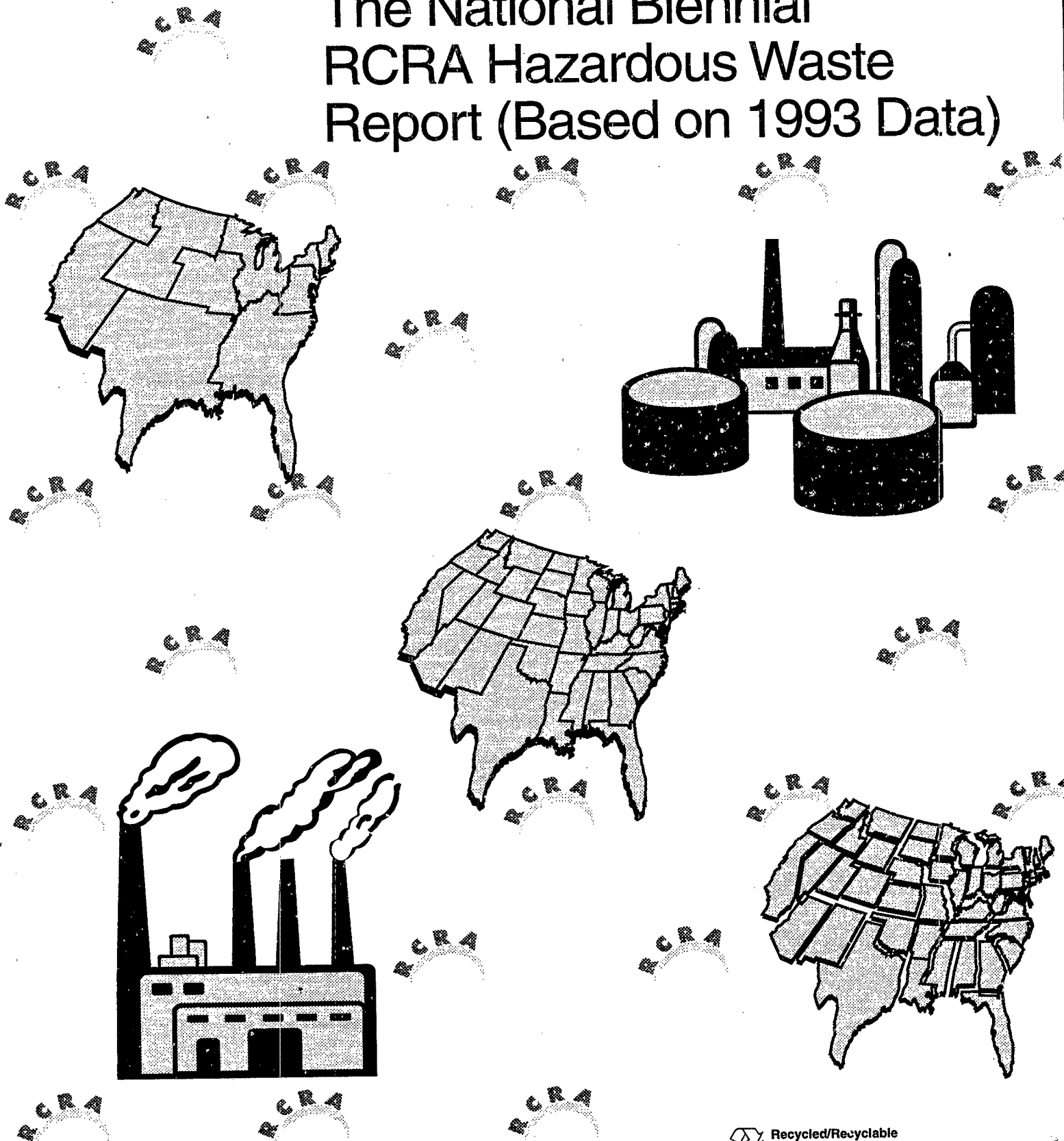


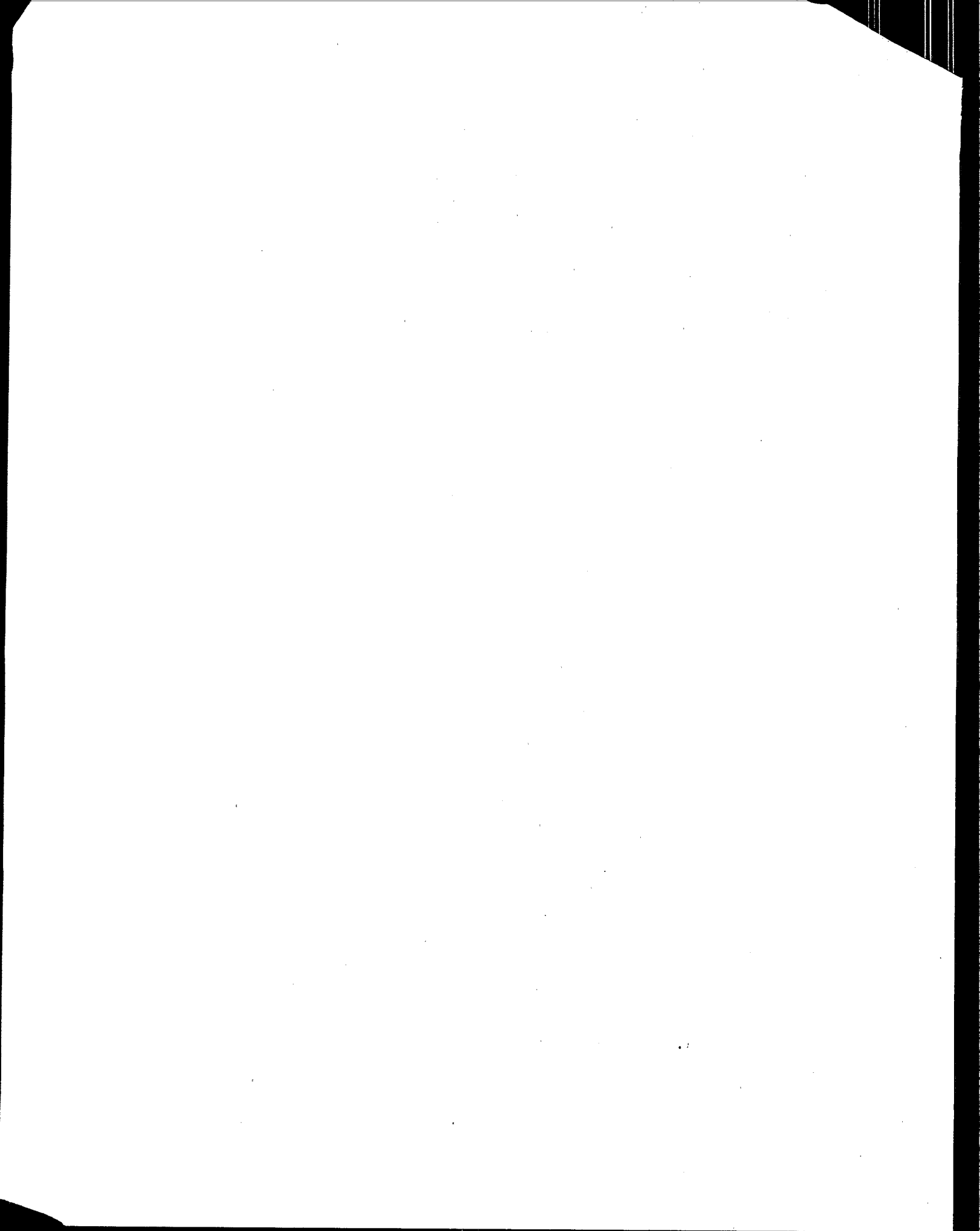


Executive Summary

The National Biennial RCRA Hazardous Waste Report (Based on 1993 Data)



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EXECUTIVE SUMMARY

The United States Environmental Protection Agency (EPA), in cooperation with the States,¹ biennially collects information regarding the generation, management, and final disposition of hazardous wastes regulated under the Resource Conservation and Recovery Act of 1976 (RCRA), as amended. The purpose of this report is to communicate the findings of EPA's 1993 Biennial Reporting System (BRS) data collection efforts to the public, government agencies, and the regulated community.² The report consists of six documents:

- o Executive Summary--an overview of national hazardous waste generation and management practices;
- o National Analysis--a detailed look at waste handling practices in the EPA Regions, the States and at the largest facilities in the nation, including quantities of generation, management, shipments and receipts, and interstate imports and exports, as well as counts of generators and managers;
- o State Summary Analysis--two page overviews of the generation and management practices of individual States;
- o State Detail Analysis--a detailed look at each State's waste handling practices, including overall totals for generation, management, and shipments and receipts, as well as totals for the largest fifty facilities;
- o List of Large Quantity Generators--identifies every hazardous waste generator in the United States that reported itself to be a large quantity generator in 1993; and
- o List of Treatment, Storage and Disposal Facilities--identifies every hazardous waste manager in the United States that reported itself to be a treatment, storage or disposal facility in 1993.

¹The term "State" includes the District of Columbia, Puerto Rico, Guam, the Navajo Nation, the Trust Territories, and the Virgin Islands, in addition to the 50 United States.

²Some respondents have submitted Confidential Business Information (CBI) pursuant to 40 CFR 260.2(b). While not included in any public BRS database, CBI has been incorporated into this report wherever possible. Where CBI has been omitted to preserve confidentiality, a footnote has been provided.

RCRA HAZARDOUS WASTE GENERATION

In 1993, 24,362 large quantity generators produced 258 million tons of hazardous wastes regulated by RCRA.³ This is an increase of 936 generators and a decrease of 47 million tons of waste compared to 1991. As identified in Exhibit 1, the largest hazardous waste generating States were Texas (63 million tons), Tennessee (34 million tons), Louisiana (32 million tons), Michigan (21 million tons), and New Jersey (18 million tons). Together, these States accounted for 65% of the national total.

In comparing 1993 data with those of earlier reports, it is important to note that many new wastes were captured by RCRA in 1990 with the promulgation of the Toxicity Characteristic (TC) Rule. The TC Rule added 25 new hazardous waste codes (D018-D043) and required more stringent analytical tests for the presence of toxic constituents in waste. These codes captured, at a minimum, 91 million tons of wastes not regulated before 1990. An additional 44 million tons were described by D018-D043 mixed with other waste codes. This suggests that, in 1993, the new toxicity characteristic wastes captured as much as 135 million tons of wastes not regulated before 1990. This compares to 162 million tons in 1991.

Hazardous waste generators are included in "The National Biennial RCRA Hazardous Waste Report" if they identified themselves as large quantity generators. A generator is a large quantity generator if it met the following federal criteria:

- o The generator generated in any single month 1,000 kg (2,200 lbs. or 1.1 tons) or more of RCRA hazardous waste; or
- o The generator generated in any single month, or accumulated at any time, 1 kg (2.2 lbs) of RCRA acute hazardous waste; or
- o The generator generated, or accumulated, at any time more than 100 kg (220 lbs) of spill cleanup material contaminated with RCRA acute hazardous waste.

³This quantity only includes waste managed in treatment units subject to RCRA permitting standards or transportation regulations. Hazardous waste managed in units exempt from RCRA permitting standards, such as treatment systems permitted by the National Pollutant Discharge Elimination System (NPDES), is not included in this report.

It is important to note that the large quantity generators identified in this report have been included on the basis of the best available and most current information provided electronically to the EPA by the States. Both the EPA and the States have made significant efforts to ensure the accuracy of these data. However, the large quantity generator counts may include some generators that met lower, State-defined thresholds for large quantity generators. The EPA and the States endeavor to control for variation in State programs, but it is not always possible to distinguish generators that the federal threshold determines to be large quantity generators from generators that a State threshold determines to be large quantity generators. The EPA and the States also endeavor to ensure that only federally regulated wastes are counted in the determination of federal large quantity generators, but the large quantity generator counts may include generators that, when determining whether they were large quantity generators, counted wastes regulated only by their States or wastes that are exempt from federal regulation.

