC has also provided DEC with additional containers and program collateral.

HVAC Contractor Awareness—TRC conducted a number of activities to raise awareness of the thermostat recycling program and HVAC contractors' legal obligations in Vermont. A key component of the effort was the upgrade of TRC's website and the development of the search tool allowing for easy search of TRC collection locations nationwide. Other activities included:

- Direct Mail: With DEC's assistance, TRC obtained a mailing list of nearly 1,100 licensed master plumbers in Vermont. Timed to coincide with the start of the heating season, TRC mailed a 6 x 4.5" colored postcard to this list in August 2009 and repeated the mailing in October (see Appendix D for image of card).

- Stakeholder Outreach: TRC contacted and encouraged various stakeholder organizations in Vermont to include information on thermostat recycling in their newsletters and/or websites. National organizations included Air Conditioning Contractors of America, National Association of Oil Heat Service Managers, and Plumbing Heating Cooling Contractors Association. State organizations included Vermont Natural Resources Council, Vermont Licensed Plumbers Association, and Vermont Fuel Oil Dealers Association.

- National Paid Advertising: TRC placed a ½ page ad in the August 2009 issue of *Contracting Business*, a leading business-to-business trade publication targeting HVAC contractors with a circulation of approximately 40,000 contractors. TRC also placed a 30-day advertisement on www.HVAC-Talk.com, a web-based "chat-room" for HVAC technicians.

- Engaging Members: TRC worked with member companies to promote the program through their sales channels. For instance, Honeywell posted link/advertisement to TRC on its www.contractorpro.com and www.forwardthinking.honeywell.com websites.

- Contractor Collateral: TRC developed a multi-purpose "cling-sticker" that can be used by wholesale locations to promote the program. The sticker will work on a door, counter or window. The cling is being included with return bins to Vermont locations. TRC also developed contractor FAQ document and templates which are available for download on TRC's website.

Homeowner/Consumer Awareness—TRC actively marketed the program in Vermont in 2009.

[3] A significant number of wholesale locations that had previously received containers from DEC were no longer collecting and/or had misplaced the collection container.

- Website: TRC created a webpage for Vermont (www.thermsotat-recycle.org/vermont) and posted materials on the page regarding Vermont's mercury thermostat disposal ban.

- Paid Advertising: TRC placed animated banner advertisements on the websites of the major Vermont newspapers at the start of fall heating season (see table 3). Web-based advertisements began in late September and ran for approximately 30 days (Copy in Appendix C). TRC purchased a minimum of 250,000 impressions on both websites.

Table 3: Web Advertisements

Website	Type of Advertisement	Size	Number of impressions
Burlington Free Press	Skyscraper	160x600 Pixels	250,000 over one month
Times Argus	Skyscraper	160x600 Pixels	250,000 over one month
Rutland Herald	Skyscraper	160x600 Pixels	
Vermont Today	Skyscraper	160x600 Pixels	
New England Business Journals	Skyscraper	160x600 Pixels	

- Earth-911: TRC partnered with Earth-911, a nationally recognized commercial website that provides information to consumers on recycling. TRC provided them with a list of retail and HHW collection locations (including all locations as of January 1, 2010 in Vermont). TRC also worked with Earth-911 in developing content regarding the need to recycle mercury switch thermostats which was published on the www.earth911.com website.

Program Expenses

TRC is a national program and collection containers were returned from 46 states in 2009. Allocating program costs among individual state in most cases is not practicable. TRC also makes no attempt to prorate expenses against national collections as the labor to process thermostats sourced from Vermont is greater than other states due to the mandatory incentive. Attempting to prorate expenses based on Vermont's share of national collections will under report costs in Vermont.

In Table 5, TRC reports expenses that it can isolate and attribute solely to the program in Vermont.

TRC expenses include as follows:

- TRC Staff and Administration: Includes staff and consultants, general office expenses, telecommunications, legal, and other administrative expenses. Includes labor costs to implement Vermont program.
- Insurance: Pollution and liability insurance.

- Travel: All travel in 2009 and includes travel to promote program.
- Recycling Costs: All costs (including labor) associated with transporting, processing, and properly managing waste thermostats. Also includes cost associated with fulfilling new bin orders and managing TRC collection database.
- New Collection Containers: Direct cost for new containers ordered in 2009.
- Marketing/Outreach & Printing: Includes costs to develop, print, and distribute collateral; also includes direct mail, website development, national and state advertising, sponsorships and other outreach activities.

