

COMMONWEALTH OF VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Solid Waste Managed in Virginia



Fourth Quarter 1997

Report required by § 10.1-1413.1, Code of Virginia (1950), as amended.

Solid Waste Managed in Virginia

I. INTRODUCTION

In its 1997 session, the General Assembly passed legislation requiring the Department of Environmental Quality to prepare a report by June 30 of each year describing the amount of solid waste, by weight or volume, disposed of in the Commonwealth during the preceding calendar year.¹ Because the statutory amendment did not become effective until July 1, 1997, the Department sent out its request to all permitted facilities to provide information only on the amount of solid waste managed or disposed of during the last calendar quarter. The report includes information on each of the following methods of waste management:

- recycling;
- composting;
- landfilling;
- incineration;
- storing on site; and
- sending it off-site for further management.

The latter two methods were added to those required under the statute to account for all possible management methods. The facilities were also asked to furnish information on the amounts of solid waste managed from each of the following categories:

- municipal solid waste (MSW);
- construction and demolition debris (CDD);
- incinerator ash;
- sludge other than sludge that is land applied in accordance with § 32.1-164.5;
- tires;
- regulated medical waste (RMW);
- vegetative and yard waste (VW/YW);
- white goods (e.g. refrigerators, washing machines);
- friable asbestos;
- petroleum-contaminated soil (PCS); and
- other categories not covered above.

¹ *Acts of Assembly*, Chapter 512, 1997

Again, for the sake of completeness, the latter six categories were added to the first five required by the statute.

For each such category the facilities were asked to estimate the amount that was generated outside of the Commonwealth and the jurisdictions where such waste originated, if known.

A copy of the form distributed with the request for the information is shown in Attachment 1.

II. DISCUSSION OF THE REPORTING PROCEDURES AND RESULTS

This report is not wholly representative of Virginia's waste management activities mainly because the information was collected only for the winter quarter of the calendar year, so that the proportions of the construction-associated wastes and vegetative/yard wastes are probably underestimated when compared to the true annual figures.

Additionally, the statute exempts all captive waste management facilities from the reporting requirements. Therefore, the reported amounts of the industrial wastes and sludge represent only that fraction that is managed in off-site facilities. Similarly, a great deal of recycling takes place on-site or at facilities that do not require a permit at all and, therefore, are not included in this report.

Nevertheless, the effort to gather partial-year information was not totally in vain because it gave the Department an opportunity to test and tune the reporting form and procedures and to recognize the limitations of the statutory mandate. It is expected that the report for the calendar year 1998 will be more representative of the actual waste management system in the Commonwealth.

III. REPORTED RESULTS

Attachment 2 lists the facilities that reported their activities by April 30, 1998. Data received from facilities after that date were not included in this document. Some of the reports combined the data from several permitted sites and were counted separately. Separate forms were required for each out-of-state source. The data compiled from 270 individual reports are summarized in Table 1.

The column entitled "Sent off-site" reflects the amount of wastes that is managed more than once and, therefore, should be subtracted from the total amount received to arrive at an estimate of the quantity of wastes that is treated or disposed of in the state. The quantities so managed are shown in Figure 1.

Table 1
Solid Waste Managed in Virginia
4th Quarter of 1997

Tons

Waste type	Received	Recycled ²	Composted	Landfilled	Incinerated	Stored on site	Sent off-site
Municipal solid waste	2,688,821.66	18,510.13	117.00	1,885,306.1 2	509,338.15	8,834.59	266,715.67
CDD waste	405,766.21	10,967.48	733.77	343,058.54		5,744.04	45,262.38
Industrial waste	128,302.17	796.00	550.00	109,723.58	5,514.74	1,110.48	10,607.37
Regulated medical waste	3,188.50				3,159.87		28.63
Vegetative/yard waste	112,299.21	27,870.69	53,413.52	13,252.52	1,447.97	6,055.00	10,259.51
Incinerator ash	234,565.99			123,846.89		29,049.20	81,669.90
Sludge	110,078.00	655.49		89,446.43	14,814.00	4,676.86	485.22
Tires	18,346.93	5,420.50	5.21	831.92	3,829.26	2,005.69	6,254.35
White goods	13,270.70	12,228.74				9.68	1,032.28
Asbestos	2,002.92			805.40		1,197.52	
Petroleum-contaminated soil	37,803.88	18,118.83		12,553.86		7,131.19	
Total	3,754,446.17	94,567.86	54,819.50	2,578,825.2 6	538,103.99	65,814.25	422,315.31

