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The New York Power Authority's Energy-Efficient Refrigerator Program for the New York City Housing Authority—1997 Savings Evaluation

ENERGY STAR® Partnerships Program

R. G. Pratt
J. D. Miller

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Prepared for the U.S. Department of Energy
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Summary

This document describes the estimation of the annual energy savings achieved from the replacement of 20,000 refrigerators in New York City Housing Authority (NYCHA) public housing with new, highly energy-efficient models in 1997. The U.S. Department of Housing and Urban Development (HUD) pays NYCHA's electricity bills, and agreed to reimburse NYCHA for the cost of the refrigerator installations. Energy savings over the lifetime of the refrigerators accrue to HUD. Savings were demonstrated by a metering project and are the subject of the analysis reported here.

The New York Power Authority (NYPA) identified the refrigerator with the lowest life-cycle cost, including energy consumption over its expected lifetime, through a request for proposals (RFP) issued to manufacturers for a bulk purchase of 20,000 units in 1997. The procurement was won by Maytag with a 15-ft^3 top-freezer automatic-defrost refrigerator rated at 437 kilowatt-hours/year (kWh/yr).

NYCHA then contracted with NYPA to purchase, finance, and install the new refrigerators, and demanufacture and recycle materials from the replaced units. The U.S. Department of Energy (DOE) helped develop and plan the project through the ENERGY STAR® Partnerships program conducted by its Pacific Northwest National Laboratory (PNNL). PNNL designed the metering protocol and occupant survey used in 1997, supplied and calibrated the metering equipment, and managed and analyzed the data collected by NYPA.

This project laid the ground work for a larger effort sponsored by the Consortium for Energy Efficiency (CEE) and U.S. Departments of Housing and Urban Development (HUD) and Energy (DOE) to enable housing authorities throughout the United States to bulk purchase energy-efficient appliances. The 1997 NYPA contract with Maytag allowed other public housing agencies to purchase the same energy-efficient refrigerator. DOE and HUD expect this program to serve as a model for many similar programs; a number of these programs are active or in the planning stages.

The objective of the 1997 metering study was to achieve a general understanding of savings as a function of refrigerator label ratings, occupant effects, indoor and compartment temperatures, and characteristics (such as size, defrost features, and vintage). This general understanding was needed so that the results could be extrapolated to the future years and other projects. A durable six-sensor metering protocol was implemented to collect detailed time-series data on ambient and compartment temperatures, compartment door-opening activities, and power usage. Metering and demographic data were collected and analyzed from 120 NYCHA apartments.

The data collected in 1997 was used to construct models of refrigerator energy consumption as a function of key refrigerator and occupant characteristics. These models were then applied to the population of refrigerators removed and installed in NYCHA housing in 1997. They are also intended for use by the NYPA/NYCHA project in 1998 and beyond, and at other projects in other cities. The construction of these models is the subject of a companion to this report *Estimates of Refrigerator Loads in Public Housing Based on Metered Consumption Data.* It describes the monitoring protocol, data analysis methods, and model development process in greater detail.

Key results of the savings analysis for the NYPA/NYCHA project are summarized below.

- ***The new Maytag refrigerators generated savings of 543 kWh per year and reduced power requirements at peak demand by 0.068 kW.***

- NYPA records show ***20,000 Maytag refrigerators were delivered*** to NYCHA housing developments in 1997. Planergy shows 14,710 old refrigerators were recycled.

- ***The new refrigerators are significantly larger than the average replaced units (15.0 ft^3 compared to 12.7 ft^3).*** This provides considerable added amenity for the residents. It should be noted that savings would be even higher if the new refrigerators were the same size as the existing units. Energy consumption is not strictly linearly proportional to refrigerator size, but a simple estimate of the effect can be based on the ratio of their volumes. ***If the existing refrigerators had been as large as the new refrigerators there would have been an additional energy savings of 174 kWh/yr per refrigerator.***

- ***The apartments are very warm on average, even in winter.*** This is because the apartments do not have individual heating thermostats, and the superintendents are required to meet temperature requirements in the coldest apartments. The average indoor air temperature was about 77°F during winter months; summer temperatures rose to an average of 85.5°F in July. The savings estimates were based on ***an average annual indoor temperature of 79.3 °F.***

- ***Because heating is not individually controlled in each apartment*** (and supplied by relatively inexpensive fuel), ***and because air conditioning is not provided, heating and cooling interactions were not factored into savings estimates.***

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1.0 Introduction

The New York Power Authority (NYPA), the New York City Housing Authority (NYCHA), and the U.S. Departments of Housing and Urban Development (HUD) and Energy (DOE) joined together in 1996 on a project to replace refrigerators in New York City public housing with new, highly energy-efficient models. This project laid the ground work for a larger effort sponsored by the Consortium for Energy Efficiency (CEE) and DOE to enable housing authorities throughout the United States to bulk purchase energy-efficient appliances (Wisniewski and Pratt 1997). This document describes the analysis of the annual energy savings achieved from the replacement of 20,000 refrigerators in the second year of the program, 1997.

The roles of the various agencies involved and their contractors are summarized here.

- NYCHA arranged to be reimbursed for program expenses by HUD, who pays NYCHA's electricity bills. HUD's energy payments are reduced by the energy savings generated by the project. So, savings beyond program expenses accrue to HUD. NYCHA also arranged and coordinated access to the apartments for the refrigerator installations.

- NYPA identified the refrigerator with the lowest life-cycle cost, including energy consumption over its expected lifetime, through a request for proposals (RFP) issued to manufacturers for a bulk purchase of 20,000 units in 1997. The refrigerator was required to be at least 20% more efficient than the current DOE standard (633 kWh/yr). General Electric won this competitive procurement in 1996 with a refrigerator rated at 499 kWh/yr. In 1997, the procurement was won by Maytag with a 15-ft^3 top-freezer automatic-defrost refrigerator rated at 437 kilowatt-hours/year (kWh/yr). NYCHA then signed a contract for NYPA to purchase, finance, and install the new refrigerators, and demanufacture and recycle materials from the replaced units. NYPA managed the installation and demanufacturing (recycling) efforts through its contractor, Planergy.

- HUD agreed that savings would be demonstrated by a metering effort, because accurate savings estimates could not be expected from the weather-adjusted billing analysis technique normally prescribed by HUD. Evaluating these savings for 1997 is the subject of this report.

- NYPA funded and managed the metering effort upon which these savings estimates are based through a subcontract to Planergy. The primary metering effort was completed in 1997.

- DOE helped develop and plan the project through the ENERGY STAR® Partnerships program conducted by its Pacific Northwest National Laboratory (PNNL). PNNL was subsequently asked to conduct the savings evaluations for 1996 (Pratt and Miller 1997) and 1997. PNNL designed the metering protocol and occupant survey used in 1997, supplied and calibrated the metering equipment, and managed and analyzed the data. The data from 1997 was used to construct models of refrigerator energy consumption as a function of key refrigerator and occupant characteristics. These models

were the basis for estimating savings in 1997 and are intended for use in 1998 and beyond. Their construction is the subject of a companion to this report (Miller and Pratt 1998).

Each party in the program gains substantial value. NYCHA receives new refrigerators on an accelerated schedule while avoiding the operational expense of their purchase and installation. NYCHA is then able to use the money normally spent replacing refrigerators on other building improvements. Residents of public housing receive a new refrigerator, typically larger than their current refrigerator and with the amenity of automatic defrost, which most of the replaced refrigerators did not have. NYPA receives goodwill and a long-term relationship with its third largest customer, NYCHA.

DOE and HUD expect this program to serve as a model for many similar programs to be undertaken in the near future. HUD and U.S. taxpayers win because they receive energy cost savings in excess of the program cost over the lifetime of the replacement refrigerators. DOE spurs the voluntary development of new, efficient refrigerator designs by generating mass purchases of the most life-cycle cost-effective models U.S. manufacturers can produce. Finally, U.S. industry wins because of the extra sales promoted by the accelerated replacement of old refrigerators with new, efficient models.

The NYPA/NYCHA project is key to achieving these results in that it establishes both a precedent for operating such a program and a protocol for evaluating the savings achieved in a manner that is transparent and fair to all parties. The 1997 NYPA contract with Maytag allowed other public housing agencies to purchase the same energy-efficient refrigerator. A number of similar programs are active or in the planning stages around the United States.

The remainder of this report is broken into four sections. Section 2 discusses the data collection efforts, data sources used, analysis procedures, and results. Section 3 highlights the conclusions drawn from the analysis. Appendix A lists data on the refrigerator models identified by Planergy. Appendix B provides occupant data for the housing developments included in the refrigerator replacement program.

A companion report *Estimates of Refrigerator Loads in Public Housing Based on Metered Consumption Data* (Miller and Pratt 1998) describes the monitoring protocol, data analysis methods, and model development process in greater detail.

2.0 Savings Estimates

Our estimate of the program savings involved the integration of several data sources:

- NYPA records of the number of new refrigerators delivered and installed
- the quantities of each model of existing refrigerators removed from NYCHA developments and demanufactured, as recorded by Planergy
- computer models of refrigerator performance, constructed by PNNL from detailed 15-minute time-series metering of power, door-opening activity, and ambient and compartment temperatures for a variety of new and existing refrigerators in NYCHA apartments (conducted in 1997)
- a database of refrigerator characteristics reported by refrigerator manufacturers to the American Home Appliance Manufacturer's Association (AHAM 1995), including model numbers, DOE-label rating test results, rated volumes, defrost features, and year of production
- a relationship between average weekly apartment temperatures and outdoor temperatures for NYCHA apartments, developed by PNNL based on the data collected in New York in 1996 and 1997
- long-term-average monthly outdoor temperatures for New York City from National Weather Service data posted on the Internet
- time-of-use electrical load shapes for 10 NYCHA housing developments during summer and winter months provided by NYPA
- numbers of occupants in four age categories for each of the housing developments involved in the 1997 installations from NYCHA.

The following subsections describe these different types of data and how they were used to estimate the savings for the project in 1997.

2.1 Refrigerator Replacement

Figure 2.1 shows a typical NYCHA housing development. These are high-rise apartments with non-electric central heating systems. Heat is supplied by radiators in each apartment connected to vertical risers. Heating supply temperatures are controlled by superintendents to maintain minimum temperatures in the coldest apartment. The apartments do not have individual thermostats. The primary means apartment dwellers have for controlling their apartments' indoor temperature is to open or close the windows. As can be seen in Figure 2.1, a small fraction of apartment occupants have installed their own window air conditioners.

Figure 2.1. Typical New York City Housing Authority Development

Figure 2.2 shows new Maytag refrigerators being unloaded. About 100 refrigerators were installed on a typical working day. The new refrigerators were placed on the sidewalk until the installation crew could gain access to each apartment and remove the existing refrigerator, as shown in Figure 2.3. For apartments where the residents were not home or refused access, or where the apartments were vacant because they were being remodeled, new refrigerators were placed in storage at the development for installation by the year's end. Also approximately 1% of the new refrigerators were placed in storage as spares for failures occurring after the warranty period has expired. Some apartments did not have room for the larger (15-ft^3) refrigerators. These apartments were skipped in 1996 and 1997. An efficient 12-ft^3 model will be supplied beginning in 1998.

2.2 Refrigerators Demanufactured

The removed refrigerators were loaded onto Planergy's recycling truck and taken to Planergy's recycling center in Syracuse, New York. Some of the removed refrigerators that were in good condition were picked up by other developments not scheduled to receive the new refrigerators in 1997, and they also dropped off older spares to be recycled. In some developments up to 20% of the removed refrigerators were kept as spares. The removed refrigerators that were taken to Planergy's recycling center were dismantled so their parts could be recycled. Their refrigerant was removed and recycled (Figures 2.4 and 2.5), and the compressor oil was removed and incinerated because it contains some refrigerant in it. The cabinets, tubing, and wiring were dismantled and the steel and copper were recycled. Sales of recycled materials offset a part of the installation and recycling costs.

Figure 2.2. Unloading New Refrigerators

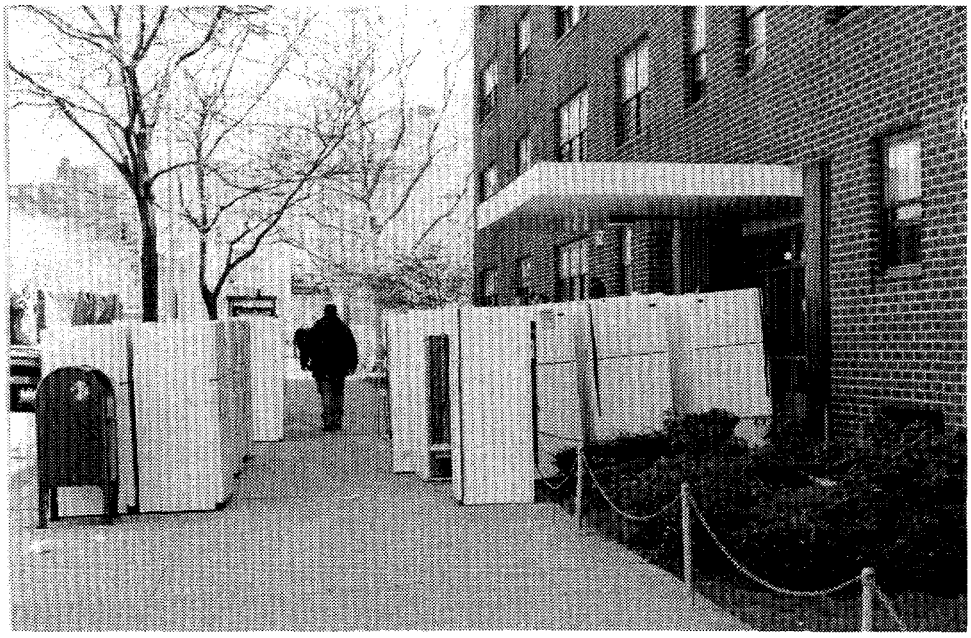

Figure 2.3. New Refrigerators Outside Development Waiting for Installation

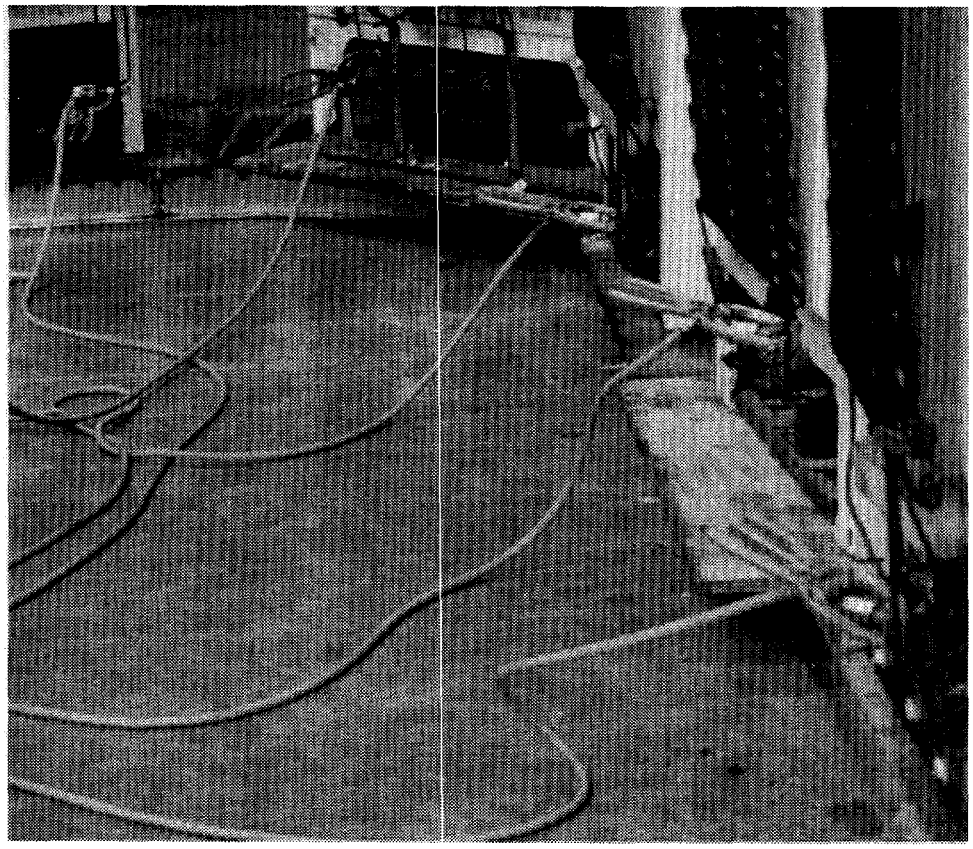

Figure 2.4. Removing Refrigerant from Existing Refrigerators

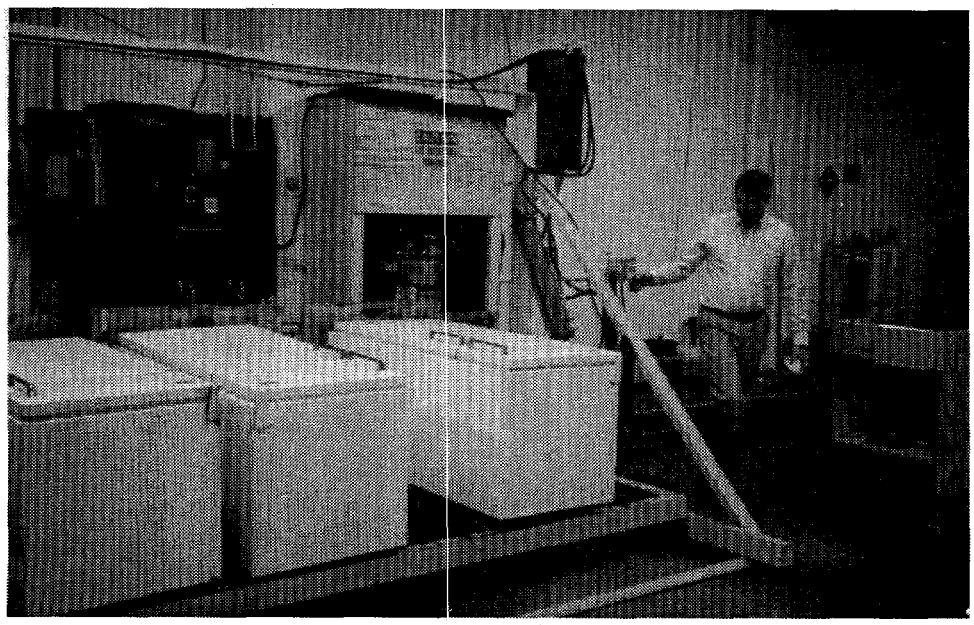

Figure 2.5. Draining Oil from Existing Refrigerators

The number of refrigerators replaced is based on NYPA's records of the number of new refrigerators installed, and the refrigerator models (and hence labels and sizes) replaced are based on Planergy's records of the model number of each existing refrigerator demanufactured. NYPA records show 20,000 Maytag refrigerators were purchased and delivered to NYCHA housing developments in 1997.

Planergy's records show 14,710 refrigerators were demanufactured in 1997. These are listed by model number in Appendix A. This difference between the number of refrigerators delivered and the number recycled is similar to that in 1996 (Pratt and Miller 1997). It is explained by three effects:

1. 1% of the new refrigerators were intentionally stored at the housing developments as spares in 1997.[(a)]

2. Some residents refused to accept a new refrigerator because they owned their own. In other cases the apartments were in the process of being renovated or remodeled to comply with access requirements for the handicapped, or the resident was not home to accept the refrigerator. In these cases, a new refrigerator was placed in storage at the housing development until it could be installed at a later date, but an existing refrigerator was not removed and delivered to Planergy for demanufacturing.

3. Housing developments whose refrigerators were not scheduled for replacement until future years were salvaging some of the existing units in better condition to replace some of their older, spare refrigerators. These other housing developments typically brought fewer old spares than the number of refrigerators they salvaged. Again, the difference in the number of old spare refrigerators returned and the existing refrigerators salvaged reduced the number delivered to Planergy for demanufacturing.

Thus, 5,290 existing refrigerators were not demanufactured, and therefore were not counted by Planergy. Since revenues from recycled materials, especially refrigerant, are used to displace the costs of the project, it is certainly preferable that these all be recycled.

In 1996, NYCHA reported that over 25% of the stored refrigerators were installed in apartments in the first month after NYPA deliveries were completed. This lends confidence to the assumption that essentially all the delivered refrigerators will be installed in apartments (and providing savings) within a few months.

Of course, no model numbers and label ratings could be determined for the 5,290 existing refrigerators that were not demanufactured. We assume that the 20,000 existing refrigerators that were replaced in service by the new Maytags delivered in 1997 were reasonably represented by the 14,710 refrigerators that were demanufactured. In the savings estimate, we simply compute the average per-unit savings from replacing the 14,710 and assume it applies to the whole population of 20,000.

(a) Spares are provided for use while any warranty repairs are being made. Then they are transferred for installation in another NYCHA development. So, they end up saving energy by replacing existing refrigerators, but these existing refrigerators are not recycled by Planergy.

Complicating this assumption is the fact that the spare refrigerators brought to the installation sites from housing developments were generally exchanged for newer refrigerators which tend to have lower consumption label ratings. So, the demanufactured sample contains a few additional very old, 12-ft^3 manual defrost refrigerators. However, the refrigerator consumption model constructed using metered data from NYCHA apartments in 1997 shows significantly increased loads in the automatic refrigerators, associated with door openings, compared to the manual defrost refrigerators (Miller and Pratt 1998). This is in addition to the approximate 7% increase due to the defrost cycle itself. This increased consumption was attributed to:

1. the action of the fan, which blows cold air out of the refrigerator compartment when the door is open in automatic defrost refrigerators.

2. larger refrigerator size—the manual defrost refrigerators typically were small 12-ft^3 models (12.7 ft^3 on average) and the automatic refrigerators typically were 14-ft^3 models (13.8 ft^3 on average). So, the effect of larger refrigerator size is implicitly included in the models of consumption by the factor accounting for automatic defrost.

So, the somewhat exaggerated count of older manual defrost refrigerators is mitigated by these counteracting effects. A test of the effect of the salvaging was conducted, based on two days of careful monitoring of the exchanges for the salvaged refrigerators (out of 185 days of installations). It showed that this process may have increased estimated project savings by about 10%.

However, basing the savings estimate on the demanufactured sample is deemed appropriate. First, given the aging refrigerators in NYCHA developments, the likelihood that the spares will be used is high.[(a)] Therefore, the old spares being replaced are actually taken out of service by the installation of the new Maytags, not the salvaged refrigerators. The salvaged existing refrigerators should eventually get replaced, and counted in Planergy's demanufacturing process, in upcoming years of the project when new refrigerators are installed in those housing developments. To account for their replacement now, instead of the old spares exchanged, would be to double count them in the long run and not count the old spares exchanged at all.

The net effect of the refrigerator replacement program in 1996 and 1997 was to increase the number of refrigerators in NCYHA developments by about 9,000, less some unknown number of old refrigerators that have been disposed of by other means. Eventually, as installations begin to occur in the remaining housing developments, less and less salvaging of existing refrigerators should be needed, and the accumulated spares should begin to show up at Planergy for demanufacturing.

(a) However, Planergy reports that, occasionally, a refrigerator being demanufactured has already had its refrigerant removed.

While it would be preferable from an accounting standpoint to either not allow salvages at all or to require a one-for-one salvage exchange, NYCHA's contract allows up to a 30% salvage rate. It must be recognized that the salvage exchange does serve to increase the efficiency and quality of NYCHA's overall population of refrigerators faster than the project could otherwise support.

2.3 Models of Annual Refrigerator Consumption

PNNL produced models of refrigerator consumption based on 15-minute time-series data collected in 1997 on power consumption, kitchen temperature, and fresh food and freezer compartment temperatures, and door openings (Miller and Pratt 1998). These models are described here.

2.3.1 Construction of the Refrigerator Consumption Models

These data were collected by Planergy for a period of a week for a sample of 104 existing and 17 new Maytag refrigerators in NYCHA apartments during the period from January through September. PNNL designed the metering protocol and occupant survey, supplied and calibrated the metering equipment, and managed and analyzed the data.

No formal sampling scheme was established for the collection of this data. Practical problems with recruiting occupants and metering their refrigerators made it impossible to meter a randomly selected sample. Instead, residents were recruited for metering on an informal basis by knocking on doors or talking to residents, resident association leaders, or superintendents. Apartments were selected for metering from various floors in the buildings because ambient temperatures may be higher on the upper floors. Some self-selection bias is undoubtedly present in the sample, as it is in all such metering projects. Occupants willing to allow access tended to be home during the day (when recruited), and cooperative with Planergy's metering personnel. Their availability and willingness to have their refrigerator metered may reflect other subtle differences between them and the average NYCHA resident. How and whether these differences manifest themselves in refrigerator usage is unknown. Although the sample was not random in a formal statistical sense, it was felt that a reasonably representative sample of the occupants' refrigerator usage was achieved.