Table 4: National Program Expenses

TRC Staff and Administration	$248,066
Recycling Costs	$222,755
Insurance	$18,706
Statutory Incentive Payments	$27,496
New Collection Containers	$18,130
Travel	$16,105
Marketing & Outreach	$96,867
Total	$648,126

Table 5: Expenses Solely Attributable to Vermont[4]

Vermont Incentive Payments	$ 1,676
Paid Advertising	$ 4,175
Print Collateral	
Incentive Coupons	$ 15,259
"Cling" Stickers	$ 936
Point of Purchase Pads	$ 2,996
	$ 25,042

Recommendations/Next Steps

Vermont's thermostat law went into effect in April, 2009, and with less than a full year of operation it is premature to evaluate the program. As it takes almost a year for a collection container to be filled at many locations, TRC will likely have better data to assess the program's effectiveness and any deficiencies in 2010.

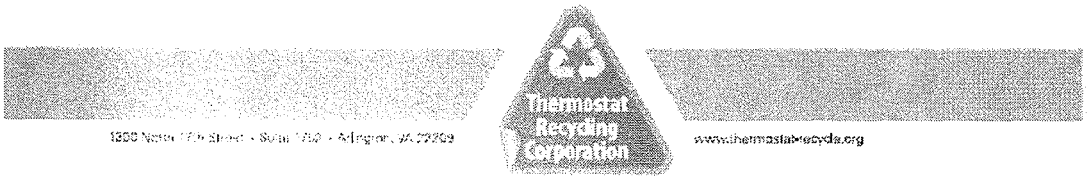
Looking towards 2010, TRC will continue to market the program in the state. As Vermont DEC is also actively marketing and supporting the program, TRC will also continue to collaborate and support DEC's efforts as well.

Planned activities in 2010 include:

[4] These expenses are included not in addition to the national totals reported in Table 2.

- Direct Mail: TRC plans on sending more direct mail in 2010. While expensive, we feel it is an effective, targeted way of raising awareness in small, rural state like Vermont. TRC will explore developing a new mailing list in the state and may include seeking lists from trade groups and/or commercial sources.
- Advertising: TRC is planning on expanding national advertising in 2010 and will repeat the fall Vermont advertising buy in 2010.
- Trade Shows: TRC plans on exhibiting at National Association of Oil Heat Service Managers annual meeting in Providence, Rhode Island in May 2010 and NH Plumbing and Mechanical Contractors Association in March, 2010. TRC will also be participating in the two large national HVAC trade shows.
- Print Collateral: TRC has printed copies of the "contractor flyer" available for wholesale locations. TRC will work to ensure collection locations are aware this collateral is available and distribute accordingly. TRC will also develop a poster for use at municipal and wholesaler locations promoting thermostat recycling.
- Earned Media: TRC will continue to promote the program in both national and regional press. Ongoing efforts to engage other stakeholder groups are a priority for the program in 2010. A media event with DEC in fall 2010 could help raise general awareness of the program.

- Appendix A: TRC Media Release



FOR IMMEDIATE RELEASE

For more information, contact:
Mark Tibbetts, Executive Director
(703) 841-3246, mark_tibbetts@nema.org

Thermostat Manufacturers Support Mercury Thermostat Recycling

Get $5.00 for each qualified mercury-switch thermostat returned

September 10, 2009—Vermont recently passed a law designed to increase the collection and recycling of waste mercury-switch thermostats. *An Act Relating to the Collection and Disposal of Mercury-Added Thermostats* (H.515) makes a contractor who removes a mercury-switch thermostat from service responsible for properly recycling or disposing of it. Under the new law contractors can no longer leave the thermostat at the customer's premise. Additionally, each qualified thermostat returned to a participating collection location is eligible for a $5.00 incentive payment.

Mercury is a toxic metal that in its various forms can accumulate in living tissue and cause adverse health effects. When a mercury-switch thermostat is broken and disposed of in a solid waste landfill or incinerator, the mercury can contaminate the air, surface water, and ground water.

Under the new law, manufacturers must collect and recycle waste mercury-switch thermostats at no cost to contractors and home-owners and pay the $5.00 incentive. Additionally, the law requires every HVAC wholesaler with a physical location in Vermont to act as a collection site for waste mercury-switch thermostats.

To qualify the thermostat must contain mercury and have the cover attached. Contactors simply need to fill out a coupon when they drop off the thermostat at their local HVAC supply house.