² The bulk of recycling takes place at facilities that do not require a permit from the Department and were not required to submit data for this report. Therefore, the amounts shown in this column represent a considerable underestimate of the true recycling rate in the Commonwealth. According to the most recent data submitted by the localities (calendar year 1995), the average state-wide recycling rate was approximately 35%.

As expected, the quantities of solid wastes that are landfilled or incinerated in energy recovery facilities form the majority of the wastes managed in the state. While the amounts managed by these two methods are probably close to the actual annual quantities, the amounts and, therefore, percentages for the other methods are quite questionable for the reasons stated above. In future years, the inherent bias associated with statutory and regulatory exemptions for reporting of recycling will continue to produce poor estimates of the recycling rates.

The composition of the solid waste stream shown in Figure 2 accurately describes the wastes that were managed at the permitted off-site facilities during the winter quarter. On an annual basis, it is expected that CDD and vegetative and yard wastes would constitute a larger percentage of the overall stream. The proportion of the industrial wastes and sludge will not be representative of the real amounts regardless of the time of the year or the reporting rate because of the statutory reporting exemption. Once the variability associated with the seasons is removed, this table should be a good estimate of the materials handled by the off-site facilities.

Estimates of the amounts of wastes received from out-of-state sources are much less prone to under-reporting or seasonal fluctuations because the importation of wastes is practiced mainly by larger commercial facilities that manage wastes which are less affected by seasonal variations. Table 2 shows the amounts of solid wastes imported from 25 non-Virginia jurisdictions. The overwhelming majority of these wastes come from New York and the two neighboring jurisdictions: Maryland and DC. The following bar charts (Figures 3 and 4) illustrate the reported results. To improve Figure 4 readability, the amounts of waste managed are plotted on a logarithmic scale. In future years, it is expected that these jurisdictions will continue to export some of their wastes to Virginia. Because the Department regulates only solid waste storage, treatment, and disposal facilities and does not regulate its generation, no data can be gathered on the amounts of nonhazardous wastes exported from the Commonwealth and managed in other states. But anecdotal information indicates that some localities, particularly those along the southern state border, are transporting their waste to North Carolina for disposal.

The statute provided that at the option of the facility owner, the data collected may include an accounting of the facility's economic benefits to the locality where the facility is located including the value of disposal and recycling facilities provided to the locality at no cost or reduced cost, direct employment associated with the facility, and other economic benefits resulting from the facility during the preceding calendar year. None of the facilities chose to exercise that option.