Model numbers were obtained for each metered refrigerator; using these model numbers the DOE-label rating, defrost type, volume, and age could be found in the AHAM database (AHAM 1995). Other data were also collected for each household and refrigerator: the number and ages of the occupants, the amount of food in the compartments, the amount of ice accumulation in the freezer, and "snapshots" using a hand-held radiometer of the compartment and kitchen temperatures at the beginning and end of the data collection period.

These data were then used to construct models of refrigerator consumption as a function of key driving variables found through statistical analysis using linear regressions. The time-series data also served to quantify peak load impacts. The objective of the model construction was to achieve a general understanding of refrigerator consumption so that savings could be estimated in the future using little or no additional metered data after 1997. Use of these models, even for the 1997 savings analysis, is necessary to account for two primary effects not directly represented in the raw data:

- Ambient indoor air temperatures during the week-long metering periods do not generally represent annual average conditions. It is important to account for this in estimates of annual savings because refrigerator energy consumption is largely proportional to the temperature difference between the compartments and the ambient temperatures.

- Many more models of existing refrigerators were replaced than could be metered, and the efficiency of the existing refrigerators, indicated by their DOE-label ratings, varies widely (by more than a factor of two).

Before constructing the models, the raw data were adjusted to reflect the annual average surface-area-weighted temperature differences between the compartments and the kitchens estimated for NYCHA apartments (based on the data collected). Then, the data from each refrigerator were analyzed in a semi-automated procedure to split the consumption into three primary components of total refrigerator consumption:

1. *Baseline*: the energy consumed to keep the refrigerator cool assuming the door is closed, no warm food is added, and the defrost cycle does not run

2. *Occupant*: the additional energy consumed to cool warm food or air entering the refrigerator when the doors are opened

3. *Defrost*: the additional energy consumed by the refrigerator to perform and recover from automatic defrosting of ice buildup.

A by-product of the process of splitting consumption into these three components is that malfunctioning refrigerators with very high duty-cycles were often clearly indicated. These were counted and treated separately, because the nature of the malfunctions identified caused the component splitting process to fail.

These results were then used to construct models of each of these components of refrigerator consumption as a function of the occupant and refrigerator characteristics, so that consumption can be estimated for refrigerator models not represented in the metered sample.

2.3.2 Component Models of Refrigerator Loads

The estimated total annual energy consumption of a refrigerator is modeled as the sum of its baseline, occupant, and defrost load components.

$$E_{total} = E_{baseline} + E_{occupant} + E_{defrost} \quad (2.1)$$

The baseline load component was found to be a function of its label rating, the age of the refrigerator, and whether or not it was located in a development whose occupants were predominantly elderly. A development was classified as elderly if the ratio of the number of elders to the total number of occupants was greater than 0.25, and the average number of occupants per apartment was less than 2.0.

$$E_{baseline} = f(\text{Label rating, Refrigerator age, Elderly}) \quad (2.2)$$

The baseline consumption was found to be highly correlated with the label rating, as expected because the label-rating test determines the refrigerator performance without opening the door and the defrost component is much smaller than the baseline component. The model captured evidence of significant refrigerator degradation as a function of its age. It also reflected less degradation in housing developments dominated by elderly occupants. The effect of volume was not captured, probably because of the correlation of volume with defrost type in the metered sample. The structure of the model of baseline energy consumption, including the temperature adjustment factor, is

$$E_{baseline} = L \cdot \left(a_1 + a_2 N_{age} + a_3 C_{elderly} + a_4 N_{age} C_{elderly}\right) \cdot \Delta T_{adjust} \quad (2.3)$$

where L is the DOE-test label rating in kWh/yr, N_{age} is the age of the refrigerator in years, $C_{elderly}$ is a categorical variable with a value of one if the housing development is dominated by elderly occupants and zero otherwise, and ΔT_{adjust} is a temperature adjustment. (The coefficients a_1 through a_4, and those for the other two models described subsequently, appear in Table 2.1.) The temperature adjustment (ΔT_{adjust}) is given by

$$\Delta T_{adjust} = \frac{\left(T_{compartment} - T_{kitchen}\right)_{\text{target pop.}}}{\left(T_{compartment} - T_{kitchen}\right)_{\text{standard}}} \quad (2.4)$$

which is simply the ratio of the compartment[(a)] to kitchen temperature differences for the target population and the standard temperatures used to create the models. For a typical temperature difference near 50°F, a 1°F increase in the temperature difference results in approximately a 2% increase in energy consumption.

The relationship in Equation (2.4) is used in slightly different ways when *creating* and *using* the models to make estimates. In both cases, the numerator is the difference in the annual average compartment and kitchen temperatures for the apartments whose refrigerator consumption is being estimated. This temperature difference is a constant; it does not change from apartment to apartment. When developing the models from the raw data, the denominator was the metered temperature difference during the metering period; this temperature difference was different for each apartment metered.

(a) See Section 2.4 for how average compartment temperatures are computed.

When using the models to make estimates, however, the denominator is the standard annual average temperature difference assumed when developing the models. So, when using the models to make estimates, the temperature adjustment factor is 1.0 if the compartment and kitchen temperatures in the population are the same as measured in NYCHA apartments in 1997. In other words, the models are already adjusted for temperatures observed in NYCHA apartments and refrigerators. Temperature adjustments only need to be applied to other cities or types of apartment construction and operation where kitchen temperatures are different, or if the temperatures used here are deemed inappropriate at some point in the future.

The coefficients a_1 through a_4 were determined from the regression analysis to have values as shown in Table 2.1. The t-statistics shown in Table 2.1 are the ratio of the value of the coefficient to the standard error of the estimate of the coefficient. The standard error is defined as the interval over which 95% of similar tests would produce an equivalent result, i.e., the 95% confidence interval of the estimate of the coefficient. This model explained 56% of the variance in the raw data (r^2=0.56).

Table 2.1. Summary of Model Coefficients

Model	Coefficient	Term	Value	t-statistic
Baseline	a_1	L	0.589	15.9
	a_2	$L * N_{age}$	0.0137	4.1
	a_3	$L * C_{elderly}$	-0.0844	NA
	a_4	$L * N_{age} * C_{elderly}$	-0.00196	NA
Occupant	a_5	Intercept	169	5.7
	a_6	$C_{defrost}$	-222	-4.2
	a_7	$E_{baseline} * C_{defrost}$	0.750	7.5
	a_8	$C_{elderly}$	-66.7	NA
	a_9	$C_{defrost} * C_{elderly}$	87.7	NA
	a_{10}	$E_{baseline} * C_{defrost} * C_{elderly}$	-0.296	NA
Defrost	a_{11}	$(E_{baseline} + E_{occupant}) * C_{defrost}$	0.0714	21.4

The occupant load was found to be a function of the baseline load, the defrost type, and whether the housing development was dominated by elderly occupants. The label rating was also significant if the baseline load was not used, but the baseline load was a superior predictor probably because it already includes the effect of degradation with age or malfunctions.

$$E_{occupant} = f(E_{baseline}, \text{Defrost type, Elderly}) \quad (2.5)$$

The number of occupants did not enter in to Equation (2.5). It was felt that the data on the number and ages of the occupants in individual apartments may not have been accurate enough to show an effect in the model. It was found that the occupant load was highly correlated with the number and duration of the compartment door openings, but the number and ages of the occupants were not useful in predicting them. Door openings could have been included in the model and would explain variances in the metered

data. But, it could not be determined how they vary from one apartment or population to another, and it is unreasonable to require collection of such data by those wanting to use the models to make estimates for other populations. This is an area in which these models could, potentially, be improved.

The structure of the occupant load (kWh/yr) model is

$$E_{occupant} = (a_5 + a_6 C_{defrost} + a_7 E_{baseline} C_{defrost} + a_8 C_{elderly} + a_9 C_{defrost} C_{elderly} + a_{10} E_{baseline} C_{defrost} C_{elderly}) \cdot \Delta T_{adjust} \quad (2.6)$$

where $C_{defrost}$ is another categorical variable that has a value of one if the refrigerator has automatic defrost, or zero if it has manual (or partial) defrost. For example, the last term in the occupant component model, $E_{baseline} C_{defrost} C_{elderly}$, is zero for apartments with manual units or in apartments in buildings with primarily elderly occupants. The coefficients a_5 through a_{10} of the occupant load model are shown in Table 2.1. Note that automatic defrost refrigerators are predicted to have significantly higher occupant loads than do manual refrigerators, although as noted earlier, this also incorporates the effect of the manual refrigerators being smaller than the automatic defrost refrigerators in the metered sample. This model explained 51% of the variance in the raw data.

The defrost load was found to be a function of the sum of the baseline and occupant loads. This was expected because the defrost cycles are triggered by the accumulated compressor run time since the last defrost cycle, and the run time is primarily proportional to the loads that trigger it (i.e., the compression cycle efficiency is basically constant over the range of operating conditions). The structure of the defrost load model is simply

$$E_{defrost} = a_{11} \cdot (E_{baseline} + E_{occupant}) \quad (2.7)$$

Of course, there is no defrost load in manual defrost refrigerators. Since both the baseline and occupant load components were already temperature adjusted, the temperature adjustment factor is implicit in this model. The coefficient a_{11} of the defrost model is shown in Table 2.1.

It was found that 14 of the 104 existing refrigerators metered in New York (13.5%) had malfunctions resulting in very high duty cycles. That is, they ran almost continuously and struggled or failed to maintain proper compartment temperatures. They also usually proved to have very high energy consumption, about 55% higher on average than a refrigerator with the same DOE-label rating that appeared to operate normally. The average ratio of total metered consumption to label rating (the label ratio) for the high duty cycle refrigerators was 1.57, compared to 1.02 for the correctly cycling refrigerators. The annual energy consumption of the high duty cycle refrigerators is estimated as the product of the average label ratio of the high duty cycle refrigerators and the average label of the existing refrigerators replaced by the project, $\bar{L}_{existing}$

$$\bar{E}_{hdc} = 1.57 \, \bar{L}_{existing} \quad (2.8)$$

Attempts to correlate the incidence of high duty cycle refrigerators with their age proved inconclusive. However, it also seems unreasonable to assume that it is independent of the age of the refrigerators in a given population; that is, that 13.5% of every population of refrigerators are malfunctioning. For example, those that are new or only one or two years old undoubtedly have far lower rates of malfunction. Therefore, a steady, linear increase in the incidence of malfunctions as a function of age was assumed. That is, no malfunctions are assumed in new refrigerators (they are covered under warranty, if they occur) and 13.5% of refrigerators are assumed to malfunction in populations 10.1 years old (the average age of the sample metered in 1997). If the population is older than the sample metered by NYPA, the incidence of high duty cycle refrigerators is increased by the ratio of the age of the population of exiting refrigerators replaced by the project and the age of the sample metered by NYPA

$$f_{hdc} = 0.135 \left(\frac{\overline{N}_{age-existing}}{10.1\ years} \right) \tag{2.9}$$

The overall average consumption for the existing units is then calculated including the incidence of high duty cycle fraction refrigerators in the population. It is the blended average of those existing units having high duty cycle behavior and those that do not

$$\overline{E}'_{total\_existing} = (1 - f_{hdc})\,\overline{E}_{total\_existing} + f_{hdc}\,\overline{E}_{hdc} \tag{2.10}$$

2.4 Refrigerator Compartment Temperatures

Data from NYCHA apartments in 1996 and 1997 indicated that the annual average compartment temperatures are 38°F in the fresh-food and 5°F in the freezer compartments. These compartment temperatures are very close to the set-points used in testing and labeling refrigerators (10 CRF 430, 1995). Compartment temperatures were found to be somewhat model specific, and are affected by the relative use of the two compartments. Physical operation of typical refrigerators suggests that when one is somewhat higher, the other tends to be somewhat lower than these averages because the compartment temperatures are not independently controlled. The data collected in 1996 and 1997 in New York suggest that the occupants tend to adjust the controls over time to roughly achieve these temperatures.

The relative surface areas in 12- to 15-ft^3 refrigerators are 70% and 30% for the fresh-food and freezer compartments, respectively. So, the annual average compartment temperature was 28.1°F. This is very close to the weighted-average of the interior temperature metered by NYPA for the existing automatic-defrost units (28.3°F), excluding high duty-cycle units. It is assumed that the controls in the refrigerators keep the interior temperatures relatively constant throughout the year.

2.5 Annual Average Kitchen Temperatures

To estimate the annual average kitchen temperature, a relationship between kitchen and outdoor temperatures for NYCHA apartments was established using the data collected from 1996 and 1997. This

was based on measurements of the kitchen temperature and the daily outdoor temperature records from the National Climate Data Center. This relationship is shown as the solid line in Figure 2.6. The kitchen

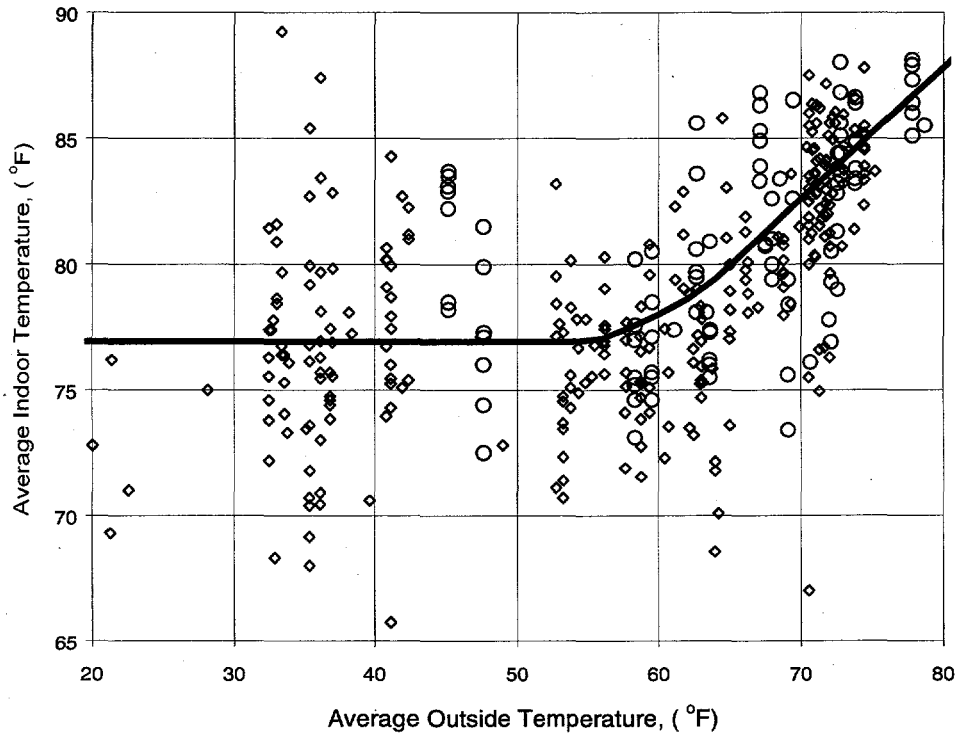

Figure 2.6. Relationship Between Kitchen and Outdoor Temperature (diamonds are metered weekly averages and circles are radiometer snapshot measurements)

temperature data used here included the snap-shot radiometer measurements made in 1996[(a)] and the detailed logger measurements made in 1997. Although there was much scatter in this data, there is a general trend toward increasing kitchen temperatures when the outdoor temperature increases above about 55°F.

The kitchen temperatures predicted by this relationship are specific to NYCHA apartments. That is, the relationship inherently includes the general size and shape, wall construction, and heating (and cooling, or lack thereof) systems incorporated in NYCHA apartment buildings. It probably also incorporates some aspects of the climate in New York City, such as the relative humidity and daily variations in outdoor temperature. So, this relationship should be used with caution outside NYCHA apartment buildings.

(a) In measurements of room temperature, snapshot scanner data correlated well with the daily averages produced from the logger data (Miller and Pratt 1998).

This relationship between kitchen and outdoor temperature was used to obtain the long-term monthly average kitchen temperatures for NYCHA apartments. This was done by obtaining long-term average monthly outdoor temperature data from the National Weather Service (see the Outdoor trace in Figure 2.7), and using the relationship of kitchen and outdoor temperatures derived from the data to predict the long-term average monthly kitchen temperatures (see Indoor trace in Figure 2.7). These 12 monthly kitchen temperatures are then averaged to produce an annual average kitchen temperature of 79.3°F in NYCHA apartments.

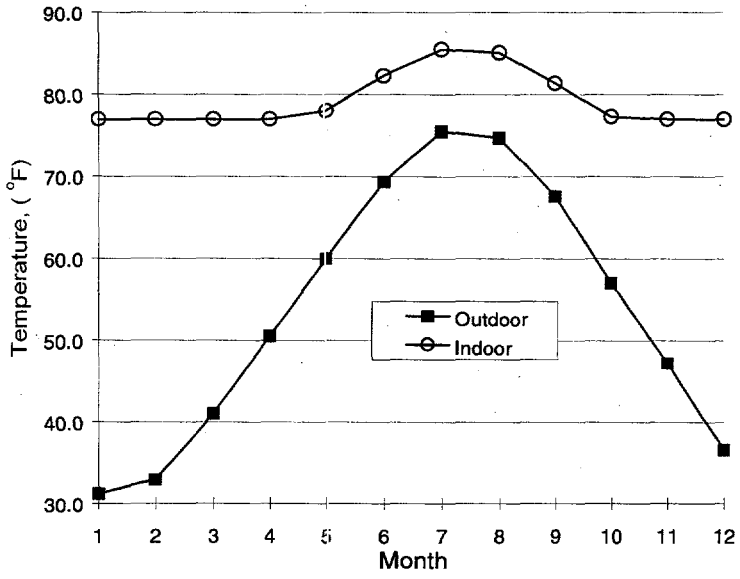

Figure 2.7. Response of Indoor Conditions to Outdoor Conditions

2.6 Refrigerator Label Ratings and Characteristics Data

To use the component models of refrigerator loads described in the previous section, the label rating, defrost type, and age of each refrigerator demanufactured by Planergy must be found. The Association of Home Appliance Manufacturers (AHAM) maintains an appliance database which lists refrigerators by brand and model, DOE-label rating,[(a)] rated volume, year of production, and defrost type (AHAM 1995). A subset of this database for refrigerators with volumes ranging from 10-ft^3 to 17-ft^3 was loaded into a

(a) For many years, manufacturers have been required to provide DOE the results of energy consumption tests conducted in an environmental chamber for use as consumer label ratings (10 CFR 430, 1995). The label rating test consists of placing the refrigerator in a chamber maintained at an elevated temperature (90°F) to simulate door openings. After repeating the test at two control settings and measuring the resulting energy consumption and freezer temperatures, the results are interpolated to estimate annual consumption at a freezer temperature of 5°F. After testing several units off the production line, the average of their annualized consumption is issued as the label rating for a given refrigerator model. DOE sets standards for maximum label ratings as a function of refrigerator volume.

spreadsheet and a system was developed to automatically seek matching or nearly matching model numbers. This spreadsheet was used to look up DOE label ratings, defrost types, and year of production for the refrigerators replaced by the program. The age of the refrigerator is then computed as the current year (1997) less the year of manufacture. These variables are used as predictors in the models used to estimate the annual energy consumption of each model refrigerator. The characteristics of each existing refrigerator model recycled by Planergy at each housing development is provided in Appendix A.

All model numbers do not appear in this database. Manufacturers use parts of model numbers to specify things like color, which side of the door is hinged, place of production, and other sub-model information. There also was a lapse in federally mandated reporting of label ratings in the late '70s, and labels were not required at all prior to 1975. Some manufacturers produce refrigerators that are essentially identical but are sold under a variety of brand names and have different model numbers. These may appear separately, or not at all, in the database. When an exact match to a given model number could not be found, near matches were examined to identify the closest probable match. For a few refrigerators (4%), no reasonable model number match could be found; these were simply left out of the weighted-average refrigerator savings estimate calculations. Both the exact model number recorded by Planergy and the identified match (labeled as "proxy") are shown in Appendix A.

Since we extrapolate the average refrigerator savings to the population of 20,000, this has the effect of treating all of them as if their consumption is that of the average refrigerator. In other words, we assume they are no better or no worse than the average refrigerator replaced.

The characteristics of the population of existing refrigerators replaced by the project in 1997 are summarized in Table 2.2. Seventy-Four percent of the refrigerators had manual defrost, and these were more common in the elderly developments. Only 5% of the population were in developments classified as elderly. The average age of the refrigerators was 13.0 years, but the 26% that had automatic defrost were much newer (5.8 years). They were also significantly larger (13.6 ft^3 compared to 12.4 ft^3). The average label for the existing refrigerators was 862 kWh/yr, and the automatic defrost refrigerators were more efficient despite their larger size, as indicated by their average label rating of 728 kWh/yr.

Table 2.2. Average Characteristics of the Population of Existing Refrigerators Replaced in 1997 by Type of Defrost

Parameter	All	Manual	Automatic
Label, kWh/yr	862	910	728
Age	13.0	15.5	5.8
Volume, ft^3	12.7	12.4	13.6
Count	14,080[(a)]	10,401	3,679
Part of total	100%	74%	26%
Elderly count	748	682	66
Part of subtotal	5%	7%	2%
(a) Model numbers were not found for about 4% of the 14,710 recycled refrigerators.			

2.7 Occupant Data

The component models of refrigerator loads described in Section 2.3 use a parameter describing whether the occupants of a housing development are predominantly elderly or not. A development is defined as elderly if the ratio of elders to the total occupants is greater than 0.25 and the total number of occupants per apartment is 2.0 or less. So, this determination must be made for each housing development whose refrigerators were replaced in 1997.

Data on the number and ages of the occupants in each development was provided by NYCHA. This included the number of apartments and the number of occupants for each of four age categories: children (0-9), teenagers (10-20), adults (21-61) and elders (62 and older). This data is summarized in Appendix B. Of the 28 developments involved in 1997, only LaGuardia, Haber, and Wise were identified as elderly.

2.8 Estimating Energy Savings

The energy saved by the project was estimated as the difference between the total consumption for the average existing refrigerator replaced, including the high duty-cycle refrigerators, and the new refrigerator. In both cases, the models of the component refrigerator loads were used to estimate the total annual load. Equation (2-3) was used to estimate the baseline load for each model of refrigerator in each housing development, based on its label, age, and whether the development was classified as elderly or not. Equation (2-4) would normally be used to compute the adjustments for the average compartment and kitchen temperatures. No such adjustments are required for NYCHA apartments since the models use NYCHA temperatures as their standard conditions. So, the temperature adjustment factor was 1.0.

Equation (2-6) was used to estimate the occupant load for each model of refrigerator in each housing development, based on its estimated baseline load, whether it had automatic or manual defrost, whether the development was classified as elderly or not, and the temperature adjustment. Then, if the refrigerator model had automatic defrost, the defrost load was estimated using Equation (2-7). The sum of these load components is the estimated total annual consumption for that refrigerator model, as in Equation (2-1).

For the existing refrigerators, the incidence of high duty cycle malfunctions and their energy impact are then included for each model of refrigerator in each development using the average age of the existing refrigerators and Equations (2-8) through (2-10). These equations compute the consumption of the high duty cycle refrigerators, their incidence, and their overall effect on the consumption of the population of existing refrigerators, respectively.

The results of these computations were then averaged across the population of refrigerators and housing developments. The population-weighted average annual consumption is then

$$\overline{E}_{total} = \sum_{j} E_{total\ @\ j} \cdot \frac{n_j}{n_{population}} \qquad (2.11)$$

where the index j indicates each model of refrigerator in each housing development, $n_{population}$ is the total number of refrigerators in the population of recycled refrigerators with known label ratings (14,080), and n_j is the number of units of the j^{th} refrigerator model in a housing development.

The estimated per-unit savings was then calculated as the difference between the average estimated consumption for the existing units and the average estimated consumption for the new units

$$E_{savings} = \overline{E}'_{total\_existing} - \overline{E}_{total\_new} \qquad (2.12)$$

where the prime in $\overline{E}'_{total\_existing}$ denotes that the total consumption of the existing refrigerators includes the high duty cycle units.

The results of these calculations are summarized in Table 2.3. This table shows subtotals for the high duty cycle, and normally functioning existing refrigerators, as well as the population-weighted blend of the two. The new refrigerators, and the difference between the existing and new refrigerators are also shown. For each of these groups of refrigerators, their proportion of the population of refrigerators replaced (20,000) is shown, along with their average label rating, the three load components, the total load, and the label ratio. The difference between the total load of the blend of existing refrigerators and the new refrigerators is the per-unit energy savings estimate for 1997: 543 kWh/yr.