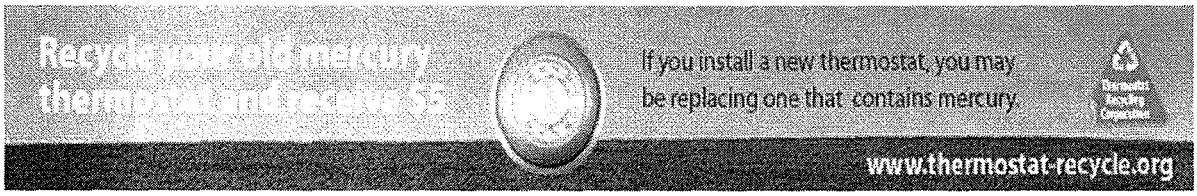
"TRC wants contractors to know that it's easy, convenient, and most importantly free for them to properly dispose of mercury-switch thermostats," said Mark Tibbetts, TRC's executive director. "To comply with the law, all HVAC contractors need to do is to hang onto the mercury-switch thermostats they remove from service and drop them off for recycling at their local HVAC supplier."

TRC is a not-for-profit corporation founded in 1997 by thermostat manufacturers to collect and properly dispose of mercury thermostats removed from service. TRC provides HVAC contractors and consumers with a no-cost solution for properly disposing of mercury-switch thermostats. Nationally, TRC has more than 3,000 collection containers in 48 states. TRC currently represents nearly 30 manufacturers that branded and distributed mercury-switch thermostats in the United States.

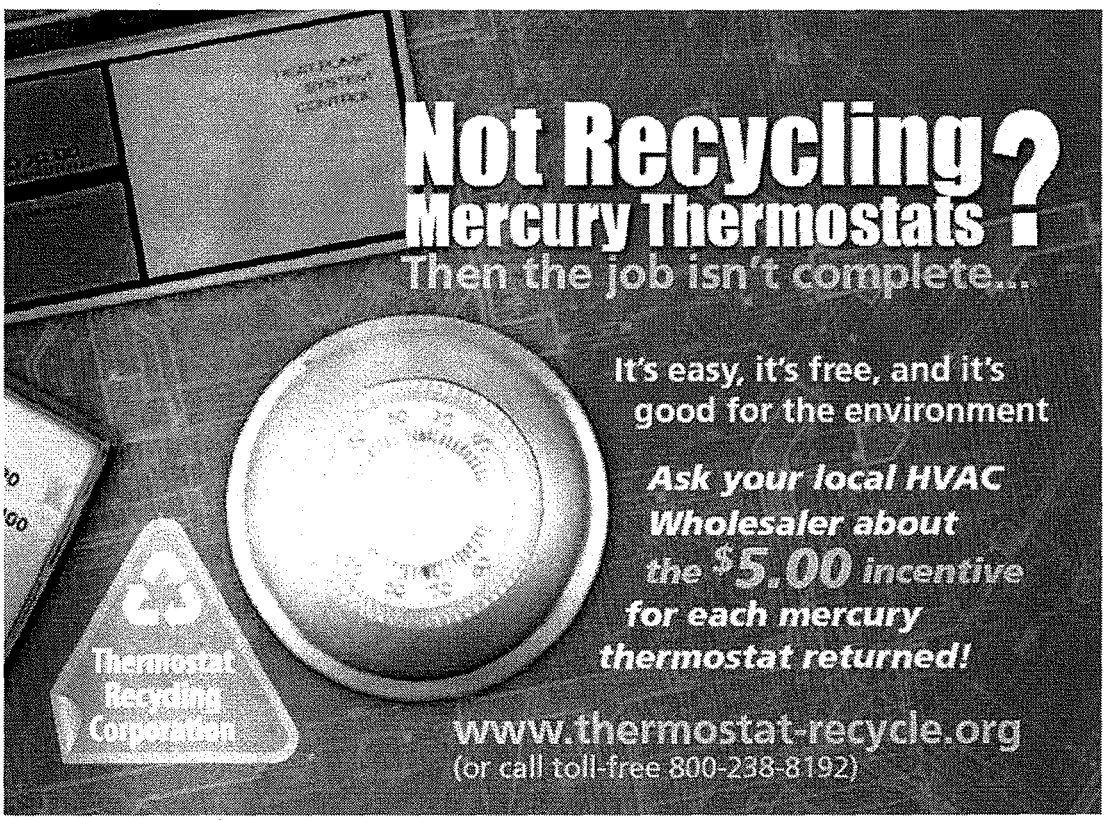
For more information about the TRC program, contact Executive Director Mark Tibbetts at (703) 841-3246 or Mark_Tibbetts@nema.org. Www.thermosat-recycle.org.

- end -

Appendix C: TRC "Consumer" Ad



Appendix D: TRC "Contractor" Advertisement[5] and Postcard Art



[5] The contractor ad ran nationally and did not reference the $5.00 incentive.

