

Pollution Abatement Costs and Expenditures: 1999

Issued November 2002

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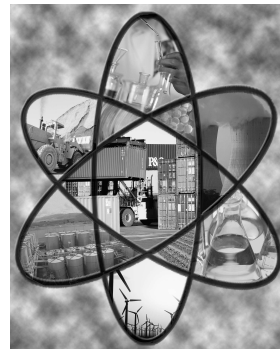
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Introduction

SUMMARY OF 1999 SURVEY RESULTS

Pollution abatement capital expenditures amounted to \$5,809.9 million in 1999. Of this total, \$3,463.7 million was attributed to air, \$1,801.9 million to water, \$361.9 million to solid waste, and \$182.3 million to multimedia. Pollution abatement operating costs amounted to \$11,864.4 million in 1999. Of this total, \$5,069.1 million was attributed to air, \$4,586.5 million to water, \$2,013.3 million to solid waste, and \$195.5 million to multimedia. For complete definitions of pollution abatement capital expenditures and operating costs, see Appendix A.

Of the \$5,809.9 million in pollution abatement capital expenditures, the manufacturing subsector accounted for \$4,387.3 million, the mining subsector \$277.3 million, and the electric utility industry \$1,145.1 million. Of the \$11,864.4 million in pollution abatement operating costs, the manufacturing subsector accounted for \$10,240.3 million, the mining subsector \$458.9 million, and the electric utility industry \$1,163.8 million.

The industries with the highest capital expenditures in 1999 were industry 22111, Electric power generation, with \$1,145.1 million and subsector 325, Chemicals, with \$990.9 million. The industries with the lowest capital expenditures were subsector 315, Apparel manufacturing, with less than \$50 thousand and subsector 213, Support activities for mining, with \$1.6 million. The industries with the highest operating costs in 1999 were subsector 325, Chemicals, with \$2,808.0 million and subsector 324, Petroleum and coal product manufacturing, with \$1,697.9 million. The industries with the lowest operating costs were subsector 315, Apparel manufacturing, with \$1.8 million and subsector 314, Textile product mills, with \$4.9 million.

The regions with the highest capital expenditures in 1999 were the South Atlantic with \$1,177.2 million and West South Central with \$972.3 million. The regions with the highest operating costs were East North Central with \$2,687.7 million and West South Central with \$2,464.4 million.

SCOPE

The survey includes approximately 21,000 plants classified in manufacturing, mining and electric utility industries defined by the 1997 North American Industry Classification System (NAICS). For manufacturing, the survey covers

NAICS subsectors 311-339, for mining NAICS subsectors 211-213 and for electric utilities NAICS five-digit industry 22111.

SURVEY DESCRIPTION

The data in this report are from the 1999 Pollution Abatement Costs and Expenditure Survey conducted by the Census Bureau and sponsored by the Environmental Protection Agency. The survey is based on a national probability sample of manufacturing, mining, and electric utility plants. A detailed description of the sample design appears in Appendix C.

Data are obtained by means of a mailout/mailback form. The survey collects data on pollution abatement and prevention capital expenditures and operating costs for air, water, solid waste, and multimedia. The survey also collects data on disposal, recycling, site cleanup, habitat protection, environmental monitoring, and testing and administrative costs as well as other payments, such as permits, fees, fines, penalties, and tradable permits bought or sold.

During data review, all survey responses are subject to an editing process. This process is conducted to identify incomplete, inconsistent or incorrect data provided by respondents. These edits include logic, magnitude, and data verification.

Final estimates are based on response from approximately 83 percent of the survey panel.

SURVEY CHANGES AFFECTING HISTORIC COMPARISONS

The 1999 Pollution Abatement Costs and Expenditures (PACE) survey differs from earlier PACE surveys. While these changes prevent direct comparisons to earlier surveys, the changes were designed to better reflect industry terminology and enhance the accuracy of the survey estimates. Some notable differences are summarized below:

In 1997 the Standard Industrial Classification (SIC) manual was replaced by the North American Industry Classification System (NAICS). The 1999 sample was selected on a NAICS basis while the 1994 and prior years, was selected on an SIC basis.

For 1999 the survey sample included manufacturing, mining and electric utility industries, prior to 1999, these data were collected on a supplement to the PACE survey.

The 1999 sample also includes a small representation of plants with fewer than 20 employees. This group was omitted from previous PACE surveys. For a complete description of these changes see Appendix C.

For earlier surveys, pollution abatement was split into two categories, “end-of-line” and “production process enhancements.” While a similar distinction was made for the 1999 survey, the terms were changed to “pollution treatment” and “pollution prevention.”

Disposal and recycling are distinct categories for the 1999 PACE survey. For earlier surveys, these data were collected under pollution abatement and payments to government.

The 1999 PACE survey collects data on habitat protection, monitoring and testing, administrative expenses, permits, fees, fines, and penalties all of which were not collected in earlier surveys.

Earlier PACE surveys published estimates for states by major industry groups. These estimates are not shown for 1999.

LIMITATIONS OF THE DATA

The survey estimates presented in this report are subject to both sampling and nonsampling errors. A detailed description of each appear in Appendix B.

QUESTIONS CONCERNING THIS REPORT

Please direct questions to the U.S. Census Bureau, Manufacturing and Construction Division, Federal Office Building 4, Room 2135, Washington, DC 20233 or call the Special Studies Branch on 301-457-4683.

ABBREVIATIONS AND SYMBOLS

–	Represents zero.
(D)	Withheld to avoid disclosing data for individual companies.
(NA)	Not available.
(X)	Not applicable.
(Z)	Less than half the unit shown.
NAICS	North American Industry Classification System.
PACE	Pollution abatement capital expenditures.
PAOC	Pollution abatement operating costs.
DRCE	Disposal and recycling capital expenditures.
DROC	Disposal and recycling operating costs.
PPEO	Pollution prevention expenditures and operating costs.
OE	Other expenditures.
OP	Other payments.

Table 1. Summary Pollution Abatement Capital Expenditures and Operating Costs by Subsector: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols]

NAICS code	Subsector	Annual survey of manufactures (ASM)		Pollution abatement						
		Value of shipments	New capital expenditures	Capital expenditures						
				Total	Air	Water	Solid waste	Multimedia		
	All industries	(NA)	(NA)	5 809.9	3 463.7	1 801.9	361.9	182.3		
	Mining	(NA)	(NA)	277.3	79.0	157.8	36.9	3.5		
211	Oil & gas extraction	(NA)	(NA)	116.2	20.6	63.5	32.1	-		
212	Mining (except oil & gas)	(NA)	(NA)	159.5	57.6	93.6	4.7	3.5		
213	Support activities for mining	(NA)	(NA)	1.6	.8	.7	.1	-		
	Electric	(NA)	(NA)	1 145.1	1 071.1	55.1	17.1	1.7		
22111	Electric power generation	(NA)	(NA)	1 145.1	1 071.1	55.1	17.1	1.7		
	Manufacturing	4 043 275.8	150 196.4	4 387.3	2 313.4	1 588.9	307.9	177.1		
311	Food mfg	429 053.5	13 207.6	369.9	70.1	281.0	18.5	.4		
312	Beverage & tobacco product mfg	107 437.0	2 592.2	17.1	4.4	9.0	3.5	.2		
313	Textile mills	54 854.2	2 231.3	37.1	21.3	7.5	8.2	.2		
314	Textile product mills	32 641.6	720.7	7.2	(D)	(D)	(D)	(D)		
315	Apparel mfg	62 798.4	986.4	(Z)	(D)	(D)	(D)	(D)		
316	Leather & allied product mfg	9 673.2	155.0	7.3	(D)	6.4	(D)	(D)		
321	Wood product mfg	97 583.4	3 033.0	82.1	65.6	12.3	3.9	.3		
322	Paper mfg	157 491.0	7 050.9	611.9	252.8	261.3	25.5	72.3		
323	Printing & related support activities	102 403.7	4 833.7	35.2	31.4	2.4	1.3	(Z)		
324	Petroleum & coal products mfg	168 096.2	4 569.0	488.1	349.0	104.1	23.8	11.3		
325	Chemical mfg	419 673.9	20 936.7	990.9	488.2	335.4	133.9	33.4		
326	Plastics & rubber products mfg	172 396.9	8 679.7	102.6	92.0	5.7	4.7	.2		
327	Nonmetallic mineral product mfg	97 498.4	5 355.3	232.6	195.1	16.2	20.1	1.2		
331	Primary metal mfg	158 101.8	6 095.7	605.7	481.2	93.6	22.8	8.1		
332	Fabricated metal product mfg	256 899.5	9 806.5	283.3	38.2	232.4	9.7	3.0		
333	Machinery mfg	277 117.4	9 444.1	163.3	26.3	92.5	3.0	41.6		
334	Computer & electronic product mfg	463 651.6	21 531.0	138.0	58.5	67.5	11.7	.4		
335	Electrical equipment, appliance, & component mfg	119 792.2	3 682.9	33.7	20.8	10.6	2.2	(Z)		
336	Transportation equipment mfg	675 121.9	18 991.6	134.7	74.8	46.4	11.0	2.6		
337	Furniture & related product mfg	72 751.9	2 172.1	35.0	31.3	(D)	1.8	(D)		
339	Miscellaneous mfg	108 238.1	4 121.0	11.5	5.5	3.9	1.4	.7		
				Pollution abatement—Con.						
				Operating costs					Relative standard error	
				Total	Air	Water	Solid waste	Multimedia	PACE	PAOC
	All industries	11 864.4	5 069.1	4 586.5	2 013.3	195.5	8	3		
	Mining	458.9	180.7	208.8	67.1	2.2	5	6		
211	Oil & gas extraction	146.9	58.2	72.1	16.0	.6	4	7		
212	Mining (except oil & gas)	305.1	121.8	131.5	50.2	1.6	8	8		
213	Support activities for mining	6.9	.7	5.3	.8	-	29	24		
	Electric	1 163.8	910.1	99.9	127.1	26.7	34	22		
22111	Electric power generation	1 163.8	910.1	99.9	127.1	26.7	34	22		
	Manufacturing	10 240.3	3 977.5	4 277.4	1 818.8	166.6	6	2		
311	Food mfg	924.3	105.2	699.3	113.9	5.9	23	16		
312	Beverage & tobacco product mfg	66.1	12.2	47.4	(D)	(D)	21	7		
313	Textile mills	105.0	18.6	72.4	13.6	.4	44	18		
314	Textile product mills	4.9	(D)	2.4	(D)	-	41	36		
315	Apparel mfg	1.8	(D)	1.3	(D)	(Z)	16	31		
316	Leather & allied product mfg	19.6	(D)	14.5	3.5	(D)	23	14		
321	Wood product mfg	134.9	86.3	26.2	19.7	2.8	9	5		
322	Paper mfg	945.6	264.4	462.0	190.6	28.6	6	2		
323	Printing & related support activities	80.3	56.0	8.2	15.2	.9	20	6		
324	Petroleum & coal products mfg	1 697.9	1 206.2	344.1	136.1	11.5	3	2		
325	Chemical mfg	2 808.0	829.3	1 289.7	633.2	55.8	5	2		
326	Plastics & rubber products mfg	164.7	86.0	30.3	46.8	1.7	15	12		
327	Nonmetallic mineral product mfg	281.5	154.6	50.2	61.7	15.0	12	8		
331	Primary metal mfg	1 543.9	755.5	571.8	205.0	11.6	7	3		
332	Fabricated metal product mfg	405.3	89.2	167.2	137.0	11.9	68	16		
333	Machinery mfg	97.7	25.6	41.2	28.8	2.1	4	7		
334	Computer & electronic product mfg	325.4	59.5	208.6	50.6	6.7	13	8		
335	Electrical equipment, appliance, & component mfg	97.0	40.7	32.2	22.7	1.4	8	6		
336	Transportation equipment mfg	454.4	152.0	190.6	104.1	7.7	6	4		
337	Furniture & related product mfg	39.1	17.7	7.0	13.6	.8	7	8		
339	Miscellaneous mfg	42.8	16.5	10.8	13.6	1.9	26	10		

Note: The sum of the Mining, Electric, and Manufacturing sectors may not add to "All industries" because some plants did not have a unique industry code at the time of publication. These plants are included in "All industries" but not the detail.

Table 2. Summary Pollution Abatement Capital Expenditures and Operating Costs by Region: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols]

Region	Pollution abatement										Relative standard error	
	Capital expenditures					Operating costs					PACE	PAOC
	Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia		
United States	5 809.9	3 463.7	1 801.9	361.9	182.3	11 864.4	5 069.1	4 586.5	2 013.3	195.5	8	3
New England	375.8	77.5	285.1	12.2	1.0	301.5	64.3	170.8	62.1	4.2	52	9
Middle Atlantic	639.8	535.4	73.2	25.3	5.8	1 009.0	423.4	380.3	189.6	15.8	37	5
East North Central	895.4	458.5	317.6	62.0	57.3	2 687.7	1 179.7	1 139.9	325.1	43.1	12	11
West North Central	451.8	293.8	112.1	40.4	5.5	869.2	316.1	281.1	250.7	21.3	22	8
South Atlantic	1 177.2	825.7	231.9	38.6	81.0	1 875.3	784.1	729.4	299.0	62.7	25	8
East South Central	540.0	342.0	165.5	31.1	1.4	1 005.6	374.2	409.8	217.9	3.7	5	3
West South Central	972.3	517.0	339.6	91.4	24.2	2 464.4	1 078.5	907.2	456.0	22.8	4	3
Mountain	222.1	152.8	62.8	5.5	1.0	439.3	224.1	152.4	53.7	9.0	18	6
Pacific	535.5	261.0	214.0	55.4	5.0	1 204.5	621.6	411.5	158.4	12.9	7	3
Offshore	(Z)	(Z)	(Z)	-	-	7.9	3.1	4.1	.7	-	1	7

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error	
		Capital expenditures					Operating costs					PACE	PAOC
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia		
	All industries	5 809.9	3 463.7	1 801.9	361.9	182.3	11 864.4	5 069.1	4 586.5	2 013.3	195.5	8	3
21	Mining	277.3	79.0	157.8	36.9	3.5	458.9	180.7	208.8	67.1	2.2	5	6
211	Oil & gas extraction	116.2	20.6	63.5	32.1	-	146.9	58.2	72.1	16.0	.6	4	7
21111	Oil & gas extraction	116.2	20.6	63.5	32.1	-	146.9	58.2	72.1	16.0	.6	4	7
211111	Oil & gas extraction	116.2	20.6	63.5	32.1	-	146.9	58.2	72.1	16.0	.6	4	7
2111111	Crude petroleum & natural gas extraction	102.6	11.5	59.1	32.0	-	125.5	45.4	66.2	13.4	.5	4	7
2111112	Natural gas liquid extraction	13.6	9.1	4.4	.1	-	21.4	12.8	5.9	2.6	.1	15	27
212	Mining (except oil & gas)	159.5	57.6	93.6	4.7	3.5	305.1	121.8	131.5	50.2	1.6	8	8
2121	Coal mining	29.9	14.9	12.2	(D)	(D)	113.1	31.8	54.4	26.5	.3	30	18
21211	Coal mining	29.9	14.9	12.2	(D)	(D)	113.1	31.8	54.4	26.5	.3	30	18
212111	Bituminous coal & lignite surface mining	26.3	13.4	10.8	(D)	(D)	79.6	29.2	40.0	10.2	.3	33	23
212112	Bituminous coal underground mining	3.3	1.4	1.2	.6	.1	33.1	2.6	14.1	16.3	(Z)	44	26
2122	Metal ore mining	47.9	21.6	21.6	(D)	(D)	82.9	26.2	42.4	13.0	1.2	13	5
21221	Iron ore mining	19.3	(D)	7.6	(D)	-	37.8	8.8	23.6	5.4	-	8	4
212210	Iron ore mining	19.3	(D)	7.6	(D)	-	37.8	8.8	23.6	5.4	-	8	4
21222	Gold ore & silver ore mining	2.9	(Z)	(D)	(D)	-	12.2	4.6	5.8	(D)	(D)	29	29
212221	Gold ore mining	(D)	(Z)	(D)	(D)	-	12.0	(D)	5.7	(D)	(D)	(X)	29
21223	Copper, nickel, lead, & zinc mining	19.0	10.9	8.1	-	-	25.4	11.8	8.1	(D)	(D)	30	4
212231	Lead ore & zinc ore mining	(D)	(D)	-	-	-	10.8	1.3	(D)	(D)	-	(X)	3
212234	Copper ore & nickel ore mining	(D)	(D)	8.1	-	-	14.6	10.4	(D)	(D)	(D)	(X)	7
21229	Other metal ore mining	6.7	(D)	(D)	-	(D)	7.5	1.1	4.9	(D)	(D)	5	2
212299	All other metal ore mining	6.3	(D)	(D)	-	(D)	7.1	(D)	(D)	(D)	(D)	5	2
2123	Nonmetallic mineral mining & quarrying	81.7	21.1	59.8	.7	(Z)	109.1	63.8	34.6	10.7	.1	6	9
21231	Stone mining & quarrying	17.1	10.7	5.8	.6	(Z)	53.1	33.7	15.5	(D)	(D)	23	10
212312	Crushed & broken limestone mining & quarrying	11.5	9.6	1.9	(Z)	-	28.4	19.2	8.6	(D)	(D)	34	17
212313	Crushed & broken granite mining & quarrying	4.6	.7	3.4	.5	-	17.5	11.1	5.6	(D)	(D)	7	7
212319	Other crushed & broken stone mining & quarrying	1.0	.5	.4	.1	(Z)	7.1	3.3	1.4	2.5	-	20	12
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	7.4	6.6	.9	-	(Z)	28.6	17.1	10.9	(D)	(D)	24	20
212321	Construction sand & gravel mining	1.2	.6	.5	-	(Z)	14.8	10.0	(D)	(D)	(D)	53	34
212322	Industrial sand mining	.7	.7	-	-	-	2.2	1.3	(D)	(D)	-	39	31
212324	Kaolin & ball clay mining	.9	.7	.2	-	-	5.7	3.0	2.6	(Z)	-	65	26
212325	Clay & ceramic & refractory minerals mining	4.8	4.6	.2	-	-	6.0	2.8	2.8	.3	-	33	32
21239	Other nonmetallic mineral mining & quarrying	57.1	3.8	53.2	.1	-	27.4	13.0	8.2	6.3	-	4	19
212391	Potash, soda, & borate mineral mining	29.2	1.0	28.2	(Z)	-	5.1	2.3	2.3	.5	-	7	17
212392	Phosphate rock mining	23.9	(Z)	23.8	-	-	17.1	6.8	4.9	5.3	-	2	29
212393	Other chemical & fertilizer mineral mining	1.6	.4	1.2	-	-	1.1	.7	.2	.2	-	21	10
212399	All other nonmetallic mineral mining	2.5	2.5	-	(Z)	-	4.1	3.2	.8	.2	-	44	10
213	Support activities for mining	1.6	.8	.7	.1	-	6.9	.7	5.3	.8	-	29	24
2131	Support activities for mining	1.6	.8	.7	.1	-	6.9	.7	5.3	.8	-	29	24
21311	Support activities for mining	1.6	.8	.7	.1	-	6.9	.7	5.3	.8	-	29	24
213112	Support activities for oil & gas operations	1.1	(D)	.5	(D)	-	3.0	.3	2.3	.4	-	25	54
213114	Support activities for metal mining	.4	.3	.2	-	-	3.1	(D)	2.6	(D)	-	87	2
22111	Electric power generation	1 145.1	1 071.1	55.1	17.1	1.7	1 163.8	910.1	99.9	127.1	26.7	34	22
221111	Hydroelectric power generation	23.7	18.5	5.1	(Z)	-	15.4	7.1	2.5	5.8	.1	10	27
221112	Fossil fuel electric power generation	1 041.4	989.9	34.1	16.5	.9	1 033.4	843.6	79.5	109.5	.8	37	24
221113	Nuclear electric power generation	16.9	.2	15.8	-	.8	68.1	23.0	16.5	2.9	25.8	1	3
221119	Other electric power generation	63.1	62.5	.1	.6	-	46.9	36.4	1.5	9.0	(Z)	47	30
31-33	Manufacturing	4 387.3	2 313.4	1 588.9	307.9	177.1	10 240.3	3 977.5	4 277.4	1 818.8	166.6	6	2
311	Food mfg	369.9	70.1	281.0	18.5	.4	924.3	105.2	699.3	113.9	5.9	23	16
3111	Animal food mfg	5.0	2.3	1.8	.9	-	12.3	5.9	5.2	1.2	(Z)	29	19
31111	Animal food mfg	5.0	2.3	1.8	.9	-	12.3	5.9	5.2	1.2	(Z)	29	19
311111	Dog & cat food mfg	4.3	2.1	1.4	.8	-	8.1	2.7	4.6	.8	(Z)	32	25
311119	Other animal food mfg	.7	.2	.4	.1	-	4.2	.7	.6	.3	-	58	29
3112	Grain & oilseed milling	30.4	15.9	11.9	(D)	(D)	118.4	34.5	74.1	8.6	1.1	5	5
31121	Flour milling & malt mfg	3.1	(D)	(D)	-	-	13.0	7.6	4.4	1.0	-	1	22
311211	Flour milling	-	-	-	-	-	5.4	4.5	(D)	(D)	-	-	44
311212	Rice milling	(D)	(D)	(D)	-	-	5.3	2.8	(D)	(D)	-	(X)	29
311213	Malt mfg	(D)	(D)	-	-	-	2.3	.2	(D)	(D)	-	(X)	20
31122	Starch & vegetable fats & oils mfg	23.4	10.9	(D)	(D)	(D)	91.1	22.2	62.5	5.2	1.1	5	5
311221	Wet corn milling	14.5	7.6	5.6	1.3	-	57.4	11.5	44.1	(D)	(D)	5	6
311222	Soybean processing	4.1	(D)	(D)	(D)	(D)	21.7	8.7	10.9	(D)	(D)	10	13
311223	Other oilseed processing	(D)	(D)	-	-	-	2.1	1.2	.8	.1	-	(X)	27
311225	Fats & oils refining & blending	(D)	(D)	3.3	(D)	-	9.8	.9	6.7	1.2	.9	(X)	11

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
311	Food mfg—Con.													
3112	Grain & oilseed milling—Con.													
31123	Breakfast cereal mfg	3.8	(D)	(D)	(D)	—	14.3	4.8	7.2	2.4	—	24	3	
311230	Breakfast cereal mfg	3.8	(D)	(D)	(D)	—	14.3	4.8	7.2	2.4	—	24	3	
3113	Sugar & confectionery product mfg	17.4	6.0	11.0	(D)	(D)	59.8	15.5	27.3	17.0	.2	12	8	
31131	Sugar mfg	11.9	(D)	10.1	(D)	(D)	44.6	12.9	19.2	12.4	.1	17	10	
311311	Sugarcane mills	4.6	.4	4.3	—	—	6.0	2.6	2.4	1.0	—	7	22	
311312	Cane sugar refining .....	.5	(D)	.2	(D)	(D)	4.8	.7	2.6	1.4	.1	1	2
311313	Beet sugar mfg	6.8	1.1	5.6	—	—	33.8	9.6	14.1	10.0	—	29	13	
31132	Chocolate & confectionery mfg from cacao beans	1.4	1.4	—	—	—	4.7	.7	2.7	1.4	—	1	17	
311320	Chocolate & confectionery mfg from cacao beans	1.4	1.4	—	—	—	4.7	.7	2.7	1.4	—	1	17	
31133	Confectionery mfg from purchased chocolate .....	.1	(D)	—	(D)	—	6.8	.5	4.1	2.2	(Z)	1	2
311330	Confectionery mfg from purchased chocolate .....	.1	(D)	—	(D)	—	6.8	.5	4.1	2.2	(Z)	1	2
31134	Nonchocolate confectionery mfg	4.0	2.8	.9	.3	—	3.7	1.4	1.3	1.0	—	16	9	
311340	Nonchocolate confectionery mfg	4.0	2.8	.9	.3	—	3.7	1.4	1.3	1.0	—	16	9	
3114	Fruit & vegetable preserving & specialty food mfg	154.7	(D)	144.8	5.2	(D)	281.9	3.4	244.5	33.6	.4	53	51	
31141	Frozen food mfg	36.4	(D)	31.6	(D)	—	48.2	1.4	39.5	7.3	.1	4	8	
311411	Frozen fruit, juice, & vegetable mfg	35.2	2.9	31.2	1.1	—	37.1	1.3	31.9	3.8	.1	4	8	
311412	Frozen specialty food mfg	1.2	(D)	.4	(D)	—	11.1	.1	7.5	3.4	—	22	23	
31142	Fruit & vegetable canning, pickling, & drying	118.3	(D)	113.3	(D)	(D)	233.8	2.0	205.1	26.3	.4	69	61	
311421	Fruit & vegetable canning ..	114.0	.7	110.1	3.1	.1	221.3	1.7	197.7	21.7	.2	72	64	
311422	Specialty canning	2.4	—	2.4	.1	—	8.3	.2	4.9	3.2	—	8	23	
311423	Dried & dehydrated food mfg	1.9	(D)	.8	(D)	(D)	4.2	.1	2.5	1.4	.2	2	7	
3115	Dairy product mfg	44.6	4.3	37.6	2.7	—	90.1	3.4	75.2	9.5	2.0	23	14	
31151	Dairy product (except frozen) mfg	39.5	4.3	32.5	2.7	—	77.2	3.4	63.9	8.0	2.0	23	15	
311511	Fluid milk mfg	2.2	—	2.2	(Z)	—	14.7	(D)	13.6	1.1	(D)	46	24	
311513	Cheese mfg	25.6	1.6	21.7	2.3	—	47.4	(D)	38.6	5.8	(D)	30	22	
311514	Dry, condensed, & evaporated dairy product mfg	11.7	2.7	8.6	.4	—	14.2	2.0	11.0	1.1	.1	39	15	
31152	Ice cream & frozen dessert mfg	5.1	—	5.1	—	—	12.8	(Z)	11.3	1.5	—	87	39	
311520	Ice cream & frozen dessert mfg	5.1	—	5.1	—	—	12.8	(Z)	11.3	1.5	—	87	39	
3116	Meat product mfg	75.8	20.2	52.7	2.5	.3	267.3	25.2	212.3	27.9	2.0	16	6	
31161	Animal slaughtering & processing	75.8	20.2	52.7	2.5	.3	267.3	25.2	212.3	27.9	2.0	16	6	
311611	Animal (except poultry) slaughtering	19.3	5.1	13.3	.6	.3	58.1	5.6	43.7	8.0	.8	18	8	
311612	Meat processed from carcasses	10.1	.8	8.9	.4	—	21.2	1.3	17.2	2.7	—	40	21	
311613	Rendering & meat byproduct processing	15.4	11.2	4.2	—	—	40.4	14.9	22.2	2.2	1.2	32	15	
311615	Poultry processing	31.0	3.1	26.4	1.5	—	147.6	3.3	129.2	15.0	(Z)	30	8	
3117	Seafood product preparation & packaging	1.7	.8	.9	.1	—	5.4	.2	3.6	1.6	—	33	24	
31171	Seafood product preparation & packaging	1.7	.8	.9	.1	—	5.4	.2	3.6	1.6	—	33	24	
311712	Fresh & frozen seafood processing	1.7	.8	.9	.1	—	4.8	.2	3.1	1.5	—	34	27	
3118	Bakeries & tortilla mfg	6.0	(D)	3.4	(D)	(D)	22.0	3.8	15.2	3.0	.1	44	10	
31181	Bread & bakery product mfg ..	5.4	(D)	3.1	(D)	—	13.9	1.6	10.4	1.9	(Z)	49	14	
311812	Commercial bakeries	5.4	(D)	3.1	(D)	—	11.5	1.6	8.7	1.2	(Z)	49	16	
311813	Frozen cakes, pies, & other pastries mfg	—	—	—	—	—	2.4	(Z)	1.8	.6	—	—	13	
31182	Cookie, cracker, & pasta mfg ..	.6	(D)	.2	(D)	(D)	7.3	2.2	4.0	1.0	.1	33	14	
311821	Cookie & cracker mfg .....	.1	(D)	(D)	(D)	—	4.6	1.7	2.3	.5	.1	39	18
311822	Flour mixes & dough mfg from purchased flour .....	.5	—	(D)	.3	(D)	2.6	.3	1.7	.6	—	37	21
3119	Other food mfg	34.4	14.3	16.9	3.3	—	67.0	13.4	41.9	11.6	.1	27	10	
31191	Snack food mfg	11.5	9.6	1.9	—	—	25.8	8.6	11.6	5.6	—	25	21	
311911	Roasted nuts & peanut butter mfg	(D)	(D)	(D)	—	—	2.0	.5	1.2	.3	—	(X)	3	
311919	Other snack food mfg	(D)	(D)	(D)	—	—	23.8	8.1	10.3	5.3	—	(X)	23	
31192	Coffee & tea mfg	2.3	2.0	—	.2	—	4.6	2.2	1.7	.7	(Z)	2	1	
311920	Coffee & tea mfg	2.3	2.0	—	.2	—	4.6	2.2	1.7	.7	(Z)	2	1	
31193	Flavoring syrup & concentrate mfg	—	—	—	—	—	2.6	(D)	.6	1.9	(D)	—	57	
311930	Flavoring syrup & concentrate mfg	—	—	—	—	—	2.6	(D)	.6	1.9	(D)	—	57	
31194	Seasoning & dressing mfg ...	.8	.1	.7	(Z)	—	10.4	.3	8.6	1.5	—	5	10
311941	Mayonnaise, dressing, & other prepared sauce mfg ..	.3	(Z)	.2	(Z)	—	7.2	.1	6.3	.8	—	10	13	
311942	Spice & extract mfg .....	.5	(Z)	.5	—	—	3.2	.3	2.3	.7	—	5	11

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

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NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
311	Food mfg—Con.													
31199	Other food mfg—Con.													
31199	All other food mfg	19.8	2.6	14.2	3.0	—	23.6	(D)	19.4	1.9	(D)	45	15	
311991	Perishable prepared food mfg	4.6	.1	4.3	.1	—	2.6	(D)	2.0	.6	(D)	3	5	
311999	All other miscellaneous food mfg	15.2	2.4	9.9	2.9	—	20.9	2.1	17.4	1.3	.1	58	17	
312	Beverage & tobacco product mfg .	17.1	4.4	9.0	3.5	.2	66.1	12.2	47.4	(D)	(D)	21	7	
3121	Beverage mfg	13.0	(D)	8.8	(D)	.2	43.0	2.5	35.9	(D)	(D)	28	6	
31211	Soft drink & ice mfg	7.3	—	3.9	3.2	.2	10.8	(D)	8.7	2.1	(D)	46	18	
312111	Soft drink mfg	7.3	—	3.9	3.2	.2	10.6	(D)	8.5	2.0	(D)	46	19	
31212	Breweries	2.9	.6	(D)	(D)	—	25.6	1.9	22.3	1.4	—	33	6	
312120	Breweries	2.9	.6	(D)	(D)	—	25.6	1.9	22.3	1.4	—	33	6	
31213	Wineries	(D)	—	(D)	—	—	4.0	(D)	3.1	.8	(D)	(X)	5	
312130	Wineries	(D)	—	(D)	—	—	4.0	(D)	3.1	.8	(D)	(X)	5	
31214	Distilleries	(D)	(D)	2.2	(D)	—	2.6	(D)	1.8	(D)	(D)	(X)	31	
312140	Distilleries	(D)	(D)	2.2	(D)	—	2.6	(D)	1.8	(D)	(D)	(X)	31	
3122	Tobacco mfg	4.2	(D)	.2	(D)	—	23.1	9.7	11.5	(D)	(D)	7	15	
31221	Tobacco stemming & redrying	(D)	(D)	(D)	—	—	1.2	.5	(Z)	.6	—	(X)	87	
312210	Tobacco stemming & redrying	(D)	(D)	(D)	—	—	1.2	.5	(Z)	.6	—	(X)	87	
31222	Tobacco product mfg	(D)	(D)	(D)	(D)	—	22.0	9.2	11.5	(D)	(D)	(X)	16	
312221	Cigarette mfg	(D)	(D)	(D)	—	—	10.3	(D)	1.9	(D)	—	(X)	2	
312229	Other tobacco product mfg .	3.2	2.9	(D)	(D)	—	11.6	(D)	9.6	(D)	(D)	7	29	
313	Textile mills	37.1	21.3	7.5	8.2	.2	105.0	18.6	72.4	13.6	.4	44	18	
3131	Fiber, yarn, & thread mills	3.5	3.2	.3	(Z)	—	2.6	1.1	1.1	.4	—	60	21	
31311	Fiber, yarn, & thread mills	3.5	3.2	.3	(Z)	—	2.6	1.1	1.1	.4	—	60	21	
313111	Yarn spinning mills	2.1	2.0	.1	—	—	.7	.3	.3	.1	—	83	46	
313112	Yarn texturing, throwing, & twisting mills	1.2	1.2	—	(Z)	—	1.4	.5	.6	.2	—	101	32	
3132	Fabric mills	26.7	12.4	6.0	8.2	.2	55.7	6.0	39.8	9.7	.3	61	31	
31321	Broadwoven fabric mills	3.2	.4	2.7	.1	—	20.8	1.5	17.7	1.4	.2	32	16	
313210	Broadwoven fabric mills ...	3.2	.4	2.7	.1	—	20.8	1.5	17.7	1.4	.2	32	16	
31323	Nonwoven fabric mills	21.0	11.9	1.2	7.7	.2	27.4	2.3	17.3	7.7	(Z)	77	62	
313230	Nonwoven fabric mills	21.0	11.9	1.2	7.7	.2	27.4	2.3	17.3	7.7	(Z)	77	62	
31324	Knit fabric mills	2.4	(Z)	2.0	.3	—	7.3	2.1	4.6	.5	.1	23	27	
313241	Weft knit fabric mills	(Z)	—	(Z)	—	—	1.7	(Z)	1.6	.1	—	1	30	
313249	Other knit fabric & lace mills	2.4	(Z)	2.0	.3	—	5.5	2.1	3.0	.4	.1	23	34	
3133	Textile & fabric finishing & fabric coating mills	6.8	5.6	1.2	—	—	46.7	11.6	31.5	3.5	.1	19	12	
31331	Textile & fabric finishing mills .	3.7	2.7	1.0	—	—	36.3	5.7	28.9	1.7	(Z)	29	15	
313311	Broadwoven fabric finishing mills	1.2	.3	.9	—	—	16.2	4.3	10.5	1.4	—	12	20	
313312	Textile & fabric finishing mills	2.5	2.4	.1	—	—	20.1	1.4	18.3	.3	(Z)	43	21	
31332	Fabric coating mills	3.1	2.9	.2	—	—	10.4	5.9	2.7	1.8	.1	23	11	
313320	Fabric coating mills	3.1	2.9	.2	—	—	10.4	5.9	2.7	1.8	.1	23	11	
314	Textile product mills	7.2	(D)	(D)	(D)	(D)	4.9	(D)	2.4	(D)	—	41	36	
3141	Textile furnishings mills	4.4	(D)	(D)	(D)	—	2.4	(D)	(D)	(D)	—	70	29	
31411	Carpet & rug mills	(D)	(D)	—	—	—	1.8	(D)	1.7	(D)	—	(X)	37	
314110	Carpet & rug mills	(D)	(D)	—	—	—	1.8	(D)	1.7	(D)	—	(X)	37	
3149	Other textile product mills	6.8	6.6	(D)	—	(D)	2.4	(D)	(D)	1.9	—	44	66	
31499	All other textile product mills ..	6.8	6.6	(D)	—	(D)	2.4	(D)	(D)	1.9	—	44	66	
314992	Tire cord & tire fabric mills .	(D)	6.6	—	—	(D)	(D)	(D)	(D)	(D)	—	(X)	(X)	
314999	All other miscellaneous textile product mills	(D)	—	(D)	—	—	1.8	—	(D)	(D)	—	(X)	88	
315	Apparel mfg	(Z)	(D)	(D)	(D)	(D)	1.8	(D)	1.3	(D)	(Z)	16	31	
316	Leather & allied product mfg	7.3	(D)	6.4	(D)	(D)	19.6	(D)	14.5	3.5	(D)	23	14	
3161	Leather & hide tanning & finishing	7.2	(Z)	6.4	.7	—	18.4	(D)	14.4	3.0	(D)	24	15	
31611	Leather & hide tanning & finishing	7.2	(Z)	6.4	.7	—	18.4	(D)	14.4	3.0	(D)	24	15	
316110	Leather & hide tanning & finishing	7.2	(Z)	6.4	.7	—	18.4	(D)	14.4	3.0	(D)	24	15	
321	Wood product mfg	82.1	65.6	12.3	3.9	.3	134.9	86.3	26.2	19.7	2.8	9	5	
3211	Sawmills & wood preservation ..	16.4	10.1	4.9	1.2	.2	13.0	5.4	3.6	3.9	.1	16	9	
32111	Sawmills & wood preservation	16.4	10.1	4.9	1.2	.2	13.0	5.4	3.6	3.9	.1	16	9	
321113	Sawmills	15.2	9.9	4.4	.9	—	10.8	5.2	2.1	3.4	.1	18	9	
321114	Wood preservation	1.3	.1	.6	.3	.2	2.2	.2	1.5	.5	—	35	28	
3212	Veneer, plywood, & engineered wood product mfg	45.9	38.2	6.3	1.5	—	98.2	69.7	20.8	7.6	.2	9	7	
32121	Veneer, plywood, & engineered wood product mfg	45.9	38.2	6.3	1.5	—	98.2	69.7	20.8	7.6	.2	9	7	
321211	Hardwood veneer & plywood mfg	1.3	1.3	(Z)	—	—	2.6	1.6	(D)	(D)	(D)	47	4	
321212	Softwood veneer & plywood mfg	10.2	7.6	1.7	1.0	—	19.8	14.0	4.0	(D)	(D)	24	15	
321213	Engineered wood member (except truss) mfg	—	—	—	—	—	5.0	3.0	(D)	(D)	—	—	31	
321219	Reconstituted wood product mfg	34.2	29.3	4.5	.5	—	70.8	51.0	15.1	4.5	.1	10	8	

See footnote at end of table.

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NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
321	Wood product mfg—Con.													
3219	Other wood product mfg	19.8	17.4	1.1	1.3	(Z)	23.6	11.2	1.8	8.2	2.4	28	12	
32191	Millwork	10.0	8.4	.6	1.0	(Z)	16.5	8.8	1.3	6.4	(Z)	24	10	
321911	Wood window & door mfg	2.2	1.3	(D)	(D)	—	8.4	4.1	.5	3.9	—	4	11	
321912	Cut stock, resawing lumber, & planing	4.6	4.0	(D)	(D)	—	4.8	2.7	.2	1.8	(Z)	48	23	
321918	Other millwork (including flooring)	3.3	3.2	(D)	(D)	—	3.3	1.9	.7	.7	(Z)	29	25	
32192	Wood container & pallet mfg	8.3	8.1	(D)	(D)	—	.8	.4	.1	.2	.1	58	28	
321920	Wood container & pallet mfg	8.3	8.1	(D)	(D)	—	.8	.4	.1	.2	.1	58	28	
32199	All other wood product mfg	1.4	.8	(D)	(D)	(Z)	6.3	2.0	.4	1.6	2.3	43	34	
321991	Manufactured home (mobile home) mfg . . . . .	.5	.1	.3	.1	(Z)	1.3	.5	.2	.6	—	25	39
321999	All other miscellaneous wood product mfg . . . . .	.9	.8	(D)	(D)	—	5.0	1.5	.3	.9	2.3	69	42
322	Paper mfg	611.9	252.8	261.3	25.5	72.3	945.6	264.4	462.0	190.6	28.6	6	2	
3221	Pulp, paper, & paperboard mills	557.2	215.7	245.0	24.9	71.5	885.6	240.2	444.6	173.2	27.7	6	2	
32211	Pulp mills	29.5	10.7	14.9	(D)	(D)	95.1	32.5	48.2	(D)	(D)	19	4	
322110	Pulp mills	29.5	10.7	14.9	(D)	(D)	95.1	32.5	48.2	(D)	(D)	19	4	
32212	Paper mills	271.7	56.7	193.1	(D)	(D)	525.2	130.2	272.9	98.3	23.8	9	3	
322121	Paper (except newsprint) mills	248.0	(D)	182.1	(D)	(D)	447.4	116.6	229.3	82.3	19.4	10	3	
322122	Newsprint mills	23.7	(D)	10.9	(D)	—	77.7	13.6	43.6	16.1	4.4	16	3	
32213	Paperboard mills	256.0	148.3	37.0	6.9	63.9	265.4	77.5	123.5	(D)	(D)	8	5	
322130	Paperboard mills	256.0	148.3	37.0	6.9	63.9	265.4	77.5	123.5	(D)	(D)	8	5	
3222	Converted paper product mfg	54.7	37.0	16.3	.6	.8	60.0	24.3	17.4	17.4	.9	4	8	
32221	Paperboard container mfg	6.9	3.2	3.3	(D)	(D)	21.7	5.5	9.9	5.9	.4	26	12	
322211	Corrugated & solid fiber box mfg	6.1	2.9	3.0	(D)	(D)	12.7	1.5	8.3	2.5	.3	29	11	
322212	Folding paperboard box mfg . . . . .	.7	.3	.3	—	.2	8.6	4.0	1.3	3.2	.1	48	25
32222	Paper bag & coated & treated paper mfg	7.5	5.9	.7	.4	.5	25.5	15.3	3.4	6.4	.4	9	9	
322221	Coated & laminated packaging paper & plastics film mfg	1.1	(D)	—	(D)	—	1.8	.9	.2	.6	.1	24	17	
322222	Coated & laminated paper mfg	2.6	(D)	(D)	—	—	15.4	10.9	2.2	2.0	.3	19	12	
322224	Uncoated paper & multiwall bag mfg	(D)	—	(D)	(D)	—	1.7	.2	.8	.6	(Z)	(X)	18	
322225	Laminated aluminum foil mfg for flexible packaging uses	3.4	2.9	(D)	.2	(D)	3.6	2.3	.1	1.2	(Z)	4	7	
322226	Surface-coated paperboard mfg	(D)	—	—	—	(D)	2.9	.9	.1	1.9	—	(X)	46	
32223	Stationery product mfg . . . . .	.2	.1	(Z)	—	—	1.1	.1	.3	.7	—	35	32
32229	Other converted paper product mfg	40.2	27.8	12.3	(D)	(D)	11.6	3.3	3.7	4.4	.2	1	25	
322291	Sanitary paper product mfg	39.2	(D)	(D)	(D)	(D)	5.2	2.0	1.7	1.3	.2	1	1	
322299	All other converted paper product mfg	1.0	(D)	(D)	—	—	6.5	1.3	2.1	3.1	—	1	45	
323	Printing & related support activities	35.2	31.4	2.4	1.3	(Z)	80.3	56.0	8.2	15.2	.9	20	6	
3231	Printing & related support activities	35.2	31.4	2.4	1.3	(Z)	80.3	56.0	8.2	15.2	.9	20	6	
32311	Printing	32.8	29.5	2.0	1.3	(Z)	78.2	54.4	8.1	14.8	.9	21	6	
323110	Commercial lithographic printing	24.8	23.6	.3	.8	(Z)	37.8	26.4	2.2	8.7	.5	27	8	
323111	Commercial gravure printing	4.3	3.4	1.0	—	—	23.6	20.5	1.8	1.3	(Z)	6	3	
323112	Commercial flexographic printing . . . . .	.5	—	.4	.1	(Z)	2.2	.7	.5	.9	—	62	21
323113	Commercial screen printing . . . . .	.1	(Z)	(Z)	—	—	3.9	.5	2.7	.4	.2	58	60
323116	Manifold business form printing . . . . .	.3	.1	.1	.1	—	2.1	.1	.3	1.6	.1	20	38
323117	Book printing	2.4	2.1	(Z)	.3	—	6.3	4.1	.5	1.6	—	29	6	
323119	Other commercial printing . . . . .	.1	.1	(Z)	(Z)	(Z)	2.1	1.9	(Z)	.1	(Z)	45	75
32312	Support activities for printing	2.4	1.9	.4	.1	—	2.1	1.6	.1	.4	—	72	67	
323121	Tradebinding & related work	1.9	1.9	—	—	—	1.9	1.6	—	.3	—	88	73	
324	Petroleum & coal products mfg	488.1	349.0	104.1	23.8	11.3	1 697.9	1 206.2	344.1	136.1	11.5	3	2	
3241	Petroleum & coal products mfg	488.1	349.0	104.1	23.8	11.3	1 697.9	1 206.2	344.1	136.1	11.5	3	2	
32411	Petroleum refineries	477.3	341.6	101.4	23.1	11.3	1 654.2	1 178.2	334.6	130.5	10.9	3	2	
324110	Petroleum refineries	477.3	341.6	101.4	23.1	11.3	1 654.2	1 178.2	334.6	130.5	10.9	3	2	
32412	Asphalt paving, roofing, & saturated materials mfg	6.3	5.4	.3	.6	—	17.6	13.8	2.2	1.2	.4	42	49	
324121	Asphalt paving mixture & block mfg	3.2	3.0	.2	—	—	11.5	10.5	.7	.2	—	72	74	
324122	Asphalt shingle & coating materials mfg	3.1	2.4	.1	.6	—	6.1	3.3	1.4	.9	.4	44	12	
32419	Other petroleum & coal products mfg	4.4	2.0	2.4	.1	—	26.2	14.3	7.3	4.4	.1	22	9	
324191	Petroleum lubricating oil & grease mfg	2.0	.3	1.7	(Z)	—	6.0	2.5	2.6	.7	.1	44	30	
324199	All other petroleum & coal products mfg	2.4	1.7	.7	(Z)	—	20.2	11.7	4.7	3.8	(Z)	14	8	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
325	Chemical mfg	990.9	488.2	335.4	133.9	33.4	2 808.0	829.3	1 289.7	633.2	55.8	5	2	
3251	Basic chemical mfg	516.8	262.5	180.7	55.6	18.0	1 519.5	428.0	753.5	313.1	24.9	8	3	
32511	Petrochemical mfg	63.0	37.5	15.4	10.1	—	204.6	57.5	102.3	44.8	—	3	4	
325110	Petrochemical mfg	63.0	37.5	15.4	10.1	—	204.6	57.5	102.3	44.8	—	3	4	
32512	Industrial gas mfg	2.7	1.6	.9	.1	.1	41.0	15.7	10.1	15.2	—	2	6	
325120	Industrial gas mfg	2.7	1.6	.9	.1	.1	41.0	15.7	10.1	15.2	—	2	6	
32513	Dye & pigment mfg	18.8	6.0	10.5	2.3	—	72.7	18.9	37.9	15.8	(Z)	3	3	
325131	Inorganic dye & pigment mfg	12.8	4.7	(D)	(D)	—	57.4	15.2	29.1	13.2	(Z)	1	3	
325132	Synthetic organic dye & pigment mfg	6.0	1.3	(D)	(D)	—	15.2	3.8	8.8	2.6	—	9	7	
32518	Other basic inorganic chemical mfg	111.9	80.7	22.5	5.5	3.2	229.0	81.8	99.4	37.7	10.1	33	9	
325181	Alkalies & chlorine mfg	10.7	2.0	7.9	—	.9	25.2	6.3	11.8	3.3	3.8	9	17	
325182	Carbon black mfg	8.0	6.6	1.1	.2	.2	6.1	3.6	2.2	.3	.1	23	3	
325188	All other basic inorganic chemical mfg	93.1	72.1	13.6	5.3	2.2	197.6	71.8	85.3	34.2	6.3	40	10	
32519	Other basic organic chemical mfg	320.4	136.8	131.4	37.6	14.7	972.3	254.1	503.8	199.6	14.7	4	4	
325191	Gum & wood chemical mfg	5.0	(D)	(D)	—	.2	5.9	3.1	2.2	.5	(Z)	1	1	
325192	Cyclic crude & intermediate mfg	27.5	19.2	(D)	(D)	—	97.0	24.0	51.3	21.6	—	23	10	
325193	Ethyl alcohol mfg	1.5	(D)	(D)	(D)	—	5.4	1.5	3.4	.5	—	6	2	
325199	All other basic organic chemical mfg	286.4	114.4	122.6	35.0	14.4	864.0	225.5	446.8	177.0	14.7	4	4	
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	207.1	104.2	56.8	44.9	1.2	566.6	146.6	266.1	142.3	11.5	5	5	
32521	Resin & synthetic rubber mfg	164.0	78.6	43.9	40.3	1.2	487.7	129.6	219.9	130.9	7.3	7	6	
325211	Plastics material & resin mfg	143.7	67.7	37.1	(D)	(D)	432.6	119.9	188.0	(D)	(D)	7	7	
325212	Synthetic rubber mfg	20.2	10.9	6.9	(D)	(D)	55.1	9.7	31.9	(D)	(D)	1	2	
32522	Artificial & synthetic fibers & filaments mfg	43.2	25.6	12.9	4.7	.1	78.9	17.0	46.2	11.4	4.3	1	3	
325221	Cellulosic organic fiber mfg	7.8	1.9	3.8	2.1	—	26.9	2.5	17.0	4.1	3.4	1	1	
325222	Noncellulosic organic fiber mfg	35.3	23.6	9.0	2.6	.1	51.9	14.5	29.2	7.3	.9	1	5	
3253	Pesticide, fertilizer, & other agricultural chemical mfg	39.1	13.8	21.1	4.0	.3	294.5	116.2	94.2	71.3	12.8	7	7	
32531	Fertilizer mfg	28.8	8.6	16.5	3.5	.3	154.0	97.0	46.8	10.2	—	5	11	
325311	Nitrogenous fertilizer mfg	4.5	2.0	2.0	.4	—	26.4	9.3	15.4	1.7	—	21	18	
325312	Phosphatic fertilizer mfg	24.3	6.6	14.4	3.0	.3	127.6	87.8	31.4	8.4	—	4	12	
32532	Pesticide & other agricultural chemical mfg	10.3	5.2	4.6	.5	(Z)	140.5	19.2	47.4	61.1	12.8	22	8	
325320	Pesticide & other agricultural chemical mfg	10.3	5.2	4.6	.5	(Z)	140.5	19.2	47.4	61.1	12.8	22	8	
3254	Pharmaceutical & medicine mfg	82.6	40.5	33.0	7.1	2.0	136.6	33.9	66.7	32.9	3.1	13	6	
32541	Pharmaceutical & medicine mfg	82.6	40.5	33.0	7.1	2.0	136.6	33.9	66.7	32.9	3.1	13	6	
325411	Medicinal & botanical mfg	59.0	25.0	28.8	5.3	—	71.3	17.4	43.6	8.8	1.5	11	6	
325412	Pharmaceutical preparation mfg	22.3	15.4	3.1	1.8	2.0	63.0	16.1	22.1	23.2	1.6	38	10	
325414	Biological product (except diagnostic) mfg	1.3	.1	1.1	—	—	1.7	.1	.6	1.0	—	5	5	
3255	Paint, coating, & adhesive mfg	26.9	14.8	10.7	1.4	(Z)	38.4	7.6	19.6	11.1	.2	41	14	
32551	Paint & coating mfg	11.4	9.7	.3	1.4	—	21.0	5.6	9.5	5.7	.2	60	16	
325510	Paint & coating mfg	11.4	9.7	.3	1.4	—	21.0	5.6	9.5	5.7	.2	60	16	
32552	Adhesive mfg	15.5	5.1	10.4	—	(Z)	17.4	2.0	10.1	5.4	(Z)	56	23	
325520	Adhesive mfg	15.5	5.1	10.4	—	(Z)	17.4	2.0	10.1	5.4	(Z)	56	23	
3256	Soap, cleaning compound, & toilet preparation mfg	95.8	39.8	26.1	18.2	11.7	113.5	36.2	36.0	38.7	2.7	10	11	
32561	Soap & cleaning compound mfg	82.4	39.8	12.8	18.1	11.7	102.9	35.6	31.1	33.5	2.6	11	12	
325611	Soap & other detergent mfg	7.1	(D)	(D)	—	—	27.3	13.7	10.4	3.0	.3	7	7	
325612	Polish & other sanitation good mfg	3.4	(D)	(D)	.1	.5	9.4	1.4	4.6	1.4	2.0	48	12	
325613	Surface active agent mfg	71.8	31.6	11.0	18.0	11.2	66.1	20.6	16.1	29.1	.3	12	19	
32562	Toilet preparation mfg	13.5	.1	13.3	.1	—	10.6	.6	4.9	5.2	(Z)	16	17	
325620	Toilet preparation mfg	13.5	.1	13.3	.1	—	10.6	.6	4.9	5.2	(Z)	16	17	
3259	Other chemical product mfg	22.4	12.6	7.1	2.6	.1	139.0	60.9	53.7	23.8	.6	10	4	
32591	Printing ink mfg	(D)	—	(D)	—	—	4.5	(D)	3.3	(D)	—	(X)	59	
325910	Printing ink mfg	(D)	—	(D)	—	—	4.5	(D)	3.3	(D)	—	(X)	59	
32592	Explosives mfg	(D)	(D)	(D)	(D)	—	6.4	(D)	4.5	1.6	(D)	(X)	2	
325920	Explosives mfg	(D)	(D)	(D)	(D)	—	6.4	(D)	4.5	1.6	(D)	(X)	2	
32599	All other chemical product & preparation mfg	21.8	(D)	(D)	(D)	.1	128.1	59.6	45.9	(D)	(D)	10	4	
325991	Custom compounding of purchased resin . . . . .	.6	—	(D)	(D)	—	8.0	3.9	.4	3.7	—	55	39
325992	Photographic film, paper, plate, & chemical mfg	5.1	(D)	.7	(D)	—	80.1	45.1	22.5	11.9	.5	4	4	
325998	All other miscellaneous chemical product & preparation mfg	16.1	8.5	5.6	1.9	.1	40.0	10.6	23.0	(D)	(D)	14	6	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
326	Plastics & rubber products mfg ...	102.6	92.0	5.7	4.7		164.7	86.0	30.3	46.8	1.7	15	12	
3261	Plastics product mfg	78.2	71.8	2.9	3.5	(Z)	121.0	72.4	20.6	27.0	1.1	18	16	
32611	Unsupported plastics film, sheet, & bag mfg	24.3	23.7	.3	.3	—	56.0	34.2	10.9	10.9	.1	46	32	
326111	Unsupported plastics bag mfg	4.4	4.3	.1	—	—	3.8	2.2	.7	.9	—	24	16	
326112	Unsupported plastics packaging film & sheet mfg	12.5	12.5	—	—	—	4.5	3.5	.1	1.0	—	82	21	
326113	Unsupported plastics film & sheet (except packaging) mfg	7.4	6.9	.2	.3	—	47.8	28.5	10.1	9.0	.1	56	38	
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	1.2	.8	(D)	(D)	(D)	1.3	.4	(D)	.5	(D)	21	12	
32613	Laminated plastics plate, sheet, & shape mfg	1.0	(D)	(D)	—	—	14.8	12.3	.4	1.3	.8	26	26	
326130	Laminated plastics plate, sheet, & shape mfg	1.0	(D)	(D)	—	—	14.8	12.3	.4	1.3	.8	26	26	
32614	Polystyrene foam product mfg .....	.7	.7	(D)	(D)	—	6.3	2.7	.6	3.0	(Z)	32	20
326140	Polystyrene foam product mfg .....	.7	.7	(D)	(D)	—	6.3	2.7	.6	3.0	(Z)	32	20
32615	Urethane & other foam product (except polystyrene) mfg	7.0	5.5	.4	1.2	—	2.7	1.9	(D)	.7	(D)	19	17	
326150	Urethane & other foam product (except polystyrene) mfg	7.0	5.5	.4	1.2	—	2.7	1.9	(D)	.7	(D)	19	17	
32619	Other plastics product mfg ...	43.4	39.9	1.7	(D)	(D)	39.3	20.9	8.0	10.2	.2	20	16	
326191	Plastics plumbing fixture mfg	4.7	(D)	(D)	—	—	.9	.3	.2	.4	—	63	51	
326192	Resilient floor covering mfg	17.4	(D)	(D)	(D)	—	5.4	3.4	.4	1.7	—	1	9	
326199	All other plastics product mfg	21.4	18.5	(D)	(D)	(D)	33.0	17.3	7.4	8.1	.2	38	18	
3262	Rubber product mfg	24.4	20.2	2.8	1.2	.1	43.7	13.6	9.7	19.8	.6	26	9	
32621	Tire mfg	6.6	4.8	(D)	(D)	—	17.9	5.3	(D)	9.1	(D)	1	4	
326211	Tire mfg (except retreading)	6.6	4.8	(D)	(D)	—	17.5	5.3	(D)	8.7	(D)	1	3	
32622	Rubber & plastics hoses & belting mfg .....	.3	.2	(D)	(D)	—	4.6	1.6	(D)	1.9	(D)	26	28
326220	Rubber & plastics hoses & belting mfg .....	.3	.2	(D)	(D)	—	4.6	1.6	(D)	1.9	(D)	26	28
32629	Other rubber product mfg	17.5	15.2	2.0	.1	.1	21.1	6.6	5.3	8.8	.4	36	17	
326291	Rubber product mfg for mechanical use	10.4	9.8	.4	(Z)	.1	11.0	2.2	1.7	6.8	.3	56	25	
326299	All other rubber product mfg	7.1	5.5	1.6	.1	—	10.1	4.5	3.6	2.0	(Z)	32	22	
327	Nonmetallic mineral product mfg ...	232.6	195.1	16.2	20.1	1.2	281.5	154.6	50.2	61.7	15.0	12	8	
3271	Clay product & refractory mfg ...	21.5	17.6	1.9	1.9	(Z)	31.7	16.2	6.8	7.2	1.5	17	12	
32711	Pottery, ceramics, & plumbing fixture mfg	1.3	.7	.1	.4	(Z)	8.6	2.1	4.7	1.7	.1	17	12	
327111	Vitreous china plumbing fixture & bathroom accessories mfg	(Z)	—	(Z)	—	—	2.7	.7	1.6	.3	(Z)	62	34	
327112	Vitreous china, fine earthenware, & other pottery product mfg .....	.7	.5	(D)	(D)	(Z)	2.1	.6	.9	.6	—	30	11
327113	Porcelain electrical supply mfg .....	.6	.2	(D)	(D)	—	3.9	.8	2.2	.8	(Z)	15	9
32712	Clay building material & refractories mfg	20.2	16.9	1.8	1.5	—	23.1	14.1	2.1	5.5	1.4	18	16	
327121	Brick & structural clay tile mfg	7.6	7.4	.1	.1	—	4.4	3.5	.5	.5	—	45	18	
327122	Ceramic wall & floor tile mfg	8.0	5.9	1.1	1.1	—	4.4	1.3	.5	1.2	1.4	4	18	
327124	Clay refractory mfg	1.5	.9	.5	.1	—	7.8	4.7	.3	2.7	—	40	40	
327125	Nonclay refractory mfg	3.0	2.6	.2	.2	—	6.1	4.4	.8	1.0	—	17	23	
3272	Glass & glass product mfg	18.9	16.0	1.8	.4	.6	66.5	26.0	17.2	10.6	12.6	50	4	
32721	Glass & glass product mfg ...	18.9	16.0	1.8	.4	.6	66.5	26.0	17.2	10.6	12.6	50	4	
327211	Flat glass mfg .....	.5	.5	(Z)	—	—	8.0	4.3	1.7	2.0	—	44	28
327212	Other pressed & blown glass & glassware mfg	12.5	10.6	1.6	.2	—	29.6	14.1	9.6	5.9	(Z)	75	3	
327213	Glass container mfg	4.7	4.5	.1	(Z)	—	10.9	7.2	2.1	1.5	.1	1	4	
327215	Glass product mfg made of purchased glass	1.3	.4	(Z)	.2	.6	17.9	.5	3.8	1.1	12.6	16	5	
3273	Cement & concrete product mfg	126.3	111.8	7.8	6.7	(Z)	82.8	60.1	9.2	12.9	.7	17	14	
32731	Cement mfg	104.1	97.4	1.1	5.6	—	67.7	53.6	5.5	8.4	.2	18	17	
327310	Cement mfg	104.1	97.4	1.1	5.6	—	67.7	53.6	5.5	8.4	.2	18	17	
32732	Ready-mix concrete mfg	19.4	12.6	5.9	.9	(Z)	10.6	3.6	(D)	3.5	(D)	49	24	
327320	Ready-mix concrete mfg ...	19.4	12.6	5.9	.9	(Z)	10.6	3.6	(D)	3.5	(D)	49	24	
32733	Concrete pipe, brick, & block mfg	1.7	1.3	.4	—	(Z)	2.8	2.1	(D)	.3	(D)	45	30	
327331	Concrete block & brick mfg ..	.8	.8	.1	—	—	2.2	1.9	(D)	.1	(D)	61	37	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33 327	Manufacturing—Con. Nonmetallic mineral product mfg— Con.													
3273	Cement & concrete product mfg—Con.													
32739	Other concrete product mfg ..	1.1	.5	.4	.2	—	1.8	.7	.3	.7	—	31	23	
327390	Other concrete product mfg	1.1	.5	.4	.2	—	1.8	.7	.3	.7	—	31	23	
3274	Lime & gypsum product mfg.	11.8	9.1	1.6	.7	.5	26.1	17.0	2.8	6.1	.1	25	11	
32741	Lime mfg	3.8	3.3	.5	—	—	16.3	12.2	.4	3.6	.1	17	15	
327410	Lime mfg	3.8	3.3	.5	—	—	16.3	12.2	.4	3.6	.1	17	15	
32742	Gypsum product mfg	8.1	5.8	1.0	.7	.5	9.8	4.9	2.4	2.5	(Z)	36	12	
327420	Gypsum product mfg	8.1	5.8	1.0	.7	.5	9.8	4.9	2.4	2.5	(Z)	36	12	
3279	Other nonmetallic mineral product mfg	53.9	40.6	3.0	10.3	—	74.4	35.2	14.2	24.9	(Z)	23	24	
32791	Abrasive product mfg.	14.7	12.5	1.7	.4	—	9.0	4.1	1.4	3.5	—	68	12	
327910	Abrasive product mfg.	14.7	12.5	1.7	.4	—	9.0	4.1	1.4	3.5	—	68	12	
32799	All other nonmetallic mineral product mfg	39.3	28.1	1.3	9.9	—	65.4	31.1	12.8	21.4	(Z)	18	28	
327992	Ground or treated mineral & earth mfg	3.3	2.3	.9	.1	—	28.7	12.9	3.4	12.4	—	5	61	
327993	Mineral wool mfg	26.1	25.1	.4	.6	—	34.3	17.4	8.6	8.2	(Z)	2	9	
327999	All other miscellaneous nonmetallic mineral product mfg	9.9	.6	(Z)	9.2	—	2.4	.8	.7	.8	(Z)	69	15	
331	Primary metal mfg	605.7	481.2	93.6	22.8	8.1	1 543.9	755.5	571.8	205.0	11.6	7	3	
3311	Iron & steel mills & ferroalloy mfg	117.3	83.5	24.5	7.3	2.0	894.5	375.3	403.6	107.4	8.2	7	5	
33111	Iron & steel mills & ferroalloy mfg	117.3	83.5	24.5	7.3	2.0	894.5	375.3	403.6	107.4	8.2	7	5	
331111	Iron & steel mills	109.2	76.3	24.0	6.8	2.0	864.6	355.1	400.8	100.5	8.2	7	5	
331112	Electrometallurgical ferroalloy product mfg	8.1	7.2	.5	.4	—	29.9	20.2	2.8	6.9	—	4	21	
3312	Steel product mfg from purchased steel	10.5	3.2	7.2	.2	—	44.5	3.8	27.8	12.8	(Z)	31	8	
33121	Iron & steel pipes & tubes mfg from purchased steel	4.9	1.5	3.4	(Z)	—	11.2	.9	6.3	4.0	(Z)	54	19	
331210	Iron & steel pipes & tubes mfg from purchased steel .	4.9	1.5	3.4	(Z)	—	11.2	.9	6.3	4.0	(Z)	54	19	
33122	Rolling & drawing of purchased steel	5.7	1.7	3.8	.2	—	33.2	2.9	21.6	8.7	—	33	8	
331221	Cold-rolled steel shape mfg	2.5	.2	2.2	.1	—	16.8	1.9	11.1	3.7	—	17	2	
331222	Steel wire drawing	3.1	1.4	1.6	.1	—	16.4	1.0	10.4	5.0	—	57	15	
3313	Alumina & aluminum production & processing	289.6	257.2	16.6	10.0	5.9	235.6	158.0	42.0	35.0	.5	13	7	
33131	Alumina & aluminum production & processing	289.6	257.2	16.6	10.0	5.9	235.6	158.0	42.0	35.0	.5	13	7	
331311	Alumina refining	1.6	1.3	.3	(Z)	—	22.2	14.6	.9	6.8	—	1	1	
331312	Primary aluminum production	233.3	219.4	7.1	1.2	5.6	136.1	103.6	(D)	18.3	(D)	16	11	
331314	Secondary smelting & alloying of aluminum	8.8	8.0	.8	(Z)	—	12.0	8.8	(D)	2.1	(D)	5	7	
331315	Aluminum sheet, plate, & foil mfg	40.2	28.4	4.2	7.3	.3	39.9	18.4	15.5	5.8	.2	24	11	
331316	Aluminum extruded product mfg	5.5	(Z)	4.1	1.4	—	14.6	2.9	10.0	(D)	(D)	53	18	
331319	Other aluminum rolling & drawing.....	.1	.1	.1	—	—	10.7	9.7	(D)	(D)	(D)	1	4	
3314	Nonferrous metal (except aluminum) production & processing	95.7	52.7	41.9	1.1	(Z)	190.2	111.1	66.0	11.2	1.9	5	6	
33141	Nonferrous metal (except aluminum) smelting & refining	52.8	35.1	17.3	.4	—	71.5	55.1	10.6	(D)	(D)	6	11	
331411	Primary smelting & refining of copper	43.6	26.3	(D)	(D)	—	34.4	27.0	4.1	(D)	(D)	3	20	
331419	Other nonferrous metal primary smelting & refining	9.2	8.8	(D)	(D)	—	37.1	28.2	6.5	2.5	—	29	10	
33142	Copper rolling, drawing, extruding, & alloying	13.8	8.6	5.2	(Z)	(Z)	31.4	11.7	17.2	(D)	(D)	20	13	
331421	Copper rolling, drawing, & extruding	11.6	6.5	5.0	(Z)	(Z)	24.1	6.0	16.0	1.6	.5	24	15	
331422	Copper wire (except mechanical) drawing	(Z)	—	(Z)	—	—	2.5	1.3	1.1	(D)	(D)	95	51	
331423	Secondary smelting, refining, & alloying of copper	2.2	2.0	.2	—	—	4.8	4.4	.2	.2	—	1	2	
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	29.1	9.0	19.5	.6	—	87.2	44.2	38.2	4.4	.4	2	8	
331491	Other nonferrous metal rolling, drawing, & extruding	6.7	5.3	1.3	.1	—	25.2	9.6	13.7	1.6	.4	8	23	
331492	Other nonferrous metal secondary smelting, refining, & alloying	22.3	3.7	18.1	.5	—	62.0	34.6	24.6	2.8	—	2	6	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
331	Primary metal mfg—Con.													
3315	Foundries.....	92.6	84.7	3.5	4.3	.2	179.2	107.2	32.3	38.7	1.0	18	6	
33151	Ferrous metal foundries.....	74.7	69.5	2.5	2.5	.2	142.3	89.8	19.8	32.0	.8	21	5	
331511	Iron foundries.....	66.0	64.4	.6	.7	.2	119.6	75.1	16.7	27.1	.8	24	5	
331512	Steel investment foundries.....	3.1	1.3	1.5	.3	—	11.9	6.7	2.3	2.9	(Z)	8	14	
331513	Steel foundries (except investment).....	5.6	3.8	.3	1.5	—	10.8	8.0	.9	2.0	—	11	17	
33152	Nonferrous metal foundries.....	18.0	15.2	1.0	1.8	—	36.9	17.4	12.5	6.7	.2	31	21	
331521	Aluminum die-casting foundries.....	10.0	8.7	.6	.6	—	25.4	12.5	8.0	4.9	(Z)	55	29	
331524	Aluminum foundries (except die-casting).....	6.5	5.0	.2	1.2	—	6.5	3.6	1.7	1.0	.2	4	11	
331525	Copper foundries (except die-casting).....	.1	.1	.1	—	—	1.3	.5	.4	.5	—	59	53	
331528	Other nonferrous foundries (except die-casting).....	1.5	1.4	.1	(Z)	—	2.7	.7	1.7	.2	—	1	23	
332	Fabricated metal product mfg.....	283.3	38.2	232.4	9.7	3.0	405.3	89.2	167.2	137.0	11.9	68	16	
3321	Forging & stamping.....	11.4	4.1	5.6	.7	1.0	21.1	7.6	9.3	3.6	.6	13	10	
33211	Forging & stamping.....	11.4	4.1	5.6	.7	1.0	21.1	7.6	9.3	3.6	.6	13	10	
332111	Iron & steel forging.....	.8	(D)	.2	(D)	—	3.7	.4	2.3	1.0	.1	17	30	
332112	Nonferrous forging.....	7.2	2.4	3.8	—	1.0	5.4	2.5	1.9	.6	.4	7	16	
332114	Custom roll forming.....	.2	(D)	(D)	(D)	—	3.1	(D)	.6	(D)	—	22	3	
332115	Crown & closure mfg.....	.6	.6	(D)	(D)	—	3.0	2.1	.1	.7	.1	7	16	
332116	Metal stamping.....	2.5	.5	1.5	.6	—	5.4	(D)	4.1	1.2	(D)	54	25	
3322	Cutlery & handtool mfg.....	2.6	1.9	.6	.1	.1	10.4	1.8	5.6	2.8	.2	27	14	
33221	Cutlery & handtool mfg.....	2.6	1.9	.6	.1	.1	10.4	1.8	5.6	2.8	.2	27	14	
332212	Hand & edge tool mfg.....	1.3	1.0	.3	(Z)	—	9.0	(D)	5.2	2.4	(D)	37	16	
3323	Architectural & structural metals mfg.....	10.0	8.5	.4	.5	.6	14.0	3.9	4.2	5.6	.3	45	17	
33231	Plate work & fabricated structural product mfg.....	3.0	2.0	.1	.2	.6	3.3	1.0	.6	1.6	(Z)	48	15	
332312	Fabricated structural metal mfg.....	1.4	.5	.1	.2	.6	2.8	.6	.6	1.6	(Z)	9	16	
332313	Plate work mfg.....	1.6	1.6	(Z)	(Z)	—	.1	.1	(Z)	—	—	88	66	
33232	Ornamental & architectural metal products mfg.....	7.0	6.5	.3	.3	—	10.7	2.8	3.5	4.0	.3	61	22	
332321	Metal window & door mfg.....	1.6	1.4	.2	.2	—	7.0	2.1	2.9	1.8	.2	85	30	
332322	Sheet metal work mfg.....	5.3	5.1	.1	.2	—	2.7	.6	.2	1.8	.1	76	34	
332323	Ornamental & architectural metal work mfg.....	.1	—	(Z)	.1	—	1.0	.1	.4	.4	—	57	39	
3324	Boiler, tank, & shipping container mfg.....	11.9	4.9	5.6	1.3	.1	32.1	16.2	9.7	5.6	.6	21	10	
33241	Power boiler & heat exchanger mfg.....	.4	(Z)	(Z)	.3	—	2.2	.2	.9	1.0	(Z)	80	33	
332410	Power boiler & heat exchanger mfg.....	.4	(Z)	(Z)	.3	—	2.2	.2	.9	1.0	(Z)	80	33	
33242	Metal tank (heavy gauge) mfg.....	.1	(Z)	(Z)	—	—	1.6	1.0	.3	.1	.2	68	26	
332420	Metal tank (heavy gauge) mfg.....	.1	(Z)	(Z)	—	—	1.6	1.0	.3	.1	.2	68	26	
33243	Metal can, box, & other metal container (light gauge) mfg.....	11.5	4.9	5.5	1.0	.1	28.3	14.9	8.5	4.5	.4	21	11	
332431	Metal can mfg.....	10.4	4.6	4.7	1.0	.1	24.4	12.6	8.0	3.5	.3	23	12	
332439	Other metal container mfg.....	1.1	.3	.8	(Z)	—	3.9	2.3	.4	1.1	.1	47	30	
3325	Hardware mfg.....	.2	(D)	.2	(D)	—	15.1	1.4	8.2	5.0	.5	28	13	
33251	Hardware mfg.....	.2	(D)	.2	(D)	—	15.1	1.4	8.2	5.0	.5	28	13	
332510	Hardware mfg.....	.2	(D)	.2	(D)	—	15.1	1.4	8.2	5.0	.5	28	13	
3326	Spring & wire product mfg.....	1.1	(D)	.9	(D)	.1	6.6	1.2	4.5	.7	.2	37	33	
33261	Spring & wire product mfg.....	1.1	(D)	.9	(D)	.1	6.6	1.2	4.5	.7	.2	37	33	
332612	Spring (light gauge) mfg.....	(D)	(D)	—	(D)	—	1.3	.8	.4	(Z)	—	(X)	57	
332618	Other fabricated wire product mfg.....	1.1	(D)	.9	(D)	.1	5.0	.3	4.0	.6	.1	38	41	
3327	Machine shops, turned product, & screw, nut, & bolt mfg.....	211.9	5.7	205.5	—	.7	25.5	4.2	15.5	4.8	1.0	91	17	
33271	Machine shops.....	2.2	1.9	.3	—	—	6.9	2.9	1.3	2.6	(Z)	47	42	
332710	Machine shops.....	2.2	1.9	.3	—	—	6.9	2.9	1.3	2.6	(Z)	47	42	
33272	Turned product & screw, nut, & bolt mfg.....	209.6	3.8	205.1	—	.7	18.6	1.3	14.2	2.2	1.0	92	17	
332721	Precision turned product mfg.....	1.5	1.4	.1	—	—	1.7	.2	1.0	.4	—	53	24	
332722	Bolt, nut, screw, rivet, & washer mfg.....	208.1	2.4	205.0	—	.7	17.0	1.1	13.1	1.8	1.0	92	19	
3328	Coating, engraving, heat treating, & allied activities.....	16.4	4.7	8.1	3.3	.3	108.0	26.2	68.1	11.9	1.7	17	11	
33281	Coating, engraving, heat treating, & allied activities.....	16.4	4.7	8.1	3.3	.3	108.0	26.2	68.1	11.9	1.7	17	11	
332811	Metal heat treating.....	1.0	(D)	(D)	.2	—	9.0	.6	8.3	.2	—	50	16	
332812	Metal coating/engraving (exc jewelry/silverware)/allied services.....	2.3	(D)	(D)	—	(Z)	31.9	19.2	10.9	1.8	(Z)	54	31	
332813	Electroplating, plating, polishing, anodizing, & coloring.....	13.0	3.0	6.7	3.0	.3	67.0	6.4	49.0	9.8	1.7	18	10	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

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NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33 332	Manufacturing—Con. Fabricated metal product mfg— Con.													
3329	Other fabricated metal product mfg	17.8	8.2	5.6	3.9	.1	172.6	26.7	42.0	97.1	6.8	29	36	
33291	Metal valve mfg	7.0	2.5	4.0	.5	.1	15.0	2.8	7.9	3.7	.5	29	12	
332911	Industrial valve mfg	5.3	1.8	3.3	.2	—	5.3	1.7	2.3	1.1	.1	37	25	
332912	Fluid power valve & hose fitting mfg .....	.4	(D)	.1	(D)	.1	4.6	.5	2.5	1.1	.4	21	17
332913	Plumbing fixture fitting & trim mfg	1.3	(D)	.6	(D)	—	3.4	.4	1.9	1.1	—	41	18	
332919	Other metal valve & pipe fitting mfg	(Z)	—	(Z)	—	—	1.7	.1	1.2	.3	—	52	29	
33299	All other fabricated metal product mfg	10.8	5.7	1.6	3.5	(Z)	157.6	23.9	34.1	93.4	6.3	44	39	
332991	Ball & roller bearing mfg ...	1.6	.5	.4	.6	—	52.8	18.4	22.0	6.5	5.9	45	3	
332992	Small arms ammunition mfg .....	.3	.1	(D)	(D)	(Z)	7.1	.2	4.6	2.1	.1	1	1
332993	Ammunition (except small arms) mfg	2.5	(D)	.2	(D)	—	83.2	.7	2.8	79.6	.1	82	74	
332994	Small arms mfg .....	.4	(D)	(D)	(D)	—	2.4	.3	1.1	1.0	.1	19	10
332995	Other ordnance & accessories mfg	(D)	—	(D)	—	—	4.4	1.3	1.4	1.7	—	(X)	9	
332998	Enameled iron & metal sanitary ware mfg .....	.4	.4	—	—	—	1.4	—	.6	.8	—	61	62
332999	All other miscellaneous fabricated metal product mfg	5.6	3.8	.6	1.2	—	6.2	2.9	1.5	1.7	.1	75	21	
333	Machinery mfg	163.3	26.3	92.5	3.0	41.6	97.7	25.6	41.2	28.8	2.1	4	7	
3331	Agriculture, construction, & mining machinery mfg	20.7	9.8	9.6	(D)	(D)	25.7	8.1	9.2	7.8	.6	30	16	
33311	Agricultural implement mfg ...	10.3	(D)	8.7	(D)	—	13.4	(D)	5.5	5.9	(D)	34	28	
333111	Farm machinery & equipment mfg	9.5	(D)	(D)	—	—	12.4	1.9	4.8	5.6	—	37	31	
333112	Lawn & garden tractor & home lawn & garden equipment mfg .....	.8	(D)	(D)	(D)	—	1.0	(D)	.6	.2	(D)	9	14
33312	Construction machinery mfg ..	8.4	8.1	(D)	—	(D)	11.0	5.8	3.7	1.6	—	57	6	
333120	Construction machinery mfg	8.4	8.1	(D)	—	(D)	11.0	5.8	3.7	1.6	—	57	6	
33313	Mining & oil & gas field machinery mfg	2.0	(D)	(D)	(D)	—	1.2	(D)	(Z)	.3	(D)	67	87	
333132	Oil & gas field machinery & equipment mfg	1.8	(D)	(D)	1.2	—	1.2	.3	(Z)	(D)	(D)	71	88	
3332	Industrial machinery mfg	5.0	.1	4.9	(D)	(D)	7.9	1.3	4.3	2.2	(Z)	2	25	
33329	Other industrial machinery mfg	4.9	(D)	4.8	(D)	(D)	7.3	(D)	4.1	2.0	(D)	2	27	
333291	Paper industry machinery mfg	—	—	—	—	—	1.2	.9	(Z)	.2	—	—	77	
333292	Textile machinery mfg	—	—	—	—	—	2.3	.1	2.2	—	—	—	60	
333295	Semiconductor machinery mfg	4.7	—	4.7	—	—	.5	(D)	.2	.2	(D)	1	1	
333298	All other industrial machinery mfg .....	.1	(D)	(Z)	(D)	(D)	2.4	.1	1.1	1.2	(Z)	47	42
3333	Commercial & service industry machinery mfg	1.2	1.0	.1	.1	—	9.0	6.1	1.7	1.2	(Z)	50	41	
33331	Commercial & service industry machinery mfg	1.2	1.0	.1	.1	—	9.0	6.1	1.7	1.2	(Z)	50	41	
333314	Optical instrument & lens mfg .....	.1	.1	.1	—	—	1.2	.4	.2	.6	—	54	27
333315	Photographic & photocopying equipment mfg .....	.7	.7	—	(Z)	—	6.7	5.5	1.0	.1	—	74	54
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	5.1	2.5	2.3	.3	—	11.3	2.1	5.0	4.1	.1	18	10	
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	5.1	2.5	2.3	.3	—	11.3	2.1	5.0	4.1	.1	18	10	
333414	Heating equipment (except warm air furnaces) mfg ...	(Z)	(Z)	—	(Z)	—	1.2	.4	.3	.5	(Z)	18	23	
333415	AC & warm air heating & commercial/industrial refrig equip mfg	4.9	2.5	2.1	.3	—	9.1	1.2	4.3	3.5	(Z)	18	10	
3335	Metalworking machinery mfg ...	1.6	1.2	.2	.2	—	6.6	1.1	3.2	1.4	.8	36	25	
33351	Metalworking machinery mfg .	1.6	1.2	.2	.2	—	6.6	1.1	3.2	1.4	.8	36	25	
333512	Machine tool (metal cutting types) mfg .....	.6	.6	(Z)	—	—	1.0	.2	.4	.3	.1	82	44
333514	Special die & tool, die set, jig, & fixture mfg	—	—	—	—	—	1.0	—	—	.2	.7	—	100	
333515	Cutting tool & machine tool accessory mfg .....	.8	.6	.2	(Z)	—	2.6	.9	1.4	.3	—	35	29
3336	Engine, turbine, & power transmission equipment mfg ..	124.6	8.9	74.2	.1	41.3	17.9	2.5	10.3	4.8	.3	2	11	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
333	Machinery mfg—Con.													
3336	Engine, turbine, & power transmission equipment mfg—Con.													
33361	Engine, turbine, & power transmission equipment mfg	124.6	8.9	74.2	.1	41.3	17.9	2.5	10.3	4.8	.3	2	11	
333611	Turbine & turbine generator set unit mfg	1.4	.9	.5	.1	—	5.7	.9	1.9	2.8	.1	24	9	
333613	Mechanical power transmission equipment mfg	(Z)	(Z)	(Z)	—	—	3.7	.2	2.4	1.1	—	63	44	
333618	Other engine equipment mfg	122.9	8.0	73.6	—	41.3	8.1	1.4	5.9	.7	.2	2	12	
3339	Other general-purpose machinery mfg	5.1	2.8	1.2	.9	.2	19.4	4.4	7.4	7.3	.3	11	9	
33391	Pump & compressor mfg ....	.6	(D)	(D)	.3	(D)	5.3	1.3	1.3	2.4	.2	39	21
333911	Pump & pumping equipment mfg .....	.4	(D)	(D)	.3	(D)	2.4	.6	.8	1.0	(Z)	48	28
333912	Air & gas compressor mfg ..	.1	—	.1	—	(D)	2.3	.2	.5	1.4	.2	59	36	
33392	Material handling equipment mfg	2.6	2.3	(D)	.1	(D)	3.9	1.0	1.5	1.4	—	8	24	
333923	Overhead traveling crane, hoist, & monorail system mfg .....	.3	—	(D)	—	(D)	1.5	.1	.7	.7	—	63	51
333924	Industrial truck, tractor, trailer, & stacker machinery mfg	1.9	1.9	—	—	—	1.4	.7	.5	.2	—	1	7	
33399	All other general-purpose machinery mfg	1.9	(D)	.8	.6	(D)	10.2	2.1	4.6	3.4	.1	23	9	
333992	Welding & soldering equipment mfg .....	.6	—	.2	.4	—	2.0	(D)	(D)	.6	—	52	17
333995	Fluid power cylinder & actuator mfg .....	.1	(Z)	—	.1	—	3.2	.4	1.7	1.1	—	88	9
333996	Fluid power pump & motor mfg .....	.7	.3	.3	—	—	1.7	.4	.8	.4	.1	35	29
333999	All other miscellaneous general-purpose machinery mfg .....	.3	—	.1	(D)	(D)	2.1	.2	1.0	.9	—	58	25
334	Computer & electronic product mfg	138.0	58.5	67.5	11.7	.4	325.4	59.5	208.6	50.6	6.7	13	8	
3341	Computer & peripheral equipment mfg .....	.9	.3	.6	(Z)	—	9.5	.5	6.5	2.5	—	37	28
33411	Computer & peripheral equipment mfg .....	.9	.3	.6	(Z)	—	9.5	.5	6.5	2.5	—	37	28
334111	Electronic computer mfg ...	—	—	—	—	—	3.4	(Z)	(D)	(D)	—	—	38	
334119	Other computer peripheral equipment mfg .....	.9	.3	.6	(Z)	—	5.7	.5	4.0	1.2	—	37	40
3342	Communications equipment mfg	1.1	.1	.9	.1	—	4.2	.4	1.6	2.2	(Z)	50	8	
33421	Telephone apparatus mfg ....	.1	.1	—	—	—	2.4	.1	1.4	.8	—	67	5
334210	Telephone apparatus mfg ..	.1	.1	—	—	—	2.4	.1	1.4	.8	—	67	5	
33422	Radio & TV broadcasting & wireless communications equipment mfg .....	.1	—	—	.1	—	1.4	.2	.1	1.0	(Z)	94	18
334220	Radio & TV broadcasting & wireless communications equipment mfg .....	.1	—	—	.1	—	1.4	.2	.1	1.0	(Z)	94	18
3343	Audio & video equipment mfg ..	(Z)	(Z)	(Z)	—	—	7.1	1.0	5.3	.8	—	56	7	
33431	Audio & video equipment mfg	(Z)	(Z)	(Z)	—	—	7.1	1.0	5.3	.8	—	56	7	
334310	Audio & video equipment mfg	(Z)	(Z)	(Z)	—	—	7.1	1.0	5.3	.8	—	56	7	
3344	Semiconductor & other electronic component mfg	122.5	55.2	56.3	10.6	.3	266.8	48.4	182.4	29.8	6.2	14	10	
33441	Semiconductor & other electronic component mfg ...	122.5	55.2	56.3	10.6	.3	266.8	48.4	182.4	29.8	6.2	14	10	
334411	Electron tube mfg	1.3	—	1.3	(Z)	—	14.3	1.2	13.0	.1	—	50	27	
334412	Bare printed circuit board mfg	13.6	.4	6.1	7.1	—	40.0	1.8	31.4	6.3	.5	56	17	
334413	Semiconductor & related device mfg	102.8	52.7	46.3	3.5	.3	166.9	40.3	105.2	16.2	5.3	14	13	
334414	Electronic capacitor mfg ...	.4	.2	.2	(Z)	—	4.3	1.1	1.2	2.0	(Z)	20	11
334415	Electronic resistor mfg	1.4	1.4	—	—	—	1.8	.1	1.2	.1	.3	82	38	
334417	Electronic connector mfg ...	.6	—	.6	—	—	4.4	.5	2.1	1.8	—	84	30
334418	Printed circuit assembly (electronic assembly) mfg ..	1.0	.2	.7	—	—	27.2	1.5	24.7	1.0	—	73	40	
334419	Other electronic component mfg	1.3	.2	1.1	—	—	7.8	1.8	3.6	2.3	.1	67	37	
3345	Navigational, measuring, medical, & control instruments mfg	11.7	2.7	8.6	.5	(Z)	26.4	4.2	9.5	12.2	.5	64	13	
33451	Navigational, measuring, medical, & control instruments mfg	11.7	2.7	8.6	.5	(Z)	26.4	4.2	9.5	12.2	.5	64	13	
334510	Electromedical & electrotherapeutic apparatus mfg	2.1	1.7	.2	.1	—	3.3	.2	1.4	1.7	(Z)	30	29	
334511	Search, detection, navigation, & guidance instrument mfg	1.1	.9	.2	—	—	10.2	1.8	4.6	3.7	.1	58	14	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33	Manufacturing—Con.													
334	Computer & electronic product mfg—Con.													
3345	Navigational, measuring, medical, & control instruments mfg—Con.													
33451	Navigational, measuring, medical, & control instruments mfg—Con.													
334513	Industrial process control instrument mfg	7.6	—	7.6	—	—	2.8	.1	.3	2.4	—	98	94	
334514	Totalizing fluid meter & counting device mfg . . . . .	.8	(Z)	.5	.2	(Z)	4.7	1.1	.8	2.8	(Z)	18	10
334515	Electricity measuring & testing instrument mfg	—	—	—	—	—	2.3	.4	.6	1.0	.3	—	60	
3346	Mfg & reproducing magnetic & optical media	1.7	.3	1.1	.4	—	11.3	5.0	3.1	3.2	—	45	17	
33461	Mfg & reproducing magnetic & optical media	1.7	.3	1.1	.4	—	11.3	5.0	3.1	3.2	—	45	17	
334612	Prerecorded CD (except software), tape, & record reproducing	—	—	—	—	—	1.7	—	—	1.7	—	—	52	
334613	Magnetic & optical recording media mfg	1.7	.3	1.1	.4	—	9.6	5.0	3.1	1.4	—	45	18	
335	Electrical equipment, appliance, & component mfg	33.7	20.8	10.6	2.2	(Z)	97.0	40.7	32.2	22.7	1.4	8	6	
3351	Electric lighting equipment mfg . . . . .	.8	.5	.1	.2	(D)	5.9	(D)	2.3	2.7	(D)	67	32
33511	Electric lamp bulb & part mfg . . . . .	.7	.4	.1	.2	—	4.2	.4	1.4	2.4	—	71	44
335110	Electric lamp bulb & part mfg . . . . .	.7	.4	.1	.2	—	4.2	.4	1.4	2.4	—	71	44
33512	Lighting fixture mfg . . . . .	.1	(Z)	(Z)	—	(Z)	1.7	(D)	.9	.3	(D)	7	18
335129	Other lighting equipment mfg . . . . .	.1	(Z)	(Z)	—	(Z)	1.2	.4	.7	(D)	(D)	7	23
3352	Household appliance mfg	1.5	(Z)	1.3	.1	—	10.6	(D)	5.3	3.9	(D)	48	8	
33522	Major appliance mfg	1.4	(Z)	1.3	.1	—	9.7	(D)	5.1	3.5	(D)	50	9	
335221	Household cooking appliance mfg . . . . .	.5	—	.4	.1	—	1.3	(D)	.8	.4	(D)	36	11
335222	Household refrigerator & home freezer mfg	(Z)	—	(Z)	—	—	3.2	(Z)	1.5	1.6	—	1	1	
335224	Household laundry equipment mfg . . . . .	.2	(Z)	.1	—	—	3.3	(D)	1.9	.9	(D)	10	6
335228	Other major household appliance mfg . . . . .	.8	—	.8	—	—	1.9	.4	.9	.6	(Z)	87	42
3353	Electrical equipment mfg	2.3	.2	2.1	.1	(Z)	12.5	2.2	5.8	4.2	.3	35	11	
33531	Electrical equipment mfg	2.3	.2	2.1	.1	(Z)	12.5	2.2	5.8	4.2	.3	35	11	
335311	Power, distribution, & specialty transformer mfg . . . . .	.7	(Z)	.6	.1	—	1.0	.1	.2	.7	—	34	16
335312	Motor & generator mfg . . . . .	.8	(Z)	.8	—	(Z)	5.2	(D)	1.4	1.8	(D)	79	21
335313	Switchgear & switchboard apparatus mfg . . . . .	.7	.1	.6	—	—	4.8	(D)	3.3	1.3	(D)	56	16
335314	Relay & industrial control mfg . . . . .	.1	(Z)	.1	—	—	1.5	.2	.9	.5	—	63	24
3359	Other electrical equipment & component mfg	29.1	20.2	7.1	1.7	(Z)	68.0	36.3	18.8	11.9	1.0	9	7	
33591	Battery mfg	8.7	4.8	3.1	(D)	(D)	18.7	8.3	6.9	3.3	.1	22	7	
335911	Storage battery mfg	7.1	4.4	1.9	(D)	—	15.1	7.3	5.5	2.3	(Z)	26	8	
335912	Primary battery mfg	1.6	.4	1.2	(D)	(D)	3.6	1.1	1.4	1.0	.1	5	12	
33592	Communication & energy wire & cable mfg	14.0	10.6	3.0	.5	—	19.2	9.9	4.8	3.9	.6	5	13	
335921	Fiber optic cable mfg	12.4	10.1	2.3	(Z)	—	3.6	1.4	2.2	.1	—	1	1	
335929	Other communication & energy wire mfg	1.6	.5	.6	.4	—	15.5	8.5	2.7	3.8	.6	41	16	
33593	Wiring device mfg . . . . .	.8	.3	.3	(D)	(D)	7.0	2.5	2.2	2.0	.3	31	14
335931	Current-carrying wiring device mfg	(Z)	—	(Z)	—	(Z)	2.8	1.6	.7	(D)	(D)	45	31	
335932	Noncurrent-carrying wiring device mfg . . . . .	.7	.3	.3	(D)	(D)	4.1	.9	1.6	(D)	(D)	32	7
33599	All other electrical equipment & component mfg	5.5	4.5	.8	.3	—	23.1	15.6	4.8	2.6	(Z)	25	15	
335991	Carbon & graphite product mfg	5.5	4.5	.8	.3	—	19.6	14.8	2.9	1.9	(Z)	25	11	
335999	All other miscellaneous electrical equipment & component mfg	—	—	—	—	—	3.5	.8	1.9	.7	—	—	74	
336	Transportation equipment mfg	134.7	74.8	46.4	11.0	2.6	454.4	152.0	190.6	104.1	7.7	6	4	
3361	Motor vehicle mfg	52.1	37.3	8.4	5.4	.9	151.6	72.0	54.7	24.0	.9	9	4	
33611	Automobile & light duty motor vehicle mfg	(D)	(D)	8.1	(D)	.9	138.5	68.7	50.3	19.2	.3	(X)	4	
336111	Automobile mfg	32.3	24.8	5.3	(D)	(D)	74.6	40.5	21.9	12.2	—	14	5	
336112	Light truck & utility vehicle mfg	(D)	(D)	2.7	(D)	(D)	63.9	28.2	28.5	7.0	.3	(X)	5	
33612	Heavy duty truck mfg	(D)	(D)	.4	(D)	(Z)	13.2	3.3	4.4	4.8	.6	(X)	12	
336120	Heavy duty truck mfg	(D)	(D)	.4	(D)	(Z)	13.2	3.3	4.4	4.8	.6	(X)	12	
3362	Motor vehicle body & trailer mfg	4.2	2.5	.2	1.5	—	7.3	3.2	(D)	2.3	(D)	37	14	
33621	Motor vehicle body & trailer mfg	4.2	2.5	.2	1.5	—	7.3	3.2	(D)	2.3	(D)	37	14	
336211	Motor vehicle body mfg	1.2	.7	(D)	(D)	—	4.7	2.7	(D)	(D)	(D)	78	21	
336212	Truck trailer mfg4	(D)	(D)	(D)	—	1.3	.3	(D)	.6	(D)	46	14	
336213	Motor home mfg	2.3	1.7	—	.6	—	.7	.1	.3	.3	—	53	8	

