

US EPA ARCHIVE DOCUMENT

Appendix G

**ASSESSMENT OF SMALL ENTITY IMPACTS
ASSOCIATED WITH THE COMBUSTION MACT FINAL RULE**

FINAL DRAFT: July 1999

**Assessment of Small Entity Impacts Associated with the
Combustion MACT Final Rule**

Prepared for:

**EPA Office of Solid Waste
Economics, Methods, and Risk Analysis Division**

**Contract Number 68-W6-0061
Work Assignment B-06**

1. Introduction

This report analyzes the impact of the Combustion MACT rule on small businesses as required by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of March 1996, which amended the Regulatory Flexibility Act (RFA) of 1980. Under these laws, EPA must analyze proposed regulations to determine if they will have a "significant economic impact on a substantial number" of small entities (i.e., businesses, tribes, non-profit organizations). If a regulation is found to have an impact on a substantial number of small entities, further analysis must be performed to find how significant the impact is, and to determine what can be done to lessen the impact. In this report, EPA primarily analyzes the potential impacts of the MACT rule on small combustion facilities. EPA has determined that combustion facilities are not owned by small entities other than businesses, so only businesses are analyzed in this report. Small businesses are defined either by the number of employees, or by the dollar amount of sales. The level at which a business is considered small is determined for each Standard Industrial Classification (SIC) code by the Small Business Administration (SBA).

In this report, industries are classified by SIC codes rather than the new North American Industrial Classification System (NAICS) codes. The reason for this is our extensive reliance on waste generator, blender, and combustor data that reports SIC codes, not NAICS codes for individual facilities. This existing data includes biennial report data from EPA and financial information from companies such as Dun & Bradstreet. For reference, however, a conversion table containing NAICS codes for each SIC code mentioned in the report is presented in Appendix A. Because there is not a unique relationship between each SIC code and a corresponding NAICS code, a simple conversion is not possible.

The remainder of the report is divided into two chapters - methodology and results. The methodology chapter lays out EPA's approach for defining "small entities," and for identifying thresholds for "significant economic impacts" and "substantial number" of small entities. It also describes the sources used and presents the approach followed to complete the analysis of impacts.

Direct impacts of the regulation will be borne by individual waste combustors (incinerators, cement kilns, and lightweight aggregate kilns) because they will incur direct compliance costs as a result of the rule. As a supplementary exercise, EPA also included hazardous waste generators and fuel blenders with its analysis of combustors because, although combustors are the only group that would bear direct costs from the regulations, EPA assumed that some indirect portion of the burden would be passed on to customers of

combustion facilities through price increases. Combustion is often the least expensive option for hazardous waste disposal, so if combustion costs rise, the generators and blenders would be forced to either dispose of their wastes in more expensive ways, or have to pay more to send their wastes to combustors. Therefore, generators and blenders may share the combustion cost burden with combustors.

The results chapter first provides data on the number and characteristics of small entities included in the analysis. We then present our results of the economic impact analysis for small businesses.

2. Methodology

This chapter describes the data and our approach for analyzing the economic impact of the Combustion MACT rule on small entities. The primary focus of the analysis is on combustors because they will incur direct compliance costs as a result of the rule. The analysis was also extended to look at potential secondary or pass-through effects on fuel blenders and generators of hazardous wastes. The scope of this report includes:

- ▶ Small business owners of affected combustion facilities (incinerators, cement kilns, and lightweight aggregate kilns);
- ▶ Small business waste generators who may face higher prices for waste management services as a result of the rule;
- ▶ Small business fuel blenders who collect and manage much of the small business waste shipped to waste-burning kilns.

For combustors and blenders, EPA conducted facility-by-facility analyses of small businesses to identify those where impacts might be significant. The analysis was more complex for generators, however, because the rule indirectly affects more than 11,000 generators who ship hazardous waste to fuel blenders or directly to combustion facilities.¹ Given the large number of generators who would be affected by the rule, it was necessary to conduct an initial, broad screening analysis to identify small business generators that might face significant impacts. The results of this screening analysis were used to identify industry groups or specific facilities where further analysis might be appropriate.

If we were conducting the generator analysis on a facility-by-facility basis, we would have to obtain employment and sales information for each of the over 11,000 facilities affected and then identify the number of firms that are small. The time and financial resources required to conduct the analysis in this manner were prohibitive, so EPA instead opted to conduct a less precise screening analysis, especially since the analysis is of secondary, not primary, impacts on generators. The screening analysis involved assigning each facility to an industry group (*i.e.*, a four-digit SIC code), identifying industry groups that are dominated by small businesses, and then assuming that all facilities in those small business dominated industries are small. The approach requires much less specific information and can identify facilities and industries of concern for further study, if impacts appear to be significant for a substantial number of facilities.

¹ Data from the 1995 EPA Biennial Reporting System.

We begin with a determination of which affected entities are small. In all cases, this was based on a comparison of facility data with size thresholds determined for specific industry groups by SBA. After compiling data on business exposure to the rule (*i.e.*, compliance costs), EPA established a threshold for measuring “significant economic impact.” This threshold was set where compliance costs exceed 1 percent of facility sales. If costs do not exceed 1 percent of sales for any businesses, then the regulation is unlikely to have a significant economic impact on small businesses. Finally, EPA examined whether the significant economic impact (if any) would be borne by a “substantial number” of small businesses. If the regulation produces costs exceeding 1 percent of sales for more than 100 small businesses or 20 percent of small entities in an industry, then the “substantial number” threshold is exceeded, and further study may be required.

