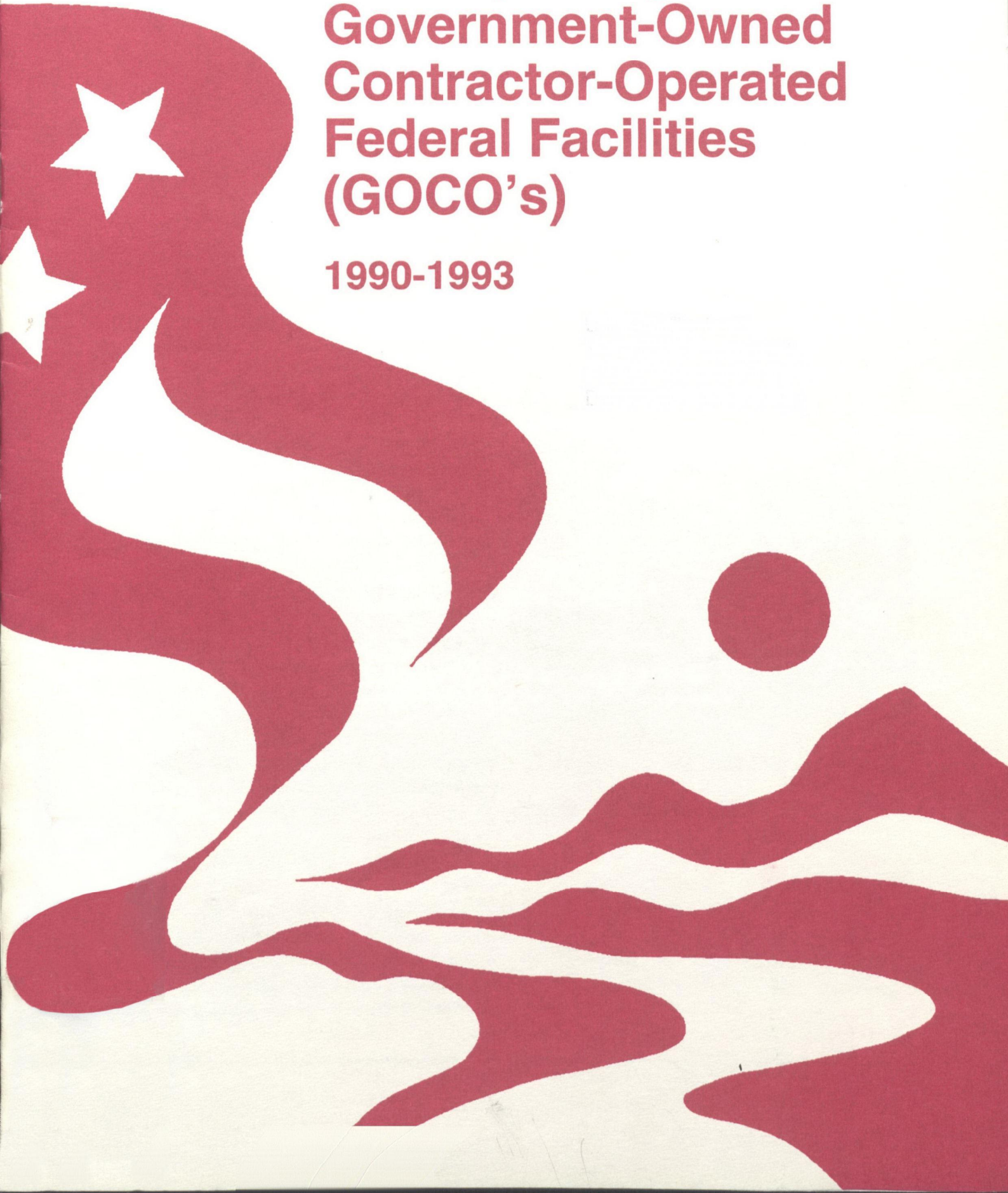
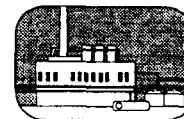




TRI Reporting at Government-Owned Contractor-Operated Federal Facilities (GOCO's)

1990-1993





INTRODUCTION

The Toxics Release Inventory (TRI) is a publicly available database containing specific chemical release and transfer information from manufacturing facilities throughout the United States. The TRI was established under the Emergency Planning and Community Right-to-Know Act of 1986, which was intended to promote planning for chemical emergencies and to provide information to the public regarding the presence and release of toxic and hazardous chemicals in their communities. In addition, following the passage of the Pollution Prevention Act in 1990, the TRI was expanded to include reporting of additional waste management and pollution prevention activities.

Manufacturing facilities (i.e., facilities in Standard Industrial Classification codes 20 - 39) having ten or more full-time employees and exceeding certain chemical use thresholds are required to report under the TRI. The threshold for manufacturing and processing of listed chemicals is 25,000 pounds per year for each chemical, and 10,000 pounds per year for each listed chemical for other uses.