Appendix E: Bin Returns Vermont 2009

Location	City	Bins Returned	Total Stats
ADDISON COUNTY SOLID WASTE MG	MIDDLEBURG	1	49
	MIDDLEBURY	1	47
BADGER METALS	APPLETON	1	118
BLODGETT SUPPLY	WILLISTON	2	107
BOURNE'S INC.	MORRISVILLE	1	94
CHITTENDEN SOLID WASTE	SO. BURLINTON	1	108
CHITTENDEN SOLID WASTE DIST	SOUTH BURLINGTON	1	142
CHITTENDON SOLID WASTE DISTRICT	SOUTH BURLINGTON	2	191
COUNTRY HOME CENTER	MORRISVILLE	1	31
CSWD	S. BURLINGTON	2	210
CVSWMD	MONTPELIER	1	78
F.W. WEBB	RUTLAND	1	38
FRED I SOMERS & SONS	MONTPELIER	1	1
GRANITE GROUP	RUTLAND	1	58
GUUSWIND	NORTHLAND	1	65
HULBERT SUPPLY	BURLINGTON	1	112
J & H HARDWARE	BELLOWS FALLS	1	11
MACINTYRE SERVICES, LLC	MIDDLEBURY	1	73
MAD RIVER RESOURCE MAINT.	WATERBURY CENTER	1	25
MAD RIVER RESOURCE MGMT	WATERBURY CENTER	1	24
R.E. MICHEL COMPANY, INC	WILLISTON	1	86
R.K. MILES	MANCHESTOR	1	39
STATE OF VERMONT/ SONDIK SUPPLY	WATERBURG	2	120
VERMONT PLUMBING SUPPLY	BRATTLEBORO	1	18
W.W. GRAINGER	SO. BURLINGTON	1	45

Appendix F: Vermont Collection Locations as of January, 2010

Type	Name	Address	City	Zip	Bin Count
HHW FACILITY	ADDISON COUNTY SWMD	1223 ROUTE 7 SOUTH	MIDDLEBURY	05753	1
HHW FACILITY	CENTRAL VERMONT SWMD	137 BARRE ST	MONTPELIER	05602	2
HHW FACILITY	Chittenden Solid Waste District	1011 AIRPORT PARKWAY	SOUTH BURLINGTON	05403	1
HHW FACILITY	CHITTENDEN SWMD-ENVIRONMENTAL DEPOT	1011 AIRPORT PARKWAY	SOUTH BURLINGTON	05403	2
HHW FACILITY	GREATER UPPER VALLEYSWMD	96 MILL STREET	NORTH HARLAND	05052	1
HHW FACILITY	LAMOILLE REGIONAL SWMD	29 SUNSET DRIVE	MORRISVILLE	05661	4
HHW FACILITY	Londonary Solid Waste Group	100 School Street	South Londonderry	05155	1
HHW FACILITY	NORTHEAST KINGDOM WMD	224 CHURCH STREET	LYNDONVILLE	05851	7
HHW FACILITY	NORTHWEST VERMONT SOLID WMD	54 N MAIN STREET	ST. ALBANS	05478	2
HHW FACILITY	SOUTHERN WINDSOR/WINDHAM COUNTIES SWMD	ASCUTNEY PROFESSIONAL BLDG-ROUTE 5 SOUTH	ASCUTNEY	05030	7
HHW FACILITY	WINDHAM SOLID WMD	327 OLD FERRY ROAD	BRATTLEBORO	05301	7
RETAIL	Aubuchon Hardware #025	664 Memorial Drive, Suite 2	St. Johnsbury	05819	1
RETAIL	Aubuchon Hardware #039	2745 US Route 5, North	WINDSOR	05089	1
RETAIL	Aubuchon Hardware #042	142 Main Street	Ludlow	05149-0092	1
RETAIL	Aubuchon Hardware #045	40 Main Street	MONTPELIER	05602-2930	1
RETAIL	Aubuchon Hardware #046	10 Center Street	BRANDON	05733-1108	1
RETAIL	Aubuchon Hardware #047	122 West Street	Rutland	05701	1
RETAIL	Aubuchon Hardware #051	Aubuchon Plaza, 149 South Main Street	Waterbury	05676-1516	1
RETAIL	Aubuchon Hardware #053	204 Main Street	Bradford	05033	1
RETAIL	Aubuchon Hardware #057	925-A Brooklyn Street	MORRISVILLE	05661-8623	1
RETAIL	Aubuchon Hardware #062	222 Junction Road, Box 464	Hardwick	05843	1
RETAIL	Aubuchon Hardware #063	Village Court, 40 Court Street, Unit 2	MIDDLEBURY	05753-1447	1
RETAIL	Aubuchon Hardware #071	Essex Junction Shopping Center, 87 Pearl Street	Essex Junction	05452-3625	1
RETAIL	Aubuchon Hardware #072	204 Swanton Rd.	ST. ALBANS	05478	1
RETAIL	Aubuchon Hardware #076	26 Canada Street	Swanton	05488	1
RETAIL	Aubuchon Hardware #078	33 Depot Street	Enosburg Falls	05450	1