The following part of Chapter 2 discusses the data sources used to conduct the analysis and issues encountered in working with these data. The chapter continues with the approach that EPA followed to conduct the analysis of impacts on small businesses. The approach includes an explanation of how the data sources were combined and what process was followed to analyze “small entities,” “significant economic impact,” and the “substantial number” test.

2.1 Data Sources

2.1.1 Direct Impacts: Combustion Facilities

To evaluate whether companies that own combustion units are small businesses, EPA developed a list of combustion units including the facility name, owner, location, EPA identification number, SIC code, and financial information for the facility and its parent company (if available). The facility information was compiled primarily from the EPA's list of permitted facilities. The financial information was originally compiled from Dun & Bradstreet and the American Business Directory for EPA's “Resource Conservation and Recovery Act (RCRA) Expanded Public Participation and Revisions to Combustion Permitting Procedures” proposed rule in June 1994. We have updated the facility and parent sales information as of July 1998, based on data from Dun & Bradstreet and American Business Information.

2.1.2 Indirect Impacts: Supplementary Analysis of Generators and Blenders

Our first task was to identify small business generators of hazardous waste bound for combustion. Interviews with waste brokers, fuel blending industry representatives, and generators, plus articles from trade industry journals and other publications provided

anecdotal information about generator industries likely to contain a large percentage of small businesses. These generator industries include automotive shops, printers, dry cleaners, parts cleaners, metal fabricators, rubber and plastic manufacturers, paint contractors, machine shops, industrial laundries, and photographic processing stores. To conduct a more systematic evaluation, however, EPA analyzed waste shipment data provided as part of the biennial reporting requirements for permitted Subtitle C waste management facilities.

The EPA Biennial Reporting System (BRS) data allowed us to identify waste type, quantity shipped, and origin for all waste streams that are combusted. For shipments from generators, we analyzed information reported in the Waste Received (WR) form of the biennial report; this form is completed by all permitted waste management facilities and it includes waste quantity data.²

The second task, identifying fuel blenders, was based on an earlier list developed for the hazardous waste combustion waste minimization analysis. In that analysis, fuel blenders were identified using a combination of WR and Waste Generation Management (GM) forms,³ along with system type information.⁴ This analysis resulted in a list of 74 fuel blenders. We used this list to isolate waste streams from the 1995 WR data where one of these fuel blenders was identified as the source of the wastes.⁵ This list contained only wastes that were eventually combusted at a commercial incinerator, cement kiln, or lightweight aggregate kiln. This approach seemed to be fairly effective in capturing a significant number of blenders; the 1993 BRS data analysis identified 74 fuel blenders, and 67 of these blenders were also identified using the 1995 data. Waste quantities received by incinerators, energy recovery facilities, and fuel blenders were extracted from the data, linked to the EPA ID of the generator, and converted to common units (tons).⁶

² WR forms are submitted by facilities that receive hazardous waste and include information on the facility of origin (EPA ID), the physical characteristics of the waste, and the method of waste management.

³ The Waste Generation Management (GM) forms are submitted by all large quantity generators and include information on the waste generating process, the four digit SIC code, and waste destination, in addition to the waste management method and waste characteristics.

⁴ For a more detailed discussion of this approach, see Tellus Institute, "Economic Analysis of Waste Minimization Alternatives to Hazardous Waste Combustion." July 24, 1997.

⁵ The WR form has a 'Source ID' field that includes the EPA ID of the facility from which the waste was received.

⁶ Energy recovery facilities include hazardous waste-burning and lightweight aggregate kilns.

Because we planned to conduct further analysis to identify small business impacts, we needed to further classify generators and blenders with regard to the industry group to which they belong, *i.e.*, we needed to assign them to SIC codes. Unfortunately, the BRS data contained limited information on SIC codes. We therefore used EPA's Facility Index System (FINDS) database to assign SIC codes to additional generators and blenders by EPA ID.

The resulting data set included the EPA identification number of the generator or blender, the firm's primary SIC code, the EPA waste code for the waste, the form code of the waste, the type of combustion unit for which the waste was destined, and the waste tonnage shipped in 1995. Comparable data were provided for shipments between generators and blenders, blenders and combustors, and generators and combustors.

Assigning SIC codes to the generators and blenders, however, caused several problems. In the generator and blender data, hundreds of the facilities had more than one SIC code assigned. Since we were aggregating costs for many shipments by the same facility, it was important to have the same SIC code assigned to a facility so the costs could be compared to sales.

To avoid extensive additional research, EPA decided to revise the data and assign a single SIC code to each facility. To determine which of the multiple SIC codes to assign to a facility, we summed the total tonnage of waste shipped for each reported SIC code for the facility. The SIC code associated with the largest amount of waste shipped was chosen as the "primary" SIC code for the facility.

We also checked this primary SIC code to be sure it was valid (we identified several hundred non-existent SIC codes assigned to facilities), and checked that none were missing. If the primary SIC was missing or invalid, we searched for the next SIC code assigned to the facility. In some cases, no valid SIC code could be assigned, so these facilities were left out of the analysis. The characteristics of the generator and blender data are described in the first part of the results chapter, including the effect of EPA's adjustments to the data.

2.1.2.1 Sales and Employment Data for Generator Industries

The screening analysis conducted on the generator data required that we identify industries that are dominated by small businesses. We used the *New Census Based Small Business Data Base* prepared jointly by the Small Business Administration and the Bureau of the Census. This data base contains information on the number of firms and establishments, employment, payroll, and receipts by four-digit SIC code. The data are also grouped according to the employment size of the enterprise in which the establishment is included.