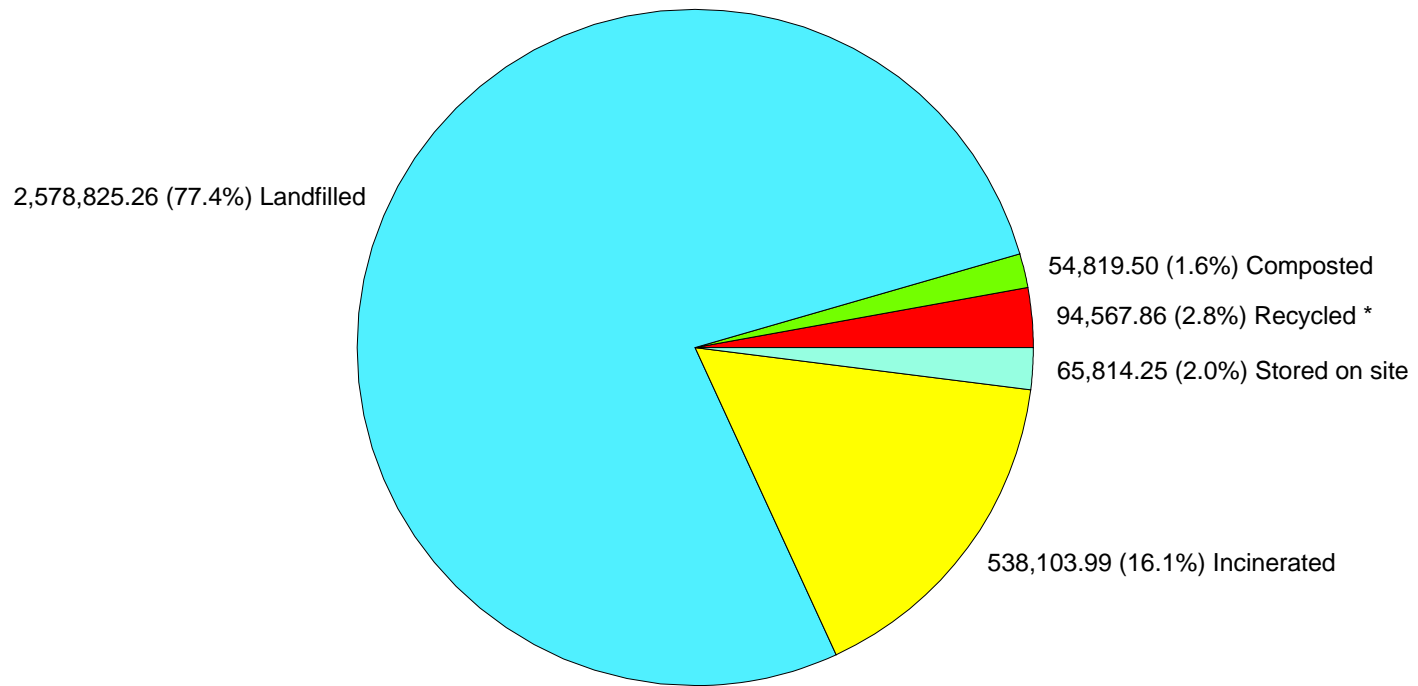
Table 2. Wastes Received from Other States - 4th Quarter 1997 (tons)

	MSW	RMW	CDD	Incinerator Ash	Sludge	Tires	Petroleum CS	Industrial	Asbestos	VW/YW	White Goods	TOTAL
Alabama								2.80				2.80
Arkansas								60.37				60.37
Connecticut				9,569.25				109.29				9,678.54
Delaware	9,283.67						95.55	74.98				9,454.20
DC	161,291.96		7,400.65		1,963.50		3,950.55	36.73		183.15	5,005.90	179,832.44
Florida								3.59				3.59
Georgia								138.24				138.24
Illinois								182.20				182.20
Indiana								98.59				98.59
Iowa								65.08				65.08
Kentucky								675.38				675.38
Maryland	97,282.27	145.10	4,479.63	25,536.78	4,430.32		52.14	230.51		33.50	15.00	132,205.25
Massachusetts	204.00							33.57				237.57
New Hampshire	340.00											340.00
New Jersey	7,849.90	7.66			1,006.00		622.85	1,447.91				10,934.32
New York	370,490.71	232.12			33,884.43							404,607.26
North Carolina	2,912.45	65.70			13.90		155.40	2,101.63	51.25			5,300.33
Ohio								758.32				758.32
Oklahoma								26.43				26.43
Pennsylvania	29,002.51	1,491.99			2,007.41			98.42				32,600.33
Puerto Rico								113.88				113.88
Rhode Island								24.34				24.34
South Carolina								75.56				75.56
Tennessee	522.58		15.00					54.14		692.67		1,284.39
West Virginia	260.96						23.57	0.07				284.60
Total Other States	679,441.01	1,942.57	11,895.28	35,106.03	43,305.56	0.00	4,900.06	6,412.03	51.25	909.32	5,020.90	788,984.01
Virginia	2,009,380.65	1,245.93	393,870.93	199,459.96	66,772.44	18,346.93	32,903.82	121,890.14 ³	1,951.67	111,389.89	8,249.80	2,965,462.16
Total Received	2,688,821.66	3,188.50	405,766.21	234,565.99	110,078.00	18,346.93	37,803.88	128,302.17	2,002.92	112,299.21	13,270.70	3,754,446.1