Because of differences between state and federal criteria for large quantity generators and because large quantity generator status is based on monthly generation amounts but the amount reported is for the report year, EPA separated those generators that reported as large quantity generators into three categories for data quality purposes:

- o Generators reporting 13.2 or more tons of RCRA hazardous waste generation.

A generator that reports more than 13.2 tons (12 months x 1.1 tons) of annual hazardous waste generation must be a large quantity generator, because the generator must have generated at least 1.1 tons in at least one month.

- o Generators reporting 1.1 or more tons but less than 13.2 tons of RCRA hazardous waste generation.

A generator that reports less than 13.2 tons in a year may not be a large quantity generator, because they may have generated less than 1.1 tons in every month.

- o Generators reporting less than 1.1 tons of RCRA hazardous waste generation.

A generator that reports less than 1.1 tons in a year is not a large quantity generator, because they did not generate 1.1 tons in any month.

Of the 24,362 generators that identified themselves as large quantity generators, there are 14,284 generators that generated more than 13.2 tons in 1993, 8,050 that generated between 1.1 and 13.2 tons, and 2,027 that generated less than 1.1 tons. 5.8 million tons of RCRA acute hazardous waste was generated by 2,077 of the 24,362 large quantity generators.

RCRA HAZARDOUS WASTE MANAGEMENT

In 1993, 2,584 treatment, storage, or disposal facilities (TSDs) subject to RCRA permitting standards managed 235 million tons of hazardous waste. This represents a 1,278 facility decrease in the number of TSDs and a 60 million ton decrease in the amount of waste managed as compared to 1991. As identified in Exhibit 2, the States managing the largest quantities of hazardous wastes were Texas (53 million tons), Tennessee (34 million tons), Louisiana (31 million tons), Michigan (21 million tons), and New Jersey (18 million tons). Together, these States accounted for 67% of the national management total.

Ninety-four (94) percent of the national management total was wastewater management (i.e., management in aqueous treatment units, neutralization tanks, underground injection wells, or other wastewater management systems). The majority (70.6%) of the national total was managed in aqueous treatment units. One hundred and three (103) million tons were managed in aqueous organic treatment units, 6 million tons in aqueous inorganic treatment units, and 57 million tons in both inorganic and organic aqueous treatment units.

Land disposal accounts for 11.6% of the management total. Nationwide, 24 million tons of hazardous wastes were disposed in underground injection wells, 2 million tons were disposed in landfills, 276 thousand tons were managed in surface impoundments, and 159 thousand tons were managed by land treatment (land farming).

Recovery operations account for 3.5% of the national management total. Facilities reported that 5.6 million tons were recovered by other methods such as acid regeneration, waste oil recovery, and non-solvent organic recovery, 1.3 million tons were managed in fuel blending units, 673 thousand tons were managed in solvent recovery units, and 523 thousand tons were managed in metals recovery units.

Thermal treatment accounts for 1.6% of the national management total. A total of 2 million tons were incinerated, while facilities reused 1.7 million tons as fuel in boilers or industrial furnaces.

RCRA HAZARDOUS WASTE SHIPMENTS AND RECEIPTS

In 1993, 23,964 shippers reported shipping a total of 17 million tons of hazardous waste, of which 7 million tons were shipped interstate. This is a decrease of 36 shippers and an increase of 4 million tons of waste compared to 1991. The States that shipped (in or out of State) the largest quantities of wastes were Michigan (4.2 million tons), Texas (3.4 million tons), and California (1.7 million tons). The States that received the largest quantities of waste, from both in or out of State, were California (1.4 million tons), Texas (860 thousand tons) and Ohio (857 thousand tons). The largest importers of waste were Ohio (423 thousand tons), Indiana (340 thousand tons), and Louisiana (326 thousand tons). The largest exporters were Michigan (1.5 million tons), California (1.2 million tons), and Texas (306 thousand tons).