Table 2.3. Energy Savings Estimate for the Population

Parameter	Existing			New	Difference
	High Duty Cycle	Normal	Blend		
Fraction of population	17%	83%	100%	100%	NA
Label, kWh/hr	862	862	862	437	425
Baseline, kWh/yr	NA	664	NA	256	NA
Occupant, kWh/yr	NA	203	NA	136	NA
Defrost, kWh/yr	NA	15	NA	28	NA
Total, kWh/yr	1351	882	963	420	543
Label ratio	1.57	1.02	1.12	0.96	0.16

2.9 Effect of Larger Volume of the New Refrigerators on Savings

The new refrigerators are significantly larger than the average replaced unit (15.0 ft^3 compared to 12.7 ft^3). This provides considerable added amenity for the residents. Because refrigerator heat loss and hence energy consumption are directly proportional to surface area, savings would be even higher if the new refrigerators were the same size as the existing units. A simple estimate of the extra energy savings

that would have occurred had the existing refrigerators been as large as the new refrigerators (based on the ratio of the volumes) is 174 kWh/yr per refrigerator.

$$\text{volume effect} = 963\left(\frac{15.0\ \text{ft}^3}{12.7\ \text{ft}^3}\right) - 963 = 174\ \text{kWh/yr} \tag{2.13}$$

2.10 Time of Peak Demand

NYPA provided 15-minute total building electric demand records for 10 NYCHA developments in July and January. These were the metered power consumption levels at 15-minute intervals. NYPA bills NYCHA for the peak demand of NYCHA developments, not at the time coincident with NYPA's peak load. Other utilities may differ in this regard. The average load shapes for the NYCHA developments for these two times of year showed that the peak load in January occurred at 7 pm, while the peak load in July occurred at 9 pm. So, the average power consumption of the refrigerators at these times of day will be used to estimate the peak demand impacts in winter and summer for the new refrigerators.

2.11 Estimate Peak Demand Savings

The refrigerators metered by NYPA in 1997 were monitored for a period of one week each between January and September. The ratio of the average consumption at any time of day and the average power consumption for the year (R) was determined from the metered data for each of 94 metered refrigerators. These refrigerator load shapes were then grouped into two seasons, winter and summer (summer dates ranged from 5/15 to 9/22), and averaged to represent the seasonal refrigerator load shape by time of day. The result is shown in Figure 2.8. When these two seasonal results are averaged together, R was estimated to be 1.095.

The peak demand for refrigerators in NYCHA apartments can then be estimated based on their annual energy consumption (E_{total}) divided by the number of hours in a year

$$P_{peak} = R_{peak}\frac{E_{annual}}{8760} \tag{2.14}$$

The resulting peak demand loads and savings for 1997 are shown in Table 2.4. The peak demand savings were estimated to be 0.068 kW (68 Watts) per unit.

Table 2.4. Energy and Demand Consumption and Savings

Refrigerator Group	Label, kWh/yr	Label Ratio	Energy, kWh/yr	Demand, kW
Existing, consumption	862	1.117	963	0.120
New, consumption	437	0.961	420	0.053
Savings			543	0.068

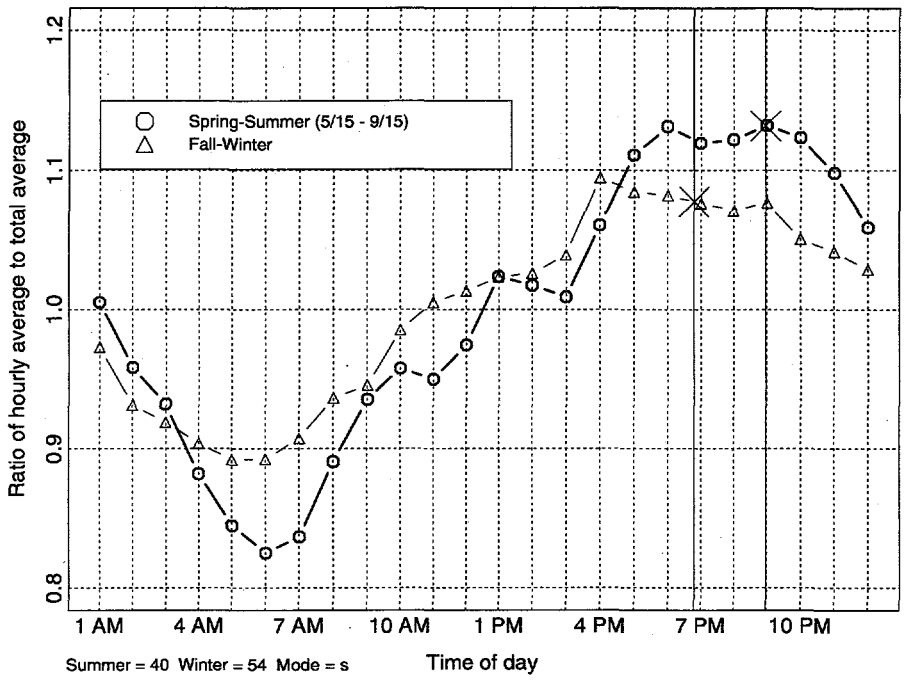

Figure 2.8. Seasonal Variations in Coincident Peak Demand

2.12 Persistence of Savings

The persistence of savings for the program should be accounted for in overall savings estimates. However, at this point there is no way to know how persistent they will be. Other studies have noted degradation of refrigerator performance over time. It seems reasonable to assume that the absolute rate of degradation is the same for the existing and replacement refrigerators. Then the difference between the consumption of the new refrigerators and the replaced refrigerators will remain constant over time, as shown in Figure 2.9.

This assumption of constant *absolute* rates of degradation corresponds to degradation modes not affected by the relative efficiency of the refrigerators, such as door seal leakage in refrigerators with similar compressor efficiency. Loss of insulation quality, compressor efficiency, or heat exchange effectiveness may be better reflected in similar *relative* degradation rates, that is, by a similar *percentage* degradation per year for both classes of refrigerator. Because the replacement refrigerators are efficient, their *absolute* degradation rate would be smaller in this case, and the slope of the degradation line for the replacement refrigerators would be lower than for the existing refrigerators.

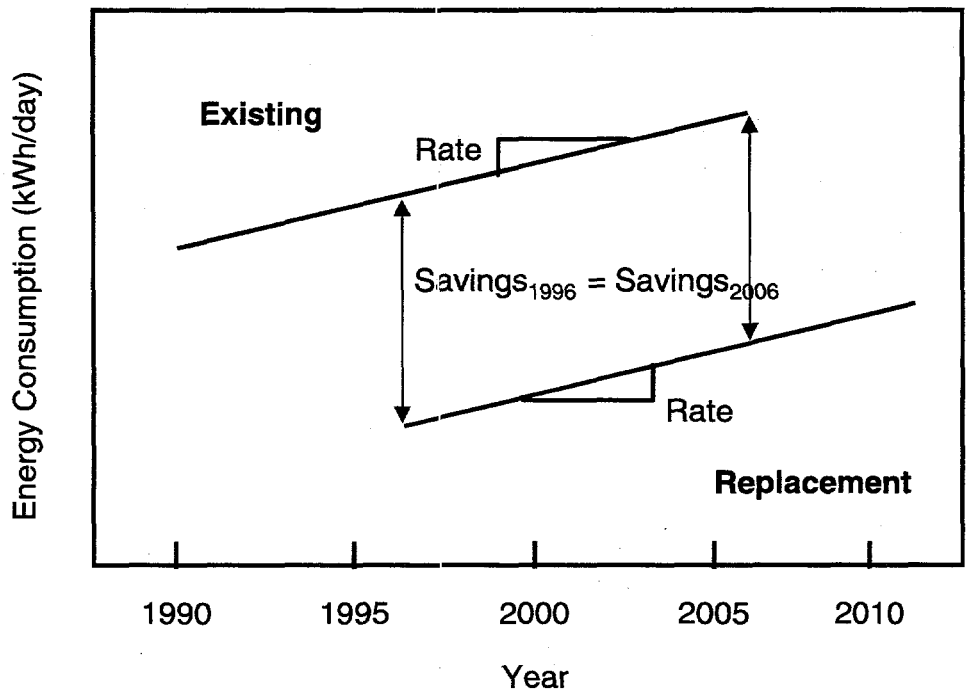

Figure 2.9. Effect of Refrigerator Performance Over Time on Savings (assuming equal absolute degradation rates)

2.13 Heating/Cooling Interactions

Because the replacement refrigerators use less energy, they will give off less heat during operation than the existing refrigerators. The impact of this reduction in operational heat would be increased winter heating loads and decreased summer cooling loads in the apartments. However, because public housing apartment temperatures are not controlled by individual thermostats, but rather are set for the building as a whole, it is unlikely that heating fuel consumption will be changed from current levels as a result of this program. Even if it did change, the boiler fuel is cheaper than the electricity saved. Since almost all NYCHA apartments are not air conditioned, there are few cooling interactions. Therefore any impacts are likely to be small, and we did not attempt an analysis of heating and cooling interactions resulting from the reduced level of heat given off by operation of the replacement refrigerators.

3.0 Conclusions

Key results of the savings analysis are summarized below.

- ***The new Maytag refrigerators generated savings of 543 kWh per year and reduced power requirements at peak demand by 0.068 kW.***

- NYPA records show ***20,000 Maytag refrigerators were delivered*** to NYCHA housing developments in 1997. Planergy shows 14,710 old refrigerators were recycled.

- ***The new refrigerators are significantly larger than the average replaced units (15.0 ft^3 compared to 12.7 ft^3).*** This provides considerable added amenity for the residents. It should be noted that savings would be even higher if the new refrigerators were the same size as the existing units. Energy consumption is not strictly linearly proportional to refrigerator size, but a simple estimate of the effect can be based on the ratio of their volumes. ***If the existing refrigerators had been as large as the new refrigerators there would have been an additional energy savings of 174 kWh/yr per refrigerator.***

- ***The apartments are very warm on average, even in winter.*** This is because the apartments do not have individual heating thermostats, and the superintendents are required to meet temperature requirements in the coldest apartments. The average indoor air temperature was about 77°F during winter months; summer temperatures rose to an average of 85.5°F in July. The savings estimates were based on ***an average annual indoor temperature of 79.3 °F.***

- ***Because heating is not individually controlled in each apartment*** (and supplied by relatively inexpensive fuel), ***and because air conditioning is not provided, heating and cooling interactions were not factored into savings estimates.***

4.0 References

Association of Home Appliance Manufacturers (AHAM). 1995. *1995 Directory of Certified Refrigerators and Freezers.*

Miller, J. D., and R. G. Pratt. 1998. *Estimates of Refrigerator Loads in Public Housing Based on Metered Consumption Data*, PNNL-11991, Pacific Northwest National Laboratory, Richland, Washington.

Pratt, R. G. and J. D. Miller. 1997. *The New York Power Authority's Energy-Efficient Refrigerator Program for the New York City Housing Authority – Savings Evaluation*, PNNL-11643, Pacific Northwest National Laboratory, Richland, Washington.

Wisniewski, E. J. and R. G. Pratt. 1997. *Impacts of CEE's 1996-1997 Super-Efficient Apartment-Sized Refrigerator Initiative.* Presented at the National Energy Program Evaluation Conference, August 29, 1997, Chicago, Illinois.

Appendix A

Characteristics of Each Refrigerator Model

Appendix A

Characteristics of Each Refrigerator Model

A summary of refrigerators replaced in 1997 is shown in Table A.1.

The count of each distinct refrigerator model removed in the 1997 project year is shown in Table A.2. The table is sorted by development, manufacturer, and model number. Models with a count of 2 or less were not identified in the label look-up process this year; some identified in last year's are shown in this table.

Table A.3 contains the same type of data, sorted by counts. It shows all models with a count of 12 or more (11183 out of 14710). The records show that a Whirlpool EET121DT to have the highest count in the 1997 population.

Note that both of these tables have data in two groups of columns. That is, the characteristics of two refrigerators are shown in each row. The rows are numbered for convenience.

Approximately 4% of the refrigerators recycled were not identified in the database. Of the 14,710 refrigerators removed, 14,080 (96%) were identified with labels. In Table A.2 the numbers in the "Model" column are the actual model numbers that Planergy identified on each refrigerator removed. If this exact model number did not appear in our database we chose the closest model from our database and used that model's consumption label rating, as well as its volume, age, and defrost characteristics. These models are listed in the "proxy" columns in Tables A.2 and A.3. If no match could be found N/A is listed in the proxy column. If only 1 or 2 refrigerators had this model number, we did not look them up for a match. These are listed as "to be done" in the proxy column. In Tables A.2 and A.3 age is expressed in years relative to 1997. For example, a refrigerator built in 1996 is 1 year old.

Please note the following abbreviations were used for the column headings in Tables A.2 and A.3:

cnt = refrigerator count
Label = DOE label rating in kWh/yr
Vol = refrigerator volumn in ft^3
Def = defrost. In this column, A = automatic defrost and P or M = manual defrost.

Table A.1. Total Counts

Development	Number of Refrigerators Removed
Albany	591
Baruch	1488
Berry	354
Betances	153
Campos	159
Chelsea	354
Clinton	654
Douglas-Add	90
Douglas-Reh	105
Gravesend	439
Haber	255
HarlemRiver	91
HighBridge	528
Hope	258
Independence	588
Isaacs	436
KingTowers	1057
LaGuardia-Add	139
Langston	460
Melrose	751
Mitchel	1355
Rangel	693
Richmond	337
Sedgwick	599
SethLow	452
Smith	1614
South Beach	315
Wise	395
Total	**14710**