RETAIL	Aubuchon Hardware #079	Shaw's Plaza, Route 22A	Fair Haven	05743	1
RETAIL	Aubuchon Hardware #083	113 Unit F Monkton Road	Vergennes	05491-9305	1
RETAIL	Aubuchon Hardware #086	107 VT Route 12 South	Randolph	05060	1
RETAIL	Aubuchon Hardware #088	120 Depot Street, Ste. 3	BENNINGTON	05201	1
RETAIL	Aubuchon Hardware #091	Manchester Shopping Center Route 11 & 30	Manchester Center	05255-0638	1
RETAIL	Aubuchon Hardware #098	Commerce Square, 47 Hinesburg Road	SOUTH BURLINGTON	05403	1
RETAIL	Aubuchon Hardware #099	Essex Square, 90 Center Street	Essex Center	05452	1
RETAIL	Aubuchon Hardware #100	Milton Plaza, RFD #1, PO Box 100	Milton	05468	1
RETAIL	Aubuchon Hardware #102	63 Plaza Drive, Unit 2	Northfield	05663	1
RETAIL	Aubuchon Hardware #161	4879 Route 15	Jeffersonville	05464	1
RETAIL	Aubuchon Hardware #I73	50 Shelburne Shopping Park	Shelburne	05403	1
RETAIL	Aubuchon Hardware Store #049	220 North Main Street	BARRE	05641-4126	1
RETAIL	Bibens ACE Hardware	15 Essex Way - PO Box 12	Essex	05452	1
RETAIL	Bibens ACE Hill's Hardware	1127 North Avenue, Ste 60	BURLINGTON	05408	1
RETAIL	BIBEN'S HOME CENTER	362 RIVER STREET	SPRINGFIELD	05150	1
RETAIL	Bisbee's Hardware	PO Box 1029, 109 Mad River Green	Waitsfield	05673	1
RETAIL	Brown and Roberts	182 Main St	BRATTLEBORO	05301	1
RETAIL	Country Home Center	85 Center Road	MORRISVILLE	05661	1
RETAIL	Deerfield Valley Supply	211A Route 9 West	WILMINGTON	05363	1
RETAIL	Estey Do it Best Hardware	22 Commerce Street, Unit 1	Hinesburg	05461	1
RETAIL	Fogg's Hardware	301 Route 5 South	Norwich	05055	1
RETAIL	Gervais ACE Hardware	62 Cross St	Island Pond	05846	1
RETAIL	H. Greenberg & Son, Inc.	321 Main Street	BENNINGTON	05201	1
RETAIL	J & H Hardware	20 The Square	Bellows Falls	05101	1
RETAIL	JeriHill Home Center	249 Vermont Route 15, PO Box 298	Jericho	05465-0298	1
RETAIL	Kenyon's Variety	3337 Main Street	Waitsfield	05673	1
RETAIL	Lakeshore Hardware and Marine (aka Bibens ACE Hardware)	713 W Lakeshore Drive	Colchester	05446	1
RETAIL	Larrabees Building Supply	1410 Route 2, PO Box 67	West Danville	05873	1
RETAIL	Leonards True Value	7358 Route 7	Pownal	05261	1
RETAIL	Martins Hardware & Building Supply	68 West Street	BRISTOL	05443-1225	1
RETAIL	Martin's Hardware & Building Supply, Inc.	859 Route 7 South	MIDDLEBURY	05753	1
RETAIL	Miles Lumber Company, Inc.	178 Chittenden Drive	ARLINGTON	05250	1