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NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33 336	Manufacturing—Con. Transportation equipment mfg— Con.													
3363	Motor vehicle parts mfg	39.4	21.9	14.8	2.4	.3	179.1	47.8	89.4	36.3	5.5	13	7	
33631	Motor vehicle gasoline engine & engine parts mfg	14.8	10.9	3.5	(D)	(D)	36.6	10.3	18.5	6.0	1.9	12	14	
336311	Carburetor, piston, piston ring, & valve mfg	5.7	3.7	(D)	(D)	(D)	5.6	1.9	1.8	.7	1.1	28	26	
336312	Gasoline engine & engine parts mfg	9.0	7.3	(D)	(D)	—	31.0	8.4	16.7	5.3	.7	10	16	
33632	Motor vehicle electrical & electronic equipment mfg . . .	3.8	2.9	(D)	.8	(D)	11.9	3.8	2.2	5.7	.2	62	14	
336321	Vehicular lighting equipment mfg . . . . .	.3	.3	—	—	—	1.2	.7	.4	.1	—	69	48
336322	Other motor vehicle electrical & electronic equipment mfg	3.5	2.6	(D)	.8	(D)	10.7	3.1	1.7	5.7	.2	68	15	
33633	Motor vehicle steering & suspension component (except spring) mfg	2.3	(D)	1.9	(D)	—	23.0	5.6	12.7	4.7	.1	8	5	
336330	Motor vehicle steering & suspension component (except spring) mfg	2.3	(D)	1.9	(D)	—	23.0	5.6	12.7	4.7	.1	8	5	
33634	Motor vehicle brake system mfg	1.7	1.1	.3	(D)	(D)	14.8	3.5	4.9	5.9	.5	19	22	
336340	Motor vehicle brake system mfg	1.7	1.1	.3	(D)	(D)	14.8	3.5	4.9	5.9	.5	19	22	
33635	Motor vehicle transmission & power train parts mfg	7.1	1.7	5.0	.4	—	31.8	3.9	19.4	7.0	1.6	6	9	
336350	Motor vehicle transmission & power train parts mfg . . .	7.1	1.7	5.0	.4	—	31.8	3.9	19.4	7.0	1.6	6	9	
33636	Motor vehicle seating & interior trim mfg . . . . .	.1	—	(D)	(D)	—	3.3	2.0	.4	.9	—	44	36
336360	Motor vehicle seating & interior trim mfg . . . . .	.1	—	(D)	(D)	—	3.3	2.0	.4	.9	—	44	36
33637	Motor vehicle metal stamping . . . . .	.3	(D)	.1	(D)	—	10.6	2.4	6.0	1.8	.4	44	12
336370	Motor vehicle metal stamping . . . . .	.3	(D)	.1	(D)	—	10.6	2.4	6.0	1.8	.4	44	12
33639	Other motor vehicle parts mfg	9.3	4.8	3.9	.6	—	47.1	16.4	25.4	4.4	.9	42	19	
336391	Motor vehicle air- conditioning mfg	1.5	(D)	.1	(D)	—	9.2	2.5	6.1	.6	—	4	3	
336399	All other motor vehicle parts mfg	7.8	(D)	3.7	(D)	—	37.9	14.0	19.2	3.8	.9	50	24	
3364	Aerospace product & parts mfg .	27.6	8.8	16.7	.9	1.2	92.2	(D)	35.9	31.2	(D)	7	7	
33641	Aerospace product & parts mfg	27.6	8.8	16.7	.9	1.2	92.2	(D)	35.9	31.2	(D)	7	7	
336411	Aircraft mfg	14.2	3.0	9.8	.3	1.2	36.3	4.8	13.1	18.4	—	8	14	
336412	Aircraft engine & engine parts mfg	1.9	1.1	.7	—	—	6.3	(D)	3.7	1.2	(D)	9	24	
336413	Other aircraft part & auxiliary equipment mfg . .	9.1	3.7	5.0	.4	—	31.8	12.9	12.0	6.8	.1	17	12	
336414	Guided missile & space vehicle mfg	1.1	.1	1.0	(Z)	—	7.4	(D)	2.3	2.7	(D)	25	8	
336415	Guided missile & space vehicle propulsion unit & parts mfg	1.4	.9	.2	.3	—	9.3	3.2	4.1	2.0	—	1	1	
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	—	—	—	—	—	1.0	.2	.7	.1	—	—	12	
3365	Railroad rolling stock mfg	1.6	1.5	(D)	(D)	—	4.4	1.1	1.9	1.4	—	39	14	
33651	Railroad rolling stock mfg	1.6	1.5	(D)	(D)	—	4.4	1.1	1.9	1.4	—	39	14	
336510	Railroad rolling stock mfg . .	1.6	1.5	(D)	(D)	—	4.4	1.1	1.9	1.4	—	39	14	
3366	Ship & boat building	8.6	1.9	5.8	(D)	(D)	16.7	2.6	6.0	7.5	.6	27	7	
33661	Ship & boat building	8.6	1.9	5.8	(D)	(D)	16.7	2.6	6.0	7.5	.6	27	7	
336611	Ship building & repairing	6.2	.5	(D)	(D)	(D)	10.8	1.9	4.4	3.9	.6	35	7	
336612	Boat building	2.4	1.5	(D)	.7	(D)	5.9	.7	1.6	3.7	(Z)	32	13	
3369	Other transportation equipment mfg	1.4	.9	(D)	(D)	(D)	2.9	(D)	(D)	1.5	(D)	2	3	
33699	Other transportation equipment mfg	1.4	.9	(D)	(D)	(D)	2.9	(D)	(D)	1.5	(D)	2	3	
336999	All other transportation equipment mfg	1.3	.8	(D)	(D)	(D)	2.1	.3	.8	1.0	—	2	3	
337	Furniture & related product mfg . . .	35.0	31.3	(D)	1.8	(D)	39.1	17.7	7.0	13.6	.8	7	8	
3371	Household & institutional furniture & kitchen cabinet mfg	14.8	11.8	.4	1.4	1.2	26.8	13.8	2.1	10.4	.5	16	9	
33711	Wood kitchen cabinet & counter top mfg	3.3	2.7	(Z)	.6	(Z)	8.9	4.2	(Z)	4.7	(Z)	46	22	
337110	Wood kitchen cabinet & counter top mfg	3.3	2.7	(Z)	.6	(Z)	8.9	4.2	(Z)	4.7	(Z)	46	22	

See footnote at end of table.

Table 3. Pollution Abatement Capital Expenditures and Operating Costs by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

NAICS code	Industry	Pollution abatement										Relative standard error		
		Capital expenditures					Operating costs					PACE	PAOC	
		Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia			
31-33 337	Manufacturing—Con. Furniture & related product mfg— Con.													
3371	Household & institutional furniture & kitchen cabinet mfg—Con.													
33712	Household & institutional furniture mfg	11.5	9.2	.4	.8	1.1	17.9	9.7	2.0	5.7	.5	16	7	
337121	Upholstered household furniture mfg	1.0	1.0	—	—	—	1.0	.4	(D)	.5	(D)	86	10	
337122	Nonupholstered wood household furniture mfg ..	8.1	6.1	.1	.7	1.1	13.1	8.2	.4	4.1	.4	19	6	
337124	Metal household furniture mfg	1.7	1.4	.2	(Z)	—	.8	.2	.3	.2	(Z)	13	9	
337127	Institutional furniture mfg ...	.7	.6	(Z)	.1	—	2.6	.8	1.2	(D)	(D)	41	29
3372	Office furniture (including fixtures) mfg	20.1	19.4	.4	(D)	(D)	11.3	3.3	4.6	3.2	.3	4	17	
33721	Office furniture (including fixtures) mfg	20.1	19.4	.4	(D)	(D)	11.3	3.3	4.6	3.2	.3	4	17	
337211	Wood office furniture mfg ..	1.0	1.0	(D)	(D)	—	1.8	.5	.3	.9	—	60	16	
337212	Custom architectural woodwork & millwork mfg .	.5	.3	(D)	(D)	—	2.4	.3	1.7	(D)	(D)	63	70	
337214	Office furniture (except wood) mfg	18.0	17.9	.1	(Z)	—	3.1	1.0	.4	(D)	(D)	3	21	
337215	Showcase, partition, shelving, & locker mfg ....	.6	.3	(D)	.2	(D)	4.1	1.4	2.1	(D)	(D)	21	12
3379	Other furniture related product mfg .....	.1	.1	(D)	(D)	—	1.0	.6	.4	.1	—	16	9
33792	Blind & shade mfg .....	.1	.1	(D)	(D)	—	1.0	.6	.4	.1	—	16	9
337920	Blind & shade mfg .....	.1	.1	(D)	(D)	—	1.0	.6	.4	.1	—	16	9
339	Miscellaneous mfg	11.5	5.5	3.9	1.4	.7	42.8	16.5	10.8	13.6	1.9	26	10	
3391	Medical equipment & supplies mfg	2.0	.9	.9	(D)	(D)	11.0	4.9	2.1	3.6	.4	25	12	
33911	Medical equipment & supplies mfg	2.0	.9	.9	(D)	(D)	11.0	4.9	2.1	3.6	.4	25	12	
339112	Surgical & medical instrument mfg	1.1	(D)	.7	(D)	—	3.2	1.0	1.1	.8	.3	43	21	
339113	Surgical appliance & supplies mfg .....	.4	(D)	(D)	(D)	—	4.8	3.2	.7	.9	(Z)	4	18
339115	Ophthalmic goods mfg	—	—	—	—	—	1.8	.6	(Z)	1.2	—	—	27	
3399	Other miscellaneous mfg	9.5	4.6	3.0	(D)	(D)	31.8	11.6	8.7	10.0	1.4	31	12	
33991	Jewelry & silverware mfg ....	.8	(Z)	.5	—	.3	2.6	.4	1.7	.5	.1	12	12
339911	Jewelry (except costume) mfg	(D)	—	(D)	—	—	1.1	.3	.5	.3	—	(X)	24	
33992	Sporting & athletic goods mfg	1.0	.4	.1	.5	—	3.9	1.0	1.0	1.2	.7	38	20	
339920	Sporting & athletic goods mfg	1.0	.4	.1	.5	—	3.9	1.0	1.0	1.2	.7	38	20	
33994	Office supplies (except paper) mfg	(Z)	(Z)	—	—	—	2.3	1.1	.6	.4	.2	63	31	
33995	Sign mfg .....	.8	.5	(Z)	—	.3	1.0	(D)	(D)	.7	—	67	39
339950	Sign mfg .....	.8	.5	(Z)	—	.3	1.0	(D)	(D)	.7	—	67	39
33999	All other miscellaneous mfg ..	6.7	3.6	2.4	(D)	(D)	22.0	8.8	5.4	7.3	.5	42	17	
339991	Gasket, packing, & sealing device mfg	1.5	.2	1.2	.1	—	9.9	5.5	2.1	1.9	.4	30	28	
339992	Musical instrument mfg	3.3	3.1	(Z)	.3	—	1.4	.1	.5	.8	(Z)	80	48	
339993	Fastener, button, needle, & pin mfg .....	.5	(Z)	.3	(D)	(D)	5.8	1.6	1.4	2.8	.1	36	37
339999	All other miscellaneous mfg	1.2	.3	.8	(D)	(D)	4.5	1.4	1.3	1.7	(Z)	51	17	

Note: The sum of the Mining, Electric, and Manufacturing sectors may not add to "All industries" because some plants did not have a unique industry code at the time of publication. These plants are included in "All industries" but not the detail.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
	All industries	5 809.9	4 497.8	1 312.0	3 463.7	2 644.7	819.0	1 801.9	1 488.2	313.7
21	Mining	277.3	268.6	8.7	79.0	77.0	2.0	157.8	151.6	6.2
211	Oil & gas extraction	116.2	110.9	5.3	20.6	(D)	(D)	63.5	59.1	4.4
21111	Oil & gas extraction	116.2	110.9	5.3	20.6	(D)	(D)	63.5	59.1	4.4
211111	Oil & gas extraction	116.2	110.9	5.3	20.6	(D)	(D)	63.5	59.1	4.4
2111111	Crude petroleum & natural gas extraction	102.6	97.9	4.7	11.5	(D)	(D)	59.1	54.7	4.4
2111112	Natural gas liquid extraction	13.6	13.0	.6	9.1	8.5	.6	4.4	4.4	—
212	Mining (except oil & gas)	159.5	156.4	3.1	57.6	56.7	.9	93.6	91.9	1.7
2121	Coal mining	29.9	29.9	—	14.9	14.9	—	12.2	12.2	—
21211	Coal mining	29.9	29.9	—	14.9	14.9	—	12.2	12.2	—
212111	Bituminous coal & lignite surface mining	26.3	26.3	—	13.4	13.4	—	10.8	10.8	—
212112	Bituminous coal underground mining	3.3	3.3	—	1.4	1.4	—	1.2	1.2	—
2122	Metal ore mining	47.9	45.9	2.0	21.6	21.6	—	21.6	20.0	1.6
21221	Iron ore mining	19.3	18.9	.4	(D)	(D)	—	7.6	7.6	—
212210	Iron ore mining	19.3	18.9	.4	(D)	(D)	—	7.6	7.6	—
21222	Gold ore & silver ore mining	2.9	1.3	1.6	(Z)	(Z)	—	(D)	(D)	1.6
212221	Gold ore mining	(D)	(D)	1.6	(Z)	(Z)	—	(D)	(D)	1.6
21223	Copper, nickel, lead, & zinc mining	19.0	19.0	—	10.9	10.9	—	8.1	8.1	—
212231	Lead ore & zinc ore mining	(D)	(D)	—	(D)	(D)	—	—	—	—
212234	Copper ore & nickel ore mining	(D)	(D)	—	(D)	(D)	—	8.1	8.1	—
21229	Other metal ore mining	6.7	6.7	—	(D)	(D)	—	(D)	(D)	—
212299	All other metal ore mining	6.3	6.3	—	(D)	(D)	—	(D)	(D)	—
2123	Nonmetallic mineral mining & quarrying	81.7	80.6	1.1	21.1	20.2	.9	59.8	59.7	.1
21231	Stone mining & quarrying	17.1	17.1	(Z)	10.7	10.7	—	5.8	5.8	—
212312	Crushed & broken limestone mining & quarrying	11.5	11.5	—	9.6	9.6	—	1.9	1.9	—
212313	Crushed & broken granite mining & quarrying	4.6	4.6	—	.7	.7	—	3.4	3.4	—
212319	Other crushed & broken stone mining & quarrying	1.0	1.0	(Z)	.5	.5	—	.4	.4	—
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	7.4	6.6	.8	6.6	5.9	.7	.9	.7	.1
212321	Construction sand & gravel mining	1.2	1.2	—	.6	.6	—	.5	.5	—
212322	Industrial sand mining .....	.7	.4	.3	.7	.4	.3	—	—	—
212324	Kaolin & ball clay mining .....	.9	.9	—	.7	.7	—	.2	.2	—
212325	Clay & ceramic & refractory minerals mining	4.8	4.2	.5	4.6	4.2	.4	.2	(Z)	.1
21239	Other nonmetallic mineral mining & quarrying	57.1	56.8	.3	3.8	3.6	.3	53.2	53.2	—
212391	Potash, soda, & borate mineral mining	29.2	29.0	.3	1.0	.7	.3	28.2	28.2	—
212392	Phosphate rock mining	23.9	23.9	—	(Z)	(Z)	—	23.8	23.8	—
212393	Other chemical & fertilizer mineral mining	1.6	1.6	—	.4	.4	—	1.2	1.2	—
212399	All other nonmetallic mineral mining	2.5	2.5	(Z)	2.5	2.4	(Z)	—	—	—
213	Support activities for mining	1.6	1.3	.3	.8	(D)	(D)	.7	.6	.1
2131	Support activities for mining	1.6	1.3	.3	.8	(D)	(D)	.7	.6	.1
21311	Support activities for mining	1.6	1.3	.3	.8	(D)	(D)	.7	.6	.1
213112	Support activities for oil & gas operations	1.1	.9	.2	(D)	(D)	.1	.5	.5	.1
213114	Support activities for metal mining .....	.4	(D)	(D)	.3	(D)	(D)	.2	.2	—
22111	Electric power generation	1 145.1	1 037.1	107.9	1 071.1	971.0	100.1	55.1	47.3	7.8
221111	Hydroelectric power generation	23.7	23.7	(Z)	18.5	18.5	(Z)	5.1	5.1	—
221112	Fossil fuel electric power generation	1 041.4	933.5	107.9	989.9	889.8	100.1	34.1	26.3	7.8
221113	Nuclear electric power generation	16.9	16.9	—	.2	.2	—	15.8	15.8	—
221119	Other electric power generation	63.1	63.1	—	62.5	62.5	—	.1	.1	—
31-33	Manufacturing	4 387.3	3 192.1	1 195.2	2 313.4	1 596.7	716.6	1 588.9	1 289.2	299.7
311	Food mfg	369.9	354.2	15.8	70.1	63.2	6.8	281.0	272.5	8.5
3111	Animal food mfg	5.0	5.0	(Z)	2.3	2.3	(Z)	1.8	1.8	—
31111	Animal food mfg	5.0	5.0	(Z)	2.3	2.3	(Z)	1.8	1.8	—
311111	Dog & cat food mfg	4.3	4.3	(Z)	2.1	2.1	(Z)	1.4	1.4	—
311119	Other animal food mfg .....	.7	.7	(Z)	.2	.2	(Z)	.4	.4	—
3112	Grain & oilseed milling	30.4	26.4	3.9	15.9	12.1	3.8	11.9	(D)	(D)
31121	Flour milling & malt mfg	3.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	—
311211	Flour milling	—	—	—	—	—	—	—	—	—
311212	Rice milling	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	—
311213	Malt mfg	(D)	(D)	—	(D)	(D)	—	—	—	—
31122	Starch & vegetable fats & oils mfg	23.4	(D)	(D)	10.9	(D)	(D)	(D)	9.9	(D)
311221	Wet corn milling	14.5	11.3	3.2	7.6	4.5	3.1	5.6	5.5	.1
311222	Soybean processing	4.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
311223	Other oilseed processing	(D)	(D)	(D)	(D)	(D)	(D)	—	—	—
311225	Fats & oils refining & blending	(D)	(D)	(D)	(D)	(D)	—	3.3	(D)	(D)
31123	Breakfast cereal mfg	3.8	3.8	—	(D)	(D)	—	(D)	(D)	—
311230	Breakfast cereal mfg	3.8	3.8	—	(D)	(D)	—	(D)	(D)	—
3113	Sugar & confectionery product mfg	17.4	(D)	(D)	6.0	(D)	(D)	11.0	(D)	(D)
31131	Sugar mfg	11.9	11.8	.1	(D)	1.7	(D)	10.1	(D)	(D)
311311	Sugarcane mills	4.6	4.6	(Z)	.4	.3	(Z)	4.3	4.3	—
311312	Cane sugar refining .....	.5	(D)	(D)	(D)	(D)	(D)	.2	(D)	(D)
311313	Beet sugar mfg	6.8	(D)	(D)	1.1	(D)	(D)	5.6	5.6	—
31132	Chocolate & confectionery mfg from cacao beans ..	1.4	1.4	—	1.4	1.4	—	—	—	—
311320	Chocolate & confectionery mfg from cacao beans ..	1.4	1.4	—	1.4	1.4	—	—	—	—
31133	Confectionery mfg from purchased chocolate .....	.1	.1	—	(D)	(D)	—	—	—	—
311330	Confectionery mfg from purchased chocolate .....	.1	.1	—	(D)	(D)	—	—	—	—
31134	Nonchocolate confectionery mfg	4.0	(D)	(D)	2.8	2.8	—	.9	(D)	(D)
311340	Nonchocolate confectionery mfg	4.0	(D)	(D)	2.8	2.8	—	.9	(D)	(D)

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
	All industries	361.9	245.5	116.4	182.3	119.4	62.9	8
21	Mining	36.9	36.5	.4	3.5	3.5	—	5
211	Oil & gas extraction	32.1	(D)	(D)	—	—	—	4
2111	Oil & gas extraction	32.1	(D)	(D)	—	—	—	4
21111	Oil & gas extraction	32.1	(D)	(D)	—	—	—	4
211111	Crude petroleum & natural gas extraction	32.0	(D)	(D)	—	—	—	4
211112	Natural gas liquid extraction .....	.1	—	—	—	—	—	15
212	Mining (except oil & gas)	4.7	4.4	.4	3.5	3.5	—	8
2121	Coal mining	(D)	(D)	—	(D)	(D)	—	30
21211	Coal mining	(D)	(D)	—	(D)	(D)	—	30
212111	Bituminous coal & lignite surface mining	(D)	(D)	—	(D)	(D)	—	33
212112	Bituminous coal underground mining .....	.6	.6	—	.1	.1	—	44
2122	Metal ore mining	(D)	(D)	.4	(D)	(D)	—	13
21221	Iron ore mining	(D)	(D)	.4	—	—	—	8
212210	Iron ore mining	(D)	(D)	.4	—	—	—	8
21222	Gold ore & silver ore mining	(D)	(D)	—	—	—	—	29
212221	Gold ore mining	(D)	(D)	—	—	—	—	(X)
21223	Copper, nickel, lead, & zinc mining	—	—	—	—	—	—	30
212231	Lead ore & zinc ore mining	—	—	—	—	—	—	(X)
212234	Copper ore & nickel ore mining	—	—	—	—	—	—	(X)
21229	Other metal ore mining	—	—	—	(D)	(D)	—	5
212299	All other metal ore mining	—	—	—	(D)	(D)	—	5
2123	Nonmetallic mineral mining & quarrying .....	.7	.6	(Z)	(Z)	(Z)	—	6
21231	Stone mining & quarrying .....	.6	.6	(Z)	(Z)	(Z)	—	23
212312	Crushed & broken limestone mining & quarrying	(Z)	(Z)	—	—	—	—	34
212313	Crushed & broken granite mining & quarrying .....	.5	.5	—	—	—	—	7
212319	Other crushed & broken stone mining & quarrying .....	.1	(Z)	(Z)	(Z)	(Z)	—	20
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	—	—	—	(Z)	(Z)	—	24
212321	Construction sand & gravel mining	—	—	—	(Z)	(Z)	—	53
212322	Industrial sand mining	—	—	—	—	—	—	39
212324	Kaolin & ball clay mining	—	—	—	—	—	—	65
212325	Clay & ceramic & refractory minerals mining	—	—	—	—	—	—	33
21239	Other nonmetallic mineral mining & quarrying .....	.1	.1	—	—	—	—	4
212391	Potash, soda, & borate mineral mining	(Z)	(Z)	—	—	—	—	7
212392	Phosphate rock mining	—	—	—	—	—	—	2
212393	Other chemical & fertilizer mineral mining	—	—	—	—	—	—	21
212399	All other nonmetallic mineral mining	(Z)	(Z)	—	—	—	—	44
213	Support activities for mining .....	.1	(D)	(D)	—	—	—	29
2131	Support activities for mining .....	.1	(D)	(D)	—	—	—	29
21311	Support activities for mining .....	.1	(D)	(D)	—	—	—	29
213112	Support activities for oil & gas operations	(D)	(D)	—	—	—	—	25
213114	Support activities for metal mining	—	—	—	—	—	—	87
22111	Electric power generation	17.1	17.1	—	1.7	1.7	—	34
221111	Hydroelectric power generation	(Z)	(Z)	—	—	—	—	10
221112	Fossil fuel electric power generation	16.5	16.5	—	.9	.9	—	37
221113	Nuclear electric power generation	—	—	—	.8	.8	—	1
221119	Other electric power generation .....	.6	.6	—	—	—	—	47
31-33	Manufacturing	307.9	191.9	115.9	177.1	114.2	62.9	6
311	Food mfg	18.5	18.1	.4	.4	.4	.1	23
3111	Animal food mfg .....	.9	.9	—	—	—	—	29
31111	Animal food mfg .....	.9	.9	—	—	—	—	29
311111	Dog & cat food mfg .....	.8	.8	—	—	—	—	32
311119	Other animal food mfg .....	.1	.1	—	—	—	—	58
3112	Grain & oilseed milling	(D)	(D)	(D)	(D)	(D)	—	5
31121	Flour milling & malt mfg	—	—	—	—	—	—	1
311211	Flour milling	—	—	—	—	—	—	1
311212	Rice milling	—	—	—	—	—	—	(X)
311213	Malt mfg	—	—	—	—	—	—	(X)
31122	Starch & vegetable fats & oils mfg	(D)	(D)	(D)	(D)	(D)	—	5
311221	Wet corn milling	1.3	1.3	(Z)	—	—	—	5
311222	Soybean processing	(D)	(D)	—	(D)	(D)	—	10
311223	Other oilseed processing	—	—	—	—	—	—	(X)
311225	Fats & oils refining & blending	(D)	(D)	(D)	—	—	—	(X)
31123	Breakfast cereal mfg	(D)	(D)	—	—	—	—	24
311230	Breakfast cereal mfg	(D)	(D)	—	—	—	—	24
3113	Sugar & confectionery product mfg	(D)	(D)	(D)	(D)	(D)	—	12
31131	Sugar mfg	(D)	(D)	(D)	(D)	(D)	—	17
311311	Sugarcane mills	—	—	—	—	—	—	7
311312	Cane sugar refining	(D)	(D)	(D)	(D)	(D)	—	1
311313	Beet sugar mfg	—	—	—	—	—	—	29
31132	Chocolate & confectionery mfg from cacao beans ..	—	—	—	—	—	—	1
311320	Chocolate & confectionery mfg from cacao beans	—	—	—	—	—	—	1
31133	Confectionery mfg from purchased chocolate	(D)	(D)	—	—	—	—	1
311330	Confectionery mfg from purchased chocolate	(D)	(D)	—	—	—	—	1
31134	Nonchocolate confectionery mfg .....	.3	.3	—	—	—	—	16
311340	Nonchocolate confectionery mfg .....	.3	.3	—	—	—	—	16

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
311	Food mfg—Con.									
3114	Fruit & vegetable preserving & specialty food mfg	154.7	148.1	6.6	(D)	(D)	(D)	144.8	138.6	6.2
31141	Frozen food mfg	36.4	35.8	.7	(D)	(D)	(D)	31.6	(D)	(D)
311411	Frozen fruit, juice, & vegetable mfg	35.2	34.9	.3	2.9	2.9	(Z)	31.2	30.9	.3
311412	Frozen specialty food mfg	1.2	.9	.4	(D)	(D)	(D)	.4	(D)	(D)
31142	Fruit & vegetable canning, pickling, & drying	118.3	112.3	5.9	(D)	(D)	—	113.3	(D)	(D)
311421	Fruit & vegetable canning	114.0	108.6	5.4	.7	.7	—	110.1	104.8	5.3
311422	Specialty canning	2.4	(D)	(D)	—	—	—	2.4	(D)	(D)
311423	Dried & dehydrated food mfg	1.9	(D)	(D)	(D)	(D)	—	.8	(D)	(D)
3115	Dairy product mfg	44.6	42.5	2.1	4.3	4.3	—	37.6	35.8	1.8
31151	Dairy product (except frozen) mfg	39.5	(D)	(D)	4.3	4.3	—	32.5	(D)	(D)
311511	Fluid milk mfg	2.2	(D)	(D)	—	—	—	2.2	(D)	(D)
311513	Cheese mfg	25.6	25.6	—	1.6	1.6	—	21.7	21.7	—
311514	Dry, condensed, & evaporated dairy product mfg	11.7	10.6	1.1	2.7	2.7	—	8.6	7.8	.8
31152	Ice cream & frozen dessert mfg	5.1	(D)	(D)	—	—	—	5.1	(D)	(D)
311520	Ice cream & frozen dessert mfg	5.1	(D)	(D)	—	—	—	5.1	(D)	(D)
3116	Meat product mfg	75.8	74.5	1.2	20.2	19.3	.9	52.7	52.4	.3
31161	Animal slaughtering & processing	75.8	74.5	1.2	20.2	19.3	.9	52.7	52.4	.3
311611	Animal (except poultry) slaughtering	19.3	19.0	.2	5.1	5.1	.1	13.3	13.1	.2
311612	Meat processed from carcasses	10.1	10.1	—	.8	.8	—	8.9	8.9	—
311613	Rendering & meat byproduct processing	15.4	15.4	—	11.2	11.2	—	4.2	4.2	—
311615	Poultry processing	31.0	30.0	1.0	3.1	2.2	.8	26.4	26.2	.2
3117	Seafood product preparation & packaging	1.7	1.7	—	.8	.8	—	.9	.9	—
31171	Seafood product preparation & packaging	1.7	1.7	—	.8	.8	—	.9	.9	—
311712	Fresh & frozen seafood processing	1.7	1.7	—	.8	.8	—	.9	.9	—
3118	Bakeries & tortilla mfg	6.0	(D)	(D)	(D)	(D)	(D)	3.4	3.4	—
31181	Bread & bakery product mfg	5.4	(D)	(D)	(D)	(D)	(D)	3.1	3.1	—
311812	Commercial bakeries	5.4	(D)	(D)	(D)	(D)	(D)	3.1	3.1	—
311813	Frozen cakes, pies, & other pastries mfg	—	—	—	—	—	—	—	—	—
31182	Cookie, cracker, & pasta mfg . . . . .	.6	.6	—	(D)	(D)	—	.2	(D)	—
311821	Cookie & cracker mfg . . . . .	.1	.1	—	(D)	(D)	—	(D)	(D)	—
311822	Flour mixes & dough mfg from purchased flour . . . . .	.5	.5	—	—	—	—	(D)	(D)	—
3119	Other food mfg	34.4	34.3	.1	14.3	(D)	(D)	16.9	(D)	(D)
31191	Snack food mfg	11.5	11.5	—	9.6	9.6	—	1.9	1.9	—
311911	Roasted nuts & peanut butter mfg	(D)	(D)	—	(D)	(D)	—	(D)	(D)	—
311919	Other snack food mfg	(D)	(D)	—	(D)	(D)	—	(D)	(D)	—
31192	Coffee & tea mfg	2.3	2.3	—	2.0	2.0	—	—	—	—
311920	Coffee & tea mfg	2.3	2.3	—	2.0	2.0	—	—	—	—
31193	Flavoring syrup & concentrate mfg	—	—	—	—	—	—	—	—	—
311930	Flavoring syrup & concentrate mfg	—	—	—	—	—	—	—	—	—
31194	Seasoning & dressing mfg . . . . .	.8	.8	(Z)	.1	.1	—	.7	.7	—
311941	Mayonnaise, dressing, & other prepared sauce mfg . . . . .	.3	.2	(Z)	(Z)	(Z)	—	.2	.2	—
311942	Spice & extract mfg . . . . .	.5	.5	—	(Z)	(Z)	—	.5	.5	—
31199	All other food mfg	19.8	19.7	.1	2.6	(D)	(D)	14.2	(D)	(D)
311991	Perishable prepared food mfg	4.6	4.6	—	.1	.1	—	4.3	4.3	—
311999	All other miscellaneous food mfg	15.2	15.1	.1	2.4	(D)	(D)	9.9	(D)	(D)
312	Beverage & tobacco product mfg	17.1	12.6	4.6	4.4	4.4	—	9.0	7.4	1.6
3121	Beverage mfg	13.0	(D)	(D)	(D)	(D)	—	8.8	(D)	(D)
31211	Soft drink & ice mfg	7.3	4.3	3.0	—	—	—	3.9	3.9	(Z)
312111	Soft drink mfg	7.3	4.3	3.0	—	—	—	3.9	3.9	(Z)
31212	Breweries	2.9	(D)	(D)	.6	.6	—	(D)	(D)	(D)
312120	Breweries	2.9	(D)	(D)	.6	.6	—	(D)	(D)	(D)
31213	Wineries	(D)	(D)	—	—	—	—	(D)	(D)	—
312130	Wineries	(D)	(D)	—	—	—	—	(D)	(D)	—
31214	Distilleries	(D)	(D)	(D)	(D)	(D)	—	2.2	(D)	(D)
312140	Distilleries	(D)	(D)	(D)	(D)	(D)	—	2.2	(D)	(D)
3122	Tobacco mfg	4.2	(D)	(D)	(D)	(D)	—	.2	(D)	(D)
31221	Tobacco stemming & redrying	(D)	(D)	—	(D)	(D)	—	(D)	(D)	—
312210	Tobacco stemming & redrying	(D)	(D)	—	(D)	(D)	—	(D)	(D)	—
31222	Tobacco product mfg	(D)	(D)	(D)	(D)	(D)	—	(D)	(D)	(D)
312221	Cigarette mfg	(D)	(D)	(D)	(D)	(D)	—	(D)	(D)	(D)
312229	Other tobacco product mfg	3.2	3.2	—	2.9	2.9	—	(D)	(D)	—
313	Textile mills	37.1	18.9	18.2	21.3	11.5	9.7	7.5	6.9	.5
3131	Fiber, yarn, & thread mills	3.5	2.3	1.2	3.2	2.1	1.2	.3	.3	—
31311	Fiber, yarn, & thread mills	3.5	2.3	1.2	3.2	2.1	1.2	.3	.3	—
313111	Yarn spinning mills	2.1	2.1	—	2.0	2.0	—	.1	.1	—
313112	Yarn texturing, throwing, & twisting mills	1.2	(Z)	1.2	1.2	—	1.2	—	—	—
3132	Fabric mills	26.7	11.5	15.2	12.4	5.6	6.8	6.0	5.5	.5
31321	Broadwoven fabric mills	3.2	3.1	.1	.4	.4	(Z)	2.7	2.7	—
313210	Broadwoven fabric mills	3.2	3.1	.1	.4	.4	(Z)	2.7	2.7	—
31323	Nonwoven fabric mills	21.0	6.4	14.6	11.9	5.1	6.8	1.2	1.2	—
313230	Nonwoven fabric mills	21.0	6.4	14.6	11.9	5.1	6.8	1.2	1.2	—
31324	Knit fabric mills	2.4	1.9	.5	(Z)	(Z)	(Z)	2.0	1.5	.5
313241	Weft knit fabric mills	(Z)	(Z)	—	—	—	—	(Z)	(Z)	—
313249	Other knit fabric & lace mills	2.4	1.9	.5	(Z)	(Z)	(Z)	2.0	1.5	.5
3133	Textile & fabric finishing & fabric coating mills	6.8	5.0	1.8	5.6	3.9	1.7	1.2	1.1	.1
31331	Textile & fabric finishing mills	3.7	3.7	(Z)	2.7	2.7	(Z)	1.0	1.0	—
313311	Broadwoven fabric finishing mills	1.2	1.2	—	.3	.3	(Z)	.9	.9	—
313312	Textile & fabric finishing mills	2.5	2.5	(Z)	2.4	2.4	(Z)	.1	.1	—
31332	Fabric coating mills	3.1	1.4	1.8	2.9	1.2	1.7	.2	.1	.1
313320	Fabric coating mills	3.1	1.4	1.8	2.9	1.2	1.7	.2	.1	.1

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
311	Food mfg—Con.							
3114	Fruit & vegetable preserving & specialty food mfg	5.2	(D)	(D)	(D)	(D)	.1	53
31141	Frozen food mfg	(D)	(D)	(D)	—	—	—	4
311411	Frozen fruit, juice, & vegetable mfg	1.1	1.1	—	—	—	—	4
311412	Frozen specialty food mfg	(D)	(D)	(D)	—	—	—	22
31142	Fruit & vegetable canning, pickling, & drying	(D)	(D)	(D)	(D)	(D)	.1	69
311421	Fruit & vegetable canning	3.1	3.1	—	.1	—	.1	72
311422	Specialty canning . . . . .	.1	.1	—	—	—	—	8
311423	Dried & dehydrated food mfg	(D)	(D)	(D)	(D)	(D)	—	2
3115	Dairy product mfg	2.7	2.4	.3	—	—	—	23
31151	Dairy product (except frozen) mfg	2.7	2.4	.3	—	—	—	23
311511	Fluid milk mfg	(Z)	(Z)	—	—	—	—	46
311513	Cheese mfg	2.3	2.3	—	—	—	—	30
311514	Dry, condensed, & evaporated dairy product mfg . . . . .	.4	.1	.3	—	—	—	39
31152	Ice cream & frozen dessert mfg	—	—	—	—	—	—	87
311520	Ice cream & frozen dessert mfg	—	—	—	—	—	—	87
3116	Meat product mfg	2.5	2.5	(Z)	.3	.3	—	16
31161	Animal slaughtering & processing	2.5	2.5	(Z)	.3	.3	—	16
311611	Animal (except poultry) slaughtering . . . . .	.6	.6	(Z)	.3	.3	—	18
311612	Meat processed from carcasses . . . . .	.4	.4	—	—	—	—	40
311613	Rendering & meat byproduct processing	—	—	—	—	—	—	32
311615	Poultry processing	1.5	1.5	—	—	—	—	30
3117	Seafood product preparation & packaging . . . . .	.1	.1	—	—	—	—	33
31171	Seafood product preparation & packaging . . . . .	.1	.1	—	—	—	—	33
311712	Fresh & frozen seafood processing . . . . .	.1	.1	—	—	—	—	34
3118	Bakeries & tortilla mfg	(D)	(D)	—	(D)	(D)	—	44
31181	Bread & bakery product mfg	(D)	(D)	—	—	—	—	49
311812	Commercial bakeries	(D)	(D)	—	—	—	—	49
311813	Frozen cakes, pies, & other pastries mfg	—	—	—	—	—	—	1
31182	Cookie, cracker, & pasta mfg	(D)	(D)	—	(D)	(D)	—	33
311821	Cookie & cracker mfg	(D)	(D)	—	—	—	—	39
311822	Flour mixes & dough mfg from purchased flour . . . . .	.3	.3	—	(D)	(D)	—	37
3119	Other food mfg	3.3	3.3	(Z)	—	—	—	27
31191	Snack food mfg	—	—	—	—	—	—	25
311911	Roasted nuts & peanut butter mfg	—	—	—	—	—	—	(X)
311919	Other snack food mfg	—	—	—	—	—	—	(X)
31192	Coffee & tea mfg . . . . .	.2	.2	—	—	—	—	2
311920	Coffee & tea mfg . . . . .	.2	.2	—	—	—	—	2
31193	Flavoring syrup & concentrate mfg	—	—	—	—	—	—	1
311930	Flavoring syrup & concentrate mfg	—	—	—	—	—	—	1
31194	Seasoning & dressing mfg	(Z)	—	(Z)	—	—	—	5
311941	Mayonnaise, dressing, & other prepared sauce mfg	(Z)	—	(Z)	—	—	—	10
311942	Spice & extract mfg	—	—	—	—	—	—	5
31199	All other food mfg	3.0	3.0	—	—	—	—	45
311991	Perishable prepared food mfg . . . . .	.1	.1	—	—	—	—	3
311999	All other miscellaneous food mfg	2.9	2.9	—	—	—	—	58
312	Beverage & tobacco product mfg	3.5	.6	3.0	.2	.2	—	21
3121	Beverage mfg	(D)	(D)	3.0	.2	.2	—	28
31211	Soft drink & ice mfg	3.2	.2	3.0	.2	.2	—	46
312111	Soft drink mfg	3.2	.2	3.0	.2	.2	—	46
31212	Breweries	(D)	(D)	—	—	—	—	33
312120	Breweries	(D)	(D)	—	—	—	—	33
31213	Wineries	—	—	—	—	—	—	(X)
312130	Wineries	—	—	—	—	—	—	(X)
31214	Distilleries	(D)	(D)	—	—	—	—	(X)
312140	Distilleries	(D)	(D)	—	—	—	—	(X)
3122	Tobacco mfg	(D)	(D)	—	—	—	—	7
31221	Tobacco stemming & redrying	—	—	—	—	—	—	(X)
312210	Tobacco stemming & redrying	—	—	—	—	—	—	(X)
31222	Tobacco product mfg	(D)	(D)	—	—	—	—	(X)
312221	Cigarette mfg	—	—	—	—	—	—	(X)
312229	Other tobacco product mfg	(D)	(D)	—	—	—	—	7
313	Textile mills	8.2	.4	7.8	.2	.1	.1	44
3131	Fiber, yarn, & thread mills	(Z)	(Z)	—	—	—	—	60
31311	Fiber, yarn, & thread mills	(Z)	(Z)	—	—	—	—	60
313111	Yarn spinning mills	—	—	—	—	—	—	83
313112	Yarn texturing, throwing, & twisting mills	(Z)	(Z)	—	—	—	—	101
3132	Fabric mills	8.2	.4	7.8	.2	.1	.1	61
31321	Broadwoven fabric mills . . . . .	.1	(Z)	.1	—	—	—	32
313210	Broadwoven fabric mills . . . . .	.1	(Z)	.1	—	—	—	32
31323	Nonwoven fabric mills	7.7	—	7.7	.2	.1	.1	77
313230	Nonwoven fabric mills	7.7	—	7.7	.2	.1	.1	77
31324	Knit fabric mills . . . . .	.3	.3	—	—	—	—	23
313241	1/2ft knit fabric mills	—	—	—	—	—	—	1
313249	Other knit fabric & lace mills . . . . .	.3	.3	—	—	—	—	23
3133	Textile & fabric finishing & fabric coating mills	—	—	—	—	—	—	19
31331	Textile & fabric finishing mills	—	—	—	—	—	—	29
313311	Broadwoven fabric finishing mills	—	—	—	—	—	—	12
313312	Textile & fabric finishing mills	—	—	—	—	—	—	43
31332	Fabric coating mills	—	—	—	—	—	—	23
313320	Fabric coating mills	—	—	—	—	—	—	23

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
314	Textile product mills	7.2	(D)	(D)	(D)	(D)	(D)	(D)	(D)	—
3141	Textile furnishings mills	.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	—
31411	Carpet & rug mills	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	—
314110	Carpet & rug mills	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)	—
3149	Other textile product mills	6.8	6.2	.6	6.6	6.0	.6	(D)	(D)	—
31499	All other textile product mills	6.8	6.2	.6	6.6	6.0	.6	(D)	(D)	—
314992	Tire cord & tire fabric mills	(D)	(D)	—	6.6	6.0	—	—	—	—
314999	All other miscellaneous textile product mills	(D)	(D)	—	—	—	—	(D)	(D)	—
315	Apparel mfg	(Z)	(D)	(D)	(D)	(D)	—	(D)	(D)	—
316	Leather & allied product mfg	7.3	6.0	1.3	(D)	(D)	(D)	6.4	(D)	(D)
3161	Leather & hide tanning & finishing	7.2	5.9	1.2	(Z)	(Z)	—	6.4	5.2	1.2
31611	Leather & hide tanning & finishing	7.2	5.9	1.2	(Z)	(Z)	—	6.4	5.2	1.2
316110	Leather & hide tanning & finishing	7.2	5.9	1.2	(Z)	(Z)	—	6.4	5.2	1.2
321	Wood product mfg	82.1	62.3	19.8	65.6	49.7	15.9	12.3	9.6	2.7
3211	Sawmills & wood preservation	16.4	13.0	3.4	10.1	7.9	2.2	4.9	3.9	1.0
32111	Sawmills & wood preservation	16.4	13.0	3.4	10.1	7.9	2.2	4.9	3.9	1.0
321113	Sawmills	15.2	12.4	2.8	9.9	7.8	2.2	4.4	3.9	.4
321114	Wood preservation	1.3	.7	.6	.1	.1	(Z)	.6	—	.6
3212	Veneer, plywood, & engineered wood product mfg	45.9	36.9	9.0	38.2	31.6	6.6	6.3	4.6	1.7
32121	Veneer, plywood, & engineered wood product mfg	45.9	36.9	9.0	38.2	31.6	6.6	6.3	4.6	1.7
321211	Hardwood veneer & plywood mfg	1.3	1.3	—	1.3	1.3	—	(Z)	(Z)	—
321212	Softwood veneer & plywood mfg	10.2	3.5	6.8	7.6	3.2	4.4	1.7	.1	1.6
321213	Engineered wood member (except truss) mfg	—	—	—	—	—	—	—	—	—
321219	Reconstituted wood product mfg	34.2	32.0	2.3	29.3	27.0	2.2	4.5	4.4	(Z)
3219	Other wood product mfg	19.8	12.4	7.4	17.4	10.2	7.2	1.1	1.0	.1
32191	Millwork	10.0	9.9	.2	8.4	(D)	(D)	.6	(D)	(D)
321911	Wood window & door mfg	2.2	2.1	.1	1.3	(D)	(D)	(D)	(D)	—
321912	Cut stock, resawing lumber, & planing	4.6	4.5	.1	4.0	4.0	—	(D)	(D)	(D)
321918	Other millwork (including flooring)	3.3	3.3	(Z)	3.2	(D)	(D)	(D)	(D)	—
32192	Wood container & pallet mfg	8.3	1.2	7.1	8.1	(D)	(D)	(D)	(D)	—
321920	Wood container & pallet mfg	8.3	1.2	7.1	8.1	(D)	(D)	(D)	(D)	—
32199	All other wood product mfg	1.4	1.3	.1	.8	(D)	(D)	(D)	(D)	(D)
321991	Manufactured home (mobile home) mfg	.5	.4	.1	.1	.1	—	.3	(D)	(D)
321999	All other miscellaneous wood product mfg	.9	.8	.1	.8	(D)	(D)	(D)	(D)	(D)
322	Paper mfg	611.9	491.3	120.6	252.8	184.6	68.2	261.3	246.5	14.8
3221	Pulp, paper, & paperboard mills	557.2	442.2	115.0	215.7	152.3	63.4	245.0	230.5	14.5
32211	Pulp mills	29.5	(D)	(D)	10.7	(D)	(D)	14.9	14.9	—
322110	Pulp mills	29.5	(D)	(D)	10.7	(D)	(D)	14.9	14.9	—
32212	Paper mills	271.7	(D)	(D)	56.7	(D)	(D)	193.1	186.3	6.8
322121	Paper (except newsprint) mills	248.0	(D)	(D)	(D)	35.5	(D)	182.1	175.4	6.8
322122	Newsprint mills	23.7	(D)	(D)	(D)	(D)	(D)	10.9	10.9	—
32213	Paperboard mills	256.0	164.9	91.1	148.3	99.0	49.3	37.0	29.2	7.8
322130	Paperboard mills	256.0	164.9	91.1	148.3	99.0	49.3	37.0	29.2	7.8
3222	Converted paper product mfg	54.7	49.1	5.6	37.0	32.3	4.8	16.3	16.0	.3
32221	Paperboard container mfg	6.9	6.5	.4	3.2	3.1	.1	3.3	3.1	.3
322211	Corrugated & solid fiber box mfg	6.1	5.6	.4	2.9	2.8	.1	3.0	2.7	.3
322212	Folding paperboard box mfg	.7	.7	(Z)	.3	.3	(Z)	.3	.3	—
32222	Paper bag & coated & treated paper mfg	7.5	3.3	4.2	5.9	(D)	(D)	.7	.7	—
322221	Coated & laminated packaging paper & plastics film mfg	1.1	(D)	(D)	(D)	(D)	—	—	—	—
322222	Coated & laminated paper mfg	2.6	(D)	(D)	(D)	.3	(D)	(D)	(D)	—
322224	Uncoated paper & multiwall bag mfg	(D)	(D)	—	—	—	—	(D)	(D)	—
322225	Laminated aluminum foil mfg for flexible packaging uses	3.4	(D)	(D)	2.9	(D)	(D)	(D)	(D)	—
322226	Surface-coated paperboard mfg	(D)	—	(D)	—	—	—	—	—	—
32223	Stationery product mfg	.2	.2	(Z)	.1	.1	—	(Z)	(Z)	(Z)
32229	Other converted paper product mfg	40.2	39.2	1.0	27.8	(D)	(D)	12.3	12.3	—
322291	Sanitary paper product mfg	39.2	(D)	(D)	(D)	(D)	—	(D)	(D)	—
322299	All other converted paper product mfg	1.0	(D)	(D)	(D)	—	(D)	(D)	(D)	—
323	Printing & related support activities	35.2	24.1	11.1	31.4	21.7	9.8	2.4	1.2	1.2
3231	Printing & related support activities	35.2	24.1	11.1	31.4	21.7	9.8	2.4	1.2	1.2
32311	Printing	32.8	23.8	9.0	29.5	21.7	7.8	2.0	1.0	1.0
323110	Commercial lithographic printing	24.8	21.4	3.4	23.6	20.4	3.2	.3	.2	.1
323111	Commercial gravure printing	4.3	1.0	3.3	3.4	.5	2.8	1.0	.5	.5
323112	Commercial flexographic printing	.5	.2	.3	—	—	—	.4	.1	.3
323113	Commercial screen printing	.1	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)
323116	Manifold business form printing	.3	.2	.1	.1	(Z)	.1	.1	.1	(Z)
323117	Book printing	2.4	.9	1.5	2.1	.7	1.5	(Z)	(Z)	(Z)
323119	Other commercial printing	.1	(Z)	.1	.1	—	.1	(Z)	(Z)	(Z)
32312	Support activities for printing	2.4	.3	2.1	1.9	—	1.9	.4	.2	.2
323121	Tradebinding & related work	1.9	—	1.9	1.9	—	1.9	—	—	—
324	Petroleum & coal products mfg	488.1	387.7	100.4	349.0	300.6	48.4	104.1	64.2	39.9
3241	Petroleum & coal products mfg	488.1	387.7	100.4	349.0	300.6	48.4	104.1	64.2	39.9
32411	Petroleum refineries	477.3	381.0	96.3	341.6	295.5	46.1	101.4	62.9	38.4
324110	Petroleum refineries	477.3	381.0	96.3	341.6	295.5	46.1	101.4	62.9	38.4
32412	Asphalt paving, roofing, & saturated materials mfg	6.3	4.1	2.2	5.4	3.5	1.9	.3	.3	(Z)
324121	Asphalt paving mixture & block mfg	3.2	3.2	—	3.0	3.0	—	.2	.2	—
324122	Asphalt shingle & coating materials mfg	3.1	.9	2.2	2.4	.5	1.9	.1	.1	(Z)
32419	Other petroleum & coal products mfg	4.4	2.5	1.9	2.0	1.6	.4	2.4	.9	1.4
324191	Petroleum lubricating oil & grease mfg	2.0	.9	1.1	.3	.3	(Z)	1.7	.6	1.1
324199	All other petroleum & coal products mfg	2.4	1.6	.8	1.7	1.3	.4	.7	.3	.4

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
314	Textile product mills	(D)	(D)	—	(D)	(D)	—	41
3141	Textile furnishings mills	(D)	(D)	—	—	—	—	70
31411	Carpet & rug mills	—	—	—	—	—	—	(X)
314110	Carpet & rug mills	—	—	—	—	—	—	(X)
3149	Other textile product mills	—	—	—	(D)	(D)	—	44
31499	All other textile product mills	—	—	—	(D)	(D)	—	44
314992	Tire cord & tire fabric mills	—	—	—	(D)	(D)	—	(X)
314999	All other miscellaneous textile product mills	—	—	—	—	—	—	(X)
315	Apparel mfg	(D)	(D)	—	(D)	(D)	(D)	16
316	Leather & allied product mfg	(D)	.7	(D)	(D)	—	(D)	23
3161	Leather & hide tanning & finishing	.7	.7	—	—	—	—	24
31611	Leather & hide tanning & finishing	.7	.7	—	—	—	—	24
316110	Leather & hide tanning & finishing	.7	.7	—	—	—	—	24
321	Wood product mfg	3.9	2.8	1.2	.3	.3	(Z)	9
3211	Sawmills & wood preservation	1.2	.9	.2	.2	.2	(Z)	16
32111	Sawmills & wood preservation	1.2	.9	.2	.2	.2	(Z)	16
321113	Sawmills	.9	.6	.2	—	—	—	18
321114	Wood preservation	.3	.3	(Z)	.2	.2	(Z)	35
3212	Veneer, plywood, & engineered wood product mfg	1.5	.7	.8	—	—	—	9
32121	Veneer, plywood, & engineered wood product mfg	1.5	.7	.8	—	—	—	9
321211	Hardwood veneer & plywood mfg	—	—	—	—	—	—	47
321212	Softwood veneer & plywood mfg	1.0	.2	.8	—	—	—	24
321213	Engineered wood member (except truss) mfg	—	—	—	—	—	—	1
321219	Reconstituted wood product mfg	.5	.5	(Z)	—	—	—	10
3219	Other wood product mfg	1.3	1.2	.1	(Z)	(Z)	—	28
32191	Millwork	1.0	(D)	(D)	—	—	—	24
321911	Wood window & door mfg	(D)	(D)	(D)	—	—	—	4
321912	Cut stock, resawing lumber, & planing	(D)	(D)	(D)	—	—	—	48
321918	Other millwork (including flooring)	(D)	(D)	(D)	—	—	—	29
32192	Wood container & pallet mfg	(D)	(D)	(D)	—	—	—	58
321920	Wood container & pallet mfg	(D)	(D)	(D)	—	—	—	58
32199	All other wood product mfg	(D)	(D)	(D)	(Z)	(Z)	—	43
321991	Manufactured home (mobile home) mfg	.1	(D)	(D)	(Z)	(Z)	—	25
321999	All other miscellaneous wood product mfg	(D)	(D)	—	—	—	—	69
322	Paper mfg	25.5	22.2	3.3	72.3	38.0	34.3	6
3221	Pulp, paper, & paperboard mills	24.9	21.7	3.2	71.5	37.8	33.8	6
32211	Pulp mills	(D)	(D)	—	(D)	(D)	—	19
322110	Pulp mills	(D)	(D)	—	(D)	(D)	—	19
32212	Paper mills	(D)	(D)	2.8	(D)	(D)	.1	9
322121	Paper (except newsprint) mills	(D)	(D)	2.8	(D)	(D)	.1	10
322122	Newsprint mills	(D)	(D)	—	—	—	—	16
32213	Paperboard mills	6.9	6.5	.4	63.9	30.2	33.7	8
322130	Paperboard mills	6.9	6.5	.4	63.9	30.2	33.7	8
3222	Converted paper product mfg	.6	.5	.1	.8	.3	.5	4
32221	Paperboard container mfg	(D)	(D)	—	(D)	(D)	—	26
322211	Corrugated & solid fiber box mfg	(D)	(D)	—	(D)	(D)	—	29
322212	Folding paperboard box mfg	—	—	—	.2	.2	—	48
32222	Paper bag & coated & treated paper mfg	.4	(D)	(D)	.5	(D)	(D)	9
322221	Coated & laminated packaging paper & plastics film mfg	(D)	(D)	(D)	—	—	—	24
322222	Coated & laminated paper mfg	—	—	—	—	—	—	19
322224	Uncoated paper & multiwall bag mfg	(D)	(D)	—	—	—	—	(X)
322225	Laminated aluminum foil mfg for flexible packaging uses	.2	.2	—	(D)	(D)	(D)	4
322226	Surface-coated paperboard mfg	—	—	—	(D)	—	(D)	(X)
32223	Stationery product mfg	—	—	—	—	—	—	35
32229	Other converted paper product mfg	(D)	(D)	(D)	(D)	—	(D)	1
322291	Sanitary paper product mfg	(D)	(D)	(D)	(D)	—	(D)	1
322299	All other converted paper product mfg	—	—	—	—	—	—	1
323	Printing & related support activities	1.3	1.2	.1	(Z)	(Z)	(Z)	20
3231	Printing & related support activities	1.3	1.2	.1	(Z)	(Z)	(Z)	20
32311	Printing	1.3	1.1	.1	(Z)	(Z)	(Z)	21
323110	Commercial lithographic printing	.8	.7	.1	(Z)	(Z)	—	27
323111	Commercial gravure printing	—	—	—	—	—	—	6
323112	Commercial flexographic printing	.1	.1	—	(Z)	(Z)	—	62
323113	Commercial screen printing	—	—	—	—	—	—	58
323116	Manifold business form printing	.1	.1	(Z)	—	—	—	20
323117	Book printing	.3	.2	(Z)	—	—	—	29
323119	Other commercial printing	(Z)	(Z)	(Z)	(Z)	—	(Z)	45
32312	Support activities for printing	.1	.1	—	—	—	—	72
323121	Tradebinding & related work	—	—	—	—	—	—	88
324	Petroleum & coal products mfg	23.8	15.7	8.0	11.3	7.2	4.1	3
3241	Petroleum & coal products mfg	23.8	15.7	8.0	11.3	7.2	4.1	3
32411	Petroleum refineries	23.1	15.4	7.7	11.3	7.2	4.1	3
324110	Petroleum refineries	23.1	15.4	7.7	11.3	7.2	4.1	3
32412	Asphalt paving, roofing, & saturated materials mfg	.6	.3	.3	—	—	—	42
324121	Asphalt paving mixture & block mfg	—	—	—	—	—	—	72
324122	Asphalt shingle & coating materials mfg	.6	.3	.3	—	—	—	44
32419	Other petroleum & coal products mfg	.1	—	.1	—	—	—	22
324191	Petroleum lubricating oil & grease mfg	(Z)	—	(Z)	—	—	—	44
324199	All other petroleum & coal products mfg	(Z)	—	(Z)	—	—	—	14

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
325	Chemical mfg	990.9	601.4	389.5	488.2	319.1	169.1	335.4	195.4	140.0
3251	Basic chemical mfg	516.8	302.0	214.8	262.5	178.4	84.1	180.7	90.7	89.9
32511	Petrochemical mfg	63.0	21.8	41.2	37.5	15.0	22.5	15.4	6.8	8.6
325110	Petrochemical mfg	63.0	21.8	41.2	37.5	15.0	22.5	15.4	6.8	8.6
32512	Industrial gas mfg	2.7	1.8	1.0	1.6	1.0	.6	.9	.6	.3
325120	Industrial gas mfg	2.7	1.8	1.0	1.6	1.0	.6	.9	.6	.3
32513	Dye & pigment mfg	18.8	13.8	5.0	6.0	3.2	2.8	10.5	9.0	1.5
325131	Inorganic dye & pigment mfg	12.8	9.8	3.0	4.7	(D)	(D)	(D)	(D)	(D)
325132	Synthetic organic dye & pigment mfg	6.0	4.0	1.9	1.3	(D)	(D)	(D)	(D)	(D)
32518	Other basic inorganic chemical mfg	111.9	92.4	19.5	80.7	71.9	8.8	22.5	12.8	9.7
325181	Alkalies & chlorine mfg	10.7	4.7	6.0	2.0	.6	1.4	7.9	3.5	4.3
325182	Carbon black mfg	8.0	7.7	.4	6.6	6.3	.3	1.1	1.1	—
325188	All other basic inorganic chemical mfg	93.1	80.0	13.2	72.1	65.0	7.2	13.6	8.1	5.4
32519	Other basic organic chemical mfg	320.4	172.3	148.1	136.8	87.4	49.4	131.4	61.6	69.8
325191	Gum & wood chemical mfg	5.0	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
325192	Cyclic crude & intermediate mfg	27.5	(D)	(D)	19.2	(D)	(D)	(D)	(D)	(D)
325193	Ethyl alcohol mfg	1.5	1.5	—	(D)	(D)	(D)	(D)	(D)	—
325199	All other basic organic chemical mfg	286.4	156.0	130.4	114.4	76.1	38.3	122.6	(D)	(D)
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	207.1	131.4	75.8	104.2	65.3	38.9	56.8	37.5	19.3
32521	Resin & synthetic rubber mfg	164.0	96.6	67.4	78.6	42.5	36.1	43.9	30.2	13.7
325211	Plastics material & resin mfg	143.7	89.3	54.5	67.7	39.5	28.2	37.1	(D)	(D)
325212	Synthetic rubber mfg	20.2	7.4	12.9	10.9	3.0	7.9	6.9	(D)	(D)
32522	Artificial & synthetic fibers & filaments mfg	43.2	34.7	8.4	25.6	22.8	2.8	12.9	7.3	5.6
325221	Cellulosic organic fiber mfg	7.8	3.3	4.5	1.9	.2	1.8	3.8	1.1	2.7
325222	Noncellulosic organic fiber mfg	35.3	31.4	3.9	23.6	22.6	1.0	9.0	6.2	2.9
3253	Pesticide, fertilizer, & other agricultural chemical mfg	39.1	31.8	7.3	13.8	11.4	2.3	21.1	16.3	4.8
32531	Fertilizer mfg	28.8	26.8	2.0	8.6	8.0	.6	16.5	15.1	1.4
325311	Nitrogenous fertilizer mfg	4.5	3.6	.9	2.0	1.8	.3	2.0	1.4	.7
325312	Phosphatic fertilizer mfg	24.3	23.2	1.1	6.6	6.2	.4	14.4	13.7	.7
32532	Pesticide & other agricultural chemical mfg	10.3	5.1	5.3	5.2	3.5	1.7	4.6	1.2	3.5
325320	Pesticide & other agricultural chemical mfg	10.3	5.1	5.3	5.2	3.5	1.7	4.6	1.2	3.5
3254	Pharmaceutical & medicine mfg	82.6	41.9	40.7	40.5	19.9	20.6	33.0	20.3	12.7
32541	Pharmaceutical & medicine mfg	82.6	41.9	40.7	40.5	19.9	20.6	33.0	20.3	12.7
325411	Medicinal & botanical mfg	59.0	29.8	29.3	25.0	13.0	12.0	28.8	16.3	12.4
325412	Pharmaceutical preparation mfg	22.3	11.3	11.0	15.4	6.9	8.5	3.1	3.1	—
325414	Biological product (except diagnostic) mfg	1.3	.9	.4	.1	.1	.1	1.1	.8	.3
3255	Paint, coating, & adhesive mfg	26.9	4.0	23.0	14.8	3.3	11.4	10.7	.5	10.2
32551	Paint & coating mfg	11.4	1.3	10.1	9.7	.9	8.7	.3	.3	(Z)
325510	Paint & coating mfg	11.4	1.3	10.1	9.7	.9	8.7	.3	.3	(Z)
32552	Adhesive mfg	15.5	2.7	12.8	5.1	2.4	2.7	10.4	.3	10.2
325520	Adhesive mfg	15.5	2.7	12.8	5.1	2.4	2.7	10.4	.3	10.2
3256	Soap, cleaning compound, & toilet preparation mfg	95.8	73.7	22.1	39.8	32.2	7.7	26.1	23.1	3.0
32561	Soap & cleaning compound mfg	82.4	60.3	22.1	39.8	32.1	7.7	12.8	9.9	2.9
325611	Soap & other detergent mfg	7.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
325612	Polish & other sanitation good mfg	3.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
325613	Surface active agent mfg	71.8	51.8	20.0	31.6	(D)	(D)	11.0	(D)	(D)
32562	Toilet preparation mfg	13.5	13.4	.1	.1	.1	—	13.3	13.2	.1
325620	Toilet preparation mfg	13.5	13.4	.1	.1	.1	—	13.3	13.2	.1
3259	Other chemical product mfg	22.4	16.6	5.9	12.6	8.5	4.1	7.1	7.0	.1
32591	Printing ink mfg	(D)	(D)	—	—	—	—	(D)	(D)	—
325910	Printing ink mfg	(D)	(D)	—	—	—	—	(D)	(D)	—
32592	Explosives mfg	(D)	(D)	(D)	(D)	(D)	—	(D)	(D)	(D)
325920	Explosives mfg	(D)	(D)	(D)	(D)	(D)	—	(D)	(D)	(D)
32599	All other chemical product & preparation mfg	21.8	(D)	(D)	(D)	(D)	4.1	(D)	(D)	(D)
325991	Custom compounding of purchased resin . . . . .	.6	(D)	(D)	—	—	—	(D)	(D)	(D)
325992	Photographic film, paper, plate, & chemical mfg	5.1	3.4	1.7	(D)	(D)	1.4	.7	(D)	(D)
325998	All other miscellaneous chemical product & preparation mfg	16.1	12.3	3.8	8.5	5.9	2.6	5.6	5.5	.1
326	Plastics & rubber products mfg	102.6	80.6	22.0	92.0	73.4	18.6	5.7	3.7	2.0
3261	Plastics product mfg	78.2	62.5	15.7	71.8	57.9	13.9	2.9	2.3	.6
32611	Unsupported plastics film, sheet, & bag mfg	24.3	22.5	1.8	23.7	22.1	1.6	.3	.3	—
326111	Unsupported plastics bag mfg	4.4	4.4	.1	4.3	4.2	.1	.1	.1	—
326112	Unsupported plastics packaging film & sheet mfg	12.5	12.2	.3	12.5	12.2	.3	—	—	—
326113	Unsupported plastics film & sheet (except packaging) mfg	7.4	5.9	1.4	6.9	5.7	1.2	.2	.2	—
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	1.2	1.0	.3	.8	.6	.2	(D)	(D)	(D)
32613	Laminated plastics plate, sheet, & shape mfg	1.0	.1	.8	(D)	(D)	.8	(D)	(D)	—
326130	Laminated plastics plate, sheet, & shape mfg	1.0	.1	.8	(D)	(D)	.8	(D)	(D)	—
32614	Polystyrene foam product mfg . . . . .	.7	.7	.1	.7	.6	.1	(D)	(D)	—
326140	Polystyrene foam product mfg . . . . .	.7	.7	.1	.7	.6	.1	(D)	(D)	—
32615	Urethane & other foam product (except polystyrene) mfg	7.0	.7	6.3	5.5	.3	5.2	.4	(Z)	.3
326150	Urethane & other foam product (except polystyrene) mfg	7.0	.7	6.3	5.5	.3	5.2	.4	(Z)	.3
32619	Other plastics product mfg	43.4	37.3	6.1	39.9	34.3	5.6	1.7	(D)	(D)
326191	Plastics plumbing fixture mfg	4.7	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
326192	Resilient floor covering mfg	17.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
326199	All other plastics product mfg	21.4	18.0	3.4	18.5	15.5	3.1	(D)	(D)	(D)

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
325	Chemical mfg	133.9	69.9	63.9	33.4	17.0	16.5	5
3251	Basic chemical mfg	55.6	17.8	37.8	18.0	15.1	2.9	8
32511	Petrochemical mfg	10.1	(Z)	10.1	—	—	—	3
325110	Petrochemical mfg	10.1	(Z)	10.1	—	—	—	3
32512	Industrial gas mfg . . . . .	.1	.1	(Z)	.1	—	.1	2
325120	Industrial gas mfg . . . . .	.1	.1	(Z)	.1	—	.1	2
32513	Dye & pigment mfg	2.3	1.7	.6	—	—	—	3
325131	Inorganic dye & pigment mfg	(D)	(D)	(D)	—	—	—	1
325132	Synthetic organic dye & pigment mfg	(D)	(D)	(D)	—	—	—	9
32518	Other basic inorganic chemical mfg	5.5	4.8	.7	3.2	2.9	.3	33
325181	Alkalies & chlorine mfg	—	—	—	.9	.6	.3	9
325182	Carbon black mfg . . . . .	.2	.1	.1	.2	.2	—	23
325188	All other basic inorganic chemical mfg	5.3	4.7	.6	2.2	2.2	—	40
32519	Other basic organic chemical mfg	37.6	11.2	26.3	14.7	12.2	2.5	4
325191	Gum & wood chemical mfg	—	—	—	.2	.2	—	1
325192	Cyclic crude & intermediate mfg	(D)	1.2	(D)	—	—	—	23
325193	Ethyl alcohol mfg	(D)	(D)	(D)	—	—	—	6
325199	All other basic organic chemical mfg	35.0	(D)	(D)	14.4	11.9	2.5	4
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	44.9	27.4	17.6	1.2	1.2	(Z)	5
32521	Resin & synthetic rubber mfg	40.3	22.7	17.5	1.2	1.2	(Z)	7
325211	Plastics material & resin mfg	(D)	(D)	(D)	(D)	(D)	(Z)	7
325212	Synthetic rubber mfg	(D)	(D)	(D)	(D)	(D)	—	1
32522	Artificial & synthetic fibers & filaments mfg	4.7	4.6	.1	.1	.1	(Z)	1
325221	Cellulosic organic fiber mfg	2.1	2.1	—	—	—	—	1
325222	Noncellulosic organic fiber mfg	2.6	2.6	.1	.1	.1	(Z)	1
3253	Pesticide, fertilizer, & other agricultural chemical mfg	4.0	3.8	.1	.3	.3	(Z)	7
32531	Fertilizer mfg	3.5	3.4	(Z)	.3	.3	—	5
325311	Nitrogenous fertilizer mfg . . . . .	.4	.4	(Z)	—	—	—	21
325312	Phosphatic fertilizer mfg	3.0	3.0	—	.3	.3	—	4
32532	Pesticide & other agricultural chemical mfg . . . . .	.5	.4	.1	(Z)	(Z)	(Z)	22
325320	Pesticide & other agricultural chemical mfg . . . . .	.5	.4	.1	(Z)	(Z)	(Z)	22
3254	Pharmaceutical & medicine mfg	7.1	1.8	5.3	2.0	—	2.0	13
32541	Pharmaceutical & medicine mfg	7.1	1.8	5.3	2.0	—	2.0	13
325411	Medicinal & botanical mfg	5.3	.5	4.8	—	—	—	11
325412	Pharmaceutical preparation mfg	1.8	1.3	.5	2.0	—	2.0	38
325414	Biological product (except diagnostic) mfg	—	—	—	—	—	—	5
3255	Paint, coating, & adhesive mfg	1.4	(Z)	1.4	(Z)	(Z)	—	41
32551	Paint & coating mfg	1.4	(Z)	1.4	—	—	—	60
325510	Paint & coating mfg	1.4	(Z)	1.4	—	—	—	60
32552	Adhesive mfg	—	—	—	(Z)	(Z)	—	56
325520	Adhesive mfg	—	—	—	(Z)	(Z)	—	56
3256	Soap, cleaning compound, & toilet preparation mfg	18.2	18.1	.1	11.7	.3	11.4	10
32561	Soap & cleaning compound mfg	18.1	18.0	.1	11.7	.3	11.4	11
325611	Soap & other detergent mfg	—	—	—	—	—	—	7
325612	Polish & other sanitation good mfg . . . . .	.1	.1	—	.5	.3	.2	48
325613	Surface active agent mfg	18.0	18.0	.1	11.2	—	11.2	12
32562	Toilet preparation mfg . . . . .	.1	.1	(Z)	—	—	—	16
325620	Toilet preparation mfg . . . . .	.1	.1	(Z)	—	—	—	16
3259	Other chemical product mfg	2.6	1.0	1.6	.1	—	.1	10
32591	Printing ink mfg	—	—	—	—	—	—	(X)
325910	Printing ink mfg	—	—	—	—	—	—	(X)
32592	Explosives mfg	(D)	(D)	(D)	—	—	—	(X)
325920	Explosives mfg	(D)	(D)	(D)	—	—	—	(X)
32599	All other chemical product & preparation mfg	(D)	(D)	(D)	.1	—	.1	10
325991	Custom compounding of purchased resin	(D)	—	(D)	—	—	—	55
325992	Photographic film, paper, plate, & chemical mfg	(D)	(D)	(D)	—	—	—	4
325998	All other miscellaneous chemical product & preparation mfg	1.9	1.0	.9	.1	—	.1	14
326	Plastics & rubber products mfg	4.7	3.5	1.3	.2	(Z)	.1	15
3261	Plastics product mfg	3.5	2.3	1.3	(Z)	(Z)	(Z)	18
32611	Unsupported plastics film, sheet, & bag mfg . . . . .	.3	.1	.2	—	—	—	46
326111	Unsupported plastics bag mfg	—	—	—	—	—	—	24
326112	Unsupported plastics packaging film & sheet mfg	—	—	—	—	—	—	82
326113	Unsupported plastics film & sheet (except packaging) mfg . . . . .	.3	.1	.2	—	—	—	56
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	(D)	(D)	—	(D)	—	(D)	21
32613	Laminated plastics plate, sheet, & shape mfg	—	—	—	—	—	—	26
326130	Laminated plastics plate, sheet, & shape mfg	—	—	—	—	—	—	26
32614	Polystyrene foam product mfg	(D)	(D)	—	—	—	—	32
326140	Polystyrene foam product mfg	(D)	(D)	—	—	—	—	32
32615	Urethane & other foam product (except polystyrene) mfg	1.2	.4	.8	—	—	—	19
326150	Urethane & other foam product (except polystyrene) mfg	1.2	.4	.8	—	—	—	19
32619	Other plastics product mfg	(D)	(D)	.3	(D)	(Z)	(D)	20
326191	Plastics plumbing fixture mfg	—	—	—	—	—	—	63
326192	Resilient floor covering mfg	(D)	(D)	(D)	—	—	—	1
326199	All other plastics product mfg	(D)	(D)	(D)	(D)	(Z)	(D)	38

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
326	Plastics & rubber products mfg—Con.									
3262	Rubber product mfg	24.4	18.1	6.3	20.2	15.4	4.7	2.8	1.5	1.4
32621	Tire mfg	6.6	5.9	.7	4.8	(D)	(D)	(D)	(D)	(D)
326211	Tire mfg (except retreading)	6.6	5.9	.7	4.8	(D)	(D)	(D)	(D)	(D)
32622	Rubber & plastics hoses & belting mfg	.3	.3	(Z)	.2	.2	(Z)	(D)	(D)	—
326220	Rubber & plastics hoses & belting mfg	.3	.3	(Z)	.2	.2	(Z)	(D)	(D)	—
32629	Other rubber product mfg	17.5	11.9	5.6	15.2	(D)	(D)	2.0	(D)	(D)
326291	Rubber product mfg for mechanical use	10.4	8.9	1.5	9.8	(D)	(D)	.4	(D)	(D)
326299	All other rubber product mfg	7.1	3.1	4.1	5.5	2.4	3.1	1.6	.6	1.0
327	Nonmetallic mineral product mfg	232.6	204.2	28.4	195.1	182.2	12.8	16.2	14.2	2.0
3271	Clay product & refractory mfg	21.5	14.9	6.6	17.6	11.2	6.4	1.9	1.9	(Z)
32711	Pottery, ceramics, & plumbing fixture mfg	1.3	1.1	.2	.7	.6	.1	.1	.1	(Z)
327111	Vitreous china plumbing fixture & bathroom accessories mfg	(Z)	(Z)	—	—	—	—	(Z)	(Z)	—
327112	Vitreous china, fine earthenware, & other pottery product mfg	.7	.6	(Z)	.5	(D)	(D)	(D)	(D)	—
327113	Porcelain electrical supply mfg	.6	.4	.2	.2	(D)	(D)	(D)	(D)	(Z)
32712	Clay building material & refractories mfg	20.2	13.8	6.4	16.9	10.6	6.4	1.8	1.8	—
327121	Brick & structural clay tile mfg	7.6	1.8	5.8	7.4	1.6	5.8	.1	.1	—
327122	Ceramic wall & floor tile mfg	8.0	7.5	.5	5.9	5.3	.5	1.1	1.1	—
327124	Clay refractory mfg	1.5	1.5	—	.9	—	—	.5	.5	—
327125	Nonclay refractory mfg	3.0	2.9	(Z)	2.6	2.6	—	.2	.2	—
3272	Glass & glass product mfg	18.9	16.1	2.8	16.0	15.2	.8	1.8	.2	1.6
32721	Glass & glass product mfg	18.9	16.1	2.8	16.0	15.2	.8	1.8	.2	1.6
327211	Flat glass mfg	.5	.5	.1	.5	.5	.1	(Z)	(Z)	—
327212	Other pressed & blown glass & glassware mfg	12.5	10.1	2.3	10.6	10.1	.5	1.6	(Z)	1.6
327213	Glass container mfg	4.7	4.6	(Z)	4.5	4.5	(Z)	.1	.1	—
327215	Glass product mfg made of purchased glass	1.3	.9	.4	.4	.2	.2	(Z)	(Z)	(Z)
3273	Cement & concrete product mfg	126.3	121.4	4.9	111.8	111.0	.8	7.8	7.5	.4
32731	Cement mfg	104.1	100.1	4.0	97.4	97.1	.3	1.1	1.1	—
327310	Cement mfg	104.1	100.1	4.0	97.4	97.1	.3	1.1	1.1	—
32732	Ready-mix concrete mfg	19.4	19.1	.3	12.6	12.3	.3	5.9	5.9	—
327320	Ready-mix concrete mfg	19.4	19.1	.3	12.6	12.3	.3	5.9	5.9	—
32733	Concrete pipe, brick, & block mfg	1.7	1.1	.6	1.3	1.1	.2	.4	.1	.4
327331	Concrete block & brick mfg	.8	.8	(Z)	.8	.7	(Z)	.1	.1	—
32739	Other concrete product mfg	1.1	1.1	—	.5	.5	—	.4	.4	—
327390	Other concrete product mfg	1.1	1.1	—	.5	.5	—	.4	.4	—
3274	Lime & gypsum product mfg	11.8	11.8	—	9.1	9.1	—	1.6	1.6	—
32741	Lime mfg	3.8	3.8	—	3.3	3.3	—	.5	.5	—
327410	Lime mfg	3.8	3.8	—	3.3	3.3	—	.5	.5	—
32742	Gypsum product mfg	8.1	8.1	—	5.8	5.8	—	1.0	1.0	—
327420	Gypsum product mfg	8.1	8.1	—	5.8	5.8	—	1.0	1.0	—
3279	Other nonmetallic mineral product mfg	53.9	39.8	14.1	40.6	35.8	4.8	3.0	3.0	(Z)
32791	Abrasive product mfg	14.7	10.1	4.6	12.5	7.9	4.6	1.7	1.7	(Z)
327910	Abrasive product mfg	14.7	10.1	4.6	12.5	7.9	4.6	1.7	1.7	(Z)
32799	All other nonmetallic mineral product mfg	39.3	29.7	9.5	28.1	27.9	.2	1.3	1.3	(Z)
327992	Ground or treated mineral & earth mfg	3.3	3.2	.1	2.3	2.3	.1	.9	.9	—
327993	Mineral wool mfg	26.1	25.9	.2	25.1	25.0	.1	.4	.4	—
327999	All other miscellaneous nonmetallic mineral product mfg	9.9	.6	9.3	.6	.6	(Z)	(Z)	(Z)	(Z)
331	Primary metal mfg	605.7	313.7	292.0	481.2	225.9	255.3	93.6	64.6	29.0
3311	Iron & steel mills & ferroalloy mfg	117.3	98.8	18.5	83.5	71.6	11.9	24.5	19.1	5.4
33111	Iron & steel mills & ferroalloy mfg	117.3	98.8	18.5	83.5	71.6	11.9	24.5	19.1	5.4
331111	Iron & steel mills	109.2	90.7	18.4	76.3	64.5	11.8	24.0	18.6	5.4
331112	Electrometallurgical ferroalloy product mfg	8.1	8.1	.1	7.2	7.1	.1	.5	.5	—
3312	Steel product mfg from purchased steel	10.5	5.1	5.5	3.2	.4	2.8	7.2	4.5	2.7
33121	Iron & steel pipes & tubes mfg from purchased steel	4.9	3.5	1.4	1.5	.2	1.3	3.4	3.3	(Z)
331210	Iron & steel pipes & tubes mfg from purchased steel	4.9	3.5	1.4	1.5	.2	1.3	3.4	3.3	(Z)
33122	Rolling & drawing of purchased steel	5.7	1.6	4.1	1.7	.2	1.4	3.8	1.1	2.6
331221	Cold-rolled steel shape mfg	2.5	1.4	1.1	.2	.2	(Z)	2.2	1.1	1.1
331222	Steel wire drawing	3.1	.1	3.0	1.4	—	1.4	1.6	(Z)	1.6
3313	Alumina & aluminum production & processing	289.6	93.9	195.7	257.2	70.6	186.6	16.6	13.1	3.5
33131	Alumina & aluminum production & processing	289.6	93.9	195.7	257.2	70.6	186.6	16.6	13.1	3.5
331311	Alumina refining	1.6	1.6	(Z)	1.3	1.3	(Z)	.3	.3	—
331312	Primary aluminum production	233.3	52.0	181.3	219.4	46.2	173.2	7.1	4.6	2.5
331314	Secondary smelting & alloying of aluminum	8.8	4.2	4.7	8.0	3.3	4.7	.8	.8	—
331315	Aluminum sheet, plate, & foil mfg	40.2	31.3	9.0	28.4	19.7	8.7	4.2	3.9	.2
331316	Aluminum extruded product mfg	5.5	4.7	.8	(Z)	(Z)	—	4.1	3.4	.7
331319	Other aluminum rolling & drawing	.1	.1	—	.1	.1	—	.1	.1	—
3314	Nonferrous metal (except aluminum) production & processing	95.7	42.8	52.9	52.7	15.9	36.8	41.9	26.4	15.6
33141	Nonferrous metal (except aluminum) smelting & refining	52.8	10.0	42.8	35.1	6.2	28.9	17.3	(D)	(D)
331411	Primary smelting & refining of copper	43.6	5.5	38.1	26.3	2.0	24.3	(D)	3.5	(D)
331419	Other nonferrous metal primary smelting & refining	9.2	4.5	4.7	8.8	4.2	4.6	(D)	(D)	.1
33142	Copper rolling, drawing, extruding, & alloying	13.8	12.7	1.1	8.6	7.7	.9	5.2	(D)	(D)
331421	Copper rolling, drawing, & extruding	11.6	11.4	.2	6.5	6.5	(Z)	5.0	(D)	(D)
331422	Copper wire (except mechanical) drawing	(Z)	—	(Z)	—	—	—	(Z)	—	(Z)
331423	Secondary smelting, refining, & alloying of copper	2.2	1.3	.9	2.0	1.1	.9	.2	.2	—