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
1	Albany	1	Frigidaire	S-099PH	To Be Done	N/A	N/A	N/A	N/A	Albany	6	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M
2	Albany	1	Frigidaire	S-10J	To Be Done	N/A	N/A	N/A	N/A	Albany	50	Whirlpool	EET122DTW	EET121DT	1080	12	20	P
3	Albany	3	General Electric	SSD12CPB	SSD12CR	672	11.9	22	M	Albany	200	Whirlpool	EHT121PTN	EHT121PT	985	12	15	P
4	Albany	2	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A	Albany	1	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P
5	Albany	3	General Electric	TA10SDB	TA10DV	552	9.5	20	M	Albany	1	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A
6	Albany	1	General Electric	TA12SD	To Be Done	N/A	N/A	N/A	N/A	Albany	2	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P
7	Albany	4	General Electric	TA12SLB	TA12SR	588	11.5	22	M	Albany	7	Whirlpool	ETL11CW	ETL11C	N/A	11	N/A	N/A
8	Albany	5	General Electric	TA12SNB	TA12SR	588	11.5	22	M	Albany	1	Whirlpool	N/A	N/A	N/A	N/A	N/A	N/A
9	Albany	3	General Electric	TA12SRB	TA12SR	588	11.5	22	M	Baruch	1	Admiral	NA	To Be Done	N/A	N/A	N/A	N/A
10	Albany	4	General Electric	TA12SVB	TA12SV	564	11.5	20	M	Baruch	2	Frigidaire	GTN142WK3	GTN142*K0	828	14	6	A
11	Albany	2	General Electric	TB13SLC	TB13SLC	697	13.4	7	P	Baruch	2	General Electric	CA16DEB	To Be Done	N/A	N/A	N/A	N/A
12	Albany	1	General Electric	TB14SPC	TB14SC	1140	13.6	13	P	Baruch	3	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A
13	Albany	2	General Electric	TB14SRB	TB14SS	1308	13.6	22	P	Baruch	3	General Electric	TA10SDB	TA10DV	552	9.5	20	M
14	Albany	1	General Electric	TB14SVB	TB14SV	1044	13.6	20	P	Baruch	3	General Electric	TA11SRN	TA11SB	503	10.6	15	M
15	Albany	3	General Electric	TB14SVF	TB14SV	1044	13.6	20	P	Baruch	4	General Electric	TA12DLB	TA12ST	636	11.5	21	M
16	Albany	9	Gibson	RD12C1	RD12C1*MGA	824	12	15	P	Baruch	1	General Electric	TA12SNC	TA12SR	588	11.5	22	M
17	Albany	5	Gibson	RT12C2WS	RT12C2*S2A	814	12	10	P	Baruch	6	General Electric	TA12SPB	TA12SR	588	11.5	22	M
18	Albany	1	Gibson	RT14C2WS	RT14C2*S2B	814	14	10	P	Baruch	11	General Electric	TA12SVB	TA12SV	564	11.5	20	M
19	Albany	9	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Baruch	2	General Electric	TB12SVB	To Be Done	N/A	N/A	N/A	N/A
20	Albany	4	HotPoint	CTA13CKB	CTA13CK	735	13.4	9	P	Baruch	1	General Electric	TB14SDB	To Be Done	N/A	N/A	N/A	N/A
21	Albany	4	HotPoint	CTA14CRD	CTA14CR	1308	13.6	22	P	Baruch	4	General Electric	TB14SRB	TB14SS	1308	13.6	22	P
22	Albany	7	HotPoint	CTA15CG	CTA15CG	770	14.6	12	P	Baruch	1	General Electric	TB14STB	TB14ST	1188	13.6	21	P
23	Albany	3	HotPoint	CTA15CKB	CTA15CK	770	14.6	9	P	Baruch	1	General Electric	TB14SYC	TB14SC	1126	13.6	14	P
24	Albany	8	HotPoint	CTXY14CC	CTXY14CM	736	14.4	7	A	Baruch	1	General Electric	TB15SJC	To Be Done	N/A	N/A	N/A	N/A
25	Albany	5	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A	Baruch	1	General Electric	TB15SLB	To Be Done	N/A	N/A	N/A	N/A
26	Albany	8	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A	Baruch	1	General Electric	TB31W4G	To Be Done	N/A	N/A	N/A	N/A
27	Albany	3	HotPoint	CTXY14CWD	CTXY14CM	736	14.4	7	A	Baruch	1	General Electric	TBF14SVB	TB14SV	1044	13.6	20	P
28	Albany	3	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Baruch	2	General Electric	TBF16DYC	To Be Done	N/A	N/A	N/A	N/A
29	Albany	13	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	Baruch	1	General Electric	TBF18KMB	To Be Done	N/A	N/A	N/A	N/A
30	Albany	2	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	Baruch	1	General Electric	TFX20PMA	To Be Done	N/A	N/A	N/A	N/A
31	Albany	3	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A	Baruch	1	Gibson	N/A	N/A	N/A	N/A	N/A	N/A
32	Albany	1	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A	Baruch	13	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
33	Albany	3	Sears	106.866219	86621**	740	12	9	P	Baruch	2	Gibson	RD14C1	RD14C1*MGA	905	14	15	P
34	Albany	2	Sears	2538692390	86923*0	803	12	8	A	Baruch	1	Gibson	RD14CSW	To Be Done	N/A	N/A	N/A	N/A
35	Albany	1	Sears	2539305010	86040*1	828	14	7	A	Baruch	19	Gibson	RT12C1	RT12C1	924	12	21	P
36	Albany	1	Sears	2539305090	93050*0	828	15	6	A	Baruch	7	Gibson	RT12C2W	RT12C2*PGA	814	12	13	P
37	Albany	1	Sears	2539305396	93050*6	828	15	4	A	Baruch	1	Gibson	RT12C2WP	To Be Done	N/A	N/A	N/A	N/A
38	Albany	1	Sears	8662111	86621**	740	12	9	P	Baruch	1	Gibson	RT14C1W	RT14C1	1008	14	21	P
39	Albany	2	Sears	8662191	86621**	740	12	9	P	Baruch	1	HotPoint	CTA10DTB	To Be Done	N/A	N/A	N/A	N/A
40	Albany	3	Sears	8692211	86922**	784	11.6	8	A	Baruch	4	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
41	Albany	2	Westinghouse	ATG130WK	To Be Done	N/A	N/A	N/A	N/A	Baruch	1	HotPoint	CTA12CWB	CTA12CV	876	11.6	20	P
42	Albany	1	Westinghouse	ATG150NL	ATG150N**0	697	15	6	A	Baruch	11	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
43	Albany	4	Westinghouse	ATL130WK	ATN130*K1	810	12.6	6	A	Baruch	2	HotPoint	CTA13CJB	CTA13CJ	735	13.4	8	P
44	Albany	8	Westinghouse	ATL130WK1	ATN130*K1	810	12.6	6	A	Baruch	2	HotPoint	CTA14CRD	CTA14CR	1308	13.6	22	P
45	Albany	1	Westinghouse	ATN130WK	ATN130*K1	810	12.6	6	A	Baruch	4	HotPoint	CTA14CW	CTA14CR	1308	13.6	22	P
46	Albany	2	Westinghouse	EEL131CT	EEL131CT	540	12.9	21	M	Baruch	10	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
47	Albany	3	Westinghouse	EHT14DCX	ET14DCXL	865	14.3	14	P	Baruch	2	HotPoint	CTA15CKB	CTA15CK	770	14.6	9	P
48	Albany	7	Westinghouse	ETL11C	ETL11C	N/A	11	N/A	N/A	Baruch	1	HotPoint	CTF16CKC	To Be Done	N/A	N/A	N/A	N/A
49	Albany	22	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A	Baruch	1	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
50	Albany	1	Westinghouse	RC131LR	To Be Done	N/A	N/A	N/A	N/A	Baruch	2	HotPoint	CTX17BAYCR	To Be Done	N/A	N/A	N/A	N/A
51	Albany	2	Westinghouse	RT114LC	RT114	1067	11	12	A	Baruch	7	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A
52	Albany	86	Westinghouse	RT114LLW	RT114L	803	11	9	A	Baruch	16	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A
53	Albany	16	Westinghouse	RT123GCW	RT123GC*A	766	12	7	A	Baruch	1	HotPoint	SSD12CPB	SSD12CR	672	11.9	22	M
54	Albany	10	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	Baruch	3	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
55	Albany	3	Westinghouse	RT141GL	RT141G**A	828	14	6	A	Baruch	3	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
56	Albany	1	Westinghouse	RT143NL	To Be Done	N/A	N/A	N/A	N/A	Baruch	2	Roper	RT12VKX	RT12DK*A*0*	567	11.5	4	A
57	Albany	4	Westinghouse	RTG123GC	RT120G**1	815	12	13	P	Baruch	1	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
58	Albany	3	Westinghouse	RTG123GC	RT120G**1	815	12	13	P	Baruch	1	Sears	106.7629411	To Be Done	N/A	N/A	N/A	N/A
59	Albany	8	Westinghouse	RTG123GL	RT120G**1	815	12	13	P	Baruch	1	Sears	106.765121	7651210	540	12.4	22	M
60	Albany	1	Westinghouse	WRT15CGE	To Be Done	N/A	N/A	N/A	N/A	Baruch	5	Sears	106.86029	86040*1	828	14	7	A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
61	Baruch	1	Sears	2538604011	86040*1	828	14	7	A	Berry	5	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
62	Baruch	7	Sears	2538682190	86821*0	803	12	8	A	Berry	12	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
63	Baruch	8	Sears	2538692390	86923*0	803	12	8	A	Berry	9	HotPoint	CTXY14CME	CTXY14CM	736	14.4	7	A
64	Baruch	2	Sears	7651290	7651290	540	12.4	22	M	Berry	3	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
65	Baruch	1	Sears	765210	To Be Done	N/A	N/A	N/A	N/A	Berry	1	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A
66	Baruch	1	Sears	8364310	83643*0	785	14.3	11	P	Berry	2	Sears	106.72424	To Be Done	N/A	N/A	N/A	N/A
67	Baruch	4	Sears	8364390	83643*0	785	14.3	11	P	Berry	7	Sears	106.8692211	To Be Done	N/A	N/A	N/A	N/A
68	Baruch	1	Sears	8602010	N/A	N/A	N/A	N/A	N/A	Berry	1	Sears	2538690110	To Be Done	N/A	N/A	N/A	N/A
69	Baruch	2	Sears	8662110	86621*0	740	12	11	P	Berry	13	Westinghouse	RT114CCW	RT114	1067	11	12	A
70	Baruch	8	Sears	8662111	86621**	740	12	9	P	Berry	1	Westinghouse	RT120GL	RT120GL*3	814	12	10	P
71	Baruch	6	Sears	8662191	86621**	740	12	9	P	Berry	12	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A
72	Baruch	2	Sears	8692111	To Be Done	N/A	N/A	N/A	N/A	Berry	123	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P
73	Baruch	2	Sears	N/A	N/A	N/A	N/A	N/A	N/A	Berry	113	Whirlpool	EHT121PTWRO	EHT121PT	985	12	15	P
74	Baruch	1	Welbilt	U1100	To Be Done	N/A	N/A	N/A	N/A	Berry	27	Whirlpool	EHT12LKX	EHT121DT	845	12.4	15	P
75	Baruch	8	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	Berry	1	Whirlpool	ET12LKL	To Be Done	N/A	N/A	N/A	N/A
76	Baruch	1	Westinghouse	CTN110WK	CTN110	759	11	6	A	Berry	1	Whirlpool	ET18AK	To Be Done	N/A	N/A	N/A	N/A
77	Baruch	22	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Betances	5	Frigidaire	DA10-64LCR	D-10	660	10	20	M
78	Baruch	2	Westinghouse	MRT16CRA	To Be Done	N/A	N/A	N/A	N/A	Betances	5	General Electric	TB13SLC	TB13SLC	697	13.4	7	P
79	Baruch	1	Westinghouse	RC190RW8	To Be Done	N/A	N/A	N/A	N/A	Betances	8	General Electric	TB15SLB	To Be Done	N/A	N/A	N/A	N/A
80	Baruch	3	Westinghouse	RT114LLW	RT114L	803	11	9	A	Betances	8	HotPoint	CTA13CJC	CTA13CJ	740	13.4	10	P
81	Baruch	1	Westinghouse	RT120GL	RT120GL*3	814	12	10	P	Betances	25	HotPoint	CTA15CJC	CTA15CJ	770	14.6	10	P
82	Baruch	15	Westinghouse	RT123GL	RT123GL*A	766	12	7	A	Betances	1	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
83	Baruch	99	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Betances	7	HotPoint	CTXY14M2L	CTXY14LM	736	14.4	7	A
84	Baruch	199	Westinghouse	RT141GL	RT141G**A	828	14	6	A	Betances	1	HotPoint	SSD10CPB	To Be Done	N/A	N/A	N/A	N/A
85	Baruch	4	Westinghouse	RT143SC	RT143SC**	828	14	4	A	Betances	1	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
86	Baruch	7	Westinghouse	RT143SLW	RT143SC**	828	14	4	A	Betances	5	Sears	106.766129	7661290	540	12.9	22	M
87	Baruch	1	Westinghouse	RT186ECW	To Be Done	N/A	N/A	N/A	N/A	Betances	1	Sears	7651290	7651290	540	12.4	22	M
88	Baruch	1	Westinghouse	RTG123GL	RT120G**1	815	12	13	P	Betances	5	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
89	Baruch	66	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Betances	1	Westinghouse	N/A	N/A	N/A	N/A	N/A	N/A
90	Baruch	5	Whirlpool	EEL131CT	EEL131CT	540	12.9	21	M	Betances	2	Westinghouse	RC131RL	RC131R	564	12.5	22	M
91	Baruch	26	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Betances	5	Westinghouse	RT120GC	RT120GC*3	814	12	10	P
92	Baruch	111	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Betances	13	Westinghouse	RT141GC	RT141G**A	828	14	6	A
93	Baruch	10	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	Betances	1	Westinghouse	RT143SC	RT143SC**	828	14	4	A
94	Baruch	46	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P	Betances	24	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
95	Baruch	22	Whirlpool	EHT141DWR	EHT141DT	925	14.3	15	P	Betances	29	Whirlpool	EET122DT	EET121DT	1080	12	20	P
96	Baruch	1	Whirlpool	EHT171HK	To Be Done	N/A	N/A	N/A	N/A	Betances	1	Whirlpool	EET131DT	To Be Done	N/A	N/A	N/A	N/A
97	Baruch	1	Whirlpool	ET12AKX	ET12AKXR	859	11.6	10	A	Betances	5	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P
98	Baruch	120	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P	Campos	1	General Electric	TA12SNB	TA12SR	588	11.5	22	M
99	Baruch	293	Whirlpool	ET12CCRSW	ET12CC*S*0	740	12	10	P	Campos	2	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
100	Baruch	1	Whirlpool	ET12CXL	ET12DCXL	804	12.4	14	P	Campos	4	Gibson	RT12C1WE	RT12C1	924	12	21	P
101	Baruch	3	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A	Campos	1	Gibson	RT12CZ	To Be Done	N/A	N/A	N/A	N/A
102	Baruch	1	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Campos	1	Gibson	RT14C1W	RT14C1	1008	14	21	P
103	Baruch	58	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P	Campos	5	Gibson	RT14C2	RT14C2*PGA	903	14	13	P
104	Baruch	111	Whirlpool	ET14CCYSW	ET14CC*S*0	785	14.2	10	P	Campos	1	HotPoint	CTA12CYC	CTA12CC	977	11.8	13	P
105	Baruch	9	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Campos	1	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
106	Baruch	8	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Campos	13	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A
107	Baruch	3	Whirlpool	ET14JKY	ET14JK*A*1*	559	14.4	3	A	Campos	8	HotPoint	SSD14CYB	SSD14CB	563	13.9	15	M
108	Baruch	1	Whirlpool	ETT14DWR	To Be Done	N/A	N/A	N/A	N/A	Campos	1	Sears	2538604091	86040*1	828	14	7	A
109	Baruch	2	Whirlpool	EXT13JTW	To Be Done	N/A	N/A	N/A	N/A	Campos	1	Sears	2539305090	93050*0	828	15	6	A
110	Baruch	1	Whirlpool	RT12VKX	RT12DK*A*0*	567	11.5	4	A	Campos	2	Sears	2539305316	93053*6	828	15	4	A
111	Berry	1	Brazi	ERDB1060	To Be Done	N/A	N/A	N/A	N/A	Campos	1	Sears	2539305396	93050*6	828	15	4	A
112	Berry	1	Frigidaire	FPCI19	To Be Done	N/A	N/A	N/A	N/A	Campos	1	Westinghouse	013C71	To Be Done	N/A	N/A	N/A	N/A
113	Berry	1	General Electric	N/A	N/A	N/A	N/A	N/A	N/A	Campos	2	Westinghouse	MRT11CW	To Be Done	N/A	N/A	N/A	N/A
114	Berry	1	General Electric	TA10SBB	To Be Done	N/A	N/A	N/A	N/A	Campos	2	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
115	Berry	1	General Electric	TA12SPB	TA12SR	588	11.5	22	M	Campos	1	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
116	Berry	2	Gibson	RD14C1	RD14C1*MGA	905	14	15	P	Campos	5	Westinghouse	RT123GL	RT123GL*A	766	12	7	A
117	Berry	3	Gibson	RD14C1	RD14C1*MGA	905	14	15	P	Campos	1	Westinghouse	RT143GC	To Be Done	N/A	N/A	N/A	N/A
118	Berry	3	Gibson	RD14C2W	RD14C*MGC	905	14	14	P	Campos	2	Westinghouse	RT143SC	RT143SC**	828	14	4	A
119	Berry	4	Gibson	RT12C2W	RT12C2*PGA	814	12	13	P	Campos	7	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
120	Berry	6	Gibson	RT14C2W	RT14C2*PGA	903	14	13	P	Campos	1	Whirlpool	EET121DW	To Be Done	N/A	N/A	N/A	N/A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
121	Campos	1	Whirlpool	EET14101	To Be Done	N/A	N/A	N/A	N/A	Clinton	45	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P
122	Campos	14	Whirlpool	EHT121PT	EHT121PT	985	12	15	P	Clinton	8	Gibson	RD14C1W	RD14C1*MGA	905	14	15	P
123	Campos	42	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P	Clinton	80	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P
124	Campos	1	Whirlpool	EHT14DF	To Be Done	N/A	N/A	N/A	N/A	Clinton	34	Gibson	RT14C1WM	RT14C1*MGA	905	14	15	P
125	Campos	3	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P	Clinton	1	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
126	Campos	26	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Clinton	20	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P
127	Campos	7	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Clinton	1	HotPoint	CTA14CCB	To Be Done	N/A	N/A	N/A	N/A
128	Campos	1	Whirlpool	EXT121BT	To Be Done	N/A	N/A	N/A	N/A	Clinton	20	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
129	Chelsea	1	Frigidaire	FD-123TN	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	HotPoint	CTA15CLB	CTA15CL	770	14.6	8	P
130	Chelsea	9	General Electric	TA10DNB	TA-1ODN	552	9.5	25	M	Clinton	13	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
131	Chelsea	1	General Electric	TA12SPB	TA12SR	588	11.5	22	M	Clinton	16	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A
132	Chelsea	38	General Electric	TB14SAB	TB14SB	1046	13.6	15	P	Clinton	29	HotPoint	CTXY14CPB	CTXY14CP	733	14.4	6	A
133	Chelsea	1	General Electric	TBF14DRP	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	HotPoint	SSD10CL	To Be Done	N/A	N/A	N/A	N/A
134	Chelsea	1	General Electric	TFB16DKB	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	HotPoint	SSD14CBR	To Be Done	N/A	N/A	N/A	N/A
135	Chelsea	1	General Electric	TFF22DMC	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	Norge	N/A	N/A	N/A	N/A	N/A	N/A
136	Chelsea	3	Gibson	RD12C1	RD12C1*MGA	824	12	15	P	Clinton	20	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
137	Chelsea	20	HotPoint	CTA12CAB	CTA12CB	965	11.8	15	P	Clinton	5	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
138	Chelsea	76	HotPoint	CTA12CYD	CTA12CC	977	11.8	13	P	Clinton	2	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A
139	Chelsea	25	HotPoint	CTA15CJC	CTA15CJ	770	14.6	10	P	Clinton	18	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A
140	Chelsea	1	HotPoint	CTA15CJP	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	Sanyo	NA	To Be Done	N/A	N/A	N/A	N/A
141	Chelsea	6	HotPoint	CTACYD	N/A	N/A	N/A	N/A	N/A	Clinton	1	Sears	2537694293	76942*3	N/A	14	N/A	A
142	Chelsea	11	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A	Clinton	1	Sears	2537694294	To Be Done	N/A	N/A	N/A	N/A
143	Chelsea	1	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A	Clinton	1	Sears	2538604011	86040*1	828	14	7	A
144	Chelsea	5	HotPoint	CTXY14CWD	CTXY14CM	736	14.4	7	A	Clinton	1	Sears	2538604091	86040*1	828	14	7	A
145	Chelsea	1	HotPoint	CTXY14XYS	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	Sears	2539305010	86040*1	828	14	7	A
146	Chelsea	3	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Clinton	1	Sears	2539305090	93050*0	828	15	6	A
147	Chelsea	5	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Clinton	1	Sears	7651210	7651210	540	12.4	22	M
148	Chelsea	3	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	Clinton	7	Sears	8602090	N/A	N/A	N/A	N/A	N/A
149	Chelsea	10	Roper	RT14SKX	RT14DK*Y*0*	686	14.3	5	A	Clinton	1	Sears	N/A	N/A	N/A	N/A	N/A	N/A
150	Chelsea	2	Sears	2539305396	93050*6	828	15	4	A	Clinton	5	Westinghouse	ATG150N	ATG150N**2	697	15	5	A
151	Chelsea	1	Sears	7651290	7651290	540	12.4	22	M	Clinton	6	Westinghouse	CTL110WK	N/A	N/A	N/A	N/A	N/A
152	Chelsea	1	Unknown	AM/321	To Be Done	N/A	N/A	N/A	N/A	Clinton	4	Westinghouse	CTN110WK	CTN110	759	11	6	A
153	Chelsea	1	Westinghouse	20	To Be Done	N/A	N/A	N/A	N/A	Clinton	55	Westinghouse	MRT15CNBZ1	MRT15CNB**	624	15	3	A
154	Chelsea	1	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	Clinton	1	Westinghouse	MRT15CNC	MRT15CNB**	624	15	3	A
155	Chelsea	3	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Clinton	1	Westinghouse	RT114RL	RT114	1067	11	12	A
156	Chelsea	1	Westinghouse	RNC13RW1	To Be Done	N/A	N/A	N/A	N/A	Clinton	4	Westinghouse	RT120GL	RT120GL*3	814	12	10	P
157	Chelsea	27	Westinghouse	RT120GCW	RT120G**1	815	12	13	P	Clinton	2	Westinghouse	RT140LL	To Be Done	N/A	N/A	N/A	N/A
158	Chelsea	5	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Clinton	12	Westinghouse	RT141GL	RT141G**A	828	14	6	A
159	Chelsea	6	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Clinton	2	Westinghouse	RT143SCW	RT143SC**	828	14	4	A
160	Chelsea	6	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M	Clinton	6	Westinghouse	RTG123GC	RT120G**1	815	12	13	P
161	Chelsea	29	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Clinton	68	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
162	Chelsea	2	Whirlpool	ET12LKY	ET12LK*W*0*	784	11.6	8	A	Clinton	9	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M
163	Chelsea	34	Whirlpool	ET14JKX	ET14JK*A*1*	559	14.4	3	A	Clinton	40	Whirlpool	EET122DTW	EET121DT	1080	12	20	P
164	Chelsea	13	Whirlpool	ET14JKY	ET14JK*A*1*	559	14.4	3	A	Clinton	1	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P
165	Clinton	1	Frigidaire	S-10K	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P
166	Clinton	1	General Electric	NA	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A
167	Clinton	3	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A	Clinton	10	Whirlpool	ET12LKY	ET12LK*W*0*	784	11.6	8	A
168	Clinton	2	General Electric	TA10SDB	TA10DV	552	9.5	20	M	Clinton	31	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
169	Clinton	4	General Electric	TA11SBP	TA11SB	503	10.6	15	M	Clinton	1	Whirlpool	ET12PCY	ET12PCXL	885	12	14	P
170	Clinton	2	General Electric	TA12SNB	TA12SR	588	11.5	22	M	Clinton	3	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P
171	Clinton	3	General Electric	TA12SPB	TA12SR	588	11.5	22	M	Clinton	11	Whirlpool	ET14CCY	ET14CC*S*0	785	14.2	10	P
172	Clinton	1	General Electric	TB12SLB	TB12SB	965	11.8	15	P	Clinton	12	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
173	Clinton	2	General Electric	TB12SWB	To Be Done	N/A	N/A	N/A	N/A	Clinton	1	Whirlpool	RC131LRW	To Be Done	N/A	N/A	N/A	N/A
174	Clinton	2	General Electric	TB13SGD	TB13SG	740	13.4	12	P	Douglas-Add	1	General Electric	N/A	N/A	N/A	N/A	N/A	N/A
175	Clinton	7	General Electric	TB14SNB	TB14SB	1046	13.6	15	P	Douglas-Add	7	General Electric	TA12SNC	TA12SR	588	11.5	22	M
176	Clinton	1	General Electric	TB14SPB	TB14SB	1046	13.6	15	P	Douglas-Add	6	Gibson	RD12C1WMGE	RD12C1*MGE	824	12	14	P
177	Clinton	1	General Electric	TB14SSD	TB14SS	1308	13.6	22	P	Douglas-Add	3	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P
178	Clinton	3	General Electric	TB14SVF	TB14SV	1044	13.6	20	P	Douglas-Add	2	HotPoint	CTA15GC	CTA15CG	770	14.6	11	P
179	Clinton	1	General Electric	TB14SYC	TB14SC	1126	13.6	14	P	Douglas-Add	1	HotPoint	CTXY14CPQR	To Be Done	N/A	N/A	N/A	N/A
180	Clinton	1	General Electric	TB15SGB	TB15SG	770	14.6	10	P	Douglas-Add	2	Roper	RT14DCYVW11	To Be Done	N/A	N/A	N/A	N/A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
181	Douglas-Add	8	Westinghouse	RT120G	RT120G1	814	12	11	P	Gravesend	1	Whirlpool	EAT151PKY	To Be Done	N/A	N/A	N/A	N/A
182	Douglas-Add	1	Westinghouse	WRT15CGAZO	WRT15CGA**	624	15	4	A	Gravesend	12	Whirlpool	EHT121PTA	EHT121PT	985	12	15	P
183	Douglas-Add	3	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M	Gravesend	126	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P
184	Douglas-Add	20	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Gravesend	15	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P
185	Douglas-Add	19	Whirlpool	EHT-141DT	EHT141DT	925	14.3	15	P	Gravesend	4	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
186	Douglas-Add	16	Whirlpool	ET12CCLSWOO	ET12CC*W*0*	732	12	7	P	Gravesend	2	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P
187	Douglas-Add	1	Whirlpool	N/A	N/A	N/A	N/A	N/A	N/A	Haber	1	General Electric	TBX18DGB	To Be Done	N/A	N/A	N/A	N/A
188	Douglas-Reh	1	General Electric	TA10DLB	TA-10DL	N/A	9.5	N/A	N/A	Haber	1	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P
189	Douglas-Reh	1	General Electric	TA12SNB	TA12SR	588	11.5	22	M	Haber	1	Gibson	RD12C2W	To Be Done	N/A	N/A	N/A	N/A
190	Douglas-Reh	32	Gibson	RT12C1WM	RT12C1*MGA	824	12	15	P	Haber	3	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P
191	Douglas-Reh	8	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Haber	1	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P
192	Douglas-Reh	1	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A	Haber	2	Gibson	RT14C1W	RT14C1	1008	14	21	P
193	Douglas-Reh	2	Sears	8602010	To Be Done	N/A	N/A	N/A	N/A	Haber	1	HotPoint	CTX14CMC	To Be Done	N/A	N/A	N/A	N/A
194	Douglas-Reh	1	Sears	2539305316	93053*6	828	15	4	A	Haber	1	HotPoint	SSD12CLF	SSD12CR	672	11.9	22	M
195	Douglas-Reh	1	Welbilt	W-320	To Be Done	N/A	N/A	N/A	N/A	Haber	1	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
196	Douglas-Reh	45	Westinghouse	RT120GL	RT120GL*3	814	12	10	P	Haber	1	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
197	Douglas-Reh	1	Westinghouse	RT140GL	RT140GL*3	903	14	10	P	Haber	1	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A
198	Douglas-Reh	1	Westinghouse	RT141GL	RT141G**A	828	14	6	A	Haber	2	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A
199	Douglas-Reh	1	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Haber	1	Westinghouse	RT123GL	RT123GL*A	766	12	7	A
200	Douglas-Reh	10	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Haber	236	Whirlpool	EET122DTW	EET121DT	1080	12	20	P
201	Gravesend	1	Admiral	T1354	To Be Done	N/A	N/A	N/A	N/A	Haber	1	Whirlpool	ET12AKX	ET12AKXR	859	11.6	10	A
202	Gravesend	1	Frigidaire	FCD-123THG	To Be Done	N/A	N/A	N/A	N/A	Haber	1	Whirlpool	ET14JKY	ET14JK*A*1*	559	14.4	3	A
203	Gravesend	1	General Electric	TA12SLB	TA12SR	588	11.5	22	M	HarlemRiver	5	General Electric	TA12SRB	TA12SR	588	11.5	22	M
204	Gravesend	1	General Electric	TB13SGD	TB13SG	740	13.4	12	P	HarlemRiver	32	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P
205	Gravesend	1	General Electric	TB305YFW	To Be Done	N/A	N/A	N/A	N/A	HarlemRiver	1	HotPoint	CTF21CPB	To Be Done	N/A	N/A	N/A	N/A
206	Gravesend	2	Gibson	RD14C1W	RD14C1*MGA	905	14	15	P	HarlemRiver	3	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A
207	Gravesend	7	Gibson	RT12C2W	RT12C2*PGA	814	12	13	P	HarlemRiver	2	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
208	Gravesend	4	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P	HarlemRiver	1	Sears	106.76533	To Be Done	N/A	N/A	N/A	N/A
209	Gravesend	9	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P	HarlemRiver	20	Westinghouse	RT123GLW	RT123GL*A	766	12	7	A
210	Gravesend	10	HotPoint	CTA15CJC	CTA15CJ	770	14.6	10	P	HarlemRiver	25	Westinghouse	RT141GLW	RT141G**A	828	14	6	A
211	Gravesend	7	HotPoint	CTF14EVE	CTF14EV	1278	14.2	20	A	HarlemRiver	2	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M
212	Gravesend	1	HotPoint	CTF15EBF	To Be Done	N/A	N/A	N/A	N/A	HighBridge	1	Avanti	750RWT	To Be Done	N/A	N/A	N/A	N/A
213	Gravesend	3	HotPoint	CTX14CPG	CTX14CP	733	14.4	6	A	HighBridge	1	General Electric	CA12CSB	To Be Done	N/A	N/A	N/A	N/A
214	Gravesend	2	HotPoint	CTXY14CMD	CTXY14CM	736	14.4	7	A	HighBridge	1	General Electric	LMCINOL	To Be Done	N/A	N/A	N/A	N/A
215	Gravesend	1	HotPoint	SSD11CKB	To Be Done	N/A	N/A	N/A	N/A	HighBridge	1	General Electric	TA10SCB	To Be Done	N/A	N/A	N/A	N/A
216	Gravesend	1	Kel	756-1R	To Be Done	N/A	N/A	N/A	N/A	HighBridge	4	General Electric	TA12SRB	TA12SR	588	11.5	22	M
217	Gravesend	1	Magic	RB15BA1	To Be Done	N/A	N/A	N/A	N/A	HighBridge	2	General Electric	TB13SLC	TB13SLC	697	13.4	7	P
218	Gravesend	1	Mistery	KNT1697XCE	To Be Done	N/A	N/A	N/A	N/A	HighBridge	1	General Electric	TB15SLB	To Be Done	N/A	N/A	N/A	N/A
219	Gravesend	3	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	HighBridge	1	General Electric	TBF16SRR	To Be Done	N/A	N/A	N/A	N/A
220	Gravesend	5	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	HighBridge	6	General Electric	TBX12SNT	TBX12SNS	571	11.6	4	A
221	Gravesend	14	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A	HighBridge	3	Gibson	RD14C1W	RD14C1*MGA	905	14	15	P
222	Gravesend	2	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A	HighBridge	1	Gibson	RT14C1W	RT14C1	1008	14	21	P
223	Gravesend	2	Roper	RT14HDY	To Be Done	N/A	N/A	N/A	N/A	HighBridge	1	HotPoint	CTA12CAB	CTA12CB	965	11.8	15	P
224	Gravesend	3	Sears	106-8662191	86621**	740	12	9	P	HighBridge	1	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
225	Gravesend	4	Sears	2539305316	93053*6	828	15	4	A	HighBridge	3	HotPoint	CTA15CLB	CTA15CL	770	14.6	8	P
226	Gravesend	1	Sears	7673161	To Be Done	N/A	N/A	N/A	N/A	HighBridge	1	HotPoint	CTXY14CPB	CTXY14CP	733	14.4	6	A
227	Gravesend	5	Sears	8662111	86621**	740	12	9	P	HighBridge	6	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A
228	Gravesend	11	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	HighBridge	8	HotPoint	CTXY14CW	CTXY14CM	736	14.4	7	A
229	Gravesend	21	Westinghouse	ATG150NL	ATG150N**0	697	15	6	A	HighBridge	1	HotPoint	N/A	N/A	N/A	N/A	N/A	N/A
230	Gravesend	7	Westinghouse	CTTN110WK-1	CTN110	759	11	6	A	HighBridge	10	Roper	RT12DCR	RT12DC*W*0*	784	11.6	6	A
231	Gravesend	1	Westinghouse	GTN142WK3	GTN142*K0	828	14	6	A	HighBridge	12	Roper	RT12DEL	RT12DC*W*0*	784	11.6	7	A
232	Gravesend	22	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A	HighBridge	11	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
233	Gravesend	11	Westinghouse	MRT15CRA	MRT15CRA**	563	15	4	A	HighBridge	1	Roper	RT12VKX	RT12DK*A*0*	567	11.5	4	A
234	Gravesend	1	Westinghouse	RT114LLW	RT114L	803	11	9	A	HighBridge	6	Roper	RT14DKX/134	RT14DK*W*0*	851	14.1	7	A
235	Gravesend	59	Westinghouse	RT120GCW	RT120G**1	815	12	13	P	HighBridge	1	Sears	106.8602011	To Be Done	N/A	N/A	N/A	N/A
236	Gravesend	17	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	HighBridge	1	Sears	25386623	To Be Done	N/A	N/A	N/A	N/A
237	Gravesend	11	Westinghouse	RT141GL	RT141G**A	828	14	6	A	HighBridge	1	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
238	Gravesend	1	Westinghouse	RT143GLW	RT143G**1	978	14	13	A	HighBridge	25	Westinghouse	MRT11CRA	MRT11CRB**	558	11.2	3	A
239	Gravesend	5	Westinghouse	RTG123GL	RT120G**1	815	12	13	P	HighBridge	1	Westinghouse	MRTCRB	To Be Done	N/A	N/A	N/A	N/A
240	Gravesend	19	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	HighBridge	1	Westinghouse	RT114LCW	RT114	1067	11	12	A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
241	HighBridge	6	Westinghouse	RT123GCW	RT123GC*A	766	12	7	A	Independence	1	Frigidaire	FPC1-17OT	To Be Done	N/A	N/A	N/A	N/A
242	HighBridge	2	Westinghouse	RT123GLW	RT123GL*A	766	12	7	A	Independence	1	General Electric	TA12SNB	TA12SR	588	11.5	22	M
243	HighBridge	6	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Independence	2	General Electric	TA12SPB	TA12SR	588	11.5	22	M
244	HighBridge	13	Westinghouse	RT141GLW	RT141G**A	828	14	6	A	Independence	2	General Electric	TB13SL	TB13SL	735	13.4	7	P
245	HighBridge	1	Westinghouse	RT143SCW	RT143SC**	828	14	4	A	Independence	1	General Electric	TB14SSF	TB14SS	1308	13.6	22	P
246	HighBridge	1	Westinghouse	RTG123LW	To Be Done	N/A	N/A	N/A	N/A	Independence	1	General Electric	TB14SVC	TB14SV	1044	13.6	20	P
247	HighBridge	1	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Independence	1	General Electric	TB14SYC	TB14SC	1126	13.6	14	P
248	HighBridge	237	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Independence	1	General Electric	TBF12DLC	To Be Done	N/A	N/A	N/A	N/A
249	HighBridge	5	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A	Independence	1	General Electric	TBF12DMC	To Be Done	N/A	N/A	N/A	N/A
250	HighBridge	140	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Independence	2	General Electric	TBF14STB	To Be Done	N/A	N/A	N/A	N/A
251	HighBridge	3	Whirlpool	ET14DC1	ET14DC1M	785	14.3	12	P	Independence	1	General Electric	TBF16DJB	To Be Done	N/A	N/A	N/A	N/A
252	Hope	1	Frigidaire	GTN142WK	To Be Done	N/A	N/A	N/A	N/A	Independence	1	General Electric	TBF16ZJC	To Be Done	N/A	N/A	N/A	N/A
253	Hope	1	General Electric	N/A	N/A	N/A	N/A	N/A	N/A	Independence	1	General Electric	TBF17DAB	To Be Done	N/A	N/A	N/A	N/A
254	Hope	1	General Electric	TA10DNB	TA-1ODN	552	9.5	25	M	Independence	1	General Electric	TBF18DRP	To Be Done	N/A	N/A	N/A	N/A
255	Hope	1	General Electric	TA11SAB	TA11SA	N/A	10.6	N/A	M	Independence	1	General Electric	TBF21ZYB	To Be Done	N/A	N/A	N/A	N/A
256	Hope	1	General Electric	TA12SLB	TA12SR	588	11.5	22	M	Independence	1	General Electric	TBX18PHB	To Be Done	N/A	N/A	N/A	N/A
257	Hope	1	General Electric	TA12SPB	TA12SR	588	11.5	22	M	Independence	1	General Electric	TFF19DRC	To Be Done	N/A	N/A	N/A	N/A
258	Hope	6	General Electric	TA12STB	TA12ST	636	11.5	21	M	Independence	4	Gibson	RD14C2	RD14C2*PGA	903	14	13	P
259	Hope	2	General Electric	TB13SGD	TB13SG	740	13.4	12	P	Independence	4	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P
260	Hope	1	General Electric	TB14SSB	To Be Done	N/A	N/A	N/A	N/A	Independence	11	Gibson	RT12C2	RT12C2*PGA	814	12	13	P
261	Hope	1	General Electric	TB14SVD	TB14SV	1044	13.6	20	P	Independence	1	Gibson	RT14C1	RT14C1	1008	14	21	P
262	Hope	1	General Electric	TB15SGB	TB15SG	770	14.6	10	P	Independence	1	Gibson	RT14C1	RT14C1	1008	14	21	P
263	Hope	2	General Electric	TB15SJC	To Be Done	N/A	N/A	N/A	N/A	Independence	1	HotPoint	134/ACTH14CY	To Be Done	N/A	N/A	N/A	N/A
264	Hope	87	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Independence	1	HotPoint	CTA12CYC	CTA12CC	977	11.8	13	P
265	Hope	18	Gibson	RT14C1	RT14C1	1008	14	21	P	Independence	10	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
266	Hope	2	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P	Independence	3	HotPoint	CTA13CJC	CTA13CJ	740	13.4	10	P
267	Hope	3	HotPoint	CTA12CCB	CTA12CC	965	11.8	14	P	Independence	3	HotPoint	CTA13CKB	CTA13CK	735	13.4	9	P
268	Hope	14	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P	Independence	1	HotPoint	CTA14CRN	CTA14CR	1308	13.6	22	P
269	Hope	1	HotPoint	CTH14CYX/134A	To Be Done	N/A	N/A	N/A	N/A	Independence	2	HotPoint	CTA15CLB	CTA15CL	770	14.6	8	P
270	Hope	7	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A	Independence	7	HotPoint	CTF14CKC	CTF14CK	1111	14.2	9	A
271	Hope	1	HotPoint	CTXY14CPB	CTXY14CP	733	14.4	6	A	Independence	1	HotPoint	CTF14EWB	To Be Done	N/A	N/A	N/A	N/A
272	Hope	1	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A	Independence	14	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A
273	Hope	1	HotPoint	N/A	N/A	N/A	N/A	N/A	N/A	Independence	4	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
274	Hope	1	HotPoint	SSD11CGB	To Be Done	N/A	N/A	N/A	N/A	Independence	3	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
275	Hope	1	Philco	RD14M2	To Be Done	N/A	N/A	N/A	N/A	Independence	1	Roper	RT12VKX	RT12DK*A*0*	567	11.5	4	A
276	Hope	1	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Independence	2	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
277	Hope	2	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	Independence	1	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A
278	Hope	1	Sears	2539305316	93053*6	828	15	4	A	Independence	1	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A
279	Hope	3	Sears	2539305396	93050*6	828	15	4	A	Independence	2	Sears	106.8662111	To Be Done	N/A	N/A	N/A	N/A
280	Hope	5	Sears	N/A	N/A	N/A	N/A	N/A	N/A	Independence	3	Sears	106-7695210	7695210	N/A	15.1	N/A	A
281	Hope	1	Welbilt	W8210	To Be Done	N/A	N/A	N/A	N/A	Independence	1	Sears	2538604090	86040*0	N/A	14	N/A	A
282	Hope	2	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	Independence	2	Sears	2538604091	86040*1	828	14	7	A
283	Hope	4	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A	Independence	1	Sears	2539305010	86040*1	828	14	7	A
284	Hope	8	Westinghouse	MRT15CNC	MRT15CNB**	624	15	3	A	Independence	2	Sears	2539305316	93053*6	828	15	4	A
285	Hope	1	Westinghouse	RT114LLW	RT114L	803	11	9	A	Independence	13	Sears	5648660211	8660210	725	10	11	A
286	Hope	7	Westinghouse	RT123GL	RT123GL*A	766	12	7	A	Independence	10	Sears	8660211	8660210	725	10	11	A
287	Hope	1	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	Independence	5	Sears	8662191	86621**	740	12	9	P
288	Hope	9	Westinghouse	RT141GLW	RT141G**A	828	14	6	A	Independence	1	Unknown	1/GT15A6	To Be Done	N/A	N/A	N/A	N/A
289	Hope	5	Westinghouse	RT143NC	RT143N**A	828	14	6	A	Independence	1	Unknown	1114FS	To Be Done	N/A	N/A	N/A	N/A
290	Hope	5	Westinghouse	RT143SLW	RT143SC**	828	14	4	A	Independence	1	Unknown	ERT-1340	To Be Done	N/A	N/A	N/A	N/A
291	Hope	10	Westinghouse	RTG123GC	RT120G**1	815	12	13	P	Independence	1	Unknown	R1317GA	To Be Done	N/A	N/A	N/A	N/A
292	Hope	5	Westinghouse	TR114LC	RT114L	803	11	9	A	Independence	1	Unknown	Ra12cn-1ml	RA12C*-1M*	740	12.2	13	M
293	Hope	2	Westinghouse	WRT150GAZ	WRT15CGA**	624	15	4	A	Independence	1	Welbilt	w320T	To Be Done	N/A	N/A	N/A	N/A
294	Hope	3	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Independence	2	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
295	Hope	2	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Independence	1	Westinghouse	Ctn110wk	CTN110	759	11	6	A
296	Hope	13	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Independence	5	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
297	Hope	1	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P	Independence	5	Westinghouse	RT114LC	RT114	1067	11	12	A
298	Hope	5	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Independence	1	Westinghouse	RT120GLW	RT120G**1	815	12	13	P
299	Hope	3	Whirlpool	ET14JKX	ET14JK*A*1*	559	14.4	3	A	Independence	1	Westinghouse	RT120RR	To Be Done	N/A	N/A	N/A	N/A
300	Hope	3	Whirlpool	ETL11CW	ETL11C	N/A	11	N/A	N/A	Independence	1	Westinghouse	RT140LL	To Be Done	N/A	N/A	N/A	N/A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
301	Independence	13	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Isaacs	3	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P
302	Independence	3	Westinghouse	RT141GL	RT141G**A	828	14	6	A	Isaacs	20	Whirlpool	ET140TWR	ET14CKXM	874	14.1	13	A
303	Independence	3	Westinghouse	RT143SL	RT143SC**	828	14	4	A	Isaacs	4	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
304	Independence	1	Westinghouse	RT181TC	To Be Done	N/A	N/A	N/A	N/A	KingTowers	1	Amana	TL-18G	To Be Done	N/A	N/A	N/A	N/A
305	Independence	9	Westinghouse	RTG123GC	RT120G**1	815	12	13	P	KingTowers	1	Frigidaire	D-100N	To Be Done	N/A	N/A	N/A	N/A
306	Independence	16	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	KingTowers	1	Frigidaire	FPES19TFL	To Be Done	N/A	N/A	N/A	N/A
307	Independence	204	Whirlpool	EET122DT	EET121DT	1080	12	20	P	KingTowers	3	Frigidaire	GTN142WK3	GTN142*K0	828	14	6	A
308	Independence	41	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	KingTowers	2	Frigidaire	N/A	N/A	N/A	N/A	N/A	N/A
309	Independence	75	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P	KingTowers	1	Frigidaire	UFD-156N	To Be Done	N/A	N/A	N/A	N/A
310	Independence	3	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P	KingTowers	1	General Electric	TA10DEB	To Be Done	N/A	N/A	N/A	N/A
311	Independence	29	Whirlpool	ET12DCX	ET12DCXL	804	12.4	14	P	KingTowers	3	General Electric	TA10DRB	TA10DR	552	9.5	22	M
312	Independence	26	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	KingTowers	1	General Electric	TA10DVB	To Be Done	N/A	N/A	N/A	N/A
313	Independence	8	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P	KingTowers	1	General Electric	TA10DWC	To Be Done	N/A	N/A	N/A	N/A
314	Isaacs	2	Frigidaire	N/A	N/A	N/A	N/A	N/A	N/A	KingTowers	2	General Electric	TA10SBB	To Be Done	N/A	N/A	N/A	N/A
315	Isaacs	1	Frigidaire	RPI-152TT	To Be Done	N/A	N/A	N/A	N/A	KingTowers	2	General Electric	TA10SCB	To Be Done	N/A	N/A	N/A	N/A
316	Isaacs	1	General Electric	N/A	N/A	N/A	N/A	N/A	N/A	KingTowers	1	General Electric	TA10SDB	TA10DV	552	9.5	20	M
317	Isaacs	1	General Electric	TA10DEB	To Be Done	N/A	N/A	N/A	N/A	KingTowers	2	General Electric	TA10SPB	To Be Done	N/A	N/A	N/A	N/A
318	Isaacs	1	General Electric	TA10DRB	TA10DR	552	9.5	22	M	KingTowers	1	General Electric	TA12CWB	To Be Done	N/A	N/A	N/A	N/A
319	Isaacs	6	General Electric	TA12SNC	TA12SR	588	11.5	22	M	KingTowers	7	General Electric	TA12SEB	TA12ST	636	11.5	21	M
320	Isaacs	1	General Electric	TA12SPB	TA12SR	588	11.5	22	M	KingTowers	7	General Electric	TA12SLB	TA12SR	588	11.5	22	M
321	Isaacs	21	General Electric	TB13SGD	TB13SG	740	13.4	12	P	KingTowers	4	General Electric	TA12SNB	TA12SR	588	11.5	22	M
322	Isaacs	1	General Electric	TB14SVD	TB14SV	1044	13.6	20	P	KingTowers	4	General Electric	TA12SNC	TA12SR	588	11.5	22	M
323	Isaacs	1	General Electric	TB14SYB	To Be Done	N/A	N/A	N/A	N/A	KingTowers	6	General Electric	TA12SRB	TA12SR	588	11.5	22	M
324	Isaacs	1	General Electric	TB14SYC	TB14SC	1126	13.6	14	P	KingTowers	3	General Electric	TB13SPC	TB13SP	697	13.4	6	P
325	Isaacs	1	General Electric	TB15SEC	To Be Done	N/A	N/A	N/A	N/A	KingTowers	5	General Electric	TB14SSD	TB14SS	1308	13.6	22	P
326	Isaacs	1	General Electric	TB15SGB	TB15SG	770	14.6	10	P	KingTowers	3	General Electric	TB15SJB	TB15SJ	770	14.6	10	P
327	Isaacs	1	General Electric	TBF16SJC	To Be Done	N/A	N/A	N/A	N/A	KingTowers	9	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
328	Isaacs	5	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P	KingTowers	14	Gibson	RD14C1	RD14C1*MGA	905	14	15	P
329	Isaacs	1	Gibson	RD14C1	RD14C1*MGA	905	14	15	P	KingTowers	23	Gibson	RD14C1W	RD14C1*MGA	905	14	15	P
330	Isaacs	4	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	KingTowers	87	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P
331	Isaacs	8	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	KingTowers	15	Gibson	RT14C1W	RT14C1	1008	14	21	P
332	Isaacs	1	HotPoint	CTA14CBC	CTA14CB	1046	13.6	15	P	KingTowers	1	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
333	Isaacs	2	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A	KingTowers	4	HotPoint	CTA12CYD	CTA12CC	977	11.8	13	P
334	Isaacs	2	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A	KingTowers	7	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
335	Isaacs	4	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A	KingTowers	5	HotPoint	CTA14AUP	CTA14CR	1308	13.6	22	P
336	Isaacs	1	HotPoint	EV12ARB	To Be Done	N/A	N/A	N/A	N/A	KingTowers	5	HotPoint	CTA14CBD	CTA14CB	1046	13.6	15	P
337	Isaacs	8	HotPoint	SSD12CVC	SSD12CV	588	11.9	20	M	KingTowers	3	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
338	Isaacs	1	HotPoint	TBXY142P	To Be Done	N/A	N/A	N/A	N/A	KingTowers	2	HotPoint	CTF14CKC	CTF14CK	1111	14.2	9	A
339	Isaacs	1	Norge	UFX1640	To Be Done	N/A	N/A	N/A	N/A	KingTowers	3	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
340	Isaacs	1	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	KingTowers	12	HotPoint	CTXY14CMD	CTXY14CM	736	14.4	7	A
341	Isaacs	1	Roper	RT14DKX/134A	To Be Done	N/A	N/A	N/A	N/A	KingTowers	4	HotPoint	CTXY14CME	CTXY14CM	736	14.4	7	A
342	Isaacs	1	Sanyo	SR1120	To Be Done	N/A	N/A	N/A	N/A	KingTowers	1	HotPoint	CTXY14CPB	CTXY14CP	733	14.4	6	A
343	Isaacs	1	Sears	106.8692291	To Be Done	N/A	N/A	N/A	N/A	KingTowers	5	HotPoint	CTXY14RCG	CTXY14CM	736	14.4	7	A
344	Isaacs	1	Sears	8559281	To Be Done	N/A	N/A	N/A	N/A	KingTowers	1	HotPoint	SSD12CVC	SSD12CV	588	11.9	20	M
345	Isaacs	3	Sears	N/A	N/A	N/A	N/A	N/A	N/A	KingTowers	1	Kel	TPX140MN	To Be Done	N/A	N/A	N/A	N/A
346	Isaacs	1	Summit	CP-85	To Be Done	N/A	N/A	N/A	N/A	KingTowers	3	MagicChef	RB15EN	RB15E*-2A	1022	14.6	12	A
347	Isaacs	2	Westinghouse	ALT130WK2	To Be Done	N/A	N/A	N/A	N/A	KingTowers	25	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
348	Isaacs	1	Westinghouse	CTN110WK1	CTN110	759	11	6	A	KingTowers	11	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
349	Isaacs	6	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A	KingTowers	1	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
350	Isaacs	7	Westinghouse	RT114LLW	RT114L	803	11	9	A	KingTowers	3	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
351	Isaacs	3	Westinghouse	RT120GL	RT120GL*3	814	12	10	P	KingTowers	1	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A
352	Isaacs	2	Westinghouse	RT140GL	RT140GL*3	903	14	10	P	KingTowers	1	Roper	RT14JKX	To Be Done	N/A	N/A	N/A	N/A
353	Isaacs	6	Westinghouse	RT141GL	RT141G**A	828	14	6	A	KingTowers	20	Sears	106.836431	83643**	785	14.3	9	P
354	Isaacs	3	Westinghouse	RT143SCW	RT143SC**	828	14	4	A	KingTowers	77	Sears	106.8662191	86621**	740	12	9	P
355	Isaacs	1	Westinghouse	RT190CW	To Be Done	N/A	N/A	N/A	N/A	KingTowers	1	Sears	2538672380	To Be Done	N/A	N/A	N/A	N/A
356	Isaacs	3	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	KingTowers	2	Sears	2539305316	93053*6	828	15	4	A
357	Isaacs	2	Whirlpool	EEL131CT	EEL131CT	540	12.9	21	M	KingTowers	2	Sears	2539305396	93050*6	828	15	4	A
358	Isaacs	20	Whirlpool	EET122DEW	EET121DT	1080	12	21	P	KingTowers	19	Sears	8364310	83643*0	785	14.3	11	P
359	Isaacs	265	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	KingTowers	31	Sears	8364390	83643*0	785	14.3	11	P
360	Isaacs	1	Whirlpool	EHD261MMN	To Be Done	N/A	N/A	N/A	N/A	KingTowers	4	Sears	8660211	8660210	725	10	11	A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
361	KingTowers	2	Sears	8660211	8660210	725	10	11	A	Langston	1	General Electric	TB13SLC	TB13SLC	697	13.4	7	P
362	KingTowers	138	Sears	8662110	86621*0	740	12	11	P	Langston	1	General Electric	TB14SCB	To Be Done	N/A	N/A	N/A	N/A
363	KingTowers	99	Sears	8662191	86621**	740	12	9	P	Langston	4	General Electric	TB14SLD	TB14SF	1140	13.6	13	P
364	KingTowers	1	Sears	86676401	To Be Done	N/A	N/A	N/A	N/A	Langston	1	General Electric	TB14SNB	TB14SB	1046	13.6	15	P
365	KingTowers	1	Sears	86692211	To Be Done	N/A	N/A	N/A	N/A	Langston	42	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
366	KingTowers	1	Sears	8698787	To Be Done	N/A	N/A	N/A	N/A	Langston	31	Gibson	RT12C1	RT12C1	924	12	21	P
367	KingTowers	1	Welbilt	Welbilt (N/A)	To Be Done	N/A	N/A	N/A	N/A	Langston	15	Gibson	RT12CZW	RT12C2*PGA	814	12	13	P
368	KingTowers	48	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Langston	10	Gibson	RT14C1W	RT14C1	1008	14	21	P
369	KingTowers	1	Westinghouse	RC131LLW	To Be Done	N/A	N/A	N/A	N/A	Langston	1	HotPoint	CTA12CWC	To Be Done	N/A	N/A	N/A	N/A
370	KingTowers	1	Westinghouse	RC131RRW	RC131R	564	12.5	22	M	Langston	7	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
371	KingTowers	2	Westinghouse	RT114LCW	RT114	1067	11	12	A	Langston	6	HotPoint	CTA14CBC	CTA14CB	1046	13.6	15	P
372	KingTowers	8	Westinghouse	RT114LLW	RT114L	803	11	9	A	Langston	6	HotPoint	CTA15CGW	CTA15CG	770	14.6	12	P
373	KingTowers	19	Westinghouse	RT120GC	RT120GC*3	814	12	10	P	Langston	1	HotPoint	CTA15CKB	CTA15CK	770	14.6	9	P
374	KingTowers	6	Westinghouse	RT120GLC	RT120G**1	815	12	13	P	Langston	2	HotPoint	CTA15CLB	CTA15CL	770	14.6	8	P
375	KingTowers	5	Westinghouse	RT123GLW	RT123GL*A	766	12	7	A	Langston	2	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
376	KingTowers	1	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	Langston	36	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A
377	KingTowers	10	Westinghouse	RT140GL	RT140GL*3	903	14	10	P	Langston	10	HotPoint	CTXY14CPR	CTXY14CP	733	14.4	6	A
378	KingTowers	34	Westinghouse	RT141GLW	RT141G**A	828	14	6	A	Langston	18	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
379	KingTowers	1	Westinghouse	RT143GC	To Be Done	N/A	N/A	N/A	N/A	Langston	5	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
380	KingTowers	1	Westinghouse	RT143SLW	RT143SC**	828	14	4	A	Langston	9	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
381	KingTowers	1	Westinghouse	RTG123GL	RT120G**1	815	12	13	P	Langston	3	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A
382	KingTowers	11	Westinghouse	WRT150GA	WRT15CGA**	624	15	4	A	Langston	1	Roper	RT14HDY	To Be Done	N/A	N/A	N/A	N/A
383	KingTowers	24	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Langston	1	Sears	106.8662191	86621**	740	12	9	P
384	KingTowers	1	Whirlpool	EAL12CT	EAL12CT	540	12.4	22	M	Langston	5	Sears	2538604011	86040*1	828	14	7	A
385	KingTowers	4	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M	Langston	1	Sears	2539305010	86040*1	828	14	7	A
386	KingTowers	15	Whirlpool	EET121PT	EET121DT	1080	12	21	P	Langston	6	Sears	2539305396	93050*6	828	15	4	A
387	KingTowers	28	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Langston	5	Sears	564.8660211	8660210	725	10	11	A
388	KingTowers	4	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P	Langston	2	Sears	8662110	86621*0	740	12	11	P
389	KingTowers	1	Whirlpool	ET12AKX	ET12AKXR	859	11.6	10	A	Langston	1	Sears	8692291	86922**	784	11.6	8	A
390	KingTowers	44	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P	Langston	1	Unknown	RB17H	To Be Done	N/A	N/A	N/A	N/A
391	KingTowers	11	Whirlpool	ET12CCRSW	ET12CC*S*0	740	12	10	P	Langston	1	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
392	KingTowers	14	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A	Langston	1	Westinghouse	ATN130WK	ATN130*K1	810	12.6	6	A
393	KingTowers	40	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Langston	2	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
394	KingTowers	3	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P	Langston	4	Westinghouse	RT114LLW	RT114L	803	11	9	A
395	KingTowers	7	Whirlpool	ET14JKX	ET14JK*A*1*	559	14.4	3	A	Langston	11	Westinghouse	RT140GL	RT140GL*3	903	14	10	P
396	KingTowers	4	Whirlpool	ET14JKYSWO	ET14JK*S*0	888	14.3	10	A	Langston	40	Westinghouse	RT141GC	RT141G**A	828	14	6	A
397	LaGuardia-Add	1	General Electric	TA10DNB	TA-1ODN	552	9.5	25	M	Langston	15	Westinghouse	RT143SC	RT143SC**	828	14	4	A
398	LaGuardia-Add	1	General Electric	TA12SNB	TA12SR	588	11.5	22	M	Langston	25	Westinghouse	WRT 150GA	WRT15CGA**	624	15	4	A
399	LaGuardia-Add	23	Gibson	RD12C1	RD12C1*MGA	824	12	15	P	Langston	59	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
400	LaGuardia-Add	57	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Langston	6	Whirlpool	EET121DT	EET121DT	1080	12	21	P
401	LaGuardia-Add	1	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Langston	29	Whirlpool	EET122DT	EET121DT	1080	12	20	P
402	LaGuardia-Add	1	HotPoint	CTA14CRN	CTA14CR	1308	13.6	22	P	Langston	3	Whirlpool	EHT14JKX	EHT141JK	1187	14.1	15	A
403	LaGuardia-Add	1	HotPoint	CTXY14CPJ	CTXY14CP	733	14.4	6	A	Langston	3	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P
404	LaGuardia-Add	1	HotPoint	SSD12CRS	To Be Done	N/A	N/A	N/A	N/A	Langston	15	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
405	LaGuardia-Add	1	Kenmore	8602010	N/A	N/A	N/A	N/A	N/A	Langston	5	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
406	LaGuardia-Add	1	Sears	2537694213	76942*4	905	14	15	P	Melrose	1	ColdSpot	7617201	To Be Done	N/A	N/A	N/A	N/A
407	LaGuardia-Add	2	Sears	8602090	N/A	N/A	N/A	N/A	N/A	Melrose	1	Frigidaire	F2-1232N	To Be Done	N/A	N/A	N/A	N/A
408	LaGuardia-Add	6	Westinghouse	CTN110OW	CTN110	759	11	6	A	Melrose	1	Frigidaire	N/A	N/A	N/A	N/A	N/A	N/A
409	LaGuardia-Add	1	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A	Melrose	1	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A
410	LaGuardia-Add	1	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A	Melrose	3	General Electric	TA10DNB	TA-1ODN	552	9.5	25	M
411	LaGuardia-Add	5	Westinghouse	RT120GC	RT120GC*3	814	12	10	P	Melrose	1	General Electric	TA10DVB	To Be Done	N/A	N/A	N/A	N/A
412	LaGuardia-Add	11	Westinghouse	RT120GLW	RT120G**1	815	12	13	P	Melrose	1	General Electric	TA10SCB	To Be Done	N/A	N/A	N/A	N/A
413	LaGuardia-Add	2	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	Melrose	1	General Electric	TA11SAB	TA11SA	N/A	10.6	N/A	M
414	LaGuardia-Add	2	Whirlpool	EAL120TW	To Be Done	N/A	N/A	N/A	N/A	Melrose	2	General Electric	TA12DLB	TA12ST	636	11.5	21	M
415	LaGuardia-Add	4	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M	Melrose	1	General Electric	TA12SCB	To Be Done	N/A	N/A	N/A	N/A
416	LaGuardia-Add	15	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Melrose	3	General Electric	TA12SNB	TA12SR	588	11.5	22	M
417	LaGuardia-Add	2	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Melrose	5	General Electric	TA12SPB	TA12SR	588	11.5	22	M
418	Langston	4	General Electric	TA12SNB	TA12SR	588	11.5	22	M	Melrose	1	General Electric	TB13SJC	To Be Done	N/A	N/A	N/A	N/A
419	Langston	2	General Electric	TA12SRB	TA12SR	588	11.5	22	M	Melrose	2	General Electric	TB14SVB	TB14SV	1044	13.6	20	P
420	Langston	1	General Electric	TB12SRC	To Be Done	N/A	N/A	N/A	N/A	Melrose	1	General Electric	TB14SVF	TB14SV	1044	13.6	20	P