RETAIL	Nelson Ace Hardware	190 N Main St	BARRE	05641	1
RETAIL	Noble ACE Hardware	261 N Main St	Rutland	05701	1
RETAIL	Pick & Shovel	54 Coventry Street	NEWPORT	05855	1
RETAIL	Poulin Lumber	3639 US Route 5	Derby	05829	1
RETAIL	Poulin Lumber	439 Wolcott Street	Hardwick	05843	1
RETAIL	QUALITY FARM & RANCH CENTER	618 Depot Street, PO Box 1125	Manchester Center	05255	1
RETAIL	R. K. Miles, Inc.	88 Exchange Street	MIDDLEBURY	05753	1
RETAIL	Richmond Home Supply, Inc.	68 Railroad Street	RICHMOND	05477	1
RETAIL	So Burlington ACE Hardware (aka Bibens ACE Hardware)	1961 Williston Rd	SOUTH BURLINGTON	05403	1
RETAIL	St. Albans ACE Hardware	133 N Main St Ste 25	ST. ALBANS	05478	1
RETAIL	St. Jay Hardware, Inc.	74 Eastern Avenue	St. Johnsbury	05819	1
RETAIL	Sticks & Stuff	4 Lower Newton Street	ST. ALBANS	05478-1907	1
RETAIL	Stowe Hardware	151 Main Street	Stowe	05672	1
RETAIL	Swanton Lumber	11 N River Street	Swanton	05488	1
RETAIL	The Hardware at Rochester	56 Main St, PO Box 38	Rochester	05767	1
RETAIL	W.W. Building Supply	434 Route 100 North	WILMINGTON	05363	1
RETAIL	W.W. Building Supply	7 Loop Road, Route 30	Newfane	05345-0299	1
RETAIL	Waitsfield True Value	Village Square, 5121 Main Street	Waitsfield	05673-9709	1
RETAIL	Waterbury True Value	838 Waterbury Stowe Road	Waterbury	05676-9730	1
RETAIL	Welche's Woodstock True Value	5244 Route 4	WOODSTOCK	05091	1
RETAIL	Welches True Value	3626 Route 14	South Royalton	05068	1
RETAIL	Wheeler True Value	152 Church Street, PO Box 72	Lyndonville	05851	1
RETAIL	Willeys True Value	7 Breezy Avenue	GREENSBORO	05841-8000	1
RETAIL	Williams Hardware	51 Main Street, Ste. 1	Poultney	05764	1
RETAIL	Woodstock Home and Hardware	452 Woodstock Rd	WOODSTOCK	05091	1
Wholesaler/Dist	APPALACHIAN SUPPLY	RR 5	ST JOHNSBURY	05819-0000	1
Wholesaler/Dist	BLODGETT SUPPLY	100 AVE D	WILLISTON	05495-0000	1
Wholesaler/Dist	BLODGETT SUPPLY	127 QUALITY LANE	Rutland	05701-0000	1
Wholesaler/Dist	BLODGETT SUPPLY	26 GALLISON HILL RD	MONTPELIER	05601-0000	1
Wholesaler/Dist	BLODGETT SUPPLY	26 Gallison Hill Road	MONTPELIER	05602	1
Wholesaler/Dist	BLODGETT SUPPLY	606 HARTFORD AVE	WHITE RIVER JCT.	05001-0000	1
Wholesaler/Dist	BLODGETT SUPPLY	832 PLEASANT AVE	NEWPORT	05857-0000	1