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
326	Plastics & rubber products mfg—Con.							
3262	Rubber product mfg	1.2	1.2	(Z)	.1	(Z)	.1	26
32621	Tire mfg	(D)	(D)	—	—	—	—	1
326211	Tire mfg (except retreading)	(D)	(D)	—	—	—	—	1
32622	Rubber & plastics hoses & belting mfg	(D)	(D)	—	—	—	—	26
326220	Rubber & plastics hoses & belting mfg	(D)	(D)	—	—	—	—	26
32629	Other rubber product mfg	.1	.1	(Z)	.1	(Z)	.1	36
326291	Rubber product mfg for mechanical use	(Z)	(Z)	(Z)	.1	(Z)	.1	56
326299	All other rubber product mfg	.1	.1	—	—	—	—	32
327	Nonmetallic mineral product mfg	20.1	6.6	13.6	1.2	1.2	—	12
3271	Clay product & refractory mfg	1.9	1.8	.1	(Z)	(Z)	—	17
32711	Pottery, ceramics, & plumbing fixture mfg	.4	.3	.1	(Z)	(Z)	—	17
327111	Vitreous china plumbing fixture & bathroom accessories mfg	—	—	—	—	—	—	62
327112	Vitreous china, fine earthenware, & other pottery product mfg	(D)	(D)	(D)	(Z)	(Z)	—	30
327113	Porcelain electrical supply mfg	(D)	(D)	(D)	—	—	—	15
32712	Clay building material & refractories mfg	1.5	1.5	(Z)	—	—	—	18
327121	Brick & structural clay tile mfg	.1	.1	—	—	—	—	45
327122	Ceramic wall & floor tile mfg	1.1	1.1	—	—	—	—	4
327124	Clay refractory mfg	.1	.1	—	—	—	—	40
327125	Nonclay refractory mfg	.2	.2	(Z)	—	—	—	17
3272	Glass & glass product mfg	.4	.1	.3	.6	.6	—	50
32721	Glass & glass product mfg	.4	.1	.3	.6	.6	—	50
327211	Flat glass mfg	—	—	—	—	—	—	44
327212	Other pressed & blown glass & glassware mfg	.2	(Z)	.2	—	—	—	75
327213	Glass container mfg	(Z)	(Z)	—	—	—	—	1
327215	Glass product mfg made of purchased glass	.2	.1	.1	.6	.6	—	16
3273	Cement & concrete product mfg	6.7	2.9	3.7	(Z)	(Z)	—	17
32731	Cement mfg	5.6	1.8	3.7	—	—	—	18
327310	Cement mfg	5.6	1.8	3.7	—	—	—	18
32732	Ready-mix concrete mfg	.9	.9	—	(Z)	(Z)	—	49
327320	Ready-mix concrete mfg	.9	.9	—	(Z)	(Z)	—	49
32733	Concrete pipe, brick, & block mfg	—	—	—	(Z)	(Z)	—	45
327331	Concrete block & brick mfg	—	—	—	—	—	—	61
32739	Other concrete product mfg	.2	.2	—	—	—	—	31
327390	Other concrete product mfg	.2	.2	—	—	—	—	31
3274	Lime & gypsum product mfg	.7	.7	—	.5	.5	—	25
32741	Lime mfg	—	—	—	—	—	—	17
327410	Lime mfg	—	—	—	—	—	—	17
32742	Gypsum product mfg	.7	.7	—	.5	.5	—	36
327420	Gypsum product mfg	.7	.7	—	.5	.5	—	36
3279	Other nonmetallic mineral product mfg	10.3	1.0	9.3	—	—	—	23
32791	Abrasive product mfg	.4	.4	—	—	—	—	68
327910	Abrasive product mfg	.4	.4	—	—	—	—	68
32799	All other nonmetallic mineral product mfg	9.9	.6	9.3	—	—	—	18
327992	Ground or treated mineral & earth mfg	.1	.1	—	—	—	—	5
327993	Mineral wool mfg	.6	.5	.1	—	—	—	2
327999	All other miscellaneous nonmetallic mineral product mfg	9.2	—	9.2	—	—	—	69
331	Primary metal mfg	22.8	20.0	2.8	8.1	3.1	5.0	7
3311	Iron & steel mills & ferroalloy mfg	7.3	6.5	.8	2.0	1.5	.5	7
33111	Iron & steel mills & ferroalloy mfg	7.3	6.5	.8	2.0	1.5	.5	7
331111	Iron & steel mills	6.8	6.1	.8	2.0	1.5	.5	7
331112	Electrometallurgical ferroalloy product mfg	.4	.4	—	—	—	—	4
3312	Steel product mfg from purchased steel	.2	.2	—	—	—	—	31
33121	Iron & steel pipes & tubes mfg from purchased steel	(Z)	(Z)	—	—	—	—	54
331210	Iron & steel pipes & tubes mfg from purchased steel	(Z)	(Z)	—	—	—	—	54
33122	Rolling & drawing of purchased steel	.2	.2	—	—	—	—	33
331221	Cold-rolled steel shape mfg	.1	.1	—	—	—	—	17
331222	Steel wire drawing	.1	.1	—	—	—	—	57
3313	Alumina & aluminum production & processing	10.0	8.8	1.1	5.9	1.4	4.4	13
33131	Alumina & aluminum production & processing	10.0	8.8	1.1	5.9	1.4	4.4	13
331311	Alumina refining	(Z)	(Z)	—	—	—	—	1
331312	Primary aluminum production	1.2	.1	1.1	5.6	1.1	4.4	16
331314	Secondary smelting & alloying of aluminum	(Z)	(Z)	—	—	—	—	5
331315	Aluminum sheet, plate, & foil mfg	7.3	7.3	—	.3	.3	—	24
331316	Aluminum extruded product mfg	1.4	1.4	(Z)	—	—	—	53
331319	Other aluminum rolling & drawing	—	—	—	—	—	—	1
3314	Nonferrous metal (except aluminum) production & processing	1.1	(D)	(D)	(Z)	(D)	(D)	5
33141	Nonferrous metal (except aluminum) smelting & refining	.4	(D)	(D)	—	—	—	6
331411	Primary smelting & refining of copper	(D)	—	(D)	—	—	—	3
331419	Other nonferrous metal primary smelting & refining	(D)	(D)	(Z)	—	—	—	29
33142	Copper rolling, drawing, extruding, & alloying	(Z)	(Z)	—	(Z)	(D)	(D)	20
331421	Copper rolling, drawing, & extruding	(Z)	(Z)	—	(Z)	(D)	(D)	24
331422	Copper wire (except mechanical) drawing	—	—	—	—	—	—	95
331423	Secondary smelting, refining, & alloying of copper	—	—	—	—	—	—	1

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
331	Primary metal mfg—Con.									
3314	Nonferrous metal (except aluminum) production & processing—Con.									
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	29.1	20.1	9.0	9.0	2.0	7.0	19.5	17.7	1.8
331491	Other nonferrous metal rolling, drawing, & extruding	6.7	2.6	4.2	5.3	1.3	4.0	1.3	1.2	.1
331492	Other nonferrous metal secondary smelting, refining, & alloying	22.3	17.5	4.8	3.7	.8	2.9	18.1	16.5	1.7
3315	Foundries	92.6	73.1	19.5	84.7	67.4	17.2	3.5	1.6	1.8
33151	Ferrous metal foundries	74.7	63.7	10.9	69.5	60.2	9.3	2.5	1.1	1.4
331511	Iron foundries	66.0	57.4	8.6	64.4	56.1	8.3	.6	.5	.2
331512	Steel investment foundries	3.1	1.5	1.6	1.3	.8	.5	1.5	.5	1.1
331513	Steel foundries (except investment)	5.6	4.8	.7	3.8	3.3	.5	.3	.2	.1
33152	Nonferrous metal foundries	18.0	9.4	8.6	15.2	7.3	7.9	1.0	.5	.5
331521	Aluminum die-casting foundries	10.0	7.8	2.1	8.7	7.0	1.8	.6	.3	.4
331524	Aluminum foundries (except die-casting)	6.5	1.5	4.9	5.0	.2	4.8	.2	.2	—
331525	Copper foundries (except die-casting)	.1	.1	.1	.1	.1	—	.1	(Z)	.1
331528	Other nonferrous foundries (except die-casting)	1.5	—	1.5	1.4	—	1.4	.1	—	.1
332	Fabricated metal product mfg	283.3	250.2	33.1	38.2	20.5	17.7	232.4	221.6	10.8
3321	Forging & stamping	11.4	9.1	2.2	4.1	3.1	1.0	5.6	5.2	.3
33211	Forging & stamping	11.4	9.1	2.2	4.1	3.1	1.0	5.6	5.2	.3
332111	Iron & steel forging	.8	.5	.2	(D)	(D)	(D)	.2	(D)	(D)
332112	Nonferrous forging	7.2	6.6	.6	2.4	2.2	.3	3.8	3.7	(Z)
332114	Custom roll forming	.2	.1	.1	(D)	(D)	(D)	—	(D)	—
332115	Crown & closure mfg	.6	.5	.1	.6	.5	.1	(D)	(D)	—
332116	Metal stamping	2.5	1.3	1.2	.5	—	.5	1.5	1.3	.2
3322	Cutlery & handtool mfg	2.6	1.6	1.1	1.9	1.1	.8	.6	(D)	(D)
33221	Cutlery & handtool mfg	2.6	1.6	1.1	1.9	1.1	.8	.6	(D)	(D)
332212	Hand & edge tool mfg	1.3	.8	.5	1.0	.6	.3	.3	.2	.2
3323	Architectural & structural metals mfg	10.0	6.6	3.4	8.5	5.7	2.9	.4	.2	.2
33231	Plate work & fabricated structural product mfg	3.0	1.1	1.8	2.0	.4	1.6	.1	.1	.1
332312	Fabricated structural metal mfg	1.4	1.1	.3	.5	.4	(Z)	.1	(Z)	.1
332313	Plate work mfg	1.6	(Z)	1.6	1.6	—	1.6	(Z)	(Z)	—
33232	Ornamental & architectural metal products mfg	7.0	5.5	1.6	6.5	5.2	1.3	.3	.1	.1
332321	Metal window & door mfg	1.6	1.0	.5	1.4	1.0	.4	.2	.1	.1
332322	Sheet metal work mfg	5.3	4.3	1.0	5.1	4.3	.8	.1	(Z)	(Z)
332323	Ornamental & architectural metal work mfg	.1	.1	(Z)	—	—	—	(Z)	(Z)	(Z)
3324	Boiler, tank, & shipping container mfg	11.9	7.4	4.5	4.9	.9	4.0	5.6	5.5	.1
33241	Power boiler & heat exchanger mfg	.4	(Z)	.3	(Z)	(Z)	(Z)	(Z)	(Z)	—
332410	Power boiler & heat exchanger mfg	.4	(Z)	.3	(Z)	(Z)	(Z)	(Z)	(Z)	—
33242	Metal tank (heavy gauge) mfg	.1	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
332420	Metal tank (heavy gauge) mfg	.1	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
33243	Metal can, box, & other metal container (light gauge) mfg	11.5	7.4	4.2	4.9	.9	4.0	5.5	5.5	.1
332431	Metal can mfg	10.4	6.4	4.1	4.6	.7	3.9	4.7	4.6	.1
332439	Other metal container mfg	1.1	1.0	.1	.3	.2	.1	.8	.8	—
3325	Hardware mfg	.2	.2	(Z)	(D)	(D)	—	.2	(D)	(D)
33251	Hardware mfg	.2	.2	(Z)	(D)	(D)	—	.2	(D)	(D)
332510	Hardware mfg	.2	.2	(Z)	(D)	(D)	—	.2	(D)	(D)
3326	Spring & wire product mfg	1.1	.6	.6	(D)	.1	(D)	.9	.4	.5
33261	Spring & wire product mfg	1.1	.6	.6	(D)	.1	(D)	.9	.4	.5
332612	Spring (light gauge) mfg	(D)	(D)	—	(D)	(D)	—	—	—	—
332618	Other fabricated wire product mfg	1.1	(D)	(D)	(D)	(D)	(D)	.9	.4	.5
3327	Machine shops, turned product, & screw, nut, & bolt mfg	211.9	208.0	3.8	5.7	4.8	.9	205.5	203.2	2.3
33271	Machine shops	2.2	2.2	—	1.9	1.9	—	.3	.3	—
332710	Machine shops	2.2	2.2	—	1.9	1.9	—	.3	.3	—
33272	Turned product & screw, nut, & bolt mfg	209.6	205.8	3.8	3.8	2.9	.9	205.1	202.8	2.3
332721	Precision turned product mfg	1.5	.8	.7	1.4	.7	.7	.1	.1	—
332722	Bolt, nut, screw, rivet, & washer mfg	208.1	204.9	3.1	2.4	2.1	.2	205.0	202.7	2.3
3328	Coating, engraving, heat treating, & allied activities	16.4	7.1	9.3	4.7	2.5	2.2	8.1	2.6	5.5
33281	Coating, engraving, heat treating, & allied activities	16.4	7.1	9.3	4.7	2.5	2.2	8.1	2.6	5.5
332811	Metal heat treating	1.0	.7	.3	(D)	(D)	—	(D)	—	(D)
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	2.3	1.4	.9	(D)	(D)	(D)	(D)	(D)	(D)
332813	Electroplating, plating, polishing, anodizing, & coloring	13.0	5.0	8.1	3.0	(D)	(D)	6.7	(D)	(D)
3329	Other fabricated metal product mfg	17.8	9.6	8.2	8.2	(D)	(D)	5.6	3.9	1.7
33291	Metal valve mfg	7.0	4.8	2.2	2.5	(D)	(D)	4.0	2.9	1.1
332911	Industrial valve mfg	5.3	3.6	1.8	1.8	(D)	(D)	3.3	2.5	.8
332912	Fluid power valve & hose fitting mfg	.4	.3	.1	(D)	(D)	—	.1	(Z)	(Z)
332913	Plumbing fixture fitting & trim mfg	1.3	.9	.3	(D)	(D)	(D)	.6	.3	.3
332919	Other metal valve & pipe fitting mfg	(Z)	(Z)	—	—	—	—	(Z)	(Z)	—
33299	All other fabricated metal product mfg	10.8	4.8	5.9	5.7	(D)	(D)	1.6	1.0	.5
332991	Ball & roller bearing mfg	1.6	1.2	.3	.5	.5	—	.4	.1	.3
332992	Small arms ammunition mfg	.3	(D)	(D)	.1	(D)	(D)	(D)	—	(D)
332993	Ammunition (except small arms) mfg	2.5	1.6	.9	(D)	(D)	(D)	.2	(D)	(D)
332994	Small arms mfg	.4	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
332995	Other ordnance & accessories mfg	(D)	(D)	—	—	—	—	(D)	(D)	(D)
332998	Enameled iron & metal sanitary ware mfg	.4	.2	.2	.4	.2	.2	—	—	—
332999	All other miscellaneous fabricated metal product mfg	5.6	1.5	4.1	3.8	(Z)	3.7	.6	.6	(Z)

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
331	Primary metal mfg—Con.							
3314	Nonferrous metal (except aluminum) production & processing—Con.							
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	.6	.4	.2	—	—	—	2
331491	Other nonferrous metal rolling, drawing, & extruding	.1	.1	(Z)	—	—	—	8
331492	Other nonferrous metal secondary smelting, refining, & alloying	.5	.3	.2	—	—	—	2
3315	Foundries	4.3	(D)	(D)	.2	(D)	(D)	18
33151	Ferrous metal foundries	2.5	(D)	(D)	.2	(D)	(D)	21
331511	Iron foundries	.7	(D)	(D)	.2	(D)	(D)	24
331512	Steel investment foundries	.3	—	(Z)	—	—	—	8
331513	Steel foundries (except investment)	1.5	1.4	.1	—	—	—	11
33152	Nonferrous metal foundries	1.8	1.6	.2	—	—	—	31
331521	Aluminum die-casting foundries	.6	.6	—	—	—	—	55
331524	Aluminum foundries (except die-casting)	1.2	1.0	.2	—	—	—	4
331525	Copper foundries (except die-casting)	—	—	—	—	—	—	59
331528	Other nonferrous foundries (except die-casting)	(Z)	—	(Z)	—	—	—	1
332	Fabricated metal product mfg	9.7	6.4	3.4	3.0	1.7	1.3	68
3321	Forging & stamping	.7	.1	.6	1.0	.7	.3	13
33211	Forging & stamping	.7	.1	.6	1.0	.7	.3	13
332111	Iron & steel forging	(D)	(D)	—	—	—	—	17
332112	Nonferrous forging	—	—	—	1.0	.7	.3	7
332114	Custom roll forming	(D)	(D)	—	—	—	—	22
332115	Crown & closure mfg	(D)	(D)	(Z)	—	—	—	7
332116	Metal stamping	.6	—	.6	—	—	—	54
3322	Cutlery & handtool mfg	.1	(D)	(D)	.1	(D)	(D)	27
33221	Cutlery & handtool mfg	.1	(D)	(D)	.1	(D)	(D)	27
332212	Hand & edge tool mfg	(Z)	(Z)	—	—	—	—	37
3323	Architectural & structural metals mfg	.5	.2	.3	.6	.5	(Z)	45
33231	Plate work & fabricated structural product mfg	.2	.1	.1	.6	.5	(Z)	48
332312	Fabricated structural metal mfg	.2	.1	.1	.6	.5	(Z)	9
332313	Plate work mfg	(Z)	—	(Z)	—	—	—	88
33232	Ornamental & architectural metal products mfg	.3	.1	.2	—	—	—	61
332321	Metal window & door mfg	—	—	—	—	—	—	85
332322	Sheet metal work mfg	.2	—	.2	—	—	—	76
332323	Ornamental & architectural metal work mfg	.1	.1	(Z)	—	—	—	57
3324	Boiler, tank, & shipping container mfg	1.3	1.0	.3	.1	—	.1	21
33241	Power boiler & heat exchanger mfg	.3	—	.3	—	—	—	80
332410	Power boiler & heat exchanger mfg	.3	—	.3	—	—	—	80
33242	Metal tank (heavy gauge) mfg	—	—	—	—	—	—	68
332420	Metal tank (heavy gauge) mfg	—	—	—	—	—	—	68
33243	Metal can, box, & other metal container (light gauge) mfg	1.0	1.0	(Z)	.1	—	.1	21
332431	Metal can mfg	1.0	1.0	—	.1	—	.1	23
332439	Other metal container mfg	(Z)	(Z)	(Z)	—	—	—	47
3325	Hardware mfg	(D)	(D)	(D)	—	—	—	28
33251	Hardware mfg	(D)	(D)	(D)	—	—	—	28
332510	Hardware mfg	(D)	(D)	(D)	—	—	—	28
3326	Spring & wire product mfg	(D)	(D)	(D)	.1	(D)	(D)	37
33261	Spring & wire product mfg	(D)	(D)	(D)	.1	(D)	(D)	37
332612	Spring (light gauge) mfg	(D)	(D)	—	—	—	—	(X)
332618	Other fabricated wire product mfg	(D)	—	(D)	.1	(D)	(D)	38
3327	Machine shops, turned product, & screw, nut, & bolt mfg	—	—	—	.7	.1	.6	91
33271	Machine shops	—	—	—	—	—	—	47
332710	Machine shops	—	—	—	—	—	—	47
33272	Turned product & screw, nut, & bolt mfg	—	—	—	.7	.1	.6	92
332721	Precision turned product mfg	—	—	—	—	—	—	53
332722	Bolt, nut, screw, rivet, & washer mfg	—	—	—	.7	.1	.6	92
3328	Coating, engraving, heat treating, & allied activities	3.3	(D)	(D)	.3	(D)	(D)	17
33281	Coating, engraving, heat treating, & allied activities	3.3	(D)	(D)	.3	(D)	(D)	17
332811	Metal heat treating	.2	(D)	(D)	—	—	—	50
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	—	—	—	(Z)	(D)	(D)	54
332813	Electroplating, plating, polishing, anodizing, & coloring	3.0	1.5	1.6	.3	(D)	(D)	18
3329	Other fabricated metal product mfg	3.9	(D)	(D)	.1	(D)	(D)	29
33291	Metal valve mfg	.5	(D)	(D)	.1	(D)	(D)	29
332911	Industrial valve mfg	.2	(D)	(D)	—	—	—	37
332912	Fluid power valve & hose fitting mfg	(D)	(D)	(D)	.1	(D)	(D)	21
332913	Plumbing fixture fitting & trim mfg	(D)	(D)	(D)	—	—	—	41
332919	Other metal valve & pipe fitting mfg	—	—	—	—	—	—	52
33299	All other fabricated metal product mfg	3.5	3.1	.4	(Z)	(D)	(D)	44
332991	Ball & roller bearing mfg	.6	.6	—	—	—	—	45
332992	Small arms ammunition mfg	(D)	(D)	(D)	(Z)	(D)	(D)	1
332993	Ammunition (except small arms) mfg	(D)	(D)	—	—	—	—	82
332994	Small arms mfg	(D)	(D)	(D)	—	—	—	19
332995	Other ordnance & accessories mfg	—	—	—	—	—	—	(X)
332998	Enameled iron & metal sanitary ware mfg	—	—	—	—	—	—	61
332999	All other miscellaneous fabricated metal product mfg	1.2	.9	.3	—	—	—	75

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
333	Machinery mfg	163.3	148.1	15.3	26.3	22.5	3.8	92.5	81.5	11.0
3331	Agriculture, construction, & mining machinery mfg	20.7	14.6	6.1	9.8	8.6	1.2	9.6	(D)	(D)
33311	Agricultural implement mfg	10.3	5.4	4.9	(D)	(D)	—	8.7	(D)	(D)
333111	Farm machinery & equipment mfg	9.5	5.0	4.5	(D)	(D)	—	(D)	(D)	4.5
333112	Lawn & garden tractor & home lawn & garden equipment mfg	.8	.4	.4	(D)	(D)	—	(D)	(D)	(D)
33312	Construction machinery mfg	8.4	(D)	(D)	8.1	6.9	1.2	(D)	(D)	(D)
333120	Construction machinery mfg	8.4	(D)	(D)	8.1	6.9	1.2	(D)	(D)	(D)
33313	Mining & oil & gas field machinery mfg	2.0	(D)	(D)	(D)	(D)	—	(D)	(D)	—
333132	Oil & gas field machinery & equipment mfg	1.8	1.8	—	(D)	(D)	—	(D)	(D)	—
3332	Industrial machinery mfg	5.0	(D)	(D)	.1	(D)	(D)	4.9	(D)	(D)
33329	Other industrial machinery mfg	4.9	(D)	(D)	(D)	—	(D)	4.8	(D)	(D)
333291	Paper industry machinery mfg	—	—	—	—	—	—	—	—	—
333292	Textile machinery mfg	—	—	—	—	—	—	—	—	—
333295	Semiconductor machinery mfg	4.7	—	4.7	—	—	—	4.7	—	4.7
333298	All other industrial machinery mfg	.1	(D)	(D)	(D)	—	(D)	(D)	(D)	(D)
3333	Commercial & service industry machinery mfg	1.2	(D)	(D)	1.0	(D)	(D)	.1	(D)	(D)
33331	Commercial & service industry machinery mfg	1.2	(D)	(D)	1.0	(D)	(D)	.1	(D)	(D)
333314	Optical instrument & lens mfg	.1	(D)	(D)	.1	.1	—	.1	(D)	(D)
333315	Photographic & photocopying equipment mfg	.7	.1	.6	.7	(D)	(D)	—	—	—
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	5.1	3.8	1.3	2.5	2.5	(Z)	2.3	1.2	1.1
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	5.1	3.8	1.3	2.5	2.5	(Z)	2.3	1.2	1.1
333414	Heating equipment (except warm air furnaces) mfg	(Z)	(Z)	(Z)	(Z)	(Z)	(Z)	—	—	—
333415	AC & warm air heating & commercial/industrial refig equip mfg	4.9	3.6	1.3	2.5	2.5	—	2.1	1.0	1.1
3335	Metalworking machinery mfg	1.6	.5	1.1	1.2	.2	1.0	.2	.1	.1
33351	Metalworking machinery mfg	1.6	.5	1.1	1.2	.2	1.0	.2	.1	.1
333512	Machine tool (metal cutting types) mfg	.6	—	.6	.6	—	.6	(Z)	—	(Z)
333514	Special die & tool, die set, jig, & fixture mfg	—	—	—	—	—	—	—	—	—
333515	Cutting tool & machine tool accessory mfg	.8	.3	.5	.6	.2	.4	.2	.1	.1
3336	Engine, turbine, & power transmission equipment mfg	124.6	123.9	.6	8.9	8.3	.6	74.2	74.2	(Z)
33361	Engine, turbine, & power transmission equipment mfg	124.6	123.9	.6	8.9	8.3	.6	74.2	74.2	(Z)
333611	Turbine & turbine generator set unit mfg	1.4	1.1	.3	.9	.6	.3	.5	.5	(Z)
333613	Mechanical power transmission equipment mfg	(Z)	(Z)	—	(Z)	(Z)	—	(Z)	(Z)	—
333618	Other engine equipment mfg	122.9	122.6	.4	8.0	7.7	.3	73.6	73.5	(Z)
3339	Other general-purpose machinery mfg	5.1	4.6	.5	2.8	2.5	.3	1.2	(D)	(D)
33391	Pump & compressor mfg	.6	.5	.1	(D)	(D)	(D)	(D)	(D)	(D)
333911	Pump & pumping equipment mfg	.4	.4	.1	(D)	(D)	(D)	(D)	(D)	(D)
333912	Air & gas compressor mfg	.1	.1	—	—	—	—	.1	.1	—
33392	Material handling equipment mfg	2.6	2.4	.2	2.3	2.1	.2	(D)	(D)	—
333923	Overhead traveling crane, hoist, & monorail system mfg	.3	.3	—	—	—	—	(D)	(D)	—
333924	Industrial truck, tractor, trailer, & stacker machinery mfg	1.9	1.6	.2	1.9	1.6	.2	—	—	—
33399	All other general-purpose machinery mfg	1.9	1.7	.2	(D)	(D)	(D)	.8	.8	—
333992	Welding & soldering equipment mfg	.6	.5	.1	—	—	—	.2	.2	—
333995	Fluid power cylinder & actuator mfg	.1	(Z)	(Z)	(Z)	(D)	(D)	—	—	—
333996	Fluid power pump & motor mfg	.7	.6	(Z)	.3	.3	(Z)	.3	.3	—
333999	All other miscellaneous general-purpose machinery mfg	.3	.2	.1	—	—	—	.1	.1	—
334	Computer & electronic product mfg	138.0	106.2	31.8	58.5	43.3	15.2	67.5	51.8	15.6
3341	Computer & peripheral equipment mfg	.9	.8	.2	.3	(D)	(D)	.6	(D)	(D)
33411	Computer & peripheral equipment mfg	.9	.8	.2	.3	(D)	(D)	.6	(D)	(D)
334111	Electronic computer mfg	—	—	—	—	—	—	—	—	—
334119	Other computer peripheral equipment mfg	.9	.8	.2	.3	(D)	(D)	.6	(D)	(D)
3342	Communications equipment mfg	1.1	.3	.8	.1	(Z)	(Z)	.9	.3	.6
33421	Telephone apparatus mfg	.1	(Z)	(Z)	.1	(Z)	(Z)	—	—	—
334210	Telephone apparatus mfg	.1	(Z)	(Z)	.1	(Z)	(Z)	—	—	—
33422	Radio & TV broadcasting & wireless communications equipment mfg	.1	—	.1	—	—	—	—	—	—
334220	Radio & TV broadcasting & wireless communications equipment mfg	.1	—	.1	—	—	—	—	—	—
3343	Audio & video equipment mfg	(Z)	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
33431	Audio & video equipment mfg	(Z)	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
334310	Audio & video equipment mfg	(Z)	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
3344	Semiconductor & other electronic component mfg	122.5	103.6	18.9	55.2	42.5	12.6	56.3	50.3	6.0
33441	Semiconductor & other electronic component mfg	122.5	103.6	18.9	55.2	42.5	12.6	56.3	50.3	6.0
334411	Electron tube mfg	1.3	—	1.3	—	—	—	1.3	—	1.3
334412	Bare printed circuit board mfg	13.6	10.1	3.5	.4	.2	.2	6.1	2.8	3.3
334413	Semiconductor & related device mfg	102.8	91.7	11.1	52.7	41.9	10.8	46.3	46.2	.1
334414	Electronic capacitor mfg	.4	.3	.1	.2	.2	(Z)	.2	.1	(Z)
334415	Electronic resistor mfg	1.4	—	1.4	1.4	—	1.4	—	—	—
334417	Electronic connector mfg	.6	.1	.6	—	—	—	.6	.1	.6
334418	Printed circuit assembly (electronic assembly) mfg	1.0	(Z)	.9	.2	(Z)	.2	.7	—	.7
334419	Other electronic component mfg	1.3	1.3	—	.2	.2	—	1.1	1.1	—

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
333	Machinery mfg	3.0	2.6	.4	41.6	41.5	.1	4
3331	Agriculture, construction, & mining machinery mfg	(D)	(D)	(D)	(D)	—	(D)	30
33311	Agricultural implement mfg	(D)	(D)	(D)	—	—	—	34
333111	Farm machinery & equipment mfg	—	—	—	—	—	—	37
333112	Lawn & garden tractor & home lawn & garden equipment mfg	(D)	(D)	(D)	—	—	—	9
33312	Construction machinery mfg	—	—	—	(D)	—	(D)	57
333120	Construction machinery mfg	—	—	—	(D)	—	(D)	57
33313	Mining & oil & gas field machinery mfg	(D)	(D)	(D)	—	—	—	67
333132	Oil & gas field machinery & equipment mfg	1.2	1.2	—	—	—	—	71
3332	Industrial machinery mfg	(D)	(D)	(D)	(D)	(D)	—	2
33329	Other industrial machinery mfg	(D)	—	(D)	(D)	(D)	—	2
333291	Paper industry machinery mfg	—	—	—	—	—	—	1
333292	Textile machinery mfg	—	—	—	—	—	—	1
333295	Semiconductor machinery mfg	—	—	—	—	—	—	1
333298	All other industrial machinery mfg	(D)	—	(D)	(D)	(D)	—	47
3333	Commercial & service industry machinery mfg . . . . .	.1	(D)	(D)	—	—	—	50
33331	Commercial & service industry machinery mfg . . . . .	.1	(D)	(D)	—	—	—	50
333314	Optical instrument & lens mfg	—	—	—	—	—	—	54
333315	Photographic & photocopying equipment mfg	(Z)	(D)	(D)	—	—	—	74
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg . . . . .	.3	.1	.2	—	—	—	18
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg . . . . .	.3	.1	.2	—	—	—	18
333414	Heating equipment (except warm air furnaces) mfg	(Z)	(Z)	—	—	—	—	18
333415	AC & warm air heating & commercial/industrial refig equip mfg . . . . .	.3	.1	.2	—	—	—	18
3335	Metalworking machinery mfg . . . . .	.2	.2	(Z)	—	—	—	36
33351	Metalworking machinery mfg . . . . .	.2	.2	(Z)	—	—	—	36
333512	Machine tool (metal cutting types) mfg	—	—	—	—	—	—	82
333514	Special die & tool, die set, jig, & fixture mfg	—	—	—	—	—	—	1
333515	Cutting tool & machine tool accessory mfg	(Z)	—	(Z)	—	—	—	35
3336	Engine, turbine, & power transmission equipment mfg . . . . .	.1	.1	—	41.3	41.3	—	2
33361	Engine, turbine, & power transmission equipment mfg . . . . .	.1	.1	—	41.3	41.3	—	2
333611	Turbine & turbine generator set unit mfg . . . . .	.1	.1	—	—	—	—	24
333613	Mechanical power transmission equipment mfg	—	—	—	—	—	—	63
333618	Other engine equipment mfg	—	—	—	41.3	41.3	—	2
3339	Other general-purpose machinery mfg . . . . .	.9	.7	.2	.2	(D)	(D)	11
33391	Pump & compressor mfg . . . . .	.3	(D)	(D)	(D)	(D)	—	39
333911	Pump & pumping equipment mfg . . . . .	.3	(D)	(D)	(D)	(D)	—	48
333912	Air & gas compressor mfg	—	—	—	—	—	—	59
33392	Material handling equipment mfg . . . . .	.1	.1	(Z)	(D)	(D)	—	8
333923	Overhead traveling crane, hoist, & monorail system mfg	—	—	—	(D)	(D)	—	63
333924	Industrial truck, tractor, trailer, & stacker machinery mfg	—	—	—	—	—	—	1
33399	All other general-purpose machinery mfg . . . . .	.6	(D)	(D)	(D)	(D)	(D)	23
333992	Welding & soldering equipment mfg . . . . .	.4	3	.1	—	—	—	52
333995	Fluid power cylinder & actuator mfg . . . . .	.1	(D)	(D)	—	—	—	88
333996	Fluid power pump & motor mfg	—	—	—	—	—	—	35
333999	All other miscellaneous general-purpose machinery mfg	(D)	(D)	(D)	(D)	(D)	(D)	58
334	Computer & electronic product mfg	11.7	10.7	1.0	.4	.3	(Z)	13
3341	Computer & peripheral equipment mfg	(Z)	—	(Z)	—	—	—	37
33411	Computer & peripheral equipment mfg	(Z)	—	(Z)	—	—	—	37
334111	Electronic computer mfg	—	—	—	—	—	—	1
334119	Other computer peripheral equipment mfg	(Z)	—	(Z)	—	—	—	37
3342	Communications equipment mfg . . . . .	.1	(Z)	.1	—	—	—	50
33421	Telephone apparatus mfg	—	—	—	—	—	—	67
334210	Telephone apparatus mfg	—	—	—	—	—	—	67
33422	Radio & TV broadcasting & wireless communications equipment mfg . . . . .	.1	—	.1	—	—	—	94
334220	Radio & TV broadcasting & wireless communications equipment mfg . . . . .	.1	—	.1	—	—	—	94
3343	Audio & video equipment mfg	—	—	—	—	—	—	56
33431	Audio & video equipment mfg	—	—	—	—	—	—	56
334310	Audio & video equipment mfg	—	—	—	—	—	—	56
3344	Semiconductor & other electronic component mfg	10.6	10.4	.2	.3	.3	—	14
33441	Semiconductor & other electronic component mfg	10.6	10.4	.2	.3	.3	—	14
334411	Electron tube mfg	(Z)	—	(Z)	—	—	—	50
334412	Bare printed circuit board mfg	7.1	7.1	—	—	—	—	56
334413	Semiconductor & related device mfg	3.5	3.3	.2	.3	.3	—	14
334414	Electronic capacitor mfg	(Z)	—	(Z)	—	—	—	20
334415	Electronic resistor mfg	—	—	—	—	—	—	82
334417	Electronic connector mfg	—	—	—	—	—	—	84
334418	Printed circuit assembly (electronic assembly) mfg	—	—	—	—	—	—	73
334419	Other electronic component mfg	—	—	—	—	—	—	67

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
334	Computer & electronic product mfg—Con.									
3345	Navigational, measuring, medical, & control instruments mfg	11.7	1.1	10.6	2.7	.4	2.3	8.6	.7	7.9
33451	Navigational, measuring, medical, & control instruments mfg	11.7	1.1	10.6	2.7	.4	2.3	8.6	.7	7.9
334510	Electromedical & electrotherapeutic apparatus mfg	2.1	.4	1.7	1.7	.3	1.4	.2	.1	.1
334511	Search, detection, navigation, & guidance instrument mfg	1.1	.1	1.0	.9	(Z)	.9	.2	.1	.1
334513	Industrial process control instrument mfg	7.6	—	7.6	—	—	—	7.6	—	7.6
334514	Totalizing fluid meter & counting device mfg	.8	.5	.3	(Z)	(Z)	—	.5	.4	(Z)
334515	Electricity measuring & testing instrument mfg	—	—	—	—	—	—	—	—	—
3346	Mfg & reproducing magnetic & optical media	1.7	.4	1.3	.3	(D)	(D)	1.1	(D)	(D)
33461	Mfg & reproducing magnetic & optical media	1.7	.4	1.3	.3	(D)	(D)	1.1	(D)	(D)
334612	Prerecorded CD (except software), tape, & record reproducing	—	—	—	—	—	—	—	—	—
334613	Magnetic & optical recording media mfg	1.7	.4	1.3	.3	(D)	(D)	1.1	(D)	(D)
335	Electrical equipment, appliance, & component mfg	33.7	16.4	17.3	20.8	6.7	14.1	10.6	8.3	2.3
3351	Electric lighting equipment mfg	.8	.4	.4	.5	.1	.4	.1	.1	(Z)
33511	Electric lamp bulb & part mfg	.7	.4	.4	.4	.1	.3	.1	.1	(Z)
335110	Electric lamp bulb & part mfg	.7	.4	.4	.4	.1	.3	.1	.1	(Z)
33512	Lighting fixture mfg	.1	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
335129	Other lighting equipment mfg	.1	(Z)	(Z)	(Z)	—	(Z)	(Z)	(Z)	—
3352	Household appliance mfg	1.5	1.3	.2	(Z)	(Z)	—	1.3	1.1	.2
33522	Major appliance mfg	1.4	1.2	.2	(Z)	(Z)	—	1.3	1.1	.2
335221	Household cooking appliance mfg	.5	.2	.2	—	—	—	.4	.2	.2
335222	Household refrigerator & home freezer mfg	(Z)	(Z)	—	—	—	—	(Z)	(Z)	—
335224	Household laundry equipment mfg	.2	.2	(Z)	(Z)	(Z)	—	.1	.1	(Z)
335228	Other major household appliance mfg	.8	.8	—	—	—	—	.8	.8	—
3353	Electrical equipment mfg	2.3	2.0	.3	.2	.1	.1	2.1	1.8	.2
33531	Electrical equipment mfg	2.3	2.0	.3	.2	.1	.1	2.1	1.8	.2
335311	Power, distribution, & specialty transformer mfg	.7	.6	(Z)	(Z)	—	(Z)	.6	.6	(Z)
335312	Motor & generator mfg	.8	.8	(Z)	(Z)	—	(Z)	.8	.8	—
335313	Switchgear & switchboard apparatus mfg	.7	.5	.2	.1	.1	(Z)	.6	.4	.2
335314	Relay & industrial control mfg	.1	.1	—	(Z)	(Z)	—	.1	.1	—
3359	Other electrical equipment & component mfg	29.1	12.7	16.3	20.2	6.5	13.7	7.1	5.3	1.9
33591	Battery mfg	8.7	4.3	4.5	4.8	2.1	2.7	3.1	1.8	1.2
335911	Storage battery mfg	7.1	2.9	4.2	4.4	2.0	2.4	1.9	.7	1.2
335912	Primary battery mfg	1.6	1.3	.3	.4	.1	.3	1.2	1.2	(Z)
33592	Communication & energy wire & cable mfg	14.0	3.6	10.4	10.6	.5	10.1	3.0	2.6	.3
335921	Fiber optic cable mfg	12.4	2.3	10.1	10.1	—	10.1	2.3	2.3	—
335929	Other communication & energy wire mfg	1.6	1.3	.3	.5	.5	(Z)	.6	.3	.3
33593	Wiring device mfg	.8	.2	.6	.3	.1	.2	.3	(Z)	.3
335931	Current-carrying wiring device mfg	(Z)	(Z)	(Z)	—	—	—	(Z)	—	(Z)
335932	Noncurrent-carrying wiring device mfg	.7	.2	.6	.3	.1	.2	.3	(Z)	.3
33599	All other electrical equipment & component mfg	5.5	4.7	.8	4.5	3.8	.7	.8	.8	—
335991	Carbon & graphite product mfg	5.5	4.7	.8	4.5	3.8	.7	.8	.8	—
335999	All other miscellaneous electrical equipment & component mfg	—	—	—	—	—	—	—	—	—
336	Transportation equipment mfg	134.7	91.3	43.4	74.8	49.9	24.9	46.4	33.2	13.3
3361	Motor vehicle mfg	52.1	36.0	16.0	37.3	25.3	12.0	8.4	7.4	1.0
33611	Automobile & light duty motor vehicle mfg	(D)	35.8	(D)	(D)	25.3	(D)	8.1	(D)	(D)
336111	Automobile mfg	32.3	26.5	5.8	24.8	(D)	(D)	5.3	(D)	(D)
336112	Light truck & utility vehicle mfg	(D)	9.4	(D)	(D)	(D)	(D)	2.7	2.2	.5
33612	Heavy duty truck mfg	(D)	.2	(D)	(D)	—	(D)	.4	(D)	(D)
336120	Heavy duty truck mfg	(D)	.2	(D)	(D)	—	(D)	.4	(D)	(D)
3362	Motor vehicle body & trailer mfg	4.2	2.2	2.1	2.5	.9	1.6	.2	.2	—
33621	Motor vehicle body & trailer mfg	4.2	2.2	2.1	2.5	.9	1.6	.2	.2	—
336211	Motor vehicle body mfg	1.2	(D)	(D)	.7	(D)	(D)	(D)	(D)	—
336212	Truck trailer mfg	.4	(D)	(D)	(D)	—	(D)	(D)	(D)	—
336213	Motor home mfg	2.3	.6	1.6	1.7	(D)	(D)	—	—	—
3363	Motor vehicle parts mfg	39.4	29.4	10.0	21.9	16.5	5.3	14.8	10.7	4.1
33631	Motor vehicle gasoline engine & engine parts mfg	14.8	8.8	5.9	10.9	7.2	3.8	3.5	(D)	(D)
336311	Carburetor, piston, piston ring, & valve mfg	5.7	.7	5.1	3.7	(D)	(D)	(D)	(D)	(D)
336312	Gasoline engine & engine parts mfg	9.0	8.2	.9	7.3	(D)	(D)	(D)	(D)	(D)
33632	Motor vehicle electrical & electronic equipment mfg	3.8	2.8	1.0	2.9	2.0	.9	(D)	(D)	—
336321	Vehicular lighting equipment mfg	.3	.3	—	.3	.3	—	—	—	—
336322	Other motor vehicle electrical & electronic equipment mfg	3.5	2.5	1.0	2.6	1.6	.9	(D)	(D)	—
33633	Motor vehicle steering & suspension component (except spring) mfg	2.3	1.9	.4	(D)	(D)	—	1.9	(D)	(D)
336330	Motor vehicle steering & suspension component (except spring) mfg	2.3	1.9	.4	(D)	(D)	—	1.9	(D)	(D)
33634	Motor vehicle brake system mfg	1.7	1.4	.3	1.1	(D)	(D)	.3	(D)	(D)
336340	Motor vehicle brake system mfg	1.7	1.4	.3	1.1	(D)	(D)	.3	(D)	(D)
33635	Motor vehicle transmission & power train parts mfg	7.1	6.6	.5	1.7	(D)	(D)	5.0	4.6	.4
336350	Motor vehicle transmission & power train parts mfg	7.1	6.6	.5	1.7	(D)	(D)	5.0	4.6	.4
33636	Motor vehicle seating & interior trim mfg	.1	(D)	(D)	—	—	—	(D)	(D)	(D)
336360	Motor vehicle seating & interior trim mfg	.1	(D)	(D)	—	—	—	(D)	(D)	(D)
33637	Motor vehicle metal stamping	.3	(D)	(D)	(D)	(D)	—	.1	(D)	(D)
336370	Motor vehicle metal stamping	.3	(D)	(D)	(D)	(D)	—	.1	(D)	(D)
33639	Other motor vehicle parts mfg	9.3	7.4	1.9	4.8	(D)	(D)	3.9	(D)	(D)
336391	Motor vehicle air-conditioning mfg	1.5	.9	.6	(D)	(D)	(D)	.1	(D)	(D)
336399	All other motor vehicle parts mfg	7.8	6.5	1.3	(D)	(D)	—	3.7	(D)	(D)

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
334	Computer & electronic product mfg—Con.							
3345	Navigational, measuring, medical, & control instruments mfg	.5	.1	.4	(Z)	(Z)	(Z)	64
33451	Navigational, measuring, medical, & control instruments mfg	.5	.1	.4	(Z)	(Z)	(Z)	64
334510	Electromedical & electrotherapeutic apparatus mfg	.1	—	.1	—	—	—	30
334511	Search, detection, navigation, & guidance instrument mfg	—	—	—	—	—	—	58
334513	Industrial process control instrument mfg	—	—	—	—	—	—	98
334514	Totalizing fluid meter & counting device mfg	.2	(Z)	.2	(Z)	(Z)	(Z)	18
334515	Electricity measuring & testing instrument mfg	—	—	—	—	—	—	1
3346	Mfg & reproducing magnetic & optical media	.4	.2	.2	—	—	—	45
33461	Mfg & reproducing magnetic & optical media	.4	.2	.2	—	—	—	45
334612	Prerecorded CD (except software), tape, & record reproducing	—	—	—	—	—	—	1
334613	Magnetic & optical recording media mfg	.4	.2	.2	—	—	—	45
335	Electrical equipment, appliance, & component mfg	2.2	(D)	(D)	(Z)	(D)	(D)	8
3351	Electric lighting equipment mfg	.2	.2	—	(Z)	(Z)	—	67
33511	Electric lamp bulb & part mfg	.2	.2	—	(Z)	—	—	71
335110	Electric lamp bulb & part mfg	.2	.2	—	(Z)	—	—	71
33512	Lighting fixture mfg	—	—	—	(Z)	(Z)	—	7
335129	Other lighting equipment mfg	—	—	—	(Z)	(Z)	—	7
3352	Household appliance mfg	.1	.1	(Z)	—	—	—	48
33522	Major appliance mfg	.1	.1	—	—	—	—	50
335221	Household cooking appliance mfg	.1	.1	—	—	—	—	36
335222	Household refrigerator & home freezer mfg	—	—	—	—	—	—	1
335224	Household laundry equipment mfg	—	—	—	—	—	—	10
335228	Other major household appliance mfg	—	—	—	—	—	—	87
3353	Electrical equipment mfg	.1	.1	(Z)	(Z)	(Z)	—	35
33531	Electrical equipment mfg	.1	.1	(Z)	(Z)	(Z)	—	35
335311	Power, distribution, & specialty transformer mfg	.1	.1	(Z)	(Z)	—	—	34
335312	Motor & generator mfg	—	—	—	(Z)	(Z)	—	79
335313	Switchgear & switchboard apparatus mfg	—	—	—	—	—	—	56
335314	Relay & industrial control mfg	—	—	—	—	—	—	63
3359	Other electrical equipment & component mfg	1.7	(D)	(D)	(Z)	(D)	(D)	9
33591	Battery mfg	(D)	(D)	.6	(D)	(D)	—	22
335911	Storage battery mfg	.8	.2	.6	—	—	—	26
335912	Primary battery mfg	(D)	(D)	(Z)	(D)	(D)	—	5
33592	Communication & energy wire & cable mfg	.5	.5	—	—	—	—	5
335921	Fiber optic cable mfg	(Z)	(Z)	—	—	—	—	1
335929	Other communication & energy wire mfg	.4	.4	—	—	—	—	41
33593	Wiring device mfg	(D)	(D)	(D)	(D)	(D)	(D)	31
335931	Current-carrying wiring device mfg	—	—	—	(Z)	(Z)	—	45
335932	Noncurrent-carrying wiring device mfg	(D)	(D)	(D)	(D)	(D)	(D)	32
33599	All other electrical equipment & component mfg	.3	.2	.1	—	—	—	25
335991	Carbon & graphite product mfg	.3	.2	.1	—	—	—	25
335999	All other miscellaneous electrical equipment & component mfg	—	—	—	—	—	—	1
336	Transportation equipment mfg	11.0	6.8	4.2	2.6	1.5	1.0	6
3361	Motor vehicle mfg	5.4	3.0	2.4	.9	.4	.6	9
33611	Automobile & light duty motor vehicle mfg	(D)	(D)	(D)	.9	.4	.6	(X)
336111	Automobile mfg	(D)	(D)	(D)	(D)	(D)	—	14
336112	Light truck & utility vehicle mfg	3.5	(D)	(D)	(D)	(D)	.6	(X)
33612	Heavy duty truck mfg	(D)	(D)	(D)	(Z)	(Z)	—	(X)
336120	Heavy duty truck mfg	(D)	(D)	(D)	(Z)	(Z)	—	(X)
3362	Motor vehicle body & trailer mfg	1.5	1.0	.5	—	—	—	37
33621	Motor vehicle body & trailer mfg	1.5	1.0	.5	—	—	—	37
336211	Motor vehicle body mfg	(D)	(D)	—	—	—	—	78
336212	Truck trailer mfg	(D)	—	(D)	—	—	—	46
336213	Motor home mfg	.6	(D)	(D)	—	—	—	53
3363	Motor vehicle parts mfg	2.4	(D)	(D)	.3	(D)	(D)	13
33631	Motor vehicle gasoline engine & engine parts mfg	(D)	(D)	(D)	(D)	—	(D)	12
336311	Carburetor, piston, piston ring, & valve mfg	(D)	(D)	(D)	(D)	—	(D)	28
336312	Gasoline engine & engine parts mfg	(D)	(D)	—	—	—	—	10
33632	Motor vehicle electrical & electronic equipment mfg	.8	.8	.1	(D)	(D)	—	62
336321	Vehicular lighting equipment mfg	—	—	—	—	—	—	69
336322	Other motor vehicle electrical & electronic equipment mfg	.8	.8	.1	(D)	(D)	—	68
33633	Motor vehicle steering & suspension component (except spring) mfg	(D)	(Z)	(D)	—	—	—	8
336330	Motor vehicle steering & suspension component (except spring) mfg	(D)	(Z)	(D)	—	—	—	8
33634	Motor vehicle brake system mfg	(D)	(D)	—	(D)	—	(D)	19
336340	Motor vehicle brake system mfg	(D)	(D)	—	(D)	—	(D)	19
33635	Motor vehicle transmission & power train parts mfg	.4	(D)	(D)	—	—	—	6
336350	Motor vehicle transmission & power train parts mfg	.4	(D)	(D)	—	—	—	6
33636	Motor vehicle seating & interior trim mfg	(D)	(D)	—	—	—	—	44
336360	Motor vehicle seating & interior trim mfg	(D)	(D)	—	—	—	—	44
33637	Motor vehicle metal stamping	(D)	(D)	—	—	—	—	44
336370	Motor vehicle metal stamping	(D)	(D)	—	—	—	—	44
33639	Other motor vehicle parts mfg	.6	(D)	(D)	—	—	—	42
336391	Motor vehicle air-conditioning mfg	(D)	(D)	(D)	—	—	—	4
336399	All other motor vehicle parts mfg	(D)	(D)	(D)	—	—	—	50

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
336	Transportation equipment mfg—Con.									
3364	Aerospace product & parts mfg	27.6	17.2	10.3	8.8	4.0	4.8	16.7	11.7	5.0
33641	Aerospace product & parts mfg	27.6	17.2	10.3	8.8	4.0	4.8	16.7	11.7	5.0
336411	Aircraft mfg	14.2	11.3	2.8	3.0	2.5	4	9.8	7.6	2.1
336412	Aircraft engine & engine parts mfg	1.9	.8	1.1	1.1	.2	1.0	.7	.6	.1
336413	Other aircraft part & auxiliary equipment mfg	9.1	4.6	4.4	3.7	1.1	2.6	5.0	3.2	1.8
336414	Guided missile & space vehicle mfg	1.1	.1	1.0	.1	(Z)	.1	1.0	.1	.9
336415	Guided missile & space vehicle propulsion unit & parts mfg	1.4	.4	1.0	.9	.1	.7	.2	.1	(Z)
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	—	—	—	—	—	—	—	—	—
3365	Railroad rolling stock mfg	1.6	1.5	.1	1.5	1.4	.1	(D)	(D)	—
33651	Railroad rolling stock mfg	1.6	1.5	.1	1.5	1.4	.1	(D)	(D)	—
336510	Railroad rolling stock mfg	1.6	1.5	.1	1.5	1.4	.1	(D)	(D)	—
3366	Ship & boat building	8.6	4.0	4.6	1.9	1.0	.9	5.8	2.8	3.0
33661	Ship & boat building	8.6	4.0	4.6	1.9	1.0	.9	5.8	2.8	3.0
336611	Ship building & repairing	6.2	3.3	2.9	.5	.5	—	(D)	2.8	(D)
336612	Boat building	2.4	.7	1.7	1.5	.6	.9	(D)	—	(D)
3369	Other transportation equipment mfg	1.4	1.0	.3	.9	.7	.2	(D)	(D)	.1
33699	Other transportation equipment mfg	1.4	1.0	.3	.9	.7	.2	(D)	(D)	.1
336999	All other transportation equipment mfg	1.3	1.0	.3	.8	.6	.2	(D)	(D)	.1
337	Furniture & related product mfg	35.0	10.2	24.9	31.3	7.1	24.2	(D)	(D)	(D)
3371	Household & institutional furniture & kitchen cabinet mfg	14.8	7.9	6.9	11.8	5.2	6.6	.4	(D)	(D)
33711	Wood kitchen cabinet & counter top mfg	3.3	2.6	.7	2.7	2.1	.5	(Z)	(Z)	—
337110	Wood kitchen cabinet & counter top mfg	3.3	2.6	.7	2.7	2.1	.5	(Z)	(Z)	—
33712	Household & institutional furniture mfg	11.5	5.2	6.3	9.2	3.1	6.1	.4	(D)	(D)
337121	Upholstered household furniture mfg	1.0	.1	.9	1.0	.1	.9	—	—	—
337122	Nonupholstered wood household furniture mfg	8.1	3.1	5.0	6.1	1.4	4.8	.1	(D)	(D)
337124	Metal household furniture mfg	1.7	1.7	—	1.4	1.4	—	.2	.2	—
337127	Institutional furniture mfg	.7	.3	.4	.6	.2	.4	(Z)	(Z)	—
3372	Office furniture (including fixtures) mfg	20.1	2.2	17.9	19.4	(D)	(D)	.4	(D)	(D)
33721	Office furniture (including fixtures) mfg	20.1	2.2	17.9	19.4	(D)	(D)	.4	(D)	(D)
337211	Wood office furniture mfg	1.0	1.0	—	1.0	1.0	—	(D)	(D)	—
337212	Custom architectural woodwork & millwork mfg	.5	.5	.1	.3	(D)	(D)	(D)	(D)	—
337214	Office furniture (except wood) mfg	18.0	.5	17.5	17.9	.5	17.4	.1	(D)	(D)
337215	Showcase, partition, shelving, & locker mfg	.6	.3	.3	.3	(D)	(D)	.1	(D)	(D)
3379	Other furniture related product mfg	.1	.1	(Z)	.1	(D)	(D)	(D)	(D)	(D)
33792	Blind & shade mfg	.1	.1	(Z)	.1	(D)	(D)	(D)	(D)	(D)
337920	Blind & shade mfg	.1	.1	(Z)	.1	(D)	(D)	(D)	(D)	(D)
339	Miscellaneous mfg	11.5	6.3	5.1	5.5	4.2	1.3	3.9	.8	3.1
3391	Medical equipment & supplies mfg	2.0	.9	1.1	.9	(D)	(D)	.9	.2	.6
33911	Medical equipment & supplies mfg	2.0	.9	1.1	.9	(D)	(D)	.9	.2	.6
339112	Surgical & medical instrument mfg	1.1	.1	1.0	(D)	(D)	(D)	.7	(D)	(D)
339113	Surgical appliance & supplies mfg	.4	.4	(Z)	(D)	(D)	(D)	.2	(D)	(D)
339115	Ophthalmic goods mfg	—	—	—	—	—	—	—	—	—
3399	Other miscellaneous mfg	9.5	5.4	4.1	4.6	(D)	(D)	3.0	.6	2.4
33991	Jewelry & silverware mfg	.8	.1	.7	(Z)	(D)	(D)	.5	(D)	(D)
339911	Jewelry (except costume) mfg	(D)	(D)	(D)	—	—	—	(D)	(D)	(D)
33992	Sporting & athletic goods mfg	1.0	.7	.3	.4	(D)	(D)	.1	(D)	(D)
339920	Sporting & athletic goods mfg	1.0	.7	.3	.4	(D)	(D)	.1	(D)	(D)
33994	Office supplies (except paper) mfg	(Z)	—	(Z)	(Z)	—	(Z)	—	—	—
33995	Sign mfg	.8	.3	.5	.5	—	.5	(Z)	(Z)	—
339950	Sign mfg	.8	.3	.5	.5	—	.5	(Z)	(Z)	—
33999	All other miscellaneous mfg	6.7	4.4	2.3	3.6	(D)	(D)	2.4	.5	1.9
339991	Gasket, packing, & sealing device mfg	1.5	.6	1.0	.2	.2	—	1.2	.3	.9
339992	Musical instrument mfg	3.3	3.2	.1	3.1	2.9	.1	(Z)	(Z)	(Z)
339993	Fastener, button, needle, & pin mfg	.5	.1	.4	(Z)	(D)	(D)	.3	(D)	(D)
339999	All other miscellaneous mfg	1.2	.4	.8	.3	.3	(Z)	.8	(D)	(D)

See footnote at end of table.

Table 4a. Pollution Abatement Capital Expenditures by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement capital expenditure are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PACE)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
336	Transportation equipment mfg—Con.							
3364	Aerospace product & parts mfg	.9	(D)	(D)	1.2	(D)	(D)	7
33641	Aerospace product & parts mfg	.9	(D)	(D)	1.2	(D)	(D)	7
336411	Aircraft mfg	.3	(D)	(D)	1.2	(D)	(D)	8
336412	Aircraft engine & engine parts mfg	—	—	—	—	—	—	9
336413	Other aircraft part & auxiliary equipment mfg	.4	.3	.1	—	—	—	17
336414	Guided missile & space vehicle mfg	(Z)	(Z)	—	—	—	—	25
336415	Guided missile & space vehicle propulsion unit & parts mfg	.3	.1	.2	—	—	—	1
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	—	—	—	—	—	—	1
3365	Railroad rolling stock mfg	(D)	(D)	—	—	—	—	39
33651	Railroad rolling stock mfg	(D)	(D)	—	—	—	—	39
336510	Railroad rolling stock mfg	(D)	(D)	—	—	—	—	39
3366	Ship & boat building	(D)	(D)	(D)	(D)	(D)	(D)	27
33661	Ship & boat building	(D)	(D)	(D)	(D)	(D)	(D)	27
336611	Ship building & repairing	(D)	(D)	(D)	(D)	(D)	—	35
336612	Boat building	.7	(D)	(D)	(D)	(D)	(D)	32
3369	Other transportation equipment mfg	(D)	(D)	—	(D)	(D)	—	2
33699	Other transportation equipment mfg	(D)	(D)	—	(D)	(D)	—	2
336999	All other transportation equipment mfg	(D)	(D)	—	(D)	(D)	—	2
337	Furniture & related product mfg	1.8	1.3	.4	(D)	(D)	(D)	7
3371	Household & institutional furniture & kitchen cabinet mfg	1.4	(D)	(D)	1.2	(D)	(D)	16
33711	Wood kitchen cabinet & counter top mfg	.6	.5	.1	(Z)	—	(Z)	46
337110	Wood kitchen cabinet & counter top mfg	.6	.5	.1	(Z)	—	(Z)	46
33712	Household & institutional furniture mfg	.8	(D)	(D)	1.1	(D)	(D)	16
337121	Upholstered household furniture mfg	—	—	—	—	—	—	86
337122	Nonupholstered wood household furniture mfg	.7	(D)	(D)	1.1	(D)	(D)	19
337124	Metal household furniture mfg	(Z)	(Z)	—	—	—	—	13
337127	Institutional furniture mfg	.1	(Z)	(Z)	—	—	—	41
3372	Office furniture (including fixtures) mfg	(D)	(D)	(D)	(D)	(D)	—	4
33721	Office furniture (including fixtures) mfg	(D)	(D)	(D)	(D)	(D)	—	4
337211	Wood office furniture mfg	(D)	(D)	—	—	—	—	60
337212	Custom architectural woodwork & millwork mfg	(D)	(Z)	(D)	—	—	—	63
337214	Office furniture (except wood) mfg	(Z)	(D)	(D)	—	—	—	3
337215	Showcase, partition, shelving, & locker mfg	.2	(D)	(D)	(D)	(D)	—	21
3379	Other furniture related product mfg	(D)	—	(D)	—	—	—	16
33792	Blind & shade mfg	(D)	—	(D)	—	—	—	16
337920	Blind & shade mfg	(D)	—	(D)	—	—	—	16
339	Miscellaneous mfg	1.4	(D)	(D)	.7	(D)	(D)	26
3391	Medical equipment & supplies mfg	(D)	(D)	(D)	(D)	(D)	—	25
33911	Medical equipment & supplies mfg	(D)	(D)	(D)	(D)	(D)	—	25
339112	Surgical & medical instrument mfg	(D)	(D)	—	—	—	—	43
339113	Surgical appliance & supplies mfg	(D)	(D)	(D)	—	—	—	4
339115	Ophthalmic goods mfg	—	—	—	—	—	—	1
3399	Other miscellaneous mfg	(D)	(D)	(D)	(D)	(D)	(D)	31
33991	Jewelry & silverware mfg	—	—	—	.3	—	.3	12
339911	Jewelry (except costume) mfg	—	—	—	—	—	—	(X)
33992	Sporting & athletic goods mfg	.5	(D)	(D)	—	—	—	38
339920	Sporting & athletic goods mfg	.5	(D)	(D)	—	—	—	38
33994	Office supplies (except paper) mfg	—	—	—	—	—	—	63
33995	Sign mfg	—	—	—	.3	.3	—	67
339950	Sign mfg	—	—	—	.3	.3	—	67
33999	All other miscellaneous mfg	(D)	.4	(D)	(D)	(D)	(D)	42
339991	Gasket, packing, & sealing device mfg	.1	(Z)	.1	—	—	—	30
339992	Musical instrument mfg	.3	—	—	—	—	—	80
339993	Fastener, button, needle, & pin mfg	(D)	—	(D)	(D)	—	(D)	36
339999	All other miscellaneous mfg	(D)	.1	(D)	(D)	(D)	—	51

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
	All industries	11 864.4	8 924.9	2 939.5	5 069.1	3 941.2	1 127.9	4 586.5	3 511.8	1 074.6
21	Mining	458.9	429.0	29.9	180.7	173.7	7.0	208.8	194.5	14.3
211	Oil & gas extraction	146.9	136.2	10.7	58.2	53.0	5.2	72.1	67.8	4.3
21111	Oil & gas extraction	146.9	136.2	10.7	58.2	53.0	5.2	72.1	67.8	4.3
211111	Oil & gas extraction	146.9	136.2	10.7	58.2	53.0	5.2	72.1	67.8	4.3
2111111	Crude petroleum & natural gas extraction	125.5	120.0	5.5	45.4	44.1	1.2	66.2	62.8	3.4
2111112	Natural gas liquid extraction	21.4	16.1	5.3	12.8	8.8	4.0	5.9	5.0	.9
212	Mining (except oil & gas)	305.1	287.4	17.7	121.8	120.2	1.6	131.5	122.5	8.9
2121	Coal mining	113.1	110.7	2.4	31.8	31.8	-	54.4	53.0	1.4
21211	Coal mining	113.1	110.7	2.4	31.8	31.8	-	54.4	53.0	1.4
212111	Bituminous coal & lignite surface mining	79.6	78.7	.9	29.2	29.2	-	40.0	40.0	-
212112	Bituminous coal underground mining	33.1	31.6	1.5	2.6	2.6	-	14.1	12.7	1.4
2122	Metal ore mining	82.9	70.1	12.8	26.2	(D)	(D)	42.4	36.5	5.9
21221	Iron ore mining	37.8	37.6	.2	8.8	8.7	.1	23.6	23.6	-
212210	Iron ore mining	37.8	37.6	.2	8.8	8.7	.1	23.6	23.6	-
21222	Gold ore & silver ore mining	12.2	(D)	(D)	4.6	(D)	(D)	5.8	(D)	(D)
212221	Gold ore mining	12.0	9.9	2.2	(D)	(D)	(D)	5.7	(D)	(D)
21223	Copper, nickel, lead, & zinc mining	25.4	15.8	9.6	11.8	(D)	(D)	8.1	3.6	4.4
212231	Lead ore & zinc ore mining	10.8	2.5	8.3	1.3	(D)	(D)	(D)	(D)	3.9
212234	Copper ore & nickel ore mining	14.6	13.3	1.3	10.4	9.7	.7	(D)	(D)	.5
21229	Other metal ore mining	7.5	(D)	(D)	1.1	(D)	(D)	4.9	(D)	(D)
212299	All other metal ore mining	7.1	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
2123	Nonmetallic mineral mining & quarrying	109.1	106.6	2.5	63.8	(D)	(D)	34.6	33.0	1.6
21231	Stone mining & quarrying	53.1	52.7	.4	33.7	(D)	(D)	15.5	15.3	.2
212312	Crushed & broken limestone mining & quarrying	28.4	28.0	.4	19.2	19.0	.2	8.6	8.4	.2
212313	Crushed & broken granite mining & quarrying	17.5	(D)	(D)	11.1	11.1	-	5.6	5.6	-
212319	Other crushed & broken stone mining & quarrying	7.1	(D)	(D)	3.3	(D)	(D)	1.4	1.4	-
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	28.6	26.6	2.0	17.1	(D)	(D)	10.9	9.5	1.4
212321	Construction sand & gravel mining	14.8	14.7	.1	10.0	10.0	-	(D)	(D)	-
212322	Industrial sand mining	2.2	(D)	(D)	1.3	(D)	(D)	(D)	(D)	(Z)
212324	Kaolin & ball clay mining	5.7	(D)	(D)	3.0	3.0	-	2.6	2.6	-
212325	Clay & ceramic & refractory minerals mining	6.0	4.1	1.8	2.8	2.4	.4	2.8	1.4	1.4
21239	Other nonmetallic mineral mining & quarrying	27.4	27.3	.2	13.0	(D)	(D)	8.2	8.1	(Z)
212391	Potash, soda, & borate mineral mining	5.1	5.0	(Z)	2.3	(D)	(D)	2.3	(D)	(D)
212392	Phosphate rock mining	17.1	17.1	(Z)	6.8	6.8	-	4.9	4.9	-
212393	Other chemical & fertilizer mineral mining	1.1	1.1	(Z)	.7	.7	-	.2	.2	-
212399	All other nonmetallic mineral mining	4.1	4.1	.1	3.2	(D)	(D)	.8	(D)	(D)
213	Support activities for mining	6.9	5.4	1.4	.7	.5	.2	5.3	4.2	1.2
2131	Support activities for mining	6.9	5.4	1.4	.7	.5	.2	5.3	4.2	1.2
21311	Support activities for mining	6.9	5.4	1.4	.7	.5	.2	5.3	4.2	1.2
213112	Support activities for oil & gas operations	3.0	2.7	.3	.3	.1	.2	2.3	(D)	(D)
213114	Support activities for metal mining	3.1	(D)	(D)	(D)	(D)	-	2.6	(D)	(D)
22111	Electric power generation	1 163.8	1 132.5	31.4	910.1	894.9	15.2	99.9	94.2	5.7
221111	Hydroelectric power generation	15.4	15.4	.1	7.1	7.0	.1	2.5	2.5	-
221112	Fossil fuel electric power generation	1 033.4	1 014.2	19.2	843.6	830.2	13.4	79.5	74.6	4.8
221113	Nuclear electric power generation	68.1	65.9	2.2	23.0	22.8	.2	16.5	15.6	.9
221119	Other electric power generation	46.9	37.0	9.9	36.4	34.9	1.5	1.5	1.5	-
31-33	Manufacturing	10 240.3	7 362.8	2 877.4	3 977.5	2 872.3	1 105.1	4 277.4	3 222.9	1 054.5
311	Food mfg	924.3	880.9	43.4	105.2	100.6	4.7	699.3	668.1	31.2
3111	Animal food mfg	12.3	12.0	.3	5.9	5.8	(Z)	5.2	(D)	(D)
31111	Animal food mfg	12.3	12.0	.3	5.9	5.8	(Z)	5.2	(D)	(D)
311111	Dog & cat food mfg	8.1	7.9	.2	2.7	2.7	-	4.6	(D)	(D)
311119	Other animal food mfg	4.2	4.1	.1	3.2	3.2	(Z)	.6	.6	(Z)
3112	Grain & oilseed milling	118.4	114.7	3.7	34.5	31.4	3.2	74.1	(D)	(D)
31121	Flour milling & malt mfg	13.0	12.8	.2	7.6	(D)	(D)	4.4	(D)	(D)
311211	Flour milling	5.4	5.2	.2	4.5	4.4	.1	(D)	.2	(D)
311212	Rice milling	5.3	(D)	(D)	2.8	(D)	(D)	(D)	2.1	(D)
311213	Malt mfg	2.3	(D)	(D)	.2	.2	-	(D)	(D)	-
31122	Starch & vegetable fats & oils mfg	91.1	87.8	3.3	22.2	19.2	3.0	62.5	(D)	(D)
311221	Wet corn milling	57.4	56.3	1.1	11.5	10.5	1.0	44.1	44.0	.1
311222	Soybean processing	21.7	20.1	1.6	8.7	7.2	1.5	10.9	(D)	(D)
311223	Other oilseed processing	2.1	1.9	.2	1.2	1.0	.2	.8	.8	-
311225	Fats & oils refining & blending	9.8	9.4	.4	.9	.6	.3	6.7	6.7	(Z)
31123	Breakfast cereal mfg	14.3	14.1	.2	4.8	(D)	(D)	7.2	7.2	-
311230	Breakfast cereal mfg	14.3	14.1	.2	4.8	(D)	(D)	7.2	7.2	-
3113	Sugar & confectionery product mfg	59.8	58.2	1.6	15.5	14.7	.8	27.3	27.2	(Z)
31131	Sugar mfg	44.6	43.6	1.0	12.9	12.1	.8	19.2	19.1	(Z)
311311	Sugarcane mills	6.0	5.4	.6	2.6	2.0	.6	2.4	(D)	(D)
311312	Cane sugar refining	4.8	4.8	(Z)	.7	.7	-	2.6	(D)	(D)
311313	Beet sugar mfg	33.8	33.5	.3	9.6	9.4	.2	14.1	14.1	-
31132	Chocolate & confectionery mfg from cacao beans	4.7	4.3	.4	.7	.6	(Z)	2.7	2.7	-
311320	Chocolate & confectionery mfg from cacao beans	4.7	4.3	.4	.7	.6	(Z)	2.7	2.7	-
31133	Confectionery mfg from purchased chocolate	6.8	6.7	.1	.5	.5	-	4.1	4.1	-
311330	Confectionery mfg from purchased chocolate	6.8	6.7	.1	.5	.5	-	4.1	4.1	-
31134	Nonchocolate confectionery mfg	3.7	3.6	.1	1.4	1.4	-	1.3	1.3	(Z)
311340	Nonchocolate confectionery mfg	3.7	3.6	.1	1.4	1.4	-	1.3	1.3	(Z)

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
	All industries	2 013.3	1 320.4	692.9	195.5	151.5	44.0	3
21	Mining	67.1	58.8	8.3	2.2	2.1	.2	6
211	Oil & gas extraction	16.0	14.8	1.2	.6	.6	.1	7
2111	Oil & gas extraction	16.0	14.8	1.2	.6	.6	.1	7
21111	Oil & gas extraction	16.0	14.8	1.2	.6	.6	.1	7
211111	Crude petroleum & natural gas extraction	13.4	12.6	.8	.5	.5	.1	7
211112	Natural gas liquid extraction	2.6	2.2	.4	.1	.1	—	27
212	Mining (except oil & gas)	50.2	43.2	7.0	1.6	1.5	.1	8
2121	Coal mining	26.5	25.5	1.0	.3	.3	—	18
21211	Coal mining	26.5	25.5	1.0	.3	.3	—	18
212111	Bituminous coal & lignite surface mining	10.2	9.2	.9	.3	.3	—	23
212112	Bituminous coal underground mining	16.3	16.3	.1	(Z)	(Z)	—	26
2122	Metal ore mining	13.0	(D)	(D)	1.2	(D)	(D)	5
21221	Iron ore mining	5.4	5.3	.1	—	—	—	4
212210	Iron ore mining	5.4	5.3	.1	—	—	—	4
21222	Gold ore & silver ore mining	(D)	(D)	(D)	(D)	—	(D)	29
212221	Gold ore mining	(D)	(D)	(D)	(D)	—	(D)	29
21223	Copper, nickel, lead, & zinc mining	(D)	(D)	(D)	(D)	(D)	—	4
212231	Lead ore & zinc ore mining	(D)	(D)	(D)	—	—	—	3
212234	Copper ore & nickel ore mining	(D)	(D)	.1	(D)	(D)	—	7
21229	Other metal ore mining	(D)	(D)	(D)	(D)	(D)	(D)	2
212299	All other metal ore mining	(D)	(D)	(D)	(D)	(D)	(D)	2
2123	Nonmetallic mineral mining & quarrying	10.7	(D)	(D)	.1	(D)	(D)	9
21231	Stone mining & quarrying	(D)	(D)	(D)	(D)	(D)	—	10
212312	Crushed & broken limestone mining & quarrying	(D)	(D)	—	(D)	(D)	—	17
212313	Crushed & broken granite mining & quarrying	(D)	(D)	(D)	(D)	(D)	—	7
212319	Other crushed & broken stone mining & quarrying	2.5	(D)	(D)	—	—	—	12
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	(D)	(D)	(D)	(D)	—	(D)	20
212321	Construction sand & gravel mining	(D)	(D)	(D)	(D)	—	(D)	34
212322	Industrial sand mining	(D)	(D)	(D)	—	—	—	31
212324	Kaolin & ball clay mining	(Z)	(D)	(D)	—	—	—	26
212325	Clay & ceramic & refractory minerals mining .....	.3	.3	(Z)	—	—	—	32
21239	Other nonmetallic mineral mining & quarrying	6.3	(D)	(D)	—	—	—	19
212391	Potash, soda, & borate mineral mining .....	.5	(D)	(D)	—	—	—	17
212392	Phosphate rock mining	5.3	5.3	(Z)	—	—	—	29
212393	Other chemical & fertilizer mineral mining .....	.2	(Z)	(Z)	—	—	—	10
212399	All other nonmetallic mineral mining .....	.2	(D)	(D)	—	—	—	10
213	Support activities for mining .....	.8	.8	.1	—	—	—	24
2131	Support activities for mining .....	.8	.8	.1	—	—	—	24
21311	Support activities for mining .....	.8	.8	.1	—	—	—	24
213112	Support activities for oil & gas operations .....	.4	(D)	(D)	—	—	—	54
213114	Support activities for metal mining	(D)	(D)	(D)	—	—	—	2
22111	Electric power generation	127.1	116.8	10.3	26.7	26.6	.1	22
221111	Hydroelectric power generation	5.8	5.8	(Z)	.1	.1	—	27
221112	Fossil fuel electric power generation	109.5	108.6	.8	.8	.8	.1	24
221113	Nuclear electric power generation	2.9	1.8	1.1	25.8	25.8	—	3
221119	Other electric power generation	9.0	.6	8.4	(Z)	(Z)	—	30
31-33	Manufacturing	1 818.8	1 144.8	674.0	166.6	122.8	43.8	2
311	Food mfg	113.9	108.4	5.5	5.9	3.8	2.0	16
3111	Animal food mfg	1.2	1.0	.2	(Z)	(D)	(D)	19
31111	Animal food mfg	1.2	1.0	.2	(Z)	(D)	(D)	19
311111	Dog & cat food mfg .....	.8	.7	.2	(Z)	(D)	(D)	25
311119	Other animal food mfg .....	.3	.3	(Z)	—	—	—	29
3112	Grain & oilseed milling	8.6	(D)	(D)	1.1	(D)	(D)	5
31121	Flour milling & malt mfg	1.0	(D)	(D)	—	—	—	22
311211	Flour milling	(D)	.6	(D)	—	—	—	44
311212	Rice milling	(D)	(D)	—	—	—	—	29
311213	Malt mfg	(D)	(D)	(D)	—	—	—	20
31122	Starch & vegetable fats & oils mfg	5.2	(D)	(D)	1.1	(D)	(D)	5
311221	Wet corn milling	(D)	(D)	(Z)	(D)	(D)	(D)	6
311222	Soybean processing	(D)	(D)	(D)	(D)	(D)	(D)	13
311223	Other oilseed processing .....	.1	.1	(Z)	—	—	—	27
311225	Fats & oils refining & blending	1.2	1.2	.1	.9	.9	—	11
31123	Breakfast cereal mfg	2.4	(D)	(D)	—	—	—	3
311230	Breakfast cereal mfg	2.4	(D)	(D)	—	—	—	3
3113	Sugar & confectionery product mfg	17.0	16.2	.8	.2	.1	(Z)	8
31131	Sugar mfg	12.4	12.2	.2	.1	.1	—	10
311311	Sugarcane mills	1.0	(D)	(D)	—	—	—	22
311312	Cane sugar refining	1.4	(D)	(D)	.1	.1	—	2
311313	Beet sugar mfg	10.0	9.9	.1	—	—	—	13
31132	Chocolate & confectionery mfg from cacao beans ..	1.4	1.0	.4	—	—	—	17
311320	Chocolate & confectionery mfg from cacao beans	1.4	1.0	.4	—	—	—	17
31133	Confectionery mfg from purchased chocolate	2.2	2.1	.1	(Z)	—	(Z)	2
311330	Confectionery mfg from purchased chocolate	2.2	2.1	.1	(Z)	—	(Z)	2
31134	Nonchocolate confectionery mfg	1.0	.9	.1	—	—	—	9
311340	Nonchocolate confectionery mfg	1.0	.9	.1	—	—	—	9

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
311	Food mfg—Con.									
3114	Fruit & vegetable preserving & specialty food mfg	281.9	274.9	7.1	3.4	3.3	(Z)	244.5	239.0	5.5
31141	Frozen food mfg	48.2	46.7	1.4	1.4	1.4	(Z)	39.5	38.7	.8
311411	Frozen fruit, juice, & vegetable mfg	37.1	36.5	.6	1.3	1.3	(Z)	31.9	31.5	.4
311412	Frozen specialty food mfg	11.1	10.2	.8	.1	.1	(Z)	7.5	7.2	.4
31142	Fruit & vegetable canning, pickling, & drying	233.8	228.1	5.6	2.0	2.0	(Z)	205.1	200.3	4.8
311421	Fruit & vegetable canning	221.3	216.4	4.8	1.7	1.7	(Z)	197.7	193.4	4.3
311422	Specialty canning	8.3	7.6	.7	.2	.2	(Z)	4.9	4.5	.4
311423	Dried & dehydrated food mfg	4.2	4.1	.1	.1	.1	(Z)	2.5	2.5	.1
3115	Dairy product mfg	90.1	77.9	12.2	3.4	3.4	(Z)	75.2	65.1	10.1
31151	Dairy product (except frozen) mfg	77.2	65.2	12.1	3.4	3.4	(Z)	63.9	53.8	10.1
311511	Fluid milk mfg	14.7	11.2	3.6	(D)	(D)	(Z)	13.6	10.1	3.5
311513	Cheese mfg	47.4	40.0	7.4	(D)	(D)	(Z)	38.6	32.9	5.7
311514	Dry, condensed, & evaporated dairy product mfg	14.2	13.1	1.1	2.0	2.0	(Z)	11.0	10.0	1.0
31152	Ice cream & frozen dessert mfg	12.8	12.7	.1	(Z)	(Z)	(Z)	11.3	11.3	(Z)
311520	Ice cream & frozen dessert mfg	12.8	12.7	.1	(Z)	(Z)	(Z)	11.3	11.3	(Z)
3116	Meat product mfg	267.3	253.0	14.3	25.2	25.1	.1	212.3	199.4	12.9
31161	Animal slaughtering & processing	267.3	253.0	14.3	25.2	25.1	.1	212.3	199.4	12.9
311611	Animal (except poultry) slaughtering	58.1	57.0	1.1	5.6	5.6	.1	43.7	42.7	.9
311612	Meat processed from carcasses	21.2	21.1	.1	1.3	1.3	(Z)	17.2	17.2	.1
311613	Rendering & meat byproduct processing	40.4	40.1	.3	14.9	14.9	(Z)	22.2	22.2	—
311615	Poultry processing	147.6	134.8	12.8	3.3	3.3	(Z)	129.2	117.3	11.9
3117	Seafood product preparation & packaging	5.4	4.1	1.3	.2	.2	(Z)	3.6	3.0	.6
31171	Seafood product preparation & packaging	5.4	4.1	1.3	.2	.2	(Z)	3.6	3.0	.6
311712	Fresh & frozen seafood processing	4.8	3.5	1.3	.2	.2	(Z)	3.1	2.5	.6
3118	Bakeries & tortilla mfg	22.0	21.6	.5	3.8	3.6	.2	15.2	15.2	—
31181	Bread & bakery product mfg	13.9	13.8	.1	1.6	1.6	(Z)	10.4	10.4	—
311812	Commercial bakeries	11.5	11.4	.1	1.6	1.6	(Z)	8.7	8.7	—
311813	Frozen cakes, pies, & other pastries mfg	2.4	2.4	(Z)	(Z)	(Z)	(Z)	1.8	1.8	—
31182	Cookie, cracker, & pasta mfg	7.3	6.9	.3	2.2	2.0	.2	4.0	4.0	—
311821	Cookie & cracker mfg	4.6	4.3	.3	1.7	1.6	.1	2.3	2.3	—
311822	Flour mixes & dough mfg from purchased flour	2.6	2.5	(Z)	.3	.3	(Z)	1.7	1.7	—
3119	Other food mfg	67.0	64.5	2.5	13.4	13.1	.3	41.9	40.2	1.7
31191	Snack food mfg	25.8	25.6	.1	8.6	8.6	(Z)	11.6	11.5	(Z)
311911	Roasted nuts & peanut butter mfg	2.0	1.9	.1	.5	.5	(Z)	1.2	1.2	(Z)
311919	Other snack food mfg	23.8	23.7	(Z)	8.1	8.1	(Z)	10.3	10.3	—
31192	Coffee & tea mfg	4.6	4.5	.2	2.2	2.2	(Z)	1.7	1.6	.1
311920	Coffee & tea mfg	4.6	4.5	.2	2.2	2.2	(Z)	1.7	1.6	.1
31193	Flavoring syrup & concentrate mfg	2.6	2.5	(Z)	(D)	(D)	(Z)	.6	.6	—
311930	Flavoring syrup & concentrate mfg	2.6	2.5	(Z)	(D)	(D)	(Z)	.6	.6	—
31194	Seasoning & dressing mfg	10.4	10.0	.5	.3	.3	.1	8.6	8.4	.2
311941	Mayonnaise, dressing, & other prepared sauce mfg	7.2	7.0	.3	.1	(Z)	.1	6.3	6.2	.2
311942	Spice & extract mfg	3.2	3.0	.2	.3	.2	(Z)	2.3	2.2	.1
31199	All other food mfg	23.6	21.9	1.7	(D)	(D)	.3	19.4	18.1	1.3
311991	Perishable prepared food mfg	2.6	2.6	(Z)	(D)	(D)	(Z)	2.0	2.0	—
311999	All other miscellaneous food mfg	20.9	19.3	1.7	2.1	1.8	.3	17.4	16.1	1.3
312	Beverage & tobacco product mfg	66.1	63.6	2.4	12.2	(D)	(D)	47.4	46.7	.7
3121	Beverage mfg	43.0	40.9	2.1	2.5	(D)	(D)	35.9	(D)	(D)
31211	Soft drink & ice mfg	10.8	10.0	.8	(D)	(D)	(D)	8.7	(D)	(D)
312111	Soft drink mfg	10.6	9.8	.7	(D)	(D)	(D)	8.5	(D)	(D)
31212	Breweries	25.6	24.9	.7	1.9	(D)	(D)	22.3	22.1	.2
312120	Breweries	25.6	24.9	.7	1.9	(D)	(D)	22.3	22.1	.2
31213	Wineries	4.0	3.6	.5	(D)	(D)	(D)	3.1	(D)	(D)
312130	Wineries	4.0	3.6	.5	(D)	(D)	(D)	3.1	(D)	(D)
31214	Distilleries	2.6	2.4	.2	(D)	(D)	(Z)	1.8	(D)	(D)
312140	Distilleries	2.6	2.4	.2	(D)	(D)	(Z)	1.8	(D)	(D)
3122	Tobacco mfg	23.1	22.8	.3	9.7	(D)	(D)	11.5	(D)	(D)
31221	Tobacco stemming & redrying	1.2	(D)	(D)	.5	.5	(Z)	(Z)	(Z)	—
312210	Tobacco stemming & redrying	1.2	(D)	(D)	.5	.5	(Z)	(Z)	(Z)	—
31222	Tobacco product mfg	22.0	(D)	(D)	9.2	(D)	(D)	11.5	(D)	(D)
312221	Cigarette mfg	10.3	(D)	(D)	(D)	(D)	(Z)	1.9	(D)	(D)
312229	Other tobacco product mfg	11.6	(D)	(D)	(D)	(D)	(Z)	9.6	9.6	—
313	Textile mills	105.0	90.6	14.5	18.6	13.8	4.9	72.4	69.8	2.6
3131	Fiber, yarn, & thread mills	2.6	2.1	.5	1.1	.8	.3	1.1	1.0	.2
31311	Fiber, yarn, & thread mills	2.6	2.1	.5	1.1	.8	.3	1.1	1.0	.2
313111	Yarn spinning mills . . . . .	.7	.5	.2	.3	.3	—	.3	.1	.2
313112	Yarn texturing, throwing, & twisting mills	1.4	1.4	—	.5	.5	—	.6	.6	—
3132	Fabric mills	55.7	47.6	8.1	6.0	4.2	1.8	39.8	39.6	.1
31321	Broadwoven fabric mills	20.8	20.7	.1	1.5	1.5	(Z)	17.7	17.7	—
313210	Broadwoven fabric mills	20.8	20.7	.1	1.5	1.5	(Z)	17.7	17.7	—
31323	Nonwoven fabric mills	27.4	19.9	7.5	2.3	.9	1.4	17.3	17.3	—
313230	Nonwoven fabric mills	27.4	19.9	7.5	2.3	.9	1.4	17.3	17.3	—
31324	Knit fabric mills	7.3	6.8	.5	2.1	1.8	.4	4.6	4.5	.1
313241	Weft knit fabric mills	1.7	1.7	(Z)	(Z)	(Z)	(Z)	1.6	1.6	(Z)
313249	Other knit fabric & lace mills	5.5	5.1	.5	2.1	1.7	.4	3.0	2.9	.1
3133	Textile & fabric finishing & fabric coating mills	46.7	40.9	5.9	11.6	8.8	2.8	31.5	29.2	2.3
31331	Textile & fabric finishing mills	36.3	34.8	1.5	5.7	5.6	.1	28.9	27.5	1.3
313311	Broadwoven fabric finishing mills	16.2	15.1	1.1	4.3	4.2	(Z)	10.5	9.5	1.0
313312	Textile & fabric finishing mills	20.1	19.6	.4	1.4	1.3	.1	18.3	18.0	.3
31332	Fabric coating mills	10.4	6.1	4.3	5.9	3.2	2.7	2.7	1.7	1.0
313320	Fabric coating mills	10.4	6.1	4.3	5.9	3.2	2.7	2.7	1.7	1.0

See footnote at end of table.