Reports for each calendar year are submitted to EPA by July 1 of the following year. After completing data entry and quality assurance activities, EPA makes the data available to the public in a printed report, in a computerized data base, and through a variety of other information products (e.g., CD-ROM). These products are usually released during the early spring of the year following the submission of data; thus, the information contained in this report, which is derived from data released in March of 1995, presents TRI reporting activity for calendar year 1993.

Applicability of TRI to Federal Facilities

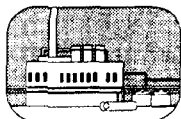
In August of 1993, President Clinton signed Executive Order 12856, which required Federal facilities to begin submitting TRI reports for 1994 activities. Federal facilities meeting the TRI chemical thresholds will be required to file TRI reports, whether or not they are engaged in manufacturing. The first reports will be due to EPA on or before July 1, 1995. Consequently, this report does not contain TRI data for all Federal facilities.

Important TRI Terms

Releases are on-site discharges of toxic chemicals to the environment, including emissions to air, discharges to bodies of water, releases at the facility to land, and contained disposal into underground injection wells.

Off-Site Transfers are shipments of toxic chemicals in wastes (e.g., for recycling, energy recovery, treatment, or disposal) to a facility that is geographically or physically separate from the facility reporting under the TRI.

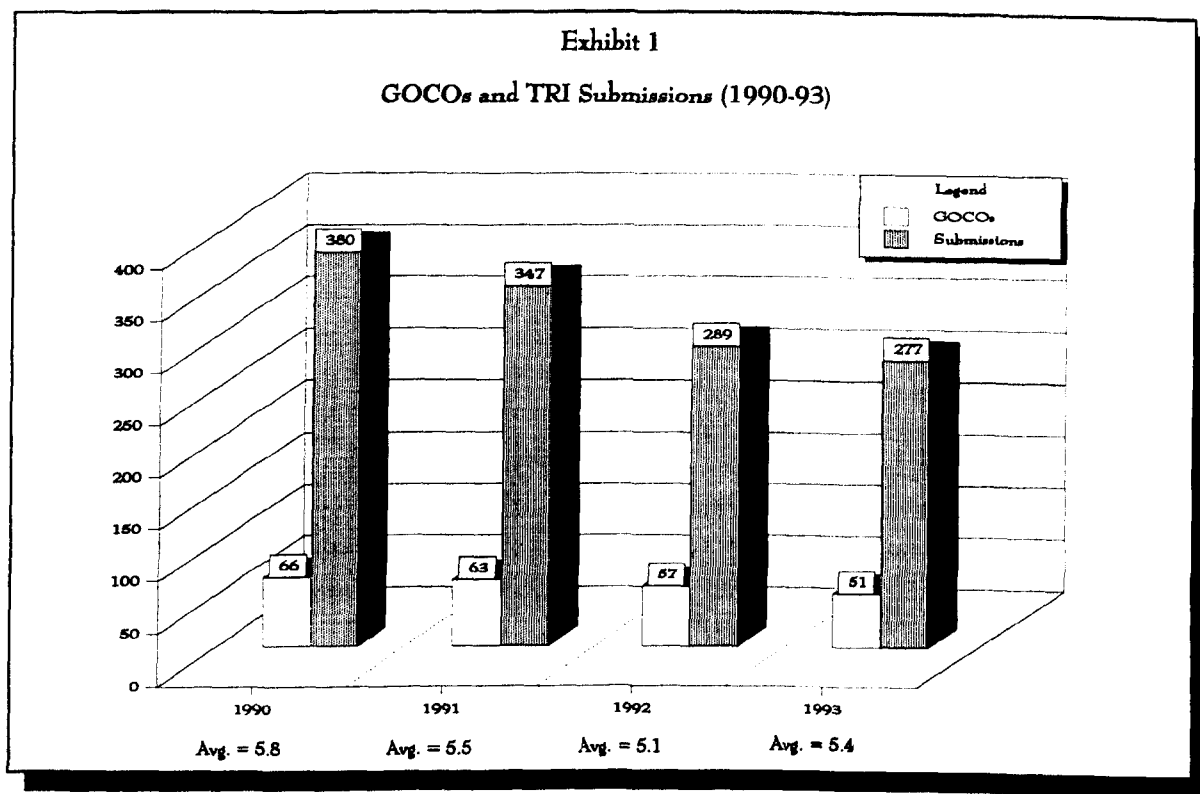
Prevention & Management of Chemicals in Waste includes the total amount of production-related TRI chemicals recycled, burned for energy recovery, treated, and disposed or released. It does not include amounts generated as a result of non-routine incidents (e.g., spills).



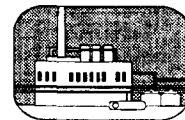
Government-owned contractor-operated (GOCO) Federal facilities, however, are required to submit TRI reports. While not comprehensive, the GOCO data submissions may be generally indicative of the chemicals present and released at Federal facilities, the distribution of releases and off-site transfers by type, and the relative levels of prevention and management of TRI chemicals in waste.