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
421	Melrose	1	Gibson	N/A	N/A	N/A	N/A	N/A	N/A	Melrose	20	Whirlpool	EHT12HPT	EHT121PT	985	12	15	P
422	Melrose	1	Gibson	RD14C1	RD14C1*MGA	905	14	15	P	Melrose	17	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P
423	Melrose	26	Gibson	RT12C1	RT12C1	924	12	21	P	Melrose	5	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P
424	Melrose	4	Gibson	RT14C1W	RT14C1	1008	14	21	P	Melrose	2	Whirlpool	ET140CXL	To Be Done	N/A	N/A	N/A	N/A
425	Melrose	2	HotPoint	CTA12CAB	CTA12CB	965	11.8	15	P	Melrose	144	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
426	Melrose	3	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P	Melrose	2	Whirlpool	ET14JKX	ET14JK*A*1*	559	14.4	3	A
427	Melrose	1	HotPoint	CTA12CWB	CTA12CV	876	11.6	20	P	Mitchel	1	Admiral	C10A3L	To Be Done	N/A	N/A	N/A	N/A
428	Melrose	14	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Mitchel	1	Frigidaire	D-12L	To Be Done	N/A	N/A	N/A	N/A
429	Melrose	1	HotPoint	CTA14CAB	CTA14CB	1046	13.6	15	P	Mitchel	1	Frigidaire	FFD-121TN	To Be Done	N/A	N/A	N/A	N/A
430	Melrose	5	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P	Mitchel	1	Frigidaire	S-10K	To Be Done	N/A	N/A	N/A	N/A
431	Melrose	1	HotPoint	CTA15CJB	CTA15CJ	770	14.6	10	P	Mitchel	1	General Electric	SSD10DMP	SSD10CR	552	9.5	22	M
432	Melrose	1	HotPoint	CTX14CPE	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A
433	Melrose	9	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A	Mitchel	1	General Electric	TA10DNB	TA-1ODN	552	9.5	25	M
434	Melrose	15	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A	Mitchel	2	General Electric	TA10SBB	To Be Done	N/A	N/A	N/A	N/A
435	Melrose	1	HotPoint	N/A	N/A	N/A	N/A	N/A	N/A	Mitchel	4	General Electric	TA11SAB	TA11SA	N/A	10.6	N/A	M
436	Melrose	3	HotPoint	SSD11CFB	SSD11CF	503	10.6	13	M	Mitchel	2	General Electric	TA12DLB	TA12ST	636	11.5	21	M
437	Melrose	2	HotPoint	SSD12CPB	SSD12CR	672	11.9	22	M	Mitchel	2	General Electric	TA12SLB	TA12SR	588	11.5	22	M
438	Melrose	1	HotPoint	SSD12CRE	SSD12CR	672	11.9	22	M	Mitchel	12	General Electric	TA12SNB	TA12SR	588	11.5	22	M
439	Melrose	2	Magic Chef	RA12C	To Be Done	N/A	N/A	N/A	N/A	Mitchel	2	General Electric	TA12SPB	TA12SR	588	11.5	22	M
440	Melrose	6	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Mitchel	1	General Electric	TA12SR13	To Be Done	N/A	N/A	N/A	N/A
441	Melrose	2	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	Mitchel	6	General Electric	TA12SRB	TA12SR	588	11.5	22	M
442	Melrose	9	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	Mitchel	1	General Electric	TA12SRN	TA12SR	588	11.5	22	M
443	Melrose	1	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A	Mitchel	1	General Electric	TA14SFB	To Be Done	N/A	N/A	N/A	N/A
444	Melrose	2	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A	Mitchel	1	General Electric	TA14SLB	To Be Done	N/A	N/A	N/A	N/A
445	Melrose	6	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A	Mitchel	1	General Electric	TB12RC	To Be Done	N/A	N/A	N/A	N/A
446	Melrose	2	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A	Mitchel	1	General Electric	TB13SL	TB13SL	735	13.4	7	P
447	Melrose	1	Roper	RT14DKX/134A	To Be Done	N/A	N/A	N/A	N/A	Mitchel	4	General Electric	TB14SAB	TB14SB	1046	13.6	15	P
448	Melrose	6	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	Mitchel	1	General Electric	TB14SBF	To Be Done	N/A	N/A	N/A	N/A
449	Melrose	1	Roper	RT14HDY	To Be Done	N/A	N/A	N/A	N/A	Mitchel	2	General Electric	TB14SCB	To Be Done	N/A	N/A	N/A	N/A
450	Melrose	1	Sears	2538604010	86040*0	N/A	14	N/A	A	Mitchel	1	General Electric	TB14SEB	To Be Done	N/A	N/A	N/A	N/A
451	Melrose	1	Sears	2538604010	86040*0	N/A	14	N/A	A	Mitchel	1	General Electric	TB14SRD	To Be Done	N/A	N/A	N/A	N/A
452	Melrose	1	Sears	2538604091	86040*1	828	14	7	A	Mitchel	4	General Electric	TB14SVC	TB14SV	1044	13.6	20	P
453	Melrose	1	Sears	2539305090	93050*0	828	15	6	A	Mitchel	2	General Electric	TB14SWB	TB14SW	1044	13.6	19	P
454	Melrose	3	Sears	8602011	N/A	N/A	N/A	N/A	N/A	Mitchel	1	General Electric	TB14SYC	TB14SC	1126	13.6	14	P
455	Melrose	3	Sears	8602091	86040*1	828	14	7	A	Mitchel	2	General Electric	TB15SGB	TB15SG	770	14.6	10	P
456	Melrose	2	Sears	8662110	86621*0	740	12	11	P	Mitchel	1	General Electric	TB15SGD	To Be Done	N/A	N/A	N/A	N/A
457	Melrose	1	Sears	8662111	86621**	740	12	9	P	Mitchel	1	General Electric	TB15SJB	TB15SJ	770	14.6	10	P
458	Melrose	15	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	Mitchel	1	General Electric	TB15SPC	To Be Done	N/A	N/A	N/A	N/A
459	Melrose	1	Westinghouse	MRT11CR	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	General Electric	TBF14DJB	To Be Done	N/A	N/A	N/A	N/A
460	Melrose	4	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Mitchel	2	General Electric	TBF14DRC	To Be Done	N/A	N/A	N/A	N/A
461	Melrose	3	Westinghouse	RC131RL	RC131R	564	12.5	22	M	Mitchel	1	General Electric	TBF16TGB	To Be Done	N/A	N/A	N/A	N/A
462	Melrose	2	Westinghouse	RT114LLW	RT114L	803	11	9	A	Mitchel	1	General Electric	TBX12NTB	To Be Done	N/A	N/A	N/A	N/A
463	Melrose	2	Westinghouse	RT120GC	RT120GC*3	814	12	10	P	Mitchel	1	General Electric	TBX12SNT	TBX12SNS	571	11.6	4	A
464	Melrose	7	Westinghouse	RT120GL	RT120GL*3	814	12	10	P	Mitchel	86	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P
465	Melrose	2	Westinghouse	RT123GL	RT123GL*A	766	12	7	A	Mitchel	1	Gibson	RD12C2W	To Be Done	N/A	N/A	N/A	N/A
466	Melrose	1	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	Mitchel	6	Gibson	RD14C1W	RD14C1*MGA	905	14	15	P
467	Melrose	9	Westinghouse	RT140GCW	RT140G**1	904	14	13	P	Mitchel	2	Gibson	RD14F3W	To Be Done	N/A	N/A	N/A	N/A
468	Melrose	6	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Mitchel	368	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P
469	Melrose	4	Westinghouse	RT141GLW	RT141G**A	828	14	6	A	Mitchel	8	Gibson	RT12F3WM	RT12F3	1428	12	21	A
470	Melrose	2	Westinghouse	RT143GC	To Be Done	N/A	N/A	N/A	N/A	Mitchel	10	Gibson	RT14C1	RT14C1	1008	14	21	P
471	Melrose	10	Westinghouse	RT143SCW	RT143SC**	828	14	4	A	Mitchel	22	Gibson	RT14C2W	RT14C2*PGA	903	14	13	P
472	Melrose	1	Westinghouse	RVE01RW2	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	Gibson	RT2C2W	To Be Done	N/A	N/A	N/A	N/A
473	Melrose	1	Westinghouse	RVEO1LW	To Be Done	N/A	N/A	N/A	N/A	Mitchel	9	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
474	Melrose	12	Westinghouse	WRT150GAW	WRT15CGA**	624	15	4	A	Mitchel	1	HotPoint	CTA12CBD	CTA12CB	965	11.8	15	P
475	Melrose	5	Westinghouse	WRT15CA	WRT15CGA**	624	15	4	A	Mitchel	3	HotPoint	CTA12CFB	CTA12CF	977	11.8	13	P
476	Melrose	23	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Mitchel	1	HotPoint	CTA12CWC	To Be Done	N/A	N/A	N/A	N/A
477	Melrose	76	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Mitchel	5	HotPoint	CTA12CYC	CTA12CC	977	11.8	13	P
478	Melrose	38	Whirlpool	EHT121DT	EHT121DT	845	12.4	15	P	Mitchel	13	HotPoint	CTA12CYD	CTA12CC	977	11.8	13	P
479	Melrose	145	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	Mitchel	36	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P
480	Melrose	25	Whirlpool	EHT12DTW	EHT121DT	845	12.4	15	P	Mitchel	1	HotPoint	CTA13CJB	CTA13CJ	735	13.4	8	P