National Biennial RCRA Hazardous Waste Report: Based on 1993 Data

Exhibit 1 Quantity of RCRA Hazardous Waste Generated, and Number of Hazardous Waste Generators, by State, 1993

| STATE | HAZARDOUS WASTE QUANTITY | | | HAZARDOUS WASTE GENERATORS | | |
|----------------------|--------------------------|-------------------|------------|----------------------------|-------------------------|------------|
| | RANK | TONS GENERATED | PERCENTAGE | RANK | NUMBER OF GENERATORS | PERCENTAGE |
| ALABAMA | 26 | 779,645 | 0.3 | 26 | 295 | 1.2 |
| ALASKA | 50 | 5,534 | 0.0 | 43 | 75 | 0.3 |
| ARIZONA | 41 | 46,913 | 0.0 | 27 | 233 | 1.0 |
| ARKANSAS | 25 | 794,801 | 0.3 | 32 | 162 | 0.7 |
| CALIFORNIA | 7 | 14,055,553 | 5.4 | 3 | 1,872 | 7.7 |
| COLORADO | 23 | 1,079,332 | 0.4 | 35 | 146 | 0.6 |
| CONNECTICUT | 21 | 1,169,205 | 0.5 | 17 | 441 | 1.8 |
| DELAWARE | 42 | 22,173 | 0.0 | 44 | 71 | 0.3 |
| DISTRICT OF COLUMBIA | 55 | 628 | 0.0 | 52 | 15 | 0.1 |
| FLORIDA | 34 | 213,888 | 0.1 | 18 | 438 | 1.8 |
| GEORGIA | 24 | 921,076 | 0.4 | 18 | 438 | 1.8 |
| GUAM | 51 | 2,453 | 0.0 | 53 | 14 | 0.1 |
| HAWAII | 53 | 1,774 | 0.0 | 48 | 44 | 0.2 |
| IDAHO | 20 | 1,255,865 | 0.5 | 47 | 57 | 0.2 |
| ILLINOIS | 8 | 12,494,369 | 4.8 | 6 | 1,238 | 5.1 |
| INDIANA | 14 | 1,751,572 | 0.7 | 10 | 683 | 2.8 |
| IOWA | 37 | 158,908 | 0.1 | 28 | 196 | 0.8 |
| KANSAS | 12 | 3,144,665 | 1.2 | 25 | 297 | 1.2 |
| KENTUCKY | 31 | 397,488 | 0.2 | 16 | 472 | 1.9 |
| LOUISIANA | 3 | 31,715,905 | 12.3 | 23 | 347 | 1.4 |
| MAINE | 47 | 8,651 | 0.0 | 34 | 148 | 0.6 |
| MARYLAND | 33 | 308,621 | 0.1 | 14 | 566 | 2.3 |
| MASSACHUSETTS | 36 | 163,037 | 0.1 | 13 | 569 | 2.3 |
| MICHIGAN | 4 | 21,014,255 | 8.1 | 8 | 789 | 3.2 |