TRI Reporting at GOCO Facilities

In 1993, there were 51 GOCO facilities that submitted a total of 277 individual chemical reports under the TRI program. Total submissions by a single GOCO facility ranged from as many as 19 to as few as one. The average number of submissions for GOCO facilities in 1993 was 5.4. As shown below in Exhibit 1, the number of GOCOs reporting under the TRI and the total number of submissions has declined substantially since 1990.



From 1990 to 1993, submissions at GOCO facilities declined by 27 percent.



Since 1990, the number of GOCOs reporting under the TRI program declined by 22.7 percent, from 66 to 51 facilities. Over the same period, total submissions decreased by 27.1 percent, from 380 to 277. The average number of submissions also declined by 6.9 percent, from 5.8 to 5.4 submissions per facility.

Over the same period, the entire universe of reporting TRI facilities and the number of individual chemical submissions also decreased. In 1990, 24,713 facilities submitted 86,051 chemical reports; in 1993, the corresponding figures were 23,993 facilities and 79,072 submissions. This represents a decrease in the number of reporting facilities of 2.9 percent and an 8.1 percent decrease in the number of submissions. Note that the average number of submissions for the entire TRI universe is much smaller than for the GOCO facilities -- 3.5 submissions per facility in 1990 and 3.3 submissions per facility in 1993.

TRI RELEASES AT GOCO FACILITIES

GOCOs reported releases of approximately 7.2 million pounds of TRI chemicals in 1993, nearly all of which (99.4 percent) consisted of releases to the air. Releases to air from fugitive sources outpaced stack air emissions by nearly a five-to-three margin. Exhibit 2 presents the distribution of releases according to various environmental media.

Of the releases to environmental media other than air, most (76.3 percent) were accounted for by releases to water, followed by releases to land (23.7 percent). GOCO facilities released only 5 pounds of TRI chemicals via underground injection during 1993.

For all environmental media, except underground injection, the level of releases has shown a steady decline since 1990. In percentage terms, releases to land exhibited the greatest decline, falling by more than 96.0 percent from just under 300,000 pounds in

TRI Releases by Environmental Media

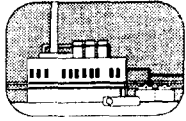
Fugitive Air Sources are non-point emissions or releases that are not in a confined directional flow (e.g., releases from equipment, evaporative losses from surface impoundments and spills, and releases from building ventilation systems).

Stack Air Sources are point air emissions or releases that are in a confined air stream, particularly releases through stacks, vents, ducts, pipes, lab hoods, or other confined air streams.

Release to Water include discharges to bodies of water from contained sources (e.g., pipes) and runoff.

Releases to Land occur within the boundaries of a facility and include disposal of chemicals into land treatment areas, landfills, surface impoundments, waste piles, or other land disposal (e.g., leaks).

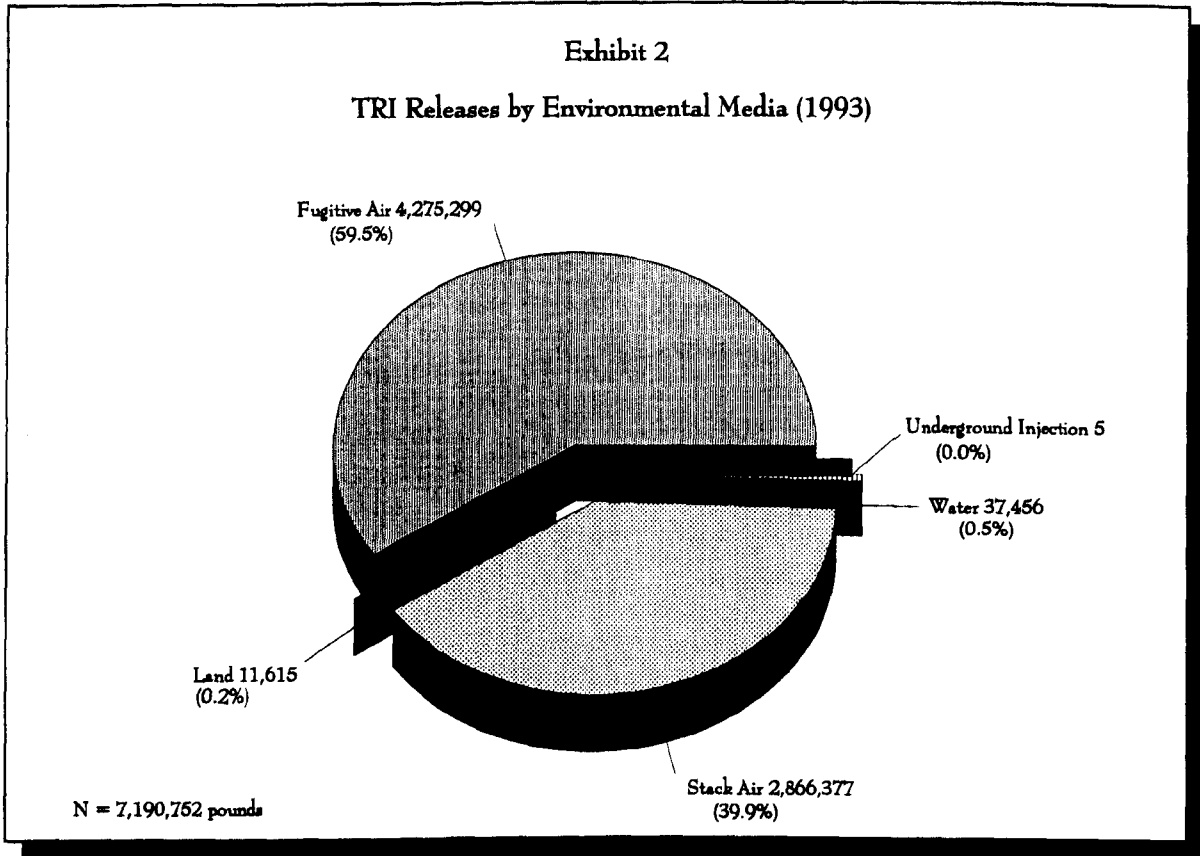
Underground Injection is the injection of toxic chemicals into any type of well