EPA used data from 1993 to identify small business-dominated industries (SBDIs), *i.e.*, industries in which more than 60 percent of employment is in enterprises with 500 employees or fewer. For each SBDI (defined by four-digit SIC code), EPA also calculated average sales for the small businesses within the industry. These averages were used to screen for impacts where compliance costs exceeded various thresholds (*e.g.*, 1 percent of sales). It is important to remember that not all business enterprises in these SBDIs are small -- only that they are more likely to be small than in other industries. To focus only on waste shipments from SBDIs, we compared the SIC code for facilities in the BRS data to the SIC codes that met the employment criterion in the Census data and excluded generators in SICs that were not dominated by small business.

2.1.2.2 Sales and Employment Data for Blenders

The 67 blender facilities identified in the analysis of 1995 BRS data represented only 46 companies, since many companies have multiple locations. According to SBA regulations (13 CFR 121.103(4), "SBA counts the receipts or employees of the concern whose size is at issue and those of all its domestic and foreign affiliates, regardless of whether the affiliates are organized for profit, in determining the concern's size." As a result, we used financial information for parent companies, where relevant, to compile sales and employment data for blenders.

EPA obtained corporate financial profiles through Corptech Technology Company Information and American Business Information. The profile information EPA sought included annual sales, number of employees, primary SIC as reported by the company (note that NAICS codes are not yet available in these profiles), parent company (if applicable) and parent company annual sales (if applicable).

Four of the 46 companies were excluded at the outset because they are known large companies and obviously not small businesses. EPA then searched for specific information for the remaining 42 companies. No data were available for four of the 42 companies. The remaining 38 companies were screened for small business status based on the size standards (either number of employees or sales) specified for each SIC in 13 CFR 121. In most cases,

the SIC codes that we used were those reported in the company profile. If a company profile did not include a SIC code, the SIC for that facility from the BRS data was used.

2.1.3 Compliance Costs and Price Pass-Through

The cost of compliance with the new standards will determine the severity of impacts on small businesses. Compliance cost information was provided from engineering cost models for the individual combustion units. These costs coincide with the 70 percent design scenario analyzed in the full economic assessment.⁷

For the supplementary analysis EPA computed price increases experienced by generators and blenders per ton of waste shipped. Note that the impacts from these price increases are indirect effects – combustors bear the only direct impact of compliance costs. The range of price increases was assumed to be \$5 to \$16 per ton, depending on the extent of cost pass-through from combustors to their customers. The price increases were assumed to be uniform across facility types and varied based on a 25 percent and a 75 percent pass-through of compliance costs. The 75 percent scenario provides a more conservative screen for significant impacts. EPA has also been conservative in assuming that generators shipping to blenders and blenders shipping to combustors would each experience the pass-through effect. In practice, the pass-through would likely be split between the two depending on market factors.

2.1.4 Small Organizations

EPA has determined that combustor facilities are not owned by small organizations.

2.1.5 Small Governments

EPA has determined that combustor facilities are not owned by small governments.

2.2 Approach

2.2.1 Combustion Facilities

The analysis of small business impacts on combustion facilities was conducted on a facility-by-facility basis. To accomplish this, EPA screened the facilities to identify small businesses, input compliance cost estimates for the rule, and compared the impacts with facility and parent company sales.

⁷See Chapter 4 in the *Assessment* document for more details.

Small businesses were those where the number of employees or the company's sales fell below statutory small business thresholds defined for each four digit SIC code by the SBA in 13 CFR Part 121. Six facilities with five different owners met the criteria. Summary information about these facilities is provided in Chapter 3.1.1.

Compliance cost estimates were based on engineering cost models and developed for each individual facility. Compliance costs ranged from \$54,269 to \$2,975,708 for the six facilities. Costs were divided by facility and parent company sales to calculate the economic impact measure and to screen for facilities with potentially significant impacts. Annual compliance costs were divided by annual sales to identify facilities where compliance costs would exceed 1 percent of sales. The costs and impacts are analyzed in Chapter 3.2.1.

2.2.2 Indirect Impacts: Analysis of Generators

If compliance costs are passed through to customers of combustion facilities, a large number of small generators may be exposed to indirect economic impacts. The large number of shipments tracked in the BRS and the large number of generator establishments indicated that a simpler, screening type analysis was the appropriate method to evaluate these indirect impacts. The basic approach EPA followed was to combine the BRS shipment data with projected price increase information to compute the incremental cost associated with current shipments of waste for each generator facility. We then compared these costs to sales information for small businesses in the same industry to identify facilities where incremental costs may exceed certain threshold levels.

First, EPA computed compliance cost pass-throughs from blenders and combustors. Since generators are not subject to direct compliance costs, we defined compliance costs for generators as the expected combustion price increase per ton multiplied by the tons shipped to blenders and combustors by the facility. For the screening analysis, EPA assumed two different scenarios in which 25 percent and 75 percent of compliance costs would be passed through to customers.

The economic impact measure used in the generator analysis is the facility compliance cost divided by facility sales. This measure, called the "sales test," is a common measure for business entities in this type of analysis. EPA used facility-specific compliance costs as described above. Given the large number of facilities, it was not practical to attempt to obtain sales data for each enterprise. Instead, we compared the compliance costs to benchmark data derived from the Census.