| MINNESOTA | 11 | 5,993,221 | 2.3 | 24 | 300 | 1.2 |
| MISSISSIPPI | 13 | 1,882,053 | 0.7 | 31 | 163 | 0.7 |
| MISSOURI | 28 | 528,922 | 0.2 | 20 | 415 | 1.7 |
| MONTANA | 44 | 11,282 | 0.0 | 45 | 60 | 0.2 |
| NAVAJO NATION | 56 | 245 | 0.0 | 54 | 9 | 0.0 |
| NEBRASKA | 40 | 90,471 | 0.0 | 40 | 96 | 0.4 |
| NEVADA | 45 | 10,773 | 0.0 | 41 | 82 | 0.3 |
| NEW HAMPSHIRE | 43 | 17,249 | 0.0 | 33 | 158 | 0.6 |
| NEW JERSEY | 5 | 17,977,002 | 7.0 | 1 | 3,120 | 12.8 |
| NEW MEXICO | 35 | 176,409 | 0.1 | 45 | 60 | 0.2 |
| NEW YORK | 16 | 1,498,421 | 0.6 | 2 | 2,036 | 8.4 |
| NORTH CAROLINA | 30 | 447,718 | 0.2 | 11 | 623 | 2.6 |
| NORTH DAKOTA | 27 | 594,815 | 0.2 | 51 | 16 | 0.1 |
| OHIO | 15 | 1,739,928 | 0.7 | 4 | 1,524 | 6.3 |
| OKLAHOMA | 22 | 1,145,732 | 0.4 | 29 | 193 | 0.8 |
| OREGON | 17 | 1,392,152 | 0.5 | 30 | 184 | 0.8 |
| PENNSYLVANIA | 9 | 9,441,256 | 3.7 | 7 | 1,215 | 5.0 |
| PUERTO RICO | 18 | 1,373,639 | 0.5 | 36 | 109 | 0.4 |
| RHODE ISLAND | 46 | 10,169 | 0.0 | 39 | 102 | 0.4 |
| SOUTH CAROLINA | 32 | 310,399 | 0.1 | 21 | 388 | 1.6 |
| SOUTH DAKOTA | 54 | 767 | 0.0 | 50 | 24 | 0.1 |
| TENNESSEE | 2 | 33,937,638 | 13.1 | 15 | 518 | 2.1 |
| TEXAS | 1 | 63,435,688 | 24.6 | 5 | 1,286 | 5.3 |
| TRUST TERRITORIES | 49 | 6,045 | 0.0 | 55 | 3 | 0.0 |
| UTAH | 38 | 104,623 | 0.0 | 37 | 106 | 0.4 |
| VERMONT | 48 | 8,337 | 0.0 | 41 | 82 | 0.3 |
| VIRGIN ISLANDS | 52 | 2,049 | 0.0 | 56 | 2 | 0.0 |
| VIRGINIA | 39 | 96,850 | 0.0 | 22 | 379 | 1.6 |
| WASHINGTON | 6 | 14,397,985 | 5.6 | 9 | 766 | 3.1 |
| WEST VIRGINIA | 10 | 8,471,643 | 3.3 | 37 | 106 | 0.4 |
| WISCONSIN | 29 | 522,523 | 0.2 | 12 | 605 | 2.5 |
| WYOMING | 19 | 1,316,689 | 0.5 | 49 | 26 | 0.1 |
| TOTAL | | 258,449,001 | 100.0 | | 24,362 | 100.0 |