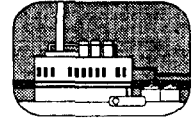
1990 to slightly more than 10,000 pounds in 1993. RCRA land disposal restrictions most likely contributed to this marked decrease.

Releases to water from GOCO facilities experienced a similarly dramatic decline, falling by 86.3 percent from approximately 270,000 in 1990 to slightly less than 38,000 in 1993. Underground injection activity at GOCO facilities actually increased, although the total amount involved was so small (two pounds in 1990 and five pounds in 1993) it is difficult to draw any meaningful conclusions from the data.

Fugitive and stack air emissions experienced somewhat smaller declines in percentage terms over the same period, 60.5 and 46.2 percent, respectively; however, in absolute terms, the decreases were substantial -- fugitive emissions decreased by almost 6.5 million pounds and stack air emissions decreased by almost 2.5 million pounds.

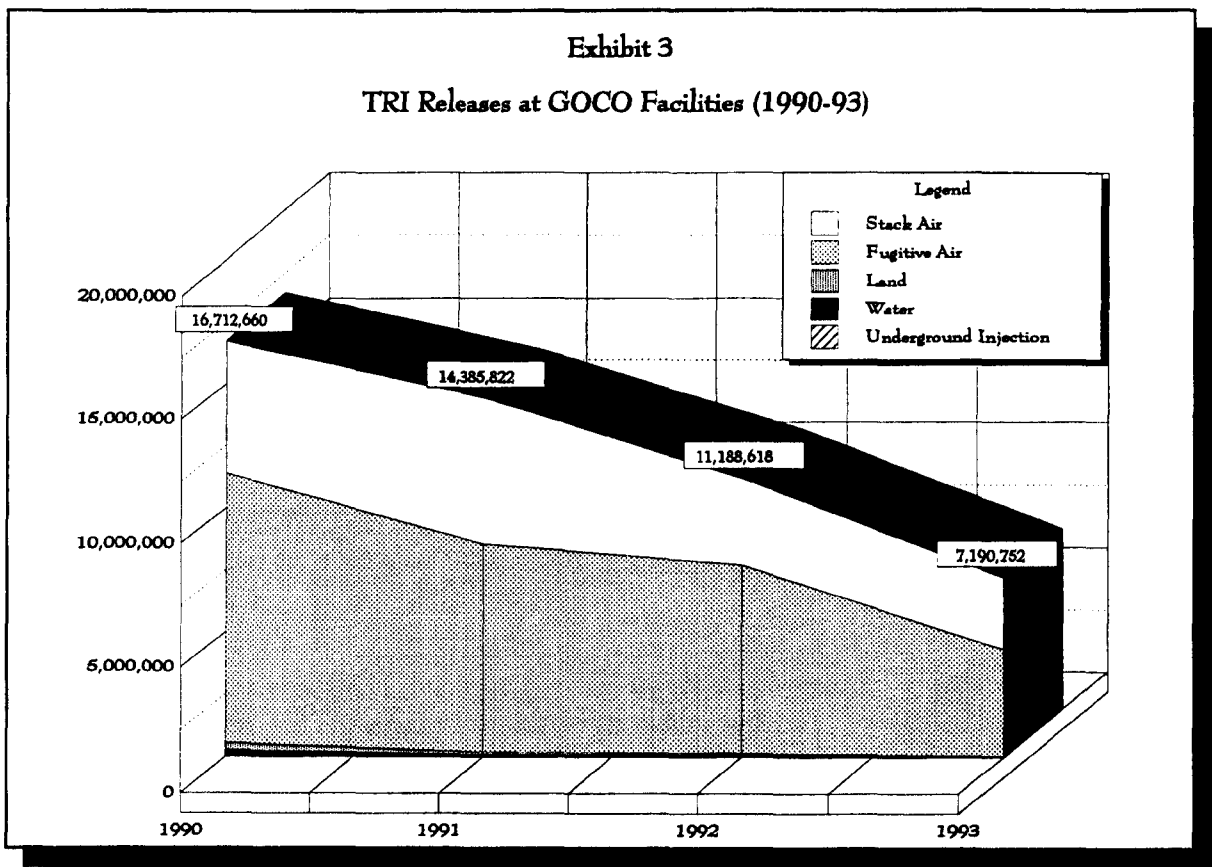


Air emissions comprised more than 99 percent of TRI releases at GOCO facilities



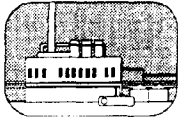
Relative to the entire universe of facilities that report under the TRI program, GOCO facilities reported substantially fewer releases to environmental media other than air. For example, in 1993, although