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Ms. Hope Pillsbury  
Office of Resource Conservation and Recovery  
Environmental Protection Agency  
1200 Pennsylvania Ave., NW  
Washington, D.C. 20460-0001

Dear Ms. Pillsbury,

Thank you so much for specifically inviting the public to review and comment on the EPA's work on Materials Management, and specifically, on the report, "Municipal Solid Waste in the United States, 2009 Facts and Figures."

The report has long been a valued resource to our work here at the Container Recycling Institute (CRI). We use the data in the tables in our reports, and sometimes use the bar charts and graphs when giving public presentations at conferences. The information we find most useful include facts on disposal rates, recycling rates, material types, tonnages, percentages and especially the trends from 1960 to 2009. Tables 18 to 23 are especially helpful.

As you may know, CRI worked closely with the United States Environmental Protection Agency (USEPA) in 1999 to clarify and correct the methodology for calculating the U.S. aluminum can recycling rate. The USEPA adopted CRI's approach in 1999, and now the two organizations' calculation methodologies are consistent. We believe a similar process is now needed for other material types (clarification, correction, consistency.)

We need to start reporting what is *actually* recycled, not what is *collected* for recycling. Process losses occur at the materials recovery facility (MRF) when contaminants are removed, and even greater levels of contamination are removed when materials arrive at paper mills, plastics reclaimers and the like.

### **PET Bottle Recycling Rate**

For example, The National Association for PET Container Resources (NAPCOR) recently reported a 29 percent "recycling rate" for PET plastic bottles for 2009, but the same document reports a "utilization rate" of only 21 percent for PET bottles, once the contamination has been removed<sup>1</sup>. The USEPA has used the higher rate, which includes contamination, in previous editions of "Municipal Solid Waste in the U.S." We recommend that the USEPA use the "utilization rate" in future reports.

### Types of Materials that Need to be Removed from PET

Some of the contamination in PET bottles is naturally attached to the bottle, such as caps, labels and adhesives. Collectively, caps, labels and adhesives make up approximately 13% of the weight of PET bottles (note that this number varies from bottle to bottle, because bottle designs are so different.) Many of the caps are polypropylene, and they are often removed and recycled, but the

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<sup>1</sup> National Association for PET Container Resources (NAPCOR), Association of Postconsumer Plastics Recyclers (APR), "2009 Report on Post Consumer PET Container Recycling Activity, Final Report."

labels and adhesives are generally disposed. Other contamination may be “look-alike” bottles that were mistakenly added to the PET bale, but are a different resin type, and so they must be separated before the bottles are recycled.

Yield loss varies significantly, as a result of different collection methods, with container deposit programs delivering significantly cleaner materials. As the NAPCOR/APR report states, “reclaimers reported yield losses ranging from 17% for deposit to 25.7% for curbside.”

The current method of accounting can lead to inflated recycling rates and double-counting. When the polypropylene caps are recycled, the weight of those caps is counted again and included in the polypropylene recycling rate. The labels, adhesives and other contaminants are disposed of, but their weight has already been counted as “recycling” in the NAPCOR/APR report.

We recommend that the USEPA use the “utilization” rate that is included on page seven of the NAPCOR/APR report, as this is the number that represents the true weight of PET bottles that are recycled each year. It is also the rate that includes the same “apples to apples” items in both the numerator and denominator of the equation. The denominator is PET bottles only, with no caps, labels or adhesives.

### Recycling Rates for HDPE and other Plastic Bottles

The 2009 recycling rates for PET and HDPE were reported as increases in the recycling rate compared to the previous year, but the reports issued by NAPCOR and the American Chemistry Council also reported increases in contamination. It appears that the entirety of the recycling rate increases were due to increases in contamination, and not due to any actual increase in the (percentage) recycling rate of the underlying material. Indeed, this appears to be true for PET, which had an identical “utilization rate” or yield, from 2008 to 2009 – in both years, the number was 20.9%, while the reported recycling rate increased from 27% to 28%.