Table 4b. **Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
311	Food mfg—Con.							
3114	Fruit & vegetable preserving & specialty food mfg	33.6	32.3	1.4	.4	.3	.2	51
31141	Frozen food mfg	7.3	6.7	.6	.1	—	.1	8
311411	Frozen fruit, juice, & vegetable mfg	3.8	3.7	.1	.1	—	.1	8
311412	Frozen specialty food mfg	3.4	3.0	.5	—	—	—	23
31142	Fruit & vegetable canning, pickling, & drying	26.3	25.6	.8	.4	.3	.1	61
311421	Fruit & vegetable canning	21.7	21.3	.4	.2	.1	.1	64
311422	Specialty canning	3.2	2.9	.3	—	—	—	23
311423	Dried & dehydrated food mfg	1.4	1.3	(Z)	.2	.2	—	7
3115	Dairy product mfg	9.5	(D)	(D)	2.0	(D)	(D)	14
31151	Dairy product (except frozen) mfg	8.0	(D)	(D)	2.0	(D)	(D)	15
311511	Fluid milk mfg	1.1	(D)	(D)	(D)	(D)	(D)	24
311513	Cheese mfg	5.8	(D)	(D)	(D)	(D)	(D)	22
311514	Dry, condensed, & evaporated dairy product mfg	1.1	1.0	.1	.1	.1	—	15
31152	Ice cream & frozen dessert mfg	1.5	1.4	.1	—	—	—	39
311520	Ice cream & frozen dessert mfg	1.5	1.4	.1	—	—	—	39
3116	Meat product mfg	27.9	26.7	1.2	2.0	1.9	.1	6
31161	Animal slaughtering & processing	27.9	26.7	1.2	2.0	1.9	.1	6
311611	Animal (except poultry) slaughtering	8.0	8.0	.1	.8	.8	(Z)	8
311612	Meat processed from carcasses	2.7	2.7	(Z)	—	—	—	21
311613	Rendering & meat byproduct processing	2.2	1.9	.3	1.2	1.1	(Z)	15
311615	Poultry processing	15.0	14.2	.8	(Z)	(Z)	(Z)	8
3117	Seafood product preparation & packaging	1.6	.9	.7	—	—	—	24
31171	Seafood product preparation & packaging	1.6	.9	.7	—	—	—	24
311712	Fresh & frozen seafood processing	1.5	.8	.6	—	—	—	27
3118	Bakeries & tortilla mfg	3.0	2.8	.2	.1	(Z)	.1	10
31181	Bread & bakery product mfg	1.9	1.7	.1	(Z)	(Z)	—	14
311812	Commercial bakeries	1.2	1.1	.1	(Z)	(Z)	—	16
311813	Frozen cakes, pies, & other pastries mfg . . . . .	.6	.6	(Z)	—	—	—	13
31182	Cookie, cracker, & pasta mfg	1.0	1.0	.1	.1	(Z)	.1	14
311821	Cookie & cracker mfg . . . . .	.5	.4	.1	.1	(Z)	.1	18
311822	Flour mixes & dough mfg from purchased flour . . . . .	.6	.6	(Z)	—	—	—	21
3119	Other food mfg	11.6	11.1	.5	.1	.1	(Z)	10
31191	Snack food mfg	5.6	5.5	.1	—	—	—	21
311911	Roasted nuts & peanut butter mfg . . . . .	.3	.2	.1	—	—	—	3
311919	Other snack food mfg	5.3	5.2	(Z)	—	—	—	23
31192	Coffee & tea mfg . . . . .	.7	.7	(Z)	(Z)	(Z)	(Z)	1
311920	Coffee & tea mfg . . . . .	.7	.7	(Z)	(Z)	(Z)	(Z)	1
31193	Flavoring syrup & concentrate mfg	1.9	1.8	(Z)	(D)	(D)	—	57
311930	Flavoring syrup & concentrate mfg	1.9	1.8	(Z)	(D)	(D)	—	57
31194	Seasoning & dressing mfg	1.5	1.4	.1	—	—	—	10
311941	Mayonnaise, dressing, & other prepared sauce mfg . . . . .	.8	.8	(Z)	—	—	—	13
311942	Spice & extract mfg . . . . .	.7	.5	.1	—	—	—	11
31199	All other food mfg	1.9	1.8	.2	(D)	(D)	(Z)	15
311991	Perishable prepared food mfg . . . . .	.6	.6	(Z)	(D)	(D)	—	5
311999	All other miscellaneous food mfg	1.3	1.2	.1	.1	.1	(Z)	17
312	Beverage & tobacco product mfg	(D)	4.9	(D)	(D)	(D)	(D)	7
3121	Beverage mfg	(D)	(D)	(D)	(D)	(D)	—	6
31211	Soft drink & ice mfg	2.1	(D)	(D)	(D)	(D)	—	18
312111	Soft drink mfg	2.0	(D)	(D)	(D)	(D)	—	19
31212	Breweries	1.4	(D)	(D)	—	—	—	6
312120	Breweries	1.4	(D)	(D)	—	—	—	6
31213	Wineries . . . . .	.8	.5	.3	(D)	(D)	—	5
312130	Wineries . . . . .	.8	.5	.3	(D)	(D)	—	5
31214	Distilleries	(D)	(D)	(D)	(D)	(D)	—	31
312140	Distilleries	(D)	(D)	(D)	(D)	(D)	—	31
3122	Tobacco mfg	(D)	(D)	(D)	(D)	—	(D)	15
31221	Tobacco stemming & redrying . . . . .	.6	(D)	(D)	—	—	—	87
312210	Tobacco stemming & redrying . . . . .	.6	(D)	(D)	—	—	—	87
31222	Tobacco product mfg	(D)	(D)	(D)	(D)	—	(D)	16
312221	Cigarette mfg	(D)	(D)	—	—	—	—	2
312229	Other tobacco product mfg	(D)	(D)	(D)	(D)	—	(D)	29
313	Textile mills	13.6	6.6	6.9	.4	.3	(Z)	18
3131	Fiber, yarn, & thread mills . . . . .	.4	.4	(Z)	—	—	—	21
31311	Fiber, yarn, & thread mills . . . . .	.4	.4	(Z)	—	—	—	21
313111	Yarn spinning mills . . . . .	.1	.1	(Z)	—	—	—	46
313112	Yarn texturing, throwing, & twisting mills . . . . .	.2	.2	—	—	—	—	32
3132	Fabric mills	9.7	3.5	6.2	.3	.3	(Z)	31
31321	Broadwoven fabric mills	1.4	1.3	.1	.2	.2	—	16
313210	Broadwoven fabric mills	1.4	1.3	.1	.2	.2	—	16
31323	Nonwoven fabric mills	7.7	1.6	6.1	(Z)	—	(Z)	62
313230	Nonwoven fabric mills	7.7	1.6	6.1	(Z)	—	(Z)	62
31324	Knit fabric mills . . . . .	.5	.5	(Z)	.1	.1	—	27
313241	Weft knit fabric mills . . . . .	.1	.1	(Z)	—	—	—	30
313249	Other knit fabric & lace mills . . . . .	.4	.4	—	.1	.1	—	34
3133	Textile & fabric finishing & fabric coating mills	3.5	2.8	.7	.1	.1	(Z)	12
31331	Textile & fabric finishing mills	1.7	1.7	.1	(Z)	(Z)	—	15
313311	Broadwoven fabric finishing mills	1.4	1.4	.1	—	—	—	20
313312	Textile & fabric finishing mills . . . . .	.3	.3	(Z)	(Z)	(Z)	—	21
31332	Fabric coating mills	1.8	1.1	.7	.1	.1	(Z)	11
313320	Fabric coating mills	1.8	1.1	.7	.1	.1	(Z)	11

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
314	Textile product mills	4.9	4.7	.1	(D)	(D)	(Z)	2.4	(D)	(D)
3141	Textile furnishings mills	2.4	2.3	.1	(D)	(D)	(Z)	(D)	(D)	.1
31411	Carpet & rug mills	1.8	1.7	.1	(D)	(D)	(Z)	1.7	1.6	.1
314110	Carpet & rug mills	1.8	1.7	.1	(D)	(D)	(Z)	1.7	1.6	.1
3149	Other textile product mills	2.4	2.4	(Z)	(D)	(D)	—	(D)	(D)	(D)
31499	All other textile product mills	2.4	2.4	(Z)	(D)	(D)	—	(D)	(D)	(D)
314992	Tire cord & tire fabric mills	(D)	(D)	—	(D)	(D)	—	(D)	(D)	—
314999	All other miscellaneous textile product mills	1.8	(D)	(D)	—	—	—	(D)	(D)	(D)
315	Apparel mfg	1.8	1.5	.3	(D)	(D)	—	1.3	1.1	.2
316	Leather & allied product mfg	19.6	17.6	2.0	(D)	(D)	(D)	14.5	(D)	(D)
3161	Leather & hide tanning & finishing	18.4	17.0	1.4	(D)	(D)	(D)	14.4	13.1	1.3
31611	Leather & hide tanning & finishing	18.4	17.0	1.4	(D)	(D)	(D)	14.4	13.1	1.3
316110	Leather & hide tanning & finishing	18.4	17.0	1.4	(D)	(D)	(D)	14.4	13.1	1.3
321	Wood product mfg	134.9	110.5	24.4	86.3	71.2	15.1	26.2	24.2	2.0
3211	Sawmills & wood preservation	13.0	10.0	3.0	5.4	4.8	.6	3.6	2.1	1.5
32111	Sawmills & wood preservation	13.0	10.0	3.0	5.4	4.8	.6	3.6	2.1	1.5
321113	Sawmills	10.8	9.7	1.1	5.2	4.7	.5	2.1	2.1	(Z)
321114	Wood preservation	2.2	.3	1.9	.2	.2	(Z)	1.5	(Z)	1.4
3212	Veneer, plywood, & engineered wood product mfg	98.2	83.3	15.0	69.7	55.9	13.8	20.8	20.5	.3
32121	Veneer, plywood, & engineered wood product mfg	98.2	83.3	15.0	69.7	55.9	13.8	20.8	20.5	.3
321211	Hardwood veneer & plywood mfg	2.6	2.3	.3	1.6	(D)	(D)	(D)	(D)	—
321212	Softwood veneer & plywood mfg	19.8	14.0	5.7	14.0	9.0	5.0	4.0	3.8	.3
321213	Engineered wood member (except truss) mfg	5.0	4.9	.1	3.0	(D)	(D)	(D)	(D)	—
321219	Reconstituted wood product mfg	70.8	61.9	8.8	51.0	42.4	8.6	15.1	15.1	(Z)
3219	Other wood product mfg	23.6	17.3	6.4	11.2	10.5	.7	1.8	1.6	.2
32191	Millwork	16.5	13.4	3.2	8.8	8.1	.6	1.3	1.2	.1
321911	Wood window & door mfg	8.4	7.3	1.2	4.1	3.7	.5	.5	.5	—
321912	Cut stock, resawing lumber, & planing	4.8	3.3	1.5	2.7	(D)	(D)	.2	(D)	(D)
321918	Other millwork (including flooring)	3.3	2.8	.5	1.9	(D)	(D)	.7	(D)	(D)
32192	Wood container & pallet mfg	.8	.7	.1	.4	.4	—	.1	.1	—
321920	Wood container & pallet mfg	.8	.7	.1	.4	.4	—	.1	.1	—
32199	All other wood product mfg	6.3	3.2	3.2	2.0	1.9	.1	.4	.3	.1
321991	Manufactured home (mobile home) mfg	1.3	1.3	(Z)	.5	.5	(Z)	.2	(Z)	(Z)
321999	All other miscellaneous wood product mfg	5.0	1.9	3.1	1.5	1.4	.1	.3	.2	.1
322	Paper mfg	945.6	891.2	54.4	264.4	232.8	31.6	462.0	450.5	11.5
3221	Pulp, paper, & paperboard mills	885.6	846.0	39.7	240.2	216.4	23.8	444.6	435.4	9.2
32211	Pulp mills	95.1	94.7	.3	32.5	32.2	.3	48.2	(D)	(D)
322110	Pulp mills	95.1	94.7	.3	32.5	32.2	.3	48.2	(D)	(D)
32212	Paper mills	525.2	497.2	28.0	130.2	115.3	14.9	272.9	264.1	8.7
322121	Paper (except newsprint) mills	447.4	420.8	26.6	116.6	102.8	13.7	229.3	220.6	8.7
322122	Newsprint mills	77.7	76.4	1.4	13.6	12.5	1.1	43.6	43.5	.1
32213	Paperboard mills	265.4	254.1	11.3	77.5	68.9	8.7	123.5	(D)	(D)
322130	Paperboard mills	265.4	254.1	11.3	77.5	68.9	8.7	123.5	(D)	(D)
3222	Converted paper product mfg	60.0	45.2	14.8	24.3	16.4	7.8	17.4	15.1	2.3
32221	Paperboard container mfg	21.7	17.3	4.4	5.5	4.9	.6	9.9	8.1	1.8
322211	Corrugated & solid fiber box mfg	12.7	10.4	2.2	1.5	1.3	.2	8.3	6.7	1.6
322212	Folding paperboard box mfg	8.6	6.7	1.9	4.0	3.5	.4	1.3	1.2	.1
32222	Paper bag & coated & treated paper mfg	25.5	15.6	9.9	15.3	8.3	7.0	3.4	3.1	.3
322221	Coated & laminated packaging paper & plastics film mfg	1.8	1.2	.6	.9	.7	.2	.2	.2	(Z)
322222	Coated & laminated paper mfg	15.4	7.9	7.5	10.9	5.2	5.7	2.2	2.1	.2
322224	Uncoated paper & multiwall bag mfg	1.7	1.5	.2	.2	.2	(Z)	.8	.7	.1
322225	Laminated aluminum foil mfg for flexible packaging uses	3.6	2.2	1.4	2.3	1.3	.9	.1	.1	.1
322226	Surface-coated paperboard mfg	2.9	2.8	.1	.9	.9	(Z)	.1	.1	(Z)
32223	Stationery product mfg	1.1	.9	.2	.1	.1	.1	.3	.3	.1
32229	Other converted paper product mfg	11.6	11.4	.2	3.3	3.2	.1	3.7	3.7	.1
322291	Sanitary paper product mfg	5.2	5.2	(Z)	2.0	(D)	(D)	1.7	1.7	—
322299	All other converted paper product mfg	6.5	6.2	.2	1.3	(D)	(D)	2.1	2.0	.1
323	Printing & related support activities	80.3	40.3	40.1	56.0	25.6	30.4	8.2	5.8	2.5
3231	Printing & related support activities	80.3	40.3	40.1	56.0	25.6	30.4	8.2	5.8	2.5
32311	Printing	78.2	40.0	38.3	54.4	25.6	28.8	8.1	5.7	2.4
323110	Commercial lithographic printing	37.8	22.3	15.5	26.4	16.7	9.7	2.2	1.5	.7
323111	Commercial gravure printing	23.6	7.1	16.5	20.5	5.5	14.9	1.8	.8	1.0
323112	Commercial flexographic printing	2.2	1.6	.6	.7	.6	.1	.5	.2	.3
323113	Commercial screen printing	3.9	3.3	.6	.5	.2	.3	2.7	2.7	.1
323116	Manifold business form printing	2.1	1.4	.7	.1	.1	(Z)	.3	.3	(Z)
323117	Book printing	6.3	4.0	2.3	4.1	2.4	1.7	.5	.2	.3
323119	Other commercial printing	2.1	.2	2.0	1.9	(D)	(D)	(Z)	(D)	(D)
32312	Support activities for printing	2.1	.3	1.8	1.6	(Z)	1.6	.1	.1	(Z)
323121	Tradebinding & related work	1.9	.2	1.8	1.6	—	1.6	—	—	—
324	Petroleum & coal products mfg	1 697.9	1 328.3	369.6	1 206.2	1 001.5	204.7	344.1	231.6	112.5
3241	Petroleum & coal products mfg	1 697.9	1 328.3	369.6	1 206.2	1 001.5	204.7	344.1	231.6	112.5
32411	Petroleum refineries	1 654.2	1 294.8	359.4	1 178.2	977.9	200.3	334.6	226.4	108.2
324110	Petroleum refineries	1 654.2	1 294.8	359.4	1 178.2	977.9	200.3	334.6	226.4	108.2
32412	Asphalt paving, roofing, & saturated materials mfg	17.6	16.5	1.0	13.8	13.6	.2	2.2	1.8	.4
324121	Asphalt paving mixture & block mfg	11.5	11.3	.2	10.5	10.5	(Z)	.7	.6	.2
324122	Asphalt shingle & coating materials mfg	6.1	5.3	.8	3.3	3.1	.2	1.4	1.2	.2
32419	Other petroleum & coal products mfg	26.2	17.0	9.2	14.3	10.0	4.2	7.3	3.4	3.9
324191	Petroleum lubricating oil & grease mfg	6.0	4.9	1.0	2.5	2.0	.5	2.6	2.4	.3
324199	All other petroleum & coal products mfg	20.2	12.0	8.2	11.7	8.0	3.7	4.7	1.0	3.7

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
314	Textile product mills	(D)	(D)	(D)	—	—	—	36
3141	Textile furnishings mills	(D)	(D)	—	—	—	—	29
31411	Carpet & rug mills	(D)	(D)	—	—	—	—	37
314110	Carpet & rug mills	(D)	(D)	—	—	—	—	37
3149	Other textile product mills	1.9	(D)	(D)	—	—	—	66
31499	All other textile product mills	1.9	(D)	(D)	—	—	—	66
314992	Tire cord & tire fabric mills	(D)	(D)	—	—	—	—	(X)
314999	All other miscellaneous textile product mills	(D)	(D)	—	—	—	—	88
315	Apparel mfg	(D)	(D)	.1	(Z)	—	(Z)	31
316	Leather & allied product mfg	3.5	(D)	(D)	(D)	(D)	(D)	14
3161	Leather & hide tanning & finishing	3.0	(D)	(D)	(D)	(D)	—	15
31611	Leather & hide tanning & finishing	3.0	(D)	(D)	(D)	(D)	—	15
316110	Leather & hide tanning & finishing	3.0	(D)	(D)	(D)	(D)	—	15
321	Wood product mfg	19.7	14.8	4.9	2.8	.4	2.4	5
3211	Sawmills & wood preservation	3.9	2.9	1.0	.1	.1	—	9
32111	Sawmills & wood preservation	3.9	2.9	1.0	.1	.1	—	9
321113	Sawmills	3.4	2.9	.5	.1	.1	—	9
321114	Wood preservation	.5	.1	.4	—	—	—	28
3212	Veneer, plywood, & engineered wood product mfg	7.6	6.7	.8	.2	.2	(Z)	7
32121	Veneer, plywood, & engineered wood product mfg	7.6	6.7	.8	.2	.2	(Z)	7
321211	Hardwood veneer & plywood mfg	(D)	(D)	(D)	(D)	(D)	(D)	4
321212	Softwood veneer & plywood mfg	(D)	(D)	(D)	(D)	(D)	(D)	15
321213	Engineered wood member (except truss) mfg	(D)	(D)	(D)	—	—	—	31
321219	Reconstituted wood product mfg	4.5	(D)	(D)	.1	(D)	(D)	8
3219	Other wood product mfg	8.2	5.1	3.1	2.4	.1	2.4	12
32191	Millwork	6.4	4.0	2.4	(Z)	(Z)	(Z)	10
321911	Wood window & door mfg	3.9	3.1	.7	—	—	—	11
321912	Cut stock, resawing lumber, & planing	1.8	.5	1.4	(Z)	(Z)	—	23
321918	Other millwork (including flooring)	.7	.4	.3	(Z)	—	(Z)	25
32192	Wood container & pallet mfg	.2	.1	.1	.1	.1	—	28
321920	Wood container & pallet mfg	.2	.1	.1	.1	.1	—	28
32199	All other wood product mfg	1.6	1.0	.6	2.3	—	2.3	34
321991	Manufactured home (mobile home) mfg	.6	.6	(Z)	—	—	—	39
321999	All other miscellaneous wood product mfg	.9	.3	.6	2.3	—	2.3	42
322	Paper mfg	190.6	180.0	10.6	28.6	27.9	.7	2
3221	Pulp, paper, & paperboard mills	173.2	166.8	6.4	27.7	27.4	.3	2
32211	Pulp mills	(D)	(D)	(Z)	(D)	(D)	(D)	4
322110	Pulp mills	(D)	(D)	(Z)	(D)	(D)	(D)	4
32212	Paper mills	98.3	94.2	4.2	23.8	23.6	.2	3
322121	Paper (except newsprint) mills	82.3	78.2	4.0	19.4	19.1	.2	3
322122	Newsprint mills	16.1	15.9	.2	4.4	4.4	—	3
32213	Paperboard mills	(D)	(D)	2.2	(D)	(D)	(D)	5
322130	Paperboard mills	(D)	(D)	2.2	(D)	(D)	(D)	5
3222	Converted paper product mfg	17.4	13.1	4.2	.9	.5	.4	8
32221	Paperboard container mfg	5.9	4.0	1.9	.4	.4	(Z)	12
322211	Corrugated & solid fiber box mfg	2.5	2.1	.4	.3	.2	(Z)	11
322212	Folding paperboard box mfg	3.2	1.8	1.4	.1	.1	—	25
32222	Paper bag & coated & treated paper mfg	6.4	4.2	2.2	.4	(Z)	.4	9
322221	Coated & laminated packaging paper & plastics film mfg	.6	.4	.3	.1	(Z)	.1	17
322222	Coated & laminated paper mfg	2.0	.7	1.3	.3	—	.3	12
322224	Uncoated paper & multiwall bag mfg	.6	.5	(Z)	(Z)	(Z)	(Z)	18
322225	Laminated aluminum foil mfg for flexible packaging uses	1.2	.8	.4	(Z)	(Z)	(Z)	7
322226	Surface-coated paperboard mfg	1.9	1.8	.1	—	—	—	46
32223	Stationery product mfg	.7	.6	.1	—	—	—	32
32229	Other converted paper product mfg	4.4	4.4	(Z)	.2	.2	—	25
322291	Sanitary paper product mfg	1.3	(D)	(D)	.2	.2	—	1
322299	All other converted paper product mfg	3.1	(D)	(D)	—	—	—	45
323	Printing & related support activities	15.2	8.3	6.9	.9	.5	.3	6
3231	Printing & related support activities	15.2	8.3	6.9	.9	.5	.3	6
32311	Printing	14.8	8.1	6.7	.9	.5	.3	6
323110	Commercial lithographic printing	8.7	3.9	4.9	.5	.2	.2	8
323111	Commercial gravure printing	1.3	.7	.5	(Z)	(Z)	(Z)	3
323112	Commercial flexographic printing	.9	.8	.2	—	—	—	21
323113	Commercial screen printing	.4	.2	.2	.2	.2	(Z)	60
323116	Manifold business form printing	1.6	1.0	.6	.1	.1	(Z)	38
323117	Book printing	1.6	1.4	.3	—	—	—	6
323119	Other commercial printing	.1	(D)	(D)	(Z)	—	(Z)	75
32312	Support activities for printing	.4	.2	.2	—	—	—	67
323121	Tradebinding & related work	.3	.2	.2	—	—	—	73
324	Petroleum & coal products mfg	136.1	86.1	50.1	11.5	9.2	2.3	2
3241	Petroleum & coal products mfg	136.1	86.1	50.1	11.5	9.2	2.3	2
32411	Petroleum refineries	130.5	81.9	48.6	10.9	8.7	2.2	2
324110	Petroleum refineries	130.5	81.9	48.6	10.9	8.7	2.2	2
32412	Asphalt paving, roofing, & saturated materials mfg	1.2	.8	.4	.4	.4	—	49
324121	Asphalt paving mixture & block mfg	.2	.2	(Z)	—	—	—	74
324122	Asphalt shingle & coating materials mfg	.9	.5	.4	.4	.4	—	12
32419	Other petroleum & coal products mfg	4.4	3.4	1.0	.1	.1	(Z)	9
324191	Petroleum lubricating oil & grease mfg	.7	.4	.3	.1	.1	(Z)	30
324199	All other petroleum & coal products mfg	3.8	3.0	.8	(Z)	—	(Z)	8

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
325	Chemical mfg	2 808.0	1 755.1	1 052.9	829.3	509.5	319.8	1 289.7	854.3	435.4
3251	Basic chemical mfg	1 519.5	829.0	690.5	428.0	212.7	215.3	753.5	458.8	294.7
32511	Petrochemical mfg	204.6	117.2	87.4	57.5	23.7	33.8	102.3	79.3	22.9
325110	Petrochemical mfg	204.6	117.2	87.4	57.5	23.7	33.8	102.3	79.3	22.9
32512	Industrial gas mfg	41.0	16.7	24.3	15.7	5.4	10.3	10.1	8.0	2.1
325120	Industrial gas mfg	41.0	16.7	24.3	15.7	5.4	10.3	10.1	8.0	2.1
32513	Dye & pigment mfg	72.7	51.9	20.7	18.9	12.2	6.7	37.9	25.5	12.5
325131	Inorganic dye & pigment mfg	57.4	40.5	16.9	15.2	9.7	5.5	29.1	18.3	10.8
325132	Synthetic organic dye & pigment mfg	15.2	11.4	3.8	3.8	2.5	1.3	8.8	7.2	1.6
32518	Other basic inorganic chemical mfg	229.0	149.3	79.7	81.8	42.2	39.5	99.4	74.8	24.6
325181	Alkalies & chlorine mfg	25.2	13.8	11.4	6.3	3.4	2.9	11.8	4.8	7.0
325182	Carbon black mfg	6.1	4.0	2.1	3.6	1.5	2.1	2.2	2.2	—
325188	All other basic inorganic chemical mfg	197.6	131.4	66.2	71.8	37.3	34.5	85.3	67.8	17.5
32519	Other basic organic chemical mfg	972.3	493.9	478.3	254.1	129.2	124.9	503.8	271.2	232.6
325191	Gum & wood chemical mfg	5.9	4.7	1.2	3.1	(D)	(D)	2.2	1.9	.3
325192	Cyclic crude & intermediate mfg	97.0	47.2	49.8	24.0	15.9	8.2	51.3	25.4	25.9
325193	Ethyl alcohol mfg	5.4	3.7	1.8	1.5	(D)	(D)	3.4	2.0	1.4
325199	All other basic organic chemical mfg	864.0	438.4	425.6	225.5	109.3	116.2	446.8	241.8	205.0
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	566.6	397.3	169.2	146.6	92.3	54.3	266.1	192.9	73.2
32521	Resin & synthetic rubber mfg	487.7	330.2	157.5	129.6	77.2	52.4	219.9	155.8	64.1
325211	Plastics material & resin mfg	432.6	290.8	141.8	119.9	(D)	(D)	188.0	133.0	55.1
325212	Synthetic rubber mfg	55.1	39.4	15.7	9.7	(D)	(D)	31.9	22.8	9.1
32522	Artificial & synthetic fibers & filaments mfg	78.9	67.2	11.7	17.0	15.1	1.9	46.2	37.1	9.1
325221	Cellulosic organic fiber mfg	26.9	21.0	5.9	2.5	2.3	.2	17.0	11.3	5.7
325222	Noncellulosic organic fiber mfg	51.9	46.2	5.8	14.5	12.8	1.7	29.2	25.8	3.4
3253	Pesticide, fertilizer, & other agricultural chemical mfg	294.5	220.1	74.3	116.2	92.9	23.3	94.2	72.1	22.0
32531	Fertilizer mfg	154.0	135.2	18.8	97.0	84.9	12.1	46.8	40.7	6.1
325311	Nitrogenous fertilizer mfg	26.4	21.5	4.9	9.3	4.9	4.4	15.4	15.4	(Z)
325312	Phosphatic fertilizer mfg	127.6	113.7	13.9	87.8	80.0	7.8	31.4	25.3	6.1
32532	Pesticide & other agricultural chemical mfg	140.5	84.9	55.5	19.2	8.0	11.1	47.4	31.5	15.9
325320	Pesticide & other agricultural chemical mfg	140.5	84.9	55.5	19.2	8.0	11.1	47.4	31.5	15.9
3254	Pharmaceutical & medicine mfg	136.6	95.5	41.1	33.9	27.0	6.9	66.7	43.9	22.8
32541	Pharmaceutical & medicine mfg	136.6	95.5	41.1	33.9	27.0	6.9	66.7	43.9	22.8
325411	Medicinal & botanical mfg	71.3	44.1	27.1	17.4	12.3	5.2	43.6	25.4	18.2
325412	Pharmaceutical preparation mfg	63.0	49.4	13.6	16.1	14.4	1.7	22.1	17.7	4.5
325414	Biological product (except diagnostic) mfg	1.7	1.4	.3	.1	.1	—	.6	.6	(Z)
3255	Paint, coating, & adhesive mfg	38.4	21.6	16.8	7.6	3.7	3.9	19.6	11.2	8.4
32551	Paint & coating mfg	21.0	11.3	9.6	5.6	2.4	3.2	9.5	6.0	3.5
325510	Paint & coating mfg	21.0	11.3	9.6	5.6	2.4	3.2	9.5	6.0	3.5
32552	Adhesive mfg	17.4	10.3	7.1	2.0	1.2	.7	10.1	5.2	4.9
325520	Adhesive mfg	17.4	10.3	7.1	2.0	1.2	.7	10.1	5.2	4.9
3256	Soap, cleaning compound, & toilet preparation mfg	113.5	82.7	30.9	36.2	28.9	7.3	36.0	31.7	4.3
32561	Soap & cleaning compound mfg	102.9	74.9	28.0	35.6	28.4	7.2	31.1	28.4	2.7
325611	Soap & other detergent mfg	27.3	25.5	1.8	13.7	13.4	.3	10.4	10.2	.3
325612	Polish & other sanitation good mfg	9.4	7.3	2.1	1.4	1.3	.1	4.6	4.6	(Z)
325613	Surface active agent mfg	66.1	42.1	24.0	20.6	13.7	6.9	16.1	13.7	2.5
32562	Toilet preparation mfg	10.6	7.8	2.9	.6	.5	(Z)	4.9	3.3	1.6
325620	Toilet preparation mfg	10.6	7.8	2.9	.6	.5	(Z)	4.9	3.3	1.6
3259	Other chemical product mfg	139.0	108.8	30.2	60.9	52.0	8.8	53.7	43.8	10.0
32591	Printing ink mfg	4.5	4.5	—	(D)	(D)	—	3.3	3.3	—
325910	Printing ink mfg	4.5	4.5	—	(D)	(D)	—	3.3	3.3	—
32592	Explosives mfg	6.4	(D)	(D)	(D)	(D)	.1	4.5	(D)	(D)
325920	Explosives mfg	6.4	(D)	(D)	(D)	(D)	.1	4.5	(D)	(D)
32599	All other chemical product & preparation mfg	128.1	(D)	(D)	59.6	50.8	8.8	45.9	(D)	(D)
325991	Custom compounding of purchased resin	8.0	(D)	(D)	3.9	3.8	.1	.4	.4	—
325992	Photographic film, paper, plate, & chemical mfg	80.1	64.7	15.4	45.1	41.0	4.1	22.5	18.7	3.9
325998	All other miscellaneous chemical product & preparation mfg	40.0	30.2	9.9	10.6	6.0	4.6	23.0	(D)	(D)
326	Plastics & rubber products mfg	164.7	104.8	59.9	86.0	54.7	31.2	30.3	22.0	8.3
3261	Plastics product mfg	121.0	80.6	40.5	72.4	46.1	26.3	20.6	15.9	4.7
32611	Unsupported plastics film, sheet, & bag mfg	56.0	44.6	11.4	34.2	29.2	5.0	10.9	9.4	1.5
326111	Unsupported plastics bag mfg	3.8	3.2	.6	2.2	1.8	.4	.7	.7	—
326112	Unsupported plastics packaging film & sheet mfg	4.5	3.7	.9	3.5	2.7	.8	.1	.1	(Z)
326113	Unsupported plastics film & sheet (except packaging) mfg	47.8	37.8	10.0	28.5	24.8	3.8	10.1	8.6	1.5
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	1.3	.8	.5	.4	.3	.1	(D)	(D)	.1
32613	Laminated plastics plate, sheet, & shape mfg	14.8	3.0	11.8	12.3	1.8	10.4	.4	.4	.1
326130	Laminated plastics plate, sheet, & shape mfg	14.8	3.0	11.8	12.3	1.8	10.4	.4	.4	.1
32614	Polystyrene foam product mfg	6.3	5.9	.4	2.7	2.5	.1	.6	.6	(Z)
326140	Polystyrene foam product mfg	6.3	5.9	.4	2.7	2.5	.1	.6	.6	(Z)
32615	Urethane & other foam product (except polystyrene) mfg	2.7	1.4	1.3	1.9	.7	1.2	(D)	(D)	(Z)
326150	Urethane & other foam product (except polystyrene) mfg	2.7	1.4	1.3	1.9	.7	1.2	(D)	(D)	(Z)
32619	Other plastics product mfg	39.3	24.3	15.0	20.9	11.5	9.5	8.0	5.0	3.0
326191	Plastics plumbing fixture mfg . . . . .	.9	.8	.1	.3	.3	—	.2	.1	.1
326192	Resilient floor covering mfg	5.4	5.3	.1	3.4	3.4	—	.4	.4	—
326199	All other plastics product mfg	33.0	18.2	14.8	17.3	7.8	9.5	7.4	4.5	3.0

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
325	Chemical mfg	633.2	352.8	280.4	55.8	38.4	17.4	2
3251	Basic chemical mfg	313.1	147.2	165.9	24.9	10.2	14.6	3
32511	Petrochemical mfg	44.8	14.2	30.6	—	—	—	4
325110	Petrochemical mfg	44.8	14.2	30.6	—	—	—	4
32512	Industrial gas mfg	15.2	3.3	11.9	—	—	—	6
325120	Industrial gas mfg	15.2	3.3	11.9	—	—	—	6
32513	Dye & pigment mfg	15.8	14.2	1.6	(Z)	(Z)	(Z)	3
325131	Inorganic dye & pigment mfg	13.2	12.6	.6	(Z)	(Z)	(Z)	3
325132	Synthetic organic dye & pigment mfg	2.6	1.6	1.0	—	—	—	7
32518	Other basic inorganic chemical mfg	37.7	28.0	9.7	10.1	4.2	5.9	9
325181	Alkalies & chlorine mfg	3.3	2.0	1.3	3.8	3.6	.1	17
325182	Carbon black mfg . . . . .	.3	.2	.1	.1	(Z)	(Z)	3
325188	All other basic inorganic chemical mfg	34.2	25.8	8.4	6.3	.6	5.7	10
32519	Other basic organic chemical mfg	199.6	87.6	112.0	14.7	6.0	8.8	4
325191	Gum & wood chemical mfg . . . . .	.5	(D)	(D)	(Z)	(Z)	—	1
325192	Cyclic crude & intermediate mfg	21.6	5.9	15.7	—	—	—	10
325193	Ethyl alcohol mfg . . . . .	.5	(D)	(D)	—	—	—	2
325199	All other basic organic chemical mfg	177.0	81.3	95.7	14.7	6.0	8.8	4
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	142.3	(D)	(D)	11.5	(D)	(D)	5
32521	Resin & synthetic rubber mfg	130.9	(D)	(D)	7.3	(D)	(D)	6
325211	Plastics material & resin mfg	(D)	85.4	(D)	(D)	(D)	(Z)	7
325212	Synthetic rubber mfg	(D)	(D)	(D)	(D)	(D)	(D)	2
32522	Artificial & synthetic fibers & filaments mfg	11.4	10.7	.7	4.3	4.3	—	3
325221	Cellulosic organic fiber mfg	4.1	4.1	—	3.4	3.4	—	1
325222	Noncellulosic organic fiber mfg	7.3	6.6	.7	.9	.9	—	5
3253	Pesticide, fertilizer, & other agricultural chemical mfg	71.3	42.3	29.0	12.8	12.8	(Z)	7
32531	Fertilizer mfg	10.2	9.7	.5	—	—	—	11
325311	Nitrogenous fertilizer mfg	1.7	1.2	.5	—	—	—	18
325312	Phosphatic fertilizer mfg	8.4	8.4	—	—	—	—	12
32532	Pesticide & other agricultural chemical mfg	61.1	32.6	28.5	12.8	12.8	(Z)	8
325320	Pesticide & other agricultural chemical mfg	61.1	32.6	28.5	12.8	12.8	(Z)	8
3254	Pharmaceutical & medicine mfg	32.9	21.5	11.4	3.1	3.0	(Z)	6
32541	Pharmaceutical & medicine mfg	32.9	21.5	11.4	3.1	3.0	(Z)	6
325411	Medicinal & botanical mfg	8.8	5.0	3.7	1.5	1.5	—	6
325412	Pharmaceutical preparation mfg	23.2	15.8	7.4	1.6	1.6	(Z)	10
325414	Biological product (except diagnostic) mfg	1.0	.7	.3	—	—	—	5
3255	Paint, coating, & adhesive mfg	11.1	(D)	(D)	.2	(D)	(D)	14
32551	Paint & coating mfg	5.7	(D)	(D)	.2	(D)	(D)	16
325510	Paint & coating mfg	5.7	(D)	(D)	.2	(D)	(D)	16
32552	Adhesive mfg	5.4	3.9	1.5	(Z)	(Z)	—	23
325520	Adhesive mfg	5.4	3.9	1.5	(Z)	(Z)	—	23
3256	Soap, cleaning compound, & toilet preparation mfg	38.7	21.4	17.3	2.7	.7	1.9	11
32561	Soap & cleaning compound mfg	33.5	17.4	16.1	2.6	.7	1.9	12
325611	Soap & other detergent mfg	3.0	1.9	1.1	.3	.1	.2	7
325612	Polish & other sanitation good mfg	1.4	.8	.7	2.0	.6	1.4	12
325613	Surface active agent mfg	29.1	14.7	14.4	.3	(Z)	.3	19
32562	Toilet preparation mfg	5.2	3.9	1.2	(Z)	—	(Z)	17
325620	Toilet preparation mfg	5.2	3.9	1.2	(Z)	—	(Z)	17
3259	Other chemical product mfg	23.8	12.9	10.9	.6	.2	.5	4
32591	Printing ink mfg	(D)	(D)	—	—	—	—	59
325910	Printing ink mfg	(D)	(D)	—	—	—	—	59
32592	Explosives mfg	1.6	(D)	(D)	(D)	—	(D)	2
325920	Explosives mfg	1.6	(D)	(D)	(D)	—	(D)	2
32599	All other chemical product & preparation mfg	(D)	(D)	(D)	(D)	.2	(D)	4
325991	Custom compounding of purchased resin	3.7	(D)	(D)	—	—	—	39
325992	Photographic film, paper, plate, & chemical mfg	11.9	5.0	6.9	.5	.1	.5	4
325998	All other miscellaneous chemical product & preparation mfg	(D)	(D)	(D)	(D)	.1	(D)	6
326	Plastics & rubber products mfg	46.8	27.4	19.3	1.7	.6	1.1	12
3261	Plastics product mfg	27.0	18.2	8.8	1.1	.4	.7	16
32611	Unsupported plastics film, sheet, & bag mfg	10.9	6.0	4.9	.1	.1	(Z)	32
326111	Unsupported plastics bag mfg . . . . .	.9	.7	.2	—	—	—	16
326112	Unsupported plastics packaging film & sheet mfg	1.0	1.0	(Z)	—	—	—	21
326113	Unsupported plastics film & sheet (except packaging) mfg	9.0	4.3	4.7	.1	.1	(Z)	38
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg . . . . .	.5	.2	.3	(D)	(D)	(Z)	12
32613	Laminated plastics plate, sheet, & shape mfg	1.3	.6	.6	.8	.1	.6	26
326130	Laminated plastics plate, sheet, & shape mfg	1.3	.6	.6	.8	.1	.6	26
32614	Polystyrene foam product mfg	3.0	2.7	.3	(Z)	(Z)	—	20
326140	Polystyrene foam product mfg	3.0	2.7	.3	(Z)	(Z)	—	20
32615	Urethane & other foam product (except polystyrene) mfg . . . . .	.7	.6	.1	(D)	(D)	—	17
326150	Urethane & other foam product (except polystyrene) mfg . . . . .	.7	.6	.1	(D)	(D)	—	17
32619	Other plastics product mfg	10.2	7.7	2.5	.2	.2	.1	16
326191	Plastics plumbing fixture mfg . . . . .	.4	.4	—	—	—	—	51
326192	Resilient floor covering mfg	1.7	1.5	.1	—	—	—	9
326199	All other plastics product mfg	8.1	5.7	2.4	.2	.2	.1	18

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
326	Plastics & rubber products mfg—Con.									
3262	Rubber product mfg	43.7	24.2	19.5	13.6	8.6	5.0	9.7	6.1	3.6
32621	Tire mfg	17.9	11.9	6.0	5.3	(D)	(D)	(D)	(D)	(D)
326211	Tire mfg (except retreading)	17.5	11.5	6.0	5.3	(D)	(D)	(D)	(D)	(D)
32622	Rubber & plastics hoses & belting mfg	4.6	4.0	.6	1.6	(D)	(D)	(D)	(D)	(D)
326220	Rubber & plastics hoses & belting mfg	4.6	4.0	.6	1.6	(D)	(D)	(D)	(D)	(D)
32629	Other rubber product mfg	21.1	8.2	12.9	6.6	2.4	4.3	5.3	(D)	(D)
326291	Rubber product mfg for mechanical use	11.0	2.7	8.4	2.2	.6	1.6	1.7	(D)	(D)
326299	All other rubber product mfg	10.1	5.6	4.6	4.5	1.8	2.7	3.6	2.4	1.1
327	Nonmetallic mineral product mfg	281.5	259.0	22.5	154.6	146.2	8.5	50.2	46.7	3.5
3271	Clay product & refractory mfg	31.7	27.0	4.7	16.2	13.9	2.4	6.8	5.4	1.4
32711	Pottery, ceramics, & plumbing fixture mfg	8.6	5.8	2.9	2.1	1.6	.5	4.7	3.3	1.4
327111	Vitreous china plumbing fixture & bathroom accessories mfg	2.7	2.0	.6	.7	.6	.1	1.6	1.2	.4
327112	Vitreous china, fine earthenware, & other pottery product mfg	2.1	1.9	.2	.6	.6	(Z)	.9	.8	.1
327113	Porcelain electrical supply mfg	3.9	1.9	2.0	.8	.4	.4	2.2	1.3	1.0
32712	Clay building material & refractories mfg	23.1	21.2	1.9	14.1	12.3	1.9	2.1	2.1	(Z)
327121	Brick & structural clay tile mfg	4.4	4.1	.3	3.5	3.2	.3	.5	.5	—
327122	Ceramic wall & floor tile mfg	4.4	4.4	(Z)	1.3	1.3	—	.5	.5	—
327124	Clay refractory mfg	7.8	6.6	1.2	4.7	3.6	1.2	.3	.3	(Z)
327125	Nonclay refractory mfg	6.1	5.8	.3	4.4	4.0	.3	.8	.8	—
3272	Glass & glass product mfg	66.5	60.2	6.3	26.0	24.5	1.5	17.2	16.0	1.2
32721	Glass & glass product mfg	66.5	60.2	6.3	26.0	24.5	1.5	17.2	16.0	1.2
327211	Flat glass mfg	8.0	7.3	.7	4.3	4.2	.1	1.7	1.7	(Z)
327212	Other pressed & blown glass & glassware mfg	29.6	26.1	3.5	14.1	12.8	1.3	9.6	9.0	.6
327213	Glass container mfg	10.9	10.0	.9	7.2	7.2	(Z)	2.1	2.0	.1
327215	Glass product mfg made of purchased glass	17.9	16.8	1.2	.5	.4	(Z)	3.8	3.3	.5
3273	Cement & concrete product mfg	82.8	76.8	6.0	60.1	59.1	1.0	9.2	9.1	(Z)
32731	Cement mfg	67.7	63.4	4.3	53.6	53.0	.6	5.5	(D)	(D)
327310	Cement mfg	67.7	63.4	4.3	53.6	53.0	.6	5.5	(D)	(D)
32732	Ready-mix concrete mfg	10.6	9.6	1.0	3.6	(D)	(D)	(D)	(D)	—
327320	Ready-mix concrete mfg	10.6	9.6	1.0	3.6	(D)	(D)	(D)	(D)	—
32733	Concrete pipe, brick, & block mfg	2.8	2.3	.4	2.1	(D)	(D)	(D)	(D)	(D)
327331	Concrete block & brick mfg	2.2	1.8	.3	1.9	(D)	(D)	(D)	(D)	—
32739	Other concrete product mfg	1.8	1.6	.2	.7	(D)	(D)	.3	(D)	(D)
327390	Other concrete product mfg	1.8	1.6	.2	.7	(D)	(D)	.3	(D)	(D)
3274	Lime & gypsum product mfg	26.1	25.8	.3	17.0	16.8	.2	2.8	2.8	—
32741	Lime mfg	16.3	16.1	.2	12.2	12.0	.2	.4	.4	—
327410	Lime mfg	16.3	16.1	.2	12.2	12.0	.2	.4	.4	—
32742	Gypsum product mfg	9.8	9.7	.1	4.9	4.8	(Z)	2.4	2.4	—
327420	Gypsum product mfg	9.8	9.7	.1	4.9	4.8	(Z)	2.4	2.4	—
3279	Other nonmetallic mineral product mfg	74.4	69.2	5.2	35.2	31.9	3.4	14.2	13.4	.8
32791	Abrasive product mfg	9.0	6.1	2.9	4.1	2.3	1.8	1.4	1.2	.3
327910	Abrasive product mfg	9.0	6.1	2.9	4.1	2.3	1.8	1.4	1.2	.3
32799	All other nonmetallic mineral product mfg	65.4	63.1	2.3	31.1	29.5	1.6	12.8	12.3	.5
327992	Ground or treated mineral & earth mfg	28.7	27.9	.8	12.9	12.6	.3	3.4	2.9	.5
327993	Mineral wool mfg	34.3	33.0	1.2	17.4	16.2	1.2	8.6	8.6	(Z)
327999	All other miscellaneous nonmetallic mineral product mfg	2.4	2.1	.2	.8	.6	.1	.7	.7	(Z)
331	Primary metal mfg	1 543.9	1 068.7	475.2	755.5	481.8	273.7	571.8	442.6	129.1
3311	Iron & steel mills & ferroalloy mfg	894.5	682.8	211.7	375.3	273.3	102.0	403.6	338.3	65.3
33111	Iron & steel mills & ferroalloy mfg	894.5	682.8	211.7	375.3	273.3	102.0	403.6	338.3	65.3
331111	Iron & steel mills	864.6	661.2	203.3	355.1	255.7	99.5	400.8	336.4	64.4
331112	Electrometallurgical ferroalloy product mfg	29.9	21.6	8.3	20.2	17.6	2.6	2.8	2.0	.8
3312	Steel product mfg from purchased steel	44.5	25.5	19.0	3.8	1.5	2.3	27.8	15.7	12.2
33121	Iron & steel pipes & tubes mfg from purchased steel	11.2	7.1	4.2	.9	.5	.4	6.3	4.3	1.9
331210	Iron & steel pipes & tubes mfg from purchased steel	11.2	7.1	4.2	.9	.5	.4	6.3	4.3	1.9
33122	Rolling & drawing of purchased steel	33.2	18.4	14.9	2.9	1.0	1.9	21.6	11.3	10.2
331221	Cold-rolled steel shape mfg	16.8	10.2	6.6	1.9	.6	1.3	11.1	7.4	3.7
331222	Steel wire drawing	16.4	8.2	8.2	1.0	.4	.6	10.4	4.0	6.5
3313	Alumina & aluminum production & processing	235.6	112.3	123.3	158.0	65.3	92.7	42.0	28.4	13.6
33131	Alumina & aluminum production & processing	235.6	112.3	123.3	158.0	65.3	92.7	42.0	28.4	13.6
331311	Alumina refining	22.2	15.8	6.4	14.6	8.2	6.4	.9	.9	—
331312	Primary aluminum production	136.1	40.8	95.3	103.6	31.7	71.9	(D)	(D)	11.2
331314	Secondary smelting & alloying of aluminum	12.0	9.6	2.3	8.8	7.1	1.7	(D)	(D)	(D)
331315	Aluminum sheet, plate, & foil mfg	39.9	27.6	12.3	18.4	9.5	8.9	15.5	(D)	(D)
331316	Aluminum extruded product mfg	14.6	11.7	2.9	2.9	2.6	.3	10.0	8.6	1.5
331319	Other aluminum rolling & drawing	10.7	6.7	4.0	9.7	6.2	3.5	(D)	(D)	(D)
3314	Nonferrous metal (except aluminum) production & processing	190.2	97.8	92.4	111.1	47.0	64.1	66.0	40.4	25.6
33141	Nonferrous metal (except aluminum) smelting & refining	71.5	37.6	33.9	55.1	27.7	27.4	10.6	4.7	5.9
331411	Primary smelting & refining of copper	34.4	20.7	13.7	27.0	15.4	11.6	4.1	2.3	1.8
331419	Other nonferrous metal primary smelting & refining	37.1	16.9	20.2	28.2	12.3	15.9	6.5	2.3	4.1
33142	Copper rolling, drawing, extruding, & alloying	31.4	21.4	10.0	11.7	8.1	3.6	17.2	11.6	5.6
331421	Copper rolling, drawing, & extruding	24.1	16.7	7.4	6.0	4.4	1.6	16.0	10.9	5.0
331422	Copper wire (except mechanical) drawing	2.5	1.6	1.0	1.3	.9	.4	1.1	.5	.5
331423	Secondary smelting, refining, & alloying of copper	4.8	3.1	1.6	4.4	2.8	1.6	.2	.1	(Z)

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
326	Plastics & rubber products mfg—Con.							
3262	Rubber product mfg	19.8	9.2	10.6	.6	.2	.3	9
32621	Tire mfg	9.1	5.3	3.8	(D)	(D)	—	4
326211	Tire mfg (except retreading)	8.7	4.9	3.8	(D)	(D)	—	3
32622	Rubber & plastics hoses & belting mfg	1.9	1.5	.4	(D)	(D)	(D)	28
326220	Rubber & plastics hoses & belting mfg	1.9	1.5	.4	(D)	(D)	(D)	28
32629	Other rubber product mfg	8.8	2.4	6.4	.4	(D)	(D)	17
326291	Rubber product mfg for mechanical use	6.8	1.1	5.7	.3	(D)	(D)	25
326299	All other rubber product mfg	2.0	1.3	.7	(Z)	(Z)	(Z)	22
327	Nonmetallic mineral product mfg	61.7	51.4	10.3	15.0	14.7	.3	8
3271	Clay product & refractory mfg	7.2	6.3	.9	1.5	1.5	(Z)	12
32711	Pottery, ceramics, & plumbing fixture mfg	1.7	.8	.9	.1	.1	(Z)	12
327111	Vitreous china plumbing fixture & bathroom accessories mfg	.3	.2	.2	(Z)	(Z)	—	34
327112	Vitreous china, fine earthenware, & other pottery product mfg	.6	.5	.1	—	—	—	11
327113	Porcelain electrical supply mfg	.8	.2	.6	(Z)	(Z)	(Z)	9
32712	Clay building material & refractories mfg	5.5	5.5	(Z)	1.4	1.4	—	16
327121	Brick & structural clay tile mfg	.5	.5	—	—	—	—	18
327122	Ceramic wall & floor tile mfg	1.2	1.2	(Z)	1.4	1.4	—	18
327124	Clay refractory mfg	2.7	—	—	—	—	—	40
327125	Nonclay refractory mfg	1.0	1.0	—	—	—	—	23
3272	Glass & glass product mfg	10.6	7.2	3.4	12.6	12.4	.2	4
32721	Glass & glass product mfg	10.6	7.2	3.4	12.6	12.4	.2	4
327211	Flat glass mfg	2.0	1.5	.5	—	—	—	28
327212	Other pressed & blown glass & glassware mfg	5.9	4.3	1.7	(Z)	(Z)	—	3
327213	Glass container mfg	1.5	.7	.8	.1	(Z)	(Z)	4
327215	Glass product mfg made of purchased glass	1.1	.7	.4	12.6	12.4	.2	5
3273	Cement & concrete product mfg	12.9	7.9	4.9	.7	.7	(Z)	14
32731	Cement mfg	8.4	(D)	(D)	.2	(D)	(D)	17
327310	Cement mfg	8.4	(D)	(D)	.2	(D)	(D)	17
32732	Ready-mix concrete mfg	3.5	(D)	(D)	(D)	(D)	—	24
327320	Ready-mix concrete mfg	3.5	(D)	(D)	(D)	(D)	—	24
32733	Concrete pipe, brick, & block mfg	.3	(D)	(D)	(D)	(D)	(D)	30
327331	Concrete block & brick mfg	.1	.1	—	(D)	(D)	(D)	37
32739	Other concrete product mfg	.7	.5	.2	—	—	—	23
327390	Other concrete product mfg	.7	.5	.2	—	—	—	23
3274	Lime & gypsum product mfg	6.1	6.0	.1	.1	.1	—	11
32741	Lime mfg	3.6	3.6	(Z)	.1	.1	—	15
327410	Lime mfg	3.6	3.6	(Z)	.1	.1	—	15
32742	Gypsum product mfg	2.5	2.4	.1	(Z)	(Z)	—	12
327420	Gypsum product mfg	2.5	2.4	.1	(Z)	(Z)	—	12
3279	Other nonmetallic mineral product mfg	24.9	23.9	1.0	(Z)	(Z)	—	24
32791	Abrasive product mfg	3.5	2.6	.8	—	—	—	12
327910	Abrasive product mfg	3.5	2.6	.8	—	—	—	12
32799	All other nonmetallic mineral product mfg	21.4	21.3	.2	(Z)	(Z)	—	28
327992	Ground or treated mineral & earth mfg	12.4	12.4	(Z)	—	—	—	61
327993	Mineral wool mfg	8.2	8.2	.1	(Z)	(Z)	—	9
327999	All other miscellaneous nonmetallic mineral product mfg	.8	.8	.1	(Z)	(Z)	—	15
331	Primary metal mfg	205.0	134.0	70.9	11.6	10.2	1.4	3
3311	Iron & steel mills & ferroalloy mfg	107.4	63.6	43.7	8.2	7.5	.7	5
33111	Iron & steel mills & ferroalloy mfg	107.4	63.6	43.7	8.2	7.5	.7	5
331111	Iron & steel mills	100.5	61.7	38.8	8.2	7.5	.7	5
331112	Electrometallurgical ferroalloy product mfg	6.9	2.0	4.9	—	—	—	21
3312	Steel product mfg from purchased steel	12.8	8.3	4.5	(Z)	—	(Z)	8
33121	Iron & steel pipes & tubes mfg from purchased steel	4.0	2.2	1.8	(Z)	—	(Z)	19
331210	Iron & steel pipes & tubes mfg from purchased steel	4.0	2.2	1.8	(Z)	—	(Z)	19
33122	Rolling & drawing of purchased steel	8.7	6.0	2.7	—	—	—	8
331221	Cold-rolled steel shape mfg	3.7	2.2	1.6	—	—	—	2
331222	Steel wire drawing	5.0	3.9	1.1	—	—	—	15
3313	Alumina & aluminum production & processing	35.0	18.3	16.7	.5	.3	.2	7
33131	Alumina & aluminum production & processing	35.0	18.3	16.7	.5	.3	.2	7
331311	Alumina refining	6.8	6.8	—	—	—	—	1
331312	Primary aluminum production	18.3	6.1	12.3	(D)	(D)	—	11
331314	Secondary smelting & alloying of aluminum	2.1	(D)	(D)	(D)	(D)	—	7
331315	Aluminum sheet, plate, & foil mfg	5.8	3.1	2.7	.2	(D)	(D)	11
331316	Aluminum extruded product mfg	(D)	.6	(D)	(D)	—	(D)	18
331319	Other aluminum rolling & drawing	(D)	(D)	(D)	(D)	—	(D)	4
3314	Nonferrous metal (except aluminum) production & processing	11.2	8.8	2.4	1.9	1.6	.3	6
33141	Nonferrous metal (except aluminum) smelting & refining	(D)	(D)	(D)	(D)	(D)	(D)	11
331411	Primary smelting & refining of copper	(D)	(D)	(D)	(D)	(D)	(D)	20
331419	Other nonferrous metal primary smelting & refining	2.5	2.3	.2	—	—	—	10
33142	Copper rolling, drawing, extruding, & alloying	(D)	(D)	(D)	(D)	(D)	(D)	13
331421	Copper rolling, drawing, & extruding	1.6	(D)	(D)	.5	(D)	(D)	15
331422	Copper wire (except mechanical) drawing	(D)	(D)	—	(D)	(D)	—	51
331423	Secondary smelting, refining, & alloying of copper	.2	.2	—	—	—	—	2

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
331	Primary metal mfg—Con.									
3314	Nonferrous metal (except aluminum) production & processing—Con.									
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	87.2	38.8	48.5	44.2	11.2	33.0	38.2	24.1	14.1
331491	Other nonferrous metal rolling, drawing, & extruding	25.2	16.3	9.0	9.6	4.3	5.3	13.7	10.7	2.9
331492	Other nonferrous metal secondary smelting, refining, & alloying	62.0	22.5	39.5	34.6	6.9	27.7	24.6	13.4	11.2
3315	Foundries	179.2	150.3	28.9	107.2	94.6	12.6	32.3	19.8	12.5
33151	Ferrous metal foundries	142.3	123.3	19.0	89.8	82.6	7.2	19.8	11.4	8.4
331511	Iron foundries	119.6	104.5	15.1	75.1	69.2	5.9	16.7	9.9	6.8
331512	Steel investment foundries	11.9	8.3	3.5	6.7	5.7	1.0	2.3	.7	1.5
331513	Steel foundries (except investment)	10.8	10.4	.4	8.0	7.7	.3	.9	.8	.1
33152	Nonferrous metal foundries	36.9	27.0	9.9	17.4	12.0	5.4	12.5	8.4	4.1
331521	Aluminum die-casting foundries	25.4	21.4	4.0	12.5	10.3	2.3	8.0	6.4	1.5
331524	Aluminum foundries (except die-casting)	6.5	3.2	3.3	3.6	1.1	2.5	1.7	1.1	.6
331525	Copper foundries (except die-casting)	1.3	1.0	.3	.5	.4	.1	.4	.2	.2
331528	Other nonferrous foundries (except die-casting)	2.7	.7	2.0	.7	.3	.5	1.7	.2	1.6
332	Fabricated metal product mfg	405.3	181.8	223.5	89.2	51.1	38.1	167.2	92.5	74.7
3321	Forging & stamping	21.1	13.2	7.8	7.6	4.2	3.4	9.3	6.8	2.5
33211	Forging & stamping	21.1	13.2	7.8	7.6	4.2	3.4	9.3	6.8	2.5
332111	Iron & steel forging	3.7	3.3	.4	.4	.3	.1	2.3	(D)	(D)
332112	Nonferrous forging	5.4	3.5	2.0	2.5	1.7	.9	1.9	1.2	.7
332114	Custom roll forming	3.1	1.7	1.3	(D)	(D)	(D)	.6	(D)	(D)
332115	Crown & closure mfg	3.0	1.0	2.0	2.1	.7	1.4	.1	(D)	(D)
332116	Metal stamping	5.4	3.3	2.1	(D)	(D)	(D)	4.1	2.6	1.5
3322	Cutlery & handtool mfg	10.4	6.5	3.9	1.8	(D)	(D)	5.6	(D)	(D)
33221	Cutlery & handtool mfg	10.4	6.5	3.9	1.8	(D)	(D)	5.6	(D)	(D)
332212	Hand & edge tool mfg	9.0	5.4	3.6	(D)	(D)	(D)	5.2	(D)	(D)
3323	Architectural & structural metals mfg	14.0	6.6	7.4	3.9	1.3	2.6	4.2	(D)	(D)
33231	Plate work & fabricated structural product mfg	3.3	2.0	1.3	1.0	.9	.2	.6	(D)	(D)
332312	Fabricated structural metal mfg	2.8	1.6	1.2	.6	.5	.1	.6	(D)	(D)
332313	Plate work mfg	.1	.1	(Z)	.1	.1	(Z)	(Z)	(Z)	-
33232	Ornamental & architectural metal products mfg	10.7	4.6	6.1	2.8	.4	2.4	3.5	2.1	1.5
332321	Metal window & door mfg	7.0	3.4	3.6	2.1	.3	1.8	2.9	1.7	1.2
332322	Sheet metal work mfg	2.7	.9	1.9	.6	(Z)	.6	.2	.1	.1
332323	Ornamental & architectural metal work mfg	1.0	.4	.6	.1	.1	.1	.4	.2	.2
3324	Boiler, tank, & shipping container mfg	32.1	20.9	11.2	16.2	7.9	8.2	9.7	9.2	.6
33241	Power boiler & heat exchanger mfg	2.2	1.6	.7	.2	.1	.1	.9	.8	.1
332410	Power boiler & heat exchanger mfg	2.2	1.6	.7	.2	.1	.1	.9	.8	.1
33242	Metal tank (heavy gauge) mfg	1.6	1.0	.6	1.0	.8	.2	.3	.1	.2
332420	Metal tank (heavy gauge) mfg	1.6	1.0	.6	1.0	.8	.2	.3	.1	.2
33243	Metal can, box, & other metal container (light gauge) mfg	28.3	18.4	9.9	14.9	7.0	7.9	8.5	8.2	.2
332431	Metal can mfg	24.4	17.1	7.3	12.6	6.4	6.2	8.0	7.9	.1
332439	Other metal container mfg	3.9	1.3	2.6	2.3	.6	1.7	.4	.3	.1
3325	Hardware mfg	15.1	11.1	3.9	1.4	.9	.5	8.2	6.0	2.3
33251	Hardware mfg	15.1	11.1	3.9	1.4	.9	.5	8.2	6.0	2.3
332510	Hardware mfg	15.1	11.1	3.9	1.4	.9	.5	8.2	6.0	2.3
3326	Spring & wire product mfg	6.6	2.8	3.8	1.2	(D)	(D)	4.5	1.0	3.5
33261	Spring & wire product mfg	6.6	2.8	3.8	1.2	(D)	(D)	4.5	1.0	3.5
332612	Spring (light gauge) mfg	1.3	1.3	-	.8	.8	-	.4	.4	-
332618	Other fabricated wire product mfg	5.0	1.3	3.8	.3	.2	.2	4.0	.5	3.5
3327	Machine shops, turned product, & screw, nut, & bolt mfg	25.5	13.1	12.4	4.2	3.6	.6	15.5	5.7	9.7
33271	Machine shops	6.9	5.3	1.6	2.9	2.7	.2	1.3	.5	.8
332710	Machine shops	6.9	5.3	1.6	2.9	2.7	.2	1.3	.5	.8
33272	Turned product & screw, nut, & bolt mfg	18.6	7.8	10.8	1.3	.9	.3	14.2	5.2	8.9
332721	Precision turned product mfg	1.7	1.0	.7	.2	.2	(Z)	1.0	.7	.3
332722	Bolt, nut, screw, rivet, & washer mfg	17.0	6.9	10.1	1.1	.7	.3	13.1	4.5	8.6
3328	Coating, engraving, heat treating, & allied activities	108.0	46.0	61.9	26.2	10.5	15.7	68.1	29.6	38.5
33281	Coating, engraving, heat treating, & allied activities	108.0	46.0	61.9	26.2	10.5	15.7	68.1	29.6	38.5
332811	Metal heat treating	9.0	4.6	4.5	.6	(D)	(D)	8.3	4.2	4.0
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	31.9	12.0	20.0	19.2	(D)	(D)	10.9	5.1	5.8
332813	Electroplating, plating, polishing, anodizing, & coloring	67.0	29.5	37.5	6.4	(D)	(D)	49.0	20.3	28.7
3329	Other fabricated metal product mfg	172.6	61.5	111.1	26.7	20.4	6.3	42.0	28.5	13.5
33291	Metal valve mfg	15.0	7.6	7.3	2.8	1.8	1.0	7.9	3.1	4.8
332911	Industrial valve mfg	5.3	3.4	1.9	1.7	1.4	.4	2.3	1.0	1.3
332912	Fluid power valve & hose fitting mfg	4.6	2.2	2.4	.5	.2	.3	2.5	1.0	1.5
332913	Plumbing fixture fitting & trim mfg	3.4	1.0	2.4	.4	.1	.3	1.9	.4	1.5
332919	Other metal valve & pipe fitting mfg	1.7	1.1	.6	.1	.1	(Z)	1.2	.8	.5
33299	All other fabricated metal product mfg	157.6	53.8	103.8	23.9	18.6	5.3	34.1	25.4	8.7
332991	Ball & roller bearing mfg	52.8	42.0	10.8	18.4	15.6	2.8	22.0	20.9	1.1
332992	Small arms ammunition mfg	7.1	1.5	5.5	.2	.2	.1	4.6	.5	4.1
332993	Ammunition (except small arms) mfg	83.2	4.5	78.7	.7	.6	.2	2.8	1.9	.9
332994	Small arms mfg	2.4	1.3	1.1	.3	.1	.2	1.1	.7	.4
332995	Other ordnance & accessories mfg	4.4	1.2	3.2	1.3	1.0	.3	1.4	.1	1.3
332998	Enameled iron & metal sanitary ware mfg	1.4	.5	.8	-	-	-	.6	.5	(Z)
332999	All other miscellaneous fabricated metal product mfg	6.2	2.7	3.5	2.9	1.1	1.8	1.5	.6	.9

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
331	Primary metal mfg—Con.							
3314	Nonferrous metal (except aluminum) production & processing—Con.							
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	4.4	3.2	1.2	.4	.3	.1	8
331491	Other nonferrous metal rolling, drawing, & extruding	1.6	1.0	.6	.4	.3	.1	23
331492	Other nonferrous metal secondary smelting, refining, & alloying	2.8	2.2	.7	—	—	—	6
3315	Foundries	38.7	35.0	3.6	1.0	.8	.2	6
33151	Ferrous metal foundries	32.0	28.6	3.4	.8	.7	(Z)	5
331511	Iron foundries	27.1	24.7	2.4	.8	.7	(Z)	5
331512	Steel investment foundries	2.9	1.9	1.0	(Z)	(Z)	—	14
331513	Steel foundries (except investment)	2.0	2.0	(Z)	—	—	—	17
33152	Nonferrous metal foundries	6.7	6.5	.2	.2	(Z)	.2	21
331521	Aluminum die-casting foundries	4.9	4.7	.1	(Z)	(Z)	(Z)	29
331524	Aluminum foundries (except die-casting)	1.0	1.0	(Z)	.2	(Z)	.1	11
331525	Copper foundries (except die-casting)	.5	.4	(Z)	—	—	—	53
331528	Other nonferrous foundries (except die-casting)	.2	.2	(Z)	—	—	—	23
332	Fabricated metal product mfg	137.0	35.3	101.7	11.9	2.8	9.0	16
3321	Forging & stamping	3.6	2.1	1.4	.6	.2	.4	10
33211	Forging & stamping	3.6	2.1	1.4	.6	.2	.4	10
332111	Iron & steel forging	1.0	.7	.3	.1	(D)	(D)	30
332112	Nonferrous forging	.6	.5	.1	.4	.1	.3	16
332114	Custom roll forming	(D)	—	(D)	—	—	—	3
332115	Crown & closure mfg	.7	.2	.5	.1	(D)	(D)	16
332116	Metal stamping	1.2	(D)	(D)	(D)	—	(D)	25
3322	Cutlery & handtool mfg	2.8	1.8	1.0	.2	(D)	(D)	14
33221	Cutlery & handtool mfg	2.8	1.8	1.0	.2	(D)	(D)	14
332212	Hand & edge tool mfg	2.4	1.5	.8	(D)	(D)	(D)	16
3323	Architectural & structural metals mfg	5.6	2.7	2.9	.3	(D)	(D)	17
33231	Plate work & fabricated structural product mfg	1.6	.8	.8	(Z)	(D)	(D)	15
332312	Fabricated structural metal mfg	1.6	.8	.8	(Z)	(D)	(D)	16
332313	Plate work mfg	—	—	—	—	—	—	66
33232	Ornamental & architectural metal products mfg	4.0	2.0	2.0	.3	.2	.1	22
332321	Metal window & door mfg	1.8	1.2	.6	.2	.2	(Z)	30
332322	Sheet metal work mfg	1.8	.7	1.1	.1	—	.1	34
332323	Ornamental & architectural metal work mfg	.4	.1	.3	—	—	—	39
3324	Boiler, tank, & shipping container mfg	5.6	3.6	2.0	.6	.2	.4	10
33241	Power boiler & heat exchanger mfg	1.0	.6	.4	(Z)	(Z)	(Z)	33
332410	Power boiler & heat exchanger mfg	1.0	.6	.4	(Z)	(Z)	(Z)	33
33242	Metal tank (heavy gauge) mfg	.1	.1	(Z)	.2	—	.2	26
332420	Metal tank (heavy gauge) mfg	.1	.1	(Z)	.2	—	.2	26
33243	Metal can, box, & other metal container (light gauge) mfg	4.5	3.0	1.6	.4	.2	.2	11
332431	Metal can mfg	3.5	2.6	.8	.3	.2	.1	12
332439	Other metal container mfg	1.1	.3	.7	.1	—	.1	30
3325	Hardware mfg	5.0	3.9	1.0	.5	.3	.1	13
33251	Hardware mfg	5.0	3.9	1.0	.5	.3	.1	13
332510	Hardware mfg	5.0	3.9	1.0	.5	.3	.1	13
3326	Spring & wire product mfg	.7	(D)	(D)	.2	(D)	(D)	33
33261	Spring & wire product mfg	.7	(D)	(D)	.2	(D)	(D)	33
332612	Spring (light gauge) mfg	(Z)	(Z)	—	—	—	—	57
332618	Other fabricated wire product mfg	.6	.5	.1	.1	.1	(Z)	41
3327	Machine shops, turned product, & screw, nut, & bolt mfg	4.8	3.5	1.3	1.0	.2	.8	17
33271	Machine shops	2.6	2.1	.6	(Z)	(Z)	—	42
332710	Machine shops	2.6	2.1	.6	(Z)	(Z)	—	42
33272	Turned product & screw, nut, & bolt mfg	2.2	1.4	.7	1.0	.2	.8	17
332721	Precision turned product mfg	.4	.1	.3	—	—	—	24
332722	Bolt, nut, screw, rivet, & washer mfg	1.8	1.3	.4	1.0	.2	.8	19
3328	Coating, engraving, heat treating, & allied activities	11.9	(D)	(D)	1.7	(D)	(D)	11
33281	Coating, engraving, heat treating, & allied activities	11.9	(D)	(D)	1.7	(D)	(D)	11
332811	Metal heat treating	.2	(D)	(D)	—	—	—	16
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	1.8	(D)	(D)	(Z)	(D)	(D)	31
332813	Electroplating, plating, polishing, anodizing, & coloring	9.8	(D)	(D)	1.7	(D)	(D)	10
3329	Other fabricated metal product mfg	97.1	12.2	84.9	6.8	.4	6.4	36
33291	Metal valve mfg	3.7	2.6	1.1	.5	.1	.4	12
332911	Industrial valve mfg	1.1	.9	.2	.1	.1	(Z)	25
332912	Fluid power valve & hose fitting mfg	1.1	.9	.2	.4	(Z)	.4	17
332913	Plumbing fixture fitting & trim mfg	1.1	.5	.6	—	—	—	18
332919	Other metal valve & pipe fitting mfg	.3	.2	.1	—	—	—	29
33299	All other fabricated metal product mfg	93.4	9.6	83.8	6.3	.2	6.0	39
332991	Ball & roller bearing mfg	6.5	5.5	1.0	5.9	—	5.9	3
332992	Small arms ammunition mfg	2.1	.8	1.3	.1	(Z)	(Z)	1
332993	Ammunition (except small arms) mfg	79.6	1.9	77.7	.1	.1	(Z)	74
332994	Small arms mfg	1.0	.5	.5	.1	(Z)	(Z)	10
332995	Other ordnance & accessories mfg	1.7	.1	1.7	—	—	—	9
332998	Enameled iron & metal sanitary ware mfg	.8	(Z)	.8	—	—	—	62
332999	All other miscellaneous fabricated metal product mfg	1.7	.9	.8	.1	.1	(Z)	21

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
333	Machinery mfg	97.7	60.2	37.6	25.6	14.3	11.3	41.2	27.1	14.1
3331	Agriculture, construction, & mining machinery mfg	25.7	14.9	10.8	8.1	(D)	(D)	9.2	6.2	3.0
33311	Agricultural implement mfg	13.4	6.8	6.6	(D)	1.4	(D)	5.5	3.4	2.1
333111	Farm machinery & equipment mfg	12.4	6.2	6.2	1.9	1.2	.7	4.8	3.1	1.7
333112	Lawn & garden tractor & home lawn & garden equipment mfg	1.0	.6	.4	(D)	.1	(D)	.6	.2	.4
33312	Construction machinery mfg	11.0	7.0	4.1	5.8	3.4	2.3	3.7	2.8	.9
333120	Construction machinery mfg	11.0	7.0	4.1	5.8	3.4	2.3	3.7	2.8	.9
33313	Mining & oil & gas field machinery mfg	1.2	1.2	(Z)	(D)	(D)	(Z)	(Z)	(Z)	—
333132	Oil & gas field machinery & equipment mfg	1.2	(D)	(D)	.3	.3	(Z)	(Z)	(Z)	—
3332	Industrial machinery mfg	7.9	4.9	3.0	1.3	(D)	(D)	4.3	2.4	1.9
33329	Other industrial machinery mfg	7.3	4.5	2.8	(D)	(D)	(D)	4.1	2.3	1.7
333291	Paper industry machinery mfg	1.2	.9	.3	.9	.7	.2	(Z)	(Z)	—
333292	Textile machinery mfg	2.3	1.7	.6	.1	(Z)	.1	2.2	1.7	.5
333295	Semiconductor machinery mfg . . . . .	.5	.3	.2	(D)	(Z)	(D)	.2	(D)	(D)
333298	All other industrial machinery mfg	2.4	.9	1.5	.1	(D)	(D)	1.1	.2	1.0
3333	Commercial & service industry machinery mfg	9.0	3.2	5.8	6.1	1.8	4.3	1.7	.8	.9
33331	Commercial & service industry machinery mfg	9.0	3.2	5.8	6.1	1.8	4.3	1.7	.8	.9
333314	Optical instrument & lens mfg	1.2	.7	.5	.4	.3	(Z)	.2	.1	.1
333315	Photographic & photocopying equipment mfg	6.7	1.9	4.8	5.5	1.3	4.2	1.0	.5	.6
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	11.3	7.3	3.9	2.1	1.2	.8	5.0	3.1	1.9
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	11.3	7.3	3.9	2.1	1.2	.8	5.0	3.1	1.9
333414	Heating equipment (except warm air furnaces) mfg	1.2	.6	.6	.4	.2	.1	.3	.2	.2
333415	AC & warm air heating & commercial/industrial refig equip mfg	9.1	6.2	3.0	1.2	.8	.4	4.3	2.7	1.6
3335	Metalworking machinery mfg	6.6	4.1	2.5	1.1	.7	.4	3.2	2.2	1.1
33351	Metalworking machinery mfg	6.6	4.1	2.5	1.1	.7	.4	3.2	2.2	1.1
333512	Machine tool (metal cutting types) mfg	1.0	.7	.2	.2	.2	(Z)	.4	.2	.1
333514	Special die & tool, die set, jig, & fixture mfg	1.0	.2	.7	—	—	—	—	—	—
333515	Cutting tool & machine tool accessory mfg	2.6	1.6	1.0	.9	.6	.3	1.4	.8	.6
3336	Engine, turbine, & power transmission equipment mfg	17.9	12.6	5.3	2.5	1.5	1.1	10.3	7.6	2.7
33361	Engine, turbine, & power transmission equipment mfg	17.9	12.6	5.3	2.5	1.5	1.1	10.3	7.6	2.7
333611	Turbine & turbine generator set unit mfg	5.7	4.1	1.6	.9	.3	.6	1.9	1.8	.1
333613	Mechanical power transmission equipment mfg	3.7	2.3	1.5	.2	.2	(Z)	2.4	1.3	1.1
333618	Other engine equipment mfg	8.1	5.9	2.2	1.4	.9	.5	5.9	4.4	1.5
3339	Other general-purpose machinery mfg	19.4	13.3	6.2	4.4	3.0	1.4	7.4	4.8	2.6
33391	Pump & compressor mfg	5.3	3.9	1.3	1.3	.9	.4	1.3	.9	.4
333911	Pump & pumping equipment mfg	2.4	1.6	.9	.6	.5	.1	.8	.4	.4
333912	Air & gas compressor mfg	2.3	2.1	.2	.2	.1	(Z)	.5	.5	(Z)
33392	Material handling equipment mfg	3.9	3.2	.7	1.0	.8	.3	1.5	1.4	.1
333923	Overhead traveling crane, hoist, & monorail system mfg	1.5	1.4	.1	.1	.1	(Z)	.7	.7	(Z)
333924	Industrial truck, tractor, trailer, & stacker machinery mfg	1.4	1.1	.3	.7	.5	.2	.5	.4	(Z)
33399	All other general-purpose machinery mfg	10.2	6.1	4.1	2.1	1.3	.7	4.6	2.5	2.1
333992	Welding & soldering equipment mfg	2.0	1.5	.5	(D)	(D)	—	(D)	(D)	.3
333995	Fluid power cylinder & actuator mfg	3.2	.9	2.3	.4	—	.4	1.7	.3	1.5
333996	Fluid power pump & motor mfg	1.7	1.5	.2	.4	.3	.2	.8	.8	—
333999	All other miscellaneous general-purpose machinery mfg	2.1	1.3	.8	.2	.1	.1	1.0	.8	.2
334	Computer & electronic product mfg	325.4	135.0	190.4	59.5	24.9	34.6	208.6	85.2	123.3
3341	Computer & peripheral equipment mfg	9.5	8.3	1.2	.5	(D)	(D)	6.5	(D)	(D)
33411	Computer & peripheral equipment mfg	9.5	8.3	1.2	.5	(D)	(D)	6.5	(D)	(D)
334111	Electronic computer mfg	3.4	(D)	(D)	(Z)	(Z)	—	(D)	(D)	(D)
334119	Other computer peripheral equipment mfg	5.7	(D)	(D)	.5	(D)	(D)	4.0	(D)	(D)
3342	Communications equipment mfg	4.2	2.5	1.7	.4	(D)	(D)	1.6	(D)	(D)
33421	Telephone apparatus mfg	2.4	1.5	.8	.1	(D)	(D)	1.4	1.1	.3
334210	Telephone apparatus mfg	2.4	1.5	.8	.1	(D)	(D)	1.4	1.1	.3
33422	Radio & TV broadcasting & wireless communications equipment mfg	1.4	.7	.7	.2	(D)	(D)	.1	(D)	(D)
334220	Radio & TV broadcasting & wireless communications equipment mfg	1.4	.7	.7	.2	(D)	(D)	.1	(D)	(D)
3343	Audio & video equipment mfg	7.1	.8	6.3	1.0	(Z)	1.0	5.3	.2	5.1
33431	Audio & video equipment mfg	7.1	.8	6.3	1.0	(Z)	1.0	5.3	.2	5.1
334310	Audio & video equipment mfg	7.1	.8	6.3	1.0	(Z)	1.0	5.3	.2	5.1
3344	Semiconductor & other electronic component mfg	266.8	106.5	160.3	48.4	21.3	27.1	182.4	70.2	112.2
33441	Semiconductor & other electronic component mfg	266.8	106.5	160.3	48.4	21.3	27.1	182.4	70.2	112.2
334411	Electron tube mfg	14.3	2.6	11.7	1.2	.5	.7	13.0	2.1	10.9
334412	Bare printed circuit board mfg	40.0	10.3	29.7	1.8	1.1	.7	31.4	5.8	25.6
334413	Semiconductor & related device mfg	166.9	81.9	85.0	40.3	17.8	22.5	105.2	55.1	50.1
334414	Electronic capacitor mfg	4.3	1.9	2.4	1.1	.6	.5	1.2	1.0	.2
334415	Electronic resistor mfg	4.8	1.4	.4	.1	.1	(Z)	1.2	1.0	.2
334417	Electronic connector mfg	4.4	1.0	3.4	.5	.2	.3	2.1	.4	1.7
334418	Printed circuit assembly (electronic assembly) mfg	27.2	4.2	23.0	1.5	.5	1.0	24.7	3.5	21.2
334419	Other electronic component mfg	7.8	3.2	4.7	1.8	.4	1.4	3.6	1.3	2.3