Using Census data described in Chapter 2.1.2.1, EPA computed the average sales per establishment for small businesses within each small business-dominated SIC. For each SIC code where 60 percent of employment was in establishments with fewer than 500 employees, EPA computed the total sales for small entities and then divided the total sales by the number

of small establishments. The resulting average sales (by four-digit SIC code) defined the benchmark against which compliance costs for each facility in that SIC would be measured. To set a conservative benchmark, EPA computed the average sales for establishments with 20 or fewer employees. This insured that the screening analysis would err on the side of predicting significant impacts for more small entities than would actually incur them.

In reality, economic impacts on generators depend on the firms' ability to absorb costs, which depends on the firms' sales, profit margins for specific product lines, and ability to increase prices to their customers. However, these data are expensive to obtain for each generating facility and may also be confidential. For the purposes of this analysis, the ability of generators to absorb costs was not examined. Chapter 3.1.2 contains a discussion of the generators analyzed and their small business status. The results of the economic impact screening analysis is in Chapter 3.2.2.

2.2.3 Indirect Impacts: Analysis of Fuel Blenders

As with generators, blenders do not incur direct compliance costs as a result of the rule. To supplement our analysis of the impact on combustors, however, EPA examined how blenders would be affected if compliance costs were passed through to them.

Compliance costs were analyzed using the same approach described for generators. Compliance costs were computed as the expected combustion price increase per ton multiplied by the tons shipped from each blender to combustors. Two scenarios were analyzed in which 25 percent and 75 percent of compliance costs were assumed to be passed through to blenders.

Economic impact was computed as the compliance cost divided by the facility sales. Parent and facility sales were compiled as described in Chapter 2.1.4. Unlike the generator analysis, given the small number of blenders, we could compare each company's specific sales data to estimated costs. A list of small business blenders and relevant financial data is included in Chapter 3.1.3. The screening analysis for impacts is described in Chapter 3.2.3. Again, we should note that sales are not the only measure of cost impact, but for our purposes we did not analyze the ability of companies to absorb costs.

3. Results

The discussion of results is divided into two sections. We begin with the results of EPA's analysis of the facility and shipment data. These findings provide estimates of the number of small businesses potentially affected by the rule, the waste handled by these facilities, and other characteristics of these establishments. The second part of the chapter summarizes the findings with respect to impacts. The analysis indicates that the combustion MACT rule would not have a significant economic impact on a substantial number of small combustion entities. Broadening the analysis to include indirect effects on generators and blenders indicates that the same conclusion can be drawn for generators: the indirect effects of the rule would not impose a significant impact on a substantial number of generators, even given our conservative assumptions which tend to overstate impacts. For blenders, if the percentage of compliance costs passed through to blenders is 25 percent, the findings are the same. If the pass-through percentage reached 75 percent, however, as many as 20 percent of blenders would experience significant impacts, that is, cost as a percentage of sales (CPS) would exceed the 1 percent threshold EPA established. As with generators, our estimated indirect impacts on blenders are conservative. The chapter concludes with limitations of the assessment, including major assumptions and their potential impact on our findings.

3.1 Analysis of Facility and Shipment Data

3.1.1 Combustion Facilities

Given the capital intensity of cement production, commercial incineration, and many of the industries (*e.g.*, chemicals) that own and operate on-site incinerators, it is not surprising that few of the combustion facilities meet the definition of a small business. From a list of more than 170 combustion units, only six were classified as owned by small businesses (Exhibit 3-1).⁸ Two of the small combustor facilities are cement kilns, and four are on-site incinerators. Five of the six facilities are owned by parent companies, whose annual sales range from \$3.6 million to \$156 million. Size data were not available for two parent companies. Facility P-2 was assumed to be small and was left in the analysis. For P-5, a co-owner of site B35, we assumed that since the other owner was small, the facility should be treated as a small business. The exhibit also shows the wide range in the weight of material burned — from 47 tons per year to over 79,000 tons.

⁸ The small business combustion facilities we identify are different from those identified in the Portland Cement MACT small business analysis. The likely reason for this discrepancy is that the Portland Cement MACT standards address non-hazardous waste burning as well as hazardous waste burning cement plants, while the hazardous waste combustion MACT addresses only hazardous waste burning kilns.

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Exhibit 3-1 Small Business Combustors									
Facility Data						Parent Company Data			Small Business Size Standard
Site ID	SIC	BRS Tons	Type	Employees	Annual Sales (millions)	Identifier	Employees	Annual Sales (millions)	Threshold Number of Employees
200, 680, 201, 681	3241	79,724	Cement Kiln	25	\$6.5	P-1	415	\$116.9	750
207, 208	3241	53,580	Cement Kiln	190	\$35.0				
A 12	NA	47	Incinerator	NA	NA	P-2	NA	\$24.3	NA
A 61	2821	697	Incinerator	10-19	\$10.3	P-3	500-999	\$156.5	750
B 35	3341	372	Incinerator	40	\$20.0	P-4	100	\$3.6	500
						P-5	NA	NA	NA
A 55	2851	8,452	Incinerator	250-499	\$280.0	none	---	---	500

NA = Not available

3.1.2 Indirect Impacts: Analysis of Generators

3.1.2.1 Identifying Small Entities

The biennial report data described in Chapter 2.1.2 provided shipment information for 11,054 generators that sent 1.04 million tons of waste to blenders and combustors.⁹ Only 9,340 of the 11,054 generators had SIC codes assigned. As described earlier, facilities without a SIC code could not be included in the analysis because EPA had no way to identify the industry group to which they belonged. While missing SIC codes eliminated 15 percent of the facilities from the database, these 15 percent of facilities shipped only 3 percent of the waste quantity destined for combustors. This indicates that these facilities handled a smaller than average quantity of waste.