releases to air were by far the most common for all TRI facilities, underground injection, releases to land, and releases to water comprised 20.5 percent, 10.3 percent, and 9.7 percent, respectively, of all reported releases.

Exhibit 3 presents TRI releases at GOCO facilities over time. From 1990 to 1993, total releases declined by approximately 56.9 percent, from nearly 17 million pounds in 1990 to slightly more than seven million pounds in 1993. Moreover, this decline cannot be attributed solely to a decrease in the number of reporting facilities. Comparing releases from only those GOCO facilities that reported releases in both 1990 and 1993, the total quantity of releases still declined by 51.9 percent.



Total releases at GOCO Facilities have declined more than 56 percent since 1990.

The decline in releases at GOCO facilities mirrors the general decline in releases for the entire universe of TRI facilities. In 1990, TRI chemical releases from all reporting facilities to



all environmental media totalled approximately 3.7 billion pounds; in 1993, total releases stood at approximately 2.8 billion pounds. This represents a decrease of 24.4 percent.

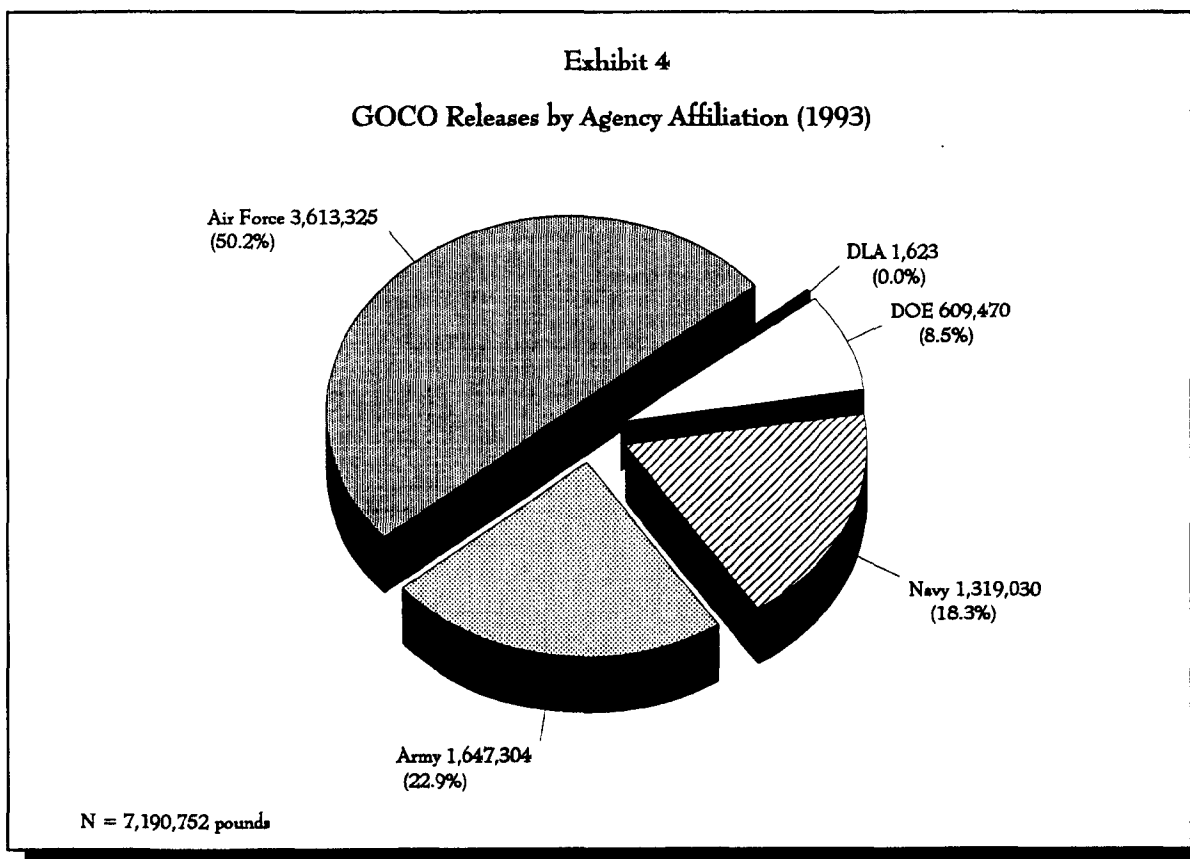
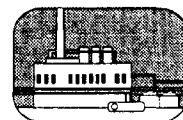
TRI Releases by Agency Affiliation