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
333	Machinery mfg	28.8	17.7	11.1	2.1	1.2	1.0	7
3331	Agriculture, construction, & mining machinery mfg	7.8	3.1	4.7	.6	(D)	(D)	16
33311	Agricultural implement mfg	5.9	2.0	3.8	(D)	—	(D)	28
333111	Farm machinery & equipment mfg	5.6	1.8	3.8	—	—	—	31
333112	Lawn & garden tractor & home lawn & garden equipment mfg . . . . .	.2	.2	(Z)	(D)	—	(D)	14
33312	Construction machinery mfg	1.6	.7	.8	—	—	—	6
333120	Construction machinery mfg	1.6	.7	.8	—	—	—	6
33313	Mining & oil & gas field machinery mfg . . . . .	.3	.3	(Z)	(D)	(D)	—	87
333132	Oil & gas field machinery & equipment mfg	(D)	(D)	(D)	(D)	(D)	—	88
3332	Industrial machinery mfg	2.2	1.5	.7	(Z)	(D)	(D)	25
33329	Other industrial machinery mfg	2.0	(D)	(D)	(D)	(D)	(D)	27
333291	Paper industry machinery mfg . . . . .	.2	.2	.1	—	—	—	77
333292	Textile machinery mfg	—	—	—	—	—	—	60
333295	Semiconductor machinery mfg . . . . .	.2	.2	(Z)	(D)	(D)	—	1
333298	All other industrial machinery mfg	1.2	.8	.5	(Z)	(D)	(D)	42
3333	Commercial & service industry machinery mfg	1.2	.6	.7	(Z)	(Z)	—	41
33331	Commercial & service industry machinery mfg	1.2	.6	.7	(Z)	(Z)	—	41
333314	Optical instrument & lens mfg . . . . .	.6	.3	.4	—	—	—	27
333315	Photographic & photocopying equipment mfg . . . . .	.1	.1	.1	—	—	—	54
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	4.1	3.0	1.1	.1	(Z)	(Z)	10
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	4.1	3.0	1.1	.1	(Z)	(Z)	10
333414	Heating equipment (except warm air furnaces) mfg . . . . .	.5	.3	.3	(Z)	(Z)	(Z)	23
333415	AC & warm air heating & commercial/industrial refrig equip mfg	3.5	2.7	.9	(Z)	(Z)	(Z)	10
3335	Metalworking machinery mfg	1.4	1.0	.5	.8	.2	.6	25
33351	Metalworking machinery mfg	1.4	1.0	.5	.8	.2	.6	25
333512	Machine tool (metal cutting types) mfg . . . . .	.3	.2	.1	.1	.1	.1	44
333514	Special die & tool, die set, jig, & fixture mfg . . . . .	.2	.1	.1	.7	—	.6	100
333515	Cutting tool & machine tool accessory mfg . . . . .	.3	.2	.1	—	—	—	29
3336	Engine, turbine, & power transmission equipment mfg	4.8	3.4	1.4	.3	.1	.1	11
33361	Engine, turbine, & power transmission equipment mfg	4.8	3.4	1.4	.3	.1	.1	11
333611	Turbine & turbine generator set unit mfg	2.8	1.9	.9	.1	.1	(Z)	9
333613	Mechanical power transmission equipment mfg	1.1	.8	.3	—	—	—	44
333618	Other engine equipment mfg . . . . .	.7	.5	.1	.2	(Z)	.1	12
3339	Other general-purpose machinery mfg	7.3	5.2	2.1	.3	.2	.1	9
33391	Pump & compressor mfg	2.4	2.0	.5	.2	.2	.1	21
333911	Pump & pumping equipment mfg	1.0	.6	.4	(Z)	(Z)	(Z)	28
333912	Air & gas compressor mfg	1.4	1.4	(Z)	.2	.1	.1	36
33392	Material handling equipment mfg	1.4	1.1	.4	—	—	—	24
333923	Overhead traveling crane, hoist, & monorail system mfg . . . . .	.7	.6	.1	—	—	—	51
333924	Industrial truck, tractor, trailer, & stacker machinery mfg . . . . .	.2	.2	.1	—	—	—	7
33399	All other general-purpose machinery mfg	3.4	2.2	1.2	.1	.1	(Z)	9
333992	Welding & soldering equipment mfg . . . . .	.6	.4	.1	—	—	—	17
333995	Fluid power cylinder & actuator mfg	1.1	.6	.4	—	—	—	9
333996	Fluid power pump & motor mfg . . . . .	.4	.4	.1	.1	.1	(Z)	29
333999	All other miscellaneous general-purpose machinery mfg . . . . .	.9	.4	.5	—	—	—	25
334	Computer & electronic product mfg	50.6	18.9	31.7	6.7	6.0	.7	8
3341	Computer & peripheral equipment mfg	2.5	(D)	(D)	—	—	—	28
33411	Computer & peripheral equipment mfg	2.5	(D)	(D)	—	—	—	28
334111	Electronic computer mfg	(D)	(D)	(D)	—	—	—	38
334119	Other computer peripheral equipment mfg	1.2	(D)	(D)	—	—	—	40
3342	Communications equipment mfg	2.2	(D)	(D)	(Z)	(Z)	—	8
33421	Telephone apparatus mfg . . . . .	.8	(D)	(D)	—	—	—	5
334210	Telephone apparatus mfg . . . . .	.8	(D)	(D)	—	—	—	5
33422	Radio & TV broadcasting & wireless communications equipment mfg	1.0	.3	.7	(Z)	(Z)	—	18
334220	Radio & TV broadcasting & wireless communications equipment mfg	1.0	.3	.7	(Z)	(Z)	—	18
3343	Audio & video equipment mfg . . . . .	.8	.6	.2	—	—	—	7
33431	Audio & video equipment mfg . . . . .	.8	.6	.2	—	—	—	7
334310	Audio & video equipment mfg . . . . .	.8	.6	.2	—	—	—	7
3344	Semiconductor & other electronic component mfg	29.8	9.4	20.4	6.2	5.7	.5	10
33441	Semiconductor & other electronic component mfg	29.8	9.4	20.4	6.2	5.7	.5	10
334411	Electron tube mfg . . . . .	.1	(Z)	.1	—	—	—	27
334412	Bare printed circuit board mfg	6.3	2.9	3.4	.5	.5	.1	17
334413	Semiconductor & related device mfg	16.2	4.1	12.1	5.3	4.9	.3	13
334414	Electronic capacitor mfg	2.0	.3	1.7	(Z)	—	(Z)	11
334415	Electronic resistor mfg . . . . .	.1	.1	(Z)	.3	.2	.1	38
334417	Electronic connector mfg	1.8	.4	1.4	—	—	—	30
334418	Printed circuit assembly (electronic assembly) mfg	1.0	.2	.8	—	—	—	40
334419	Other electronic component mfg	2.3	1.4	1.0	.1	.1	—	37

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
334	Computer & electronic product mfg—Con.									
3345	Navigational, measuring, medical, & control instruments mfg	26.4	14.0	12.4	4.2	1.8	2.4	9.5	5.8	3.7
33451	Navigational, measuring, medical, & control instruments mfg	26.4	14.0	12.4	4.2	1.8	2.4	9.5	5.8	3.7
334510	Electromedical & electrotherapeutic apparatus mfg	3.3	1.9	1.4	.2	.1	.1	1.4	1.2	.2
334511	Search, detection, navigation, & guidance instrument mfg	10.2	4.9	5.3	1.8	.5	1.3	4.6	2.9	1.7
334513	Industrial process control instrument mfg	2.8	.9	1.9	.1	(Z)	(Z)	.3	.1	.1
334514	Totalizing fluid meter & counting device mfg	4.7	3.6	1.1	1.1	.8	.3	.8	(D)	(D)
334515	Electricity measuring & testing instrument mfg	2.3	1.3	1.0	.4	(Z)	.4	.6	.2	.4
3346	Mfg & reproducing magnetic & optical media	11.3	2.9	8.4	5.0	1.0	4.0	3.1	1.2	1.9
33461	Mfg & reproducing magnetic & optical media	11.3	2.9	8.4	5.0	1.0	4.0	3.1	1.2	1.9
334612	Prerecorded CD (except software), tape, & record reproducing	1.7	(Z)	1.7	—	—	—	—	—	—
334613	Magnetic & optical recording media mfg	9.6	2.9	6.7	5.0	1.0	4.0	3.1	1.2	1.9
335	Electrical equipment, appliance, & component mfg	97.0	59.9	37.1	40.7	27.0	13.7	32.2	19.6	12.6
3351	Electric lighting equipment mfg	5.9	4.2	1.8	(D)	(D)	(D)	2.3	1.9	.4
33511	Electric lamp bulb & part mfg	4.2	2.8	1.5	.4	.1	.3	1.4	1.1	.3
335110	Electric lamp bulb & part mfg	4.2	2.8	1.5	.4	.1	.3	1.4	1.1	.3
33512	Lighting fixture mfg	1.7	1.4	.3	(D)	(D)	(D)	.9	.8	.1
335129	Other lighting equipment mfg	1.2	1.1	.2	.4	(D)	(D)	.7	(D)	(D)
3352	Household appliance mfg	10.6	7.7	2.9	(D)	(D)	(D)	5.3	3.7	1.7
33522	Major appliance mfg	9.7	6.9	2.8	(D)	(D)	(D)	5.1	3.5	1.7
335221	Household cooking appliance mfg	1.3	1.2	.1	(D)	—	(D)	.8	.8	.1
335222	Household refrigerator & home freezer mfg	3.2	2.1	1.1	(Z)	(Z)	(Z)	1.5	.9	.7
335224	Household laundry equipment mfg	3.3	2.1	1.2	(D)	(D)	(D)	1.9	1.2	.6
335228	Other major household appliance mfg	1.9	1.5	.4	.4	(D)	(D)	.9	.6	.3
3353	Electrical equipment mfg	12.5	7.4	5.1	2.2	(D)	(D)	5.8	3.3	2.5
33531	Electrical equipment mfg	12.5	7.4	5.1	2.2	(D)	(D)	5.8	3.3	2.5
335311	Power, distribution, & specialty transformer mfg	1.0	.4	.6	.1	(D)	(D)	.2	(D)	(D)
335312	Motor & generator mfg	5.2	3.9	1.3	(D)	(D)	(D)	1.4	(D)	(D)
335313	Switchgear & switchboard apparatus mfg	4.8	2.3	2.5	(D)	(D)	(D)	3.3	1.3	2.0
335314	Relay & industrial control mfg	1.5	.8	.8	.2	.1	.1	.9	.6	.3
3359	Other electrical equipment & component mfg	68.0	40.7	27.2	36.3	24.3	12.0	18.8	10.7	8.1
33591	Battery mfg	18.7	3.3	15.4	8.3	1.1	7.2	6.9	1.1	5.7
335911	Storage battery mfg	15.1	2.3	12.8	7.3	(D)	(D)	5.5	.7	4.7
335912	Primary battery mfg	3.6	1.0	2.6	1.1	(D)	(D)	1.4	.4	1.0
33592	Communication & energy wire & cable mfg	19.2	14.9	4.2	9.9	8.2	1.7	4.8	4.5	.3
335921	Fiber optic cable mfg	3.6	2.2	1.4	1.4	—	1.4	2.2	2.2	(Z)
335929	Other communication & energy wire mfg	15.5	12.7	2.8	8.5	8.2	.3	2.7	2.3	.3
33593	Wiring device mfg	7.0	4.7	2.3	2.5	1.8	.7	2.2	1.7	.6
335931	Current-carrying wiring device mfg	2.8	2.3	.5	1.6	1.4	.2	.7	(D)	(D)
335932	Noncurrent-carrying wiring device mfg	4.1	2.4	1.8	.9	.4	.5	1.6	(D)	(D)
33599	All other electrical equipment & component mfg	23.1	17.8	5.3	15.6	13.2	2.4	4.8	3.4	1.4
335991	Carbon & graphite product mfg	19.6	16.6	3.0	14.8	12.6	2.2	2.9	2.9	(Z)
335999	All other miscellaneous electrical equipment & component mfg	3.5	1.2	2.3	.8	.6	.2	1.9	.5	1.4
336	Transportation equipment mfg	454.4	262.9	191.5	152.0	84.8	67.2	190.6	109.0	81.6
3361	Motor vehicle mfg	151.6	90.2	61.4	72.0	42.8	29.2	54.7	28.5	26.2
33611	Automobile & light duty motor vehicle mfg	138.5	81.7	56.8	68.7	40.4	28.3	50.3	26.2	24.1
336111	Automobile mfg	74.6	42.5	32.1	40.5	22.0	18.5	21.9	11.7	10.1
336112	Light truck & utility vehicle mfg	63.9	39.2	24.7	28.2	18.4	9.8	28.5	14.5	13.9
33612	Heavy duty truck mfg	13.2	8.5	4.7	3.3	2.4	.9	4.4	2.3	2.2
336120	Heavy duty truck mfg	13.2	8.5	4.7	3.3	2.4	.9	4.4	2.3	2.2
3362	Motor vehicle body & trailer mfg	7.3	4.3	3.0	3.2	2.1	1.1	(D)	(D)	1.1
33621	Motor vehicle body & trailer mfg	7.3	4.3	3.0	3.2	2.1	1.1	(D)	(D)	1.1
336211	Motor vehicle body mfg	4.7	2.7	2.0	2.7	1.7	1.0	(D)	(D)	.6
336212	Truck trailer mfg	1.3	.9	.4	.3	.3	(Z)	(D)	(D)	.1
336213	Motor home mfg	.7	.5	.3	.1	.1	(Z)	.3	.2	.2
3363	Motor vehicle parts mfg	179.1	122.4	56.7	47.8	28.8	19.0	89.4	64.9	24.5
33631	Motor vehicle gasoline engine & engine parts mfg	36.6	27.2	9.4	10.3	8.4	1.8	18.5	12.9	5.6
336311	Carburetor, piston, piston ring, & valve mfg	5.6	2.0	3.6	1.9	.4	1.5	1.8	1.2	.6
336312	Gasoline engine & engine parts mfg	31.0	25.2	5.8	8.4	8.0	.4	16.7	11.7	4.9
33632	Motor vehicle electrical & electronic equipment mfg	11.9	9.2	2.7	3.8	2.8	1.0	2.2	1.9	.3
336321	Vehicular lighting equipment mfg	1.2	1.1	(Z)	.7	.7	—	.4	.4	—
336322	Other motor vehicle electrical & electronic equipment mfg	10.7	8.0	2.7	3.1	2.2	1.0	1.7	1.5	.3
33633	Motor vehicle steering & suspension component (except spring) mfg	23.0	18.4	4.7	5.6	3.9	1.6	12.7	10.7	1.9
336330	Motor vehicle steering & suspension component (except spring) mfg	23.0	18.4	4.7	5.6	3.9	1.6	12.7	10.7	1.9
33634	Motor vehicle brake system mfg	14.8	8.5	6.3	3.5	2.4	1.0	4.9	3.0	1.8
336340	Motor vehicle brake system mfg	14.8	8.5	6.3	3.5	2.4	1.0	4.9	3.0	1.8
33635	Motor vehicle transmission & power train parts mfg	31.8	23.4	8.4	3.9	3.4	.4	19.4	14.0	5.4
336350	Motor vehicle transmission & power train parts mfg	31.8	23.4	8.4	3.9	3.4	.4	19.4	14.0	5.4
33636	Motor vehicle seating & interior trim mfg	3.3	1.6	1.7	2.0	.7	1.3	.4	.2	.3
336360	Motor vehicle seating & interior trim mfg	3.3	1.6	1.7	2.0	.7	1.3	.4	.2	.3
33637	Motor vehicle metal stamping	10.6	8.8	1.8	2.4	2.3	.1	6.0	4.9	1.1
336370	Motor vehicle metal stamping	10.6	8.8	1.8	2.4	2.3	.1	6.0	4.9	1.1
33639	Other motor vehicle parts mfg	47.1	25.4	21.7	16.4	4.8	11.6	25.4	17.2	8.2
336391	Motor vehicle air-conditioning mfg	9.2	7.6	1.7	2.5	1.9	.6	6.1	5.2	.9
336399	All other motor vehicle parts mfg	37.9	17.8	20.1	14.0	2.9	11.0	19.2	12.0	7.3

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
334	Computer & electronic product mfg—Con.							
3345	Navigational, measuring, medical, & control instruments mfg	12.2	6.1	6.1	.5	.3	.2	13
33451	Navigational, measuring, medical, & control instruments mfg	12.2	6.1	6.1	.5	.3	.2	13
334510	Electromedical & electrotherapeutic apparatus mfg	1.7	.6	1.1	(Z)	(Z)	(Z)	29
334511	Search, detection, navigation, & guidance instrument mfg	3.7	1.4	2.2	.1	.1	.1	14
334513	Industrial process control instrument mfg	2.4	.7	1.7	—	—	—	94
334514	Totalizing fluid meter & counting device mfg	2.8	2.1	.7	(Z)	(D)	(D)	10
334515	Electricity measuring & testing instrument mfg	1.0	.9	.1	.3	.2	.1	60
3346	Mfg & reproducing magnetic & optical media	3.2	.7	2.5	—	—	—	17
33461	Mfg & reproducing magnetic & optical media	3.2	.7	2.5	—	—	—	17
334612	Prerecorded CD (except software), tape, & record reproducing	1.7	(Z)	1.7	—	—	—	52
334613	Magnetic & optical recording media mfg	1.4	.7	.7	—	—	—	18
335	Electrical equipment, appliance, & component mfg	22.7	12.6	10.1	1.4	.7	.7	6
3351	Electric lighting equipment mfg	2.7	(D)	(D)	(D)	(D)	(D)	32
33511	Electric lamp bulb & part mfg	2.4	1.6	.8	—	—	—	44
335110	Electric lamp bulb & part mfg	2.4	1.6	.8	—	—	—	44
33512	Lighting fixture mfg	.3	(D)	(D)	(D)	(D)	(D)	18
335129	Other lighting equipment mfg	(D)	(D)	(D)	(D)	(D)	(D)	23
3352	Household appliance mfg	3.9	(D)	(D)	(D)	(D)	(D)	8
33522	Major appliance mfg	3.5	2.7	.8	(D)	(D)	(D)	9
335221	Household cooking appliance mfg	.4	(D)	(D)	(D)	(D)	(D)	11
335222	Household refrigerator & home freezer mfg	1.6	1.2	.5	—	—	—	1
335224	Household laundry equipment mfg	.9	(D)	(D)	(D)	(D)	(D)	6
335228	Other major household appliance mfg	.6	(D)	(D)	(Z)	(D)	(D)	42
3353	Electrical equipment mfg	4.2	2.3	1.9	.3	(D)	(D)	11
33531	Electrical equipment mfg	4.2	2.3	1.9	.3	(D)	(D)	11
335311	Power, distribution, & specialty transformer mfg	.7	(D)	(D)	—	—	—	16
335312	Motor & generator mfg	1.8	1.2	.6	(D)	(D)	(D)	21
335313	Switchgear & switchboard apparatus mfg	1.3	(D)	(D)	(D)	(D)	(D)	16
335314	Relay & industrial control mfg	.5	.1	.4	—	—	—	24
3359	Other electrical equipment & component mfg	11.9	5.4	6.4	1.0	.3	.7	7
33591	Battery mfg	3.3	(D)	(D)	.1	(D)	(D)	7
335911	Storage battery mfg	2.3	(D)	(D)	(Z)	(D)	(D)	8
335912	Primary battery mfg	1.0	(D)	(D)	.1	(D)	(D)	12
33592	Communication & energy wire & cable mfg	3.9	2.1	1.8	.6	.1	.4	13
335921	Fiber optic cable mfg	.1	(Z)	(Z)	—	—	—	1
335929	Other communication & energy wire mfg	3.8	2.1	1.7	.6	.1	.4	16
33593	Wiring device mfg	2.0	(D)	(D)	.3	(D)	(D)	14
335931	Current-carrying wiring device mfg	(D)	(D)	(D)	(D)	(D)	(D)	31
335932	Noncurrent-carrying wiring device mfg	(D)	(D)	(D)	(D)	(D)	(D)	7
33599	All other electrical equipment & component mfg	2.6	1.2	1.4	(Z)	(Z)	—	15
335991	Carbon & graphite product mfg	1.9	1.2	.7	(Z)	(Z)	—	11
335999	All other miscellaneous electrical equipment & component mfg	.7	(Z)	.7	—	—	—	74
336	Transportation equipment mfg	104.1	65.0	39.2	7.7	4.2	3.5	4
3361	Motor vehicle mfg	24.0	(D)	(D)	.9	(D)	(D)	4
33611	Automobile & light duty motor vehicle mfg	19.2	14.7	4.5	.3	.3	—	4
336111	Automobile mfg	12.2	8.7	3.5	—	—	—	5
336112	Light truck & utility vehicle mfg	7.0	6.0	.9	.3	.3	—	5
33612	Heavy duty truck mfg	4.8	(D)	(D)	.6	(D)	(D)	12
336120	Heavy duty truck mfg	4.8	(D)	(D)	.6	(D)	(D)	12
3362	Motor vehicle body & trailer mfg	2.3	1.5	.8	(D)	(D)	—	14
33621	Motor vehicle body & trailer mfg	2.3	1.5	.8	(D)	(D)	—	14
336211	Motor vehicle body mfg	(D)	(D)	.4	(D)	(D)	—	21
336212	Truck trailer mfg	.6	.3	.3	(D)	(D)	—	14
336213	Motor home mfg	.3	.3	.1	—	—	—	8
3363	Motor vehicle parts mfg	36.3	26.0	10.4	5.5	2.7	2.8	7
33631	Motor vehicle gasoline engine & engine parts mfg	6.0	5.1	.8	1.9	.7	1.1	14
336311	Carburetor, piston, piston ring, & valve mfg	.7	.4	.3	1.1	(Z)	1.1	26
336312	Gasoline engine & engine parts mfg	5.3	4.8	.5	.7	.7	—	16
33632	Motor vehicle electrical & electronic equipment mfg	5.7	4.4	1.4	.2	.1	.1	14
336321	Vehicular lighting equipment mfg	.1	(Z)	(Z)	—	—	—	48
336322	Other motor vehicle electrical & electronic equipment mfg	5.7	4.3	1.4	.2	.1	.1	15
33633	Motor vehicle steering & suspension component (except spring) mfg	4.7	3.6	1.1	.1	.1	—	5
336330	Motor vehicle steering & suspension component (except spring) mfg	4.7	3.6	1.1	.1	.1	—	5
33634	Motor vehicle brake system mfg	5.9	2.6	3.3	.5	.4	.1	22
336340	Motor vehicle brake system mfg	5.9	2.6	3.3	.5	.4	.1	22
33635	Motor vehicle transmission & power train parts mfg	7.0	5.8	1.2	1.6	.2	1.4	9
336350	Motor vehicle transmission & power train parts mfg	7.0	5.8	1.2	1.6	.2	1.4	9
33636	Motor vehicle seating & interior trim mfg	.9	.8	.1	—	—	—	36
336360	Motor vehicle seating & interior trim mfg	.9	.8	.1	—	—	—	36
33637	Motor vehicle metal stamping	1.8	1.2	.6	.4	.4	(Z)	12
336370	Motor vehicle metal stamping	1.8	1.2	.6	.4	.4	(Z)	12
33639	Other motor vehicle parts mfg	4.4	2.4	1.9	.9	.9	(Z)	19
336391	Motor vehicle air-conditioning mfg	.6	.4	.2	—	—	—	3
336399	All other motor vehicle parts mfg	3.8	2.0	1.7	.9	.9	(Z)	24

See footnote at end of table.

Table 4b. Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement								
		Total			Air			Water		
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
31-33	Manufacturing—Con.									
336	Transportation equipment mfg—Con.									
3364	Aerospace product & parts mfg	92.2	29.5	62.8	(D)	(D)	(D)	35.9	9.6	26.3
33641	Aerospace product & parts mfg	92.2	29.5	62.8	(D)	(D)	(D)	35.9	9.6	26.3
336411	Aircraft mfg	36.3	11.7	24.7	4.8	1.7	3.1	13.1	3.2	10.0
336412	Aircraft engine & engine parts mfg	6.3	3.1	3.2	(D)	(D)	4	3.7	1.4	2.3
336413	Other aircraft part & auxiliary equipment mfg	31.8	7.8	24.0	12.9	3.3	9.6	12.0	2.3	9.7
336414	Guided missile & space vehicle mfg	7.4	2.2	5.2	(D)	(D)	1.9	2.3	.6	1.7
336415	Guided missile & space vehicle propulsion unit & parts mfg	9.3	4.5	4.8	3.2	1.7	1.6	4.1	2.1	1.9
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	1.0	.2	.9	.2	(D)	(D)	.7	(Z)	.7
3365	Railroad rolling stock mfg	4.4	3.4	1.0	1.1	1.0	.2	1.9	1.5	.4
33651	Railroad rolling stock mfg	4.4	3.4	1.0	1.1	1.0	.2	1.9	1.5	.4
336510	Railroad rolling stock mfg	4.4	3.4	1.0	1.1	1.0	.2	1.9	1.5	.4
3366	Ship & boat building	16.7	11.4	5.4	2.6	1.9	.7	6.0	3.3	2.8
33661	Ship & boat building	16.7	11.4	5.4	2.6	1.9	.7	6.0	3.3	2.8
336611	Ship building & repairing	10.8	6.9	3.9	1.9	1.2	.7	4.4	2.4	2.0
336612	Boat building	5.9	4.5	1.4	.7	.7	(Z)	1.6	.8	.8
3369	Other transportation equipment mfg	2.9	1.7	1.2	(D)	(D)	(D)	(D)	(D)	.3
33699	Other transportation equipment mfg	2.9	1.7	1.2	(D)	(D)	(D)	(D)	(D)	.3
336999	All other transportation equipment mfg	2.1	1.4	.7	.3	.1	.2	.8	.6	.3
337	Furniture & related product mfg	39.1	22.7	16.4	17.7	10.1	7.5	7.0	3.9	3.0
3371	Household & institutional furniture & kitchen cabinet mfg	26.8	15.3	11.5	13.8	8.2	5.7	2.1	.7	1.4
33711	Wood kitchen cabinet & counter top mfg	8.9	6.2	2.8	4.2	3.9	.3	(Z)	(Z)	(Z)
337110	Wood kitchen cabinet & counter top mfg	8.9	6.2	2.8	4.2	3.9	.3	(Z)	(Z)	(Z)
33712	Household & institutional furniture mfg	17.9	9.1	8.7	9.7	4.2	5.4	2.0	.7	1.4
337121	Upholstered household furniture mfg	1.0	.7	.2	.4	(D)	(D)	(D)	(D)	—
337122	Nonupholstered wood household furniture mfg	13.1	6.8	6.3	8.2	3.6	4.6	.4	(D)	(D)
337124	Metal household furniture mfg	.8	.5	.4	.2	(D)	(D)	.3	(D)	(D)
337127	Institutional furniture mfg	2.6	.9	1.7	.8	(D)	(D)	1.2	.3	.9
3372	Office furniture (including fixtures) mfg	11.3	7.1	4.2	3.3	1.8	1.4	4.6	3.2	1.4
33721	Office furniture (including fixtures) mfg	11.3	7.1	4.2	3.3	1.8	1.4	4.6	3.2	1.4
337211	Wood office furniture mfg	1.8	1.1	.6	.5	.4	.1	.3	.2	.2
337212	Custom architectural woodwork & millwork mfg	2.4	2.0	.4	.3	(D)	(D)	1.7	(D)	(D)
337214	Office furniture (except wood) mfg	3.1	2.0	1.0	1.0	(D)	(D)	.4	(D)	(D)
337215	Showcase, partition, shelving, & locker mfg	4.1	2.0	2.1	1.4	.7	.8	2.1	1.1	1.0
3379	Other furniture related product mfg	1.0	.3	.8	.6	.2	.4	.4	.1	.3
33792	Blind & shade mfg	1.0	.3	.8	.6	.2	.4	.4	.1	.3
337920	Blind & shade mfg	1.0	.3	.8	.6	.2	.4	.4	.1	.3
339	Miscellaneous mfg	42.8	23.6	19.3	16.5	8.8	7.7	10.8	6.7	4.1
3391	Medical equipment & supplies mfg	11.0	5.7	5.3	4.9	1.7	3.2	2.1	1.6	.5
33911	Medical equipment & supplies mfg	11.0	5.7	5.3	4.9	1.7	3.2	2.1	1.6	.5
339112	Surgical & medical instrument mfg	3.2	2.3	.9	1.0	.6	.4	1.1	1.0	.2
339113	Surgical appliance & supplies mfg	4.8	1.1	3.8	3.2	.4	2.8	.7	.4	.3
339115	Ophthalmic goods mfg	1.8	1.7	.1	.6	.6	—	(Z)	(Z)	—
3399	Other miscellaneous mfg	31.8	17.8	14.0	11.6	7.2	4.4	8.7	5.2	3.6
33991	Jewelry & silverware mfg	2.6	.9	1.7	.4	(D)	(D)	1.7	(D)	(D)
339911	Jewelry (except costume) mfg	1.1	.7	.7	.3	(D)	(D)	.5	.1	.5
33992	Sporting & athletic goods mfg	3.9	1.8	2.0	1.0	.3	.7	1.0	.6	.4
339920	Sporting & athletic goods mfg	3.9	1.8	2.0	1.0	.3	.7	1.0	.6	.4
33994	Office supplies (except paper) mfg	2.3	1.1	1.2	1.1	.2	1.0	.6	.4	.2
33995	Sign mfg	1.0	.6	.4	(D)	(D)	(D)	(D)	(D)	(D)
339950	Sign mfg	1.0	.6	.4	(D)	(D)	(D)	(D)	(D)	(D)
33999	All other miscellaneous mfg	22.0	13.3	8.7	8.8	6.1	2.7	5.4	3.7	1.6
339991	Gasket, packing, & sealing device mfg	9.9	6.7	3.2	5.5	3.0	2.4	2.1	1.9	.2
339992	Musical instrument mfg	1.4	1.1	.2	.1	.1	—	.5	.4	.1
339993	Fastener, button, needle, & pin mfg	5.8	2.2	3.6	1.6	1.5	(Z)	1.4	.5	.8
339999	All other miscellaneous mfg	4.5	3.0	1.5	1.4	1.2	.2	1.3	.8	.5

See footnote at end of table.

Table 4b. **Pollution Abatement Operating Cost by Industry for All Media: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total abatement operating costs are less than \$1.0 million]

NAICS code	Industry	Pollution abatement—Con.						Relative standard error (PAOC)
		Solid waste			Multimedia			
		Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
31-33	Manufacturing—Con.							
336	Transportation equipment mfg—Con.							
3364	Aerospace product & parts mfg	31.2	11.6	19.6	(D)	(D)	(D)	7
33641	Aerospace product & parts mfg	31.2	11.6	19.6	(D)	(D)	(D)	7
336411	Aircraft mfg	18.4	6.8	11.6	—	—	—	14
336412	Aircraft engine & engine parts mfg	1.2	.8	.4	(D)	(D)	—	24
336413	Other aircraft part & auxiliary equipment mfg	6.8	(D)	(D)	.1	(D)	(D)	12
336414	Guided missile & space vehicle mfg	2.7	(D)	(D)	(D)	—	(D)	8
336415	Guided missile & space vehicle propulsion unit & parts mfg	2.0	.7	1.3	—	—	—	1
336419	Other guided missile & space vehicle parts & auxiliary equip mfg	.1	(D)	(D)	—	—	—	12
3365	Railroad rolling stock mfg	1.4	.9	.4	—	—	—	14
33651	Railroad rolling stock mfg	1.4	.9	.4	—	—	—	14
336510	Railroad rolling stock mfg	1.4	.9	.4	—	—	—	14
3366	Ship & boat building	7.5	5.9	1.6	.6	.3	.3	7
33661	Ship & boat building	7.5	5.9	1.6	.6	.3	.3	7
336611	Ship building & repairing	3.9	2.9	1.0	.6	.3	.3	7
336612	Boat building	3.7	3.0	.7	(Z)	—	(Z)	13
3369	Other transportation equipment mfg	1.5	(D)	(D)	(D)	(D)	(D)	3
33699	Other transportation equipment mfg	1.5	(D)	(D)	(D)	(D)	(D)	3
336999	All other transportation equipment mfg	1.0	.8	.2	—	—	—	3
337	Furniture & related product mfg	13.6	8.1	5.6	.8	.5	.3	8
3371	Household & institutional furniture & kitchen cabinet mfg	10.4	6.0	4.4	.5	.4	.1	9
33711	Wood kitchen cabinet & counter top mfg	4.7	2.2	2.5	(Z)	(Z)	—	22
337110	Wood kitchen cabinet & counter top mfg	4.7	2.2	2.5	(Z)	(Z)	—	22
33712	Household & institutional furniture mfg	5.7	3.8	1.9	.5	.4	.1	7
337121	Upholstered household furniture mfg	.5	.4	.1	(D)	(D)	(D)	10
337122	Nonupholstered wood household furniture mfg	4.1	2.7	1.5	.4	(D)	(D)	6
337124	Metal household furniture mfg	.2	.2	.1	(Z)	(D)	(D)	9
337127	Institutional furniture mfg	(D)	.4	(D)	(D)	(D)	(Z)	29
3372	Office furniture (including fixtures) mfg	3.2	2.0	1.2	.3	.1	.2	17
33721	Office furniture (including fixtures) mfg	3.2	2.0	1.2	.3	.1	.2	17
337211	Wood office furniture mfg	.9	.5	.4	—	—	—	16
337212	Custom architectural woodwork & millwork mfg	(D)	(D)	(D)	(D)	(D)	(D)	70
337214	Office furniture (except wood) mfg	(D)	1.2	(D)	(D)	(D)	(D)	21
337215	Showcase, partition, shelving, & locker mfg	(D)	(D)	.4	(D)	(D)	—	12
3379	Other furniture related product mfg	.1	.1	(Z)	—	—	—	9
33792	Blind & shade mfg	.1	.1	(Z)	—	—	—	9
337920	Blind & shade mfg	.1	.1	(Z)	—	—	—	9
339	Miscellaneous mfg	13.6	6.8	6.8	1.9	1.2	.7	10
3391	Medical equipment & supplies mfg	3.6	2.2	1.4	.4	.4	.1	12
33911	Medical equipment & supplies mfg	3.6	2.2	1.4	.4	.4	.1	12
339112	Surgical & medical instrument mfg	.8	.5	.3	.3	.3	(Z)	21
339113	Surgical appliance & supplies mfg	.9	.2	.7	(Z)	(Z)	(Z)	18
339115	Ophthalmic goods mfg	1.2	1.1	.1	—	—	—	27
3399	Other miscellaneous mfg	10.0	4.7	5.4	1.4	.8	.6	12
33991	Jewelry & silverware mfg	.5	(D)	(D)	.1	(Z)	(Z)	12
339911	Jewelry (except costume) mfg	.3	(D)	(D)	—	—	—	24
33992	Sporting & athletic goods mfg	1.2	.8	.4	.7	.2	.5	20
339920	Sporting & athletic goods mfg	1.2	.8	.4	.7	.2	.5	20
33994	Office supplies (except paper) mfg	.4	.3	(Z)	.2	.2	—	31
33995	Sign mfg	.7	.3	.4	—	—	—	39
339950	Sign mfg	.7	.3	.4	—	—	—	39
33999	All other miscellaneous mfg	7.3	3.1	4.2	.5	.4	.1	17
339991	Gasket, packing, & sealing device mfg	1.9	1.4	.6	.4	.4	(Z)	28
339992	Musical instrument mfg	.8	.7	.1	(Z)	—	(Z)	48
339993	Fastener, button, needle, & pin mfg	2.8	.1	2.7	.1	—	.1	37
339999	All other miscellaneous mfg	1.7	.9	.8	(Z)	(Z)	—	17

Table 5. Pollution Abatement Capital Expenditures and Operating Costs by State for All Media: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total abatement capital expenditures and total abatement operating costs are each less than \$1.0 million]

State	Pollution abatement										Relative standard error	
	Capital expenditures					Operating costs					PACE	PAOC
	Total	Air	Water	Solid waste	Multimedia	Total	Air	Water	Solid waste	Multimedia		
United States	5 809.9	3 463.7	1 801.9	361.9	182.3	11 864.4	5 069.1	4 586.5	2 013.3	195.5	8	3
New England	375.8	77.5	285.1	12.2	1.0	301.5	64.3	170.8	62.1	4.2	52	9
Connecticut	45.7	23.1	21.2	(D)	(D)	53.0	9.8	32.0	9.2	2.1	16	10
Maine	30.2	2.6	26.8	.8	—	59.2	13.0	39.2	6.4	.6	2	4
Massachusetts	63.6	34.6	18.8	9.4	.8	133.4	31.8	66.3	34.3	1.1	33	18
New Hampshire	204.6	.8	203.5	.3	.1	35.6	7.7	19.1	8.5	.3	94	29
Rhode Island	3.1	.7	2.2	.2	—	9.4	(D)	7.7	.8	(D)	15	32
Vermont	28.5	15.6	12.7	(D)	(D)	10.9	(D)	6.4	3.0	(D)	3	17
Middle Atlantic	639.8	535.4	73.2	25.3	5.8	1 009.0	423.4	380.3	189.6	15.8	37	5
New Jersey	57.0	44.7	8.8	3.5	(Z)	165.1	53.0	74.6	34.8	2.7	10	7
New York	160.6	123.0	24.1	10.4	3.1	310.0	159.1	98.0	44.7	8.2	24	9
Pennsylvania	422.2	367.7	40.3	11.5	2.7	534.0	211.3	207.6	110.2	4.9	55	8
East North Central	895.4	458.5	317.6	62.0	57.3	2 687.7	1 179.7	1 139.9	325.1	43.1	12	11
Illinois	172.2	74.9	68.0	22.8	6.5	511.5	184.5	284.2	41.4	1.4	14	29
Indiana	128.5	98.0	15.3	12.0	3.1	638.4	278.5	293.7	59.8	6.5	7	9
Michigan	160.1	99.8	37.8	21.0	1.5	394.0	138.0	182.8	68.3	4.7	13	7
Ohio	271.5	155.7	111.1	3.4	1.3	947.9	541.8	295.6	106.3	4.1	36	24
Wisconsin	163.1	30.0	85.4	2.7	45.0	196.0	36.8	83.6	49.2	26.4	5	8
West North Central	451.8	293.8	112.1	40.4	5.5	869.2	316.1	281.1	250.7	21.3	22	8
Iowa	42.5	19.9	21.4	(D)	(D)	138.0	36.8	69.5	30.9	.8	11	5
Kansas	40.8	22.1	8.9	4.4	5.5	145.7	14.1	32.7	97.9	.9	15	44
Minnesota	120.4	50.3	42.2	(D)	(D)	293.6	129.8	86.2	73.2	4.4	10	6
Missouri	209.4	177.0	29.0	(D)	(D)	180.0	81.2	49.5	35.4	13.9	47	5
Nebraska	18.5	9.8	7.1	1.6	—	39.5	6.8	24.7	6.8	1.2	12	11
North Dakota	17.2	13.7	1.7	1.8	—	64.4	45.1	15.1	4.2	—	21	9
South Dakota	3.0	1.1	1.9	(Z)	—	8.0	2.2	3.4	2.2	.1	15	8
South Atlantic	1 177.2	825.7	231.9	38.6	81.0	1 875.3	784.1	729.4	299.0	62.7	25	8
Delaware	87.0	84.0	1.8	.4	.8	88.8	52.2	30.3	6.3	.1	9	7
Florida	127.0	37.8	82.6	5.2	1.3	410.2	241.1	80.4	61.4	27.3	13	25
Georgia	210.8	98.5	71.9	8.6	31.8	241.0	75.2	132.5	32.8	.6	10	7
Maryland	89.4	70.4	12.6	6.1	.2	118.5	37.3	61.0	19.3	1.0	44	12
North Carolina	58.4	38.6	15.0	3.0	1.8	267.7	86.8	116.3	51.3	13.3	10	6
South Carolina	382.7	354.7	18.6	6.8	2.6	224.9	86.2	102.0	34.9	1.9	75	14
Virginia	114.1	58.8	21.3	1.9	32.2	318.5	146.4	120.0	41.6	10.5	19	23
West Virginia	107.9	82.9	8.0	6.6	10.3	205.6	58.9	86.9	51.6	8.1	15	12
East South Central	540.0	342.0	165.5	31.1	1.4	1 005.6	374.2	409.8	217.9	3.7	5	3
Alabama	166.0	110.2	48.6	7.1	.1	263.0	96.2	135.7	30.4	.7	5	7
Kentucky	145.5	101.1	38.5	5.6	.2	259.8	106.3	80.4	71.9	1.2	11	6
Mississippi	71.9	31.2	31.2	8.8	.7	151.1	70.8	62.3	17.1	1.0	12	5
Tennessee	156.6	99.5	47.2	9.6	.3	331.6	100.9	131.4	98.5	.8	11	4
West South Central	972.3	517.0	339.6	91.4	24.2	2 464.4	1 078.5	907.2	456.0	22.8	4	3
Arkansas	91.9	28.6	61.1	.9	1.3	183.8	67.1	84.2	32.4	.1	7	8
Louisiana	228.8	99.7	105.5	12.1	11.5	522.7	207.5	211.4	97.4	6.3	5	4
Oklahoma	34.0	30.8	2.5	.7	—	78.8	33.3	30.8	14.3	.3	22	24
Texas	617.6	357.9	170.5	77.7	11.5	1 679.2	770.5	580.8	311.8	16.1	5	3
Mountain	222.1	152.8	62.8	5.5	1.0	439.3	224.1	152.4	53.7	9.0	18	6
Arizona	58.4	39.6	16.7	2.0	.1	70.9	43.5	18.0	8.8	.6	9	17
Colorado	19.9	7.4	12.2	(D)	(D)	49.9	16.6	24.4	7.7	1.2	25	13
Idaho	16.9	6.1	9.9	(D)	(D)	54.4	15.5	32.8	5.7	.5	18	23
Montana	4.6	4.0	.3	(D)	(D)	21.3	11.8	6.2	3.2	.1	10	12
Nevada	11.0	6.3	3.4	.7	.6	44.9	21.5	12.3	5.2	5.9	12	20
New Mexico	29.4	13.0	15.8	.6	—	100.7	60.7	30.9	9.1	.1	22	11
Utah	21.0	16.6	3.7	.4	.3	55.5	26.9	18.5	9.6	.6	30	18
Wyoming	60.8	59.7	.7	.4	—	41.6	27.8	9.4	4.4	—	60	20
Pacific	535.5	261.0	214.0	55.4	5.0	1 204.5	621.6	411.5	158.4	12.9	7	3
Alaska	63.7	11.1	22.0	30.6	—	34.4	13.0	9.0	12.4	—	2	22
California	253.5	117.0	117.6	14.7	4.3	830.1	463.6	274.7	82.2	9.6	6	3
Hawaii	12.5	2.0	10.3	.2	—	5.0	1.4	2.4	1.1	.1	28	31
Oregon	61.3	27.7	31.2	(D)	(D)	80.0	35.4	30.7	13.7	.2	22	10
Washington	144.5	103.3	32.8	(D)	(D)	254.9	108.1	94.7	49.0	3.1	21	3
Offshore	(Z)	(Z)	(Z)	—	—	7.9	3.1	4.1	.7	—	1	7

Table 6a. Pollution Abatement Capital Expenditures by State for All Media: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total abatement capital expenditures are less than \$1.0 million]

State	Pollution abatement								
	Total			Air			Water		
	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
United States	5 809.9	4 497.8	1 312.0	3 463.7	2 644.7	819.0	1 801.9	1 488.2	313.7
New England	375.8	308.1	67.7	77.5	45.1	32.4	285.1	259.5	25.6
Connecticut	45.7	20.8	24.8	23.1	13.9	9.3	21.2	6.6	14.6
Maine	30.2	30.1	.2	2.6	2.5	.2	26.8	26.8	—
Massachusetts	63.6	30.2	33.4	34.6	18.6	16.0	18.8	9.6	9.2
New Hampshire	204.6	204.0	.6	.8	.5	.3	203.5	(D)	(D)
Rhode Island	3.1	.8	2.3	.7	.2	.5	2.2	(D)	1.6
Vermont	28.5	22.1	6.4	15.6	9.5	6.2	12.7	(D)	(D)
Middle Atlantic	639.8	469.5	170.3	535.4	398.2	137.2	73.2	54.7	18.5
New Jersey	57.0	43.0	14.0	44.7	33.5	11.2	8.8	6.3	2.4
New York	160.6	34.8	125.8	123.0	12.9	110.1	24.1	15.0	9.1
Pennsylvania	422.2	391.7	30.6	367.7	351.8	15.9	40.3	33.4	6.9
East North Central	895.4	727.5	167.9	458.5	349.2	109.3	317.6	282.7	34.9
Illinois	172.2	139.5	32.7	74.9	64.6	10.3	68.0	57.0	11.0
Indiana	128.5	71.1	57.3	98.0	45.2	52.7	15.3	13.5	1.9
Michigan	160.1	122.9	37.2	99.8	79.8	20.0	37.8	28.2	9.5
Ohio	271.5	239.9	31.6	155.7	136.5	19.3	111.1	100.2	11.0
Wisconsin	163.1	154.1	9.0	30.0	23.1	6.9	85.4	83.8	1.6
West North Central	451.8	299.7	152.1	293.8	172.4	121.5	112.1	91.2	20.9
Iowa	42.5	41.2	1.3	19.9	19.5	.4	21.4	20.7	.6
Kansas	40.8	25.9	14.9	22.1	17.9	4.1	8.9	5.3	3.6
Minnesota	120.4	103.1	17.3	50.3	44.0	6.3	42.2	32.0	10.2
Missouri	209.4	94.9	114.5	177.0	68.4	108.6	29.0	24.4	4.6
Nebraska	18.5	14.7	3.7	9.8	7.9	1.9	7.1	5.4	1.7
North Dakota	17.2	17.0	.2	13.7	13.7	(Z)	1.7	1.6	.1
South Dakota	3.0	2.9	.1	1.1	.9	.1	1.9	1.9	—
South Atlantic	1 177.2	1 001.8	175.3	825.7	739.7	86.0	231.9	190.1	41.8
Delaware	87.0	82.1	4.9	84.0	80.7	3.3	1.8	1.1	.7
Florida	127.0	107.9	19.1	37.8	36.8	1.1	82.6	64.7	17.9
Georgia	210.8	154.1	56.7	98.5	76.2	22.3	71.9	68.4	3.5
Maryland	89.4	84.0	5.4	70.4	69.4	1.0	12.6	8.8	3.8
North Carolina	58.4	32.0	26.4	38.6	18.9	19.7	15.0	9.6	5.5
South Carolina	382.7	358.5	24.2	354.7	337.5	17.2	18.6	11.8	6.8
Virginia	114.1	103.9	10.2	58.8	53.7	5.1	21.3	19.8	1.5
West Virginia	107.9	79.4	28.5	82.9	66.6	16.3	8.0	5.9	2.1
East South Central	540.0	427.6	112.4	342.0	253.5	88.4	165.5	147.0	18.5
Alabama	166.0	124.4	41.7	110.2	86.0	24.2	48.6	34.4	14.2
Kentucky	145.5	96.3	49.2	101.1	54.6	46.5	38.5	37.2	1.3
Mississippi	71.9	67.6	4.3	31.2	28.0	3.2	31.2	30.4	.8
Tennessee	156.6	139.3	17.3	99.5	85.0	14.5	47.2	44.9	2.3
West South Central	972.3	641.2	331.1	517.0	349.5	167.6	339.6	234.6	105.0
Arkansas	91.9	80.6	11.3	28.6	18.0	10.6	61.1	60.7	.4
Louisiana	228.8	160.3	68.5	99.7	66.2	33.5	105.5	87.5	18.0
Oklahoma	34.0	19.0	15.0	30.8	16.7	14.1	2.5	1.7	.8
Texas	617.6	381.2	236.4	357.9	248.5	109.4	170.5	84.7	85.8
Mountain	222.1	154.2	67.9	152.8	109.6	43.2	62.8	39.8	23.0
Arizona	58.4	18.7	39.7	39.6	14.0	25.6	16.7	3.0	13.7
Colorado	19.9	15.7	4.3	7.4	(D)	(D)	12.2	11.8	.4
Idaho	16.9	13.9	3.0	6.1	3.4	2.7	9.9	(D)	(D)
Montana	4.6	(D)	(D)	4.0	(D)	(D)	.3	—	—
Nevada	11.0	5.2	5.8	6.3	2.4	3.9	3.4	1.7	1.7
New Mexico	29.4	21.9	7.5	13.0	12.2	.8	15.8	9.6	6.2
Utah	21.0	16.9	4.1	16.6	13.4	3.2	3.7	3.0	.7
Wyoming	60.8	(D)	(D)	59.7	(D)	(D)	.7	(D)	(D)
Pacific	535.5	468.2	67.3	261.0	227.6	33.5	214.0	188.5	25.4
Alaska	63.7	63.6	.1	11.1	11.0	.1	22.0	22.0	(Z)
California	253.5	211.0	42.6	117.0	97.4	19.6	117.6	100.9	16.7
Hawaii	12.5	12.5	(Z)	2.0	2.0	(Z)	10.3	10.3	—
Oregon	61.3	56.0	5.3	27.7	23.7	3.9	31.2	(D)	(D)
Washington	144.5	125.2	19.3	103.3	93.5	9.9	32.8	(D)	(D)
Offshore	(Z)	(Z)	—	(Z)	(Z)	—	(Z)	(Z)	—

Table 6a. Pollution Abatement Capital Expenditures by State for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total abatement capital expenditures are less than \$1.0 million]

State	Pollution abatement—Con.						Relative standard error (PACE)
	Solid waste			Multimedia			
	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
United States	361.9	245.5	116.4	182.3	119.4	62.9	8
New England	12.2	(D)	(D)	1.0	(D)	(D)	52
Connecticut	(D)	(D)	(D)	(D)	(D)	(D)	16
Maine .....	.8	.8	—	—	—	—	2
Massachusetts	9.4	1.2	8.1	.8	.7	.1	33
New Hampshire .....	.3	(D)	(D)	.1	.1	—	94
Rhode Island .....	.2	—	.2	—	—	—	15
Vermont	(D)	(D)	(D)	(D)	(D)	—	3
Middle Atlantic	25.3	13.7	11.6	5.8	2.8	3.0	37
New Jersey	3.5	3.1	4	(Z)	(Z)	—	10
New York	10.4	5.9	4.5	3.1	1.1	2.1	24
Pennsylvania	11.5	4.7	6.8	2.7	1.7	.9	55
East North Central	62.0	39.6	22.8	57.3	56.0	1.3	12
Illinois	22.8	11.8	11.0	6.5	6.1	4	14
Indiana	12.0	9.7	2.3	3.1	2.7	4	7
Michigan	21.0	13.4	7.7	1.5	1.5	—	13
Ohio	3.4	2.4	1.0	1.3	.8	.5	36
Wisconsin	2.7	2.3	.4	45.0	45.0	(Z)	5
West North Central	40.4	34.5	5.8	5.5	1.6	3.9	22
Iowa	(D)	(D)	.3	(D)	(D)	—	11
Kansas	4.4	1.1	3.2	5.5	1.6	3.9	15
Minnesota	(D)	(D)	.8	(D)	(D)	(Z)	10
Missouri	(D)	(D)	1.3	(D)	(D)	—	47
Nebraska	1.6	1.5	.2	—	—	—	12
North Dakota	1.8	1.8	—	—	—	—	21
South Dakota	(Z)	(Z)	—	—	—	—	15
South Atlantic	38.6	32.3	6.3	81.0	39.8	41.2	25
Delaware .....	.4	(D)	(D)	.8	(D)	(D)	9
Florida	5.2	5.1	1	1.3	1.3	—	13
Georgia	8.6	8.2	.3	31.8	1.3	30.5	10
Maryland	6.1	(D)	(D)	.2	(D)	(D)	44
North Carolina	3.0	1.7	1.2	1.8	1.8	—	10
South Carolina	6.8	(D)	(D)	2.6	(D)	(D)	75
Virginia	1.9	1.5	.4	32.2	28.9	3.2	19
West Virginia	6.6	3.3	3.4	10.3	3.6	6.7	15
East South Central	31.1	26.5	4.6	1.4	.6	.8	5
Alabama	7.1	3.9	3.2	.1	.1	(Z)	5
Kentucky	5.6	4.5	1.1	.2	(Z)	.2	11
Mississippi	8.8	8.7	.1	.7	.5	.3	12
Tennessee	9.6	9.4	.2	.3	(Z)	.3	11
West South Central	91.4	44.0	47.4	24.2	13.1	11.2	4
Arkansas .....	.9	.8	.1	1.3	1.1	.2	7
Louisiana	12.1	5.8	6.4	11.5	.9	10.5	5
Oklahoma .....	.7	.6	.2	—	—	—	22
Texas	77.7	37.0	40.7	11.5	11.0	.5	5
Mountain	5.5	(D)	(D)	1.0	(D)	(D)	18
Arizona	2.0	1.7	.3	.1	—	.1	9
Colorado	(D)	(D)	.2	(D)	—	(D)	25
Idaho	(D)	(D)	.2	(D)	(D)	(D)	18
Montana	(D)	(D)	—	(D)	(D)	(D)	10
Nevada .....	.7	(D)	(D)	.6	(D)	(D)	12
New Mexico .....	.6	.1	.5	—	—	—	22
Utah .....	.4	.2	.2	.3	.3	—	30
Wyoming .....	.4	.4	—	—	—	—	60
Pacific	55.4	(D)	(D)	5.0	(D)	(D)	7
Alaska	30.6	30.6	—	—	—	—	2
California	14.7	(D)	(D)	4.3	(D)	(D)	6
Hawaii .....	.2	—	—	—	—	—	28
Oregon	(D)	(D)	(D)	(D)	(D)	(D)	22
Washington	(D)	(D)	(D)	(D)	(D)	—	21
Offshore	—	—	—	—	—	—	1

Table 6b. Pollution Abatement Operating Costs by State for All Media: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total abatement operating costs are less than \$1.0 million]

State	Pollution abatement								
	Total			Air			Water		
	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous
United States	11 864.4	8 924.9	2 939.5	5 069.1	3 941.2	1 127.9	4 586.5	3 511.8	1 074.6
New England	301.5	204.8	96.6	64.3	45.5	18.9	170.8	123.1	47.6
Connecticut	53.0	32.3	20.8	9.8	5.5	4.4	32.0	19.9	12.0
Maine	59.2	54.3	4.8	13.0	9.9	3.1	39.2	38.5	7
Massachusetts	133.4	82.8	50.6	31.8	(D)	(D)	66.3	43.8	22.5
New Hampshire	35.6	22.0	13.6	7.7	(D)	(D)	19.1	10.1	9.0
Rhode Island	9.4	5.5	3.9	(D)	(D)	(D)	7.7	4.7	3.1
Vermont	10.9	8.0	2.9	(D)	(D)	(D)	6.4	6.2	.2
Middle Atlantic	1 009.0	700.3	308.7	423.4	295.1	128.2	380.3	259.8	120.5
New Jersey	165.1	120.3	44.8	53.0	42.8	10.1	74.6	50.6	24.0
New York	310.0	190.4	119.6	159.1	92.1	67.0	98.0	63.7	34.4
Pennsylvania	534.0	389.6	144.3	211.3	160.2	51.1	207.6	145.6	62.1
East North Central	2 687.7	2 198.6	489.1	1 179.7	969.9	209.7	1 139.9	947.2	192.7
Illinois	511.5	417.5	93.9	184.5	141.1	43.5	284.2	245.5	38.7
Indiana	638.4	520.7	117.6	278.5	218.0	60.5	293.7	249.6	44.1
Michigan	394.0	306.8	87.1	138.0	109.3	28.8	182.8	143.8	39.1
Ohio	947.9	787.5	160.4	541.8	471.4	70.4	295.6	233.0	62.7
Wisconsin	196.0	166.0	30.0	36.8	30.2	6.6	83.6	75.3	8.2
West North Central	869.2	639.2	230.0	316.1	259.6	56.5	281.1	241.0	40.2
Iowa	138.0	120.8	17.2	36.8	33.7	3.1	69.5	63.4	6.1
Kansas	145.7	51.1	94.6	14.1	10.0	4.1	32.7	26.1	6.6
Minnesota	293.6	234.7	58.9	129.8	106.8	23.0	86.2	75.8	10.4
Missouri	180.0	130.6	49.4	81.2	58.1	23.1	49.5	34.8	14.6
Nebraska	39.5	33.9	5.6	6.8	6.2	.6	24.7	22.8	1.9
North Dakota	64.4	63.0	1.4	45.1	44.3	.8	15.1	14.8	.3
South Dakota	8.0	5.1	2.9	2.2	.5	1.7	3.4	3.3	.2
South Atlantic	1 875.3	1 568.8	306.5	784.1	675.7	108.4	729.4	609.0	120.4
Delaware	88.8	71.7	17.1	52.2	43.2	9.0	30.3	22.6	7.7
Florida	410.2	391.9	18.4	241.1	230.8	10.3	80.4	75.8	4.6
Georgia	241.0	208.2	32.8	75.2	62.2	13.0	132.5	118.7	13.8
Maryland	118.5	85.7	32.9	37.3	19.3	18.0	61.0	49.8	11.2
North Carolina	267.7	226.5	41.1	86.8	70.1	16.7	116.3	103.7	12.6
South Carolina	224.9	170.1	54.8	86.2	66.0	20.2	102.0	81.4	20.6
Virginia	318.5	273.7	44.8	146.4	132.9	13.6	120.0	101.9	18.1
West Virginia	205.6	140.9	64.6	58.9	51.3	7.7	86.9	55.1	31.8
East South Central	1 005.6	736.9	268.8	374.2	260.8	113.4	409.8	315.8	94.0
Alabama	263.0	201.2	61.9	96.2	69.0	27.2	135.7	108.7	27.0
Kentucky	259.8	176.1	83.7	106.3	58.8	47.5	80.4	58.5	21.9
Mississippi	151.1	133.9	17.3	70.8	65.3	5.5	62.3	53.3	9.0
Tennessee	331.6	225.7	105.9	100.9	67.7	33.2	131.4	95.3	36.1
West South Central	2 464.4	1 656.9	807.5	1 078.5	750.0	328.4	907.2	625.5	281.7
Arkansas	183.8	134.5	49.3	67.1	46.1	21.0	84.2	69.8	14.3
Louisiana	522.7	395.5	127.2	207.5	170.6	36.9	211.4	156.6	54.8
Oklahoma	78.8	61.2	17.6	33.3	25.7	7.6	30.8	25.3	5.6
Texas	1 679.2	1 065.8	613.4	770.5	507.6	262.9	580.8	373.8	207.0
Mountain	439.3	317.9	121.4	224.1	173.2	50.9	152.4	107.3	45.1
Arizona	70.9	47.2	23.7	43.5	27.3	16.2	18.0	13.4	4.5
Colorado	49.9	41.8	8.1	16.6	14.7	1.9	24.4	21.6	2.9
Idaho	54.4	38.6	15.8	15.5	13.7	1.8	32.8	20.4	12.3
Montana	21.3	10.1	11.2	11.8	3.6	8.2	6.2	4.8	1.5
Nevada	44.9	30.7	14.2	21.5	17.4	4.1	12.3	9.3	3.0
New Mexico	100.7	75.1	25.7	60.7	51.8	8.9	30.9	18.9	12.0
Utah	55.5	39.2	16.3	26.9	20.8	6.1	18.5	11.2	7.3
Wyoming	41.6	35.0	6.5	27.8	24.0	3.8	9.4	7.8	1.6
Pacific	1 204.5	894.0	310.5	621.6	508.3	113.3	411.5	279.4	132.2
Alaska	34.4	25.5	9.0	13.0	12.8	.2	9.0	5.7	3.2
California	830.1	619.3	210.8	463.6	388.0	75.6	274.7	171.8	102.9
Hawaii	5.0	4.3	.7	1.4	1.3	.1	2.4	1.9	.5
Oregon	80.0	66.0	14.0	35.4	31.6	3.8	30.7	24.2	6.5
Washington	254.9	178.9	76.1	108.1	74.6	33.6	94.7	75.7	19.1
Offshore	7.9	7.5	.4	3.1	3.1	.1	4.1	3.8	.2

Table 6b. Pollution Abatement Operating Costs by State for All Media: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total abatement operating costs are less than \$1.0 million]

State	Pollution abatement—Con.						Relative standard error (PAOC)
	Solid waste			Multimedia			
	Total	Non-hazardous	Hazardous	Total	Non-hazardous	Hazardous	
United States	2 013.3	1 320.4	692.9	195.5	151.5	44.0	3
New England	62.1	33.2	28.9	4.2	3.0	1.2	9
Connecticut	9.2	5.8	3.4	2.1	1.0	1.0	10
Maine	6.4	5.4	1.0	.6	.6	—	4
Massachusetts	34.3	(D)	(D)	1.1	(D)	(D)	18
New Hampshire	8.5	5.4	3.1	.3	(D)	(D)	29
Rhode Island .....	.8	(D)	(D)	(D)	(D)	(D)	32
Vermont	3.0	(D)	(D)	(D)	(D)	(D)	17
Middle Atlantic	189.6	131.9	57.7	15.8	13.5	2.3	5
New Jersey	34.8	24.2	10.6	2.7	2.7	.1	7
New York	44.7	27.4	17.3	8.2	7.2	1.0	9
Pennsylvania	110.2	80.3	29.8	4.9	3.6	1.3	8
East North Central	325.1	247.7	77.3	43.1	33.8	9.3	11
Illinois	41.4	30.6	10.8	1.4	.4	1.0	29
Indiana	59.8	46.8	12.9	6.5	6.4	.1	9
Michigan	68.3	50.3	18.0	4.7	3.5	1.3	7
Ohio	106.3	80.3	26.0	4.1	2.8	1.3	24
Wisconsin	49.2	39.6	9.6	26.4	20.8	5.6	8
West North Central	250.7	119.5	131.2	21.3	19.1	2.2	8
Iowa	30.9	23.1	7.8	.8	.6	.2	5
Kansas	97.9	14.6	83.3	.9	.3	.6	44
Minnesota	73.2	47.8	25.4	4.4	4.3	.1	6
Missouri	35.4	23.9	11.5	13.9	13.7	.2	5
Nebraska	6.8	4.8	2.1	1.2	(Z)	1.1	11
North Dakota	4.2	4.0	—	.3	—	—	9
South Dakota	2.2	1.2	1.0	.1	.1	(Z)	8
South Atlantic	299.0	235.8	63.2	62.7	48.3	14.4	8
Delaware	6.3	5.9	.4	.1	(Z)	(Z)	7
Florida	61.4	58.0	3.3	27.3	27.2	.1	25
Georgia	32.8	26.8	6.0	.6	.5	.1	7
Maryland	19.3	15.8	3.5	1.0	.8	.2	12
North Carolina	51.3	39.6	11.7	13.3	13.1	.2	6
South Carolina	34.9	21.0	13.8	1.9	1.7	.2	14
Virginia	41.6	34.7	6.8	10.5	4.2	6.3	23
West Virginia	51.6	33.8	17.7	8.1	.7	7.4	12
East South Central	217.9	157.7	60.2	3.7	2.6	1.2	3
Alabama	30.4	23.0	7.4	.7	.5	.3	7
Kentucky	71.9	57.7	14.2	1.2	1.2	(Z)	6
Mississippi	17.1	14.9	2.1	1.0	.4	.6	5
Tennessee	98.5	62.2	36.4	.8	.5	.3	4
West South Central	456.0	262.1	193.9	22.8	19.3	3.5	3
Arkansas	32.4	18.5	14.0	.1	.1	(Z)	8
Louisiana	97.4	62.4	35.0	6.3	5.8	.5	4
Oklahoma	14.3	10.0	4.3	.3	.3	.1	24
Texas	311.8	171.2	140.6	16.1	13.1	2.9	3
Mountain	53.7	35.4	18.3	9.0	1.9	7.1	6
Arizona	8.8	6.4	2.5	.6	.1	.5	17
Colorado	7.7	4.5	3.1	1.2	1.0	.2	13
Idaho	5.7	4.4	1.3	.5	.1	.4	23
Montana	3.2	1.8	1.5	.1	—	.1	12
Nevada	5.2	3.9	1.3	5.9	.1	5.7	20
New Mexico	9.1	4.3	4.8	.1	.1	—	11
Utah	9.6	6.8	2.7	.6	.4	.2	18
Wyoming	4.4	3.2	1.2	—	—	—	20
Pacific	158.4	96.3	62.2	12.9	10.1	2.8	3
Alaska	12.4	6.9	5.5	—	—	—	22
California	82.2	52.5	29.7	9.6	7.0	2.6	3
Hawaii	1.1	1.1	(Z)	.1	.1	—	31
Oregon	13.7	10.1	3.6	.2	.1	.1	10
Washington	49.0	25.6	23.4	3.1	3.0	.1	3
Offshore .....	.7	.6	(Z)	—	—	—	7

Table 7a. Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
	All industries	398.7	267.2	218.0	49.2	131.5	4 923.6	3 680.9	2 466.2	1 214.7	1 242.7	10	4
21	Mining	79.2	77.9	77.8	.1	1.3	202.5	177.4	152.7	24.7	25.1	2	10
211	Oil & gas extraction	4.0	3.8	3.8	.1	.2	110.6	107.4	102.3	5.2	3.2	19	16
2111	Oil & gas extraction	4.0	3.8	3.8	.1	.2	110.6	107.4	102.3	5.2	3.2	19	16
21111	Oil & gas extraction	4.0	3.8	3.8	.1	.2	110.6	107.4	102.3	5.2	3.2	19	16
211111	Crude petroleum & natural gas extraction	3.9	3.7	3.6	.1	.2	89.5	87.0	85.3	1.7	2.5	19	18
211112	Natural gas liquid extraction .....	.2	.2	.2	(Z)	-	21.2	20.4	16.9	3.5	.7	59	31
212	Mining (except oil & gas)	75.2	74.0	74.0	(Z)	1.1	61.5	39.6	36.1	3.5	21.9	1	6
2121	Coal mining .....	.5	(D)	(D)	-	(D)	11.3	7.3	6.0	1.3	4.0	46	18
21211	Coal mining .....	.5	(D)	(D)	-	(D)	11.3	7.3	6.0	1.3	4.0	46	18
212111	Bituminous coal & lignite surface mining .....	.3	-	-	-	.3	4.0	2.5	1.3	1.3	1.5	61	25
212112	Bituminous coal underground mining .....	.1	(D)	(D)	-	(D)	7.3	4.8	4.8	(Z)	2.5	47	25
2122	Metal ore mining	(D)	(D)	(D)	(Z)	(D)	34.5	20.7	19.4	1.3	13.8	(X)	5
21221	Iron ore mining	-	-	-	-	-	4.8	2.8	2.6	.2	2.0	-	6
212210	Iron ore mining	-	-	-	-	-	4.8	2.8	2.6	.2	2.0	-	6
21222	Gold ore & silver ore mining ..	-	-	-	-	-	2.7	2.3	2.1	.2	.4	-	39
212221	Gold ore mining	-	-	-	-	-	2.6	2.2	(D)	(D)	.3	-	41
21223	Copper, nickel, lead, & zinc mining	72.8	72.2	72.2	-	.6	26.4	15.0	14.5	.5	11.4	1	5
212234	Copper ore & nickel ore mining	72.8	72.2	72.2	-	.6	26.3	14.9	14.5	.4	11.4	1	5
21229	Other metal ore mining	(D)	(D)	(D)	(Z)	(D)	.6	.5	.2	.3	.1	(X)	3
212299	All other metal ore mining ..	(D)	(D)	(D)	(Z)	(D)	.3	(D)	.2	(D)	(D)	(X)	5
2123	Nonmetallic mineral mining & quarrying	(D)	(D)	(D)	-	(D)	15.7	11.6	10.6	.9	4.1	(X)	15
21231	Stone mining & quarrying	(D)	(D)	(D)	-	(D)	8.0	6.6	6.4	.2	1.5	(X)	21
212312	Crushed & broken limestone mining & quarrying	(D)	(D)	(D)	-	(D)	5.4	4.4	4.3	.1	1.0	(X)	31
212313	Crushed & broken granite mining & quarrying	(D)	(D)	(D)	-	-	1.8	1.5	(D)	(D)	.4	(X)	13
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying .....	.2	.2	.2	-	(Z)	5.0	2.8	2.5	.2	2.2	79	26
212321	Construction sand & gravel mining .....	.2	.2	.2	-	(Z)	2.5	.7	.7	(Z)	1.8	79	51
212324	Kaolin & ball clay mining ...	-	-	-	-	-	1.2	1.2	1.0	.2	(Z)	-	13
21239	Other nonmetallic mineral mining & quarrying	(D)	-	-	-	(D)	2.7	2.3	1.7	.5	.4	(X)	31
212391	Potash, soda, & borate mineral mining	-	-	-	-	-	1.5	1.2	.9	.3	.2	-	54
213	Support activities for mining	-	-	-	-	-	30.4	30.4	14.3	16.0	(Z)	-	31
2131	Support activities for mining ..	-	-	-	-	-	30.4	30.4	14.3	16.0	(Z)	-	31
21311	Support activities for mining ..	-	-	-	-	-	30.4	30.4	14.3	16.0	(Z)	-	31
213112	Support activities for oil & gas operations	-	-	-	-	-	17.4	17.4	9.4	8.0	(Z)	-	49
213113	Support activities for coal mining	-	-	-	-	-	10.9	(D)	(D)	7.4	(D)	-	34
213114	Support activities for metal mining	-	-	-	-	-	(D)	(D)	1.3	(D)	(D)	-	(X)
22111	Electric power generation	46.1	36.1	36.1	-	10.1	406.3	379.6	362.4	17.2	26.7	50	32
221111	Hydroelectric power generation ...	1.0	1.0	1.0	-	-	37.5	37.4	37.0	.4	.1	13	60
221112	Fossil fuel electric power generation	44.1	34.0	34.0	-	10.1	329.5	303.9	297.5	6.4	25.5	52	39
221113	Nuclear electric power generation .	-	-	-	-	-	27.5	26.8	16.7	10.1	.8	-	20
221119	Other electric power generation ...	1.1	1.1	1.1	-	-	11.9	11.5	11.2	.4	.3	49	22

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing	273.3	153.2	104.2	49.1	120.1	4 314.3	3 123.4	1 951.2	1 172.2	1 190.9	11	3
311	Food mfg	14.7	6.9	6.8	.1	7.8	257.9	215.3	194.2	21.1	42.6	16	5
3111	Animal food mfg	1.1	1.0	1.0	—	.1	8.4	7.9	7.7	.2	.4	44	14
31111	Animal food mfg	1.1	1.0	1.0	—	.1	8.4	7.9	7.7	.2	.4	44	14
311111	Dog & cat food mfg	1.1	1.0	1.0	—	.1	6.5	6.1	5.9	.2	.4	44	14
311119	Other animal food mfg	—	—	—	—	—	1.9	1.8	1.8	(Z)	(Z)	—	36
3112	Grain & oilseed milling	1.0	.1	(D)	(D)	.9	36.9	31.8	29.7	2.1	5.1	73	10
31121	Flour milling & malt mfg .....	.8	—	—	—	.8	3.3	2.8	2.4	.3	.5	94	29
311211	Flour milling .....	.8	—	—	—	.8	2.6	2.1	1.8	.3	.5	94	36
31122	Starch & vegetable fats & oils mfg	(D)	.1	(D)	(D)	(D)	27.9	24.9	23.3	1.6	2.9	(X)	12
311221	Wet corn milling	(Z)	(D)	(D)	(D)	(D)	15.5	13.2	12.6	.5	2.4	16	12
311222	Soybean processing .....	.1	(D)	(D)	(D)	(D)	8.1	8.0	7.7	.3	.1	58	33
311225	Fats & oils refining & blending	(D)	(D)	—	(D)	—	3.5	3.1	2.4	.8	.4	(X)	7
31123	Breakfast cereal mfg	(D)	—	—	—	(D)	5.8	4.1	4.0	.1	1.7	(X)	14
311230	Breakfast cereal mfg	(D)	—	—	—	(D)	5.8	4.1	4.0	.1	1.7	(X)	14
3113	Sugar & confectionery product mfg	1.8	.8	.8	—	1.0	12.2	9.5	9.0	.4	2.7	20	7
31131	Sugar mfg .....	.8	.8	.8	—	(Z)	5.6	4.6	4.4	.2	1.0	1	9
311312	Cane sugar refining	—	—	—	—	—	2.0	1.8	(D)	(D)	.2	—	1
311313	Beet sugar mfg .....	.8	.8	.8	—	(Z)	3.2	2.4	2.4	(Z)	.8	1	16
31132	Chocolate & confectionery mfg from cacao beans	—	—	—	—	—	1.0	.7	.7	(Z)	.3	—	20
311320	Chocolate & confectionery mfg from cacao beans	—	—	—	—	—	1.0	.7	.7	(Z)	.3	—	20
31133	Confectionery mfg from purchased chocolate .....	.7	—	—	—	.7	3.9	2.8	2.6	.2	1.1	52	10
311330	Confectionery mfg from purchased chocolate .....	.7	—	—	—	.7	3.9	2.8	2.6	.2	1.1	52	10
31134	Nonchocolate confectionery mfg .....	.3	(Z)	(Z)	—	.3	1.6	1.3	1.3	(Z)	.3	2	24
311340	Nonchocolate confectionery mfg .....	.3	(Z)	(Z)	—	.3	1.6	1.3	1.3	(Z)	.3	2	24
3114	Fruit & vegetable preserving & specialty food mfg	1.0	.8	(D)	(D)	.2	54.9	49.4	45.8	3.6	5.5	23	13
31141	Frozen food mfg .....	.1	(Z)	(D)	(D)	.1	13.8	12.6	11.5	1.1	1.2	17	12
311411	Frozen fruit, juice, & vegetable mfg .....	.1	(Z)	(D)	(D)	(Z)	9.2	8.6	8.5	.1	.6	21	11
311412	Frozen specialty food mfg	(Z)	—	—	—	(Z)	4.7	4.0	3.0	1.0	.6	28	29
31142	Fruit & vegetable canning, pickling, & drying .....	.9	.8	(D)	(D)	.1	41.0	36.8	34.3	2.5	4.3	25	17
311421	Fruit & vegetable canning .....	.3	.3	.3	—	—	33.8	30.4	28.0	2.4	3.5	69	21
311422	Specialty canning .....	.1	—	—	—	.1	3.7	3.0	2.9	(Z)	.7	1	9
311423	Dried & dehydrated food mfg .....	.5	.5	(D)	(D)	—	3.5	3.4	3.4	(Z)	.1	11	4
3115	Dairy product mfg	1.6	.4	.4	(Z)	1.2	29.2	26.2	19.6	6.5	3.1	63	19
31151	Dairy product (except frozen) mfg .....	.4	.3	.3	(Z)	.2	28.0	25.0	18.5	6.5	2.9	43	20
311511	Fluid milk mfg .....	.2	.2	.2	—	—	7.0	5.3	5.1	.2	1.7	56	32
311512	Creamery butter mfg	(Z)	(Z)	(Z)	(Z)	—	1.2	1.1	1.1	(Z)	.1	56	36
311513	Cheese mfg .....	.2	.1	.1	(Z)	.2	16.2	15.4	9.8	5.6	.9	64	32
311514	Dry, condensed, & evaporated dairy product mfg	—	—	—	—	—	3.5	3.3	2.5	.8	.3	—	7
31152	Ice cream & frozen dessert mfg	1.2	.1	.1	—	1.1	1.3	1.1	1.1	—	.1	84	35
311520	Ice cream & frozen dessert mfg	1.2	.1	.1	—	1.1	1.3	1.1	1.1	—	.1	84	35
3116	Meat product mfg	6.2	2.9	2.8	.1	3.4	63.1	49.1	45.9	3.2	14.1	25	6
31161	Animal slaughtering & processing	6.2	2.9	2.8	.1	3.4	63.1	49.1	45.9	3.2	14.1	25	6
311611	Animal (except poultry) slaughtering .....	.6	.4	.3	.1	.1	22.8	17.1	16.9	.1	5.8	8	7
311612	Meat processed from carcasses .....	.4	.3	.3	—	(Z)	10.5	9.2	8.6	.6	1.2	91	20
311613	Rendering & meat byproduct processing	3.2	—	—	—	3.2	8.2	5.9	5.3	.7	2.3	36	24
311615	Poultry processing	2.1	2.1	2.1	—	—	21.6	16.8	15.1	1.7	4.8	47	9
3117	Seafood product preparation & packaging	(D)	(D)	(D)	—	—	1.9	1.3	1.2	.1	.6	(X)	9
31171	Seafood product preparation & packaging	(D)	(D)	(D)	—	—	1.9	1.3	1.2	.1	.6	(X)	9
311712	Fresh & frozen seafood processing	(D)	(D)	(D)	—	—	1.7	1.1	1.0	.1	.6	(X)	9
3118	Bakeries & tortilla mfg	(D)	—	—	—	(D)	19.0	14.3	9.8	4.5	4.6	(X)	27
31181	Bread & bakery product mfg	(D)	—	—	—	(D)	6.2	5.5	5.1	.3	.8	(X)	21
311812	Commercial bakeries	(D)	—	—	—	(D)	5.0	4.3	3.9	.3	.8	(X)	24
311813	Frozen cakes, pies, & other pastries mfg	—	—	—	—	—	1.0	1.0	1.0	—	(Z)	—	36
31182	Cookie, cracker, & pasta mfg	—	—	—	—	—	12.3	8.5	4.3	4.2	3.9	—	40
311821	Cookie & cracker mfg	—	—	—	—	—	3.2	3.0	2.8	.2	.2	—	35
311822	Flour mixes & dough mfg	—	—	—	—	—	—	—	—	—	—	—	—
311823	Flour mixes & dough mfg from purchased flour	—	—	—	—	—	2.3	1.5	1.5	(Z)	.8	—	28
311823	Dry pasta mfg	—	—	—	—	—	6.8	4.1	.1	4.0	2.8	—	69

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
311	Food mfg—Con.												
3119	Other food mfg	2.1	(D)	(D)	—	(D)	32.3	25.8	25.4	.4	6.5	44	18
31191	Snack food mfg	—	—	—	—	—	9.9	7.7	7.5	.1	2.3	—	47
311919	Other snack food mfg	—	—	—	—	—	9.4	7.3	7.3	.1	2.1	—	49
31192	Coffee & tea mfg	—	—	—	—	—	3.5	1.2	1.2	(Z)	2.2	—	1
311920	Coffee & tea mfg	—	—	—	—	—	3.5	1.2	1.2	(Z)	2.2	—	1
31193	Flavoring syrup & concentrate mfg	(D)	—	—	—	(D)	3.1	3.0	3.0	(Z)	.1	(X)	61
311930	Flavoring syrup & concentrate mfg	(D)	—	—	—	(D)	3.1	3.0	3.0	(Z)	.1	(X)	61
31194	Seasoning & dressing mfg ...	—	—	—	—	—	3.6	3.1	3.0	.1	.5	—	14
311941	Mayonnaise, dressing, & other prepared sauce mfg.	—	—	—	—	—	1.7	1.4	1.4	(Z)	.3	—	7
311942	Spice & extract mfg	—	—	—	—	—	1.9	1.8	1.7	.1	.2	—	26
31199	All other food mfg	(D)	(D)	(D)	—	(D)	12.2	10.8	10.7	.2	1.4	(X)	21
311991	Perishable prepared food mfg	(D)	(D)	(D)	—	(D)	3.3	2.8	2.8	(Z)	.4	(X)	6
311999	All other miscellaneous food mfg	(D)	1.0	1.0	—	(D)	8.9	8.0	7.8	.1	1.0	(X)	29
312	Beverage & tobacco product mfg .	1.4	.5	.5	—	.9	33.3	26.1	22.8	3.4	7.2	28	14
3121	Beverage mfg	1.4	.5	.5	—	.9	26.7	21.2	18.7	2.6	5.5	28	17
31211	Soft drink & ice mfg .....	.5	.4	.4	—	.1	13.4	12.8	12.6	.2	.6	41	33
312111	Soft drink mfg .....	.5	.4	.4	—	.1	13.1	12.5	12.3	.2	.6	41	34
31212	Breweries .....	.8	—	—	—	—	8.2	4.0	3.7	.4	4.2	40	5
312120	Breweries .....	.8	—	—	—	—	8.2	4.0	3.7	.4	4.2	40	5
31213	Wineries .....	.1	.1	.1	—	—	2.5	2.0	1.8	.2	.4	1	12
312130	Wineries .....	.1	.1	.1	—	—	2.5	2.0	1.8	.2	.4	1	12
31214	Distilleries	—	—	—	—	—	2.6	2.4	.6	1.8	.2	—	35
312140	Distilleries	—	—	—	—	—	2.6	2.4	.6	1.8	.2	—	35
3122	Tobacco mfg	—	—	—	—	—	6.6	4.9	4.1	.8	1.7	—	18
31221	Tobacco stemming & redrying	—	—	—	—	—	1.2	1.1	(D)	(D)	.1	—	3
312210	Tobacco stemming & redrying	—	—	—	—	—	1.2	1.1	(D)	(D)	.1	—	3
31222	Tobacco product mfg	—	—	—	—	—	5.4	3.8	(D)	(D)	1.6	—	21
312221	Cigarette mfg	—	—	—	—	—	2.1	(D)	(D)	.7	(D)	—	1
312229	Other tobacco product mfg .	—	—	—	—	—	3.3	(D)	2.2	(D)	(D)	—	35
313	Textile mills .....	.4	.3	.2	(Z)	.1	35.6	27.7	23.6	4.1	7.9	22	15
3131	Fiber, yarn, & thread mills	(Z)	(Z)	(Z)	(Z)	(Z)	2.7	2.1	1.9	.2	.6	53	33
31311	Fiber, yarn, & thread mills	(Z)	(Z)	(Z)	(Z)	(Z)	2.7	2.1	1.9	.2	.6	53	33
313111	Yarn spinning mills	(Z)	(Z)	(Z)	(Z)	(Z)	1.4	1.0	1.0	—	.3	59	54
313112	Yarn texturing, throwing, & twisting mills	(Z)	—	—	—	(Z)	1.1	.8	.6	.2	.2	89	42
3132	Fabric mills .....	.3	.2	.2	—	.1	21.9	16.7	13.9	2.8	5.3	29	18
31321	Broadwoven fabric mills .....	.1	—	—	—	.1	7.7	6.0	5.7	.3	1.7	87	19
313210	Broadwoven fabric mills ...	.1	—	—	—	.1	7.7	6.0	5.7	.3	1.7	87	19
31323	Nonwoven fabric mills	—	—	—	—	—	10.6	7.1	4.7	2.4	3.6	—	28
313230	Nonwoven fabric mills	—	—	—	—	—	10.6	7.1	4.7	2.4	3.6	—	28
31324	Knit fabric mills	—	—	—	—	—	3.2	3.2	3.2	(Z)	(Z)	—	67
313249	Other knit fabric & lace mills	—	—	—	—	—	2.9	2.9	2.9	(Z)	(Z)	—	74
3133	Textile & fabric finishing & fabric coating mills .....	.1	.1	(Z)	(Z)	—	10.9	9.0	7.8	1.1	2.0	10	30
31331	Textile & fabric finishing mills .	.1	.1	(Z)	(Z)	—	6.8	6.3	6.3	(Z)	.5	10	46
313311	Broadwoven fabric finishing mills .....	.1	.1	(Z)	(Z)	—	5.7	5.2	5.2	(Z)	.5	9	55
313312	Textile & fabric finishing mills	(Z)	(Z)	(Z)	—	—	1.2	1.1	1.1	(Z)	.1	72	40
31332	Fabric coating mills	—	—	—	—	—	4.1	2.6	1.5	1.1	1.4	—	16
313320	Fabric coating mills	—	—	—	—	—	4.1	2.6	1.5	1.1	1.4	—	16
314	Textile product mills .....	.6	.6	.6	—	—	8.6	7.2	6.7	.5	1.4	88	22
3141	Textile furnishings mills .....	.6	.6	.6	—	—	5.7	5.2	4.8	.4	.6	88	31
31411	Carpet & rug mills	—	—	—	—	—	4.8	4.2	3.8	.4	.6	—	37
314110	Carpet & rug mills	—	—	—	—	—	4.8	4.2	3.8	.4	.6	—	37
31412	Curtain & linen mills .....	.6	.6	.6	—	—	1.0	.9	.9	(Z)	(Z)	88	33
3149	Other textile product mills	—	—	—	—	—	2.8	2.1	2.0	.1	.8	—	22
31499	All other textile product mills .	—	—	—	—	—	2.8	2.1	2.0	.1	.8	—	22
314992	Tire cord & tire fabric mills .	—	—	—	—	—	1.7	1.7	1.6	(Z)	(Z)	—	15
314999	All other miscellaneous textile product mills	—	—	—	—	—	1.0	.3	.2	.1	.7	—	57
315	Apparel mfg	—	—	—	—	—	2.6	2.4	2.2	.1	.2	—	18
3151	Apparel knitting mills	—	—	—	—	—	1.5	1.4	1.4	(Z)	.1	—	24