Indeed, the APR & ACC’s “2009 United State National Post-Consumer Plastics Bottle Recycling Report” states, “Single stream collection of household recyclables continued to grow, generally resulting in higher overall household participation rates and more contaminated bales of bottles and lower yields.” Also from the APR/ACC all-bottle report, “the slippage in bale yields quantifies this, falling in 2009 to 77.9% vs. 80.4% in 2008.” The ACC/APR report lists the recycling rates (which we refer to as “collection” rates) as 27.0% for 2008 and 27.8% in 2009, and this change is characterized as an increase. In contrast, we calculate that the all-bottle *actual* recycling rate (after contamination is removed) remained flat from 2008 to 2009, at 21.7%. The table below illustrates the calculations.

All Bottles	2008	2009
Overall Collection Rate	27.0%	27.8%
Yield Rate	80.4%	77.9%
Actual Recycling Rate (after contamination has been removed)	<b>21.71%</b>	<b>21.66%</b>

This report also speaks to the variability of yield losses (page 11.) “The yield of post consumer bottles to clean product ranged, depending on raw material and end use, from 72% to 89%.” Again, this fact compels us to recommend that the USEPA use the *actual* recycling rate rather than the collection rate.

For non-bottle rigid plastic recycling, similar contamination issues exist in the reporting of recycling rates, and they are also a threat to the plastics recycling industry and the jobs they create. As the

ACC report states, "This lack of adherence to quality standards is a significant barrier to developing more domestic reclamation capacity."

### **Recycling Rates for Other Material Types**

Plastics recyclables are certainly not alone when it comes to the need to remove additional contaminants after the material leaves the MRF. In our 2009 report, "Understanding economic and environmental impacts of single-stream collection systems," we reported that paper mills receive materials from single stream MRFs that amount to above 10% of incoming material, and perhaps as high as 18%, based on one study that is cited in the report. We would recommend that the USEPA review the basis of the recovery rates for paper and other materials in the MSW report, to ensure that the rates reflect actual recycling.

### **Glass Recovery Rates**

We recommend that the USEPA provide more detail on how the glass recycling rates are derived or calculated, and also that the report give a breakdown of the amount of glass that is recycled for use as cullet to make glass bottles or fiberglass, versus the amount of glass that is used for aggregate or landfill daily cover. Recycling tonnages are often used in calculations of energy savings, greenhouse gas and other emission savings, and job creation, and there is a potential to overstate these environmental benefits if the use of the glass is misunderstood.

### **Overall Generation Rates/Current Disposal Estimates**

CRI agrees with the comments provided in the cover letter of Samantha McBride of Columbia University's School of International and Public Affairs regarding quantification of overall MSW amounts. It would be preferable to also see harmonization between the EPA's quantification (scope, types of materials, recycling rates, sectors), and those of the various states. Currently, it is impossible to make "apples to apples" comparisons from state to state or from state to nation.

### **Number of Households with Curbside Recycling Programs or "Access to Recycling"**

We are concerned that one study that we have reviewed may overestimate the U.S. population with access to recycling.

The "2008 ABA Community Recycling Survey" was conducted for the American Beverage Association by R.W. Beck (released September 2009.) The results from that survey indicate that "74% of the population has access to curbside recycling." This percentage is a significant increase from previous publicly reported surveys of curbside recycling access that have been conducted in recent years.

The study includes a significant amount of extrapolation, which the study authors acknowledge may give the study results an "upward bias." Figures ES.1, 2.2 and D-1 demonstrate the level of extrapolation graphically. Table 2-3 shows that the state-by-state response rates ranged from 2% in Maine to 100% in Washington, D.C. Regardless of the response rate in each state, it appears that results were extrapolated to the population of the entire state.

Multi-family recycling is an important part of the overall calculation, as it is estimated that at least 25% of the U.S. population lives in multi-family housing. Knowing about availability of recycling for that portion of the population is significant for the overall calculation of recycling access, and especially for the access to recycling for individual material types. Since there is more variability and less local control of multi-family recycling, a careful survey needs to ask MORE questions about multi-family recycling access in order to receive accurate results and to be able to assess

the validity of survey responses. However, the survey instrument asked only one question about multi-family recycling, and did not appear to ask questions about individual material types collected in multi-family housing.