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
481	Mitchel	6	HotPoint	CTA13CJC	CTA13CJ	740	13.4	10	P	Mitchel	7	Sears	8662111	86621**	740	12	9	P
482	Mitchel	1	HotPoint	CTA14CAB	CTA14CB	1046	13.6	15	P	Mitchel	8	Sears	8662191	86621**	740	12	9	P
483	Mitchel	1	HotPoint	CTA14CBC	CTA14CB	1046	13.6	15	P	Mitchel	1	Sears	9632210	To Be Done	N/A	N/A	N/A	N/A
484	Mitchel	2	HotPoint	CTA14CRN	CTA14CR	1308	13.6	22	P	Mitchel	2	Sears	N/A	N/A	N/A	N/A	N/A	N/A
485	Mitchel	13	HotPoint	CTA15CG	CTA15CG	770	14.6	12	P	Mitchel	1	Unknown	AN9INTI	To Be Done	N/A	N/A	N/A	N/A
486	Mitchel	2	HotPoint	CTA15CJC	CTA15CJ	770	14.6	10	P	Mitchel	1	WCI	ATN130WK2	AT*130*L*	810	12.6	5	A
487	Mitchel	1	HotPoint	CTF14CKC	CTF14CK	1111	14.2	9	A	Mitchel	1	Welbilt	W320	To Be Done	N/A	N/A	N/A	N/A
488	Mitchel	4	HotPoint	CTH14CYX(134A)	CTH14CYS	496	14.4	4	A	Mitchel	14	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
489	Mitchel	1	HotPoint	CTH14CYXLRW	To Be Done	N/A	N/A	N/A	N/A	Mitchel	7	Westinghouse	ATG150NLW2	ATG150N**2	697	15	5	A
490	Mitchel	9	HotPoint	CTX14CPJ	CTX14CP	733	14.4	6	A	Mitchel	4	Westinghouse	CTN110WK	CTN110	759	11	6	A
491	Mitchel	51	HotPoint	CTXY14CMC	CTXY14CM	736	14.4	7	A	Mitchel	1	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A
492	Mitchel	2	HotPoint	CTXY14CPE	To Be Done	N/A	N/A	N/A	N/A	Mitchel	28	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A
493	Mitchel	1	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A	Mitchel	8	Westinghouse	MRT15CNC	MRT15CNB**	624	15	3	A
494	Mitchel	11	HotPoint	CTXY14CPJ	CTXY14CP	733	14.4	6	A	Mitchel	1	Westinghouse	RC131RLW	RC131R	564	12.5	22	M
495	Mitchel	1	HotPoint	N/A	N/A	N/A	N/A	N/A	N/A	Mitchel	6	Westinghouse	RCT131RR	N/A	N/A	N/A	N/A	N/A
496	Mitchel	1	HotPoint	SSD10CRC	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	Westinghouse	RT114LC	RT114	1067	11	12	A
497	Mitchel	2	HotPoint	SSD11CGB	To Be Done	N/A	N/A	N/A	N/A	Mitchel	10	Westinghouse	RT120GCW	RT120G**1	815	12	13	P
498	Mitchel	2	HotPoint	SSD11CWB	To Be Done	N/A	N/A	N/A	N/A	Mitchel	10	Westinghouse	RT120GL	RT120GL*3	814	12	10	P
499	Mitchel	1	HotPoint	SSD12C1F	To Be Done	N/A	N/A	N/A	N/A	Mitchel	3	Westinghouse	RT120WG	RT120W	625	12	20	P
500	Mitchel	1	HotPoint	SSDCWB	To Be Done	N/A	N/A	N/A	N/A	Mitchel	4	Westinghouse	RT123GLW	RT123GL*A	766	12	7	A
501	Mitchel	1	Magic Chef	RNB-19AY-3A	To Be Done	N/A	N/A	N/A	N/A	Mitchel	4	Westinghouse	RT123GW	RT123GC*A	766	12	7	A
502	Mitchel	18	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Mitchel	5	Westinghouse	RT140GLW	RT140G**1	904	14	13	P
503	Mitchel	5	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	Mitchel	12	Westinghouse	RT141GC	RT141G**A	828	14	6	A
504	Mitchel	27	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A	Mitchel	5	Westinghouse	RT141GL	RT141G**A	828	14	6	A
505	Mitchel	23	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A	Mitchel	11	Westinghouse	RT143SCW	RT143SC**	828	14	4	A
506	Mitchel	15	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A	Mitchel	12	Westinghouse	RT143SLW0	RT143SC**	828	14	4	A
507	Mitchel	18	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	Mitchel	2	Westinghouse	RT177TCW	To Be Done	N/A	N/A	N/A	N/A
508	Mitchel	2	Roper	RT14HDX	To Be Done	N/A	N/A	N/A	N/A	Mitchel	12	Westinghouse	RTG123GC	RT120G**1	815	12	13	P
509	Mitchel	1	Sears	2537694213	76942*4	905	14	15	P	Mitchel	1	Westinghouse	RW14RW2	To Be Done	N/A	N/A	N/A	N/A
510	Mitchel	3	Sears	2538604010	86040*0	N/A	14	N/A	A	Mitchel	65	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A
511	Mitchel	6	Sears	2538604011	86040*1	828	14	7	A	Mitchel	1	Whirlpool	EAT13JTY	To Be Done	N/A	N/A	N/A	N/A
512	Mitchel	1	Sears	2538604090	86040*0	N/A	14	N/A	A	Mitchel	1	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M
513	Mitchel	3	Sears	2538604091	86040*1	828	14	7	A	Mitchel	17	Whirlpool	EET121DTW	EET121DT	1080	12	21	P
514	Mitchel	1	Sears	2538741880	To Be Done	N/A	N/A	N/A	N/A	Mitchel	36	Whirlpool	EET122DT	EET121DT	1080	12	20	P
515	Mitchel	1	Sears	2539305010	86040*1	828	14	7	A	Mitchel	6	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P
516	Mitchel	5	Sears	2539305090	93050*0	828	15	6	A	Mitchel	1	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P
517	Mitchel	1	Sears	2539305312	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	Whirlpool	ER14JKX	To Be Done	N/A	N/A	N/A	N/A
518	Mitchel	5	Sears	2539305316	93053*6	828	15	4	A	Mitchel	2	Whirlpool	ET12AKX	ET12AKXR	859	11.6	10	A
519	Mitchel	1	Sears	2539305394	To Be Done	N/A	N/A	N/A	N/A	Mitchel	14	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P
520	Mitchel	1	Sears	2539305396	93050*6	828	15	4	A	Mitchel	11	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P
521	Mitchel	17	Sears	564.8660211	8660210	725	10	11	A	Mitchel	1	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A
522	Mitchel	1	Sears	5648660100	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	Whirlpool	ET12NCY	ET12NC*S*0	785	12.4	10	P
523	Mitchel	2	Sears	7629241	To Be Done	N/A	N/A	N/A	N/A	Mitchel	45	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
524	Mitchel	1	Sears	7645210	To Be Done	N/A	N/A	N/A	N/A	Mitchel	1	Whirlpool	ET14AKX	To Be Done	N/A	N/A	N/A	N/A
525	Mitchel	1	Sears	7645240	To Be Done	N/A	N/A	N/A	N/A	Mitchel	2	Whirlpool	ET14DC1	ET14DC1M	785	14.3	12	P
526	Mitchel	1	Sears	7655220	To Be Done	N/A	N/A	N/A	N/A	Mitchel	9	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
527	Mitchel	1	Sears	7661290	7661290	540	12.9	22	M	Mitchel	3	Whirlpool	ET14DCY	ET14DC1M	785	14.3	12	P
528	Mitchel	1	Sears	7692010	7692010	N/A	12	N/A	P	Mitchel	1	Whirlpool	HD110	To Be Done	N/A	N/A	N/A	N/A
529	Mitchel	2	Sears	7692090	7692090	N/A	12	N/A	P	Rangel	1	Avanti	12009	To Be Done	N/A	N/A	N/A	N/A
530	Mitchel	1	Sears	7694291	To Be Done	N/A	N/A	N/A	N/A	Rangel	2	General Electric	N/A	N/A	N/A	N/A	N/A	N/A
531	Mitchel	3	Sears	8364310	83643*0	785	14.3	11	P	Rangel	2	General Electric	TA10DNB	TA-1ODN	552	9.5	25	M
532	Mitchel	1	Sears	8364390	83643*0	785	14.3	11	P	Rangel	1	General Electric	TA10DR	To Be Done	N/A	N/A	N/A	N/A
533	Mitchel	1	Sears	8364393	To Be Done	N/A	N/A	N/A	N/A	Rangel	1	General Electric	TA10SC	To Be Done	N/A	N/A	N/A	N/A
534	Mitchel	5	Sears	8602010	N/A	N/A	N/A	N/A	N/A	Rangel	2	General Electric	TA12SCB	To Be Done	N/A	N/A	N/A	N/A
535	Mitchel	5	Sears	8602011	N/A	N/A	N/A	N/A	N/A	Rangel	4	General Electric	TA12SNB	TA12SR	588	11.5	22	M
536	Mitchel	10	Sears	8602090	N/A	N/A	N/A	N/A	N/A	Rangel	2	General Electric	TA12SR	To Be Done	N/A	N/A	N/A	N/A
537	Mitchel	1	Sears	8602090	N/A	N/A	N/A	N/A	N/A	Rangel	4	General Electric	TA12SVB	TA12SV	564	11.5	20	M
538	Mitchel	1	Sears	8602091	86040*1	828	14	7	A	Rangel	20	General Electric	TB14SSF	TB14SS	1308	13.6	22	P
539	Mitchel	1	Sears	865211	To Be Done	N/A	N/A	N/A	N/A	Rangel	6	General Electric	TB14SVF	TB14SV	1044	13.6	20	P
540	Mitchel	5	Sears	8662110	86621*0	740	12	11	P	Rangel	16	Gibson	RD12C1	RD12C1*MGA	824	12	15	P

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
541	Rangel	9	Gibson	RT12C1	RT12C1	924	12	21	P	Richmond	1	Gibson	RT14C1W	RT14C1	1008	14	21	P
542	Rangel	1	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P	Richmond	6	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
543	Rangel	1	HotPoint	CTA12CRC	To Be Done	N/A	N/A	N/A	N/A	Richmond	4	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
544	Rangel	20	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Richmond	2	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A
545	Rangel	2	HotPoint	CTF14CK	To Be Done	N/A	N/A	N/A	N/A	Richmond	5	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
546	Rangel	1	HotPoint	CTF14EKD	To Be Done	N/A	N/A	N/A	N/A	Richmond	14	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
547	Rangel	9	HotPoint	CTF16CGB	CTF16CG	1185	15.5	12	A	Richmond	3	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
548	Rangel	3	HotPoint	CTH14CXT	CTH14CYT	496	14.4	3	A	Richmond	1	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
549	Rangel	11	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A	Richmond	2	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
550	Rangel	3	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A	Richmond	18	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A
551	Rangel	1	HotPoint	SSD11CGB	To Be Done	N/A	N/A	N/A	N/A	Richmond	5	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A
552	Rangel	1	HotPoint	SSD12CDP	SSD12CR	672	11.9	22	M	Richmond	1	Sanyo	SR1150	To Be Done	N/A	N/A	N/A	N/A
553	Rangel	2	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	Richmond	1	Sears	6694041	To Be Done	N/A	N/A	N/A	N/A
554	Rangel	2	Roper	RT12VKX	RT12DK*A*0*	567	11.5	4	A	Richmond	1	Sears	7631291	To Be Done	N/A	N/A	N/A	N/A
555	Rangel	1	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A	Richmond	1	Sears	8364390	83643*0	785	14.3	11	P
556	Rangel	1	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A	Richmond	1	Sears	8602010	N/A	N/A	N/A	N/A	N/A
557	Rangel	3	Sears	106	N/A	N/A	N/A	N/A	N/A	Richmond	2	Sears	8602090	N/A	N/A	N/A	N/A	N/A
558	Rangel	2	Sears	1068662191	To Be Done	N/A	N/A	N/A	N/A	Richmond	1	Sears	N/A	N/A	N/A	N/A	N/A	N/A
559	Rangel	3	Sears	2538602010	N/A	N/A	N/A	N/A	N/A	Richmond	1	Welbilt	N/A	N/A	N/A	N/A	N/A	N/A
560	Rangel	3	Sears	2538604010	86040*0	N/A	14	N/A	A	Richmond	3	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
561	Rangel	6	Sears	2538682110	86821*0	803	12	8	A	Richmond	3	Westinghouse	ATN130WK	ATN130*K1	810	12.6	6	A
562	Rangel	1	Sears	7661210	7661210	540	12.9	22	M	Richmond	1	Westinghouse	CRT141GLW	To Be Done	N/A	N/A	N/A	N/A
563	Rangel	1	Sears	7661210	7661210	540	12.9	22	M	Richmond	1	Westinghouse	CTL110WK	N/A	N/A	N/A	N/A	N/A
564	Rangel	4	Sears	8602011	N/A	N/A	N/A	N/A	N/A	Richmond	2	Westinghouse	CTN110WK	CTN110	759	11	6	A
565	Rangel	2	Sears	8602090	N/A	N/A	N/A	N/A	N/A	Richmond	1	Westinghouse	GTN142WK	To Be Done	N/A	N/A	N/A	N/A
566	Rangel	2	Sears	8692211	86922**	784	11.6	8	A	Richmond	1	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
567	Rangel	1	Sears	UI48	To Be Done	N/A	N/A	N/A	N/A	Richmond	2	Westinghouse	N/A	N/A	N/A	N/A	N/A	N/A
568	Rangel	1	Westinghouse	ATG150NL	ATG150N**0	697	15	6	A	Richmond	9	Westinghouse	RT114LC	RT114	1067	11	12	A
569	Rangel	5	Westinghouse	ATN130WK	ATN130*K1	810	12.6	6	A	Richmond	6	Westinghouse	RT114LLW	RT114L	803	11	9	A
570	Rangel	9	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A	Richmond	5	Westinghouse	RT120GLW	RT120G**1	815	12	13	P
571	Rangel	14	Westinghouse	RT114LC	RT114	1067	11	12	A	Richmond	1	Westinghouse	RT140GC	RT140GC*3	903	14	10	P
572	Rangel	5	Westinghouse	RT120GC	RT120GC*3	814	12	10	P	Richmond	1	Westinghouse	RT140LC	To Be Done	N/A	N/A	N/A	N/A
573	Rangel	18	Westinghouse	RT120GLW	RT120G**1	815	12	13	P	Richmond	1	Westinghouse	RT143NLW	To Be Done	N/A	N/A	N/A	N/A
574	Rangel	2	Westinghouse	RT123GL	RT123GL*A	766	12	7	A	Richmond	4	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A
575	Rangel	3	Westinghouse	RT140GL	RT140GL*3	903	14	10	P	Richmond	1	Whirlpool	EEL131CT	EEL131CT	540	12.9	21	M
576	Rangel	9	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Richmond	127	Whirlpool	EET121DTW	EET121DT	1080	12	21	P
577	Rangel	1	Westinghouse	RT143GL	RT143G**1	965	14	14	A	Richmond	54	Whirlpool	EET122DT	EET121DT	1080	12	20	P
578	Rangel	3	Westinghouse	RT1906CW	RT190R	1536	19.3	22	A	Richmond	1	Whirlpool	EET171SKW	To Be Done	N/A	N/A	N/A	N/A
579	Rangel	9	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Richmond	4	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P
580	Rangel	189	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Richmond	1	Whirlpool	ET12LKY	ET12LK*W*0*	784	11.6	8	A
581	Rangel	35	Whirlpool	EHT121PT	EHT121PT	985	12	15	P	Richmond	7	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
582	Rangel	21	Whirlpool	ET126KXX	ET12AKXR	859	11.6	10	A	Sedgwick	1	Frigidaire	N/A	N/A	N/A	N/A	N/A	N/A
583	Rangel	19	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P	Sedgwick	1	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A
584	Rangel	1	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P	Sedgwick	10	General Electric	TA12SLB	TA12SR	588	11.5	22	M
585	Rangel	107	Whirlpool	ET12LKY	ET12LK*W*0*	784	11.6	8	A	Sedgwick	1	General Electric	TA12SNB	TA12SR	588	11.5	22	M
586	Rangel	77	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Sedgwick	2	General Electric	TA12SRB	TA12SR	588	11.5	22	M
587	Rangel	8	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Sedgwick	2	General Electric	TA12STB	TA12ST	636	11.5	21	M
588	Richmond	1	Frigidaire	N/A	N/A	N/A	N/A	N/A	N/A	Sedgwick	1	General Electric	TB12SBB	TB12SB	965	11.8	15	P
589	Richmond	2	General Electric	N/A	N/A	N/A	N/A	N/A	N/A	Sedgwick	1	General Electric	TB12STB	TB12ST	1140	11.8	21	P
590	Richmond	8	General Electric	TA12SLB	TA12SR	588	11.5	22	M	Sedgwick	1	General Electric	TB14SDB	To Be Done	N/A	N/A	N/A	N/A
591	Richmond	7	General Electric	TA12SRB	TA12SR	588	11.5	22	M	Sedgwick	3	General Electric	TB15SGB	TB15SG	770	14.6	10	P
592	Richmond	1	General Electric	TA14SYB	To Be Done	N/A	N/A	N/A	N/A	Sedgwick	1	General Electric	TB312KB	To Be Done	N/A	N/A	N/A	N/A
593	Richmond	1	General Electric	TB13SJB	To Be Done	N/A	N/A	N/A	N/A	Sedgwick	2	General Electric	TBF14SKC	TBF14SK	1111	14.2	9	A
594	Richmond	1	General Electric	TB14SAB	TB14SB	1046	13.6	15	P	Sedgwick	1	General Electric	TBF16TGB	To Be Done	N/A	N/A	N/A	N/A
595	Richmond	2	General Electric	TB14SYB	To Be Done	N/A	N/A	N/A	N/A	Sedgwick	1	General Electric	TBX12SNT	TBX12SNS	571	11.6	4	A
596	Richmond	1	General Electric	TB15SJB	TB15SJ	770	14.6	10	P	Sedgwick	7	Gibson	RT12C1WM	RT12C1*MGA	824	12	15	P
597	Richmond	1	General Electric	TBF21DYC	To Be Done	N/A	N/A	N/A	N/A	Sedgwick	1	Gibson	RT14C1WM	RT14C1*MGA	905	14	15	P
598	Richmond	2	Gibson	RD14C1WM	RD14C1*MGA	905	14	15	P	Sedgwick	1	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
599	Richmond	1	Gibson	RD14F3	To Be Done	N/A	N/A	N/A	N/A	Sedgwick	12	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
600	Richmond	3	Gibson	RT120GL	RT120GL*3	814	12	10	P	Sedgwick	1	HotPoint	CTA14CRD	CTA14CR	1308	13.6	22	P