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
316	Leather & allied product mfg	1.0	.7	.4	.3	.3	15.3	13.6	12.2	1.4	1.7	57	28
3161	Leather & hide tanning & finishing . . . . .	.4	.4	(Z)	.3	—	11.8	10.4	9.3	1.1	1.4	83	33
31611	Leather & hide tanning & finishing . . . . .	.4	.4	(Z)	.3	—	11.8	10.4	9.3	1.1	1.4	83	33
316110	Leather & hide tanning & finishing . . . . .	.4	.4	(Z)	.3	—	11.8	10.4	9.3	1.1	1.4	83	33
3162	Footwear mfg . . . . .	.6	.3	.3	—	.2	3.0	2.7	2.6	.1	.3	83	50
31621	Footwear mfg . . . . .	.6	.3	.3	—	.2	3.0	2.7	2.6	.1	.3	83	50
316213	Men's footwear (except athletic) mfg	(Z)	(Z)	(Z)	—	—	2.2	2.2	2.2	(Z)	(Z)	81	65
321	Wood product mfg	14.3	13.1	12.9	.2	1.2	83.7	65.2	57.1	8.0	18.5	69	9
3211	Sawmills & wood preservation . . . . .	.9	.4	(D)	(D)	.5	23.5	15.7	12.0	3.7	7.7	39	25
32111	Sawmills & wood preservation . . . . .	.9	.4	(D)	(D)	.5	23.5	15.7	12.0	3.7	7.7	39	25
321113	Sawmills . . . . .	.9	.4	(D)	(D)	.5	16.8	10.1	9.6	.5	6.8	41	33
321114	Wood preservation	(Z)	(Z)	(Z)	—	—	6.6	5.7	2.4	3.2	1.0	81	27
3212	Veneer, plywood, & engineered wood product mfg . . . . .	.3	.2	(D)	(D)	(Z)	25.7	20.5	18.6	2.0	5.2	44	9
32121	Veneer, plywood, & engineered wood product mfg . . . . .	.3	.2	(D)	(D)	(Z)	25.7	20.5	18.6	2.0	5.2	44	9
321211	Hardwood veneer & plywood mfg	(D)	(D)	(D)	—	(D)	2.8	2.2	(D)	(D)	.6	(X)	19
321212	Softwood veneer & plywood mfg	(D)	(D)	(D)	—	—	4.5	3.8	3.2	.6	.7	(X)	18
321213	Engineered wood member (except truss) mfg	—	—	—	—	—	3.0	1.2	(D)	(D)	1.7	—	34
321214	Truss mfg	—	—	—	—	—	1.5	.9	.9	—	.6	—	69
321219	Reconstituted wood product mfg . . . . .	.2	(D)	(D)	(D)	(D)	13.9	12.4	11.1	1.4	1.5	56	10
3219	Other wood product mfg	13.1	12.4	12.4	(Z)	.6	34.6	29.0	26.6	2.4	5.6	75	12
32191	Millwork . . . . .	.4	.2	.2	(Z)	.2	11.8	7.3	5.8	1.6	4.5	44	10
321911	Wood window & door mfg . . . . .	.2	.2	.1	(Z)	(Z)	4.6	4.0	2.8	1.2	.6	75	19
321912	Cut stock, resawing lumber, & planing . . . . .	.1	(Z)	(Z)	—	(Z)	3.6	1.0	.8	.2	2.6	1	6
321918	Other millwork (including flooring) . . . . .	.1	(Z)	(Z)	—	.1	3.5	2.3	2.1	.2	1.2	76	20
32192	Wood container & pallet mfg . . . . .	.6	.1	.1	—	.5	1.2	1.1	.9	.1	.1	79	31
321920	Wood container & pallet mfg . . . . .	.6	.1	.1	—	.5	1.2	1.1	.9	.1	.1	79	31
32199	All other wood product mfg	12.1	12.1	12.1	(Z)	(Z)	21.6	20.6	19.9	.7	1.0	81	17
321991	Manufactured home (mobile home) mfg	2.2	2.2	2.2	(Z)	(Z)	15.1	14.6	14.3	.3	.5	52	20
321992	Prefabricated wood building mfg . . . . .	.2	.2	.2	—	(Z)	1.7	1.5	1.5	(Z)	.2	58	32
321999	All other miscellaneous wood product mfg	9.7	9.7	9.7	—	—	4.7	4.5	4.1	.3	.3	100	44
322	Paper mfg	15.9	13.8	13.2	.6	2.1	413.9	241.4	223.9	17.5	172.5	5	7
3221	Pulp, paper, & paperboard mills	12.5	11.0	10.7	.3	1.5	316.8	192.9	186.6	6.3	123.9	6	4
32211	Pulp mills	(D)	(D)	(D)	—	—	15.9	14.6	14.5	.2	1.3	(X)	39
322110	Pulp mills	(D)	(D)	(D)	—	—	15.9	14.6	14.5	.2	1.3	(X)	39
32212	Paper mills	(D)	(D)	(D)	(D)	1.1	174.5	108.7	103.3	5.4	65.8	(X)	4
322121	Paper (except newsprint) mills	(D)	(D)	(D)	(D)	1.1	128.5	94.4	89.8	4.6	34.1	(X)	6
322122	Newsprint mills . . . . .	.1	(Z)	(Z)	(D)	.1	46.0	14.3	13.5	.8	31.8	1	3
32213	Paperboard mills	7.6	7.3	(D)	(D)	.4	126.4	69.5	68.8	.7	56.8	3	5
322130	Paperboard mills	7.6	7.3	(D)	(D)	.4	126.4	69.5	68.8	.7	56.8	3	5
3222	Converted paper product mfg	3.4	2.8	2.4	.3	.6	97.1	48.6	37.3	11.3	48.6	10	26
32221	Paperboard container mfg . . . . .	.3	(D)	(D)	(D)	(D)	51.9	14.7	11.5	3.2	37.2	53	48
322211	Corrugated & solid fiber box mfg	(D)	(D)	(D)	—	(D)	43.0	9.0	8.0	1.0	34.0	(X)	58
322212	Folding paperboard box mfg	—	—	—	—	—	6.6	4.3	2.9	1.4	2.2	—	21
322215	Nonfolding sanitary food container mfg	(D)	(D)	—	(D)	—	1.9	1.0	.3	.6	.9	(X)	41
32222	Paper bag & coated & treated paper mfg	(D)	(D)	.1	(D)	(D)	22.2	16.3	11.6	4.7	6.0	(X)	7
322221	Coated & laminated packaging paper & plastics film mfg	—	—	—	—	—	1.7	1.5	.9	.6	.3	—	18
322222	Coated & laminated paper mfg . . . . .	.3	.2	—	.2	(Z)	13.3	9.6	6.6	3.0	3.7	84	7
322224	Uncoated paper & multiwall bag mfg	(Z)	—	—	—	(Z)	2.3	1.3	1.3	(Z)	1.0	78	17
322225	Laminated aluminum foil mfg for flexible packaging uses . . . . .	.2	(D)	.1	(D)	(D)	2.0	1.7	1.0	.7	.4	38	13
322226	Surface-coated paperboard mfg	(D)	—	—	—	(D)	2.0	1.4	1.3	.1	.6	(X)	49
32223	Stationery product mfg	(D)	(D)	(D)	—	—	1.3	1.2	.9	.3	.1	(X)	26
32229	Other converted paper product mfg	2.6	2.1	2.1	(Z)	.5	21.7	16.4	13.3	3.1	5.3	5	16
322291	Sanitary paper product mfg	2.6	2.1	2.1	(Z)	.5	14.9	11.3	11.0	.3	3.6	5	6
322299	All other converted paper product mfg	—	—	—	—	—	6.8	5.1	2.3	2.8	1.7	—	49

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
323	Printing & related support activities	14.5	5.1	3.2	1.9	9.4	52.4	33.3	22.0	11.3	19.1	19	7
3231	Printing & related support activities	14.5	5.1	3.2	1.9	9.4	52.4	33.3	22.0	11.3	19.1	19	7
32311	Printing	13.6	5.1	3.2	1.9	8.5	47.2	29.8	19.8	9.9	17.4	19	6
323110	Commercial lithographic printing	6.9	2.3	1.7	.6	4.6	21.8	13.9	9.0	4.8	7.9	22	6
323111	Commercial gravure printing	3.1	.5	.1	.4	2.7	5.0	2.8	1.8	1.0	2.2	8	5
323112	Commercial flexographic printing .....	.4	(Z)	(D)	(Z)	.4	3.4	2.8	1.8	1.0	.6	82	19
323113	Commercial screen printing .....	.1	.1	—	.1	.1	4.1	2.7	1.8	1.0	1.4	98	30
323114	Quick printing	2.1	2.1	1.3	.7	(Z)	3.5	1.6	1.4	.3	1.9	87	37
323116	Manifold business form printing .....	.1	(Z)	(Z)	(Z)	.1	3.4	1.9	1.3	.6	1.5	36	27
323117	Book printing .....	.8	.1	(Z)	.1	.7	4.1	2.3	1.5	.8	1.8	77	18
323119	Other commercial printing ..	(Z)	(Z)	(Z)	(Z)	—	1.5	1.4	1.0	.4	.1	29	22
32312	Support activities for printing .	1.0	—	—	—	1.0	5.2	3.5	2.1	1.4	1.7	95	48
323121	Tradebinding & related work	—	—	—	—	—	2.6	1.2	.9	.2	1.5	—	86
323122	Prepress services	1.0	—	—	—	1.0	2.6	2.3	1.2	1.1	.2	95	38
324	Petroleum & coal products mfg ...	21.9	12.4	5.7	6.7	9.5	244.9	172.2	99.9	72.3	72.7	4	7
3241	Petroleum & coal products mfg .	21.9	12.4	5.7	6.7	9.5	244.9	172.2	99.9	72.3	72.7	4	7
32411	Petroleum refineries	21.8	12.4	5.7	6.7	9.4	208.3	143.9	87.3	56.6	64.5	4	7
324110	Petroleum refineries	21.8	12.4	5.7	6.7	9.4	208.3	143.9	87.3	56.6	64.5	4	7
32412	Asphalt paving, roofing, & saturated materials mfg . . . .	.1	(Z)	(Z)	(Z)	.1	29.3	22.5	8.8	13.7	6.8	81	32
324121	Asphalt paving mixture & block mfg	(Z)	—	—	—	(Z)	1.5	.8	.5	.4	.6	62	31
324122	Asphalt shingle & coating materials mfg .....	.1	(Z)	(Z)	(Z)	.1	27.8	21.7	8.4	13.3	6.1	83	34
32419	Other petroleum & coal products mfg	(Z)	—	—	—	(Z)	7.3	5.8	3.7	2.1	1.5	3	11
324191	Petroleum lubricating oil & grease mfg	(Z)	—	—	—	(Z)	3.2	3.0	2.1	.9	.2	12	23
324199	All other petroleum & coal products mfg	(Z)	—	—	—	(Z)	4.1	2.8	1.7	1.2	1.2	1	6
325	Chemical mfg	76.2	59.7	33.4	26.3	16.5	1 167.2	912.8	457.4	455.4	254.3	8	5
3251	Basic chemical mfg	38.1	29.8	9.8	20.1	8.2	463.8	412.5	195.9	216.6	51.3	13	10
32511	Petrochemical mfg	(Z)	(Z)	(Z)	—	—	47.5	39.0	24.7	14.3	8.5	1	4
325110	Petrochemical mfg	(Z)	(Z)	(Z)	—	—	47.5	39.0	24.7	14.3	8.5	1	4
32512	Industrial gas mfg	26.0	23.3	4.1	19.2	2.7	22.9	22.6	6.1	16.5	.4	1	6
325120	Industrial gas mfg	26.0	23.3	4.1	19.2	2.7	22.9	22.6	6.1	16.5	.4	1	6
32513	Dye & pigment mfg .....	.2	(Z)	—	(Z)	.2	20.8	15.5	13.0	2.5	5.3	19	3
325131	Inorganic dye & pigment mfg	—	—	—	—	—	14.4	9.7	9.2	.5	4.7	—	3
325132	Synthetic organic dye & pigment mfg .....	.2	(Z)	—	(Z)	.2	6.4	5.8	3.8	2.0	.7	19	7
32518	Other basic inorganic chemical mfg	5.7	.8	.6	.2	4.9	90.0	70.4	44.9	25.5	19.6	73	6
325181	Alkalies & chlorine mfg ....	.2	.2	.2	—	—	10.5	8.8	6.0	2.8	1.7	82	11
325182	Carbon black mfg	—	—	—	—	—	2.5	1.3	1.2	(Z)	1.2	—	3
325188	All other basic inorganic chemical mfg	5.6	.6	.5	.2	4.9	77.0	60.3	37.7	22.7	16.7	75	7
32519	Other basic organic chemical mfg	6.1	5.7	4.9	.7	.4	282.5	265.0	107.2	157.8	17.5	45	16
325191	Gum & wood chemical mfg .	—	—	—	—	—	1.6	1.5	1.1	.4	(Z)	—	3
325192	Cyclic crude & intermediate mfg .....	.9	.9	.9	—	—	20.0	19.7	12.7	7.0	.3	1	21
325193	Ethyl alcohol mfg	—	—	—	—	—	1.0	.9	.8	.1	.2	—	3
325199	All other basic organic chemical mfg	5.2	4.8	4.1	.7	.4	259.9	242.9	92.6	150.3	17.0	52	18
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	5.5	4.9	1.3	3.6	.6	204.4	165.1	79.6	85.6	39.3	20	7
32521	Resin & synthetic rubber mfg .	4.0	3.6	.4	3.2	.3	172.0	141.8	61.7	80.1	30.2	27	9
325211	Plastics material & resin mfg .....	.7	(D)	.4	(D)	(D)	126.3	115.8	53.8	62.1	10.5	13	11
325212	Synthetic rubber mfg	3.3	(D)	(D)	(D)	(D)	45.7	26.0	8.0	18.0	19.8	32	9
32522	Artificial & synthetic fibers & filaments mfg	1.5	1.3	.9	.4	.2	32.4	23.4	17.8	5.5	9.0	5	2
325221	Cellulosic organic fiber mfg .	.2	.2	.2	—	—	1.4	1.3	.9	.4	.1	1	1
325222	Noncellulosic organic fiber mfg	1.3	1.1	.7	.4	.2	31.0	22.0	16.9	5.1	9.0	5	2
3253	Pesticide, fertilizer, & other agricultural chemical mfg	16.8	16.8	16.7	.1	(Z)	57.8	47.4	42.6	4.8	10.4	1	10
32531	Fertilizer mfg	16.5	16.5	16.5	—	(Z)	30.0	22.8	22.2	.6	7.2	1	10
325311	Nitrogenous fertilizer mfg ..	(Z)	(Z)	(Z)	—	(Z)	5.7	3.1	2.6	.5	2.6	1	27
325312	Phosphatic fertilizer mfg ...	16.4	16.4	16.4	—	—	24.2	19.7	19.6	.1	4.6	1	10
32532	Pesticide & other agricultural chemical mfg .....	.3	.3	.2	.1	—	27.8	24.6	20.4	4.2	3.2	36	17
325320	Pesticide & other agricultural chemical mfg .	.3	.3	.2	.1	—	27.8	24.6	20.4	4.2	3.2	36	17

See footnote at end of table.

Table 7a. Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
325	Chemical mfg—Con.												
3254	Pharmaceutical & medicine mfg	3.4	1.2	.9	.3	2.2	161.2	116.2	47.5	68.7	45.0	2	11
32541	Pharmaceutical & medicine mfg	3.4	1.2	.9	.3	2.2	161.2	116.2	47.5	68.7	45.0	2	11
325411	Medicinal & botanical mfg ..	2.5	.3	.1	.2	2.2	72.8	32.1	15.7	16.4	40.6	2	5
325412	Pharmaceutical preparation mfg .....	.7	.7	.6	(Z)	(Z)	79.9	75.8	28.3	47.5	4.1	1	21
325413	In-vitro diagnostic substance mfg	—	—	—	—	—	4.6	4.5	1.6	2.9	.1	—	14
325414	Biological product (except diagnostic) mfg .....	.2	.2	.2	(Z)	(Z)	4.0	3.8	1.9	1.9	.2	1	10
3255	Paint, coating, & adhesive mfg .	4.2	3.5	2.4	1.0	.7	70.8	57.9	25.5	32.4	12.9	38	9
32551	Paint & coating mfg	3.8	3.4	2.3	1.0	.5	49.7	37.8	12.7	25.1	12.0	41	11
325510	Paint & coating mfg	3.8	3.4	2.3	1.0	.5	49.7	37.8	12.7	25.1	12.0	41	11
32552	Adhesive mfg .....	.3	.1	.1	—	.2	21.0	20.1	12.8	7.3	.9	78	19
325520	Adhesive mfg .....	.3	.1	.1	—	.2	21.0	20.1	12.8	7.3	.9	78	19
3256	Soap, cleaning compound, & toilet preparation mfg	3.0	(D)	1.4	(D)	(D)	62.3	47.0	30.8	16.2	15.3	33	15
32561	Soap & cleaning compound mfg	2.8	1.3	1.3	(Z)	1.5	37.8	28.0	20.0	8.0	9.8	34	16
325611	Soap & other detergent mfg .....	.1	(Z)	(Z)	—	(Z)	8.2	6.9	5.3	1.6	1.2	15	18
325612	Polish & other sanitation good mfg .....	.1	.1	.1	—	—	6.5	4.9	3.0	1.8	1.6	1	33
325613	Surface active agent mfg ..	2.6	1.2	1.1	(Z)	1.5	23.1	16.3	11.6	4.6	6.9	37	23
32562	Toilet preparation mfg .....	.1	(D)	.1	(D)	(D)	24.5	18.9	10.7	8.2	5.5	29	28
325620	Toilet preparation mfg .....	.1	(D)	.1	(D)	(D)	24.5	18.9	10.7	8.2	5.5	29	28
3259	Other chemical product mfg	5.3	(D)	.9	(D)	(D)	146.9	66.7	35.7	31.1	80.2	3	6
32591	Printing ink mfg	(D)	(D)	(D)	—	—	8.2	8.2	7.8	.4	—	(X)	63
325910	Printing ink mfg	(D)	(D)	(D)	—	—	8.2	8.2	7.8	.4	—	(X)	63
32592	Explosives mfg	(D)	(D)	(D)	(D)	(D)	2.6	2.5	.8	1.7	.1	(X)	2
325920	Explosives mfg	(D)	(D)	(D)	(D)	(D)	2.6	2.5	.8	1.7	.1	(X)	2
32599	All other chemical product & preparation mfg	4.8	1.6	.7	.9	3.3	136.2	56.1	27.0	29.1	80.1	1	5
325991	Custom compounding of purchased resin	—	—	—	—	—	5.9	5.9	3.4	2.5	.1	—	16
325992	Photographic film, paper, plate, & chemical mfg	4.8	1.6	.7	.9	3.3	89.9	13.1	5.8	7.3	76.8	1	4
325998	All other miscellaneous chemical product & preparation mfg	—	—	—	—	—	40.4	37.1	17.8	19.3	3.3	—	13
326	Plastics & rubber products mfg ...	12.1	3.7	2.8	.9	8.4	234.8	195.0	163.3	31.7	39.9	44	26
3261	Plastics product mfg	9.9	1.8	1.0	.9	8.1	193.4	159.3	132.4	26.8	34.2	52	31
32611	Unsupported plastics film, sheet, & bag mfg	1.3	.2	.2	—	1.1	42.3	26.6	18.7	7.8	15.8	37	7
326111	Unsupported plastics bag mfg .....	.2	.1	.1	—	(Z)	9.0	5.2	2.9	2.4	3.7	71	23
326112	Unsupported plastics packaging film & sheet mfg .....	.5	—	—	—	.5	7.6	6.3	4.1	2.3	1.2	78	16
326113	Unsupported plastics film & sheet (except packaging) mfg .....	.6	.1	.1	—	.5	25.8	15.0	11.8	3.2	10.8	32	7
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg .....	.3	—	—	—	.3	6.8	3.9	2.7	1.2	2.9	82	15
326121	Unsupported plastics profile shape mfg .....	.3	—	—	—	.3	4.4	3.2	2.2	1.1	1.1	85	17
326122	Plastics pipe & pipe fitting mfg	(Z)	—	—	—	(Z)	2.4	.7	.5	.2	1.7	1	28
32613	Laminated plastics plate, sheet, & shape mfg .....	.1	(Z)	(Z)	—	.1	5.7	5.4	4.1	1.3	.3	62	16
326130	Laminated plastics plate, sheet, & shape mfg .....	.1	(Z)	(Z)	—	.1	5.7	5.4	4.1	1.3	.3	62	16
32614	Polystyrene foam product mfg .....	.1	—	—	—	.1	10.5	4.5	4.1	.4	5.9	82	15
326140	Polystyrene foam product mfg .....	.1	—	—	—	.1	10.5	4.5	4.1	.4	5.9	82	15
32615	Urethane & other foam product (except polystyrene) mfg .....	.3	.2	.2	.1	.1	9.3	8.0	4.4	3.6	1.3	42	25
326150	Urethane & other foam product (except polystyrene) mfg .....	.3	.2	.2	.1	.1	9.3	8.0	4.4	3.6	1.3	42	25
32616	Plastics bottle mfg	—	—	—	—	—	1.8	1.0	.8	.3	.8	—	39
326160	Plastics bottle mfg	—	—	—	—	—	1.8	1.0	.8	.3	.8	—	39
32619	Other plastics product mfg ...	7.7	1.3	.5	.8	6.4	117.1	109.8	97.6	12.3	7.3	67	51
326191	Plastics plumbing fixture mfg	(D)	—	—	—	(D)	1.6	(D)	1.0	(D)	(D)	(X)	33
326192	Resilient floor covering mfg	(D)	(D)	(D)	—	—	2.6	(D)	2.1	(D)	(D)	(X)	4
326199	All other plastics product mfg	7.6	(D)	(D)	.8	(D)	113.0	106.2	94.4	11.7	6.8	67	52

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
326	Plastics & rubber products mfg—Con.												
3262	Rubber product mfg	2.2	1.9	1.8	.1	.3	41.4	35.7	30.9	4.8	5.7	61	9
32621	Tire mfg .....	.1	—	—	—	—	17.4	13.4	12.6	.8	4.0	1	3
326211	Tire mfg (except retreading) .....	.1	—	—	—	—	17.3	13.3	12.5	.8	4.0	1	3
32622	Rubber & plastics hoses & belting mfg .....	.2	.2	.2	(Z)	.1	4.0	3.8	3.2	.5	.3	60	15
326220	Rubber & plastics hoses & belting mfg .....	.2	.2	.2	(Z)	.1	4.0	3.8	3.2	.5	.3	60	15
32629	Other rubber product mfg	1.9	1.7	1.6	.1	.2	20.0	18.6	15.0	3.5	1.4	70	17
326291	Rubber product mfg for mechanical use	1.9	1.7	1.6	.1	.2	10.4	9.6	7.3	2.3	.9	70	24
326299	All other rubber product mfg	—	—	—	—	—	9.5	9.0	7.8	1.2	.6	—	24
327	Nonmetallic mineral product mfg ..	8.6	4.7	4.7	.1	3.8	195.0	108.3	93.3	15.0	86.8	4	5
3271	Clay product & refractory mfg ..	.2	.1	.1	—	.1	15.2	11.0	10.0	1.0	4.2	28	9
32711	Pottery, ceramics, & plumbing fixture mfg .....	.1	—	—	—	—	7.8	5.3	4.4	.9	2.4	71	9
327111	Vitreous china plumbing fixture & bathroom accessories mfg	—	—	—	—	—	3.0	2.0	1.8	.2	1.0	—	22
327112	Vitreous china, fine earthenware, & other pottery product mfg	—	—	—	—	—	2.2	1.6	1.2	.4	.6	—	5
327113	Porcelain electrical supply mfg .....	.1	—	—	—	.1	2.6	1.8	1.4	.3	.8	71	5
32712	Clay building material & refractories mfg .....	.1	.1	.1	—	—	7.4	5.7	5.6	.1	1.7	1	16
327121	Brick & structural clay tile mfg	(Z)	(Z)	(Z)	—	—	1.5	1.0	1.0	(Z)	.4	48	25
327122	Ceramic wall & floor tile mfg	—	—	—	—	—	2.0	1.7	1.7	—	.4	—	45
327124	Clay refractory mfg	—	—	—	—	—	1.1	.8	.7	.1	.3	—	31
327125	Nonclay refractory mfg ....	.1	.1	.1	—	—	2.8	2.2	2.1	(Z)	.6	1	16
3272	Glass & glass product mfg	2.1	(Z)	(Z)	—	2.1	85.9	31.1	25.7	5.4	54.8	1	4
32721	Glass & glass product mfg ...	2.1	(Z)	(Z)	—	2.1	85.9	31.1	25.7	5.4	54.8	1	4
327211	Flat glass mfg	—	—	—	—	—	6.2	4.1	3.3	.8	2.0	—	11
327212	Other pressed & blown glass & glassware mfg	2.1	—	—	—	2.1	39.9	15.7	13.3	2.4	24.2	1	7
327213	Glass container mfg	—	—	—	—	—	31.8	5.2	4.1	1.2	26.6	—	3
327215	Glass product mfg made of purchased glass	(Z)	(Z)	(Z)	—	—	8.1	6.1	5.0	1.1	2.0	93	23
3273	Cement & concrete product mfg	4.0	3.8	3.8	.1	.2	47.4	29.9	28.6	1.4	17.5	3	15
32731	Cement mfg	3.9	3.8	3.8	(Z)	.1	18.6	15.1	15.1	(Z)	3.5	3	18
327310	Cement mfg	3.9	3.8	3.8	(Z)	.1	18.6	15.1	15.1	(Z)	3.5	3	18
32732	Ready-mix concrete mfg	(Z)	—	—	—	(Z)	14.6	8.8	8.7	(Z)	5.9	72	30
327320	Ready-mix concrete mfg ...	(Z)	—	—	—	(Z)	14.6	8.8	8.7	(Z)	5.9	72	30
32733	Concrete pipe, brick, & block mfg	(Z)	(Z)	—	(Z)	—	2.5	1.3	1.2	.1	1.2	93	22
327331	Concrete block & brick mfg .	—	—	—	—	—	1.9	.7	.7	.1	1.1	—	28
32739	Other concrete product mfg ..	—	—	—	—	—	11.7	4.7	3.5	1.2	6.9	—	38
327390	Other concrete product mfg	—	—	—	—	—	11.7	4.7	3.5	1.2	6.9	—	38
3274	Lime & gypsum product mfg ....	.9	.2	.2	—	.6	12.8	8.8	8.7	.1	4.1	31	21
32741	Lime mfg	—	—	—	—	—	1.3	1.2	1.2	(Z)	.1	—	31
327410	Lime mfg	—	—	—	—	—	1.3	1.2	1.2	(Z)	.1	—	31
32742	Gypsum product mfg .....	.9	.2	.2	—	.6	11.6	7.6	7.5	.1	4.0	31	23
327420	Gypsum product mfg .....	.9	.2	.2	—	.6	11.6	7.6	7.5	.1	4.0	31	23
3279	Other nonmetallic mineral product mfg	1.4	.5	.5	(Z)	.8	33.7	27.4	20.3	7.1	6.3	6	13
32791	Abrasive product mfg	(Z)	(Z)	(D)	(D)	—	3.9	3.0	2.2	.8	.9	54	23
327910	Abrasive product mfg	(Z)	(Z)	(D)	(D)	—	3.9	3.0	2.2	.8	.9	54	23
32799	All other nonmetallic mineral product mfg	1.3	.5	(D)	(D)	.8	29.8	24.4	18.1	6.3	5.4	6	15
327992	Ground or treated mineral & earth mfg .....	.4	.4	.4	—	—	7.7	7.6	2.9	4.7	.1	18	48
327993	Mineral wool mfg .....	.9	.1	(D)	(D)	.8	20.5	15.4	14.4	1.1	5.0	3	11
327999	All other miscellaneous nonmetallic mineral product mfg	(Z)	(Z)	(Z)	—	—	1.4	1.3	.8	.5	(Z)	70	16
331	Primary metal mfg	44.5	6.2	2.9	3.3	38.4	642.4	374.5	193.8	180.7	267.9	55	7
3311	Iron & steel mills & ferroalloy mfg	2.3	.9	.9	—	1.4	283.8	144.5	67.4	77.2	139.3	42	9
33111	Iron & steel mills & ferroalloy mfg	2.3	.9	.9	—	1.4	283.8	144.5	67.4	77.2	139.3	42	9
331111	Iron & steel mills	1.9	.6	.6	—	1.4	277.6	142.8	67.1	75.7	134.7	48	9
331112	Electrometallurgical ferroalloy product mfg ....	.4	.4	.4	—	—	6.2	1.7	.2	1.5	4.5	76	72

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
331	Primary metal mfg—Con.												
3312	Steel product mfg from purchased steel	(Z)	(Z)	(Z)	—	(Z)	30.8	21.6	11.3	10.3	9.1	65	8
33121	Iron & steel pipes & tubes mfg from purchased steel	—	—	—	—	—	9.3	6.3	3.9	2.3	3.1	—	17
331210	Iron & steel pipes & tubes mfg from purchased steel	—	—	—	—	—	9.3	6.3	3.9	2.3	3.1	—	17
33122	Rolling & drawing of purchased steel	(Z)	(Z)	(Z)	—	(Z)	21.4	15.4	7.4	8.0	6.1	65	8
331221	Cold-rolled steel shape mfg	—	—	—	—	—	12.5	8.3	3.1	5.2	4.2	—	3
331222	Steel wire drawing	(Z)	(Z)	(Z)	—	(Z)	8.9	7.1	4.3	2.8	1.8	65	18
3313	Alumina & aluminum production & processing	6.8	3.8	1.1	2.7	3.0	133.9	70.0	29.2	40.8	63.9	8	19
33131	Alumina & aluminum production & processing	6.8	3.8	1.1	2.7	3.0	133.9	70.0	29.2	40.8	63.9	8	19
331311	Alumina refining	(Z)	—	—	—	(Z)	1.4	1.4	1.3	.1	(Z)	1	1
331312	Primary aluminum production	4.8	3.2	.6	2.6	1.6	35.4	27.2	5.4	21.8	8.1	1	11
331314	Secondary smelting & alloying of aluminum	.3	.3	.3	.1	—	11.0	9.2	3.6	5.6	1.7	14	33
331315	Aluminum sheet, plate, & foil mfg	.9	—	—	—	.9	39.9	21.6	13.5	8.1	18.4	9	17
331316	Aluminum extruded product mfg	.7	.3	.3	(Z)	.5	43.1	7.6	4.5	3.1	35.5	73	56
331319	Other aluminum rolling & drawing	—	—	—	—	—	3.1	3.0	.9	2.1	.2	—	14
3314	Nonferrous metal (except aluminum) production & processing	1.0	.8	.3	.5	.3	64.0	55.4	22.7	32.7	8.6	28	5
33141	Nonferrous metal (except aluminum) smelting & refining	.4	.4	(Z)	.3	—	23.1	21.9	4.0	17.9	1.2	69	1
331411	Primary smelting & refining of copper	(D)	(D)	(D)	—	—	2.5	1.7	.6	1.1	.8	(X)	3
331419	Other nonferrous metal primary smelting & refining	(D)	(D)	(D)	.3	—	20.6	20.1	3.3	16.8	.5	(X)	1
33142	Copper rolling, drawing, extruding, & alloying	.2	.2	.2	(Z)	—	8.6	7.2	4.1	3.1	1.5	9	10
331421	Copper rolling, drawing, & extruding	.2	.2	.2	—	—	7.1	6.3	3.9	2.4	.8	9	12
331423	Secondary smelting, refining, & alloying of copper	(Z)	(Z)	—	(Z)	—	1.2	.6	.1	.6	.6	1	4
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	.4	.2	—	.2	.3	32.2	26.4	14.6	11.7	5.9	32	10
331491	Other nonferrous metal rolling, drawing, & extruding	(Z)	—	—	—	(Z)	13.6	12.0	6.2	5.7	1.7	1	11
331492	Other nonferrous metal secondary smelting, refining, & alloying	.4	.2	—	.2	.2	18.6	14.4	8.4	6.0	4.2	35	15
3315	Foundries	34.4	.7	.6	.1	33.7	129.9	82.9	63.2	19.6	47.0	71	12
33151	Ferrous metal foundries	34.2	.5	.5	.1	33.6	102.1	62.4	53.4	9.0	39.7	72	14
331511	Iron foundries	33.8	.2	.1	.1	33.6	85.0	49.7	45.2	4.5	35.3	72	17
331512	Steel investment foundries	.3	.3	.3	(Z)	—	5.5	3.5	2.0	1.5	2.0	87	14
331513	Steel foundries (except investment)	—	—	—	—	—	11.7	9.3	6.3	2.9	2.4	—	16
33152	Nonferrous metal foundries	.2	.1	.1	—	.1	27.7	20.5	9.8	10.6	7.3	38	21
331521	Aluminum die-casting foundries	.1	.1	.1	—	(Z)	15.2	11.2	3.9	7.4	3.9	63	36
331522	Nonferrous (except aluminum) die-casting foundries	—	—	—	—	—	1.7	1.3	.8	.5	.4	—	52
331524	Aluminum foundries (except die-casting)	.1	(Z)	(Z)	—	.1	6.7	4.4	3.4	1.0	2.3	35	18
331525	Copper foundries (except die-casting)	—	—	—	—	—	1.2	.7	.7	(Z)	.5	—	36
331528	Other nonferrous foundries (except die-casting)	—	—	—	—	—	3.0	2.8	1.1	1.7	.2	—	18
332	Fabricated metal product mfg	10.5	5.9	3.0	2.9	4.7	220.2	176.1	88.4	87.7	44.1	16	6
3321	Forging & stamping	.5	.4	.3	.1	.2	19.7	14.4	7.7	6.8	5.3	30	13
33211	Forging & stamping	.5	.4	.3	.1	.2	19.7	14.4	7.7	6.8	5.3	30	13
332111	Iron & steel forging	.2	.2	.2	(Z)	—	4.2	3.4	2.5	.9	.8	83	20
332112	Nonferrous forging	.2	—	—	—	—	3.5	1.5	1.0	.6	2.0	1	6
332114	Custom roll forming	.1	.1	(D)	(D)	—	5.1	3.4	.8	2.6	1.7	57	37
332116	Metal stamping	—	—	—	—	—	5.4	4.9	3.0	2.0	.5	—	26
3322	Cutlery & handtool mfg	.5	.5	.5	—	—	6.9	5.6	3.4	2.1	1.3	1	14
33221	Cutlery & handtool mfg	.5	.5	.5	—	—	6.9	5.6	3.4	2.1	1.3	1	14
332211	Cutlery & flatware (except precious) mfg	.5	.5	.5	—	—	1.7	1.4	.8	.6	.4	1	25
332212	Hand & edge tool mfg	—	—	—	—	—	4.0	3.1	2.2	.9	.8	—	21

See footnote at end of table.

Table 7a. Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
332	Fabricated metal product mfg—Con.												
3323	Architectural & structural metals mfg .....	.3	.2	.1	.1	.1	19.9	16.4	9.7	6.7	3.5	45	18
33231	Plate work & fabricated structural product mfg .....	.2	(Z)	(Z)	(Z)	.1	6.3	5.1	2.0	3.1	1.2	58	16
332312	Fabricated structural metal mfg .....	.2	(Z)	(Z)	(Z)	.1	3.9	3.5	1.2	2.3	.3	58	13
332313	Plate work mfg	—	—	—	—	—	1.6	.7	.2	.5	.9	—	50
33232	Ornamental & architectural metal products mfg .....	.2	.2	(Z)	.1	—	13.6	11.3	7.8	3.6	2.3	67	26
332321	Metal window & door mfg	(Z)	(Z)	(Z)	—	—	4.6	3.4	1.8	1.5	1.2	95	25
332322	Sheet metal work mfg .....	.1	.1	—	.1	—	4.6	3.5	1.7	1.8	1.1	96	34
332323	Ornamental & architectural metal work mfg	(Z)	(Z)	(Z)	(Z)	—	4.5	4.5	4.2	.2	(Z)	68	64
3324	Boiler, tank, & shipping container mfg	1.0	(D)	(D)	.2	(D)	17.7	12.6	9.4	3.2	5.1	55	15
33241	Power boiler & heat exchanger mfg	(Z)	(D)	(D)	(Z)	(D)	1.9	1.6	.8	.9	.3	18	23
332410	Power boiler & heat exchanger mfg	(Z)	(D)	(D)	(Z)	(D)	1.9	1.6	.8	.9	.3	18	23
33242	Metal tank (heavy gauge) mfg .....	.3	.3	.1	.2	—	2.3	1.8	1.0	.8	.5	85	14
332420	Metal tank (heavy gauge) mfg .....	.3	.3	.1	.2	—	2.3	1.8	1.0	.8	.5	85	14
33243	Metal can, box, & other metal container (light gauge) mfg ..	.7	—	—	—	.7	13.5	9.1	7.6	1.5	4.4	72	20
332431	Metal can mfg .....	.1	—	—	—	.1	10.1	7.5	6.6	.9	2.6	61	24
332439	Other metal container mfg ..	.5	—	—	—	.5	3.4	1.6	1.0	.6	1.8	91	35
3325	Hardware mfg .....	.2	.2	—	.2	(Z)	8.3	4.8	2.3	2.5	3.5	78	13
33251	Hardware mfg .....	.2	.2	—	.2	(Z)	8.3	4.8	2.3	2.5	3.5	78	13
332510	Hardware mfg .....	.2	.2	—	.2	(Z)	8.3	4.8	2.3	2.5	3.5	78	13
3326	Spring & wire product mfg .....	.1	(D)	(D)	(Z)	(D)	3.4	2.1	.9	1.2	1.4	46	17
33261	Spring & wire product mfg ...	.1	(D)	(D)	(Z)	(D)	3.4	2.1	.9	1.2	1.4	46	17
332618	Other fabricated wire product mfg .....	.1	.1	(Z)	(Z)	—	2.9	1.8	.7	1.1	1.1	61	20
3327	Machine shops, turned product, & screw, nut, & bolt mfg .....	.8	.7	.5	.2	.1	27.0	21.9	8.8	13.0	5.1	29	17
33271	Machine shops	—	—	—	—	—	11.7	9.4	3.1	6.3	2.3	—	33
332710	Machine shops	—	—	—	—	—	11.7	9.4	3.1	6.3	2.3	—	33
33272	Turned product & screw, nut, & bolt mfg .....	.8	.7	.5	.2	.1	15.3	12.5	5.7	6.7	2.8	29	14
332721	Precision turned product mfg .....	.3	.3	.2	.1	—	5.7	4.8	2.3	2.5	.9	45	21
332722	Bolt, nut, screw, rivet, & washer mfg .....	.5	.4	.3	.1	.1	9.5	7.7	3.4	4.2	1.8	38	18
3328	Coating, engraving, heat treating, & allied activities	4.5	3.0	1.1	1.9	1.5	61.9	50.1	19.5	30.6	11.8	28	14
33281	Coating, engraving, heat treating, & allied activities ...	4.5	3.0	1.1	1.9	1.5	61.9	50.1	19.5	30.6	11.8	28	14
332811	Metal heat treating .....	.1	.1	.1	—	—	8.6	4.6	2.6	2.0	4.0	70	22
332812	Metal coating/engraving (exc jewelry/silverware)/ allied services .....	.2	.1	—	.1	.2	17.1	15.7	3.2	12.4	1.5	70	28
332813	Electroplating, plating, polishing, anodizing, & coloring	4.2	2.9	1.0	1.8	1.3	36.1	29.9	13.6	16.2	6.3	30	18
3329	Other fabricated metal product mfg	2.5	.5	.4	.1	2.1	55.4	48.3	26.7	21.5	7.1	36	10
33291	Metal valve mfg	2.0	.1	.1	(Z)	1.9	13.5	10.8	6.0	4.8	2.7	46	11
332911	Industrial valve mfg	1.7	(Z)	(Z)	—	1.7	5.4	3.7	2.3	1.4	1.7	52	19
332912	Fluid power valve & hose fitting mfg .....	.2	.1	.1	—	.2	3.6	2.9	1.4	1.4	.8	39	14
332913	Plumbing fixture fitting & trim mfg	(Z)	(Z)	—	(Z)	(Z)	3.4	3.2	1.5	1.8	.1	2	21
332919	Other metal valve & pipe fitting mfg	—	—	—	—	—	1.2	1.1	.8	.3	.1	—	27
33299	All other fabricated metal product mfg .....	.6	.4	.3	.1	.2	41.9	37.4	20.7	16.7	4.4	27	13
332991	Ball & roller bearing mfg ...	—	—	—	—	—	16.7	15.4	13.8	1.6	1.3	—	4
332992	Small arms ammunition mfg .....	.1	(Z)	(Z)	—	.1	2.9	2.2	.8	1.4	.7	1	1
332993	Ammunition (except small arms) mfg	—	—	—	—	—	2.1	1.4	.6	.8	.7	—	26
332994	Small arms mfg	(Z)	—	—	—	(Z)	2.7	2.3	1.1	1.1	.4	1	9
332995	Other ordnance & accessories mfg	—	—	—	—	—	1.4	1.3	.4	.9	.2	—	7
332996	Fabricated pipe & pipe fitting mfg	(Z)	(Z)	(Z)	(Z)	—	2.0	1.9	.4	1.5	.1	50	71
332998	Enameled iron & metal sanitary ware mfg	—	—	—	—	—	1.7	1.4	.6	.8	.3	—	46
332999	All other miscellaneous fabricated metal product mfg .....	.4	.3	.2	.1	.1	12.3	11.6	2.8	8.7	.8	37	40

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
333	Machinery mfg	3.9	2.6	2.0	.6	1.3	106.3	88.3	55.6	32.7	18.0	31	7
3331	Agriculture, construction, & mining machinery mfg .....	.4	.1	(Z)	.1	.3	15.7	13.1	9.4	3.7	2.6	26	13
33311	Agricultural implement mfg ...	.1	.1	(Z)	.1	(Z)	5.3	4.2	3.2	1.0	1.1	57	12
333111	Farm machinery & equipment mfg	(Z)	(Z)	(D)	(D)	(Z)	3.1	2.5	2.1	.4	.6	38	17
333112	Lawn & garden tractor & home lawn & garden equipment mfg .....	.1	.1	(D)	(D)	—	2.2	1.7	1.1	.6	.5	68	16
33312	Construction machinery mfg ..	.3	(Z)	(Z)	—	.3	6.3	5.0	3.5	1.5	1.3	29	15
333120	Construction machinery mfg .....	.3	(Z)	(Z)	—	.3	6.3	5.0	3.5	1.5	1.3	29	15
33313	Mining & oil & gas field machinery mfg	—	—	—	—	—	4.0	3.9	2.7	1.2	.1	—	39
333132	Oil & gas field machinery & equipment mfg	—	—	—	—	—	3.8	3.6	2.5	1.1	.1	—	41
3332	Industrial machinery mfg .....	.5	.1	(Z)	.1	.4	10.0	9.4	4.2	5.2	.6	70	24
33329	Other industrial machinery mfg .....	.5	.1	(Z)	.1	.4	8.6	8.2	3.4	4.8	.5	70	28
333291	Paper industry machinery mfg	—	—	—	—	—	2.1	2.0	.9	1.0	.2	—	55
333294	Food product machinery mfg .....	.4	—	—	—	.4	1.1	1.0	.8	.2	.1	93	59
333295	Semiconductor machinery mfg	(Z)	—	—	—	(Z)	1.5	1.4	.1	1.3	.1	66	8
333298	All other industrial machinery mfg .....	.1	.1	(Z)	.1	(Z)	3.6	3.4	1.4	2.1	.1	53	56
3333	Commercial & service industry machinery mfg	(Z)	(Z)	—	(Z)	—	6.9	6.0	3.6	2.4	1.0	89	25
33331	Commercial & service industry machinery mfg	(Z)	(Z)	—	(Z)	—	6.9	6.0	3.6	2.4	1.0	89	25
333314	Optical instrument & lens mfg	(Z)	(Z)	—	(Z)	—	1.3	1.2	.3	.8	.1	89	12
333315	Photographic & photocopying equipment mfg	—	—	—	—	—	3.9	3.2	2.1	1.1	.7	—	42
333319	Other commercial & service industry machinery mfg ...	—	—	—	—	—	1.5	1.4	1.0	.3	.1	—	27
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg .....	.2	.1	.1	(Z)	.1	16.7	12.6	9.0	3.6	4.1	3	8
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg .....	.2	.1	.1	(Z)	.1	16.7	12.6	9.0	3.6	4.1	3	8
333411	Air purification equipment mfg	—	—	—	—	—	3.4	3.0	1.8	1.2	.4	—	31
333414	Heating equipment (except warm air furnaces) mfg ...	(Z)	(Z)	—	(Z)	—	2.1	2.1	1.8	.3	.1	29	28
333415	AC & warm air heating & commercial/industrial refrigeration equip mfg .....	.2	.1	.1	(Z)	.1	10.7	7.2	5.2	1.9	3.5	1	6
3335	Metalworking machinery mfg ...	.8	.5	.5	—	.3	14.4	12.7	7.7	5.1	1.7	98	25
33351	Metalworking machinery mfg ...	.8	.5	.5	—	.3	14.4	12.7	7.7	5.1	1.7	98	25
333511	Industrial mold mfg	—	—	—	—	—	4.8	4.4	3.8	.6	.3	—	60
333512	Machine tool (metal cutting types) mfg	—	—	—	—	—	1.9	1.7	.7	.9	.2	—	26
333513	Machine tool (metal forming types) mfg	(Z)	(Z)	(Z)	—	—	2.0	2.0	.9	1.0	—	79	83
333514	Special die & tool, die set, jig, & fixture mfg .....	.8	.5	.5	—	.3	2.3	2.0	.5	1.5	.3	100	60
333515	Cutting tool & machine tool accessory mfg	(Z)	—	—	—	(Z)	2.9	2.1	1.4	.7	.8	1	14
3336	Engine, turbine, & power transmission equipment mfg ...	1.2	1.2	.8	.3	(Z)	21.3	17.3	10.3	7.0	4.0	67	16
33361	Engine, turbine, & power transmission equipment mfg	1.2	1.2	.8	.3	(Z)	21.3	17.3	10.3	7.0	4.0	67	16
333611	Turbine & turbine generator set unit mfg	(Z)	—	—	—	(Z)	4.8	4.5	1.8	2.7	.3	12	15
333612	Speed changer, industrial high-speed drive, & gear mfg	—	—	—	—	—	2.9	2.8	.5	2.3	.1	—	57
333613	Mechanical power transmission equipment mfg	(Z)	(Z)	(Z)	—	—	1.5	1.3	.9	.4	.3	63	28
333618	Other engine equipment mfg	1.1	1.1	.8	.3	—	12.1	8.8	7.1	1.7	3.4	69	23
3339	Other general-purpose machinery mfg .....	.8	.6	.5	.1	.2	21.2	17.2	11.4	5.8	4.1	45	10
33391	Pump & compressor mfg ....	.4	(D)	.1	(D)	(D)	8.4	5.9	4.1	1.7	2.6	49	21
333911	Pump & pumping equipment mfg .....	.3	.1	(D)	(D)	.2	3.5	2.8	2.4	.5	.7	57	15
333912	Air & gas compressor mfg ...	.1	(D)	(D)	—	(D)	4.6	3.0	1.7	1.2	1.6	93	37

See footnote at end of table.

Table 7a. Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.

(Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million)

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
333	Machinery mfg—Con.												
3339	Other general-purpose machinery mfg—Con.												
33392	Material handling equipment mfg	—	—	—	—	—	4.8	4.2	2.8	1.4	.5	—	13
333921	Elevator & moving stairway mfg	—	—	—	—	—	1.2	1.1	.9	.2	(Z)	—	41
333923	Overhead traveling crane, hoist, & monorail system mfg	—	—	—	—	—	1.6	1.6	1.0	.6	.1	—	15
333924	Industrial truck, tractor, trailer, & stacker machinery mfg	—	—	—	—	—	1.1	.7	.5	.3	.4	—	21
33399	All other general-purpose machinery mfg	.4	(D)	.3	(D)	(D)	8.0	7.1	4.5	2.6	.9	72	12
333992	Welding & soldering equipment mfg	—	—	—	—	—	1.2	1.0	.7	.3	.2	—	30
333996	Fluid power pump & motor mfg	.4	.4	.3	.1	—	1.7	1.3	.9	.4	.3	82	22
333999	All other miscellaneous general-purpose machinery mfg	.1	(D)	(Z)	(D)	(D)	2.4	2.2	1.3	.9	.2	51	24
334	Computer & electronic product mfg	9.9	1.8	1.0	.8	8.1	141.1	98.5	34.1	64.4	42.6	29	7
3341	Computer & peripheral equipment mfg	(Z)	—	—	—	(Z)	15.8	7.8	2.0	5.8	8.0	1	24
33411	Computer & peripheral equipment mfg	(Z)	—	—	—	(Z)	15.8	7.8	2.0	5.8	8.0	1	24
334111	Electronic computer mfg	—	—	—	—	—	11.3	5.2	.2	5.1	6.1	—	31
334113	Computer terminal mfg	—	—	—	—	—	1.0	1.0	1.0	—	—	—	93
334119	Other computer peripheral equipment mfg	—	—	—	—	—	3.0	(D)	.8	(D)	(D)	—	22
3342	Communications equipment mfg	.4	.2	.1	.1	.2	9.0	4.9	2.7	2.2	4.1	51	22
33421	Telephone apparatus mfg	.4	.2	.1	.1	.2	3.2	1.9	1.5	.4	1.3	51	9
334210	Telephone apparatus mfg	.4	.2	.1	.1	.2	3.2	1.9	1.5	.4	1.3	51	9
33422	Radio & TV broadcasting & wireless communications equipment mfg	—	—	—	—	—	5.3	2.6	.9	1.6	2.7	—	37
334220	Radio & TV broadcasting & wireless communications equipment mfg	—	—	—	—	—	5.3	2.6	.9	1.6	2.7	—	37
3344	Semiconductor & other electronic component mfg	8.8	1.3	.8	.5	7.5	84.6	61.9	20.1	41.8	22.7	33	10
33441	Semiconductor & other electronic component mfg	8.8	1.3	.8	.5	7.5	84.6	61.9	20.1	41.8	22.7	33	10
334411	Electron tube mfg	(D)	—	—	—	(D)	7.7	3.0	.7	2.2	4.8	(X)	3
334412	Bare printed circuit board mfg	3.4	.9	.8	(Z)	2.5	15.8	11.6	4.3	7.3	4.2	50	22
334413	Semiconductor & related device mfg	1.6	—	—	—	1.6	36.2	30.2	11.8	18.4	6.0	73	15
334414	Electronic capacitor mfg	.4	.4	—	.4	(Z)	7.3	5.2	.4	4.8	2.1	9	31
334415	Electronic resistor mfg	—	—	—	—	—	1.1	.9	.4	.4	.2	—	22
334417	Electronic connector mfg	(D)	—	—	—	(D)	3.4	1.9	.6	1.3	1.5	(X)	25
334418	Printed circuit assembly (electronic assembly) mfg	3.1	—	—	—	3.1	9.4	6.6	.7	5.8	2.9	64	42
334419	Other electronic component mfg	(Z)	(Z)	—	(Z)	—	3.1	2.2	1.0	1.2	1.0	76	21
3345	Navigational, measuring, medical, & control instruments mfg	.4	.3	(Z)	.2	.2	24.6	21.1	8.6	12.6	3.4	36	11
33451	Navigational, measuring, medical, & control instruments mfg	.4	.3	(Z)	.2	.2	24.6	21.1	8.6	12.6	3.4	36	11
334510	Electromedical & electrotherapeutic apparatus mfg	.1	—	—	—	.1	3.1	2.9	1.9	1.0	.3	72	28
334511	Search, detection, navigation, & guidance instrument mfg	.3	.2	(Z)	.2	(Z)	8.8	6.9	3.7	3.2	1.9	50	19
334512	Automatic environmental control mfg	—	—	—	—	—	1.5	1.4	.6	.8	.1	—	28
334513	Industrial process control instrument mfg	—	—	—	—	—	1.0	1.0	(Z)	.9	(Z)	—	45
334515	Electricity measuring & testing instrument mfg	—	—	—	—	—	1.6	.9	.2	.7	.7	—	24
334516	Analytical laboratory instrument mfg	—	—	—	—	—	3.1	2.9	1.3	1.6	.2	—	23
334519	Other measuring & controlling device mfg	(Z)	(Z)	—	(Z)	—	4.2	4.1	.4	3.7	.1	9	39
3346	Mfg & reproducing magnetic & optical media	(Z)	—	—	—	(Z)	6.7	2.5	.5	1.9	4.2	58	18
33461	Mfg & reproducing magnetic & optical media	(Z)	—	—	—	(Z)	6.7	2.5	.5	1.9	4.2	58	18
334613	Magnetic & optical recording media mfg	(Z)	—	—	—	(Z)	6.2	2.0	.5	1.5	4.2	58	19

See footnote at end of table.

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			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
335	Electrical equipment, appliance, & component mfg . . . . .	.6	.3	.2	.1	.3	66.1	44.5	25.1	19.4	21.6	14	6
3351	Electric lighting equipment mfg	(Z)	(Z)	(Z)	—	(Z)	5.5	3.7	1.6	2.1	1.8	49	24
33511	Electric lamp bulb & part mfg	—	—	—	—	—	3.5	2.3	.7	1.5	1.3	—	36
335110	Electric lamp bulb & part mfg	—	—	—	—	—	3.5	2.3	.7	1.5	1.3	—	36
33512	Lighting fixture mfg	(Z)	(Z)	(Z)	—	(Z)	2.0	1.4	.9	.5	.6	49	17
335122	Commercial/industrial/institutional electric lighting fixture mfg	—	—	—	—	—	1.0	.5	.4	.1	.5	—	31
3352	Household appliance mfg . . . . .	.1	.1	(D)	(D)	.1	7.0	6.0	5.1	.9	.9	28	16
33521	Small electrical appliance mfg . . . . .	.1	.1	(D)	(D)	.1	2.3	1.9	1.6	.3	.4	29	43
335211	Electric housewares & household fan mfg	—	—	—	—	—	1.6	1.5	1.3	.3	(Z)	—	61
33522	Major appliance mfg	(Z)	—	—	—	(Z)	4.6	4.1	3.5	.6	.5	23	9
335222	Household refrigerator & home freezer mfg	(Z)	—	—	—	(Z)	1.3	1.1	.7	.4	.1	23	1
335224	Household laundry equipment mfg	—	—	—	—	—	2.1	1.8	1.7	.2	.3	—	5
3353	Electrical equipment mfg . . . . .	.1	(Z)	(D)	(D)	.1	10.6	9.2	6.1	3.1	1.4	72	12
33531	Electrical equipment mfg . . . . .	.1	(Z)	(D)	(D)	.1	10.6	9.2	6.1	3.1	1.4	72	12
335311	Power, distribution, & specialty transformer mfg	—	—	—	—	—	1.4	1.1	.8	.4	.2	—	18
335312	Motor & generator mfg	—	—	—	—	—	5.2	4.4	3.1	1.3	.8	—	20
335313	Switchgear & switchboard apparatus mfg . . . . .	.1	(Z)	(D)	(D)	.1	2.3	2.1	1.3	.8	.2	72	13
335314	Relay & industrial control mfg	—	—	—	—	—	1.7	1.5	.9	.5	.3	—	27
3359	Other electrical equipment & component mfg . . . . .	.4	.2	.1	.1	.2	43.1	25.7	12.3	13.3	17.4	7	7
33591	Battery mfg . . . . .	.2	.1	(Z)	.1	.1	18.1	7.4	1.8	5.6	10.7	1	5
335911	Storage battery mfg . . . . .	.2	.1	—	.1	.1	16.0	6.1	1.3	4.8	9.9	1	5
335912	Primary battery mfg	(Z)	(Z)	(Z)	(Z)	(Z)	2.1	1.3	.5	.8	.8	1	10
33592	Communication & energy wire & cable mfg . . . . .	.1	(Z)	(Z)	—	.1	11.2	6.3	4.0	2.3	4.9	15	6
335921	Fiber optic cable mfg	—	—	—	—	—	1.9	1.7	.6	1.1	.2	—	5
335929	Other communication & energy wire mfg . . . . .	.1	(Z)	(Z)	—	.1	9.3	4.6	3.4	1.2	4.7	15	7
33593	Wiring device mfg	(Z)	(Z)	(Z)	—	(Z)	6.3	5.1	2.7	2.5	1.2	53	11
335931	Current-carrying wiring device mfg	(Z)	—	—	—	(Z)	1.8	1.6	.9	.6	.3	60	25
335932	Noncurrent-carrying wiring device mfg	(Z)	(Z)	(Z)	—	(Z)	4.5	3.6	1.7	1.8	.9	59	11
33599	All other electrical equipment & component mfg	(Z)	(Z)	(Z)	—	(Z)	7.4	6.8	3.8	3.0	.6	42	34
335991	Carbon & graphite product mfg	(Z)	(Z)	(Z)	—	(Z)	4.2	4.1	3.7	.4	.1	42	11
335999	All other miscellaneous electrical equipment & component mfg	—	—	—	—	—	3.2	2.7	.1	2.6	.5	—	78
336	Transportation equipment mfg	15.0	9.2	6.3	2.9	5.8	296.9	239.2	131.6	107.6	57.6	14	4
3361	Motor vehicle mfg	(D)	(D)	(D)	.4	(D)	75.4	57.3	36.3	21.0	18.1	(X)	3
33611	Automobile & light duty motor vehicle mfg	2.4	1.2	.8	.4	1.1	65.9	50.4	32.1	18.2	15.6	20	3
336111	Automobile mfg	1.1	.6	.3	.3	.5	35.2	28.1	14.7	13.4	7.1	29	4
336112	Light truck & utility vehicle mfg	1.3	.7	.5	.1	.6	30.7	22.3	17.4	4.9	8.4	28	5
33612	Heavy duty truck mfg	(D)	(D)	(D)	—	(D)	9.5	7.0	4.2	2.8	2.6	(X)	4
336120	Heavy duty truck mfg	(D)	(D)	(D)	—	(D)	9.5	7.0	4.2	2.8	2.6	(X)	4
3362	Motor vehicle body & trailer mfg	1.0	(D)	1.0	(D)	(D)	11.3	10.5	8.2	2.3	.8	47	11
33621	Motor vehicle body & trailer mfg	1.0	(D)	1.0	(D)	(D)	11.3	10.5	8.2	2.3	.8	47	11
336211	Motor vehicle body mfg	(Z)	(D)	(D)	—	(D)	4.2	3.9	2.7	1.2	.3	79	23
336212	Truck trailer mfg . . . . .	.1	.1	(D)	(D)	—	2.1	1.9	1.7	.2	.2	31	8
336213	Motor home mfg	—	—	—	—	—	2.0	1.7	1.5	.3	.2	—	32
336214	Travel trailer & camper mfg	1.0	1.0	1.0	(Z)	—	3.1	2.9	2.3	.6	.1	51	16
3363	Motor vehicle parts mfg	8.4	4.4	4.0	.4	4.0	111.1	87.7	54.5	33.2	23.4	20	9
33631	Motor vehicle gasoline engine & engine parts mfg	1.2	.3	.2	.1	1.0	15.4	12.4	8.7	3.7	3.0	4	18
336311	Carburetor, piston, piston ring, & valve mfg . . . . .	.7	(Z)	(Z)	(Z)	.6	2.9	2.2	1.5	.7	.6	7	10
336312	Gasoline engine & engine parts mfg . . . . .	.6	.2	.2	(Z)	.3	12.5	10.1	7.1	3.0	2.4	1	22
33632	Motor vehicle electrical & electronic equipment mfg . . . . .	.9	.4	.4	—	.5	5.7	4.1	3.1	1.0	1.6	82	14
336321	Vehicular lighting equipment mfg	—	—	—	—	—	1.5	1.0	.9	.1	.4	—	26
336322	Other motor vehicle electrical & electronic equipment mfg . . . . .	.9	.4	.4	—	.5	4.2	3.1	2.2	.9	1.1	82	17

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
336	Transportation equipment mfg—Con.												
3363	Motor vehicle parts mfg—Con.												
33633	Motor vehicle steering & suspension component (except spring) mfg	1.0	.7	.7	—	.3	9.7	6.7	4.9	1.7	3.0	10	5
336330	Motor vehicle steering & suspension component (except spring) mfg	1.0	.7	.7	—	.3	9.7	6.7	4.9	1.7	3.0	10	5
33634	Motor vehicle brake system mfg	.2	.2	.2	—	(Z)	15.5	13.4	9.0	4.5	2.0	57	34
336340	Motor vehicle brake system mfg	.2	.2	.2	—	(Z)	15.5	13.4	9.0	4.5	2.0	57	34
33635	Motor vehicle transmission & power train parts mfg	4.0	2.2	2.1	.1	1.9	20.2	13.4	10.2	3.3	6.7	35	18
336350	Motor vehicle transmission & power train parts mfg	4.0	2.2	2.1	.1	1.9	20.2	13.4	10.2	3.3	6.7	35	18
33636	Motor vehicle seating & interior trim mfg	.2	—	—	—	—	3.7	3.3	2.8	.5	.4	100	48
336360	Motor vehicle seating & interior trim mfg	.2	—	—	—	—	3.7	3.3	2.8	.5	.4	100	48
33637	Motor vehicle metal stamping	.4	.4	.3	.1	(Z)	9.5	7.8	5.1	2.6	1.7	1	29
336370	Motor vehicle metal stamping	.4	.4	.3	.1	(Z)	9.5	7.8	5.1	2.6	1.7	1	29
33639	Other motor vehicle parts mfg	.4	.3	.2	.1	.1	31.6	26.5	10.7	15.9	5.0	5	20
336391	Motor vehicle air-conditioning mfg	.4	.3	.2	.1	(Z)	3.0	2.4	1.7	.7	.6	1	7
336399	All other motor vehicle parts mfg	.1	—	—	—	—	28.6	24.2	9.0	15.2	4.4	40	23
3364	Aerospace product & parts mfg	2.0	1.6	.2	1.4	.4	71.0	59.5	19.0	40.5	11.5	55	6
33641	Aerospace product & parts mfg	2.0	1.6	.2	1.4	.4	71.0	59.5	19.0	40.5	11.5	55	6
336411	Aircraft mfg	.1	—	—	—	—	23.4	18.1	9.5	8.5	5.4	1	12
336412	Aircraft engine & engine parts mfg	1.3	1.3	.1	1.2	—	9.0	8.1	4.5	3.5	.9	87	19
336413	Other aircraft part & auxiliary equipment mfg	.4	(Z)	(Z)	—	—	25.7	21.5	2.4	19.1	4.2	1	8
336414	Guided missile & space vehicle mfg	(Z)	—	—	—	—	4.1	3.5	1.1	2.4	.6	1	8
336415	Guided missile & space vehicle propulsion unit & parts mfg	.3	.3	.1	.2	—	8.2	7.8	1.3	6.4	.4	24	7
3365	Railroad rolling stock mfg	(D)	—	—	—	(D)	7.9	7.4	5.5	1.9	.5	(X)	22
33651	Railroad rolling stock mfg	(D)	—	—	—	(D)	7.9	7.4	5.5	1.9	.5	(X)	22
336510	Railroad rolling stock mfg	(D)	—	—	—	(D)	7.9	7.4	5.5	1.9	.5	(X)	22
3366	Ship & boat building	.5	(D)	(D)	.3	(D)	18.5	15.6	7.4	8.2	2.9	66	19
33661	Ship & boat building	.5	(D)	(D)	.3	(D)	18.5	15.6	7.4	8.2	2.9	66	19
336611	Ship building & repairing	.5	.4	.1	.3	.1	12.7	10.5	3.7	6.8	2.2	71	26
336612	Boat building	(Z)	(D)	(D)	—	(D)	5.8	5.1	3.7	1.4	.7	61	12
3369	Other transportation equipment mfg	.6	.4	(D)	(D)	.2	1.6	1.3	.8	.5	.3	3	14
33699	Other transportation equipment mfg	.6	.4	(D)	(D)	.2	1.6	1.3	.8	.5	.3	3	14
336999	All other transportation equipment mfg	.2	(Z)	(D)	(D)	.2	1.0	.9	.5	.4	.1	9	21
337	Furniture & related product mfg	1.3	.7	.6	.1	.6	47.2	41.5	23.7	17.9	5.7	20	9
3371	Household & institutional furniture & kitchen cabinet mfg	.9	.6	.5	.1	.3	28.5	24.9	12.2	12.8	3.6	27	12
33711	Wood kitchen cabinet & counter top mfg	.3	.2	.1	.1	.1	8.2	7.4	4.5	2.9	.8	32	13
337110	Wood kitchen cabinet & counter top mfg	.3	.2	.1	.1	.1	8.2	7.4	4.5	2.9	.8	32	13
33712	Household & institutional furniture mfg	.6	.4	.4	(Z)	.2	20.3	17.6	7.7	9.9	2.7	37	16
337121	Upholstered household furniture mfg	.1	.1	.1	—	—	1.4	1.3	1.1	.3	(Z)	63	17
337122	Nonupholstered wood household furniture mfg	.5	(D)	.3	(D)	(D)	8.5	8.0	4.6	3.3	.6	44	11
337124	Metal household furniture mfg	(D)	(D)	(D)	(D)	—	1.9	.8	.5	.2	1.1	(X)	21
337127	Institutional furniture mfg	(D)	(D)	(D)	(D)	(D)	7.7	6.7	.8	5.9	.9	(X)	40
3372	Office furniture (including fixtures) mfg	.4	.1	.1	(Z)	.3	17.7	15.8	10.9	4.9	2.0	19	13
33721	Office furniture (including fixtures) mfg	.4	.1	.1	(Z)	.3	17.7	15.8	10.9	4.9	2.0	19	13
337211	Wood office furniture mfg	—	—	—	—	—	3.5	3.0	2.3	.7	.5	—	12
337212	Custom architectural woodwork & millwork mfg	(Z)	—	—	—	(Z)	3.1	3.0	2.4	.6	.1	92	61
337214	Office furniture (except wood) mfg	.3	(Z)	—	(Z)	.3	6.5	5.5	3.1	2.4	1.0	16	8
337215	Showcase, partition, shelving, & locker mfg	.1	.1	.1	—	(Z)	4.6	4.3	3.2	1.1	.4	48	21
3379	Other furniture related product mfg	—	—	—	—	—	1.0	.8	.6	.2	.1	—	44

See footnote at end of table.

Table 7a. **Disposal and Recycling Capital Expenditures and Operating Costs by Industry: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total disposal and recycling expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

NAICS code	Industry	Capital expenditures					Operating costs					Relative standard error	
		Total	Disposal			Recycling	Total	Disposal			Recycling	DRCE	DROC
			Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
31-33	Manufacturing—Con.												
339	Miscellaneous mfg	5.9	5.1	4.1	1.0	.8	49.0	40.2	20.3	19.9	8.8	57	10
3391	Medical equipment & supplies mfg .....	.9	.5	—	.5	.3	20.9	16.9	8.3	8.6	4.0	20	13
33911	Medical equipment & supplies mfg .....	.9	.5	—	.5	.3	20.9	16.9	8.3	8.6	4.0	20	13
339112	Surgical & medical instrument mfg .....	.9	.5	—	.5	.3	8.6	6.1	3.0	3.1	2.5	20	18
339113	Surgical appliance & supplies mfg	—	—	—	—	—	7.0	6.5	3.4	3.2	.5	—	24
339114	Dental equipment & supplies mfg	—	—	—	—	—	1.3	1.2	.6	.7	.1	—	51
339115	Ophthalmic goods mfg	—	—	—	—	—	3.6	2.6	1.2	1.4	.9	—	34
3399	Other miscellaneous mfg	5.0	4.5	4.1	.5	.5	28.1	23.3	12.0	11.3	4.8	66	15
33991	Jewelry & silverware mfg .....	.1	(D)	—	(D)	(D)	2.3	1.9	1.4	.5	.4	1	15
33992	Sporting & athletic goods mfg .....	.4	.4	.3	.1	(Z)	3.6	3.1	1.4	1.6	.6	38	17
339920	Sporting & athletic goods mfg .....	.4	.4	.3	.1	(Z)	3.6	3.1	1.4	1.6	.6	38	17
33993	Doll, toy, & game mfg	3.4	3.4	3.4	—	—	4.5	4.4	1.2	3.3	(Z)	97	71
339932	Game, toy, & children's vehicle mfg	3.4	3.4	3.4	—	—	4.5	4.4	1.2	3.3	(Z)	97	71
33994	Office supplies (except paper) mfg .....	.1	.1	.1	—	—	2.6	1.8	.5	1.3	.8	77	33
339942	Lead pencil & art good mfg .....	.1	.1	.1	—	—	1.6	.8	.5	.3	.8	77	52
33995	Sign mfg .....	.5	.3	(D)	(D)	.2	3.1	2.8	.4	2.4	.3	65	48
339950	Sign mfg .....	.5	.3	(D)	(D)	.2	3.1	2.8	.4	2.4	.3	65	48
33999	All other miscellaneous mfg ..	.4	(D)	(D)	(D)	(D)	12.0	9.3	7.0	2.3	2.7	27	14
339991	Gasket, packing, & sealing device mfg .....	.1	.1	.1	—	—	5.4	4.2	3.6	.5	1.3	72	22
339993	Fastener, button, needle, & pin mfg	(Z)	(D)	(Z)	(D)	(D)	1.4	1.2	.5	.7	.2	53	60
339999	All other miscellaneous mfg .....	.2	(Z)	(Z)	—	.2	3.5	2.4	1.7	.7	1.1	27	21

Note: The sum of the Mining, Electric, and Manufacturing sectors may not add to "All industries" because some plants did not have a unique industry code at the time of publication. These plants are included in "All industries" but not the detail.

Table 7b. Disposal and Recycling Capital Expenditures and Operating Costs by State: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total disposal and recycling capital expenditures and total disposal and recycling operating costs are each less than \$1.0 million]

State	Capital expenditures					Operating costs					Relative standard error	
	Total	Disposal			Recycling	Total	Disposal			Recycling		
		Total	Non-hazardous	Hazardous			Total	Non-hazardous	Hazardous			
United States	398.7	267.2	218.0	49.2	131.5	4 923.6	3 680.9	2 466.2	1 214.7	1 242.7	10	4
New England	10.5	6.7	3.9	2.8	3.8	159.4	130.4	77.1	53.3	29.0	20	5
Connecticut	1.8	1.0	.3	.7	.8	47.9	35.3	18.4	16.9	12.7	28	7
Maine	1.6	1.6	1.6	—	—	16.9	15.1	12.5	2.6	1.9	6	6
Massachusetts	5.4	3.1	1.7	1.5	2.3	57.8	48.0	26.9	21.0	9.8	36	9
New Hampshire	1.2	.7	.1	.6	.6	18.8	15.0	6.5	8.5	3.8	45	21
Rhode Island .....	.3	.1	—	.1	.2	5.4	4.9	3.1	1.8	.5	48	23
Vermont .....	.3	.2	.2	(Z)	(Z)	12.6	12.2	9.8	2.4	.4	38	6
Middle Atlantic	22.7	7.6	6.2	1.4	15.1	670.9	452.0	305.6	146.4	218.9	20	8
New Jersey	1.8	1.1	.8	.3	.7	118.9	102.6	52.7	49.9	16.2	46	9
New York	12.6	2.0	1.3	.7	10.6	238.1	92.6	53.1	39.5	145.5	34	12
Pennsylvania	8.3	4.6	4.1	.5	3.8	314.0	256.8	199.8	57.0	57.2	16	14
East North Central	99.7	46.0	43.5	2.5	53.7	1 187.4	906.1	624.0	282.1	281.2	34	11
Illinois	7.8	2.0	1.6	.4	5.8	166.2	124.6	84.8	39.9	41.5	23	9
Indiana	2.6	1.5	1.5	—	1.1	237.6	125.4	77.2	48.2	112.2	17	6
Michigan	42.1	8.1	7.5	.7	34.0	210.1	186.7	106.7	80.0	23.3	58	9
Ohio	33.6	30.7	30.0	.7	2.9	464.6	381.1	290.8	90.3	83.5	68	27
Wisconsin	13.5	3.6	3.0	.7	9.8	109.0	88.3	64.5	23.8	20.7	42	7
West North Central	19.6	16.1	8.4	7.7	3.5	324.4	246.1	163.9	82.2	78.3	17	7
Iowa	6	.2	.2	(Z)	.4	61.0	43.7	32.5	11.2	17.3	28	7
Kansas	2.4	2.0	.8	1.2	.5	66.3	55.1	24.1	31.0	11.2	46	31
Minnesota	7.5	5.4	1.3	4.1	2.1	59.0	43.3	31.1	12.1	15.8	10	9
Missouri	8.4	7.9	5.5	2.4	.5	88.3	62.1	42.2	20.0	26.2	37	7
Nebraska	4	.3	.3	—	(Z)	22.8	16.2	10.3	6.0	6.6	41	11
North Dakota .....	.3	.3	.3	—	—	24.0	23.4	22.8	.6	.6	46	14
South Dakota	(Z)	(Z)	(Z)	—	(Z)	3.0	2.3	.9	1.3	.7	1	11
South Atlantic	38.4	25.0	22.4	2.6	13.4	716.7	543.5	408.5	135.0	173.3	7	10
Delaware	4	—	—	—	.4	17.6	12.3	10.2	2.2	5.2	75	19
Florida	12.2	12.0	11.8	.1	.2	69.0	46.4	34.0	12.4	22.5	2	11
Georgia	8.2	3.3	3.2	(Z)	4.9	117.5	93.8	77.7	16.1	23.6	9	8
Maryland	1.2	.2	.1	.1	1.0	44.3	35.8	26.8	9.0	8.5	76	10
North Carolina	9.9	5.1	4.2	1.0	4.8	152.4	92.1	61.9	30.2	60.4	21	18
South Carolina	1.8	1.4	.8	.6	.4	73.2	55.0	38.2	16.8	18.2	20	9
Virginia	2.1	1.9	1.2	.7	.2	172.3	147.0	124.2	22.9	25.2	38	35
West Virginia	2.7	1.1	1.1	—	1.6	70.5	61.0	35.5	25.5	9.5	7	11
East South Central	36.6	19.2	15.5	3.7	17.3	457.2	339.1	225.4	113.7	118.1	9	6
Alabama	6.2	4.7	4.2	.5	1.5	122.7	101.8	69.6	32.1	20.9	25	16
Kentucky	17.2	6.2	6.0	.2	11.0	115.4	91.2	43.2	48.0	24.1	2	8
Mississippi	3.5	3.3	.3	3.0	.2	77.3	56.9	38.7	18.2	20.5	31	11
Tennessee	9.7	5.1	5.0	.1	4.7	141.8	89.2	73.8	15.4	52.6	29	8
West South Central	67.2	51.9	28.4	23.5	15.3	782.8	602.1	350.8	251.2	180.7	15	6
Arkansas	3.0	1.1	.5	.6	1.9	102.4	75.3	36.8	38.5	27.1	35	8
Louisiana	14.3	5.6	5.2	.4	8.7	225.6	122.8	90.1	32.7	102.8	6	3
Oklahoma	3.9	3.6	3.5	.1	.3	31.5	26.3	19.1	7.2	5.2	3	14
Texas	46.0	41.6	19.1	22.5	4.4	423.3	377.6	204.8	172.8	45.6	22	11
Mountain	76.9	75.2	74.9	.3	1.8	182.7	142.6	97.7	44.9	40.2	1	9
Arizona	4	.3	.3	(Z)	.1	26.2	18.0	8.3	9.7	8.3	37	16
Colorado	4	.1	.1	(Z)	.3	29.2	19.2	14.6	4.7	9.9	28	11
Idaho	1.5	1.3	1.3	(Z)	.2	12.3	8.9	6.7	2.2	3.4	6	20
Montana .....	.5	—	—	—	.5	10.3	9.6	4.4	5.2	.7	64	18
Nevada .....	.1	(Z)	—	(Z)	.1	15.2	13.1	7.7	5.4	2.1	27	28
New Mexico .....	.7	.7	.7	—	(Z)	30.9	29.4	25.1	4.2	1.5	93	34
Utah	73.2	72.7	72.4	.3	.5	44.7	31.9	18.9	13.0	12.8	1	10
Wyoming .....	.1	.1	.1	—	—	14.0	12.5	12.0	.5	1.4	60	47
Pacific	27.0	19.5	14.9	4.6	7.5	436.6	313.9	208.1	105.8	122.7	17	4
Alaska	3.6	2.1	1.4	.7	1.5	7.1	6.1	5.3	.8	1.0	54	19
California	18.6	13.9	11.6	2.3	4.7	290.8	202.4	125.0	77.4	88.5	21	4
Hawaii	—	—	—	—	—	5.8	3.6	3.2	.4	2.2	—	27
Oregon	3.7	3.2	1.7	1.5	.5	50.2	31.2	23.0	8.2	19.0	23	9
Washington	1.1	.3	.3	(Z)	.8	82.6	70.7	51.6	19.0	12.0	35	10
Offshore	(Z)	(Z)	(Z)	—	—	5.5	5.2	5.1	.1	.3	1	13

Table 8a. Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
	All industries	2 767.9	13
21	Mining	222.8	7
211	Oil & gas extraction	162.4	9
21111	Oil & gas extraction	162.4	9
211111	Oil & gas extraction	162.4	9
2111111	Crude petroleum & natural gas extraction	130.2	6
2111112	Natural gas liquid extraction	32.3	37
212	Mining (except oil & gas)	57.7	9
2121	Coal mining	5.0	24
21211	Coal mining	5.0	24
212111	Bituminous coal & lignite surface mining	4.4	28
2122	Metal ore mining	9.0	14
21222	Gold ore & silver ore mining	7.2	17
212221	Gold ore mining	(D)	(X)
21229	Other metal ore mining	1.6	21
212299	All other metal ore mining	1.5	22
2123	Nonmetallic mineral mining & quarrying	43.7	11
21231	Stone mining & quarrying	30.5	14
212312	Crushed & broken limestone mining & quarrying	27.5	15
212313	Crushed & broken granite mining & quarrying	2.2	30
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	7.9	20
212321	Construction sand & gravel mining	2.6	34
212325	Clay & ceramic & refractory minerals mining	4.4	25
21239	Other nonmetallic mineral mining & quarrying	5.2	1
212391	Potash, soda, & borate mineral mining	2.4	1
212392	Phosphate rock mining	1.5	2
212393	Other chemical & fertilizer mineral mining	1.0	4
213	Support activities for mining	2.6	31
2131	Support activities for mining	2.6	31
21311	Support activities for mining	2.6	31
213112	Support activities for oil & gas operations	2.2	36
22111	Electric power generation	443.2	78
221112	Fossil fuel electric power generation	422.7	82
221113	Nuclear electric power generation	20.2	1
31-33	Manufacturing	2 101.9	5
311	Food mfg	178.4	19
3111	Animal food mfg	4.4	28
31111	Animal food mfg	4.4	28
311111	Dog & cat food mfg	3.5	33
3112	Grain & oilseed milling	9.9	10
31121	Flour milling & malt mfg	1.2	1
311212	Rice milling	1.2	1
31122	Starch & vegetable fats & oils mfg	7.8	12
311221	Wet corn milling	2.2	20
311222	Soybean processing	2.2	6
311223	Other oilseed processing	1.2	51
311225	Fats & oils refining & blending	2.1	21
3113	Sugar & confectionery product mfg	24.4	9
31131	Sugar mfg	8.4	24
311313	Beet sugar mfg	7.9	25
31132	Chocolate & confectionery mfg from cacao beans	1.3	1
311320	Chocolate & confectionery mfg from cacao beans	1.3	1
31133	Confectionery mfg from purchased chocolate	9.3	7
311330	Confectionery mfg from purchased chocolate	9.3	7
31134	Nonchocolate confectionery mfg	5.4	2
311340	Nonchocolate confectionery mfg	5.4	2
3114	Fruit & vegetable preserving & specialty food mfg	65.8	48
31141	Frozen food mfg	26.9	5
311411	Frozen fruit, juice, & vegetable mfg	25.8	5
311412	Frozen specialty food mfg	1.1	16
31142	Fruit & vegetable canning, pickling, & drying	38.9	81
311421	Fruit & vegetable canning	36.7	85
311422	Specialty canning	1.5	62
3115	Dairy product mfg	24.2	22
31151	Dairy product (except frozen) mfg	23.0	23
311511	Fluid milk mfg	6.0	38
311512	Creamery butter mfg	3.6	37
311513	Cheese mfg	10.9	39
311514	Dry, condensed, & evaporated dairy product mfg	2.6	38
31152	Ice cream & frozen dessert mfg	1.2	74
311520	Ice cream & frozen dessert mfg	1.2	74
3116	Meat product mfg	26.9	18
31161	Animal slaughtering & processing	26.9	18
311611	Animal (except poultry) slaughtering	6.4	5
311612	Meat processed from carcasses	4.3	62
311613	Rendering & meat byproduct processing	3.0	25
311615	Poultry processing	13.1	29
3118	Bakeries & tortilla mfg	4.1	20
31181	Bread & bakery product mfg	3.5	23
311812	Commercial bakeries	1.7	47
311813	Frozen cakes, pies, & other pastries mfg	1.8	6

See footnote at end of table.

Table 8a. Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
31-33	Manufacturing—Con.		
311	Food mfg—Con.		
3119	Other food mfg	18.2	22
31191	Snack food mfg	4.1	68
311919	Other snack food mfg	3.9	72
31193	Flavoring syrup & concentrate mfg	1.2	15
311930	Flavoring syrup & concentrate mfg	1.2	15
31194	Seasoning & dressing mfg	1.9	13
311942	Spice & extract mfg	1.6	15
31199	All other food mfg	10.3	27
311991	Perishable prepared food mfg	1.3	12
311999	All other miscellaneous food mfg	9.0	31
312	Beverage & tobacco product mfg	9.3	23
3121	Beverage mfg	5.4	37
31211	Soft drink & ice mfg	3.5	58
312111	Soft drink mfg	3.4	59
31213	Wineries	1.2	1
312130	Wineries	1.2	1
3122	Tobacco mfg	3.9	13
31222	Tobacco product mfg	3.2	13
312221	Cigarette mfg	1.6	1
312229	Other tobacco product mfg	1.6	25
313	Textile mills	26.1	54
3131	Fiber, yarn, & thread mills	3.9	83
31311	Fiber, yarn, & thread mills	3.9	83
313111	Yarn spinning mills	3.7	85
3132	Fabric mills	21.5	63
31323	Nonwoven fabric mills	18.9	72
313230	Nonwoven fabric mills	18.9	72
31324	Knit fabric mills	1.9	9
313249	Other knit fabric & lace mills	1.8	9
314	Textile product mills	1.3	38
316	Leather & allied product mfg	4.2	72
3162	Footwear mfg	3.8	81
31621	Footwear mfg	3.8	81
316211	Rubber & plastics footwear mfg	3.8	81
321	Wood product mfg	64.4	21
3211	Sawmills & wood preservation	19.5	26
32111	Sawmills & wood preservation	19.5	26
321113	Sawmills	11.2	22
321114	Wood preservation	8.4	52
3212	Veneer, plywood, & engineered wood product mfg	27.4	16
32121	Veneer, plywood, & engineered wood product mfg	27.4	16
321211	Hardwood veneer & plywood mfg	1.6	38
321212	Softwood veneer & plywood mfg	12.6	31
321219	Reconstituted wood product mfg	12.8	11
3219	Other wood product mfg	17.4	68
32191	Millwork	3.6	45
321912	Cut stock, resawing lumber, & planing	2.4	63
32192	Wood container & pallet mfg	1.0	41
321920	Wood container & pallet mfg	1.0	41
32199	All other wood product mfg	12.8	91
321999	All other miscellaneous wood product mfg	11.9	98
322	Paper mfg	213.5	17
3221	Pulp, paper, & paperboard mills	176.4	20
32211	Pulp mills	(D)	(X)
322110	Pulp mills	(D)	(X)
32212	Paper mills	(D)	(X)
322121	Paper (except newsprint) mills	50.4	3
322122	Newsprint mills	(D)	(X)
32213	Paperboard mills	94.9	37
322130	Paperboard mills	94.9	37
3222	Converted paper product mfg	37.2	17
32221	Paperboard container mfg	4.6	22
322211	Corrugated & solid fiber box mfg	3.1	21
322212	Folding paperboard box mfg	1.0	62
32222	Paper bag & coated & treated paper mfg	28.8	22
322222	Coated & laminated paper mfg	24.0	26
322225	Laminated aluminum foil mfg for flexible packaging uses	3.9	5
32229	Other converted paper product mfg	3.2	18
322291	Sanitary paper product mfg	2.4	1
323	Printing & related support activities	40.6	30
3231	Printing & related support activities	40.6	30
32311	Printing	38.2	32
323110	Commercial lithographic printing	23.9	47
323111	Commercial gravure printing	1.8	7
323112	Commercial flexographic printing	1.2	79
323113	Commercial screen printing	4.1	75
323115	Digital printing	1.9	84
323117	Book printing	2.6	53
323119	Other commercial printing	2.4	60
32312	Support activities for printing	2.4	59
323122	Prepress services	2.1	66

See footnote at end of table.