³This figure does not include wastes that are managed in captive facilities which form the majority of facilities that dispose of such wastes. None of the captive facilities receive wastes from other states.

Fig.1. Solid Waste Management in Virginia's Permitted Facilities

4th Quarter 1997



* Most recycling facilities are exempt from reporting. More accurate recycling information is reported by localities. According to the most recent data submitted by localities (1995), the average state-wide recycling rate was approximately 35%

Fig. 2. Composition of the Solid Waste Stream

4th Quarter 1997

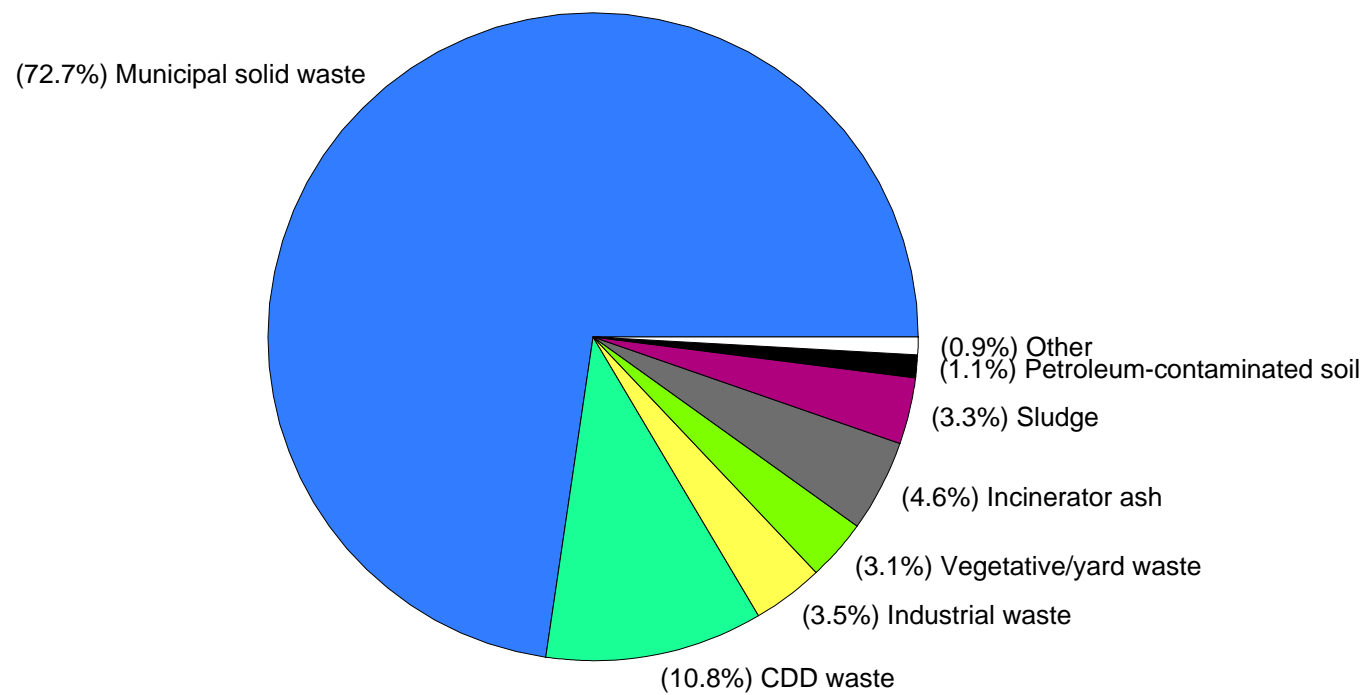