Wholesaler/Dist	BLODGETT SUPPLY	832 Pleasant Street	NEWPORT	05855	1
Wholesaler/Dist	Bourne's Energy	17 North Main Street	Waterbury	05676	1
Wholesaler/Dist	Bourne's Energy/Hopkins Oil	810 Red Village Road	Lyndonville	05851	1
Wholesaler/Dist	BOURNE'S INC.	65 RANDOLPH RD.	MORRISVILLE	05661-0000	1
Wholesaler/Dist	BURGESS ELECTRICAL	102 ARCHIBALD ST	BURLINGTON	05402-0000	1
Wholesaler/Dist	Catamount Winnelson	921 Hercules Drive	Colchester	05446	1
Wholesaler/Dist	CED Twin State Electric Supply	138 Occott Drive	Wilder	05088	1
Wholesaler/Dist	CED Twin State Electric Supply	207 Randbury Road	Rutland	05701	1
Wholesaler/Dist	CED Twin State Electric Supply	4 Calkins Court	SOUTH BURLINGTON	05403	1
Wholesaler/Dist	CED Twin State Electric Supply	413 Industrial Lane	BARRE	05641	1
Wholesaler/Dist	CED Twin State Electric Supply	416 Back Center Road	St. Johnsbury	05819	1
Wholesaler/Dist	CHAMPLAIN WINAIR	57 HERCULES DRIVE	COLSCHESTER	05446-0000	1
Wholesaler/Dist	COLLETTES PLMG & HTG.	PO BOX 239, 17 MAIN STREET	ORLEANS	05860-0000	1
Wholesaler/Dist	CONTROL TECHNOLOGIES	78 ETHAN ALLEN DRIVE	SOUTH BURLINGTON	05403-0000	2
Wholesaler/Dist	Densmore Electrical Supply, Inc.	90 Cleveland Avenue	Rutland	05701	1
Wholesaler/Dist	DT SUPPLY	65 River Street	Rutland	05701	2
Wholesaler/Dist	DUNDONS PLMG. & HTG.	PO BOX 100, ROUTE 22A	ORWELL	05760-0000	1
Wholesaler/Dist	FW WEBB CO.	10 Clark Road	BARRE	05641	1
Wholesaler/Dist	FW WEBB CO.	108 MORSE ROAD	BENNINGTON	05201-0000	1
Wholesaler/Dist	FW WEBB CO.	217 AVE C.	WILLISTON	05495-0000	1
Wholesaler/Dist	FW WEBB CO.	231 JOHN SEITZ DR.	BRATTLEBORO	05301-0000	1
Wholesaler/Dist	FW WEBB CO.	2409 Portland Street	St. Johnsbury	05819	1
Wholesaler/Dist	FW WEBB CO.	25-27 STEBBINS	ST. ALBANS CITY	05478-0000	1
Wholesaler/Dist	FW WEBB CO.	3091 COLD RIVER ROAD	Rutland	05701-0000	1
Wholesaler/Dist	FW WEBB CO.	5 CHARLESTOWN ROAD	SPRINGFIELD	05156-0000	1
Wholesaler/Dist	FW WEBB CO.	5 Franklin Park West	ST. ALBANS	05478	1
Wholesaler/Dist	FW WEBB CO.	80 Park Ave	WILLISTON	05495	1
Wholesaler/Dist	Grainger Industrial Supply	20 Gregory Drive	SOUTH BURLINGTON	05403	1
Wholesaler/Dist	GRANITE CITY ELECTRIC SUPPLY	435 MORSE	BENNINGTON	05201	1
Wholesaler/Dist	Granite Group	180 FLYNN AVE	BURLINGTON	05401-0000	1
Wholesaler/Dist	Green Mountain Electric Supply	102 ARCHIBALD ST	BURLINGTON	05401	1
Wholesaler/Dist	Green Mountain Electric Supply	5452 US Route 5 #G	NEWPORT	05855	1

Wholesaler/Dist	Green Mountain Electric Supply	659 Bay Street	West Waterford	05819	1
Wholesaler/Dist	Green Mountain Electric Supply	7506 Ethan Allen Hwy Unit 5	ST. ALBANS	05478	1
Wholesaler/Dist	GTM Electric Supply	362 Swanton Road	ST. ALBANS	05478	1
Wholesaler/Dist	HULBERT SUPPLY CO. INC	2544 FRANKLIN STREET	BRANDON	05733-0000	1
Wholesaler/Dist	HULBERT SUPPLY CO. INC	332 PINE STREET	BURLINGTON	05401-0000	1
Wholesaler/Dist	HULBERT SUPPLY CO. INC	70 SOUTH MAIN STREET	BARRE	05641-0000	1
Wholesaler/Dist	ISABELLE ELECTRIC	PO BOX 236	SOUTH BARRE	05670-0000	1
Wholesaler/Dist	J.G. TEMPLE ELEC. SUPPLY	14 MORSE ROAD	BENNINGTON	05201-0000	1
Wholesaler/Dist	J.G. TEMPLE ELEC. SUPPLY	21 WILLIAMS STREET	BRATTLEBORO	05301-0000	1
Wholesaler/Dist	MacINTYRE PLMG. & HTG.	213 EXCHANGE STREET	MIDDLEBURY	05753-0000	1
Wholesaler/Dist	MAD RIVER SOLID WASTE ALLIANCE	425 THATCHER BROOK ROAD	WATERBURY CENTER	05677	1
Wholesaler/Dist	Midstate Electric Supply Corp	59 Piper Road	BARRE	05641	1
Wholesaler/Dist	Northeast Electrical Distributers	340 Avenue D, Suite 10	WILLISTON	05495	1
Wholesaler/Dist	R.E. MICHEL COMPANY, INC	340 AVE D SUITE 20	WILLISTON	05495-0000	1
Wholesaler/Dist	R.E. MICHEL COMPANY, INC	552 AVENUE D SUITE 10	WILLISTON	05495-0000	1
Wholesaler/Dist	RJ Murray Co.	79 Holly Court	WILLISTON	05495	1
Wholesaler/Dist	Sid Harvey Industries	363 Quality Lane	Rutland	05701	1
Wholesaler/Dist	Sid Harvey Industries	86 LEROY ROAD	WILLISTON	05495-0000	1
Wholesaler/Dist	Sid Harvey Industries	55 QUALITY LN	Rutland	05701	1
Wholesaler/Dist	Sid Harvey Industries	86 LEROY ROAD	WILLISTON	05495	1
Wholesaler/Dist	THE GRANITE GROUP	160 SEWARD RD	Rutland	05701	1
Wholesaler/Dist	THE GRANITE GROUP	180 Flynn Avenue	BURLINGTON	05401	1
Wholesaler/Dist	THE GRANITE GROUP	344 BARRE-MONTPELIER RD.	BARRE	05641-0000	1
Wholesaler/Dist	THE SIMONS COMPANY	3 CALKINS COURT	S. BURLINGTON	05403	1
Wholesaler/Dist	UNITED REFRIGERATION	2 RANDBURY ROAD	Rutland	05701-4902	1
Wholesaler/Dist	VALLEY ELECTRIC SUPPLY	24 OSSIE ROAD	EAST MIDDLEBURY	05740-0000	1
Wholesaler/Dist	Vermont Plumbing Supply	22 Browne Ct.	BRATTLEBORO	05301	1
Wholesaler/Dist	VT DEPT. OF ENVIRONMENTAL CONSERVATION	103 SOUTH MAIN STREET	Waterbury	05671	8
Wholesaler/Dist	Walsh Electric Supply	30 Champlain Drive	Colchester	05446	1
Wholesaler/Dist	WW Building Supply	434 Route 100 North	WILMINGTON	05363	1
Wholesaler/Dist	WW Building Supply	7 Loop Road	Nufane	05345	1
Wholesaler/Dist	YANKEE ELECTRIC SUPPLY	106 GOODELL AVENUE	MORRISVILLE	05661-0000	1