Several hundred additional facilities were omitted from further analysis because the SIC code to which they were assigned was invalid; that is, it does not appear in the list of SIC codes published by Office of Management and Budget or the Census Department. This screen eliminated 471 generators from the data (4.3 percent of the total). Facilities with invalid SICs typically handled about the same quantity of waste as those with valid SICs.

The results of EPA's SIC code analysis are summarized in Exhibit 3-2. The remaining 8,869 generators (80 percent of the total) shipped 982,000 tons of waste (95 percent of the total waste reported.)

The next step in the analysis was to determine which facilities were small entities (i.e., they are in small business dominated industries (SBDIs)). Comparing the SIC codes of the facilities in the database with the SIC codes of SBDIs, EPA identified 2,113 generators in SBDIs (24 percent of those with valid SICs) (Exhibit 3-2). These 2,113 facilities provided the starting point for the analysis of indirect impacts on small business generators.

⁹ It is important to note that some shipments of waste to blenders will be shipped on to combustors. Because EPA conducted the analysis on generator and blender shipments separately, the same waste may incur compliance costs twice. Since we could not apportion the cost pass through between blenders and generators, we took the conservative approach of assuming that each would incur the costs.

<i>Exhibit 3-2</i>		
Generators in 1995 BRS Data		
	Generators	Waste Shipped to Combustors (000 tons)
Raw Data	11,054	1,038*
Facility assigned to invalid SIC code or not assigned to SIC code (% of total)	2,185 (20%)	56 (5.4%)
Subtotal with valid SIC	8,869	982
Assigned Facility SIC code not in SBDI (% of valid SIC)	6,756 (76%)	803 (82%)
Subtotal in SBDIs (% of valid SIC)	2,113 (24%)	179** (18%)
<p>* This total is calculated using data from the 1995 BRS GM forms, which only includes Large Quality Generators (LQGs). This figure differs from that reported in Exhibit 2-4 of the main report (1,672,995 tons) which is based on data from the WR forms, submitted by all facilities that receive waste from off-site.</p> <p>** Of the 179,000 tons shipped to combustors in 1995, approximately 118,000 tons (66 percent) went to commercial BIFs (kilns) and approximately 61,000 tons (34 percent) went to commercial incinerators.</p>		

We reiterate that this approach eliminated from consideration some generators that are small businesses, but are not in SBDIs. EPA assumed that this exclusion is offset by the fact that we included in the analysis some generators who are not small, but are part of a SBDI.

3.1.2.2 Analysis of Generators in SBDIs

EPA reviewed the sample of small entities to identify the industries represented by these companies. Among small business generators, ten industries accounted for more than half of the generators, however, overall 176 SIC codes were represented in the sample. Service stations (SIC 5541) were the most common, but metal electroplating, plating, coating and engraving shops (SICs 3471 and 3479) together accounted for nearly 300 facilities (Exhibit 3-3). The quantity of waste generated is more highly concentrated in a few industries, with SIC 7389 (Other business services) and 5171 (Petroleum terminals) accounting for 70 percent of the waste shipped; however, these two SICs accounted for only 11.3 percent of small business generators.

<i>Exhibit 3-3</i>			
Small Business Generators by SIC			
Industry - SIC	Generators	Percent of Total	Percent of Waste
Service stations - 5541	165	7.8%	2.5%
Metal coating, engraving - 3479	162	7.7%	2.9%
Other business services - 7389	140	6.6%	58.3%
Metal electroplating, plating, etc.- 3471	132	6.2%	0.8%
Other fabricated metal products - 3499	107	5.1%	0.8%
Petroleum bulk stations & terminals - 5171	99	4.7%	11.5%
Commercial printing - lithographic - 2752	88	4.2%	1.3%
Others	1,220	57.8%	21.9%

The distribution of all generators shipping to combustors or blenders is very dissimilar to that of the generators in SBDIs. For example, the influence of individual industries is more diffuse, and none of the industries that dominate the small business generators are represented in the top overall generators (Exhibit 3-4). This shows that the small business generators are also relatively small in terms of waste shipped to combustors. For all generators, the organic chemical industry, SIC 2869, accounts for the most facilities (3.2 percent) and the most generation (16.6 percent).

<i>Exhibit 3-4</i>			
All Generators by SIC			
Industry - SIC	Generators	Percent of Total	Percent of Waste
Industrial organic chemicals - 2869	411	3.2%	16.6%
Paints, varnishes, lacquers ... - 2851	363	2.8%	6.6%
Plastics materials, resins ... - 2821	278	2.2%	5.7%
Motor vehicle parts ... - 3714	214	1.7%	0.56%
Colleges, universities ... - 8221	204	1.6%	0.14%

Another question about the database of small generators is the impact of the data lost as a result of missing or invalid SIC codes. In particular, EPA was concerned that small businesses might be more likely to be eliminated from the database. In the absence of other data, EPA presumed there might be a correlation between facility size and the amount of waste shipped, and EPA checked the impact of the data modifications on the total amount of waste shipped. Data in Exhibit 3-2 suggest that the facilities with missing or invalid SIC codes shipped relatively less waste than those with SIC data available. Exhibit 3-5 expands on this analysis, summarizing the average quantity shipped for each facility type in the original data and in the data after the adjustments.

Generators eliminated from the database because of invalid or missing SIC codes shipped 26 tons per year compared with 111 tons for generators assigned to a SIC code. If we assume that waste generation correlates with business size, then we could conclude that a disproportionate share of small businesses were eliminated from the data because of missing SIC codes. Focusing only on facilities in SBDIs, a different pattern emerges. Generators in SBDIs have smaller average waste shipments (85 tons per year) compared to those in other industries (119 tons per year).