Table 8a. **Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
31-33	Manufacturing—Con.		
324	Petroleum & coal products mfg	271.0	11
3241	Petroleum & coal products mfg	271.0	11
32411	Petroleum refineries	240.1	10
324110	Petroleum refineries	240.1	10
32412	Asphalt paving, roofing, & saturated materials mfg	22.8	79
324121	Asphalt paving mixture & block mfg	19.0	94
324122	Asphalt shingle & coating materials mfg	3.9	57
32419	Other petroleum & coal products mfg	8.1	44
324191	Petroleum lubricating oil & grease mfg	5.2	67
324199	All other petroleum & coal products mfg	2.8	2
325	Chemical mfg	368.6	5
3251	Basic chemical mfg	211.5	5
32511	Petrochemical mfg	11.2	3
325110	Petrochemical mfg	11.2	3
32512	Industrial gas mfg	4.9	1
325120	Industrial gas mfg	4.9	1
32513	Dye & pigment mfg	9.1	10
325131	Inorganic dye & pigment mfg	4.3	7
325132	Synthetic organic dye & pigment mfg	4.8	17
32518	Other basic inorganic chemical mfg	20.8	24
325181	Alkalies & chlorine mfg	1.3	45
325182	Carbon black mfg	5.9	40
325188	All other basic inorganic chemical mfg	13.6	31
32519	Other basic organic chemical mfg	165.6	6
325192	Cyclic crude & intermediate mfg	20.6	39
325199	All other basic organic chemical mfg	144.5	3
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	72.1	11
32521	Resin & synthetic rubber mfg	53.4	15
325211	Plastics material & resin mfg	35.4	22
325212	Synthetic rubber mfg	18.0	1
32522	Artificial & synthetic fibers & filaments mfg	18.7	6
325221	Cellulosic organic fiber mfg	2.6	1
325222	Noncellulosic organic fiber mfg	16.1	7
3253	Pesticide, fertilizer, & other agricultural chemical mfg	11.6	5
32531	Fertilizer mfg	7.4	4
325311	Nitrogenous fertilizer mfg	4.4	7
325312	Phosphatic fertilizer mfg	3.0	1
32532	Pesticide & other agricultural chemical mfg	4.2	10
325320	Pesticide & other agricultural chemical mfg	4.2	10
3254	Pharmaceutical & medicine mfg	26.9	21
32541	Pharmaceutical & medicine mfg	26.9	21
325411	Medicinal & botanical mfg	14.6	9
325412	Pharmaceutical preparation mfg	12.0	46
3255	Paint, coating, & adhesive mfg	15.7	12
32551	Paint & coating mfg	13.4	11
325510	Paint & coating mfg	13.4	11
32552	Adhesive mfg	2.3	49
325520	Adhesive mfg	2.3	49
3256	Soap, cleaning compound, & toilet preparation mfg	7.9	14
32561	Soap & cleaning compound mfg	5.5	18
325611	Soap & other detergent mfg	1.0	25
325612	Polish & other sanitation good mfg	2.5	30
325613	Surface active agent mfg	2.0	28
32562	Toilet preparation mfg	2.4	20
325620	Toilet preparation mfg	2.4	20
3259	Other chemical product mfg	22.8	30
32591	Printing ink mfg	(D)	(X)
325910	Printing ink mfg	(D)	(X)
32592	Explosives mfg	(D)	(X)
325920	Explosives mfg	(D)	(X)
32599	All other chemical product & preparation mfg	20.4	33
325991	Custom compounding of purchased resin	4.6	61
325992	Photographic film, paper, plate, & chemical mfg	3.5	17
325998	All other miscellaneous chemical product & preparation mfg	12.4	50
326	Plastics & rubber products mfg	131.4	41
3261	Plastics product mfg	116.8	46
32611	Unsupported plastics film, sheet, & bag mfg	11.0	40
326111	Unsupported plastics bag mfg	6.5	67
326113	Unsupported plastics film & sheet (except packaging) mfg	4.0	14
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	6.5	46
326121	Unsupported plastics profile shape mfg	1.0	42
326122	Plastics pipe & pipe fitting mfg	5.5	54
32613	Laminated plastics plate, sheet, & shape mfg	2.6	28
326130	Laminated plastics plate, sheet, & shape mfg	2.6	28
32614	Polystyrene foam product mfg	2.2	46
326140	Polystyrene foam product mfg	2.2	46
32615	Urethane & other foam product (except polystyrene) mfg	3.7	22
326150	Urethane & other foam product (except polystyrene) mfg	3.7	22
32619	Other plastics product mfg	90.5	59
326191	Plastics plumbing fixture mfg	56.6	92
326199	All other plastics product mfg	33.1	33

See footnote at end of table.

Table 8a. **Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
31-33	Manufacturing—Con.		
326	Plastics & rubber products mfg—Con.		
3262	Rubber product mfg	14.7	19
32621	Tire mfg	5.7	10
326211	Tire mfg (except retreading)	5.7	10
32622	Rubber & plastics hoses & belting mfg	3.2	49
326220	Rubber & plastics hoses & belting mfg	3.2	49
32629	Other rubber product mfg	5.7	38
326291	Rubber product mfg for mechanical use	1.4	31
326299	All other rubber product mfg	4.2	49
327	Nonmetallic mineral product mfg	178.7	31
3271	Clay product & refractory mfg	8.9	15
32711	Pottery, ceramics, & plumbing fixture mfg	4.0	32
327112	Vitreous china, fine earthenware, & other pottery product mfg	2.7	45
32712	Clay building material & refractories mfg	4.9	9
327125	Nonclay refractory mfg	3.6	2
3272	Glass & glass product mfg	12.0	7
32721	Glass & glass product mfg	12.0	7
327211	Flat glass mfg	1.4	31
327212	Other pressed & blown glass & glassware mfg	3.3	2
327213	Glass container mfg	5.8	1
327215	Glass product mfg made of purchased glass	1.6	47
3273	Cement & concrete product mfg	83.7	29
32731	Cement mfg	73.0	32
327310	Cement mfg	73.0	32
32732	Ready-mix concrete mfg	8.5	55
327320	Ready-mix concrete mfg	8.5	55
32733	Concrete pipe, brick, & block mfg	1.4	44
327331	Concrete block & brick mfg	1.2	49
3274	Lime & gypsum product mfg	6.2	17
32741	Lime mfg	2.0	38
327410	Lime mfg	2.0	38
32742	Gypsum product mfg	4.2	17
327420	Gypsum product mfg	4.2	17
3279	Other nonmetallic mineral product mfg	67.8	72
32791	Abrasive product mfg	2.8	39
327910	Abrasive product mfg	2.8	39
32799	All other nonmetallic mineral product mfg	65.0	75
327992	Ground or treated mineral & earth mfg	54.5	89
327993	Mineral wool mfg	10.0	5
331	Primary metal mfg	238.8	10
3311	Iron & steel mills & ferroalloy mfg	65.5	4
33111	Iron & steel mills & ferroalloy mfg	65.5	4
331111	Iron & steel mills	53.1	5
331112	Electrometallurgical ferroalloy product mfg	12.4	6
3312	Steel product mfg from purchased steel	17.0	41
33121	Iron & steel pipes & tubes mfg from purchased steel	14.2	49
331210	Iron & steel pipes & tubes mfg from purchased steel	14.2	49
33122	Rolling & drawing of purchased steel	2.8	29
331222	Steel wire drawing	2.6	32
3313	Alumina & aluminum production & processing	52.0	8
33131	Alumina & aluminum production & processing	52.0	8
331312	Primary aluminum production	14.8	1
331314	Secondary smelting & alloying of aluminum	3.4	6
331315	Aluminum sheet, plate, & foil mfg	25.7	1
331316	Aluminum extruded product mfg	7.6	52
3314	Nonferrous metal (except aluminum) production & processing	47.6	2
33141	Nonferrous metal (except aluminum) smelting & refining	14.7	3
331411	Primary smelting & refining of copper	11.1	1
331419	Other nonferrous metal primary smelting & refining	3.6	11
33142	Copper rolling, drawing, extruding, & alloying	7.3	9
331421	Copper rolling, drawing, & extruding	5.3	12
331423	Secondary smelting, refining, & alloying of copper	1.9	4
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	25.7	2
331491	Other nonferrous metal rolling, drawing, & extruding	7.6	6
331492	Other nonferrous metal secondary smelting, refining, & alloying	18.1	1
3315	Foundries	56.8	37
33151	Ferrous metal foundries	25.5	18
331511	Iron foundries	20.8	22
331513	Steel foundries (except investment)	4.5	29
33152	Nonferrous metal foundries	31.2	65
331521	Aluminum die-casting foundries	2.5	40
331522	Nonferrous (except aluminum) die-casting foundries	4.8	92
331528	Other nonferrous foundries (except die-casting)	23.4	85

See footnote at end of table.

Table 8a. Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
31-33	Manufacturing—Con.		
332	Fabricated metal product mfg	95.5	21
3321	Forging & stamping	5.8	21
33211	Forging & stamping	5.8	21
332111	Iron & steel forging	1.6	55
332115	Crown & closure mfg	1.1	9
332116	Metal stamping	2.3	36
3322	Cutlery & handtool mfg	5.8	12
33221	Cutlery & handtool mfg	5.8	12
332211	Cutlery & flatware (except precious) mfg	3.0	14
332212	Hand & edge tool mfg	2.6	21
3323	Architectural & structural metals mfg	2.8	18
33231	Plate work & fabricated structural product mfg	1.5	17
332312	Fabricated structural metal mfg	1.3	19
33232	Ornamental & architectural metal products mfg	1.4	32
3324	Boiler, tank, & shipping container mfg	4.0	34
33243	Metal can, box, & other metal container (light gauge) mfg	2.9	44
332431	Metal can mfg	2.2	57
3325	Hardware mfg	2.0	60
33251	Hardware mfg	2.0	60
332510	Hardware mfg	2.0	60
3326	Spring & wire product mfg	1.4	41
33261	Spring & wire product mfg	1.4	41
332618	Other fabricated wire product mfg	1.1	53
3327	Machine shops, turned product, & screw, nut, & bolt mfg	8.4	31
33271	Machine shops	3.5	56
332710	Machine shops	3.5	56
33272	Turned product & screw, nut, & bolt mfg	4.9	33
332721	Precision turned product mfg	2.2	68
332722	Bolt, nut, screw, rivet, & washer mfg	2.7	24
3328	Coating, engraving, heat treating, & allied activities	30.3	33
33281	Coating, engraving, heat treating, & allied activities	30.3	33
332811	Metal heat treating	1.1	70
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	18.7	53
332813	Electroplating, plating, polishing, anodizing, & coloring	10.5	18
3329	Other fabricated metal product mfg	35.0	48
33291	Metal valve mfg	5.7	22
332911	Industrial valve mfg	3.1	34
332912	Fluid power valve & hose fitting mfg	1.4	33
33299	All other fabricated metal product mfg	29.3	57
332991	Ball & roller bearing mfg	1.1	57
332992	Small arms ammunition mfg	1.0	1
332993	Ammunition (except small arms) mfg	19.2	83
332999	All other miscellaneous fabricated metal product mfg	7.1	63
333	Machinery mfg	39.5	8
3331	Agriculture, construction, & mining machinery mfg	6.1	9
33311	Agricultural implement mfg	1.5	29
333111	Farm machinery & equipment mfg	1.1	35
33312	Construction machinery mfg	4.1	3
333120	Construction machinery mfg	4.1	3
3332	Industrial machinery mfg	1.3	28
3333	Commercial & service industry machinery mfg	2.0	23
33331	Commercial & service industry machinery mfg	2.0	23
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	12.9	13
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	12.9	13
333414	Heating equipment (except warm air furnaces) mfg	1.9	78
333415	AC & warm air heating & commercial/industrial refrig equip mfg	10.7	5
3335	Metalworking machinery mfg	5.6	34
33351	Metalworking machinery mfg	5.6	34
333513	Machine tool (metal forming types) mfg	1.3	71
333515	Cutting tool & machine tool accessory mfg	3.2	45
3336	Engine, turbine, & power transmission equipment mfg	5.0	16
33361	Engine, turbine, & power transmission equipment mfg	5.0	16
333618	Other engine equipment mfg	3.5	15
3339	Other general-purpose machinery mfg	6.7	15
33391	Pump & compressor mfg	1.6	31
333911	Pump & pumping equipment mfg	1.2	38
33392	Material handling equipment mfg	2.4	31
333923	Overhead traveling crane, hoist, & monorail system mfg	2.2	34
33399	All other general-purpose machinery mfg	2.7	16
333999	All other miscellaneous general-purpose machinery mfg	1.0	32

See footnote at end of table.

Table 8a. Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
31-33	Manufacturing—Con.		
334	Computer & electronic product mfg	43.4	17
3341	Computer & peripheral equipment mfg	3.1	67
33411	Computer & peripheral equipment mfg	3.1	67
334113	Computer terminal mfg	2.2	93
3343	Audio & video equipment mfg	4.9	18
33431	Audio & video equipment mfg	4.9	18
334310	Audio & video equipment mfg	4.9	18
3344	Semiconductor & other electronic component mfg	27.4	22
33441	Semiconductor & other electronic component mfg	27.4	22
334411	Electron tube mfg	4.1	6
334412	Bare printed circuit board mfg	8.2	47
334413	Semiconductor & related device mfg	5.1	37
334416	Electronic coil, transformer, & other inductor mfg	1.1	45
334417	Electronic connector mfg	2.8	67
334419	Other electronic component mfg	5.3	66
3345	Navigational, measuring, medical, & control instruments mfg	6.0	50
33451	Navigational, measuring, medical, & control instruments mfg	6.0	50
334511	Search, detection, navigation, & guidance instrument mfg	1.6	24
334513	Industrial process control instrument mfg	3.1	97
3346	Mfg & reproducing magnetic & optical media	1.9	41
33461	Mfg & reproducing magnetic & optical media	1.9	41
334613	Magnetic & optical recording media mfg	1.8	43
335	Electrical equipment, appliance, & component mfg	36.6	17
3351	Electric lighting equipment mfg	8.9	38
33511	Electric lamp bulb & part mfg	8.8	38
335110	Electric lamp bulb & part mfg	8.8	38
3352	Household appliance mfg	1.0	35
33522	Major appliance mfg	1.0	37
3353	Electrical equipment mfg	4.8	28
33531	Electrical equipment mfg	4.8	28
335312	Motor & generator mfg	3.5	38
3359	Other electrical equipment & component mfg	21.9	22
33591	Battery mfg	8.5	9
335911	Storage battery mfg	4.9	13
335912	Primary battery mfg	3.7	11
33592	Communication & energy wire & cable mfg	7.0	64
335921	Fiber optic cable mfg	1.2	10
335929	Other communication & energy wire mfg	5.8	77
33593	Wiring device mfg	1.9	49
335932	Noncurrent-carrying wiring device mfg	1.7	55
33599	All other electrical equipment & component mfg	4.4	23
335991	Carbon & graphite product mfg	2.9	14
335999	All other miscellaneous electrical equipment & component mfg	1.6	60
336	Transportation equipment mfg	112.5	6
3361	Motor vehicle mfg	14.2	10
33611	Automobile & light duty motor vehicle mfg	11.6	12
336111	Automobile mfg	5.8	23
336112	Light truck & utility vehicle mfg	5.9	1
33612	Heavy duty truck mfg	2.6	15
336120	Heavy duty truck mfg	2.6	15
3363	Motor vehicle parts mfg	47.9	13
33631	Motor vehicle gasoline engine & engine parts mfg	7.3	16
336311	Carburetor, piston, piston ring, & valve mfg	1.3	18
336312	Gasoline engine & engine parts mfg	6.0	20
33632	Motor vehicle electrical & electronic equipment mfg	4.0	22
336322	Other motor vehicle electrical & electronic equipment mfg	4.0	22
33633	Motor vehicle steering & suspension component (except spring) mfg	2.9	5
336330	Motor vehicle steering & suspension component (except spring) mfg	2.9	5
33634	Motor vehicle brake system mfg	3.0	23
336340	Motor vehicle brake system mfg	3.0	23
33635	Motor vehicle transmission & power train parts mfg	12.8	29
336350	Motor vehicle transmission & power train parts mfg	12.8	29
33636	Motor vehicle seating & interior trim mfg	3.6	47
336360	Motor vehicle seating & interior trim mfg	3.6	47
33637	Motor vehicle metal stamping	4.4	14
336370	Motor vehicle metal stamping	4.4	14
33639	Other motor vehicle parts mfg	9.9	38
336399	All other motor vehicle parts mfg	9.1	41
3364	Aerospace product & parts mfg	42.9	6
33641	Aerospace product & parts mfg	42.9	6
336411	Aircraft mfg	7.7	4
336412	Aircraft engine & engine parts mfg	1.5	40
336413	Other aircraft part & auxiliary equipment mfg	9.4	26
336414	Guided missile & space vehicle mfg	1.6	3
336415	Guided missile & space vehicle propulsion unit & parts mfg	22.6	1
3365	Railroad rolling stock mfg	3.6	38
33651	Railroad rolling stock mfg	3.6	38
336510	Railroad rolling stock mfg	3.6	38
3366	Ship & boat building	2.1	24
33661	Ship & boat building	2.1	24
336611	Ship building & repairing	1.2	32
3369	Other transportation equipment mfg	1.0	17
33699	Other transportation equipment mfg	1.0	17

See footnote at end of table.

Table 8a. **Pollution Prevention (Capital Expenditures and Operating Costs) by Industry: 1999—Con.**

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total pollution prevention is less than \$1.0 million]

NAICS code	Industry	Total	Relative standard error (PPEO)
31-33	Manufacturing—Con.		
337	Furniture & related product mfg	22.2	16
3371	Household & institutional furniture & kitchen cabinet mfg	13.0	27
33711	Wood kitchen cabinet & counter top mfg	2.3	25
337110	Wood kitchen cabinet & counter top mfg	2.3	25
33712	Household & institutional furniture mfg	10.7	32
337122	Nonupholstered wood household furniture mfg	8.3	41
337124	Metal household furniture mfg	1.4	2
3372	Office furniture (including fixtures) mfg	9.1	9
33721	Office furniture (including fixtures) mfg	9.1	9
337214	Office furniture (except wood) mfg	1.6	26
337215	Showcase, partition, shelving, & locker mfg	5.9	4
339	Miscellaneous mfg	25.2	20
3391	Medical equipment & supplies mfg	7.8	31
33911	Medical equipment & supplies mfg	7.8	31
339112	Surgical & medical instrument mfg	1.4	42
339113	Surgical appliance & supplies mfg	1.1	12
339115	Ophthalmic goods mfg	4.4	53
3399	Other miscellaneous mfg	17.4	26
33991	Jewelry & silverware mfg	5.8	5
339911	Jewelry (except costume) mfg	5.7	5
33992	Sporting & athletic goods mfg	2.1	39
339920	Sporting & athletic goods mfg	2.1	39
33994	Office supplies (except paper) mfg	2.7	86
339942	Lead pencil & art good mfg	2.4	99
33999	All other miscellaneous mfg	6.2	60
339991	Gasket, packing, & sealing device mfg	1.0	26
339992	Musical instrument mfg	4.3	84

Note: The sum of the Mining, Electric, and Manufacturing sectors may not add to "All industries" because some plants did not have a unique industry code at the time of publication. These plants are included in "All industries" but not the detail.

Table 8b. Pollution Prevention (Capital Expenditures and Operating Costs) by State: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total pollution prevention is less than \$1.0 million]

State	Total	Relative standard error (PPEO)
United States	2 767.9	13
New England	85.1	18
Connecticut	16.9	21
Maine	19.9	6
Massachusetts	38.6	38
New Hampshire	8.0	7
Middle Atlantic	252.2	13
New Jersey	36.2	38
New York	91.2	21
Pennsylvania	124.8	19
East North Central	495.9	17
Illinois	153.2	38
Indiana	90.5	27
Michigan	140.9	38
Ohio	85.8	16
Wisconsin	25.5	17
West North Central	128.5	14
Iowa	19.1	18
Kansas	28.9	55
Minnesota	39.4	10
Missouri	33.7	15
Nebraska	2.4	16
North Dakota	3.6	20
South Dakota	1.5	18
South Atlantic	635.3	55
Delaware	1.6	24
Florida	71.3	40
Georgia	46.5	15
Maryland	6.3	18
North Carolina	40.8	17
South Carolina	399.3	86
Virginia	17.5	6
West Virginia	52.1	14
East South Central	221.3	4
Alabama	99.4	4
Kentucky	31.3	14
Mississippi	47.3	4
Tennessee	43.3	15
West South Central	489.4	5
Arkansas	33.4	9
Louisiana	159.5	5
Oklahoma	9.8	16
Texas	286.8	9
Mountain	111.2	11
Arizona	5.9	12
Colorado	8.3	21
Idaho	3.2	11
Montana	1.5	39
Nevada	7.7	18
New Mexico	9.7	7
Utah	57.5	12
Wyoming	17.5	56
Pacific	349.0	12
Alaska	3.5	37
California	276.2	14
Hawaii	7.2	39
Oregon	33.5	20
Washington	28.5	13

Table 9a. Other Expenditures by Industry: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
	All industries	3 154.5	1 039.3	827.3	83.1	128.8	155.2	599.5	1 360.4	4
21	Mining	340.7	95.6	55.7	2.4	37.5	92.6	36.2	116.3	10
211	Oil & gas extraction	107.1	41.0	38.3	.2	2.5	(D)	(D)	48.1	18
21111	Oil & gas extraction	107.1	41.0	38.3	.2	2.5	(D)	(D)	48.1	18
211111	Oil & gas extraction	107.1	41.0	38.3	.2	2.5	(D)	(D)	48.1	18
211111	Crude petroleum & natural gas extraction	75.4	29.3	26.9	.2	2.3	9.9	3.7	32.4	7
211112	Natural gas liquid extraction	31.7	11.6	11.4	(Z)	.3	(D)	(D)	15.7	57
212	Mining (except oil & gas)	231.1	54.4	17.3	2.2	34.9	82.4	28.0	66.3	12
2121	Coal mining	113.4	22.3	1.6	(Z)	20.7	67.1	12.4	11.6	22
21211	Coal mining	113.4	22.3	1.6	(Z)	20.7	67.1	12.4	11.6	22
212111	Bituminous coal & lignite surface mining	110.1	22.0	1.3	-	20.7	66.9	11.7	9.6	22
212112	Bituminous coal underground mining	3.1	.3	.3	(Z)	-	.2	.7	1.9	23
2122	Metal ore mining	55.4	23.6	11.2	1.4	11.0	4.8	7.9	19.1	15
21221	Iron ore mining	2.7	1.4	-	1.4	-	(D)	(D)	.9	33
212210	Iron ore mining	2.7	1.4	-	1.4	-	(D)	(D)	.9	33
21222	Gold ore & silver ore mining	13.7	2.9	(D)	-	(D)	1.0	3.0	6.8	20
212221	Gold ore mining	12.7	(D)	(D)	-	(D)	(D)	(D)	6.4	21
212222	Silver ore mining	1.0	(D)	-	-	(D)	(D)	(D)	.4	1
21223	Copper, nickel, lead, & zinc mining	26.2	14.7	6.6	-	8.1	.8	2.0	8.7	28
212231	Lead ore & zinc ore mining	2.9	(D)	(D)	-	(D)	(D)	.6	1.2	4
212234	Copper ore & nickel ore mining	23.3	(D)	(D)	-	(D)	(D)	1.3	7.5	32
21229	Other metal ore mining	12.8	4.5	(D)	(Z)	(D)	(D)	(D)	2.6	11
212291	Uranium-radium-vanadium ore mining	2.3	(D)	(D)	-	-	(D)	(D)	(D)	1
212299	All other metal ore mining	10.4	(D)	(D)	(Z)	(D)	(D)	2.7	(D)	13
2123	Nonmetallic mineral mining & quarrying	62.3	8.5	4.5	.8	3.2	10.5	7.7	35.6	17
21231	Stone mining & quarrying	11.9	1.7	.7	.7	.2	.6	3.4	6.3	20
212312	Crushed & broken limestone mining & quarrying	9.0	1.0	.2	.7	.1	.4	2.7	4.8	26
212313	Crushed & broken granite mining & quarrying	1.6	.3	.3	(Z)	(Z)	.1	.3	.8	21
212319	Other crushed & broken stone mining & quarrying	1.4	.3	.2	(Z)	.1	(Z)	.3	.7	24
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	13.8	3.0	.5	.1	2.4	4.0	1.8	5.0	23
212321	Construction sand & gravel mining	8.2	1.8	-	.1	1.7	2.5	1.2	2.8	36
212324	Kaolin & ball clay mining	3.3	.8	(Z)	-	.7	1.4	.1	.9	26
212325	Clay & ceramic & refractory minerals mining	1.9	.5	.5	-	-	.1	.4	1.0	30
21239	Other nonmetallic mineral mining & quarrying	36.5	3.8	3.3	(Z)	.5	5.9	2.5	24.3	27
212391	Potash, soda, & borate mineral mining	5.2	.5	-	-	.5	.1	1.1	3.4	50
212392	Phosphate rock mining	28.8	3.3	3.3	-	-	5.4	.4	19.6	33
212399	All other nonmetallic mineral mining	2.2	(Z)	-	(Z)	-	.4	.8	1.0	24
213	Support activities for mining	2.5	.2	.1	-	.1	(D)	(D)	1.9	41
2131	Support activities for mining	2.5	.2	.1	-	.1	(D)	(D)	1.9	41
21311	Support activities for mining	2.5	.2	.1	-	.1	(D)	(D)	1.9	41
213112	Support activities for oil & gas operations	1.2	.1	-	-	.1	-	(Z)	1.1	77
213114	Support activities for metal mining	1.0	-	-	-	-	(D)	(D)	.7	46
22111	Electric power generation	212.3	43.9	9.7	22.8	11.4	32.8	53.5	82.1	13
221111	Hydroelectric power generation	31.7	8.1	2.9	.2	4.9	9.2	1.9	12.4	34
221112	Fossil fuel electric power generation	124.8	29.2	1.8	21.0	6.4	1.1	37.3	57.2	19
221113	Nuclear electric power generation	47.9	2.8	1.2	1.6	.1	22.5	12.0	10.5	13
221119	Other electric power generation	8.0	3.9	3.9	-	-	(Z)	2.2	1.9	44
31-33	Manufacturing	2 590.6	899.7	761.9	57.8	80.0	23.8	507.6	1 159.4	4
311	Food mfg	96.6	15.6	9.8	4.3	1.5	3.1	29.7	48.2	8
3111	Animal food mfg	2.3	.4	-	.4	(Z)	(Z)	.5	1.4	18
31111	Animal food mfg	2.3	.4	-	.4	(Z)	(Z)	.5	1.4	18
311111	Dog & cat food mfg	1.7	.4	-	.4	(Z)	(Z)	.4	1.0	18
3112	Grain & oilseed milling	9.5	.8	.3	.4	-	.4	2.7	5.7	4
31122	Starch & vegetable fats & oils mfg	6.8	.4	(D)	(D)	-	.4	2.1	3.9	5
311221	Wet corn milling	4.2	(D)	(D)	-	-	.4	(D)	2.2	6
311222	Soybean processing	1.6	.2	.2	-	-	-	.4	1.0	8
31123	Breakfast cereal mfg	2.1	.4	(D)	(D)	-	-	.4	1.4	8
311230	Breakfast cereal mfg	2.1	.4	(D)	(D)	-	-	.4	1.4	8
3113	Sugar & confectionery product mfg	7.7	1.3	.8	.1	.4	1.0	2.3	3.1	6
31131	Sugar mfg	5.3	.3	.1	-	.2	1.0	1.8	2.2	8
311311	Sugarcane mills	2.2	(D)	.1	-	(D)	1.0	(D)	.4	3
311313	Beet sugar mfg	2.6	-	-	-	-	-	1.2	1.3	16
31133	Confectionery mfg from purchased chocolate	1.2	.8	.7	.1	-	-	.1	.4	7
311330	Confectionery mfg from purchased chocolate	1.2	.8	.7	.1	-	-	.1	.4	7

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
311	Food mfg—Con.									
3114	Fruit & vegetable preserving & specialty food mfg	23.9	3.9	3.3	.4	.3		9.1	10.7	23
31141	Frozen food mfg	11.2	1.7	1.2	.4	.1	(Z)	4.7	4.8	35
311411	Frozen fruit, juice, & vegetable mfg	8.9	.5	—	.4	.1	(Z)	4.2	4.2	40
311412	Frozen specialty food mfg . . .	2.3	1.2	1.2	—	(Z)	—	.5	.6	63
31142	Fruit & vegetable canning, pickling, & drying	12.7	2.2	2.1	—	.2	.1	4.4	5.9	31
311421	Fruit & vegetable canning . . .	9.3	.6	.5	—	.1	.1	4.1	4.5	42
311422	Specialty canning	2.8	1.6	1.6	—	(Z)	(Z)	.2	1.1	12
3115	Dairy product mfg	8.6	.9	.5	—	.4	—	3.2	4.6	15
31151	Dairy product (except frozen) mfg	8.2	.9	.5	—	.4	—	3.1	4.1	15
311511	Fluid milk mfg	2.3	.5	.3	—	.1	—	1.1	.8	34
311513	Cheese mfg	3.5	.1	.1	—	—	—	1.3	2.1	17
311514	Dry, condensed, & evaporated dairy product mfg	2.0	—	—	—	—	—	.7	1.3	35
3116	Meat product mfg	32.0	6.2	3.4	2.6	.2	1.3	7.9	16.6	16
31161	Animal slaughtering & processing	32.0	6.2	3.4	2.6	.2	1.3	7.9	16.6	16
311611	Animal (except poultry) slaughtering	6.3	1.0	.1	.8	.2	1.2	1.9	2.2	22
311612	Meat processed from carcasses	2.3	(Z)	—	—	(Z)	—	1.2	1.0	33
311613	Rendering & meat byproduct processing	9.7	4.7	3.1	1.6	—	.1	2.5	2.3	35
311615	Poultry processing	13.7	.4	.1	.2	.1	—	2.2	11.1	26
3118	Bakeries & tortilla mfg	5.9	1.6	1.1	.4	.1	—	2.0	2.3	17
31181	Bread & bakery product mfg . . .	3.5	1.3	1.1	.2	—	—	.5	1.7	21
311812	Commercial bakeries	3.2	1.3	1.1	.2	—	—	.5	1.4	22
31182	Cookie, cracker, & pasta mfg . .	2.0	.2	.1	.1	.1	—	1.1	.6	35
311821	Cookie & cracker mfg	1.4	.1	—	—	.1	—	1.0	.4	47
3119	Other food mfg	5.7	.6	.4	(Z)	.2	.3	1.7	3.1	11
31191	Snack food mfg	1.0	—	—	—	—	—	.4	.7	7
31194	Seasoning & dressing mfg	1.1	.1	(D)	—	(D)	.2	.3	.4	2
31199	All other food mfg	2.0	.2	.1	(Z)	(Z)	(Z)	.8	1.0	18
311999	All other miscellaneous food mfg	1.7	.1	.1	—	(Z)	(Z)	.8	.8	20
312	Beverage & tobacco product mfg . . .	18.6	4.5	.7	3.0	.7	(Z)	3.4	10.7	15
3121	Beverage mfg	14.5	4.4	.7	3.0	.7	(Z)	2.8	7.2	19
31211	Soft drink & ice mfg	5.1	3.6	(Z)	3.0	.6	—	.6	1.0	53
312111	Soft drink mfg	4.9	3.6	(Z)	3.0	.6	—	.4	.9	55
31212	Breweries	8.1	.7	(D)	—	(D)	(Z)	2.0	5.4	3
312120	Breweries	8.1	.7	(D)	—	(D)	(Z)	2.0	5.4	3
3122	Tobacco mfg	4.2	.1	(Z)	.1	—	—	.6	3.5	16
31222	Tobacco product mfg	4.1	.1	(Z)	.1	—	—	.6	3.5	16
312221	Cigarette mfg	2.8	—	—	—	—	—	.2	2.6	3
312229	Other tobacco product mfg . .	1.4	.1	(Z)	.1	—	—	.4	.9	48
313	Textile mills	26.0	2.9	2.5	.2	.2	.8	4.8	17.6	48
3131	Fiber, yarn, & thread mills	2.6	1.4	1.4	—	—	—	.5	.8	46
31311	Fiber, yarn, & thread mills	2.6	1.4	1.4	—	—	—	.5	.8	46
313111	Yarn spinning mills	1.9	1.4	1.4	—	—	—	.2	.3	58
3132	Fabric mills	19.3	1.1	.8	.2	.1	.8	3.5	13.9	64
31321	Broadwoven fabric mills	2.6	.5	.3	.1	—	—	.8	1.3	22
313210	Broadwoven fabric mills	2.6	.5	.3	.1	—	—	.8	1.3	22
31323	Nonwoven fabric mills	15.4	.2	.1	—	.1	.8	2.4	12.0	80
313230	Nonwoven fabric mills	15.4	.2	.1	—	.1	.8	2.4	12.0	80
3133	Textile & fabric finishing & fabric coating mills	4.1	.4	.3	.1	.1	—	.8	2.9	19
31331	Textile & fabric finishing mills . .	2.7	.4	.3	—	.1	—	.6	1.7	27
313311	Broadwoven fabric finishing mills	2.2	.3	.3	—	.1	—	.4	1.4	33
31332	Fabric coating mills	1.4	.1	(Z)	.1	—	—	.2	1.1	15
313320	Fabric coating mills	1.4	.1	(Z)	.1	—	—	.2	1.1	15
314	Textile product mills	3.1	1.8	1.2	.4	.2	(Z)	.4	.9	49
3141	Textile furnishings mills	1.1	.3	.2	—	(Z)	—	.2	.7	42
31411	Carpet & rug mills	1.0	.3	.2	—	(Z)	—	.2	.6	44
314110	Carpet & rug mills	1.0	.3	.2	—	(Z)	—	.2	.6	44
3149	Other textile product mills	2.0	1.5	1.0	.4	.2	(Z)	.2	.3	73
31499	All other textile product mills . . .	2.0	1.5	1.0	.4	.2	(Z)	.2	.3	73
314999	All other miscellaneous textile product mills	1.6	1.4	.9	.4	.2	(Z)	.1	(Z)	92
315	Apparel mfg	2.0	1.0	—	—	1.0	—	.3	.7	55
3151	Apparel knitting mills	1.5	1.0	—	—	1.0	—	.3	.2	72
31511	Hosiery & sock mills	1.5	1.0	—	—	1.0	—	.3	.2	75
315119	Other hosiery & sock mills . . .	1.3	1.0	—	—	1.0	—	.2	.1	83
316	Leather & allied product mfg	5.4	2.6	2.5	(D)	(D)	.1	.6	2.2	18
3161	Leather & hide tanning & finishing	4.3	2.4	(D)	(D)	(D)	(Z)	.5	1.3	18
31611	Leather & hide tanning & finishing	4.3	2.4	(D)	(D)	(D)	(Z)	.5	1.3	18
316110	Leather & hide tanning & finishing	4.3	2.4	(D)	(D)	(D)	(Z)	.5	1.3	18

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
321	Wood product mfg	42.1	6.2	4.3	1.0	.9	1.3	13.4	21.2	10
3211	Sawmills & wood preservation . . .	14.9	5.1	3.7	.8	.7	.3	3.5	6.0	12
32111	Sawmills & wood preservation . . .	14.9	5.1	3.7	.8	.7	.3	3.5	6.0	12
321113	Sawmills	8.6	2.4	1.4	.5	.5	.3	1.6	4.3	8
321114	Wood preservation	6.4	2.7	2.3	.2	.2	.1	1.9	1.7	26
3212	Veneer, plywood, & engineered wood product mfg	18.2	.5	.1	.2	.2	.6	8.4	8.7	19
32121	Veneer, plywood, & engineered wood product mfg	18.2	.5	.1	.2	.2	.6	8.4	8.7	19
321211	Hardwood veneer & plywood mfg	4.0	—	—	—	—	—	3.7	.4	80
321212	Softwood veneer & plywood mfg	4.2	.3	.1	—	.2	(Z)	1.1	2.8	19
321219	Reconstituted wood product mfg	9.1	(Z)	(Z)	—	—	.5	3.5	5.1	9
3219	Other wood product mfg	9.0	.6	.5	.1	(Z)	.4	1.5	6.5	8
32191	Millwork	6.5	.5	.4	.1	(Z)	.4	.9	4.7	9
321911	Wood window & door mfg	4.4	.4	.4	.1	(Z)	(Z)	.3	3.7	11
321912	Cut stock, resawing lumber, & planing	1.3	(Z)	(Z)	—	—	.4	.5	.4	14
32199	All other wood product mfg	2.2	.1	.1	—	(Z)	(Z)	.4	1.7	18
321991	Manufactured home (mobile home) mfg	1.2	(Z)	(Z)	—	—	—	.2	1.0	29
322	Paper mfg	141.8	14.4	10.2	2.1	2.1	1.6	37.9	87.8	3
3221	Pulp, paper, & paperboard mills . . .	120.1	10.9	8.1	1.3	1.6	1.6	33.2	74.4	3
32211	Pulp mills	10.9	(D)	1.5	—	(D)	(D)	1.8	7.1	4
322110	Pulp mills	10.9	(D)	1.5	—	(D)	(D)	1.8	7.1	4
32212	Paper mills	73.1	5.8	4.0	1.2	.5	.8	19.1	47.4	4
322121	Paper (except newsprint) mills	63.3	5.6	3.9	1.2	.5	.8	16.8	40.1	4
322122	Newsprint mills	9.8	.2	.2	—	(Z)	—	2.3	7.3	5
32213	Paperboard mills	36.1	(D)	2.5	(Z)	(D)	(D)	12.3	19.9	4
322130	Paperboard mills	36.1	(D)	2.5	(Z)	(D)	(D)	12.3	19.9	4
3222	Converted paper product mfg	21.6	3.5	2.1	.9	.5	(Z)	4.7	13.4	9
32221	Paperboard container mfg	10.9	2.6	1.6	.7	.3	—	2.3	6.0	16
322211	Corrugated & solid fiber box mfg	7.1	1.7	.7	.7	.3	—	1.5	3.9	20
322212	Folding paperboard box mfg	3.3	.9	.9	—	—	—	.7	1.6	27
32222	Paper bag & coated & treated paper mfg	6.6	.8	.6	.2	.1	(Z)	1.5	4.3	9
322222	Coated & laminated paper mfg	4.2	.6	.4	.2	.1	—	1.0	2.6	14
322225	Laminated aluminum foil mfg for flexible packaging uses . . .	1.3	.1	.1	—	—	—	.2	.9	5
32223	Stationery product mfg	1.6	—	—	—	—	—	.1	1.5	30
322233	Stationery, tablet, & related product mfg	1.0	—	—	—	—	—	—	1.0	37
32229	Other converted paper product mfg	2.5	.1	—	(Z)	.1	(Z)	.8	1.6	12
322291	Sanitary paper product mfg	1.4	.1	—	(Z)	.1	(Z)	.5	.7	2
322299	All other converted paper product mfg	1.1	—	—	—	—	—	.3	.8	27
323	Printing & related support activities	16.6	4.1	1.9	2.2	.1	(Z)	3.4	9.1	13
3231	Printing & related support activities	16.6	4.1	1.9	2.2	.1	(Z)	3.4	9.1	13
32311	Printing	16.1	4.0	1.7	2.2	.1	(Z)	3.2	8.9	13
323110	Commercial lithographic printing	7.7	.8	.6	.1	.1	—	1.8	5.1	9
323111	Commercial gravure printing	1.9	.5	.5	(Z)	—	—	.3	1.1	7
323113	Commercial screen printing	1.1	(Z)	—	(Z)	—	(Z)	.3	.8	24
323117	Book printing	1.3	.3	.3	(Z)	(Z)	—	.2	.8	7
323118	Blankbook, looseleaf binder, & device mfg	2.0	2.0	(Z)	2.0	—	—	(Z)	.1	91
324	Petroleum & coal products mfg	422.9	236.6	197.6	11.5	27.4	1.0	57.4	128.0	20
3241	Petroleum & coal products mfg	422.9	236.6	197.6	11.5	27.4	1.0	57.4	128.0	20
32411	Petroleum refineries	386.8	212.6	196.8	10.9	4.9	.9	53.0	120.3	21
324110	Petroleum refineries	386.8	212.6	196.8	10.9	4.9	.9	53.0	120.3	21
32412	Asphalt paving, roofing, & saturated materials mfg	10.0	1.3	.5	.7	.1	(Z)	3.5	5.1	52
324121	Asphalt paving mixture & block mfg	8.2	.8	.1	.6	.1	(Z)	3.2	4.2	63
324122	Asphalt shingle & coating materials mfg	1.8	.5	.4	(Z)	.1	—	.3	1.0	28
32419	Other petroleum & coal products mfg	26.1	22.6	.3	—	22.4	—	.9	2.5	80
324191	Petroleum lubricating oil & grease mfg	24.2	22.6	.2	—	22.4	—	.3	1.2	86
324199	All other petroleum & coal products mfg	2.0	.1	.1	—	—	—	.6	1.3	11
325	Chemical mfg	780.9	284.0	242.4	23.7	17.9	4.7	134.6	357.5	4
3251	Basic chemical mfg	423.1	158.6	150.1	4	8.1	1.5	77.1	185.9	7
32511	Petrochemical mfg	26.1	2.1	1.9	(D)	(D)	(Z)	9.7	14.3	13
325110	Petrochemical mfg	26.1	2.1	1.9	(D)	(D)	(Z)	9.7	14.3	13
32512	Industrial gas mfg	9.3	4.5	4.4	.1	(Z)	(Z)	2.0	2.8	11
325120	Industrial gas mfg	9.3	4.5	4.4	.1	(Z)	(Z)	2.0	2.8	11
32513	Dye & pigment mfg	7.1	.9	.6	(D)	(D)	.1	1.6	4.6	8
325131	Inorganic dye & pigment mfg	2.4	(D)	(D)	(D)	—	(D)	.5	1.7	10
325132	Synthetic organic dye & pigment mfg	4.7	(D)	(D)	—	(D)	(D)	1.1	2.9	10

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
325	Chemical mfg—Con.									
3251	Basic chemical mfg—Con.									
32518	Other basic inorganic chemical mfg	78.4	35.0	32.9	—	2.1	.9	12.5	30.1	10
325181	Alkalies & chlorine mfg	18.4	10.4	10.4	—	—	.6	3.3	4.1	5
325182	Carbon black mfg	2.1	.6	(Z)	—	.5	.1	.4	1.1	8
325188	All other basic inorganic chemical mfg	57.9	24.0	22.5	—	1.5	.2	8.8	24.9	14
32519	Other basic organic chemical mfg	302.2	116.2	110.3	.1	5.8	.5	51.4	134.2	9
325191	Gum & wood chemical mfg ..	3.0	(D)	(D)	—	—	—	(D)	1.5	2
325192	Cyclic crude & intermediate mfg	18.7	4.6	3.9	—	.7	(Z)	3.8	10.3	16
325193	Ethyl alcohol mfg	1.1	(D)	(D)	—	—	—	(D)	.7	10
325199	All other basic organic chemical mfg	279.4	110.5	105.3	.1	5.1	.5	46.8	121.7	10
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	125.2	42.6	41.2	.5	.9	.7	21.2	60.7	9
32521	Resin & synthetic rubber mfg ..	109.6	38.8	37.5	.5	.9	.6	16.5	53.7	10
325211	Plastics material & resin mfg ..	94.1	35.2	34.6	(D)	(D)	(D)	(D)	44.8	12
325212	Synthetic rubber mfg	15.5	3.6	2.9	(D)	(D)	(D)	(D)	8.8	2
32522	Artificial & synthetic fibers & filaments mfg	15.6	3.8	3.8	—	(Z)	.1	4.7	7.0	5
325221	Cellulosic organic fiber mfg ..	4.0	.6	.6	—	—	—	2.4	1.0	1
325222	Noncellulosic organic fiber mfg	11.6	3.2	3.2	—	(Z)	.1	2.3	6.0	7
3253	Pesticide, fertilizer, & other agricultural chemical mfg	38.7	6.6	6.2	—	.4	1.4	10.3	20.5	7
32531	Fertilizer mfg	20.2	1.4	1.0	—	.4	1.3	6.0	11.5	8
325311	Nitrogenous fertilizer mfg	6.8	1.0	.7	—	.4	—	2.3	3.4	8
325312	Phosphatic fertilizer mfg	13.4	.3	.3	—	—	1.3	3.7	8.1	12
32532	Pesticide & other agricultural chemical mfg	18.6	5.2	5.2	—	—	.1	4.2	9.0	11
325320	Pesticide & other agricultural chemical mfg	18.6	5.2	5.2	—	—	.1	4.2	9.0	11
3254	Pharmaceutical & medicine mfg ..	62.2	21.2	18.4	.1	2.8	.2	5.9	34.9	8
32541	Pharmaceutical & medicine mfg	62.2	21.2	18.4	.1	2.8	.2	5.9	34.9	8
325411	Medicinal & botanical mfg ..	24.2	9.7	6.9	—	2.8	—	1.3	13.2	4
325412	Pharmaceutical preparation mfg	33.9	10.2	10.2	.1	(Z)	.2	4.2	19.3	13
325413	In-vitro diagnostic substance mfg	2.4	1.2	1.2	—	—	—	.1	1.1	14
325414	Biological product (except diagnostic) mfg	1.7	.1	.1	—	(Z)	(Z)	.3	1.3	3
3255	Paint, coating, & adhesive mfg ...	40.5	15.5	12.9	1.8	.8	.1	6.0	19.0	14
32551	Paint & coating mfg	27.3	11.3	9.0	1.8	.5	.1	2.6	13.3	17
325510	Paint & coating mfg	27.3	11.3	9.0	1.8	.5	.1	2.6	13.3	17
32552	Adhesive mfg	13.3	4.2	3.9	—	.3	—	3.4	5.7	26
325520	Adhesive mfg	13.3	4.2	3.9	—	.3	—	3.4	5.7	26
3256	Soap, cleaning compound, & toilet preparation mfg	23.5	9.5	1.7	3.7	4.2	(Z)	2.4	11.6	11
32561	Soap & cleaning compound mfg	17.1	5.8	1.6	.2	4.1	(Z)	1.9	9.3	10
325611	Soap & other detergent mfg ..	4.7	.4	.2	.2	(Z)	—	.7	3.6	6
325612	Polish & other sanitation good mfg	7.1	4.1	.1	—	4.0	(Z)	.5	2.5	18
325613	Surface active agent mfg	5.3	1.3	1.3	—	—	(Z)	.7	3.2	16
32562	Toilet preparation mfg	6.4	3.7	.1	3.5	.1	(Z)	.4	2.3	31
325620	Toilet preparation mfg	6.4	3.7	.1	3.5	.1	(Z)	.4	2.3	31
3259	Other chemical product mfg	67.6	30.0	12.0	17.2	.8	.8	11.9	24.9	7
32591	Printing ink mfg	1.1	—	—	—	—	—	(Z)	1.1	74
325910	Printing ink mfg	1.1	—	—	—	—	—	(Z)	1.1	74
32592	Explosives mfg	5.6	2.4	(D)	—	(D)	—	2.2	1.0	24
325920	Explosives mfg	5.6	2.4	(D)	—	(D)	—	2.2	1.0	24
32599	All other chemical product & preparation mfg	60.9	27.6	(D)	17.2	(D)	.8	9.6	22.9	7
325991	Custom compounding of purchased resin	4.2	.6	(D)	—	(D)	(Z)	.8	2.8	41
325992	Photographic film, paper, plate, & chemical mfg	20.6	7.8	6.6	.7	.5	(Z)	3.7	9.1	8
325998	All other miscellaneous chemical product & preparation mfg	36.0	19.1	2.5	16.5	.2	.8	5.2	10.9	10
326	Plastics & rubber products mfg	66.1	17.7	13.6	(D)	(D)	.2	16.1	32.0	6
3261	Plastics product mfg	50.4	14.6	10.9	2.4	1.3	.1	13.6	22.0	8
32611	Unsupported plastics film, sheet, & bag mfg	19.9	3.7	3.2	.5	(Z)	—	10.4	5.8	11
326111	Unsupported plastics bag mfg	11.5	.3	—	.3	(Z)	—	9.4	1.8	19
326112	Unsupported plastics packaging film & sheet mfg ..	1.5	.6	.5	—	(Z)	—	.4	.5	14
326113	Unsupported plastics film & sheet (except packaging) mfg	6.9	2.8	2.6	.2	—	—	.6	3.4	5
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	1.3	(Z)	(Z)	—	—	(Z)	.2	1.0	11
326121	Unsupported plastics profile shape mfg	1.0	—	—	—	—	—	.1	.9	2

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
326	Plastics & rubber products mfg—Con.									
3261	Plastics product mfg—Con.									
32613	Laminated plastics plate, sheet, & shape mfg.....	5.3	3.0	3.0	—	—	.2	2.1	31	
326130	Laminated plastics plate, sheet, & shape mfg.....	5.3	3.0	3.0	—	—	.2	2.1	31	
32614	Polystyrene foam product mfg .	3.8	.7	.6	—	.1	(Z)	.6	16	
326140	Polystyrene foam product mfg	3.8	.7	.6	—	.1	(Z)	.6	16	
32615	Urethane & other foam product (except polystyrene) mfg	2.9	.7	.6	(Z)	—	—	.5	1.7	7
326150	Urethane & other foam product (except polystyrene) mfg	2.9	.7	.6	(Z)	—	—	.5	1.7	7
32619	Other plastics product mfg	16.8	6.5	3.5	1.9	1.2	.1	1.7	8.5	16
326192	Resilient floor covering mfg..	1.7	.5	(D)	(D)	(D)	—	.3	.9	4
326199	All other plastics product mfg	14.2	6.1	(D)	(D)	(D)	.1	1.1	6.9	18
3262	Rubber product mfg	15.7	3.1	2.6	(D)	(D)	.1	2.5	10.0	7
32621	Tire mfg	4.9	.6	.3	(D)	(D)	(Z)	.9	3.3	4
326211	Tire mfg (except retreading) .	4.9	.6	.3	(D)	(D)	(Z)	.9	3.3	4
32622	Rubber & plastics hoses & belting mfg	2.4	.4	.4	—	(Z)	—	.2	1.8	8
326220	Rubber & plastics hoses & belting mfg	2.4	.4	.4	—	(Z)	—	.2	1.8	8
32629	Other rubber product mfg	8.4	2.1	2.0	—	.1	.1	1.3	4.9	13
326291	Rubber product mfg for mechanical use	5.7	2.0	2.0	—	.1	—	.7	3.0	15
326299	All other rubber product mfg .	2.7	.1	.1	—	—	.1	.6	2.0	24
327	Nonmetallic mineral product mfg ...	61.7	5.9	4.0	.7	1.2	3.6	18.3	33.8	6
3271	Clay product & refractory mfg.....	9.7	2.6	2.0	(D)	(D)	1.1	1.9	4.1	18
32711	Pottery, ceramics, & plumbing fixture mfg	3.5	.7	.5	(D)	(D)	(D)	(D)	2.0	9
327111	Vitreous china plumbing fixture & bathroom accessories mfg	1.0	—	—	—	—	—	.3	.8	27
327113	Porcelain electrical supply mfg	1.6	.5	(D)	(D)	—	—	.3	.9	3
32712	Clay building material & refractories mfg	6.2	1.9	1.5	.2	.2	(D)	(D)	2.1	27
327121	Brick & structural clay tile mfg	3.8	1.7	1.5	.2	.1	1.0	.6	.5	43
327125	Nonclay refractory mfg.....	1.1	—	—	—	—	—	.4	.7	16
3272	Glass & glass product mfg	13.4	1.1	.8	—	.3	(Z)	4.0	8.2	7
32721	Glass & glass product mfg	13.4	1.1	.8	—	.3	(Z)	4.0	8.2	7
327211	Flat glass mfg	2.0	.1	.1	—	—	(Z)	.8	1.0	27
327212	Other pressed & blown glass & glassware mfg	6.7	.5	.5	—	—	—	1.8	4.4	10
327213	Glass container mfg	3.4	.5	.2	—	.3	—	1.0	1.8	8
327215	Glass product mfg made of purchased glass	1.3	—	—	—	—	—	.3	.9	22
3273	Cement & concrete product mfg ..	25.6	1.5	.9	.4	.3	1.8	8.4	13.8	10
32731	Cement mfg	19.1	1.2	.5	.4	.3	1.8	6.5	9.7	6
327310	Cement mfg	19.1	1.2	.5	.4	.3	1.8	6.5	9.7	6
32732	Ready-mix concrete mfg	1.7	(Z)	(Z)	—	—	(Z)	.8	.9	53
327320	Ready-mix concrete mfg	1.7	(Z)	(Z)	—	—	(Z)	.8	.9	53
32733	Concrete pipe, brick, & block mfg	1.3	(Z)	(Z)	—	—	(Z)	.9	.3	29
327332	Concrete pipe mfg	1.0	(Z)	(Z)	—	—	(Z)	.9	.1	37
32739	Other concrete product mfg ...	3.4	.3	.3	—	—	—	.2	2.9	62
327390	Other concrete product mfg .	3.4	.3	.3	—	—	—	.2	2.9	62
3274	Lime & gypsum product mfg	4.2	.2	.2	(D)	(D)	(Z)	1.3	2.6	21
32741	Lime mfg.....	1.5	(Z)	(D)	—	(D)	—	.3	1.2	42
327410	Lime mfg.....	1.5	(Z)	(D)	—	(D)	—	.3	1.2	42
32742	Gypsum product mfg	2.7	.2	(D)	(D)	—	(Z)	1.0	1.5	22
327420	Gypsum product mfg	2.7	.2	(D)	(D)	—	(Z)	1.0	1.5	22
3279	Other nonmetallic mineral product mfg	8.8	.4	.1	—	.3	.7	2.6	5.1	12
32791	Abrasive product mfg	1.3	.2	.1	—	.2	—	.2	.9	18
327910	Abrasive product mfg	1.3	.2	.1	—	.2	—	.2	.9	18
32799	All other nonmetallic mineral product mfg	7.5	.2	.1	—	.1	.7	2.4	4.2	13
327992	Ground or treated mineral & earth mfg	2.8	.1	.1	—	(Z)	.7	.5	1.5	35
327993	Mineral wool mfg	4.4	.1	—	—	.1	(Z)	1.8	2.4	5
331	Primary metal mfg	246.0	102.4	95.7	1.4	5.3	4.4	55.0	84.2	5
3311	Iron & steel mills & ferroalloy mfg.	64.3	26.3	23.2	.4	2.6	3.0	12.5	22.5	4
33111	Iron & steel mills & ferroalloy mfg	64.3	26.3	23.2	.4	2.6	3.0	12.5	22.5	4
331111	Iron & steel mills	52.3	16.8	13.7	.4	2.6	2.6	12.1	20.8	4
331112	Electrometallurgical ferroalloy product mfg	12.0	9.5	9.5	—	—	.4	.4	1.7	11

See footnote at end of table.

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NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
331	Primary metal mfg—Con.									
3312	Steel product mfg from purchased steel	22.7	13.1	12.6	(D)	(D)	.1	3.1	6.5	30
33121	Iron & steel pipes & tubes mfg from purchased steel	15.8	9.8	9.4	.4	—	(Z)	2.0	4.0	42
331210	Iron & steel pipes & tubes mfg from purchased steel	15.8	9.8	9.4	.4	—	(Z)	2.0	4.0	42
33122	Rolling & drawing of purchased steel	6.9	3.3	3.2	(D)	(D)	.1	1.0	2.5	19
331221	Cold-rolled steel shape mfg	2.4	.9	.8	(Z)	—	.1	.5	1.0	5
331222	Steel wire drawing	4.4	2.4	2.4	(D)	(D)	—	.5	1.5	29
3313	Alumina & aluminum production & processing	54.1	9.7	8.7	.1	.8	.2	23.9	20.4	15
33131	Alumina & aluminum production & processing	54.1	9.7	8.7	.1	.8	.2	23.9	20.4	15
331311	Alumina refining	1.3	—	—	—	—	—	.4	.8	1
331312	Primary aluminum production	19.5	3.5	3.5	(Z)	(Z)	(Z)	8.0	8.0	11
331314	Secondary smelting & alloying of aluminum	1.1	.1	.1	(Z)	—	.1	.5	.4	11
331315	Aluminum sheet, plate, & foil mfg	14.4	4.1	3.4	.1	.6	.1	3.4	6.8	10
331316	Aluminum extruded product mfg	16.4	1.5	1.3	—	.2	—	11.2	3.7	45
331319	Other aluminum rolling & drawing	1.4	.4	.4	—	(Z)	—	.3	.6	6
3314	Nonferrous metal (except aluminum) production & processing	69.4	37.2	35.5	.2	1.5	.9	10.0	21.4	7
33141	Nonferrous metal (except aluminum) smelting & refining	24.6	13.8	12.4	—	1.4	(Z)	3.5	7.2	6
331411	Primary smelting & refining of copper	14.5	10.5	9.4	—	1.1	—	.5	3.5	9
331419	Other nonferrous metal primary smelting & refining	10.1	3.4	3.1	—	.3	(Z)	3.0	3.6	7
33142	Copper rolling, drawing, extruding, & alloying	11.5	5.4	5.1	.2	.1	.8	1.5	3.8	10
331421	Copper rolling, drawing, & extruding	10.6	5.3	5.1	.2	.1	.8	1.1	3.4	11
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	33.3	18.0	18.0	—	(Z)	.1	4.9	10.3	12
331491	Other nonferrous metal rolling, drawing, & extruding	13.6	4.6	4.6	—	(Z)	.1	1.8	7.2	21
331492	Other nonferrous metal secondary smelting, refining, & alloying	19.7	13.4	13.4	—	—	—	3.2	3.1	14
3315	Foundries	35.6	16.2	15.6	(D)	(D)	.3	5.6	13.4	11
33151	Ferrous metal foundries	19.2	5.2	4.8	(D)	(D)	.3	4.6	9.1	6
331511	Iron foundries	12.5	3.8	3.7	(D)	(D)	.3	3.2	5.2	5
331512	Steel investment foundries	2.6	1.3	1.0	—	.3	—	.5	.9	15
331513	Steel foundries (except investment)	4.1	.2	.1	—	(Z)	—	.9	3.0	19
33152	Nonferrous metal foundries	16.4	11.0	10.8	.2	(Z)	(Z)	1.1	4.3	23
331521	Aluminum die-casting foundries	13.2	10.4	10.3	—	(Z)	(Z)	.6	2.3	28
331524	Aluminum foundries (except die-casting)	1.9	.4	.4	—	(Z)	—	.4	1.1	17
332	Fabricated metal product mfg	127.5	33.5	29.9	1.1	2.5	.3	34.1	59.6	10
3321	Forging & stamping	12.8	4.0	3.7	.1	.3	—	2.7	6.2	12
33211	Forging & stamping	12.8	4.0	3.7	.1	.3	—	2.7	6.2	12
332111	Iron & steel forging	1.4	.1	.1	—	—	—	.6	.7	19
332112	Nonferrous forging	5.3	2.3	2.1	(Z)	.1	—	.9	2.2	2
332116	Metal stamping	4.3	1.4	1.3	—	.1	—	.8	2.0	35
3322	Cutlery & handtool mfg	5.3	1.1	1.1	—	—	—	.6	3.6	24
33221	Cutlery & handtool mfg	5.3	1.1	1.1	—	—	—	.6	3.6	24
332211	Cutlery & flatware (except precious) mfg	1.5	.8	.8	—	—	—	.1	.5	14
332212	Hand & edge tool mfg	3.0	.1	.1	—	—	—	.3	2.6	42
3323	Architectural & structural metals mfg	7.7	.3	.3	—	.1	.1	2.4	4.8	19
33231	Plate work & fabricated structural product mfg	3.5	.2	.1	—	.1	.1	1.5	1.7	23
332312	Fabricated structural metal mfg	3.4	.2	.1	—	.1	.1	1.4	1.7	24
33232	Ornamental & architectural metal products mfg	4.2	.1	.1	—	—	—	.9	3.1	29
332321	Metal window & door mfg	2.3	—	—	—	—	—	.5	1.8	43
332323	Ornamental & architectural metal work mfg	1.0	.1	.1	—	—	—	.2	.7	45
3324	Boiler, tank, & shipping container mfg	10.5	2.6	2.4	—	.2	(Z)	3.7	4.1	18
33241	Power boiler & heat exchanger mfg	1.6	.9	.8	—	(Z)	—	.3	.4	30
332410	Power boiler & heat exchanger mfg	1.6	.9	.8	—	(Z)	—	.3	.4	30
33242	Metal tank (heavy gauge) mfg	1.0	.1	—	—	.1	—	.2	.7	39
332420	Metal tank (heavy gauge) mfg	1.0	.1	—	—	.1	—	.2	.7	39
33243	Metal can, box, & other metal container (light gauge) mfg	7.9	1.7	1.6	—	.1	(Z)	3.1	3.1	22
332431	Metal can mfg	3.8	.2	(Z)	—	.1	(Z)	1.1	2.5	16
332439	Other metal container mfg	4.2	1.5	1.5	—	—	—	2.1	.6	39

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
332	Fabricated metal product mfg—Con.									
3325	Hardware mfg	4.8	2.6	2.6	—	—	—	.7	1.5	38
33251	Hardware mfg	4.8	2.6	2.6	—	—	—	.7	1.5	38
332510	Hardware mfg	4.8	2.6	2.6	—	—	—	.7	1.5	38
3326	Spring & wire product mfg	1.2	.5	.5	—	—	.1	.2	.5	24
33261	Spring & wire product mfg	1.2	.5	.5	—	—	.1	.2	.5	24
3327	Machine shops, turned product, & screw, nut, & bolt mfg	8.3	2.4	1.3	.6	.5	(Z)	.9	5.0	23
33271	Machine shops	2.1	.2	.2	—	—	—	.1	1.7	49
332710	Machine shops	2.1	.2	.2	—	—	—	.1	1.7	49
33272	Turned product & screw, nut, & bolt mfg	6.3	2.2	1.2	.6	.5	(Z)	.8	3.2	26
332721	Precision turned product mfg	1.3	.4	(Z)	.4	(Z)	—	.4	.5	32
332722	Bolt, nut, screw, rivet, & washer mfg	4.9	1.8	1.1	.2	.4	(Z)	.4	2.7	32
3328	Coating, engraving, heat treating, & allied activities	21.4	1.8	.8	.2	.8	—	5.5	14.1	12
33281	Coating, engraving, heat treating, & allied activities	21.4	1.8	.8	.2	.8	—	5.5	14.1	12
332811	Metal heat treating	2.5	.9	—	.1	.8	—	.3	1.4	52
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	3.5	(Z)	—	—	(Z)	—	.3	3.2	39
332813	Electroplating, plating, polishing, anodizing, & coloring	15.4	.9	.8	.1	(Z)	—	4.9	9.5	12
3329	Other fabricated metal product mfg	55.4	18.1	17.2	.2	.7	.1	17.4	19.9	19
33291	Metal valve mfg	10.6	.6	.2	(Z)	.3	.1	4.8	5.1	11
332911	Industrial valve mfg	3.3	(Z)	—	(Z)	—	(Z)	1.2	2.0	16
332912	Fluid power valve & hose fitting mfg	2.8	.5	.1	—	.3	(Z)	.5	1.8	18
332913	Plumbing fixture fitting & trim mfg	1.4	.1	.1	—	—	(Z)	.2	1.0	37
332919	Other metal valve & pipe fitting mfg	3.1	(Z)	(Z)	—	—	—	2.8	.3	24
33299	All other fabricated metal product mfg	44.8	17.5	16.9	.2	.3	(Z)	12.6	14.8	24
332991	Ball & roller bearing mfg	5.4	2.9	2.9	—	(Z)	—	.8	1.7	15
332992	Small arms ammunition mfg	2.7	.8	.8	—	—	—	.3	1.6	1
332993	Ammunition (except small arms) mfg	25.1	10.3	10.1	.1	.1	(Z)	9.5	5.3	41
332994	Small arms mfg	1.6	.7	.5	.1	(Z)	—	.2	.8	10
332995	Other ordnance & accessories mfg	3.7	2.4	2.4	—	—	—	.7	.6	7
332999	All other miscellaneous fabricated metal product mfg	5.2	.1	.1	—	—	(Z)	1.0	4.1	35
333	Machinery mfg	79.2	25.0	20.3	1.0	3.7	.3	13.1	40.8	12
3331	Agriculture, construction, & mining machinery mfg	7.9	1.4	.9	(D)	(D)	(D)	(D)	5.5	22
33311	Agricultural implement mfg	2.3	(D)	(D)	(D)	(D)	(D)	(D)	1.4	9
333111	Farm machinery & equipment mfg	1.2	(D)	(D)	(Z)	(D)	—	(D)	.9	15
333112	Lawn & garden tractor & home lawn & garden equipment mfg	1.1	(D)	(D)	(D)	—	(D)	(D)	.5	6
33312	Construction machinery mfg	3.6	.8	.4	.4	(Z)	(D)	(D)	2.6	9
333120	Construction machinery mfg	3.6	.8	.4	.4	(Z)	(D)	(D)	2.6	9
33313	Mining & oil & gas field machinery mfg	1.9	(D)	(D)	—	—	(D)	.2	1.5	84
333132	Oil & gas field machinery & equipment mfg	1.8	.1	.1	—	—	—	.2	1.5	91
3332	Industrial machinery mfg	6.0	.4	.2	—	.2	—	.6	5.0	38
33329	Other industrial machinery mfg	5.7	.3	.2	—	.2	—	.6	4.8	40
333291	Paper industry machinery mfg	1.1	—	—	—	—	—	.1	1.0	84
333298	All other industrial machinery mfg	3.1	.2	—	—	.2	—	.2	2.8	66
3333	Commercial & service industry machinery mfg	9.0	4.5	4.1	—	.4	(D)	(D)	3.8	20
33331	Commercial & service industry machinery mfg	9.0	4.5	4.1	—	.4	(D)	(D)	3.8	20
333311	Automatic vending machine mfg	2.7	2.5	2.5	—	—	—	(Z)	.1	38
333314	Optical instrument & lens mfg	1.7	.9	.9	—	—	(D)	(D)	.8	10
333315	Photographic & photocopying equipment mfg	3.8	1.1	.7	—	.4	—	.5	2.2	38
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	7.6	2.0	1.6	.3	.1	—	1.2	4.4	7
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	7.6	2.0	1.6	.3	.1	—	1.2	4.4	7
333415	AC & warm air heating & commercial/industrial refig equip mfg	6.6	1.9	1.4	.3	.1	—	1.0	3.7	8

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
333	Machinery mfg—Con.									
3335	Metalworking machinery mfg	15.0	7.1	4.5	—	2.6	—	2.4	5.5	48
33351	Metalworking machinery mfg . .	15.0	7.1	4.5	—	2.6	—	2.4	5.5	48
333512	Machine tool (metal cutting types) mfg	6.9	5.6	4.4	—	1.3	—	.9	.4	82
333513	Machine tool (metal forming types) mfg	4.6	(Z)	(Z)	—	—	—	1.0	3.6	96
333515	Cutting tool & machine tool accessory mfg	3.4	1.4	.1	—	1.3	—	.5	1.5	14
3336	Engine, turbine, & power transmission equipment mfg	20.6	6.4	6.2	.2	(Z)	—	3.6	10.7	22
33361	Engine, turbine, & power transmission equipment mfg . .	20.6	6.4	6.2	.2	(Z)	—	3.6	10.7	22
333611	Turbine & turbine generator set unit mfg	10.8	3.1	3.0	.1	—	—	2.5	5.2	11
333612	Speed changer, industrial high-speed drive, & gear mfg	4.0	2.5	2.5	—	—	—	(Z)	1.5	87
333618	Other engine equipment mfg	5.0	.5	.5	—	(Z)	—	.9	3.7	47
3339	Other general-purpose machinery mfg	13.1	3.4	2.9	(D)	(D)	(Z)	3.9	5.9	21
33391	Pump & compressor mfg	5.0	.5	.4	—	.1	—	2.8	1.7	43
333911	Pump & pumping equipment mfg	3.5	.2	(Z)	—	.1	—	2.5	.8	60
333912	Air & gas compressor mfg . . .	1.3	.4	.4	—	—	—	.3	.6	43
33392	Material handling equipment mfg	4.0	1.6	1.4	—	.2	(Z)	.7	1.7	40
333924	Industrial truck, tractor, trailer, & stacker machinery mfg	2.3	1.3	1.3	—	—	(Z)	.5	.5	63
33399	All other general-purpose machinery mfg	4.1	1.2	1.1	(D)	(D)	(Z)	.4	2.5	14
333992	Welding & soldering equipment mfg	1.4	.2	(D)	(D)	(D)	—	(Z)	1.1	21
334	Computer & electronic product mfg .	117.0	26.9	22.9	.1	3.9	.3	16.4	73.5	9
3341	Computer & peripheral equipment mfg	6.3	(D)	(D)	—	—	(D)	2.1	4.0	15
33411	Computer & peripheral equipment mfg	6.3	(D)	(D)	—	—	(D)	2.1	4.0	15
334111	Electronic computer mfg	2.4	.1	.1	—	—	—	1.4	1.0	21
334119	Other computer peripheral equipment mfg	3.0	(D)	(D)	—	—	(D)	.8	2.2	12
3342	Communications equipment mfg .	12.3	4.6	4.6	(Z)	—	(D)	(D)	6.7	21
33421	Telephone apparatus mfg	5.9	3.1	3.1	(Z)	—	(D)	(D)	2.5	29
334210	Telephone apparatus mfg . . .	5.9	3.1	3.1	(Z)	—	(D)	(D)	2.5	29
33422	Radio & TV broadcasting & wireless communications equipment mfg	5.4	1.3	1.3	—	—	—	.1	4.0	34
334220	Radio & TV broadcasting & wireless communications equipment mfg	5.4	1.3	1.3	—	—	—	.1	4.0	34
33429	Other communications equipment mfg	1.0	.2	.2	—	—	—	.6	.2	19
334290	Other communications equipment mfg	1.0	.2	.2	—	—	—	.6	.2	19
3344	Semiconductor & other electronic component mfg	68.2	15.8	12.3	—	3.6	(Z)	10.1	42.2	13
33441	Semiconductor & other electronic component mfg	68.2	15.8	12.3	—	3.6	(Z)	10.1	42.2	13
334411	Electron tube mfg	5.8	.3	(D)	—	(D)	—	.7	4.8	44
334412	Bare printed circuit board mfg	15.7	1.5	1.5	—	—	—	2.9	11.3	31
334413	Semiconductor & related device mfg	37.3	12.0	8.9	—	3.1	(Z)	4.4	20.9	19
334414	Electronic capacitor mfg	1.2	(D)	(D)	—	—	—	(D)	1.0	31
334418	Printed circuit assembly (electronic assembly) mfg . .	4.7	1.6	1.6	—	—	—	1.2	1.9	24
334419	Other electronic component mfg	2.3	.2	.2	—	—	(Z)	.5	1.6	35
3345	Navigational, measuring, medical, & control instruments mfg	27.4	6.3	5.9	(Z)	.4	.2	2.7	18.2	9
33451	Navigational, measuring, medical, & control instruments mfg	27.4	6.3	5.9	(Z)	.4	.2	2.7	18.2	9
334510	Electromedical & electrotherapeutic apparatus mfg	1.5	.2	.1	—	.1	(Z)	.3	1.1	17
334511	Search, detection, navigation, & guidance instrument mfg	14.8	2.1	2.0	—	(Z)	(Z)	1.0	11.8	11
334512	Automatic environmental control mfg	2.4	.8	.8	—	—	—	.2	1.4	30
334513	Industrial process control instrument mfg	1.3	—	—	—	—	—	.3	1.0	75
334515	Electricity measuring & testing instrument mfg	2.0	1.0	.7	—	.2	.2	.1	.8	33
334517	Irradiation apparatus mfg	1.7	1.3	1.3	—	—	—	.1	.3	29
334519	Other measuring & controlling device mfg	2.0	.5	.4	(Z)	.1	—	.6	.9	35

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
334	Computer & electronic product mfg —Con.									
3346	Mfg & reproducing magnetic & optical media	2.2	(D)	(D)	—	—	—	(D)	1.8	27
33461	Mfg & reproducing magnetic & optical media	2.2	(D)	(D)	—	—	—	(D)	1.8	27
334613	Magnetic & optical recording media mfg	1.9	(D)	(D)	—	—	—	(D)	1.6	29
335	Electrical equipment, appliance, & component mfg	46.6	9.9	8.0	.5	1.4	.2	12.8	23.8	14
3351	Electric lighting equipment mfg	3.5	.4	.4	.1	—	—	.7	2.4	23
33511	Electric lamp bulb & part mfg ..	2.3	.1	.1	—	—	—	.4	1.8	33
335110	Electric lamp bulb & part mfg	2.3	.1	.1	—	—	—	.4	1.8	33
33512	Lighting fixture mfg	1.2	.3	.2	.1	—	—	.2	.6	20
3352	Household appliance mfg	5.4	1.9	.9	(Z)	.9	—	1.1	2.4	9
33521	Small electrical appliance mfg .	1.9	.9	.1	—	.8	—	.4	.6	12
335212	Household vacuum cleaner mfg	1.6	(D)	(D)	—	.8	—	(D)	.5	10
33522	Major appliance mfg	3.5	1.0	.8	(Z)	.1	—	.6	1.9	12
335224	Household laundry equipment mfg	1.5	.5	.4	—	.1	—	.4	.5	8
3353	Electrical equipment mfg	10.4	3.5	3.5	—	(Z)	.1	1.2	5.6	18
33531	Electrical equipment mfg	10.4	3.5	3.5	—	(Z)	.1	1.2	5.6	18
335311	Power, distribution, & specialty transformer mfg ..	1.6	.5	.4	—	(Z)	—	.1	1.0	27
335312	Motor & generator mfg	4.1	2.3	2.3	—	—	—	.5	1.3	37
335313	Switchgear & switchboard apparatus mfg	3.3	.7	.7	—	—	—	.4	2.2	23
335314	Relay & industrial control mfg	1.4	(Z)	(Z)	—	—	—	.2	1.1	38
3359	Other electrical equipment & component mfg	27.4	4.1	3.2	.4	.5	.1	9.9	13.3	23
33591	Battery mfg	6.7	2.0	1.5	.2	.4	.1	1.2	3.4	10
335911	Storage battery mfg	5.1	1.2	.7	.2	.4	.1	1.1	2.7	13
335912	Primary battery mfg	1.6	.7	.7	—	—	—	.2	.7	9
33592	Communication & energy wire & cable mfg	5.6	.8	.7	(Z)	.1	—	.3	4.5	10
335921	Fiber optic cable mfg	1.1	(Z)	(Z)	—	—	—	(Z)	1.1	1
335929	Other communication & energy wire mfg	4.5	.8	.7	(Z)	.1	—	.3	3.4	13
33593	Wiring device mfg	13.0	1.2	1.0	.2	(Z)	—	7.8	4.0	47
335931	Current-carrying wiring device mfg	11.1	.4	.2	.2	—	—	7.6	3.0	55
335932	Noncurrent-carrying wiring device mfg	2.0	.8	.8	(Z)	(Z)	—	.2	.9	8
33599	All other electrical equipment & component mfg	2.1	.1	(Z)	(Z)	(Z)	(Z)	.5	1.5	16
335991	Carbon & graphite product mfg	1.7	.1	(Z)	(Z)	(Z)	—	.5	1.2	16
336	Transportation equipment mfg	235.2	82.0	72.9	1.7	7.5	2.0	49.6	101.6	8
3361	Motor vehicle mfg	23.1	(D)	(D)	.4	.9	.2	(D)	16.2	6
33611	Automobile & light duty motor vehicle mfg	19.4	2.0	(D)	(D)	(D)	.2	3.7	13.4	6
336111	Automobile mfg	11.7	1.2	(D)	—	(D)	(Z)	1.6	8.8	6
336112	Light truck & utility vehicle mfg	7.8	.8	.4	(D)	(D)	.2	2.1	4.7	13
33612	Heavy duty truck mfg	3.7	(D)	(D)	(D)	(D)	—	(D)	2.7	8
336120	Heavy duty truck mfg	3.7	(D)	(D)	(D)	(D)	—	(D)	2.7	8
3362	Motor vehicle body & trailer mfg ..	3.3	.3	.2	—	(Z)	—	.4	2.6	13
33621	Motor vehicle body & trailer mfg	3.3	.3	.2	—	(Z)	—	.4	2.6	13
3363	Motor vehicle parts mfg	71.7	15.2	13.3	.1	1.9	.7	26.0	29.8	23
33631	Motor vehicle gasoline engine & engine parts mfg	13.7	7.4	7.1	(Z)	.2	.1	1.2	5.0	9
336311	Carburetor, piston, piston ring, & valve mfg	2.6	.9	(D)	—	(D)	(D)	(D)	1.5	18
336312	Gasoline engine & engine parts mfg	11.1	6.4	(D)	(Z)	(D)	(D)	(D)	3.6	11
33632	Motor vehicle electrical & electronic equipment mfg	2.6	.2	.1	—	(Z)	—	.6	1.8	19
336322	Other motor vehicle electrical & electronic equipment mfg .	2.3	.2	.1	—	(Z)	—	.6	1.5	20
33633	Motor vehicle steering & suspension component (except spring) mfg	4.8	1.8	1.7	—	.1	(Z)	1.2	1.8	29
336330	Motor vehicle steering & suspension component (except spring) mfg	4.8	1.8	1.7	—	.1	(Z)	1.2	1.8	29
33634	Motor vehicle brake system mfg	4.4	.8	.7	—	.1	—	.6	2.9	15
336340	Motor vehicle brake system mfg	4.4	.8	.7	—	.1	—	.6	2.9	15
33635	Motor vehicle transmission & power train parts mfg	9.2	1.9	.7	(Z)	1.2	—	1.6	5.7	12
336350	Motor vehicle transmission & power train parts mfg	9.2	1.9	.7	(Z)	1.2	—	1.6	5.7	12
33636	Motor vehicle seating & interior trim mfg	2.3	(D)	.2	—	(D)	(D)	.1	1.9	43
336360	Motor vehicle seating & interior trim mfg	2.3	(D)	.2	—	(D)	(D)	.1	1.9	43

See footnote at end of table.

Table 9a. Other Expenditures by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other expenditures are less than \$1.0 million]

NAICS code	Industry	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
			Total	Remediation	Replacement	Other				
31-33	Manufacturing—Con.									
336	Transportation equipment mfg—Con.									
3363	Motor vehicle parts mfg—Con.									
33637	Motor vehicle metal stamping ..	4.7	1.3	1.2	(Z)	(Z)	.5	1.1	1.8	15
336370	Motor vehicle metal stamping ..	4.7	1.3	1.2	(Z)	(Z)	.5	1.1	1.8	15
33639	Other motor vehicle parts mfg .	30.0	(D)	1.6	—	(D)	(D)	19.6	8.8	53
336391	Motor vehicle air-conditioning mfg ..	1.9	.4	(D)	—	(D)	—	.3	1.2	8
336399	All other motor vehicle parts mfg ..	28.1	(D)	(D)	—	—	(D)	19.3	7.6	57
3364	Aerospace product & parts mfg ..	125.5	61.1	56.5	.9	3.7	.2	16.4	47.7	6
33641	Aerospace product & parts mfg ..	125.5	61.1	56.5	.9	3.7	.2	16.4	47.7	6
336411	Aircraft mfg ..	44.4	20.4	19.2	.1	1.0	(Z)	2.8	21.2	8
336412	Aircraft engine & engine parts mfg ..	9.1	4.0	2.8	(Z)	1.2	—	2.1	3.0	37
336413	Other aircraft part & auxiliary equipment mfg ..	30.6	14.8	12.7	.8	1.3	(D)	(D)	13.1	14
336414	Guided missile & space vehicle mfg ..	3.8	.9	.9	—	—	(D)	(D)	2.4	13
336415	Guided missile & space vehicle propulsion unit & parts mfg ..	37.3	21.0	20.8	—	.1	—	8.6	7.7	7
3365	Railroad rolling stock mfg ..	3.4	1.2	.5	—	.8	—	.5	1.7	24
33651	Railroad rolling stock mfg ..	3.4	1.2	.5	—	.8	—	.5	1.7	24
336510	Railroad rolling stock mfg ..	3.4	1.2	.5	—	.8	—	.5	1.7	24
3366	Ship & boat building ..	7.1	1.7	1.2	.3	.2	.8	1.5	3.0	15
33661	Ship & boat building ..	7.1	1.7	1.2	.3	.2	.8	1.5	3.0	15
336611	Ship building & repairing ..	4.6	.7	.3	.2	.2	.8	1.3	1.8	16
336612	Boat building ..	2.5	1.0	1.0	(Z)	—	(Z)	.2	1.2	28
3369	Other transportation equipment mfg ..	1.1	(D)	(D)	—	—	(Z)	(D)	.6	31
33699	Other transportation equipment mfg ..	1.1	(D)	(D)	—	—	(Z)	(D)	.6	31
337	Furniture & related product mfg	16.5	4.2	3.8	.1	.4	(Z)	2.5	9.8	10
3371	Household & institutional furniture & kitchen cabinet mfg ..	7.3	1.1	.9	—	.2	(Z)	.8	5.4	11
33711	Wood kitchen cabinet & counter top mfg ..	2.0	.1	—	—	.1	—	.2	1.7	21
337110	Wood kitchen cabinet & counter top mfg ..	2.0	.1	—	—	.1	—	.2	1.7	21
33712	Household & institutional furniture mfg ..	5.3	.9	.9	—	(Z)	(Z)	.6	3.7	13
337122	Nonupholstered wood household furniture mfg ..	3.5	.7	.7	—	—	—	.4	2.4	18
3372	Office furniture (including fixtures) mfg ..	9.0	3.2	2.9	.1	.2	—	1.6	4.2	15
33721	Office furniture (including fixtures) mfg ..	9.0	3.2	2.9	.1	.2	—	1.6	4.2	15
337212	Custom architectural woodwork & millwork mfg ..	1.6	(Z)	(Z)	—	—	—	.9	.7	81
337214	Office furniture (except wood) mfg ..	5.5	2.8	2.8	(Z)	—	—	.3	2.4	4
337215	Showcase, partition, shelving, & locker mfg ..	1.4	.1	(Z)	—	.1	—	.4	.9	15
339	Miscellaneous mfg ..	38.7	18.5	17.8	.4	.3	(Z)	3.8	16.4	12
3391	Medical equipment & supplies mfg ..	9.9	2.0	2.0	—	(Z)	—	1.2	6.6	13
33911	Medical equipment & supplies mfg ..	9.9	2.0	2.0	—	(Z)	—	1.2	6.6	13
339112	Surgical & medical instrument mfg ..	3.2	.8	.8	—	—	—	.5	1.9	13
339113	Surgical appliance & supplies mfg ..	3.9	.7	.7	—	—	—	.4	2.8	23
339115	Ophthalmic goods mfg ..	1.9	.6	.6	—	—	—	.1	1.2	44
3399	Other miscellaneous mfg ..	28.8	16.4	15.8	.4	.3	(Z)	2.6	9.8	15
33991	Jewelry & silverware mfg ..	2.5	1.6	(D)	(D)	—	—	.3	.7	39
339911	Jewelry (except costume) mfg ..	1.6	1.4	1.4	—	—	—	.1	.1	59
33992	Sporting & athletic goods mfg ..	3.3	(D)	(D)	—	—	—	(D)	2.5	27
339920	Sporting & athletic goods mfg ..	3.3	(D)	(D)	—	—	—	(D)	2.5	27
33993	Doll, toy, & game mfg ..	1.1	—	—	—	—	—	(Z)	1.1	51
339932	Game, toy, & children's vehicle mfg ..	1.1	—	—	—	—	—	(Z)	1.1	51
33994	Office supplies (except paper) mfg ..	1.0	.2	—	—	.2	—	.2	.5	38
33999	All other miscellaneous mfg ..	20.5	14.3	13.9	(D)	(D)	(Z)	1.6	4.6	20
339991	Gasket, packing, & sealing device mfg ..	5.8	2.9	2.5	(D)	(D)	—	.7	2.2	19
339993	Fastener, button, needle, & pin mfg ..	8.0	7.0	7.0	—	—	—	.4	.6	46
339999	All other miscellaneous mfg ..	5.8	4.4	4.4	—	—	(Z)	.3	1.1	22

Note: The sum of the Mining, Electric, and Manufacturing sectors may not add to "All industries" because some plants did not have a unique industry code at the time of publication. These plants are included in "All industries" but not the detail.