Fig. 3. Origin of Solid Wastes Managed in Virginia

4th Quarter 1997

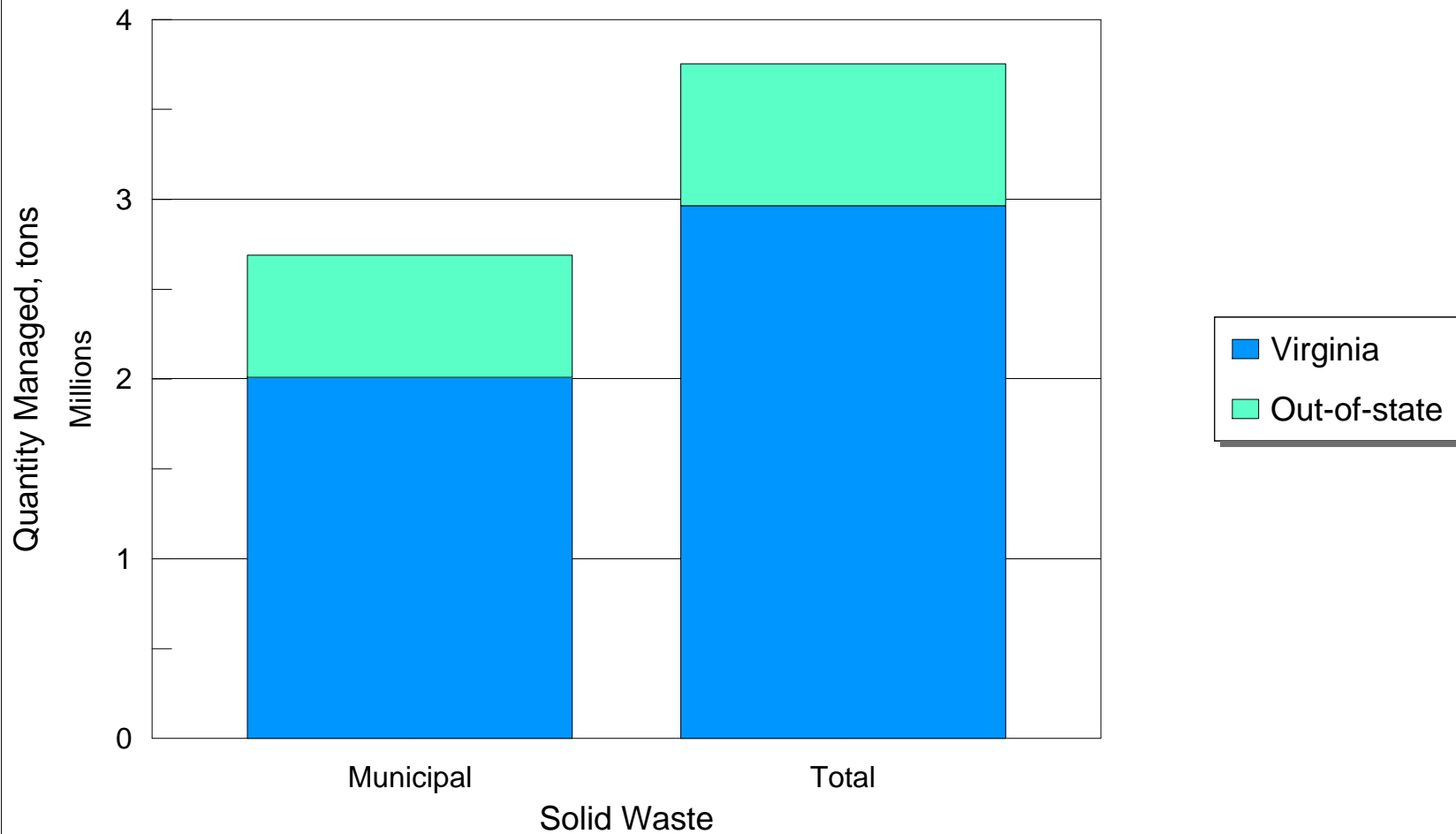
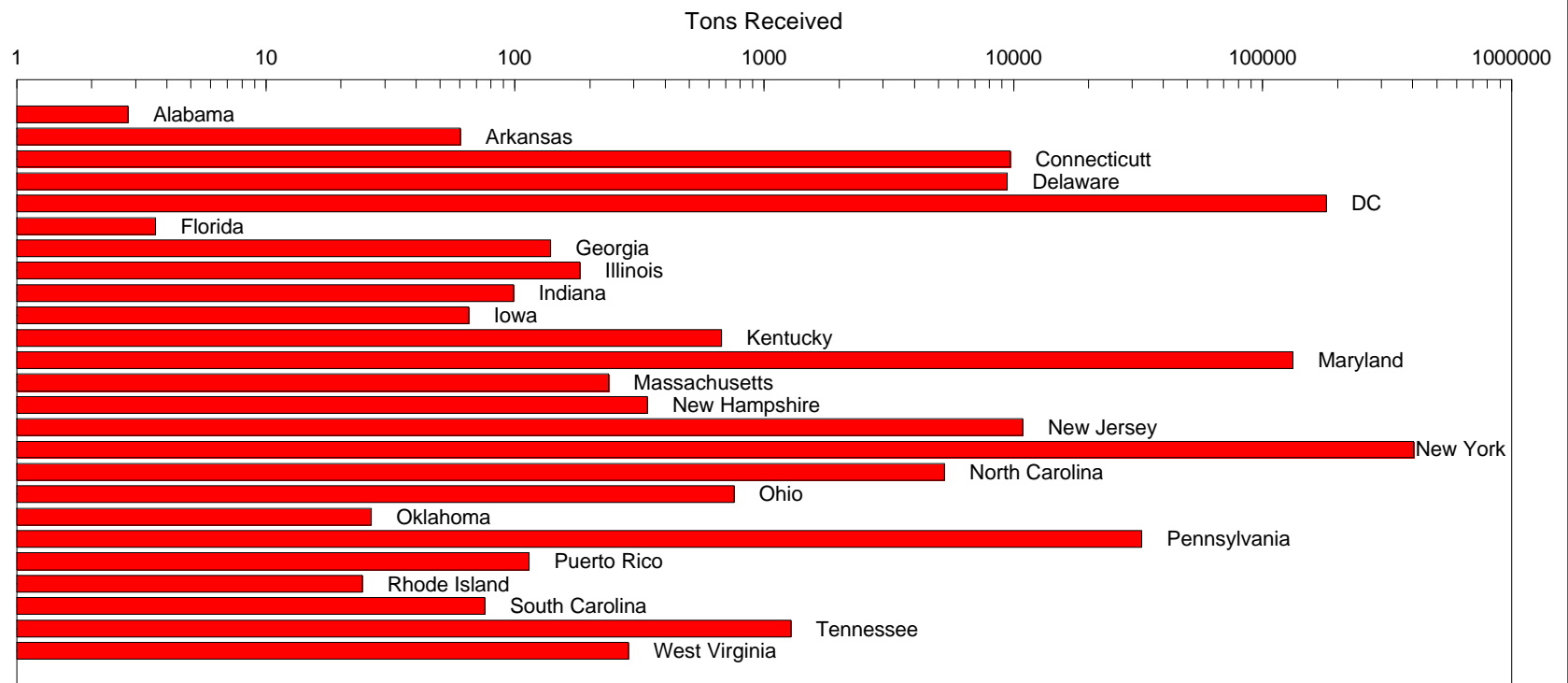


Fig. 4. Wastes Received from Out-of-state Sources

4th Quarter 1997



ATTACHMENT 1
REPORTING FORM

ATTACHMENT 2
LIST OF FACILITIES REPORTING