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
601	Sedgwick	7	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P	SethLow	2	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
602	Sedgwick	2	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A	SethLow	5	Roper	RT14DKXY	RT14DK*Y*0*	686	14.3	5	A
603	Sedgwick	2	HotPoint	CTXY14CW	CTXY14CM	736	14.4	7	A	SethLow	2	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A
604	Sedgwick	1	HotPoint	SSD12CDB	To Be Done	N/A	N/A	N/A	N/A	SethLow	11	Roper	TR12DKY	RT12DK*A*0*	567	11.5	4	A
605	Sedgwick	1	HotPoint	SSD12CDP	SSD12CR	672	11.9	22	M	SethLow	6	Sears	106-8364310	83643*0	785	14.3	11	P
606	Sedgwick	1	HotPoint	SSD12CPB	SSD12CR	672	11.9	22	M	SethLow	2	Sears	106-860010	To Be Done	N/A	N/A	N/A	N/A
607	Sedgwick	1	HotPoint	SSD12CRN	To Be Done	N/A	N/A	N/A	N/A	SethLow	3	Sears	2538604010	86040*0	N/A	14	N/A	A
608	Sedgwick	1	HotPoint	SSD14CGB	SSD14CG	562	13.9	12	M	SethLow	1	Sears	2538604011	86040*1	828	14	7	A
609	Sedgwick	22	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	SethLow	4	Sears	2538604090	86040*0	N/A	14	N/A	A
610	Sedgwick	9	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	SethLow	1	Sears	2538604090	86040*0	N/A	14	N/A	A
611	Sedgwick	2	Roper	RT12VKX	RT12DK*A*0*	567	11.5	4	A	SethLow	1	Sears	2539305316	93053*6	828	15	4	A
612	Sedgwick	1	Roper	RT12VKXD	To Be Done	N/A	N/A	N/A	N/A	SethLow	2	Sears	7661210	7661210	540	12.9	22	M
613	Sedgwick	1	Sears	2539305010	86040*1	828	14	7	A	SethLow	1	Sears	8662110	86621*0	740	12	11	P
614	Sedgwick	2	Sears	5648660211	8660210	725	10	11	A	SethLow	3	Sears	8662191	86621**	740	12	9	P
615	Sedgwick	1	Sears	7623141	To Be Done	N/A	N/A	N/A	N/A	SethLow	1	Sears	8692211	86922**	784	11.6	8	A
616	Sedgwick	1	Sears	7682010	7682010	N/A	12	N/A	P	SethLow	1	Unknown	CTN19W7	To Be Done	N/A	N/A	N/A	N/A
617	Sedgwick	1	Sears	N/A	N/A	N/A	N/A	N/A	N/A	SethLow	1	Unknown	MC/RB17KA	To Be Done	N/A	N/A	N/A	N/A
618	Sedgwick	3	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	SethLow	4	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
619	Sedgwick	1	Westinghouse	ATN130HK	To Be Done	N/A	N/A	N/A	N/A	SethLow	1	Westinghouse	ATN130WK	ATN130*K1	810	12.6	6	A
620	Sedgwick	4	Westinghouse	ATN130WK	ATN130*K1	810	12.6	6	A	SethLow	2	Westinghouse	CTN110WK	CTN110	759	11	6	A
621	Sedgwick	13	Westinghouse	CTN110WK	CTN110	759	11	6	A	SethLow	19	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
622	Sedgwick	14	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	SethLow	1	Westinghouse	RS216ASW	To Be Done	N/A	N/A	N/A	N/A
623	Sedgwick	3	Westinghouse	RT114LCW	RT114	1067	11	12	A	SethLow	3	Westinghouse	RT120GC	RT120GC*3	814	12	10	P
624	Sedgwick	4	Westinghouse	RT114LLW	RT114L	803	11	9	A	SethLow	1	Westinghouse	RT140GC	RT140GC*3	903	14	10	P
625	Sedgwick	1	Westinghouse	RT120GC	RT120GC*3	814	12	10	P	SethLow	1	Westinghouse	RT140GL	RT140GL*3	903	14	10	P
626	Sedgwick	1	Westinghouse	RT120GLW	RT120G**1	815	12	13	P	SethLow	3	Westinghouse	RT141GC	RT141G**A	828	14	6	A
627	Sedgwick	1	Westinghouse	RT123GC	RT123GC*A	766	12	7	A	SethLow	2	Westinghouse	RT143SC	RT143SC**	828	14	4	A
628	Sedgwick	2	Westinghouse	RT123GLW	RT123GL*A	766	12	7	A	SethLow	10	Westinghouse	RT143SLW	RT143SC**	828	14	4	A
629	Sedgwick	1	Westinghouse	RT140GLW	RT140G**1	904	14	13	P	SethLow	17	Westinghouse	RTG123GL	RT120G**1	815	12	13	P
630	Sedgwick	1	Westinghouse	RT141GC	RT141G**A	828	14	6	A	SethLow	42	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
631	Sedgwick	1	Westinghouse	RT141GL	RT141G**A	828	14	6	A	SethLow	5	Whirlpool	EET122DT	EET121DT	1080	12	20	P
632	Sedgwick	6	Westinghouse	RT143SC	RT143SC**	828	14	4	A	SethLow	16	Whirlpool	EFT122DT	EHT122DT	845	12.4	15	P
633	Sedgwick	1	Westinghouse	RT143WC	To Be Done	N/A	N/A	N/A	N/A	SethLow	1	Whirlpool	EHH221M	To Be Done	N/A	N/A	N/A	N/A
634	Sedgwick	14	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	SethLow	11	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P
635	Sedgwick	1	Whirlpool	EET121PTW	To Be Done	N/A	N/A	N/A	N/A	SethLow	14	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P
636	Sedgwick	417	Whirlpool	EET122DT	EET121DT	1080	12	20	P	SethLow	1	Whirlpool	ETLKX	To Be Done	N/A	N/A	N/A	N/A
637	Sedgwick	2	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	Smith	1	Admiral	CTN110WK-1	CTN110	759	11	6	A
638	Sedgwick	2	Whirlpool	ET12AKX	ET12AKXR	859	11.6	10	A	Smith	1	Admiral	N/A	N/A	N/A	N/A	N/A	N/A
639	SethLow	2	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A	Smith	1	Admiral	NT17L6	To Be Done	N/A	N/A	N/A	N/A
640	SethLow	1	General Electric	TA12SNB	TA12SR	588	11.5	22	M	Smith	3	Frigidaire	808A81715	N/A	N/A	N/A	N/A	N/A
641	SethLow	5	General Electric	TA12SRB	TA12SR	588	11.5	22	M	Smith	1	Frigidaire	80A55271	To Be Done	N/A	N/A	N/A	N/A
642	SethLow	10	General Electric	TA12STB	TA12ST	636	11.5	21	M	Smith	6	Frigidaire	D-100-LH	D-100	660	10	22	M
643	SethLow	5	General Electric	TB13SJC	To Be Done	N/A	N/A	N/A	N/A	Smith	1	Frigidaire	D-12-J	To Be Done	N/A	N/A	N/A	N/A
644	SethLow	1	General Electric	TB14SRB	TB14SS	1308	13.6	22	P	Smith	1	Frigidaire	FD123TN	FD-12T	900	12.3	20	P
645	SethLow	4	General Electric	TB14SYC	TB14SC	1126	13.6	14	P	Smith	5	Frigidaire	N/A	N/A	N/A	N/A	N/A	N/A
646	SethLow	2	General Electric	TB15SLB	To Be Done	N/A	N/A	N/A	N/A	Smith	1	General Electric	N/A	N/A	N/A	N/A	N/A	N/A
647	SethLow	20	Gibson	RD12CZW	RD12C2*5GA	815	12	11	P	Smith	7	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A
648	SethLow	69	Gibson	RT12C1	RT12C1	924	12	21	P	Smith	1	General Electric	TA10DRB	TA10DR	552	9.5	22	M
649	SethLow	20	Gibson	RT12C2W	RT12C2*PGA	814	12	13	P	Smith	1	General Electric	TA10DRN	To Be Done	N/A	N/A	N/A	N/A
650	SethLow	59	Gibson	RT14C1W	RT14C1	1008	14	21	P	Smith	2	General Electric	TA10DTB	To Be Done	N/A	N/A	N/A	N/A
651	SethLow	1	HotPoint	CTA12CVC	To Be Done	N/A	N/A	N/A	N/A	Smith	6	General Electric	TA12SLB	TA12SR	588	11.5	22	M
652	SethLow	19	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Smith	5	General Electric	TA12SNB	TA12SR	588	11.5	22	M
653	SethLow	11	HotPoint	CTA13CKB	CTA13CK	735	13.4	9	P	Smith	5	General Electric	TA12SPB	TA12SR	588	11.5	22	M
654	SethLow	1	HotPoint	CTA14ALD	CTA14CB	1046	13.6	15	P	Smith	5	General Electric	TA12SRN	TA12SR	588	11.5	22	M
655	SethLow	1	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A	Smith	1	General Electric	TA12STB	TA12ST	636	11.5	21	M
656	SethLow	10	HotPoint	CTX14CME	CTX14CM	736	14.4	7	A	Smith	4	General Electric	TA12SVB	TA12SV	564	11.5	20	M
657	SethLow	6	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A	Smith	17	General Electric	TB13SLC	TB13SLC	697	13.4	7	P
658	SethLow	1	HotPoint	SSD11CBB	SSD11CB	503	10.6	15	M	Smith	1	General Electric	TB14SAB	TB14SB	1046	13.6	15	P
659	SethLow	2	HotPoint	SSD12CMD	To Be Done	N/A	N/A	N/A	N/A	Smith	1	General Electric	TB15SJB	TB15SJ	770	14.6	10	P
660	SethLow	1	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Smith	1	General Electric	TBF14DAD	To Be Done	N/A	N/A	N/A	N/A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
661	Smith	1	Gibson	RD12C1	RD12C1*MGA	824	12	15	P	Smith	2	Westinghouse	RT140GCW	RT140G**1	904	14	13	P
662	Smith	14	Gibson	RD12C1	RD12C1*MGA	824	12	15	P	Smith	15	Westinghouse	RT141GC	RT141G**A	828	14	6	A
663	Smith	1	Gibson	RD12C2WS	To Be Done	N/A	N/A	N/A	N/A	Smith	4	Westinghouse	RT141GL	RT141G**A	828	14	6	A
664	Smith	5	Gibson	RD14C1WM	RD14C1*MGA	905	14	15	P	Smith	5	Westinghouse	RT143GCW	RT143G**1	978	14	13	A
665	Smith	2	Gibson	RD14C2WS	RD14C*MGC	905	14	14	P	Smith	4	Westinghouse	RT143NCW	RT143N**A	828	14	6	A
666	Smith	47	Gibson	RT12C1WM	RT12C1*MGA	824	12	15	P	Smith	1	Westinghouse	RT143SCW	RT143SC**	828	14	4	A
667	Smith	13	Gibson	RT14C1W	RT14C1	1008	14	21	P	Smith	11	Westinghouse	RVD4R	RVH04	N/A	9.1	N/A	NA
668	Smith	9	Gibson	RT14C2WS	RT14C2*S2B	814	14	10	P	Smith	1	Westinghouse	RVH04LW	To Be Done	N/A	N/A	N/A	N/A
669	Smith	308	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P	Smith	1	Westinghouse	RVJ14	To Be Done	N/A	N/A	N/A	N/A
670	Smith	31	HotPoint	CTA12CYC	CTA12CC	977	11.8	13	P	Smith	19	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A
671	Smith	26	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Smith	1	Westinghouse	WRT15CNB	To Be Done	N/A	N/A	N/A	N/A
672	Smith	4	HotPoint	CTA13CKB	CTA13CK	735	13.4	9	P	Smith	1	Whirlpool	ED22PC	To Be Done	N/A	N/A	N/A	N/A
673	Smith	13	HotPoint	CTA142CBC	CTA14CB	1046	13.6	15	P	Smith	1	Whirlpool	EEL131CT	EEL131CT	540	12.9	21	M
674	Smith	1	HotPoint	CTA14ALD	CTA14CB	1046	13.6	15	P	Smith	31	Whirlpool	EET121DTW	EET121DT	1080	12	21	P
675	Smith	121	HotPoint	CTA14CBC	CTA14CB	1046	13.6	15	P	Smith	24	Whirlpool	EET122DTW	EET121DT	1080	12	20	P
676	Smith	1	HotPoint	CTA15CKB	CTA15CK	770	14.6	9	P	Smith	94	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P
677	Smith	21	HotPoint	CTA15GC	CTA15CG	770	14.6	11	P	Smith	3	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P
678	Smith	5	HotPoint	CTF14CKC	CTF14CK	1111	14.2	9	A	Smith	6	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P
679	Smith	2	HotPoint	CTF14EGB	To Be Done	N/A	N/A	N/A	N/A	Smith	338	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
680	Smith	4	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A	Smith	3	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P
681	Smith	1	HotPoint	CTM14CYX	To Be Done	N/A	N/A	N/A	N/A	Smith	47	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
682	Smith	2	HotPoint	CTP14CK	To Be Done	N/A	N/A	N/A	N/A	Smith	52	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
683	Smith	4	HotPoint	CTX14CM	CTX14CM	736	14.4	7	A	Smith	2	Whirlpool	ETL11CW1	To Be Done	N/A	N/A	N/A	N/A
684	Smith	10	HotPoint	CTXY14CMD	CTXY14CM	736	14.4	7	A	Smith	1	Whirlpool	RVHO4RW2	To Be Done	N/A	N/A	N/A	N/A
685	Smith	16	HotPoint	CTXY14CPJRW	CTXY14CP	733	14.4	6	A	SouthBeach	4	ACME	SD7Y	N/A	N/A	N/A	N/A	N/A
686	Smith	1	HotPoint	SSD10CLB	To Be Done	N/A	N/A	N/A	N/A	SouthBeach	2	General Electric	TA11SAB	TA11SA	N/A	10.6	N/A	M
687	Smith	1	HotPoint	SSD10DMD	To Be Done	N/A	N/A	N/A	N/A	SouthBeach	5	General Electric	TA12SLB	TA12SR	588	11.5	22	M
688	Smith	1	HotPoint	SSD12CRH	To Be Done	N/A	N/A	N/A	N/A	SouthBeach	1	General Electric	TB12CBC	To Be Done	N/A	N/A	N/A	N/A
689	Smith	1	HotPoint	SSD12CWC	SSD12CR	672	11.9	22	M	SouthBeach	2	General Electric	TB12SCB	To Be Done	N/A	N/A	N/A	N/A
690	Smith	15	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	SouthBeach	2	General Electric	TB12SD	To Be Done	N/A	N/A	N/A	N/A
691	Smith	4	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	SouthBeach	1	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P
692	Smith	4	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A	SouthBeach	2	HotPoint	CTA14CBC	CTA14CB	1046	13.6	15	P
693	Smith	2	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A	SouthBeach	1	HotPoint	CTA14CRR	CTA14CR	1308	13.6	22	P
694	Smith	2	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	SouthBeach	1	HotPoint	CTA14CVF	To Be Done	N/A	N/A	N/A	N/A
695	Smith	1	Roper	RT14HDX	To Be Done	N/A	N/A	N/A	N/A	SouthBeach	2	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
696	Smith	5	Sears	2539305010	86040*1	828	14	7	A	SouthBeach	1	HotPoint	CTF14ERS	To Be Done	N/A	N/A	N/A	N/A
697	Smith	1	Sears	2539305090	93050*0	828	15	6	A	SouthBeach	1	HotPoint	CTF21EVD	To Be Done	N/A	N/A	N/A	N/A
698	Smith	6	Sears	2539305316	93053*6	828	15	4	A	SouthBeach	7	HotPoint	CTX14CM	CTX14CM	736	14.4	7	A
699	Smith	7	Sears	2539305396	93050*6	828	15	4	A	SouthBeach	3	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
700	Smith	6	Sears	564.8660211	8660210	725	10	11	A	SouthBeach	13	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
701	Smith	5	Sears	5648660211	8660210	725	10	11	A	SouthBeach	3	Roper	RT12VKX	RT12DK*A*0*	567	11.5	4	A
702	Smith	1	Sears	8602010	N/A	N/A	N/A	N/A	N/A	SouthBeach	4	Roper	RT12VKY	RT12DK*A*0*	567	11.5	4	A
703	Smith	5	Sears	8660211	8660210	725	10	11	A	SouthBeach	1	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
704	Smith	5	Sears	8662111	86621**	740	12	9	P	SouthBeach	1	Sears	2539305090	93050*0	828	15	6	A
705	Smith	6	Sears	8662191	86621**	740	12	9	P	SouthBeach	5	Sears	2539305316	93053*6	828	15	4	A
706	Smith	1	Sears	8692291	86922**	784	11.6	8	A	SouthBeach	1	Sears	5648966020	To Be Done	N/A	N/A	N/A	N/A
707	Smith	1	Sears	N/A	N/A	N/A	N/A	N/A	N/A	SouthBeach	1	Sears	7657220	To Be Done	N/A	N/A	N/A	N/A
708	Smith	1	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	SouthBeach	1	Sears	7665221	To Be Done	N/A	N/A	N/A	N/A
709	Smith	7	Westinghouse	ATG150NL	ATG150N**0	697	15	6	A	SouthBeach	1	Sears	8134361	To Be Done	N/A	N/A	N/A	N/A
710	Smith	1	Westinghouse	CTL110WK	N/A	N/A	N/A	N/A	N/A	SouthBeach	1	Sears	8602090	N/A	N/A	N/A	N/A	N/A
711	Smith	1	Westinghouse	GTW142WK3	To Be Done	N/A	N/A	N/A	N/A	SouthBeach	1	Sears	8642110	To Be Done	N/A	N/A	N/A	N/A
712	Smith	1	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A	SouthBeach	1	Sears	8668880	To Be Done	N/A	N/A	N/A	N/A
713	Smith	26	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	SouthBeach	1	Sears	8692211	86922**	784	11.6	8	A
714	Smith	1	Westinghouse	MRT15CRA	MRT15CRA**	563	15	4	A	SouthBeach	1	Sears	8692280	To Be Done	N/A	N/A	N/A	N/A
715	Smith	20	Westinghouse	RT114LCW	RT114	1067	11	12	A	SouthBeach	1	Unknown	FDP-12T-J	To Be Done	N/A	N/A	N/A	N/A
716	Smith	13	Westinghouse	RT114LLW	RT114L	803	11	9	A	SouthBeach	1	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
717	Smith	7	Westinghouse	RT114RL	RT114	1067	11	12	A	SouthBeach	1	Westinghouse	CTN110WK	CTN110	759	11	6	A
718	Smith	40	Westinghouse	RT120G	RT120G1	814	12	11	P	SouthBeach	1	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A
719	Smith	1	Westinghouse	RT123GC	RT123GC*A	766	12	7	A	SouthBeach	1	Westinghouse	RT114CCW	RT114	1067	11	12	A
720	Smith	7	Westinghouse	RT123GL	RT123GL*A	766	12	7	A	SouthBeach	1	Westinghouse	RT114LCW	RT114	1067	11	12	A