<i>Exhibit 3-5</i>	
Average Waste Quantities Shipped by Generators (Average Tons Per Year)	
Raw Data	94
Facilities assigned to invalid SIC code or not assigned to SIC code	26
Facilities with valid SIC code	111
Facility Not in SBDI	119
Facility in SBDI	85

3.1.3 Indirect Impacts: Analysis of Blenders

3.1.3.1 *Characteristics of Small Business Blenders*

EPA was able to find financial data on virtually all of the 46 companies that own the 67 blenders as shown in Exhibit 3-6. The 67 blenders shipped 926,000 tons of waste to combustors in 1995. The four blenders for which no data were available shipped about 50 percent more waste than the average blender did (21,000 tons versus 14,000 tons), so we believe it was appropriate to assume they were not small businesses.

Of the remaining blenders, 42 are owned by large businesses and shipped 671,000 tons to combustors in 1995, for an average shipment per facility of 16,000 tons. This is nearly twice the average shipment for the remaining 21 small business blenders.

<i>Exhibit 3-6</i>			
Development of Blender Data			
	Blenders	Waste Shipped to Combustors (000 tons)	Average Shipment per Blender (000 tons)
Raw Data	67	926	14
Financial Information Not Available <i>(% of total)</i>	4 <i>(6%)</i>	85 <i>(9.2%)</i>	21
Remaining Companies Analyzed	63	841	13
Large Businesses <i>(% of remaining companies)</i>	42 <i>(67%)</i>	671 <i>(80%)</i>	16
Small Businesses <i>(% of remaining companies)</i>	21 <i>(33%)</i>	170 <i>(20%)</i>	8

Descriptive information about the small business blenders is provided in Exhibit 3-7. In most cases, the industry group to which the company belonged was inconsistent between the SIC codes assigned by FINDS and those assigned to the company in its financial profile. Because the financial profile is more likely to rely on data provided by the facility itself, EPA used the SIC code from the financial profile. The exhibit also includes the tons shipped in 1995, the range of employees, and the lower bound of the annual sales estimates obtained from the financial profiles.

Among the small business blenders, two SIC codes accounted for ten of the 21 facilities. SIC 5093 (Scrap and waste materials) accounted for six blenders but only 5 percent of waste shipped (Exhibit 3-8). SIC 8731 (Commercial physical and biological research) accounted for four blenders and 30 percent of waste shipped. One blender in SIC 2869 (Industrial organic chemicals) accounted for 46 percent of all waste shipped by these Exhibit 3-7 small blenders. This company is relatively small among others in the same SIC code, but it is quite large compared to most other blenders.

Exhibit 3-7

Small Business Blenders

Facility Identifier	Primary SIC	Annual Tons Shipped	Number of Employees	Annual Sales (Millions - Low End of Range)
B-1	5093	2,653	10-19	\$2.5
B-2	4953	500	5-9	\$0.5
B-3	7389	8,718	20-49	\$2.5
B-4	8731	18,175	5-9	\$0.5
B-5	3699	3,215	1-4	\$0.5
B-6	2899	355	10-19	\$2.5
B-7	5093	40	1-4	\$1.0
B-8	3589	4,947	5-9	\$1.0
B-9	5093	125	10-19	\$2.5
B-10	4953	1,726	100-249	\$5.0
B-11	8731	11,842	1-4	\$0.5
B-12	2869	77,555	50-99	\$10.0
B-13	2869	1,183	20-49	\$10.0
B-14	8731	1,821	10-19	\$1.0
B-15	5093	1,528	20-49	\$5.0
B-16	5093	2,409	10-19	\$2.5
B-17	8731	19,583	100-249	\$10.0
B-18	7389	6,887	31	\$4.2
B-19	5093	1,749	10-19	\$2.5
B-20	5169	3,538	5-9	\$5.0
B-21	5085	1,277	5-9	\$2.5
Totals		169,826		

<i>Exhibit 3-8</i>			
Small Business Blenders by SIC			
Industry - SIC	Number of Blenders	Percent of Total	Percent of Waste
Scrap and waste materials - 5093	6	29%	5.0%
Commercial physical and biological research - 8731	4	19%	30%
Industrial organic chemicals - 2869	2	9.5%	46%
Other business services - 7389	2	9.5%	9.2%
Refuse systems - 4953	2	9.5%	1.3%
Others	5	24%	7.8%

3.2 Impact Results

3.2.1 Combustion Facilities

Two of the six small combustors would experience costs greater than 1 percent of sales, which was our threshold for “significant” impacts in the analysis (Exhibit 3-9). This is a worst case result because it does not consider the possibility of passing costs through to customers in the form of higher prices. These two combustors are owned by the same parent company (P-1). For another combustor (B35), incomplete parent company sales data existed; however, compliance costs as a percentage of *facility* level sales for the combustor suggest no significant impact.

While the significant impact threshold was exceeded, the impacts did not extend to a substantial number of small entities. With only two facilities exceeding the CPS threshold, neither a substantial number of facilities nor a substantial fraction of an affected industry would face these impacts.

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<i>Exhibit 3-9</i>					
Small Business Impacts: Combustors					
Site ID	Parent ID	BRS Tons	Annual Sales* (millions)	Total Compliance Costs	Cost as a Percentage of Sales (CPS)
200, 680, 201, 681	P-1	79,724	\$116,888,000	\$2,975,708	2.88%
207, 208		53,580		\$388,919	
A 12	P-2	47	\$24,300,000	\$54,269	0.22%
A 61	P-3	697	\$156,500,000	\$246,611	0.16%
B 35	P-4, P-5**	372	\$20,000,000	\$54,269	0.27%
A 55	none	8,452	\$280,000,000	\$408,976	0.15%

* Parent sales for all but B35 and A55.