The overwhelming majority of GOCO facilities reporting releases under the TRI program are affiliated with the Department of Defense (DOD). From 1990 to 1993, 19.7 percent of the 71 reporting GOCO facilities were non-DOD facilities. Only one GOCO facility was affiliated with a civilian Federal agency other than the Department of Energy (DOE). Moreover, this facility (Tennessee Valley Authority Fertilizer and Environmental Research Center in Muscle Shoals, Alabama) did not report any releases under the TRI after 1990.

In 1993, 44 of the 51 reporting GOCO facilities (86.3 percent) were affiliated with DOD, with the remainder associated with DOE. Among the three major services within DOD (i.e., Army, Navy, and Air Force) the distribution of GOCO facilities that reported releases in 1993 was fairly constant, ranging from approximately 23 percent for the U.S. Navy to nearly 33 percent for the U.S. Army.

<u>Agency/Service</u>	<u># of Facilities</u>
Air Force	14 (27.5%)
Army	17 (33.3%)
Navy	12 (23.5%)
Defense Logistics Agency	1 (2.0%)
Department of Energy	7 (13.7%)
TOTAL	51 (100%)

Exhibit 4 presents the breakdown of actual chemical releases at GOCO facilities in 1993 according to agency affiliation. Generally, the overall magnitude of releases corresponds to the number of GOCO facilities reporting, with one notable exception; despite comprising less than one-third of GOCO facilities reporting releases in 1993, Air Force GOCO facilities contributed more than half of all releases.

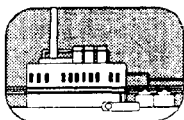


Releases at Air Force facilities comprised more than half of all GOCO releases.

TRI Releases by Chemical

Most releases at GOCO facilities typically involved solvents. In 1993 for example, the most commonly released chemical (2.4 million pounds) was 1,1,1,-Trichloroethane, which is used as an industrial solvent in cleaning operations and is also used as a solvent in adhesives, inks, and coatings. Acetone, the second most commonly released chemical in 1993 (1.0 million pounds), is used as a solvent in the manufacture of organic chemicals and in adhesives and printing inks. Hydrochloric acid (960,000 pounds) was the third most commonly released chemical at GOCO facilities in 1993. Hydrochloric acid has various uses, including neutralization of waste streams/pH adjustment of process waters, in the manufacture of chemicals, and in the cleaning and preparation of metals for coatings.

Exhibit 5 compares the 10 chemicals with the largest releases at GOCO facilities in 1993 to the top 10 chemicals for the TRI universe as a whole. Although the order differs



somewhat between the two lists, half of the chemicals are on both lists. Moreover, two additional chemicals on the GOCO facility top 10 list (1,1,1 Trichloroethane and Dichloromethane) fall within the top 15 chemicals on the overall TRI list.

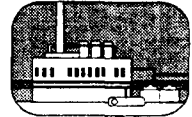
Exhibit 5
Top 10 Chemicals Released in 1993

GOCO Facilities		All TRI Facilities	
Chemical	Pounds	Chemical	Pounds
1. 1,1,1 Trichloroethane	2,383,113	1. Ammonia	352,865,493
2. Acetone	1,024,651	2. Hydrochloric Acid	225,249,801
3. Hydrochloric Acid	960,359	3. Phosphoric Acid	212,622,635
4. Methyl Ethyl Ketone	671,362	4. Methanol	211,924,491
5. Trichloroethylene	667,269	5. Toluene	178,636,563
6. Dichlorotetrafluoroethane	530,000	6. Sulfuric Acid	159,597,625
7. Freon	204,948	7. Acetone	129,865,365
8. Toluene	139,073	8. Xylene	111,657,896
9. Xylene	105,188	9. Carbon Disulfide	93,344,321
10. Dichloromethane	85,064	10. Methyl Ethyl Kaytone	85,507,228
Top 10 Total	6,791,865	Top 10 Total	1,548,648,785
Percent of Total Releases	(94.2%)	Percent of Total Releases	(55.1%)

Chemicals released at GOCO facilities are fairly consistent with those of all TRI facilities.