Table A.2. Count of Refrigerators Removed, by Development, Manufacturer, and Model (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
721	SouthBeach	2	Westinghouse	RT114LLW	RT114L	803	11	9	A	Wise	102	Whirlpool	EHT122PTW	EHT122DT	845	12.4	15	P
722	SouthBeach	1	Westinghouse	RT143SLW	RT143SC**	828	14	4	A	Wise	1	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P
723	SouthBeach	3	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Wise	5	Whirlpool	EHT14DTW	EHT141DT	925	14.3	15	P
724	SouthBeach	159	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Wise	17	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P
725	SouthBeach	62	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Wise	17	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
726	SouthBeach	4	Whirlpool	ET12AKX	ET12AKXR	859	11.6	10	A									
727	SouthBeach	7	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P									
728	Wise	1	Frigidaire	FCD-123T	To Be Done	N/A	N/A	N/A	N/A									
729	Wise	1	Frigidaire	N/A (Frigidaire)	N/A	N/A	N/A	N/A	N/A									
730	Wise	1	General Electric	TA10DLB	TA-1ODL	N/A	9.5	N/A	N/A									
731	Wise	1	General Electric	TA10DTB	To Be Done	N/A	N/A	N/A	N/A									
732	Wise	2	General Electric	TA12SNB	TA12SR	588	11.5	22	M									
733	Wise	1	General Electric	TA12SRB	TA12SR	588	11.5	22	M									
734	Wise	4	General Electric	TB12SCB	To Be Done	N/A	N/A	N/A	N/A									
735	Wise	1	General Electric	TB14SEB	To Be Done	N/A	N/A	N/A	N/A									
736	Wise	1	General Electric	TB14SLD	TB14SF	1140	13.6	13	P									
737	Wise	8	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P									
738	Wise	9	Gibson	RT12C1	RT12C1	924	12	21	P									
739	Wise	13	Gibson	RT14C1W	RT14C1	1008	14	21	P									
740	Wise	6	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P									
741	Wise	1	HotPoint	CTA14CAB	CTA14CB	1046	13.6	15	P									
742	Wise	1	HotPoint	CTA14CRB	CTA14CR	1308	13.6	22	P									
743	Wise	1	HotPoint	CTA14CRD	CTA14CR	1308	13.6	22	P									
744	Wise	5	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P									
745	Wise	4	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A									
746	Wise	2	HotPoint	CTXY14CMD	CTXY14CM	736	14.4	7	A									
747	Wise	1	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A									
748	Wise	1	HotPoint	SS10CCD	To Be Done	N/A	N/A	N/A	N/A									
749	Wise	1	HotPoint	SSD14CCB	To Be Done	N/A	N/A	N/A	N/A									
750	Wise	1	Kelvinator	N/A (Kelvinator)	N/A	N/A	N/A	N/A	N/A									
751	Wise	1	MagicChef	RT11	To Be Done	N/A	N/A	N/A	N/A									
752	Wise	2	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A									
753	Wise	1	Sears	106-8602090	To Be Done	N/A	N/A	N/A	N/A									
754	Wise	4	Sears	2538604090	86040*0	N/A	14	N/A	A									
755	Wise	5	Sears	2538682190	86821*0	803	12	8	A									
756	Wise	1	Sears	7631211	To Be Done	N/A	N/A	N/A	N/A									
757	Wise	3	Sears	7692090	7692090	N/A	12	N/A	P									
758	Wise	1	Sears	8364310	83643*0	785	14.3	11	P									
759	Wise	1	Sears	8364390	83643*0	785	14.3	11	P									
760	Wise	4	Sears	8602090	N/A	N/A	N/A	N/A	N/A									
761	Wise	3	Sears	8660211	8660210	725	10	11	A									
762	Wise	1	Sears	8662191	86621**	740	12	9	P									
763	Wise	1	Welbilt	N/A (Welbilt)	To Be Done	N/A	N/A	N/A	N/A									
764	Wise	2	Westinghouse	ATG150NL	ATG150N**0	697	15	6	A									
765	Wise	4	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A									
766	Wise	1	Westinghouse	RC13LLW	To Be Done	N/A	N/A	N/A	N/A									
767	Wise	10	Westinghouse	RT114LLW	RT114L	803	11	9	A									
768	Wise	2	Westinghouse	RT120GC	RT120GC*3	814	12	10	P									
769	Wise	4	Westinghouse	RT120GL	RT120GL*3	814	12	10	P									
770	Wise	1	Westinghouse	RT140GC	RT140GC*3	903	14	10	P									
771	Wise	4	Westinghouse	RT140GLW	RT140G**1	904	14	13	P									
772	Wise	1	Westinghouse	RT141GLW	RT141G**A	828	14	6	A									
773	Wise	5	Westinghouse	RT143SCW	RT143SC**	828	14	4	A									
774	Wise	2	Westinghouse	RT143SLW	RT143SC**	828	14	4	A									
775	Wise	1	Westinghouse	RVE05RW3	To Be Done	N/A	N/A	N/A	N/A									
776	Wise	3	Westinghouse	RVJO4RW5	RVJ04	N/A	9.1	N/A	NA									
777	Wise	4	Westinghouse	WRT150GA	WRT15CGA**	624	15	4	A									
778	Wise	4	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A									
779	Wise	2	Whirlpool	EEL131CTW	EEL131CT	540	12.9	21	M									
780	Wise	108	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P									

Table A.3. Count of Refrigerators Removed, Sorted by Counts

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
1	Sedgwick	417	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Mitchel	45	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
2	Mitchel	368	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Clinton	45	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P
3	Smith	338	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Douglas-Reh	45	Westinghouse	RT120GL	RT120GL*3	814	12	10	P
4	Smith	308	HotPoint	CTA12CBC	CTA12CB	965	11.8	15	P	KingTowers	44	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P
5	Baruch	293	Whirlpool	ET12CCRSW	ET12CC*S*0	740	12	10	P	Campos	42	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P
6	Isaacs	265	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Langston	42	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
7	HighBridge	237	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	SethLow	42	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
8	Haber	236	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Independence	41	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P
9	Independence	204	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Clinton	40	Whirlpool	EET122DTW	EET121DT	1080	12	20	P
10	Albany	200	Whirlpool	EHT121PTN	EHT121PT	985	12	15	P	KingTowers	40	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
11	Baruch	199	Westinghouse	RT141GL	RT141G**A	828	14	6	A	Smith	40	Westinghouse	RT120G	RT120G1	814	12	11	P
12	Rangel	189	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Langston	40	Westinghouse	RT141GC	RT141G**A	828	14	6	A
13	SouthBeach	159	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Melrose	38	Whirlpool	EHT121DT	EHT121DT	845	12.4	15	P
14	Melrose	145	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	Chelsea	38	General Electric	TB14SAB	TB14SB	1046	13.6	15	P
15	Melrose	144	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Mitchel	36	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P
16	HighBridge	140	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Langston	36	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A
17	KingTowers	138	Sears	8662110	86621*0	740	12	11	P	Mitchel	36	Whirlpool	EET122DT	EET121DT	1080	12	20	P
18	Richmond	127	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Rangel	35	Whirlpool	EHT121PT	EHT121PT	985	12	15	P
19	Gravesend	126	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	Chelsea	34	Whirlpool	ET14JKX	ET14JK*A*1*	559	14.4	3	A
20	Berry	123	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	KingTowers	34	Westinghouse	RT141GLW	RT141G**A	828	14	6	A
21	Smith	121	HotPoint	CTA14CBC	CTA14CB	1046	13.6	15	P	Clinton	34	Gibson	RT14C1WM	RT14C1*MGA	905	14	15	P
22	Baruch	120	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P	HarlemRiver	32	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P
23	Berry	113	Whirlpool	EHT121PTWRO	EHT121PT	985	12	15	P	Douglas-Reh	32	Gibson	RT12C1WM	RT12C1*MGA	824	12	15	P
24	Baruch	111	Whirlpool	EET122DT	EET121DT	1080	12	20	P	KingTowers	31	Sears	8364390	83643*0	785	14.3	11	P
25	Baruch	111	Whirlpool	ET14CCYSW	ET14CC*S*0	785	14.2	10	P	Smith	31	HotPoint	CTA12CYC	CTA12CC	977	11.8	13	P
26	Wise	108	Whirlpool	EHT121PTW	EHT121PT	985	12	15	P	Smith	31	Whirlpool	EET121DTW	EET121DT	1080	12	21	P
27	Rangel	107	Whirlpool	ET12LKY	ET12LK*W*0*	784	11.6	8	A	Clinton	31	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
28	Wise	102	Whirlpool	EHT122PTW	EHT122DT	845	12.4	15	P	Langston	31	Gibson	RT12C1	RT12C1	924	12	21	P
29	KingTowers	99	Sears	8662191	86621**	740	12	9	P	Clinton	29	HotPoint	CTXY14CPB	CTXY14CP	733	14.4	6	A
30	Baruch	99	Westinghouse	RT141GC	RT141G**A	828	14	6	A	Betances	29	Whirlpool	EET122DT	EET121DT	1080	12	20	P
31	Smith	94	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P	Chelsea	29	Whirlpool	EET122DT	EET121DT	1080	12	20	P
32	Hope	87	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Langston	29	Whirlpool	EET122DT	EET121DT	1080	12	20	P
33	KingTowers	87	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Independence	29	Whirlpool	ET12DCX	ET12DCXL	804	12.4	14	P
34	Mitchel	86	Gibson	RD12C1W	RD12C1*MGE	824	12	14	P	KingTowers	28	Whirlpool	EET122DT	EET121DT	1080	12	20	P
35	Albany	86	Westinghouse	RT114LLW	RT114L	803	11	9	A	Mitchel	28	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A
36	Clinton	80	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Berry	27	Whirlpool	EHT12LKX	EHT121DT	845	12.4	15	P
37	KingTowers	77	Sears	106.8662191	86621**	740	12	9	P	Chelsea	27	Westinghouse	RT120GCW	RT120G**1	815	12	13	P
38	Rangel	77	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P	Mitchel	27	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
39	Chelsea	76	HotPoint	CTA12CYD	CTA12CC	977	11.8	13	P	Smith	26	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
40	Melrose	76	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Baruch	26	Whirlpool	EET121DTW	EET121DT	1080	12	21	P
41	Independence	75	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P	Campos	26	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
42	SethLow	69	Gibson	RT12C1	RT12C1	924	12	21	P	Independence	26	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
43	Clinton	68	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Smith	26	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
44	Baruch	66	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Melrose	26	Gibson	RT12C1	RT12C1	924	12	21	P
45	Mitchel	65	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Betances	25	HotPoint	CTA15CJC	CTA15CJ	770	14.6	10	P
46	SouthBeach	62	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	Chelsea	25	HotPoint	CTA15CJC	CTA15CJ	770	14.6	10	P
47	Gravesend	59	Westinghouse	RT120GCW	RT120G**1	815	12	13	P	Melrose	25	Whirlpool	EHT12DTW	EHT121DT	845	12.4	15	P
48	SethLow	59	Gibson	RT14C1W	RT14C1	1008	14	21	P	HighBridge	25	Westinghouse	MRT11CRA	MRT11CRB**	558	11.2	3	A
49	Langston	59	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	KingTowers	25	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
50	Baruch	58	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P	HarlemRiver	25	Westinghouse	RT141GLW	RT141G**A	828	14	6	A
51	LaGuardia-Add	57	Gibson	RT12C1W	RT12C1*MGA	824	12	15	P	Langston	25	Westinghouse	WRT 150GA	WRT15CGA**	624	15	4	A
52	Clinton	55	Westinghouse	MRT15CNBZ1	MRT15CNB**	624	15	3	A	Smith	24	Whirlpool	EET122DTW	EET121DT	1080	12	20	P
53	Richmond	54	Whirlpool	EET122DT	EET121DT	1080	12	20	P	Betances	24	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
54	Smith	52	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	KingTowers	24	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
55	Mitchel	51	HotPoint	CTXY14CMC	CTXY14CM	736	14.4	7	A	LaGuardia-Add	23	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
56	Albany	50	Whirlpool	EET122DTW	EET121DT	1080	12	20	P	KingTowers	23	Gibson	RD14C1W	RD14C1*MGA	905	14	15	P
57	KingTowers	48	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Mitchel	23	Roper	RT14DCY	RT14DC*V*0	888	14.3	8	A
58	Smith	47	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Melrose	23	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
59	Smith	47	Gibson	RT12C1WM	RT12C1*MGA	824	12	15	P	Baruch	22	Whirlpool	EHT141DWR	EHT141DT	925	14.3	15	P
60	Baruch	46	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P	Albany	22	Westinghouse	MRT11CRB	MRT11CRB**	558	11.2	3	A

Table A.3. Count of Refrigerators Removed, Sorted by Counts (contd)

Row	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def	Development	Cnt	Manufacturer	Model	Proxy	Label	Vol	Age	Def
61	Baruch	22	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Langston	15	Whirlpool	ET12PCX	ET12PCX*	885	12	13	P
62	Gravesend	22	Westinghouse	MRT15CNB	MRT15CNB**	624	15	3	A	Baruch	15	Westinghouse	RT123GL	RT123GL*A	766	12	7	A
63	Sedgwick	22	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Langston	15	Gibson	RT12CZW	RT12C2*PGA	814	12	13	P
64	Mitchel	22	Gibson	RT14C2W	RT14C2*PGA	903	14	13	P	Smith	15	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A
65	Gravesend	21	Westinghouse	ATG150NL	ATG150N**0	697	15	6	A	Smith	15	Westinghouse	RT141GC	RT141G**A	828	14	6	A
66	Smith	21	HotPoint	CTA15GC	CTA15CG	770	14.6	11	P	Langston	15	Westinghouse	RT143SC	RT143SC**	828	14	4	A
67	Rangel	21	Whirlpool	ET126KXX	ET12AKXR	859	11.6	10	A	KingTowers	15	Gibson	RT14C1W	RT14C1	1008	14	21	P
68	Isaacs	21	General Electric	TB13SGD	TB13SG	740	13.4	12	P	Mitchel	15	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A
69	KingTowers	20	Sears	106.836431	83643**	785	14.3	9	P	Mitchel	14	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
70	Chelsea	20	HotPoint	CTA12CAB	CTA12CB	965	11.8	15	P	Hope	14	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P
71	Clinton	20	HotPoint	CTA13CG	CTA13CG	740	13.4	12	P	Melrose	14	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
72	Rangel	20	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Independence	14	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A
73	Clinton	20	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P	Campos	14	Whirlpool	EHT121PT	EHT121PT	985	12	15	P
74	Isaacs	20	Whirlpool	EET122DEW	EET121DT	1080	12	21	P	Mitchel	14	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P
75	Douglas-Add	20	Whirlpool	EET122DT	EET121DT	1080	12	20	P	KingTowers	14	Whirlpool	ET12LKX	ET12LK*W*0*	784	11.6	8	A
76	Melrose	20	Whirlpool	EHT12HPT	EHT121PT	985	12	15	P	SethLow	14	Whirlpool	ET14CCX	ET14CC*S*0	785	14.2	10	P
77	Isaacs	20	Whirlpool	ET140TWR	ET14CKXM	874	14.1	13	A	Sedgwick	14	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A
78	SethLow	20	Gibson	RD12CZW	RD12C2*5GA	815	12	11	P	Smith	14	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
79	Smith	20	Westinghouse	RT114LCW	RT114	1067	11	12	A	KingTowers	14	Gibson	RD14C1	RD14C1*MGA	905	14	15	P
80	HarlemRiver	20	Westinghouse	RT123GLW	RT123GL*A	766	12	7	A	Rangel	14	Westinghouse	RT114LC	RT114	1067	11	12	A
81	SethLow	20	Gibson	RT12C2W	RT12C2*PGA	814	12	13	P	Richmond	14	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
82	Clinton	20	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Gravesend	14	Roper	RT14DCX	RT14DC*V*1*	835	14.3	7	A
83	Rangel	20	General Electric	TB14SSF	TB14SS	1308	13.6	22	P	Sedgwick	14	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A
84	KingTowers	19	Sears	8364310	83643*0	785	14.3	11	P	Independence	13	Sears	5648660211	8660210	725	10	11	A
85	SethLow	19	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P	Mitchel	13	HotPoint	CTA12CYD	CTA12CC	977	11.8	13	P
86	Douglas-Add	19	Whirlpool	EHT-141DT	EHT141DT	925	14.3	15	P	Smith	13	HotPoint	CTA142CBC	CTA14CB	1046	13.6	15	P
87	Rangel	19	Whirlpool	ET12CCL	ET12CC*S*0	740	12	10	P	Mitchel	13	HotPoint	CTA15CG	CTA15CG	770	14.6	12	P
88	SethLow	19	Westinghouse	MRT15CN	MRT15CNA**	620	14.5	3	A	Clinton	13	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
89	KingTowers	19	Westinghouse	RT120GC	RT120GC*3	814	12	10	P	Sedgwick	13	Westinghouse	CTN110WK	CTN110	759	11	6	A
90	Baruch	19	Gibson	RT12C1	RT12C1	924	12	21	P	Campos	13	HotPoint	CTXY14CP	CTXY14CP	733	14.4	6	A
91	Gravesend	19	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Hope	13	Whirlpool	EET122DT	EET121DT	1080	12	20	P
92	Smith	19	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A	Chelsea	13	Whirlpool	ET14JKY	ET14JK*A*1*	559	14.4	3	A
93	Rangel	18	Westinghouse	RT120GLW	RT120G**1	815	12	13	P	Baruch	13	Gibson	RD12C1	RD12C1*MGA	824	12	15	P
94	Langston	18	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Berry	13	Westinghouse	RT114CCW	RT114	1067	11	12	A
95	Mitchel	18	Roper	RT12DKX	RT12DK*A*0*	567	11.5	4	A	Smith	13	Westinghouse	RT114LLW	RT114L	803	11	9	A
96	Hope	18	Gibson	RT14C1	RT14C1	1008	14	21	P	Albany	13	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
97	Richmond	18	Roper	RT14DKX	RT14DK*A*0*	525	14.4	4	A	SouthBeach	13	Roper	RT12DKY	RT12DK*A*0*	567	11.5	4	A
98	Clinton	18	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	Betances	13	Westinghouse	RT141GC	RT141G**A	828	14	6	A
99	Mitchel	18	Roper	RT14DKY	RT14DK*Y*0*	686	14.3	5	A	Independence	13	Westinghouse	RT141GC	RT141G**A	828	14	6	A
100	Mitchel	17	Sears	564.8660211	8660210	725	10	11	A	HighBridge	13	Westinghouse	RT141GLW	RT141G**A	828	14	6	A
101	Mitchel	17	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	Smith	13	Gibson	RT14C1W	RT14C1	1008	14	21	P
102	Melrose	17	Whirlpool	EHT141DTW	EHT141DT	925	14.3	15	P	Wise	13	Gibson	RT14C1W	RT14C1	1008	14	21	P
103	Wise	17	Whirlpool	ET12CCR	ET12CC*S*0	740	12	10	P	Sedgwick	12	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
104	Wise	17	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P	Berry	12	HotPoint	CTA15CGE	CTA15CG	770	14.6	12	P
105	Gravesend	17	Westinghouse	RT140GC	RT140GC*3	903	14	10	P	KingTowers	12	HotPoint	CTXY14CMD	CTXY14CM	736	14.4	7	A
106	SethLow	17	Westinghouse	RTG123GL	RT120G**1	815	12	13	P	Gravesend	12	Whirlpool	EHT121PTA	EHT121PT	985	12	15	P
107	Smith	17	General Electric	TB13SLC	TB13SLC	697	13.4	7	P	Clinton	12	Whirlpool	ET14DCX	ET14DCXL	865	14.3	14	P
108	Clinton	16	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A	HighBridge	12	Roper	RT12DEL	RT12DC*W*0*	784	11.6	7	A
109	Baruch	16	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A	Mitchel	12	Westinghouse	RT141GC	RT141G**A	828	14	6	A
110	Smith	16	HotPoint	CTXY14CPJRW	CTXY14CP	733	14.4	6	A	Clinton	12	Westinghouse	RT141GL	RT141G**A	828	14	6	A
111	SethLow	16	Whirlpool	EFT122DT	EHT122DT	845	12.4	15	P	Mitchel	12	Westinghouse	RT143SLW0	RT143SC**	828	14	4	A
112	Douglas-Add	16	Whirlpool	ET12CCLSWOO	ET12CC*W*0*	732	12	7	P	Mitchel	12	Westinghouse	RTG123GC	RT120G**1	815	12	13	P
113	Rangel	16	Gibson	RD12C1	RD12C1*MGA	824	12	15	P	Mitchel	12	General Electric	TA12SNB	TA12SR	588	11.5	22	M
114	Albany	16	Westinghouse	RT123GCW	RT123GC*A	766	12	7	A	Melrose	12	Westinghouse	WRT150GAW	WRT15CGA**	624	15	4	A
115	Independence	16	Westinghouse	WRT15CG	WRT15CGA**	624	15	4	A	Berry	12	Westinghouse	WRT15CGA	WRT15CGA**	624	15	4	A
116	Melrose	15	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A	Gravesend	11	Westinghouse	ATG150NC	ATG150N**0	697	15	6	A
117	Melrose	15	HotPoint	CTXY14CPG	CTXY14CP	733	14.4	6	A	Baruch	11	HotPoint	CTA13CGE	CTA13CG	740	13.4	10	P
118	LaGuardia-Add	15	Whirlpool	EET121DTW	EET121DT	1080	12	21	P	SethLow	11	HotPoint	CTA13CKB	CTA13CK	735	13.4	9	P
119	KingTowers	15	Whirlpool	EET121PT	EET121DT	1080	12	21	P	Chelsea	11	HotPoint	CTH14CYX	CTH14CYS	496	14.4	4	A
120	Gravesend	15	Whirlpool	EHT141DT	EHT141DT	925	14.3	15	P	Rangel	11	HotPoint	CTXY14CM	CTXY14CM	736	14.4	7	A

Appendix B

Occupant Density in NYCHA Developments

Appendix B

Occupant Density in NYCHA Developments

The New York City Housing Authority provided occupant counts data for each development in the 1997 project year in each of four age categories: children (0-9), teenagers (10-20), adults (21-61) and elders (62 and older). This data is summarized in Table G.1. The column identified as "Elderly" has a value of 1 for those developments that are occupied mainly by elderly people (0 indicates not elderly). To be assigned the elderly classification, the development must have an elderly/total fraction greater than 0.25 and a total/residence ratio of less than 2.0.

In a letter from NYCHA to PNNL the official count of people in all the NYCHA developments was identified as 431,500 people living in 173,660 units (2.5 per unit). However this count is know to be conservative because it is estimated that roughly 105,000 additional un-official residents are in these apartments. Therefore the best estimate of the true occupant density in NYCHA developments is 3.1 [(431,500 + 105,000)/173,660] persons per dwelling unit.

Table B.1. NYCHA Occupant Data for Each Development in the 1997 Project Year

		Count per Family					Fraction of Total				Development Size		
Indexing Name	Elderly	Child	Teen	Adult	Elders	Total	Child	Teen	Adult	Elders	Dev	NYCHA Name	Families
Albany	0	0.55	0.65	1.10	0.28	2.58	0.21	0.25	0.43	0.11	85	ALBANY I AND II	1135
Baruch	0	0.45	0.62	1.18	0.35	2.59	0.17	0.24	0.45	0.14	60	BARUCH	2134
Berry	0	0.34	0.38	0.88	0.47	2.06	0.16	0.18	0.42	0.23	52	BERRY	500
Betances	0	0.43	0.69	1.30	0.21	2.63	0.17	0.26	0.49	0.08	285	BETANCES VI	145
Campos	0	0.40	0.71	1.43	0.34	2.88	0.14	0.25	0.50	0.12	286	CAMPOS PLAZA II	223
Chelsea	0	0.35	0.55	1.12	0.44	2.46	0.14	0.22	0.45	0.18	134	CHELSEA	420
Clinton	0	0.49	0.63	1.10	0.39	2.61	0.19	0.24	0.42	0.15	123	CLINTON	742
	0	0.47	0.69	1.09	0.33	2.58	0.18	0.27	0.42	0.13	69	COOPER PARK	697
Douglas-Add	0	0.37	0.47	0.98	0.45	2.27	0.16	0.21	0.43	0.20	148	DOUGLASS & ADDITION	1420
Douglas-Reh	0	0.37	0.47	0.98	0.45	2.27	0.16	0.21	0.43	0.20	148	DOUGLASS & ADDITION	1420
Gravesend	0	0.73	0.76	1.14	0.17	2.80	0.26	0.27	0.41	0.06	68	GRAVESEND	605
Haber	1	0.00	0.00	0.21	0.99	1.21	0.00	0.00	0.17	0.82	142	HABER	368
HarlemRiver	0	0.33	0.31	0.79	0.42	1.86	0.18	0.17	0.42	0.23	147	HARLEM RIVER I & II	634
HighBridge	0	0.57	0.67	1.19	0.25	2.68	0.21	0.25	0.44	0.09		HIGHBRIDGE	662
Hope	0	0.33	0.54	1.00	0.47	2.34	0.14	0.23	0.43	0.20	247	HOPE GARDENS	316
Langston	0	0.66	0.61	1.19	0.20	2.66	0.25	0.23	0.45	0.08	168	HUGHES	494
Independence	0	0.82	0.78	1.03	0.63	3.26	0.25	0.24	0.32	0.19	140	INDEPENDENCE	707
Isaacs	0	0.30	0.36	0.95	0.49	2.10	0.14	0.17	0.45	0.23	139	ISAACS	635
KingTowers	0	0.47	0.54	1.09	0.39	2.49	0.19	0.22	0.44	0.16	30	KING TOWERS	1332
LaGuardia-Add	1	0.00	0.00	0.11	1.06	1.17	0.00	0.00	0.09	0.91	152	LAGUARDIA ADDITION	140
SethLow	0	0.73	0.78	1.25	0.20	2.96	0.25	0.26	0.42	0.07	169	LOW, SETH	517
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Richmond	0	0.93	0.80	1.16	0.13	3.01	0.31	0.27	0.38	0.04	117	RICHMOND TERRACE	468
Sedgwick	0	0.41	0.46	1.07	0.27	2.21	0.18	0.21	0.48	0.12	45	SEDGWICK	745
Smith	0	0.29	0.43	1.09	0.57	2.38	0.12	0.18	0.46	0.24	27	SMITH	1896
	0	0.55	0.68	1.15	0.26	2.64	0.21	0.26	0.44	0.10		SOUNDVIEW	1204
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	0	0.50	0.56	1.01	0.41	2.48	0.20	0.23	0.41	0.16	38	ST. NICHOLAS	1471
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