**Data for P-5 not available.

3.2.2 Indirect Impacts: Analysis of Generators

Direct impacts of the rule extend only to combustors. To supplement EPA's analysis of combustors, we also examined the potential indirect impacts on generators, assuming that some portion of the combustors' compliance costs might be passed on to generators either directly or through fuel blenders. EPA concluded that even the indirect effects on generators would not impose a significant impact on a substantial number of small generators. This conclusion is bolstered by the conservative assumptions EPA used in developing the impact screens. The assumptions were designed to overstate the magnitude of the impacts.

EPA initially examined whether any generators would exceed the significant impact threshold of 1 percent of sales. In both pass-through scenarios, some generators exceeded the 1 percent CPS threshold for "significant impacts" (Exhibit 3-10), but in no case was the "substantial number" threshold exceeded. In the 25 percent pass-through scenario, 18 generators had CPS greater than 1 percent, but that accounts for only 0.85 percent of all small business generators. While the impact threshold was exceeded by 58 generators in the 75 percent pass-through scenario, that is still less than the 100 entity threshold we established for "substantial number." Exhibit 3-10 also shows the results of a less conservative screen for significant impacts at 3 percent of sales. We should also reiterate that the sales thresholds were selected conservatively as the average sales for the smallest establishments in the SIC code (those with fewer than 20 employees).

The generators that do exceed the impact threshold are concentrated in SIC 7389 (Other business services) which is a broad, diverse grouping of business service providers. In the 25 percent scenario, for example, 14 of the 18 small business generators that exceeded the impact thresholds are in SIC 7389. Even given this concentration, these facilities do not account for a substantial fraction of the entities in the industry because SIC 7389 contains so many diverse businesses.

<i>Exhibit 3-10</i>					
Summary of Indirect Small Business Generator Impacts					
	Baseline	25% Pass-through Scenario		75% Pass-through Scenario	
		Costs > 1% of Sales	Costs > 3% of Sales	Costs > 1% of Sales	Costs > 3% of Sales
Number of Small Business Generators	2,113	18	10	58	19
Percentage of Small Business Generators	100%	0.85%	0.47%	2.7%	0.90%
Number in SIC 7389	140	14	8	26	14
Percentage of SIC 7389	100%	10%	6%	19%	10%

3.2.3 Indirect Impacts: Analysis of Blenders

Compliance costs for the blenders was calculated the same way as for the generators, with a 25 percent cost pass-through estimate of \$5 per ton, and a 75 percent cost pass through of \$16 per ton. Like the generators, the blenders do not incur direct costs as a result of the rule; they may bear a portion of its impact indirectly as costs are passed through to them from combustors. This analysis is therefore a supplement to the direct analysis of combustors presented earlier. EPA also used conservative assumptions in developing the impact measures, so it is likely that this analysis overstates the indirect impact on blenders, especially in the 75 percent pass-through scenario.

The 21 small business blenders described in Exhibit 3-7 are listed again in Exhibit 3-11, but this time the exhibit shows the compliance cost and the results of the sales test for each facility. Depending on the pass-through assumptions, between six and 14 blenders exceed the significant impact threshold of 1 percent of sales. Several facilities would face passed-through costs that would account for significant shares of their annual sales. One facility, for example, would experience cost increases of 18 percent to 58 percent of sales, depending on the pass-through scenario.¹⁰

¹⁰ We should note that the sales data were provided as a range and we selected the lower end of the range to compute the CPS ratio. If the sales were nearer the higher end of the range, the CPS ratio could be overstated by a factor of two.

In the 25 percent scenario, the blenders exceeding the CPS threshold do not represent a substantial number of facilities, either in absolute number or as a percentage of blenders. In the 75 percent scenario, however, the 14 establishments with CPS greater than 1 percent represent just over 20 percent of the 67 blenders identified for this analysis.

In general, indirect effects on blenders would not impose a significant impact on a substantial number of small entities under the 25 percent scenario, but if the pass-through percentage were 75 percent, a substantial fraction of blenders (20 percent) may experience CPS of one percent or more. In a few cases, the CPS could exceed ten percent.

3.3 Limitations

3.3.1 Market Conditions

Results from this report should be evaluated within the context of recent behavior and pricing practices in the hazardous waste combustion market. Combustion prices have been declining since 1985 as a result of overcapacity in the market and slow growth of hazardous waste generation. In comparison to this price drop, the increase expected under the rule may not significantly affect generators and blenders using combustion services. In addition, many generators may be more concerned about other aspects of waste management than with prices, such as the reputation and customer service of their waste management company.

3.3.2 Assumptions

Several simplifying assumptions were used in the approach. Below, we describe how these assumptions affect the report.

- ▶ This approach eliminates from consideration some generators that are small businesses, but are not in SBDIs. We have made the assumption that this exclusion is offset by the fact that we have included in the report some generators who are not small, but are part of a SBDI.
- ▶ To calculate the benchmark sales for generators, EPA used average sales by four-digit SIC code for firms with fewer than 20 employees. This may understate economic impact for the smallest firms in the industry and may overstate impact for larger firms that are still small businesses. The intent of this assumption is to provide a conservative initial screen for impacts.
- ▶ Compliance costs were assumed to be passed through almost completely to the shipper of the waste in our 75 percent scenario. This may overstate the impact on generators and blenders. This is especially true where generators ship wastes to blenders. In that instance, the generator impact analysis assumes that 75 percent of the combustors' total compliance costs would be borne by generators; at the same time, the blender impact analysis assumes that 75

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percent of the combustor costs would be shouldered by the blenders. In fact, if 75 percent of the cost were passed through to customers, generators and blenders would share the impact, rather than each of them facing the full increase. Because we did not apportion the impact between generators and blenders, our upper bound is truly a “worst case” scenario.