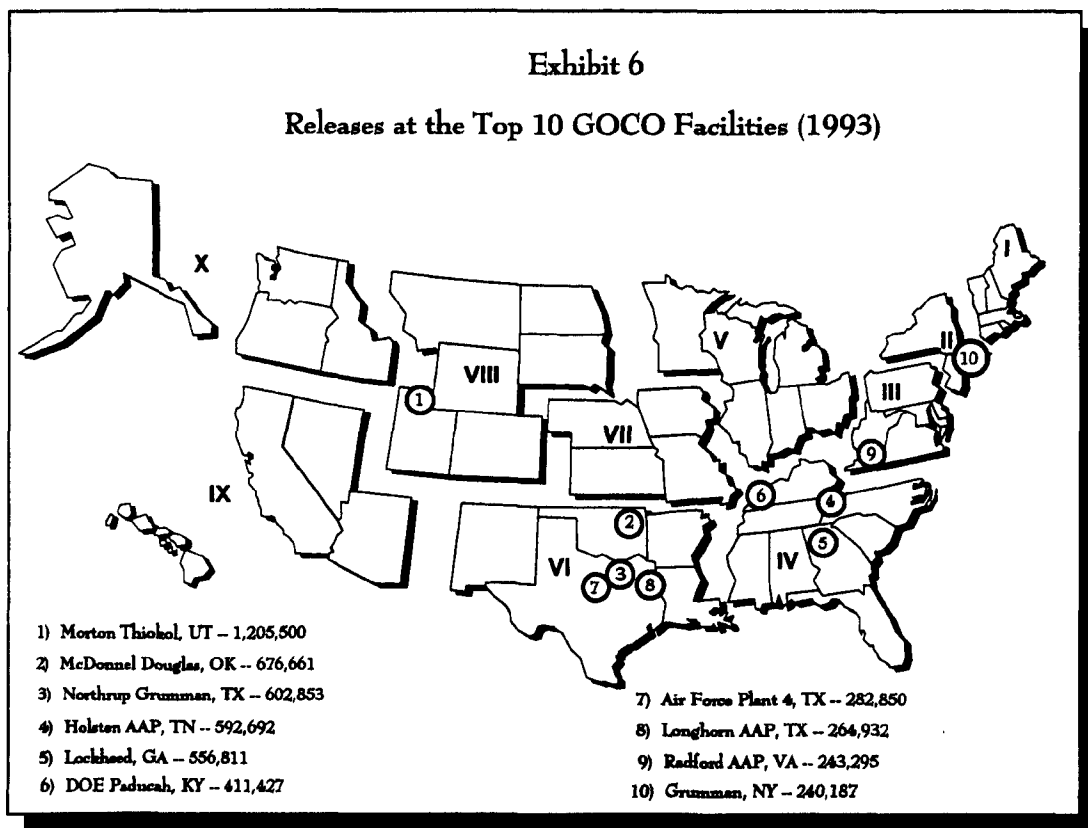
All of the chemicals on the GOCO facility list, with the exception of Dichlorotetrafluoroethane, are on the list of the 50 most commonly released chemicals at all TRI facilities in 1993. Releases of this chemical can be attributed to two DOE facilities, Portsmouth and Paducah. The chemical is typically used as a refrigerant, fire suppressant, or blowing agent.

The percentage of all releases accounted for by the top 10 chemicals was much higher at GOCOs than for TRI facilities as a whole -- 94.2 percent for GOCO facilities and 55.1 percent for all facilities.



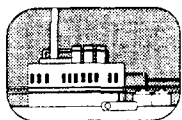
TRI Releases by Facility

In 1993, the 10 GOCO facilities releasing the largest quantity of TRI chemicals accounted for nearly two-thirds of all releases at GOCO facilities. Five of the top 10 GOCO facilities reporting releases in 1993 were affiliated with the Air Force, while three were Army facilities. Exhibit 6 shows the location of these 10 facilities, as well as the quantity of their releases. For more information, see Appendix I, which presents the total releases for each GOCO facility that reported in 1993.