Multi-family housing is, in many cases, served by the “free market” of private waste haulers and recyclers, and is less likely to be serviced by municipalities or to be included in municipal contracts for waste and recycling services. As a result, many city and county managers do not know the details of what is collected in multi-family housing, since the management of such services is not under their direct purview. Also, even when municipal contracts require that recycling service be “offered” to multi-family buildings, or when communities have “mandatory commercial recycling ordinances,” many building managers do not subscribe to the service, making it unavailable to their tenants. Mandatory ordinances and contractual requirements to offer recycling service require monitoring and enforcement to ensure that residents are receiving service. Therefore, for the purposes of the calculation of “population with access to recycling,” it can not be assumed that recycling services are applied uniformly to the multi-family portion of the population, and much more detailed investigation is needed to estimate “access” in the multi-family sector than in the single-family sector. The ABA survey methodology did not apply extra survey questions or extra levels of testing to estimate recycling access in the multi-family sector. According to the survey instrument, county-level employees were asked for percentages of the entire population with access, without distinguishing between single family and multi-family residents.

As an example of how extrapolation of survey responses and estimates of multi-family housing coverage can vary based on the survey methodology, we take the example of the case of the State of Florida. Florida has surveyed every county in the State, and has asked for the following from each county:

- Number of single-family units;
- Number of units with curbside recycling service available;
- Residents per unit; and,
- Several other factors, including questions about mandatory recycling services in the “commercial” sector, which includes multi-family bin service.

The State of Florida estimates the “population with curbside program availability” at 15,794,386, based on a complete survey of all communities in all counties in the State. The ABA community survey estimates the Florida population with access to curbside recycling at 17,190,000 (ABA estimates 90% of a State population of 19,100,000.) The ABA community survey estimate is therefore nearly nine percentage points higher than the State of Florida’s estimate of the population with curbside program availability.

We recommend that the EPA carefully review any methodology that is proposed to estimate the population with access to curbside recycling, and where possible, test the survey results against information sources that provide “actual” values. The current ABA method uses extrapolation, and we question whether the extrapolation methodology has the tendency to overstate the percentage results. In addition, the methodology includes access to subscription recycling service as “access,” whether or not the household subscribes to the service.

The implications of an overestimate of access to recycling are that, with incorrect data, public and private investment in increasing the recycling rate may tend to try to solve the wrong problem. If recycling strategists believe that nearly everyone has access to recycling services, they may invest funds in motivating people to recycle. Of course, any funds spent to motivate people to recycle if a significant percentage of them don’t have *actual* recycling access would result in frustration and wasted funds. We therefore recommend that the USEPA carefully review the

methodology and results of such recycling access studies before including the results in the MSW report.

**Table 24, p. 151**

We suggest that the USEPA consider adding refillable bottles to this table, as an excellent example of materials reduction in containers and packaging.

**Nondurable Goods, p.153**

There is one statement within this section that seems perhaps a misstatement. About durable goods and disposables, the report states, "(This will reduce solid waste but will have other environmental effects, such as increased water and energy use.)" There are many lifecycle assessments that show that the upstream impacts and use of water and energy is higher for certain disposable goods than for durables.

**Containers and Packaging, p. 154**

The report correctly gives an example of glass refillable bottles, but could also mention PET refillable bottles, which are virtually unknown in the United States, but are in widespread use in Europe, and have a much lower carbon footprint than the vast majority of container types, due to being refilled up to 15 times. Glass refillables are also in widespread use in Canada and Europe, and glass refillable bottles are refilled 12-15 times, according to the most recent annual report of the Beer Store.

**Deposit Systems, page 159, and Figure 19. States with Bottle Deposit Rules**

CRI has worked with Franklin Associates to provide an updated map to remove the State of Delaware. Earlier this year, the territory of Guam passed a new deposit law. Guam is currently working on preparing regulations for implementation of this new law. This information should be added to the USEPA report.

Since this section of the report addresses the number or percentage of recycling locations, it is worth noting that there are thousands or hundreds of return locations for beverage containers in each state with a deposit system (depending on the size of the state.)

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We sincerely appreciate the opportunity to provide input into EPA's important work on Sustainable Materials Management and Municipal Solid Waste Recycling and Source Reduction Measurement. We would be pleased to discuss these comments with the EPA and answer any questions, and stand ready to work with the EPA on these issues in the future.

Sincerely,



Susan V. Collins  
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CONTAINER RECYCLING INSTITUTE