Note: Columns may not sum due to rounding.

Exhibit 2 Quantity of RCRA Hazardous Waste Managed and Number of TSDs, by State, 1993

| STATE | RCRA HAZARDOUS WASTE QUANTITY ¹ | | | TSD FACILITIES | | |
|----------------------|--|--------------------|--------------|----------------|--------------|--------------|
| | RANK | TONS MANAGED | PERCENTAGE | RANK | NUMBER | PERCENTAGE |
| ALABAMA | 26 | 544,602 | 0.2 | 19 | 49 | 1.9 |
| ALASKA | 51 | 55 | 0.0 | 43 | 8 | 0.3 |
| ARIZONA | 41 | 32,681 | 0.0 | 24 | 32 | 1.2 |
| ARKANSAS | 22 | 804,914 | 0.3 | 34 | 24 | 0.9 |
| CALIFORNIA | 6 | 12,899,741 | 5.4 | 1 | 253 | 9.7 |
| COLORADO | 23 | 743,526 | 0.3 | 24 | 32 | 1.2 |
| CONNECTICUT | 36 | 87,080 | 0.0 | 16 | 56 | 2.2 |
| DELAWARE | 44 | 1,857 | 0.0 | 43 | 8 | 0.3 |
| DISTRICT OF COLUMBIA | 52 | 0 | 0.0 | 54 | 1 | 0.0 |
| FLORIDA | 32 | 134,387 | 0.1 | 12 | 68 | 2.6 |
| GEORGIA | 21 | 825,522 | 0.4 | 15 | 58 | 2.2 |
| GUAM | 52 | 0 | 0.0 | 51 | 2 | 0.1 |
| HAWAII | 48 | 591 | 0.0 | 47 | 6 | 0.2 |
| IDAHO | 20 | 935,049 | 0.4 | 41 | 9 | 0.3 |
| ILLINOIS | 7 | 11,446,050 | 4.9 | 5 | 134 | 5.2 |
| INDIANA | 13 | 1,972,197 | 0.8 | 7 | 103 | 4.0 |
| IOWA | 33 | 130,002 | 0.1 | 23 | 34 | 1.3 |
| KANSAS | 12 | 3,202,245 | 1.4 | 17 | 54 | 2.1 |
| KENTUCKY | 29 | 221,701 | 0.1 | 20 | 42 | 1.6 |
| LOUISIANA | 3 | 31,468,974 | 13.4 | 13 | 67 | 2.6 |
| MAINE | 47 | 908 | 0.0 | 32 | 25 | 1.0 |
| MARYLAND | 30 | 166,232 | 0.1 | 30 | 27 | 1.0 |
| MASSACHUSETTS | 39 | 45,607 | 0.0 | 24 | 32 | 1.2 |
| MICHIGAN | 4 | 20,686,504 | 8.8 | 4 | 136 | 5.3 |
| MINNESOTA | 11 | 6,015,307 | 2.6 | 18 | 50 | 1.9 |
| MISSISSIPPI | 14 | 1,901,716 | 0.8 | 36 | 22 | 0.9 |
| MISSOURI | 27 | 516,407 | 0.2 | 8 | 91 | 3.5 |
| MONTANA | 45 | 1,695 | 0.0 | 41 | 9 | 0.3 |
| NAVAJO NATION | 52 | 0 | 0.0 | 56 | 0 | 0.0 |
| NEBRASKA | 40 | 45,458 | 0.0 | 37 | 19 | 0.7 |
| NEVADA | 37 | 82,601 | 0.0 | 43 | 8 | 0.3 |
| NEW HAMPSHIRE | 52 | 0 | 0.0 | 51 | 2 | 0.1 |
| NEW JERSEY | 5 | 17,557,748 | 7.5 | 3 | 158 | 6.1 |
| NEW MEXICO | 31 | 165,968 | 0.1 | 39 | 15 | 0.6 |
| NEW YORK | 19 | 1,057,801 | 0.5 | 9 | 82 | 3.1 |
| NORTH CAROLINA | 28 | 336,975 | 0.1 | 11 | 73 | 2.8 |
| NORTH DAKOTA | 24 | 593,349 | 0.3 | 43 | 8 | 0.3 |
| OHIO | 15 | 1,697,197 | 0.7 | 6 | 117 | 4.5 |
| OKLAHOMA | 18 | 1,156,392 | 0.5 | 28 | 31 | 1.2 |
| OREGON | 25 | 568,633 | 0.2 | 40 | 11 | 0.4 |
| PENNSYLVANIA | 9 | 9,215,329 | 3.9 | 9 | 81 | 3.1 |
| PUERTO RICO | 16 | 1,338,211 | 0.6 | 20 | 42 | 1.6 |
| RHODE ISLAND | 42 | 11,118 | 0.0 | 37 | 19 | 0.7 |
| SOUTH CAROLINA | 17 | 1,184,248 | 0.5 | 32 | 25 | 1.0 |
| SOUTH DAKOTA | 52 | 0 | 0.0 | 50 | 3 | 0.1 |
| TENNESSEE | 2 | 33,996,659 | 14.5 | 28 | 31 | 1.2 |
| TEXAS | 1 | 52,506,535 | 22.4 | 2 | 234 | 9.1 |
| TRUST TERRITORIES | 43 | 5,808 | 0.0 | 51 | 2 | 0.1 |
| UTAH | 34 | 103,495 | 0.0 | 31 | 26 | 1.0 |
| VERMONT | 46 | 994 | 0.0 | 48 | 5 | 0.2 |
| VIRGIN ISLANDS | 50 | 90 | 0.0 | 54 | 1 | 0.0 |
| VIRGINIA | 38 | 81,550 | 0.0 | 14 | 59 | 2.3 |
| WASHINGTON | 8 | 10,159,540 | 4.3 | 22 | 40 | 1.5 |
| WEST VIRGINIA | 10 | 8,238,991 | 3.5 | 35 | 23 | 0.9 |
| WISCONSIN | 35 | 94,955 | 0.0 | 24 | 32 | 1.2 |
| WYOMING | 49 | 520 | 0.0 | 48 | 5 | 0.2 |
| TOTAL | | 234,864,033 | 100.0 | | 2,584 | 100.0 |

¹Quantity managed only by storage is excluded.**Note:** Columns may not sum due to rounding.