Table 9b. Other Expenditures by State: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total other expenditures are less than \$1.0 million]

State	Total	Site cleanup				Habitat protection	Monitoring/testing	Administration	Relative standard error (OE)
		Total	Remediation	Replacement	Other				
United States	3 154.5	1 039.3	827.3	83.1	128.8	155.2	599.5	1 360.4	4
New England	214.9	84.1	40.3	23.8	20.0	15.8	34.3	80.8	14
Connecticut	73.0	24.0	11.9	.8	11.3	.1	16.6	32.3	13
Maine	16.5	3.5	3.5	—	(Z)	1.3	3.9	7.7	21
Massachusetts	70.9	23.5	16.7	1.5	5.3	10.0	9.4	28.0	26
New Hampshire	16.7	7.3	5.8	.5	1.1	.5	2.5	6.3	13
Rhode Island	24.5	22.2	1.0	21.0	.2	(Z)	.4	1.9	85
Vermont	13.4	3.5	1.4	—	2.1	3.9	1.5	4.5	3
Middle Atlantic	414.2	198.5	190.7	3.3	4.4	20.0	58.8	137.0	19
New Jersey	184.2	118.3	117.3	.8	.3	17.8	14.5	33.6	42
New York	116.3	51.6	46.5	1.5	3.5	1.9	18.4	44.4	7
Pennsylvania	113.7	28.6	26.9	1.1	.6	.3	25.8	59.0	9
East North Central	504.1	201.6	149.4	35.4	16.8	14.3	84.7	203.5	5
Illinois	108.6	42.1	19.7	20.4	2.0	2.8	20.2	43.4	9
Indiana	76.0	19.3	16.1	.4	2.8	3.3	17.9	35.4	6
Michigan	115.2	51.6	48.0	.6	3.1	6.9	14.3	42.4	10
Ohio	133.3	48.3	43.5	1.5	3.3	1.1	22.6	61.3	10
Wisconsin	71.1	40.2	22.1	12.5	5.6	.2	9.6	21.0	22
West North Central	186.4	37.2	28.5	2.4	6.2	18.5	54.6	76.2	9
Iowa	25.1	4.3	3.1	.2	.9	.5	5.6	14.8	10
Kansas	40.0	16.4	10.9	.6	4.9	(Z)	11.0	12.6	23
Minnesota	44.0	8.4	6.6	1.6	.1	.4	13.8	21.4	5
Missouri	28.2	4.4	4.2	(Z)	.1	.1	7.2	16.5	10
Nebraska	8.2	3.3	3.2	(Z)	(Z)	.1	1.7	3.1	19
North Dakota	29.2	.3	.3	—	—	17.3	5.9	5.8	40
South Dakota	11.6	.3	.2	—	.1	(Z)	9.4	2.0	14
South Atlantic	414.4	110.2	78.6	4.7	26.9	16.8	93.3	194.2	10
Delaware	12.9	3.3	3.2	—	.1	.1	1.6	7.9	16
Florida	107.8	35.3	34.7	(D)	.6	12.3	15.2	44.9	24
Georgia	85.2	31.8	6.7	1.6	23.5	1.6	19.4	32.3	27
Maryland	8.4	3.3	3.1	(D)	(D)	.2	1.4	3.5	25
North Carolina	55.4	9.8	8.1	.1	1.7	.3	10.1	35.2	8
South Carolina	39.7	6.0	5.7	.1	.3	2.0	11.6	20.1	8
Virginia	64.2	16.5	13.9	2.3	.3	.1	27.4	20.2	26
West Virginia	41.0	4.1	3.1	.5	.4	.2	6.7	30.1	17
East South Central	257.2	89.1	61.2	4.4	23.5	1.9	59.5	106.7	11
Alabama	78.3	24.5	19.9	3.6	1.1	.9	19.1	33.7	11
Kentucky	69.9	34.9	13.4	.2	21.3	.3	10.7	24.0	31
Mississippi	34.2	7.6	7.1	.2	.4	.5	6.1	19.9	14
Tennessee	74.9	22.1	20.9	.5	.7	.2	23.6	29.1	17
West South Central	573.5	139.9	135.6	1.0	3.3	43.5	111.5	278.6	6
Arkansas	29.7	2.1	1.5	(Z)	.6	.2	9.0	18.3	13
Louisiana	143.6	70.0	68.8	.2	1.0	.1	23.2	50.3	4
Oklahoma	18.0	3.4	2.7	.3	.3	(Z)	3.6	11.0	12
Texas	382.3	64.4	62.6	.5	1.3	43.2	75.7	199.0	8
Mountain	213.3	62.6	44.2	2.0	16.5	9.7	38.0	102.9	12
Arizona	25.1	4.0	1.4	1.9	.7	(Z)	4.6	16.4	18
Colorado	24.3	4.5	3.3	(Z)	1.2	.1	3.7	15.9	15
Idaho	33.4	5.2	3.3	(D)	(D)	.6	4.8	22.8	32
Montana	10.6	2.1	1.8	—	.4	.2	2.3	6.0	15
Nevada	9.7	2.7	1.8	—	1.0	.1	2.0	4.8	15
New Mexico	33.9	17.3	6.6	(Z)	10.7	1.4	4.2	11.0	25
Utah	35.9	15.1	14.2	(D)	(D)	.3	8.2	12.4	13
Wyoming	40.4	11.6	11.6	(Z)	—	7.0	8.2	13.5	49
Pacific	376.5	116.2	98.9	6.1	11.2	14.7	64.9	180.7	3
Alaska	40.5	19.7	18.7	.2	.9	8.5	2.6	9.8	5
California	242.0	79.9	67.8	4.8	7.3	5.1	38.9	118.1	4
Hawaii	4.8	.7	.5	(Z)	.1	—	2.1	2.0	34
Oregon	41.9	7.0	5.2	.6	1.1	.9	9.2	24.8	13
Washington	47.3	9.0	6.6	.5	1.8	.2	12.0	26.1	6

Table 10a. Other Payments by Industry: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other payments are less than \$1.0 million]

NAICS code	Industry	Payments to government				Tradeable permits			Relative standard error (OP)
		Total	Permits/fees and charges	Fines/penalties	Other	Bought	Sold	Other	
	All industries	959.1	816.6	116.3	26.2	20.2	23.7	12.6	5
21	Mining	69.9	51.9	11.9	6.1	-	8.6	(Z)	20
211	Oil & gas extraction	11.7	10.8	.8	.1	-	8.4	-	20
21111	Oil & gas extraction	11.7	10.8	.8	.1	-	8.4	-	20
211111	Crude petroleum & natural gas extraction	4.0	3.7	.2	.1	-	8.4	-	11
211112	Natural gas liquid extraction	7.7	7.0	.6	-	-	-	-	29
212	Mining (except oil & gas)	57.9	40.8	11.1	6.0	-	.2	(Z)	24
2121	Coal mining	21.4	20.5	.5	.4	-	-	-	24
21211	Coal mining	21.4	20.5	.5	.4	-	-	-	24
212111	Bituminous coal & lignite surface mining	19.2	18.7	.1	.4	-	-	-	26
212112	Bituminous coal underground mining	2.2	(D)	(D)	(Z)	-	-	-	33
2122	Metal ore mining	12.1	9.2	.2	2.7	-	.2	-	8
21222	Gold ore & silver ore mining	3.9	3.8	.1	-	-	-	-	21
212221	Gold ore mining	(D)	(D)	.1	-	-	-	-	(X)
21223	Copper, nickel, lead, & zinc mining	5.3	2.6	(Z)	2.7	-	.2	-	8
212231	Lead ore & zinc ore mining	(D)	(D)	-	-	-	-	-	(X)
212234	Copper ore & nickel ore mining	(D)	(D)	(Z)	2.7	-	.2	-	(X)
21229	Other metal ore mining	2.6	2.5	(Z)	-	-	-	-	2
212299	All other metal ore mining	(D)	(D)	(D)	-	-	-	-	(X)
2123	Nonmetallic mineral mining & quarrying	24.4	11.1	10.4	2.9	-	(Z)	(Z)	51
21231	Stone mining & quarrying	5.6	4.8	.7	.1	-	-	-	19
212312	Crushed & broken limestone mining & quarrying	3.6	3.0	.6	-	-	-	-	21
212313	Crushed & broken granite mining & quarrying	1.1	1.1	(Z)	-	-	-	-	60
21232	Sand, gravel, clay, ceramic & refractory minerals mng & quarrying	15.8	3.4	9.6	2.8	-	(Z)	(Z)	78
212321	Construction sand & gravel mining	14.5	2.4	9.3	2.8	-	-	(Z)	85
21239	Other nonmetallic mineral mining & quarrying	2.9	2.9	.1	-	-	-	-	22
212392	Phosphate rock mining	1.6	1.6	(Z)	-	-	-	-	27
22111	Electric power generation	106.6	68.4	38.2	-	5.4	.4	10.5	28
221111	Hydroelectric power generation	1.7	1.5	.2	-	-	.1	-	23
221112	Fossil fuel electric power generation	92.2	60.5	31.8	-	5.4	.3	10.5	32
221113	Nuclear electric power generation	9.6	3.4	6.3	-	-	-	-	12
221119	Other electric power generation	3.0	3.0	-	-	-	-	-	31
31-33	Manufacturing	781.2	695.0	66.2	20.1	12.0	14.6	2.1	5
311	Food mfg	67.3	59.0	4.5	3.8	1.2	(D)	(D)	10
3111	Animal food mfg	1.2	1.2	-	-	-	-	-	40
31111	Animal food mfg	1.2	1.2	-	-	-	-	-	40
311111	Dog & cat food mfg	1.1	1.1	-	-	-	-	-	46
3112	Grain & oilseed milling	9.7	9.5	.1	-	-	-	-	35
31121	Flour milling & malt mfg	5.6	5.6	-	-	-	-	-	60
311212	Rice milling	3.9	3.9	-	-	-	-	-	79
311213	Malt mfg	1.4	1.4	-	-	-	-	-	77
31122	Starch & vegetable fats & oils mfg	3.6	(D)	(D)	-	-	-	-	5
311221	Wet corn milling	1.5	1.5	(Z)	-	-	-	-	6
311222	Soybean processing	1.4	(D)	(D)	-	-	-	-	7
3113	Sugar & confectionery product mfg	8.6	8.4	.2	-	-	-	-	5
31131	Sugar mfg	3.2	(D)	(D)	-	-	-	-	5
311313	Beet sugar mfg	1.5	1.3	.2	-	-	-	-	6
31134	Nonchocolate confectionery mfg	4.4	(D)	(D)	-	-	-	-	2
311340	Nonchocolate confectionery mfg	4.4	(D)	(D)	-	-	-	-	2
3114	Fruit & vegetable preserving & specialty food mfg	9.3	8.6	.6	.1	.1	-	-	21
31141	Frozen food mfg	3.6	3.1	.5	-	-	-	-	34
311411	Frozen fruit, juice, & vegetable mfg	1.9	1.6	.4	-	-	-	-	18
311412	Frozen specialty food mfg	1.7	1.5	.1	-	-	-	-	70
31142	Fruit & vegetable canning, pickling, & drying	5.7	5.5	.1	.1	.1	-	-	26
311421	Fruit & vegetable canning	5.1	4.9	.1	.1	.1	-	-	29
3115	Dairy product mfg	8.1	7.0	.6	.5	-	-	-	30
31151	Dairy product (except frozen) mfg	7.0	5.9	.6	.5	-	-	-	32
311511	Fluid milk mfg	4.8	4.3	(D)	(D)	-	-	-	44
311513	Cheese mfg	1.8	1.2	(D)	(D)	-	-	-	43
31152	Ice cream & frozen dessert mfg	1.1	1.1	-	-	-	-	-	80
311520	Ice cream & frozen dessert mfg	1.1	1.1	-	-	-	-	-	80
3116	Meat product mfg	18.7	15.5	.8	2.3	.5	(D)	(D)	17
31161	Animal slaughtering & processing	18.7	15.5	.8	2.3	.5	(D)	(D)	17
311611	Animal (except poultry) slaughtering	6.3	6.2	(Z)	(Z)	(Z)	(D)	(D)	24
311612	Meat processed from carcasses	1.6	1.3	.4	-	-	-	-	58
311615	Poultry processing	9.9	7.2	.5	2.3	-	-	-	26
3118	Bakeries & tortilla mfg	3.5	2.5	.2	.8	(Z)	-	-	20
31181	Bread & bakery product mfg	2.2	1.9	.1	.1	(Z)	-	-	25
311812	Commercial bakeries	2.0	1.9	(Z)	.1	(Z)	-	-	27
3119	Other food mfg	7.4	5.8	1.6	-	.5	(D)	-	35
31191	Snack food mfg	3.1	3.1	(Z)	-	(Z)	(D)	-	71
311919	Other snack food mfg	3.0	3.0	(Z)	-	-	-	-	74
31194	Seasoning & dressing mfg	1.2	1.1	.1	-	-	-	-	10
311941	Mayonnaise, dressing, & other prepared sauce mfg	1.0	.9	.1	-	-	-	-	12
31199	All other food mfg	2.3	1.4	.9	-	-	-	-	55
311999	All other miscellaneous food mfg	2.3	1.4	.9	-	-	-	-	57

See footnote at end of table.

Table 10a. Other Payments by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other payments are less than \$1.0 million]

NAICS code	Industry	Payments to government				Tradeable permits			Relative standard error (OP)
		Total	Permits/fees and charges	Fines/penalties	Other	Bought	Sold	Other	
31-33	Manufacturing—Con.								
312	Beverage & tobacco product mfg	4.7	4.2	.3	.2	—	—	—	14
3121	Beverage mfg	3.2	2.8	.2	.2	—	—	—	21
31212	Breweries	1.6	1.5	.1	—	—	—	—	37
312120	Breweries	1.6	1.5	.1	—	—	—	—	37
3122	Tobacco mfg	1.5	1.4	.1	—	—	—	—	4
31222	Tobacco product mfg	1.4	1.3	.1	—	—	—	—	4
312221	Cigarette mfg	1.1	1.1	—	—	—	—	—	2
313	Textile mills	9.9	9.7	.2	—	.1	.1	—	38
3132	Fabric mills	3.9	3.9	(Z)	—	.1	.1	—	5
31321	Broadwoven fabric mills	1.0	1.0	—	—	—	—	—	14
313210	Broadwoven fabric mills	1.0	1.0	—	—	—	—	—	14
31324	Knit fabric mills	2.0	1.9	(Z)	—	.1	.1	—	5
313241	Weft knit fabric mills	1.7	1.7	—	—	.1	.1	—	2
3133	Textile & fabric finishing & fabric coating mills	5.6	5.5	.2	—	—	—	—	67
31331	Textile & fabric finishing mills	5.3	5.1	.2	—	—	—	—	72
313311	Broadwoven fabric finishing mills	5.2	5.0	.2	—	—	—	—	73
315	Apparel mfg	1.2	1.2	—	—	—	—	—	49
3151	Apparel knitting mills	1.0	1.0	—	—	—	—	—	62
321	Wood product mfg	45.6	44.7	.7	.2	—	—	—	25
3211	Sawmills & wood preservation	10.4	10.1	.2	.1	—	—	—	54
32111	Sawmills & wood preservation	10.4	10.1	.2	.1	—	—	—	54
321113	Sawmills	9.2	9.0	.1	(Z)	—	—	—	61
321114	Wood preservation	1.2	1.0	.1	.1	—	—	—	32
3212	Veneer, plywood, & engineered wood product mfg	19.9	19.7	.1	.1	—	—	—	35
32121	Veneer, plywood, & engineered wood product mfg	19.9	19.7	.1	.1	—	—	—	35
321211	Hardwood veneer & plywood mfg	4.2	4.2	(Z)	—	—	—	—	44
321212	Softwood veneer & plywood mfg	13.4	13.3	(Z)	.1	—	—	—	50
321219	Reconstituted wood product mfg	2.2	2.1	.1	—	—	—	—	8
3219	Other wood product mfg	15.3	15.0	.3	(Z)	—	—	—	45
32191	Millwork	1.6	1.4	.2	(Z)	—	—	—	16
32192	Wood container & pallet mfg	1.4	1.4	—	—	—	—	—	94
321920	Wood container & pallet mfg	1.4	1.4	—	—	—	—	—	94
32199	All other wood product mfg	12.3	12.2	.1	—	—	—	—	55
321991	Manufactured home (mobile home) mfg	11.6	11.6	—	—	—	—	—	58
322	Paper mfg	42.9	40.7	1.2	1.0	1.1	1.1	.1	5
3221	Pulp, paper, & paperboard mills	35.4	33.7	.8	.8	1.1	.6	.1	4
32211	Pulp mills	2.3	2.2	(D)	(D)	—	—	—	4
322110	Pulp mills	2.3	2.2	(D)	(D)	—	—	—	4
32212	Paper mills	22.0	20.7	.5	.8	1.1	.6	.1	6
322121	Paper (except newsprint) mills	19.1	18.0	.4	.6	1.1	—	.1	7
322122	Newsprint mills	2.9	2.6	.1	.2	—	.6	—	6
32213	Paperboard mills	11.1	10.8	(D)	(D)	—	—	—	5
322130	Paperboard mills	11.1	10.8	(D)	(D)	—	—	—	5
3222	Converted paper product mfg	7.6	7.0	.4	.1	(Z)	.5	(Z)	17
32221	Paperboard container mfg	3.1	2.7	.2	.1	—	—	(Z)	32
322211	Corrugated & solid fiber box mfg	2.5	2.1	.2	.1	—	—	(Z)	39
32222	Paper bag & coated & treated paper mfg	2.4	2.2	.2	(Z)	(Z)	.5	—	8
322222	Coated & laminated paper mfg	1.2	1.1	.1	—	(Z)	.5	—	14
32223	Stationery product mfg	1.1	1.1	(Z)	—	—	—	—	67
322232	Envelope mfg	1.0	1.0	—	—	—	—	—	72
32229	Other converted paper product mfg	1.1	1.1	—	—	—	—	—	26
323	Printing & related support activities	47.8	46.8	.8	.2	.1	.8	—	24
3231	Printing & related support activities	47.8	46.8	.8	.2	.1	.8	—	24
32311	Printing	40.9	40.0	.7	.2	.1	.1	—	24
323110	Commercial lithographic printing	25.6	25.0	.5	.1	—	—	—	37
323113	Commercial screen printing	2.7	2.7	—	—	(Z)	.1	—	68
323116	Manifold business form printing	2.5	2.5	(D)	(D)	—	—	—	34
323117	Book printing	8.6	8.5	.1	—	—	—	—	1
32312	Support activities for printing	6.8	6.8	.1	—	—	.6	—	90
323122	Prepress services	6.6	6.6	—	—	—	.6	—	94
324	Petroleum & coal products mfg	83.1	60.1	22.4	.5	7.0	2.8	—	10
3241	Petroleum & coal products mfg	83.1	60.1	22.4	.5	7.0	2.8	—	10
32411	Petroleum refineries	66.9	44.4	22.1	.4	7.0	2.8	—	4
324110	Petroleum refineries	66.9	44.4	22.1	.4	7.0	2.8	—	4
32412	Asphalt paving, roofing, & saturated materials mfg	14.0	14.0	—	—	—	—	—	52
324121	Asphalt paving mixture & block mfg	1.5	1.5	—	—	—	—	—	45
324122	Asphalt shingle & coating materials mfg	12.5	12.5	—	—	—	—	—	58
32419	Other petroleum & coal products mfg	2.2	1.7	.3	.1	—	—	—	10
324199	All other petroleum & coal products mfg	2.0	1.7	.3	(Z)	—	—	—	9

See footnote at end of table.

Table 10a. Other Payments by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other payments are less than \$1.0 million]

NAICS code	Industry	Payments to government				Tradeable permits			Relative standard error (OP)
		Total	Permits/fees and charges	Fines/penalties	Other	Bought	Sold	Other	
31-33	Manufacturing—Con.								
325	Chemical mfg	141.4	117.5	19.8	4.1	1.0	7.5	—	4
3251	Basic chemical mfg	61.1	50.9	8.5	1.8	.9	3.4	—	8
32511	Petrochemical mfg	6.5	6.1	.1	.3	—	—	—	16
325110	Petrochemical mfg	6.5	6.1	.1	.3	—	—	—	16
32512	Industrial gas mfg	2.6	2.5	(Z)	—	—	1.5	—	3
325120	Industrial gas mfg	2.6	2.5	(Z)	—	—	1.5	—	3
32513	Dye & pigment mfg	1.5	1.0	.5	—	—	—	—	13
32518	Other basic inorganic chemical mfg	12.7	11.2	1.4	(Z)	—	(Z)	—	12
325181	Alkalies & chlorine mfg	1.2	1.0	.2	—	—	—	—	10
325182	Carbon black mfg	2.5	2.4	(Z)	(Z)	—	—	—	12
325188	All other basic inorganic chemical mfg	9.0	7.7	1.2	—	—	(Z)	—	16
32519	Other basic organic chemical mfg	37.9	30.0	6.4	1.5	.9	1.9	—	11
325191	Gum & wood chemical mfg	1.4	.3	1.1	(Z)	—	—	—	2
325192	Cyclic crude & intermediate mfg	9.6	9.5	(Z)	(Z)	—	—	—	37
325199	All other basic organic chemical mfg	26.5	19.7	5.3	1.4	.9	1.9	—	8
3252	Resin, syn rubber, & artificial & syn fibers & filaments mfg	15.6	15.1	.2	.3	—	—	—	7
32521	Resin & synthetic rubber mfg	12.8	12.4	.2	.3	—	—	—	8
325211	Plastics material & resin mfg	8.9	8.5	.1	.3	—	—	—	11
325212	Synthetic rubber mfg	3.9	3.9	(Z)	—	—	—	—	1
32522	Artificial & synthetic fibers & filaments mfg	2.8	2.7	(Z)	—	—	—	—	3
325221	Cellulosic organic fiber mfg	1.3	1.3	(Z)	—	—	—	—	1
325222	Noncellulosic organic fiber mfg	1.4	1.4	(Z)	—	—	—	—	6
3253	Pesticide, fertilizer, & other agricultural chemical mfg	7.1	6.8	.1	.1	—	—	—	5
32531	Fertilizer mfg	4.9	4.7	.1	.1	—	—	—	6
325311	Nitrogenous fertilizer mfg	1.8	1.7	(Z)	(Z)	—	—	—	3
325312	Phosphatic fertilizer mfg	3.2	2.9	.1	.1	—	—	—	9
32532	Pesticide & other agricultural chemical mfg	2.1	2.1	—	—	—	—	—	10
325320	Pesticide & other agricultural chemical mfg	2.1	2.1	—	—	—	—	—	10
3254	Pharmaceutical & medicine mfg	13.0	11.5	1.2	.2	.1	.6	—	10
32541	Pharmaceutical & medicine mfg	13.0	11.5	1.2	.2	.1	.6	—	10
325411	Medicinal & botanical mfg	2.0	.9	.9	.2	—	.6	—	8
325412	Pharmaceutical preparation mfg	10.5	10.2	.2	—	.1	—	—	12
3255	Paint, coating, & adhesive mfg	21.1	19.3	1.8	(Z)	—	—	—	9
32551	Paint & coating mfg	19.5	17.7	1.7	(Z)	—	—	—	10
325510	Paint & coating mfg	19.5	17.7	1.7	(Z)	—	—	—	10
32552	Adhesive mfg	1.7	1.6	.1	(Z)	—	—	—	35
325520	Adhesive mfg	1.7	1.6	.1	(Z)	—	—	—	35
3256	Soap, cleaning compound, & toilet preparation mfg	4.0	3.3	.6	(Z)	—	—	—	12
32561	Soap & cleaning compound mfg	3.0	2.5	.6	(Z)	—	—	—	14
325613	Surface active agent mfg	1.5	1.4	.1	(Z)	—	—	—	16
3259	Other chemical product mfg	19.5	10.6	7.3	1.6	—	3.5	—	10
32599	All other chemical product & preparation mfg	18.5	(D)	(D)	(D)	—	3.5	—	11
325992	Photographic film, paper, plate, & chemical mfg	5.6	(D)	(D)	(D)	—	3.5	—	5
325998	All other miscellaneous chemical product & preparation mfg	12.6	6.3	6.3	—	—	—	—	15
326	Plastics & rubber products mfg	35.1	33.7	.6	.9	.1	—	(Z)	29
3261	Plastics product mfg	32.7	31.5	.4	.9	.1	—	(Z)	31
32611	Unsupported plastics film, sheet, & bag mfg	2.8	1.9	.1	.7	—	—	(Z)	11
326113	Unsupported plastics film & sheet (except packaging) mfg	2.0	1.2	.1	.7	—	—	(Z)	13
32612	Plastics pipe, pipe fitting, & unsupported profile shape mfg	8.6	8.6	—	—	—	—	—	35
326121	Unsupported plastics profile shape mfg	1.1	1.1	—	—	—	—	—	53
326122	Plastics pipe & pipe fitting mfg	7.5	7.5	—	—	—	—	—	40
32614	Polystyrene foam product mfg	1.2	1.1	.1	.1	.1	—	—	13
326140	Polystyrene foam product mfg	1.2	1.1	.1	.1	.1	—	—	13
32619	Other plastics product mfg	18.8	18.6	.1	(Z)	(Z)	—	—	52
326199	All other plastics product mfg	18.3	18.1	.1	(Z)	(Z)	—	—	53
3262	Rubber product mfg	2.4	2.2	.2	(Z)	—	—	—	14
32629	Other rubber product mfg	1.2	(D)	(D)	(Z)	—	—	—	25
327	Nonmetallic mineral product mfg	39.3	36.6	1.9	.8	.1	.1	1.7	11
3271	Clay product & refractory mfg	2.6	1.9	.2	.5	—	.1	—	9
32712	Clay building material & refractories mfg	1.7	1.5	(D)	(D)	—	.1	—	9
3272	Glass & glass product mfg	11.3	10.8	.3	.1	—	(Z)	—	3
32721	Glass & glass product mfg	11.3	10.8	.3	.1	—	(Z)	—	3
327211	Flat glass mfg	2.2	2.2	(Z)	—	—	—	—	8
327212	Other pressed & blown glass & glassware mfg	1.5	1.4	(Z)	—	—	(Z)	—	10
327213	Glass container mfg	7.3	7.0	.3	.1	—	—	—	4
3273	Cement & concrete product mfg	21.3	20.0	1.2	.2	—	—	—	19
32731	Cement mfg	15.3	14.0	1.1	.2	—	—	—	7
327310	Cement mfg	15.3	14.0	1.1	.2	—	—	—	7
32739	Other concrete product mfg	5.2	5.2	(Z)	—	—	—	—	74
327390	Other concrete product mfg	5.2	5.2	(Z)	—	—	—	—	74
3274	Lime & gypsum product mfg	2.3	(D)	—	(D)	.1	—	.2	11
32741	Lime mfg	1.7	1.7	—	—	—	—	.2	15
327410	Lime mfg	1.7	1.7	—	—	—	—	.2	15
3279	Other nonmetallic mineral product mfg	1.8	(D)	.2	(D)	(Z)	—	1.5	6
32799	All other nonmetallic mineral product mfg	1.6	1.4	.2	—	(Z)	—	1.5	7
327993	Mineral wool mfg	1.0	.9	.1	—	—	—	1.5	10

See footnote at end of table.

Table 10a. Other Payments by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other payments are less than \$1.0 million]

NAICS code	Industry	Payments to government				Tradeable permits			Relative standard error (OP)
		Total	Permits/fees and charges	Fines/penalties	Other	Bought	Sold	Other	
31-33	Manufacturing—Con.								
331	Primary metal mfg	65.1	53.1	8.0	4.0	.8	—	—	11
3311	Iron & steel mills & ferroalloy mfg	19.4	11.2	5.2	3.0	—	—	—	14
33111	Iron & steel mills & ferroalloy mfg	19.4	11.2	5.2	3.0	—	—	—	14
331111	Iron & steel mills	18.8	10.7	5.1	3.0	—	—	—	14
3312	Steel product mfg from purchased steel	11.8	10.7	1.1	.1	.1	—	—	56
33121	Iron & steel pipes & tubes mfg from purchased steel	1.6	.8	.8	.1	—	—	—	41
331210	Iron & steel pipes & tubes mfg from purchased steel	1.6	.8	.8	.1	—	—	—	41
33122	Rolling & drawing of purchased steel	10.2	9.9	.3	—	.1	—	—	64
331221	Cold-rolled steel shape mfg	1.0	.7	.3	—	.1	—	—	10
331222	Steel wire drawing	9.2	9.2	—	—	—	—	—	71
3313	Alumina & aluminum production & processing	8.4	7.6	.8	—	.7	—	—	4
33131	Alumina & aluminum production & processing	8.4	7.6	.8	—	.7	—	—	4
331312	Primary aluminum production	5.5	5.0	.5	—	—	—	—	5
331315	Aluminum sheet, plate, & foil mfg	1.4	1.4	(Z)	—	.7	—	—	12
3314	Nonferrous metal (except aluminum) production & processing	20.7	20.2	.3	.1	(Z)	—	—	2
33141	Nonferrous metal (except aluminum) smelting & refining	3.5	3.3	.1	.1	—	—	—	7
331411	Primary smelting & refining of copper	1.3	1.2	(Z)	.1	—	—	—	8
331419	Other nonferrous metal primary smelting & refining	2.2	2.1	.1	—	—	—	—	10
33142	Copper rolling, drawing, extruding, & alloying	14.7	14.7	(Z)	(Z)	—	—	—	1
331421	Copper rolling, drawing, & extruding	14.6	(D)	(D)	(Z)	—	—	—	1
33149	Other nonferrous metal rolling, drawing, extruding, & alloying	2.4	2.3	.2	—	(Z)	—	—	9
331492	Other nonferrous metal secondary smelting, refining, & alloying	1.5	1.4	.1	—	(Z)	—	—	10
3315	Foundries	4.9	3.4	.7	.7	—	—	—	13
33151	Ferrous metal foundries	3.8	3.0	.4	.5	—	—	—	14
331511	Iron foundries	2.4	2.1	.2	—	—	—	—	10
331513	Steel foundries (except investment)	1.1	.6	.1	.5	—	—	—	42
33152	Nonferrous metal foundries	1.0	.4	.3	.3	—	—	—	26
332	Fabricated metal product mfg	85.0	79.9	1.4	3.7	—	.1	.3	19
3321	Forging & stamping	1.4	1.3	.1	(Z)	—	.1	(Z)	15
33211	Forging & stamping	1.4	1.3	.1	(Z)	—	.1	(Z)	15
3322	Cutlery & handtool mfg	18.8	18.7	.1	—	—	—	—	16
33221	Cutlery & handtool mfg	18.8	18.7	.1	—	—	—	—	16
332212	Hand & edge tool mfg	10.4	10.3	.1	—	—	—	—	2
332213	Saw blade & handsaw mfg	8.1	8.1	—	—	—	—	—	37
3323	Architectural & structural metals mfg	6.7	6.1	.6	(Z)	—	—	—	73
33232	Ornamental & architectural metal products mfg	6.0	5.6	.5	—	—	—	—	81
332322	Sheet metal work mfg	5.2	5.2	—	—	—	—	—	93
3324	Boiler, tank, & shipping container mfg	5.4	5.3	(Z)	.1	—	—	—	48
33243	Metal can, box, & other metal container (light gauge) mfg	5.1	5.0	(Z)	.1	—	—	—	50
332431	Metal can mfg	1.6	1.6	(Z)	(Z)	—	—	—	19
332439	Other metal container mfg	3.5	3.4	(Z)	.1	—	—	—	72
3326	Spring & wire product mfg	1.2	1.2	—	—	—	—	—	32
33261	Spring & wire product mfg	1.2	1.2	—	—	—	—	—	32
332618	Other fabricated wire product mfg	1.2	1.2	—	—	—	—	—	33
3327	Machine shops, turned product, & screw, nut, & bolt mfg	3.7	3.7	(Z)	(Z)	—	—	.2	42
33272	Turned product & screw, nut, & bolt mfg	3.0	3.0	(Z)	(Z)	—	—	—	49
332722	Bolt, nut, screw, rivet, & washer mfg	2.6	2.6	(Z)	(Z)	—	—	—	56
3328	Coating, engraving, heat treating, & allied activities	28.6	27.5	.5	.6	—	—	—	46
33281	Coating, engraving, heat treating, & allied activities	28.6	27.5	.5	.6	—	—	—	46
332812	Metal coating/engraving (exc jewelry/silverware)/allied services	14.4	14.0	(Z)	.4	—	—	—	80
332813	Electroplating, plating, polishing, anodizing, & coloring	13.9	13.2	.5	.2	—	—	—	42
3329	Other fabricated metal product mfg	18.4	15.4	(Z)	3.0	—	—	—	37
33291	Metal valve mfg	12.7	12.7	(Z)	(Z)	—	—	—	53
332911	Industrial valve mfg	10.7	10.7	—	(Z)	—	—	—	63
332919	Other metal valve & pipe fitting mfg	1.4	1.4	—	—	—	—	—	26
33299	All other fabricated metal product mfg	5.7	2.7	(Z)	3.0	—	—	—	19
332991	Ball & roller bearing mfg	3.6	.9	—	2.7	—	—	—	27
332999	All other miscellaneous fabricated metal product mfg	1.0	(D)	(D)	.3	—	—	—	39
333	Machinery mfg	9.7	9.2	.4	.1	.2	1.8	—	17
3331	Agriculture, construction, & mining machinery mfg	2.6	2.5	(Z)	.1	—	—	—	56
33313	Mining & oil & gas field machinery mfg	1.8	1.7	(Z)	(Z)	—	—	—	82
333132	Oil & gas field machinery & equipment mfg	1.8	1.7	—	(Z)	—	—	—	82
3333	Commercial & service industry machinery mfg	1.3	1.3	(Z)	(Z)	—	—	—	16
33331	Commercial & service industry machinery mfg	1.3	1.3	(Z)	(Z)	—	—	—	16
3334	Ventilation, heating, AC, & commercial refrigeration equip mfg	1.4	1.2	.1	.1	.2	—	—	10
33341	Ventilation, heating, AC, & commercial refrigeration equip mfg	1.4	1.2	.1	.1	.2	—	—	10
333415	AC & warm air heating & commercial/industrial refrig equip mfg	1.1	1.0	(Z)	.1	.2	—	—	11
3336	Engine, turbine, & power transmission equipment mfg	1.7	1.5	.2	—	—	1.8	—	17
33361	Engine, turbine, & power transmission equipment mfg	1.7	1.5	.2	—	—	1.8	—	17
333611	Turbine & turbine generator set unit mfg	.6	.6	—	—	—	1.8	—	20
3339	Other general-purpose machinery mfg	1.0	.9	(Z)	(Z)	—	—	—	12

See footnote at end of table.

Table 10a. Other Payments by Industry: 1999—Con.

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No industries are shown where total other payments are less than \$1.0 million]

NAICS code	Industry	Payments to government				Tradeable permits			Relative standard error (OP)
		Total	Permits/fees and charges	Fines/penalties	Other	Bought	Sold	Other	
31-33 334	Manufacturing—Con. Computer & electronic product mfg	21.2	20.5	.7	(Z)	—	—	.1	16
3344	Semiconductor & other electronic component mfg	13.0	12.5	.5	(Z)	—	—	.1	21
33441	Semiconductor & other electronic component mfg	13.0	12.5	.5	(Z)	—	—	.1	21
334411	Electron tube mfg	1.5	1.1	.4	—	—	—	—	77
334412	Bare printed circuit board mfg	5.7	5.7	(Z)	—	—	—	—	32
334413	Semiconductor & related device mfg	3.9	3.9	(Z)	—	—	—	—	39
3345	Navigational, measuring, medical, & control instruments mfg	4.3	4.2	.1	(Z)	—	—	—	33
33451	Navigational, measuring, medical, & control instruments mfg	4.3	4.2	.1	(Z)	—	—	—	33
334516	Analytical laboratory instrument mfg	2.8	2.7	.1	—	—	—	—	51
3346	Mfg & reproducing magnetic & optical media	2.5	2.5	(Z)	—	—	—	—	40
33461	Mfg & reproducing magnetic & optical media	2.5	2.5	(Z)	—	—	—	—	40
334612	Prerecorded CD (except software), tape, & record reproducing	1.8	1.8	—	—	—	—	—	52
335	Electrical equipment, appliance, & component mfg	17.8	17.5	(D)	(D)	(D)	.2	—	21
3351	Electric lighting equipment mfg	4.9	4.8	.1	—	—	.2	—	56
33512	Lighting fixture mfg	4.7	4.7	—	—	—	.2	—	58
335122	Commercial/industrial/institutional electric lighting fixture mfg	3.1	3.1	—	—	—	.2	—	87
335129	Other lighting equipment mfg	1.6	1.6	—	—	—	—	—	2
3353	Electrical equipment mfg	3.9	3.9	(D)	(D)	(Z)	(Z)	—	60
33531	Electrical equipment mfg	3.9	3.9	(D)	(D)	(Z)	(Z)	—	60
335313	Switchgear & switchboard apparatus mfg	3.4	(D)	—	(D)	(Z)	(Z)	—	69
3359	Other electrical equipment & component mfg	8.7	8.4	.2	.1	(D)	—	—	4
33591	Battery mfg	3.5	3.4	.1	—	—	—	—	5
335911	Storage battery mfg	1.1	(D)	(D)	—	—	—	—	16
335912	Primary battery mfg	2.4	(D)	(D)	—	—	—	—	2
33592	Communication & energy wire & cable mfg	3.9	3.8	.1	.1	—	—	—	4
335929	Other communication & energy wire mfg	3.8	3.7	.1	.1	—	—	—	5
336	Transportation equipment mfg	31.7	29.1	2.2	.4	.2	(Z)	—	16
3361	Motor vehicle mfg	5.1	4.6	(D)	(D)	—	—	—	12
33611	Automobile & light duty motor vehicle mfg	4.8	(D)	(D)	.2	—	—	—	13
336111	Automobile mfg	2.5	(D)	(D)	—	—	—	—	3
336112	Light truck & utility vehicle mfg	2.3	1.8	.3	.2	—	—	—	26
3362	Motor vehicle body & trailer mfg	1.1	(D)	(D)	—	—	—	—	15
33621	Motor vehicle body & trailer mfg	1.1	(D)	(D)	—	—	—	—	15
3363	Motor vehicle parts mfg	8.5	8.2	(D)	(D)	—	—	—	27
33631	Motor vehicle gasoline engine & engine parts mfg	2.0	2.0	(D)	(D)	—	—	—	81
336312	Gasoline engine & engine parts mfg	1.9	(D)	(Z)	(D)	—	—	—	87
33635	Motor vehicle transmission & power train parts mfg	3.0	3.0	—	(Z)	—	—	—	41
336350	Motor vehicle transmission & power train parts mfg	3.0	3.0	—	(Z)	—	—	—	41
33639	Other motor vehicle parts mfg	2.1	1.9	.1	(Z)	—	—	—	41
336399	All other motor vehicle parts mfg	1.7	1.7	—	(Z)	—	—	—	48
3364	Aerospace product & parts mfg	10.3	8.8	1.5	(Z)	.2	(Z)	—	29
33641	Aerospace product & parts mfg	10.3	8.8	1.5	(Z)	.2	(Z)	—	29
336411	Aircraft mfg	1.4	1.1	.3	—	(Z)	—	—	2
336412	Aircraft engine & engine parts mfg	2.4	2.4	(Z)	—	—	—	—	57
336413	Other aircraft part & auxiliary equipment mfg	5.2	4.0	1.2	(Z)	—	—	—	50
3366	Ship & boat building	5.8	5.7	(D)	(D)	—	—	—	58
33661	Ship & boat building	5.8	5.7	(D)	(D)	—	—	—	58
336612	Boat building	5.4	5.4	(Z)	—	—	—	—	63
337	Furniture & related product mfg	23.1	22.5	.6	.1	.1	—	—	52
3371	Household & institutional furniture & kitchen cabinet mfg	16.2	15.8	.3	.1	.1	—	—	72
33711	Wood kitchen cabinet & counter top mfg	1.0	1.0	.1	(Z)	.1	—	—	9
337110	Wood kitchen cabinet & counter top mfg	1.0	1.0	.1	(Z)	.1	—	—	9
33712	Household & institutional furniture mfg	15.1	14.9	.2	(Z)	—	—	—	77
337122	Nonupholstered wood household furniture mfg	1.6	1.5	.1	(Z)	—	—	—	11
337124	Metal household furniture mfg	13.0	12.9	(Z)	(Z)	—	—	—	89
3372	Office furniture (including fixtures) mfg	5.6	5.4	.2	(Z)	(Z)	—	—	56
33721	Office furniture (including fixtures) mfg	5.6	5.4	.2	(Z)	(Z)	—	—	56
337215	Showcase, partition, shelving, & locker mfg	4.2	4.1	(Z)	(Z)	—	—	—	75
3379	Other furniture related product mfg	1.4	1.4	.1	—	—	—	—	3
33792	Blind & shade mfg	1.4	1.4	.1	—	—	—	—	3
337920	Blind & shade mfg	1.4	1.4	.1	—	—	—	—	3
339	Miscellaneous mfg	8.4	8.2	(D)	(D)	—	.1	—	48
3391	Medical equipment & supplies mfg	1.3	1.2	.1	—	—	—	—	15
33911	Medical equipment & supplies mfg	1.3	1.2	.1	—	—	—	—	15
3399	Other miscellaneous mfg	7.1	7.0	(D)	(D)	—	.1	—	57
33991	Jewelry & silverware mfg	1.0	1.0	(Z)	—	—	—	—	13
33993	Doll, toy, & game mfg	4.2	4.2	.1	—	—	—	—	94
339932	Game, toy, & children's vehicle mfg	4.2	4.2	.1	—	—	—	—	94

Note: The sum of the Mining, Electric, and Manufacturing sectors may not add to "All industries" because some plants did not have a unique industry code at the time of publication. These plants are included in "All industries" but not the detail.

Table 10b. Other Payments by State: 1999

[Million dollars. Totals may not agree with detail because of independent rounding. See introductory text for the meaning of abbreviations and symbols. No states are shown where total other payments are less than \$1.0 million]

State	Payments to government				Tradeable permits			Relative standard error (OP)
	Total	Permits/fees	Fines/penalties and charges	Other	Bought	Sold	Other	
United States	959.1	816.6	116.3	26.2	20.2	23.7	12.6	5
New England	83.7	42.4	40.8	.5	.1	.5	.1	35
Connecticut	52.6	13.8	38.5	.2	—	.3	—	55
Maine	3.1	3.0	.1	—	—	—	—	6
Massachusetts	18.5	17.5	.6	.3	.1	.2	.1	19
New Hampshire	1.2	1.2	—	—	—	—	—	21
Rhode Island	3.6	2.1	1.5	—	—	—	—	69
Vermont	4.7	4.7	(Z)	—	—	—	—	20
Middle Atlantic	73.7	62.2	5.5	6.0	2.2	4.2	.1	8
New Jersey	10.7	8.9	1.1	.8	.3	.6	.1	15
New York	28.2	24.1	2.4	1.8	—	3.6	—	11
Pennsylvania	34.7	29.2	2.0	3.4	1.8	—	—	14
East North Central	159.1	142.1	13.0	3.9	5.3	.6	(Z)	11
Illinois	42.2	40.8	.7	.8	.1	(D)	(D)	31
Indiana	21.3	17.9	2.7	.6	—	—	(D)	14
Michigan	30.8	27.8	1.5	1.5	—	—	—	32
Ohio	44.2	35.8	7.8	.6	5.3	.5	—	11
Wisconsin	20.6	19.8	.4	.4	—	(D)	—	23
West North Central	72.7	70.9	1.2	.7	(Z)	(Z)	(Z)	15
Iowa	5.2	4.9	.2	(Z)	(D)	(D)	(D)	13
Kansas	3.8	3.7	(D)	(D)	(D)	(D)	(D)	26
Minnesota	30.4	29.7	.7	(Z)	—	—	—	25
Missouri	16.2	15.9	.2	.2	—	—	—	32
Nebraska	5.3	5.3	(D)	(D)	(Z)	(Z)	(Z)	60
North Dakota	11.3	10.8	(Z)	.4	—	—	—	41
South Atlantic	117.1	99.1	12.7	5.3	4.1	—	10.5	10
Delaware	3.1	2.2	.9	—	4.1	—	—	20
Florida	22.1	21.6	.4	.1	—	—	—	29
Georgia	28.5	24.9	3.5	(Z)	—	—	—	26
Maryland	5.9	3.2	.4	2.3	—	—	—	33
North Carolina	28.3	23.5	4.8	.1	(Z)	—	—	14
South Carolina	15.1	12.1	.3	2.7	—	—	—	21
Virginia	6.5	6.0	.5	.1	—	—	—	18
West Virginia	7.7	5.7	2.0	(Z)	—	—	10.5	16
East South Central	73.9	69.6	3.7	.6	(Z)	—	(D)	17
Alabama	8.2	7.3	.6	.2	—	—	(Z)	15
Kentucky	13.4	12.9	.4	.2	—	—	(D)	22
Mississippi	23.4	23.0	.2	.1	—	—	—	40
Tennessee	28.9	26.4	2.5	.1	(Z)	—	—	25
West South Central	170.9	135.0	31.2	4.6	1.1	2.7	.2	9
Arkansas	26.1	24.0	2.0	(Z)	—	—	—	16
Louisiana	50.1	22.5	24.8	2.9	—	.2	—	26
Oklahoma	5.1	4.5	.5	.1	—	(Z)	—	18
Texas	89.5	84.0	3.9	1.7	1.1	2.5	.2	8
Mountain	33.5	28.1	2.0	3.4	(Z)	.7	(D)	10
Arizona	7.4	4.9	.3	2.2	—	—	—	11
Colorado	4.1	3.2	.4	.5	—	.1	—	12
Idaho	4.1	3.2	.9	(Z)	(D)	(D)	(D)	32
Montana	1.6	1.4	.2	—	—	.4	—	12
Nevada	5.9	5.9	.1	—	(D)	—	—	28
New Mexico	3.5	2.9	(Z)	.6	—	(D)	—	24
Utah	3.3	3.1	.1	(Z)	—	.2	—	33
Wyoming	3.5	3.5	(Z)	—	—	—	—	58
Pacific	174.5	167.2	6.1	1.1	7.3	15.0	1.8	11
Alaska	2.6	2.6	(Z)	—	—	—	—	10
California	142.1	137.0	4.4	.7	7.2	(D)	(D)	13
Hawaii	1.0	.7	.3	—	—	—	—	37
Oregon	13.9	13.2	.4	.2	—	—	—	41
Washington	15.0	13.7	1.0	.2	(Z)	(D)	(D)	9

Appendix A. MA-200 Report Form and Instructions

The MA-200 form and instructions are shown on the following pages.

POLLUTION ABATEMENT COSTS AND EXPENDITURES – 1999

NOTICE – Response to this inquiry **is required by law (Title 13, United States Code)**. By Section 9 of the same law, your report to the Census Bureau is **confidential**. It may be seen only by sworn Census employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

In correspondence pertaining to this report refer to the **CENSUS ID NUMBER (ID) (11 digits)**

IMPORTANT

Please read instructions and definitions before completing form.

Please correct errors in name, address, and ZIP Code. ENTER street and number if not shown.

Item 1 OPERATIONAL STATUS

A. Check **ONE** box that best describes the facility listed on the form label as of December 31, 1999.

101 In operation

102 Temporarily idle → **How long?**

Months

104 Sold or leased to another company – Enter date sold →

Month	Year

 } **SOLD TO** →

Name		
Street		
City	State	ZIP Code

106 Permanently ceased operations – Enter date →

Month	Year

 107

B. Check **ONE** box that best describes this facility's pollution abatement and other environmental protection expenditures for 1999.

- 111 These expenditures were \$0 (zero) in 1999. (There were NO pollution abatement expenditures for 1999, because NO pollutants were released.)
- 112 These expenditures were included in rent, taxes, or lease agreements.
- 113 These expenditures occurred, but at no charge (used a scavenger service).
- 114 The expenditures were between \$1 and \$999.

} You have no pollution or do not need to report any expenditures. **Please complete Item 9 of the form and return it.**
Thank you.

115 These expenditures were more than \$999. → **Continue with Item 2.**

Item 2 POLLUTION ABATEMENT, DISPOSAL AND RECYCLING

A. Pollution Abatement Activities

Indicate **(Mark (X))** those pollution abatement activities that occurred at this facility in 1999.

1. Abatement of air emissions through –

a. Physical techniques (gravity deposition, inertial separator, etc.)?

	Yes	No	Don't know
201	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

b. Biological techniques (biological filtration, activated sludge, phytoremediation, etc.)?

202	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

c. Chemical techniques (scrubbing, desulfurization, etc.)?

203	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

d. Thermal techniques (incineration, oxidation, etc.)?

204	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

2. Abatement or disposal of water discharge through –

a. Physical techniques (containment, screening, filtration, UV disinfection, etc.)?

205	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

b. Biological techniques (activated sludge dewatering, multiplate reactor, etc.)?

206	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

c. Chemical techniques (oxidation, reduction, coagulation, neutralization, etc.)?

207	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

d. Thermal techniques (incineration, drying, distillation, etc.)?

208	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

3. Abatement or disposal of solid wastes through –

a. Physical techniques (containment, dehydration, screening, landfilling, underground injection well, etc.)?

209	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

b. Biological techniques (composting, landfarms, etc.)?

210	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

c. Thermal techniques (incineration, pyrolysis, etc.)?

211	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
-----	--------------------------	--------------------------	--------------------------

B. Pollution Abatement Costs and Expenditures by Medium

Report total pollution abatement costs and expenditures. Also report the percentage of the total capital expenditures and operating costs that are for hazardous emissions, discharges, or wastes. To avoid double counting, please record expenditures in one media category only. Report the total capital expenditures and NOT the financed or depreciated amount.

(REPORT DOLLARS IN THOUSANDS.)

What were the TOTAL pollution abatement costs and expenditures for this facility in 1999 for –

1. Abatement of air emissions?

	Pollution abatement capital expenditures	Pollution abatement operating costs	Information not available or not collected to provide an estimate
220	\$ 000	230 \$ 000	240 <input type="checkbox"/>

What percent of expenditures and costs were for hazardous air emissions?

221	%	231 %	241 <input type="checkbox"/>
-----	---	-------	------------------------------

2. Abatement of water discharges?

222	\$ 000	232 \$ 000	242 <input type="checkbox"/>
-----	--------	------------	------------------------------

What percent of expenditures and costs were for hazardous water discharges?

223	%	233 %	243 <input type="checkbox"/>
-----	---	-------	------------------------------

3. Abatement of solid wastes?

224	\$ 000	234 \$ 000	244 <input type="checkbox"/>
-----	--------	------------	------------------------------

What percent of expenditures and costs were for hazardous solid wastes (including mixed wastes)?

225	%	235 %	245 <input type="checkbox"/>
-----	---	-------	------------------------------

4. Abatement of multi-media pollutants?

226	\$ 000	236 \$ 000	246 <input type="checkbox"/>
-----	--------	------------	------------------------------

What percent of expenditures and costs were for hazardous multi-media pollutants (including mixed wastes)?

227	%	237 %	247 <input type="checkbox"/>
-----	---	-------	------------------------------

Item 2 POLLUTION ABATEMENT, DISPOSAL AND RECYCLING – Continued

C. Disposal and Recycling Costs and Expenditures

Report on-site and off-site disposal and on-site (post process) and off-site recycling costs and expenditures in the appropriate categories below.

(REPORT DOLLARS IN THOUSANDS.)

1. On-site and off-site disposal?

Disposal capital expenditures	Disposal operating costs	Information not available or not collected to provide an estimate
250	260	290
\$ 000	\$ 000	<input type="checkbox"/>

What percent of expenditures were for disposal of hazardous pollutants (including mixed wastes)?

251	261	291
%	%	<input type="checkbox"/>

2. On-site (post process) and off-site recycling?

Recycling capital expenditures	Recycling operating costs	Information not available or not collected to provide an estimate
270	280	292
\$ 000	\$ 000	<input type="checkbox"/>

Item 3 POLLUTION PREVENTION

A. Indicate **(Mark (X))** those pollution prevention activities that occurred at this facility in 1999.

1. Process or procedure modifications?

Yes	No	Don't know
301 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Redesign or reformulation of products?

302 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

3. Substitution or modification of equipment or technologies?

303 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

4. In-process recycling, recovery, recirculation, and reuse of materials?

304 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

5. Substitution of raw materials?

305 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

6. Improvements or modifications to housekeeping, maintenance, training or inventory control?

306 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

7. Improvements or modifications to prevent leaks and spills?

307 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

8. Other? *Specify in the "Remarks" section, Item 9.*

308 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
------------------------------	--------------------------	--------------------------

B. If you check YES to any of the activities, report the total (e.g., capital, operating) costs and expenditures for these activities.

(REPORT DOLLARS IN THOUSANDS.)

Amount	Information not available or not collected to provide an estimate
310	311
\$ 000	<input type="checkbox"/>

Item 4 OTHER ENVIRONMENTAL PROTECTION EXPENDITURES

Report the amount of other environmental protection expenditures in the appropriate categories below.

(REPORT DOLLARS IN THOUSANDS.)

What were TOTAL environmental expenditures for this facility in 1999 for –

A. Site cleanup through –

1. Remediation, including Superfund sites?

Amount	Information not available or not collected to provide an estimate
401	411
\$ 000	<input type="checkbox"/>

2. Replacement of leaking or inferior USTs?

402	412
\$ 000	<input type="checkbox"/>

3. Other?

403	413
\$ 000	<input type="checkbox"/>

B. Habitat protection?

404	414
\$ 000	<input type="checkbox"/>

C. Environmental monitoring and testing?

405	415
\$ 000	<input type="checkbox"/>

D. Administration of environmental programs?

406	416
\$ 000	<input type="checkbox"/>

Item 5 REASON FOR ENVIRONMENTAL PROTECTION EXPENDITURES				
		Yes	No	Don't know
Did this facility participate in any voluntary programs? (Refer to instructions for examples.)		501 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 6 TAX CREDITS AND SUBSIDIES				
Report if you receive any tax credits or subsidies as a result of any of the expenditures in Items 2 through 4. The tax credit or subsidy must be the result of a pollution abatement or other environmental expenditure and may be for capital and/or operating expenses. For example, a facility may receive a state tax credit for the use of recycled materials in their manufacturing process or for the additional labor employed as a result of incorporating recycling into the manufacturing process. Or, a facility may receive a purchase preference (subsidy) for using a certain percent of recycled content in the final product.				
		Yes	No	Don't know
Did the facility receive tax credits or subsidies?		601 <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Item 7 OTHER PAYMENTS				
Report the amount of other payments in the appropriate categories below. <i>(REPORT DOLLARS IN THOUSANDS.)</i>		Amount	Information not available or not collected to provide an estimate	
A. Payments to government through –		701	711	
1. Permits, fees, and charges?		\$ 000	<input type="checkbox"/>	
2. Fines and penalties?		702 \$ 000	712 <input type="checkbox"/>	
3. Other?		703 \$ 000	713 <input type="checkbox"/>	
B. Tradable permits –		704	714	
1. Bought?		\$ 000	<input type="checkbox"/>	
2. Sold?		705 \$ 000	715 <input type="checkbox"/>	
3. Other?		706 \$ 000	716 <input type="checkbox"/>	
Item 8 BURDEN				
		Number of hours	Information not available or not collected to provide an estimate	
Estimate the number of hours it took to complete this form.		801	802	<input type="checkbox"/>
Item 9 CERTIFICATION				
Please provide information on the person to contact regarding this report, as well as the name, signature and title of a person who verified that the information reported in this survey is accurate. The authorizing official may be a plant manager, vice president or environmental health and safety official. Also, feel free to add any additional comments in the space provided below. Thank you.				
Name of person to contact regarding this report <i>(Please print)</i>		901	Telephone 902	
		Area code	Number	Ext.
Signature of authorized official		Title		Date
Remarks 910				

**Instructions for
1999 Survey of Pollution Abatement
Costs and Expenditures
Form MA-200**

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1999 SURVEY OF POLLUTION ABATEMENT COSTS AND EXPENDITURES

GENERAL INSTRUCTIONS

SCOPE

This annual survey collects new capital expenditures and annual operating expenses for pollution prevention and treatment in manufacturing, mining, and electric utility industries. In addition, this survey collects payments for off-site recycling, waste disposal, and expenditures for other environmental activities such as site reclamation, habitat protection, and monitoring and testing. Finally, the survey collects payments to government in the form of charges, permits and fines, and payments, paid or received, for emissions trading.

The statistics from this survey are mainly used to enable the Environmental Protection Agency to better satisfy legislative and executive requirements to track the costs of regulatory programs and to provide meaningful statistics to a variety of users. Some data users include: other Federal agencies, state and local governments, trade associations, manufacturers, marketing and research companies, universities, financial and environmental institutions, and environmental reporters.

AUTHORITY and CONFIDENTIALITY

Response to this inquiry is required by law (Title 13, U.S. Code). By Section 9 of Title 13, U.S. Code, your report to the Census Bureau is **confidential**. It may be seen only by sworn Census Bureau employees and may be used only for statistical purposes. The data can not be used for regulation or enforcement. Copies of your report retained in your files are immune from legal process.

WHO SHOULD REPORT

This report is required only for the facility located in the address box on the form. If your company operates more than one location, **REPORT ONLY FOR THE PLANT(S) SELECTED FOR THIS SURVEY. DO NOT COMBINE** with other facilities in your company even though operations may jointly use the same pollution abatement facilities. When this occurs, apportion the costs and expenditures according to the rate of pollution abatement equipment utilization or the relative amounts of pollutants produced.

HOW TO REPORT

Answer all questions. If you can not answer a question from your plant records, please estimate the answer carefully. In some cases, identification of pollution abatement expenditures may require the joint efforts of your facility's financial and environmental staff. Report all value figures in thousands of dollars. Report data for the calendar year. If you are unable to provide estimates because your facility does not keep the necessary records or the records are unavailable (i.e. in storage or archived), please mark the "Information Not Available or Not Collected to Provide an Estimate" box. If your fiscal year ends between October 31 and February 28, fiscal year figures are acceptable.

This booklet contains general definitions and specific instructions for each item. Each item's instructions include a guide listing examples of expenditures. In most cases these lists will provide sufficient information for completing this survey form.

HOW TO REPORT – Continued

For further details or definitions, see the following acts:

Clean Air Act and Amendments
Clean Water Act and Amendments
Resource Conservation and Recovery Act and Amendments
Pollution Prevention Act of 1990
Comprehensive Environmental Responses, Compensation, and Liability Act
Superfund Amendments and Reauthorization Act
Safe Drinking Water Act
Atomic Energy Act

To purchase copies of recent amendments to these acts request "Committee Print 103-B" from the:
Superintendent of Documents,
Government Printing Office,
Washington, DC 20402,
or call 202-512-1800.

This survey is directed to manufacturing, mining, and electric utility industries operations. The information requested supplements the data collected in the Annual Survey of Manufactures. If you think that your facility is **not a manufacturing, mining, or electric utility establishment**, call the Special Studies Branch on 301-457-4659.

If you have **questions** or **suggestions** regarding this report, please call the Special Studies Branch on 301-457-4659. Please refer to the Census Bureau ID number (the 11-digit number above the facility name in the address box) when calling or in written correspondence.

NAME AND ADDRESS

Review the name and address of this facility printed in the top right corner of the report form. Line out any errors and make any necessary corrections or additions in the address box.

WHEN TO REPORT

Complete the form and return it by the date indicated on the top of the form in the enclosed prepaid envelope to:

U.S. Census Bureau
1201 East 10th Street
Jeffersonville, IN 47132-0001

If you need **additional time** to complete the report or if you need a **duplicate form**, please phone our Jeffersonville office on **812-218-3331**.

RESPONSE TIME

Public reporting burden for this collection of information is estimated to vary from 2 hours to 20 hours per form (with an average of 4.5 hours), including time for reviewing instructions, searching existing data sources, gathering the data needed, and completing and reviewing the collection of information. Send **comments** regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Associate Director for Finance and Administration, Paperwork Reduction Project (0607-0175), Room 3104, FB 3, U.S. Census Bureau, Washington, DC 20233-0001.

ELECTRONIC REPORTING

For **information** concerning the possible use of reporting formats other than the form provided, such as computer tape or printouts, please contact our Special Studies Branch on 301-457-4659.

PUBLICATION OF RESULTS OF THIS SURVEY

Industry estimates are tabulated and published in the Current Industrial Report, Pollution Abatement Costs and Expenditures, MA-200. You may obtain a copy online at: <http://www.census.gov/mcd>. To have a copy of the publication sent to you via email, contact us at mcdinfo@census.gov. If you require further assistance, you may contact the Forms Publications and Customer Services Branch on (301) 457-4673.

GENERAL DEFINITIONS

These definitions are for the purposes of this survey only and are not intended to be representative of official federal, state, or local regulatory language. In certain cases the definitions may be similar to those found in a particular rule or regulation, however, for the purposes of this survey, please use the terms as they are defined below.

Pollution is the presence of a substance in the environment that, because of its chemical composition or quantity, prevents the functioning of natural processes and produces undesirable environmental and/or human health effects. For the purposes of this survey, consider only the release of pollutants that are either used in, or by-products of, the production process.

Pollution abatement is the reduction or elimination of pollution that is created by the production process and has the potential to produce undesirable environmental and/or human health effects or the removal of pollution created by prior years' production. Pollution abatement activities include pollution treatment, pollution prevention, recycling, and/or disposal in an environmentally sound manner. **For this survey, include only those expenditures with the primary purpose of protecting the environment.** While certain expenditures may have multiple benefits, only consider those expenditures where environmental protection is the primary purpose. This survey does not collect expenditures intended to meet worker safety and health requirements. It also does not include expenditures that abate pollution when the primary purpose is to increase profits or efficiency, and the environmental protection is a side benefit.

Pollution abatement is any method, technique, or process designed to remove pollutants, after their creation, from air emissions, effluents, and/or solid waste. In general, pollution abatement includes the use of retrofit technologies, pollution management activities, and contract services (on-site or off-site) that are designed to change the physical, chemical, or biological character or composition of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released to the environment (including fugitive emissions) so as to render such waste nonhazardous, or less hazardous, safer to transport, store or dispose. These activities are commonly referred to as **pollution treatment**, or end-of-pipe activities. Pollution treatment occurs after recycling.

Pollution prevention includes the selection and use of technologies, inputs, or practices that reduce or eliminate the creation of pollutants. Pollution prevention includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, in-process recycling, recirculation or reuse of materials, substitution of raw materials, improvements or modifications to housekeeping, maintenance, training, or inventory control, and prevention of spills and leaks. Pollution prevention can be an inherent part of the production process, in which case production and pollution prevention may be said to occur jointly in an "integrated process." However, for the purposes of this survey, in order for any expenditures to be attributed to pollution prevention the integrated process must have been selected primarily for environmental protection, i.e., an alternative production process would have been chosen absent this consideration.

Disposal, in an environmentally sound manner, is the final placement, destruction or disposition of waste after pollution abatement or recycling has occurred. For example, solid waste is often managed by landfill disposal and certain liquid wastes may be disposed of using injection wells. For the purposes of this survey only, disposal expenditures associated with municipal solid waste (e.g., office and cafeteria trash) should not be reported.

Recycling is the off-site processing or on-site (post-process) processing of waste for an alternative use. Recycling includes recovering liquid, solid, or gaseous wastes and reusing them in the same or another production process and partially reclaiming materials (e.g., drying materials that contain recoverable metals for the purposes of enhancing a subsequent recovery activity). Activities that closely resemble abatement for the purposes of destruction or disposal, and burning waste materials for fuel are not included in this category. This activity is to be considered distinct from pollution prevention, which can involve the redirection of "used" material inputs, that would otherwise be wasted, back into the production process (also called in-process recycling).

GENERAL DEFINITION – Continued

TYPES OF COSTS

Pollution abatement capital expenditures include installation and retrofit that occurred during 1999 for separately identifiable methods, techniques, or process technologies installed exclusively for the purpose of removing pollutants after their creation, from air emissions, water discharges, and/or solid waste or expenditures for technologies that reduce or eliminate the creation of pollutants. Include the total expenditures for pollution abatement. However, for the purposes of Item 2, exclude expenditures associated with pollution prevention activities (report pollution prevention expenditures in Item 3B).

Pollution abatement operating costs: Annual costs for operating and maintaining all pollution abatement technology. Include all costs of materials and fuels, salaries and wages, leasing and contract work and services for pollution abatement. However, for purposes of Item 2, exclude costs associated with pollution prevention activities (report pollution prevention costs in Item 3B).

MEDIUM AND POLLUTANT TYPES

This survey collects expenditures by the pollutants affecting each medium (e.g., air emissions, water discharges, solid wastes) that would be affected if the pollutants were not abated.

Air pollutants are any substances released into the air that could, in high enough concentration, pose a threat to the environment and/or human health.

- **Hazardous air pollutants** are those regulated under Section 112 of the Clean Air Act, including metals, other particles, gases absorbed onto particles, and certain vapors from fuels and other sources. Examples include emissions of toluene, benzene, methanol, chlorine, and vinyl chloride. For the purposes of this survey, lead and lead compounds fall under this category.
- **Nonhazardous air pollutants** include the various criteria air pollutants and their precursors (except lead). Examples include emissions of particulate matter, sulfur dioxide, nitrogen oxide, carbon monoxide, and volatile organic compounds (VOCs). This category also includes Section 111-d designated air pollutants, e.g., total reduced sulfur compounds.

Water pollutants are any substances or pathogens released into water that could, in high enough concentration, pose a threat to the environment and/or human health.

- **Hazardous water pollutants** are those listed by the Clean Water Act, including toxic metals, toxic inorganic compounds, and toxic organic compounds. Examples of toxic metals and inorganic compounds include antimony, arsenic, beryllium, cadmium, chromium, copper, cyanide, lead, mercury, nickel, silver, thallium, and zinc. Examples of organic compounds include benzene, chlorethane, toluene, and xylene.
- **Nonhazardous water pollutants** include discharges of nutrients, fecal coliform, and suspended solids, as well as adverse changes in temperature and pH balance.

Solid wastes are any discarded materials, including solid, liquid, semi-solid, or contained gaseous materials, that pose a threat to the environment and/or human health by contaminating soil and groundwater.

- **Hazardous solid wastes** are by-products of production that can pose a substantial or potential hazard to the environment and/or human health when improperly managed. As defined within the Resource Compensation and Recovery Act (RCRA) Subtitle C, hazardous solid wastes possess one or more of the following characteristics: ignitability, corrosivity, reactivity, toxicity, appear on special EPA lists, or are designated as hazardous under state hazardous waste laws. Mixed wastes are defined as any waste containing both RCRA Subtitle C hazardous waste and radioactive waste. The expenditures associated with mixed wastes are to be included with hazardous waste expenditures.

GENERAL DEFINITIONS – Continued

- **Nonhazardous industrial solid wastes** (Industrial D wastes) are wastes that are neither municipal wastes nor wastes that are currently identified as hazardous wastes under RCRA Subtitle C. Nonhazardous industrial wastes (Industrial D wastes) consist primarily of manufacturing process wastes, including wastewater and non-wastewater sludges and solids.

Multi-media activities comprise the remaining pollution abatement category and are simply those expenditures not attributable primarily to one type of pollution or that deal with pollution affecting more than one medium.

ITEM BY ITEM INSTRUCTIONS

ITEM 1: OPERATIONAL STATUS

- A.** Check the **ONE** that best describes the facility listed on the form label as of December 31, 1999.

Temporarily idle, for the purposes of this survey, is defined as seasonal, shutdown for maintenance, on strike, not operating due to bad weather, etc.. Temporarily idle plants intend to resume operations again. In other words, the facility has not been sold, dismantled, or permanently ceased operations.

- B.** Check the **ONE** box that best describes this facility's pollution abatement and other environmental protection expenditures for 1999.

ITEM 2: POLLUTION ABATEMENT, DISPOSAL, AND RECYCLING

A. Pollution Abatement Activities

Indicate (check) those pollution abatement activities that occurred at the facility in 1999.

B. Pollution Abatement Costs and Expenditures by Medium

Report total pollution abatement costs and expenditures. Also report the percentage of the total capital expenditures and operating costs that are for hazardous (including mixed) emissions, discharges, or wastes. To avoid double counting, please record expenditures in one media category only. Report the total capital expenditures and NOT the financed or depreciated amount. Payments for site services that involve both treatment and disposal should be allocated to each category according to the total cost attributable to each activity. If it is not possible to allocate the costs in this manner, record the total treatment and disposal costs under pollution abatement.

Include costs and expenditures for

- pollution abatement and disposal activities attributed to air, water, and solid wastes (Item 2.B.1, 2.B.2, and 2.B.3, respectively)
- pollution abatement activities not readily attributable to a single environmental medium (Item 2.B.4)
- on-site and off-site landfill disposal and on-site (post process) and off-site recycling (Item 2.C)
- payments to a private or government contractor for solid waste disposal (Item 2.C)
- activities that occurred in 1999 only

Exclude costs and expenditures for

- pollution prevention (report in Item 3.B), other environmental protection expenditures (report in Item 4), and other payments (report in Item 7)
- health, safety, aesthetics, or employee comfort (OSHA)
- research and development services
- manufacture of pollution treatment equipment for sale
- insurance

ITEM BY ITEM INSTRUCTIONS – Continued

ITEM 2: POLLUTION ABATEMENT, DISPOSAL AND RECYCLING – Continued

Illustrative Examples:

- The costs to use an injection well to dispose of liquid waste are reported in 2.C.
- A facility installs a scrubber to treat air pollutants. The capital and operating costs associated with the scrubber are reported under 2.B.1.
- The costs for hazardous waste abatement and disposal are allocated to the abatement and disposal categories, if possible, according to the portion of the total costs attributable to each activity. If this is not possible, then the total costs are reported in Item 2.B.3.

C. Disposal and recycling costs and expenditures

Report on-site and off-site disposal costs and expenditures and on-site (post-process) and off-site recycling in the appropriate categories.

ITEM 3: POLLUTION PREVENTION

A. Indicate (check) those pollution prevention activities that occurred at the facility in 1999.

Examples of Pollution Prevention Activities

- Equipment or technology modifications
- Process or procedure modifications
- Reformulation or redesign of products
- In-process recycling, recirculation, or reuse of materials
- Substitution of raw materials
- Improvements or modifications to housekeeping, maintenance, training, and inventory control
- Prevention of spills and leaks

B. If you checked YES to any of the activities, report the total (e.g., capital, operating) costs and expenditures for these activities.

ITEM 4: OTHER ENVIRONMENTAL PROTECTION EXPENDITURES

Site cleanup is the remediation of contamination due to leaks, spills, waste disposal, or other releases from current or past on-site production processes.

Habitat protection is the maintenance, protection, and restoration of areas vital to populations, or communities of sensitive or valuable plant or animal life that could be damaged as a result of pollution at the facility. Wetlands mitigation banking (Clean Water Act, Section 404) and actions undertaken to comply with the Endangered Species Act may be reasons for habitat protection expenditures.

Report the amount of other environmental protection expenditures in the appropriate categories. Report expenditures in one category only (i.e., if you report expenditures for the categories below elsewhere in the survey, then do not also report them here).

Include expenditures for:

- operation and maintenance of Superfund site (Item 4.A.1)
- replacement of leaking or inferior underground storage tanks (USTs) (Item 4.A.2)
- cleanup of leaks and spills of hazardous substances (Item 4.A.3)
- wetlands mitigation banking and riparian buffer strips (Item 4.B)
- testing and monitoring of emissions or wastes (Item 4.C)
- environmental auditing (Item 4.D)
- salaries and wages for time spent completing environmental reporting requirements, training, and preparing documents related to environmental protection (Item 4.D)
- developing pollution abatement operating procedures (Item 4.D)

Exclude expenditures for:

- pollution abatement, disposal, and recycling (report in Item 2) and pollution prevention (report in Item 3.B)
- health, safety, aesthetics or employee comfort (OSHA)
- permits, fees, and charges (report in Item 7.A.1)
- fines and penalties (report in Item 7.A.2)
- other payments to government (report in Item 7.A.3)
- emissions trading programs (report in Item 7.B)

ITEM BY ITEM INSTRUCTIONS – Continued

ITEM 5: REASON FOR ENVIRONMENTAL PROTECTION EXPENDITURES

There are governmental and private sector environmental management initiatives that are not associated with enforceable regulatory requirements, but rather are a result of the promotion of voluntary measures to reduce pollution emissions and encourage waste minimization. Some examples of voluntary programs include Green Lights, Energy Star, WasteWise, the 33/50 Program, Environmental Leadership Programs, Water Alliances for Voluntary Efficiency (WAVE), and Climate Wise.

Check the appropriate box indicating if any of the expenditures reported in Items 2 through 4 were voluntary (NOT MANDATED by enforceable government rules or regulations).

ITEM 6: TAX CREDITS AND SUBSIDIES

Report whether you receive any tax credits or subsidies as a result of any of the expenditures in Items 2 through 4. The tax credit or subsidy must be the result of a pollution abatement or other environmental expenditure and may be for capital and/or operating expenses. For example, a facility may receive a state tax credit for the use of recycled materials in their manufacturing process or for the additional labor employed as a result of incorporating recycling into the manufacturing process. Or, a facility may receive a purchase preference (subsidy) for using a certain percent of recycled content in the final product.

ITEM 7: OTHER PAYMENTS

Report the amount of other payments in the appropriate categories.

Include expenditures for:

- payments to governments for expenditures not reported in Items 2-4 (Item 7.A)
- other expenditures as a result of penalties, such as payments for supplemental environmental projects (Item 7.A.3)
- nitrous oxide (NO_x) and sulfur dioxide (SO₂) trading programs (Item 7.B)

Exclude expenditures for:

- pollution abatement, disposal, and recycling (report in Item 2), pollution prevention (report in Item 3.B), and other environmental protection expenditures (report in Item 4)
- health, safety, aesthetics, or employee comfort (OSHA)

ITEM 8: BURDEN

Estimate the number of hours it took to complete this form.

ITEM 9: CERTIFICATION

Please provide the name and telephone number of the person to contact regarding this report, as well as the name, signature, and title of a person who verified that the information reported in this survey is accurate. This authorizing official may be a plant manager, vice president, or environmental health and safety official. Also, feel free to add any additional comments in the space provided. Thank you.

Appendix B.

Qualifications of the Data

SAMPLING ERRORS

The survey estimates presented in this report are subject to sampling errors. The panel for this survey was sampled using probabilities that varied depending on the size of the establishment. Independent samples were chosen for each North American Industry Classification System (NAICS) industry subject to the constraint that the overall sample size was fixed at about 21,000 establishments, but the probability assignments were designed to control not only the allocation of the sample by industry, but also by geographic region. As a result of these multiple controls, the final probabilities are not exactly proportionate to the measures of size used as a basis for these controls. Also, because the sampling was done by industry, the sampling program used ensured that the expected sample size for a given industry was exactly realized. It did not ensure that the expected sample size for a given region was met, however.

The particular sample selected was but one of many similar probability samples that could have resulted using this sampling methodology. Each of the possible samples would yield somewhat different sets of results. The sampling errors—the differences between the estimates obtained from the sample actually selected and the results theoretically obtainable from a comparable complete canvass of the same target universe—are unknown. However, the estimated standard errors of the survey estimates are guides to the potential size of the sampling error.

The estimated standard error of a survey estimate may be used to define a confidence interval about that estimate such that the complete coverage result will be included within that interval with known probability. As examples:

1. The interval defined by one standard error below the estimate to one standard error above contains the complete coverage result with approximately 67 percent confidence.
2. The interval defined by two standard errors below the estimate to two standard errors above contains the complete coverage result with approximately 95 percent confidence.

3. The interval defined by three standard errors below the estimate to three standard errors above contains the complete coverage result with approximately 99 percent confidence.

Thus, an inference that the complete coverage result lies within the indicated intervals would, with the prescribed confidences, be correct. For example, if an estimated total is 100 with an associated standard error of 5, there is approximately 67 percent confidence that the interval of 95 to 105 includes the complete coverage result, about 95 percent confidence that the interval of 90 to 110 includes the complete coverage result and approximately 99 percent confidence that the interval of 85 to 115 includes the complete coverage result.

In the tables, only relative standard errors are presented. A relative standard error is the standard error of the estimate divided by the estimate. Thus, to obtain the standard error, take the product of the relative standard error and the estimate.

NONSAMPLING ERRORS

Nonsampling errors include various response and operational errors; errors of collection, reporting, transcription, and bias due to nonresponse, etc. These errors would also occur if a complete canvass were conducted under the same conditions as this survey. Most of the important operational errors were detected and corrected in the course of the review of the data for reasonableness and consistency. Explicit measures of the nonsampling errors are not available. Estimated standard errors do provide a guide to the size of the sampling error. The total error most likely will exceed the standard error measures.

Although the survey respondents were provided detailed instructions for estimating pollution abatement costs and expenditures (see Appendix A), it is extremely difficult to translate the concept of pollution abatement activity into a working definition that is applicable to all industries and situations.

As a result of the aforementioned qualifications, the following limitations should be considered when using the PACE estimates:

1. Prior to 1999, the most recent PACE survey was conducted in 1994. Due to the significant time lapse between surveys and the redesign of the 1999 questionnaire caution should be taken when comparing the estimates for 1999 to any previous PACE estimates.
2. The form design for the 1999 PACE survey provided checkbox options for all items (see form in Appendix A). The checkboxes allowed respondents to indicate the information was not available or not collected to provide estimates (see Item 2B). An attempt was made to account for these cases through nonresponse weight adjustment (see Appendix C for a detailed explanation of the adjustment).
3. The design of the 1999 form allowed respondents to indicate that they were performing pollution abatement activities through the use of the checkboxes (Item 2A) without providing an estimate for the activity. These respondents were targeted for imputation. Imputation was conducted for operating costs only, because of the continuous annual characteristic of this item. Although other items were easily identified for imputation, there was no method that could accurately estimate activities on a plant-by-plant basis. For these reasons, all other types of pollution abatement activity, with the exception of operating costs, should be treated as lower bounds. (For detailed explanation of imputation, see Appendix C.)

Appendix C.

Description of Survey Sample, Estimation Procedure, and Imputation Procedure

SURVEY SAMPLE

The 1999 estimates presented in this report are based on a newly selected probability sample originally consisting of about 21,000 establishments. All manufacturing and mining industries are included in scope of the survey along with the electric power generating industry. Prior to the 1999 survey, the pollution abatement costs and expenditures (PACE) survey was last conducted for survey year 1994. There are significant differences in the design and selection of these two panels. Foremost is the conversion from the Standard Industrial Classification (SIC) system to the North American Industry Classification System (NAICS). Under NAICS, some activities are newly classified as manufacturing, while previous manufacturing activities are now classified as nonmanufacturing. Thus, the actual coverage of the survey has changed slightly because of this switch. In addition, the apparel and textile industries, which were previously excluded from the survey, are now included. Also, in the earlier PACE surveys, the mining and electric power generating industry data were obtained from a separate and nonprobability survey source (Plant and Equipment Survey), which is no longer conducted. For 1999, these industries were sampled under probability guidelines and processed fully as part of the PACE survey.

The manufacturing frame for the 1999 survey was created from the 1997 Census of Manufactures supplemented with 1998 birth establishments (i.e., plants not in existence at the time of the census). Administrative record cases, which are the very small establishments not mailed for the census, were excluded from the frame. Included, however, were nonadministrative record establishments with employment less than 20. In previous surveys, these size establishments were excluded because studies had shown that the magnitudes of their pollution abatement costs and expenditures were insignificant. To ascertain whether this assumption still was valid, a small sample of these smaller establishments was included in the 1999 panel. The frame for the mining universe was created in similar fashion from the Census of Mining database and subsequent births. Total value of shipments—to be used as a measure of size in the sampling operation—was included as part of the frame record for every establishment in both frames. The total frame size for these two sectors was about 235,000 establishments.

The frame for the electric utilities industries was identified in its entirety from the 1999 Standard Statistical Establishment List (SSEL) from NAICS industries 221111, 221112,

221113, and 221119. About 2,000 establishments were identified. Total payroll was included in each frame record as a measure of size for the sampling operation.

Probability assignment for each unit of the sampling frame was based on the unit measure of size and was designed to optimally allocate the sample based on industry and geographic constraints that were consistent with the overall sample size limitation of 21,000 establishments. The U.S. Census Bureau has developed a program based on a method by Chromy (see Census Bureau publication, Economic Statistical Methods Report Series ESM-9502 June 1995, Chromy-Gen: General-Purpose Program for Multivariate Allocation of Stratified Samples Using Chromy's Algorithm) that provides a solution to the multiple constraint problem. To determine industry constraints, the NAICS-6 industries were partitioned into three priority strata based on the 1994 survey results. For manufacturing industries, only those plants with employment of at least 20 employees were included in these strata. The three strata were high priority industries (expenditures exceeding \$10 million), medium priority industries (expenditures between \$1 million and \$10 million), and low priority industries (expenditures below \$1 million). To do this, 1994 SIC-4 codes were mapped to NAICS-6 codes. Since there is no one-to-one correspondence between the two, rules were developed for assigning NAICS codes not equivalent to unique SIC codes to one of the three priority partitions. Finally, we set industry relative standard error constraints (based on the measure of size variable) by partition, that is, all industries within a given partition received the same constraint. These constraints, initially arbitrary, were set progressively tighter for low, medium, and high priority industries, respectively. The set of manufacturing plants with employment below 20 was treated as a separate stratum and assigned a relative standard error constraint for use in the Chromy program consistent with a predetermined small sample size that was desired from this stratum. One other stratum was created. This consisted of records in the census files whose assigned NAICS industry codes were incomplete. For coverage purposes, it was desired to sample a small number of these unclassifieds. A relative standard error constraint consistent with this sample size was determined for the Chromy program.

A second set of constraints was next established so as to insure sample representation by census geographic region. For this analysis, the sampling frame was partitioned into census region by NAICS-3 strata. There are

nine census regions, but an additional region to distinguish offshore activity in the Mining sector was created. As before, somewhat arbitrary relative standard error constraints were established for input to the Chromy program.

With the above sets of constraints serving as input, the Chromy program was run. This program determines optimal probabilities based on the measures of size that satisfy all the input constraints. In general, within a given area of control, establishments with larger measures of size will receive larger probabilities, but this relationship is not exactly proportional because of the fact that multiple constraints are involved. Under the initial constraints, the sample size implied by the probability assignment did not equal the total desired sample size of about 21,000 plants. Thus, the Chromy program was run a multiple number of times, and each time certain constraints were modified until the expected sample size “converged” to the desired number. At this point, an adjustment was made to assigned probabilities that fell below a certain minimum value. This adjustment, which reset the original probabilities to this minimum value, was made to guard against exceedingly large sample weights (the inverse of the probabilities of selection) being assigned to selected companies. If this occurred and the sampling unit reported data in excess of what was anticipated based on the unit measure of size, the survey estimates could be adversely affected. For the PACE survey, the minimum probability value was set to 0.01 (maximum weight = 100). The minimum probability rule resulted in a slight increase in the expected sample size.

The sampling program used to select the 1999 PACE survey was a fixed sample size program that accommodated unequal probabilities of selection. Fixed means that the expected sample size for any sampling stratum is exactly realized in any running of the program. Sampling was performed independently for each NAICS-6 industry. For manufacturing industries, the plants with less than 20 employees were included for sampling purposes in their appropriate NAICS-6 stratum. The unclassified stratum was sampled independently as well. It should be noted that although geographic controls contributed to probability assignment, the fact that the actual sampling was done by industry stratum means that the expected sample allocation by geographic region and state was not assured. A sample of 21,077 establishments was selected.

ESTIMATION PROCEDURE

Survey responses fell into three categories. The first category was complete nonrespondents. These establishments provided no usable data; that is, they either returned a blank form or they failed to return the form at all. The second category included partial respondents. Partial respondents provided data for some items but not all, in particular, operating costs for pollution abatement were

not reported. The third category included complete respondents. All estimated totals shown in this report are simple weighted estimates and are based upon survey respondents only, categories two and three.

1. Weight Adjustment for Complete Nonrespondents

We accounted for the complete nonrespondents in the survey estimates by adjusting the original sample weights for the reported cases. An adjustment factor was computed for each sampling stratum (NAICS-6 industry) as the ratio of a weighted variable based on the entire industry sample to the same weighted variable based on reported cases only. The inverse of the ratio is a measure of the industry coverage provided by the respondents based on the variable chosen. Total value of shipments (TVS) was chosen as the coverage variable for the manufacturing and mineral industries since it was available for all sample cases and was correlated well enough with operating costs to provide a meaningful measure of the survey coverage provided by the reported cases. Payroll (PR) was used as the coverage variable for the electric utility industries.

2. Imputation of Partial Respondents

Checkbox information completed in Item 2A for the partial respondents allowed us to determine which establishments were more likely to have operating costs imputed. Therefore, to maximize the use of reported data, we imputed these missing data for the partial respondents and for estimation purposes treated these establishments as complete reporters. The imputation of item data for partial respondents was limited to the missing values of operating costs both total and hazardous for Item 2B (Pollution Abatement Costs and Expenditures by Medium) and the missing values of operating costs both total and hazardous for Item 2C (Disposal and Recycling Costs and Expenditures). When one of these missing items was identified for imputation, a ratio based on survey respondents for that missing item to the measure of size variable (TVS or PR) was used. The numerator of this ratio was the sum of the weighted item value, and the denominator was the sum of the weighted measure of size. The actual ratio used in a particular imputation was the first ratio in a sequence of possible ratios that satisfied a minimum criterion regarding the number of establishments comprising the ratio. It was specified that at least 5 units must be included in the ratio calculation. Because the relations defined by the ratios are sensitive to state location, the first preferences were to use ratios involving the state of the establishment being imputed. Thus, a sequence of eight ratios was established as follows: NAICS-6 X St, NAICS-5 X St, NAICS-4 X St, NAICS-6 X US, NAICS-5 X US, NAICS-4 X US, NAICS-3 X St, NAICS-3 X US. Once

the proper imputation ratio was determined, then the impute for the item was made by multiplying this ratio by the measure of size value for the establishment.

3. Calculation of Estimates and Relative Standard Errors

Each estimated total for industry or geographic level j is of the following form:

$$Y'_j = \sum_{i \in R_j} \hat{W}_{ij} Y_{ij}$$

where R_j is the set of respondent establishments of level j, W_{ij} is the adjusted weight of respondent i in level j, and Y_{ij} is the value of the variable of interest for respondent i in level j.

The relative standard error for Y'_j is calculated as

$$V(Y'_j) = \sigma(Y'_j) / Y'_j$$

where

$$\sigma^2(Y'_j) = \sum_m \sigma^2(Y'_{mj})$$

and where the term on the left is the variance of the estimated total, and each term in the summation is

the variance contribution of the mth stratum to the overall variance, and where.

$$\sigma^2(Y'_{mj}) = \sum_{i \in n_m} \gamma_{mi} \left(\sum_{k=1}^i (\hat{W}_{mkj} Y_{mkj})^2 - \left(\sum_{k=1}^i \hat{W}_{mkj} Y_{mkj} \right)^2 \right).$$

The value n_m is the set of sample establishments (both reported and nonreported) in stratum m, and γ_{mi} is a sample-related variable for establishment i of stratum m that is a function of the establishment probability of selection and an associated joint probability. The other variables are defined as before. Since sampling was by NAICS-6, note that for NAICS-6 industry totals, each stratum component is zero except for the stratum corresponding to the NAICS-6 code of interest. For higher-level industry estimates and most geographic estimates, there may be many nonzero stratum components. Also, it is the case for geographic estimates that the establishments in a given stratum that have a different geographic code than the one being estimated are included in the above summations, but with Y-values set to zero. It should also be pointed out that the adjusted weight for nonrespondents is zero.

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