- ▶ EPA assumed that all waste managed by combustion continues to be disposed of in this manner. Impacts on combustors, generators, and blenders may be overstated if waste minimization or other lower cost alternatives are available.

Exhibit 3-11

Small Business Impacts: Blenders

				Annual Compliance Cost		Cost as a Percentage of Sales (CPS)	
Facility Identifier	Primary SIC	Annual Tons Shipped	Annual Sales (Low End of Range)	25% Pass Through	75% Pass Through	25% Pass Through	75% Pass Through
B-4	8731	18,175	\$500,000	\$90,874	\$290,798	18.2%	58.2%
B-11	8731	11,842	\$500,000	\$59,210	\$189,472	11.8%	37.9%
B-12	2869	77,555	\$10,000,000	\$387,777	\$1,240,885	3.9%	12.4%
B-5	3699	3,215	\$500,000	\$16,075	\$51,439	3.2%	10.3%
B-8	3589	4,947	\$1,000,000	\$24,733	\$79,146	2.5%	7.9%
B-3	7389	8,718	\$2,500,000	\$43,589	\$139,486	1.7%	5.6%
B-17	8731	19,583	\$10,000,000	\$97,913	\$313,321	1.0%	3.1%
B-14	8731	1,821	\$1,000,000	\$9,107	\$29,143	0.9%	2.9%
B-18	7389	6,887	\$4,160,100	\$34,434	\$110,188	0.8%	2.6%
B-1	5093	2,653	\$2,500,000	\$13,264	\$42,446	0.5%	1.7%
B-2	4953	500	\$500,000	\$2,498	\$7,995	0.5%	1.6%
B-16	5093	2,409	\$2,500,000	\$12,045	\$38,544	0.5%	1.5%
B-20	5169	3,538	\$5,000,000	\$17,690	\$56,608	0.4%	1.1%
B-19	5093	1,749	\$2,500,000	\$8,746	\$27,988	0.3%	1.1%
B-21	5085	1,277	\$2,500,000	\$6,385	\$20,431	0.3%	0.8%
B-10	4953	1,726	\$5,000,000	\$8,631	\$27,620	0.2%	0.6%
B-15	5093	1,528	\$5,000,000	\$7,642	\$24,455	0.2%	0.5%
B-6	2899	355	\$2,500,000	\$1,775	\$5,680	0.1%	0.2%
B-13	2869	1,183	\$10,000,000	\$5,916	\$18,932	0.1%	0.2%
B-9	5093	125	\$2,500,000	\$626	\$2,002	0.0%	0.1%
B-7	5093	40	\$1,000,000	\$199	\$638	0.0%	0.1%

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Appendix A

SIC Industry	SIC Code	NAICS Code	Types of Facilities Affected
Commercial printing- lithographic	2752	323114, 323110(p)	G
Plastics materials, synthetic resins, and nonvulcanizable elastomers	2821	325211	G, C
Paints, varnishes, lacquers, enamels, and allied products	2851	32551(p)	G, C
Industrial organic chemicals, NEC	2869	32511(p), 325188(p), 325193, 32512(p), 325199(p)	G, B
Chemicals and chemical preparations, NEC	2899	32551(p), 311942(p), 325199(p), 325998(p)	B
Cement, hydraulic	3241	32731	C
Secondary smelting and refining of nonferrous metals	3341	331314(p), 331423(p), 331492(p)	C
Electroplating, plating, polishing, anodizing, and coloring	3471	332813(p)	G
Coating, engraving, and allied services, NEC	3479	339911(p), 339912(p), 339914(p), 332812	G
Fabricated metal products, NEC	3499	33251(p), 332117, 332439(p), 332919(p), 332999(p), 33636(p), 337215(p)	G
Service industry machinery, NEC	3589	333319(p)	B
Electrical machinery, equipment, and supplies, NEC	3699	333319(p)	B
Motor vehicle parts and accessories	3714	336211(p), 336312, 336322(p), 33633, 33634(p), 33635, 336399(p)	G
Refuse systems	4953	56292, 562211, 562212, 562213, 562219	B
Industrial supplies	5085	42183(p), 42184	B
Scrap and waste materials	5093	42193	B
Chemicals and allied products, NEC	5169	42269	B
Petroleum bulk stations & terminals	5171	42271, 454312(p), 454311(p)	G
Other business services	7389	51224, 51229(p), 514199(p), 541199, 81299(p), 54137(p), 54141, 54142, 54134, 54149, 54189(p), 54193, 54135, 54199, 51421(p), 71141(p), 42186, 561421, 325998(p), 561422, 561431, 561439, 314999(p), 313311(p), 54187, 49111(p), 81232(p), 561491(p), 56191(p), 56179(p), 561599(p), 56192, 561591, 52232(p), 561499, 56199	G, B
Colleges, universities, and professional schools	8221	61131	G
Commercial physical and biological research	8731	54171(p)	B

Key to facility types: G = Generator, B = Blender, C = Combustor. The abbreviation (p) means "part of," and the abbreviation NEC stands for Not Elsewhere Classified.

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