Wholesaler/Dist	Yankee Electric Supply, Inc	106 GOODELL AVENUE	MORRISVILLE	05661	1
Wholesaler/Dist	Yankee Electric Supply, Inc	201 Main Street	Winooski	05404	1
Wholesaler/Dist	Yankee Electric Supply, Inc	276 E. Allen Street	Winooski	05404	1
Wholesaler/Dist	Yankee Electric Supply, Inc	55 Alturi Place	Rutland	05701	1

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October 2, 2012

Krysia Von Burg, Regulations Coordinator
Regulations Section
Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812-0806

RE: White-Rodgers Comments on Proposed Regulations: DIVISION 4.5, TITLE 22, CALIFORNIA CODE OF REGULATIONS - CHAPTER 24. MERCURY THERMOSTAT COLLECTION AND PERFORMANCE REQUIREMENTS: Department Reference Number: R-2010-03

Dear Ms. Von Burg:

On behalf of White-Rodgers, a business of Emerson Climate Technologies we submit the following comments on the proposed Mercury Thermostat Collection and Performance Requirement (August 2012) Division 4.5,Title 22, California Code of Regulations, Chapter 24 to implement the Mercury Thermostat Collection Act of 2008 that the Department of Toxic Substances Control ("DTSC") recently circulated for formal review. White-Rodgers appreciates the availability of DTSC staff to discuss development of the proposed regulation. However, the proposed regulation falls short on identifying the feasibility metric and on crafting a collaborative methodology needed to maximize the collection of out of service mercury thermostats.

As a manufacturer of devices and systems engineered to maximize efficiencies and manage energy we recognize the need to protect the environment. That is why in 1998 White-Rodgers along with General Electric and Honeywell founded the Thermostat Recycling Corporation (TRC). Prior to forming the TRC we collected and recycled out of service thermostats regardless of brand. The TRC model strengthened and streamlined the collection process being performed by companies and quickly became the preferred organization for out of service thermostat collection.

As member of both National Electrical Manufacturers Association (NEMA) and the TRC we have been involved with crafting the comments from both organizations. White-Rodgers is in explicit agreement with the comments submitted by NEMA. In addition, White-Rodgers is in explicit agreement with the comments submitted by the TRC. We ask that our aforementioned agreement with these comments be included in the rulemaking file in accordance with Government Code § 11347.3(b)(6).

White Rodgers

White Rodgers 75 1937 2012 75 Years of Innovation

We would like to thank DTSC for considering these comments along with those submitted by others dedicated to this cause. We remain committed to playing a constructive role in the development and implementation of the Mercury Thermostat Collection and Performance Requirements. We look forward to productive changes in the draft regulation in the future.

Sincere Regards,

Craig Johnson
President
White-Rodgers

cc: Matthew Rodriguez, Secretary, California Environmental Protection Agency
Debbie Raphael, Director, DTSC