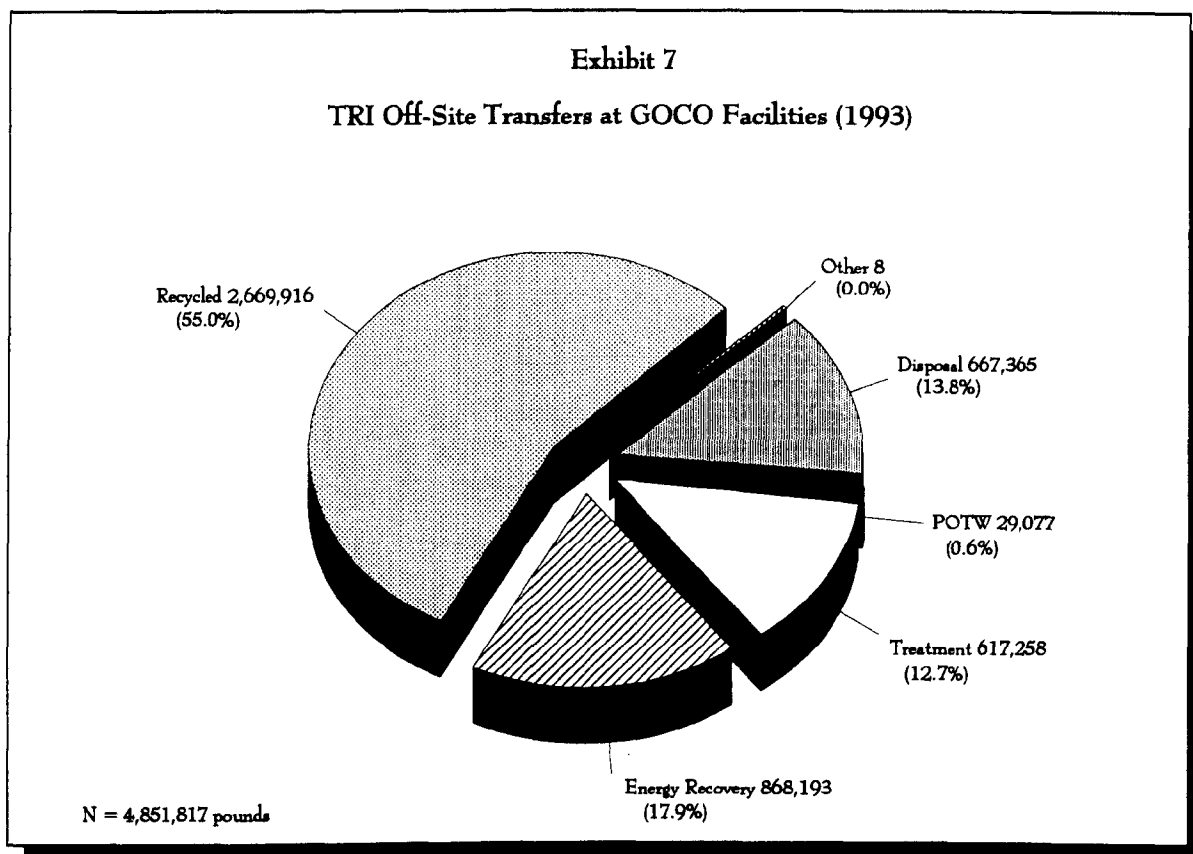
Three of the top 10 GOCO facilities reporting releases were located in Texas

EPA Regions IV and VI accounted for seven of the top 10 GOCO facilities reporting releases in 1993. Texas had the most of any single State with three of the top 10 GOCO facilities reporting releases.



TRI OFF-SITE TRANSFERS AT GOCO FACILITIES

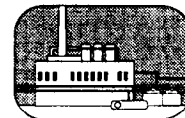
In 1993, GOCO facilities transferred more than 4.8 million pounds of TRI chemicals to POTWs and other off-site locations for the purposes of recycling, energy recovery, treatment, or disposal. Exhibit 7 presents these off-site transfers according to waste management activity.



More than half of all off-site transfers at GOCO facilities in 1993 were for recycling.

Off-site transfers to recycling facilities were the most common at GOCO facilities in 1993 (55.0 percent), followed by energy recovery (17.9 percent), disposal, and treatment (13.8 and 12.7 percent, respectively). Transfers of wastewater for treatment was fairly uncommon at GOCO facilities -- transfers to POTWs comprised less than 1.0 percent of the total in 1993.

The distribution of off-site transfers at GOCO facilities in 1993 closely resembles that for all TRI reporting facilities. Transfers for recycling and energy recovery at all TRI facilities



ranked first and second at 69.1 percent and 10.3 percent respectively. Similarly, the percent of transfers for disposal and treatment were very close (6.9 percent and 7.0 percent, respectively) although they comprised a considerably smaller portion of total off-site transfers at all facilities relative to GOCO facilities. Unlike GOCO facilities, however, off-site transfers to POTWs from all TRI facilities comprised nearly the same share (6.7 percent) as transfers for disposal and treatment.

Total off-site transfers at GOCO facilities declined substantially since 1990. Exhibit 8 summarizes the level of off-site transfers by type at GOCO facilities from 1990 to 1993.

Off-site transfers at GOCO facilities decreased a slight 2.8 percent between 1990 and 1993. However, transfers for energy recovery and recycling, generally the two largest components of total transfers, were not required to be reported in 1990. Consequently, the 1990 off-site transfer figure most likely substantially understates the actual level of such transfers. Relative to 1991, the total quantity of TRI chemicals transferred off-site declined from more than 13 million pounds to nearly five million in just two years. This represents a decrease of 62.8 percent.

Off-site transfers for treatment and disposal tended to decline from 1990 to 1993, while recycling and energy recovery-related transfers saw their shares increase. Transfers to POTWs and other transfers remained a relatively insignificant portion of off-site transfers at GOCO facilities.

Off-site transfers at GOCO facilities did not resemble transfer activity at all TRI facilities. For example, total transfers for all facilities actually increased by 71.6 percent from approximately 1.3 billion pounds in 1990 to around 4.7 billion in 1993. Much of this apparent increase could be attributed to non-reporting of recycling and energy recovery-related transfers in 1990. As was the case for GOCO facilities, transfers at all TRI facilities for treatment, disposal, and POTWs, all declined, in percentage terms, from 1990 to 1993.

TRI Off-Site Transfers

Transfers to Publicly Owned Treatment Works (POTWs) involve shipments of waste water through pipes or sewer systems to State or municipally owned POTWs.

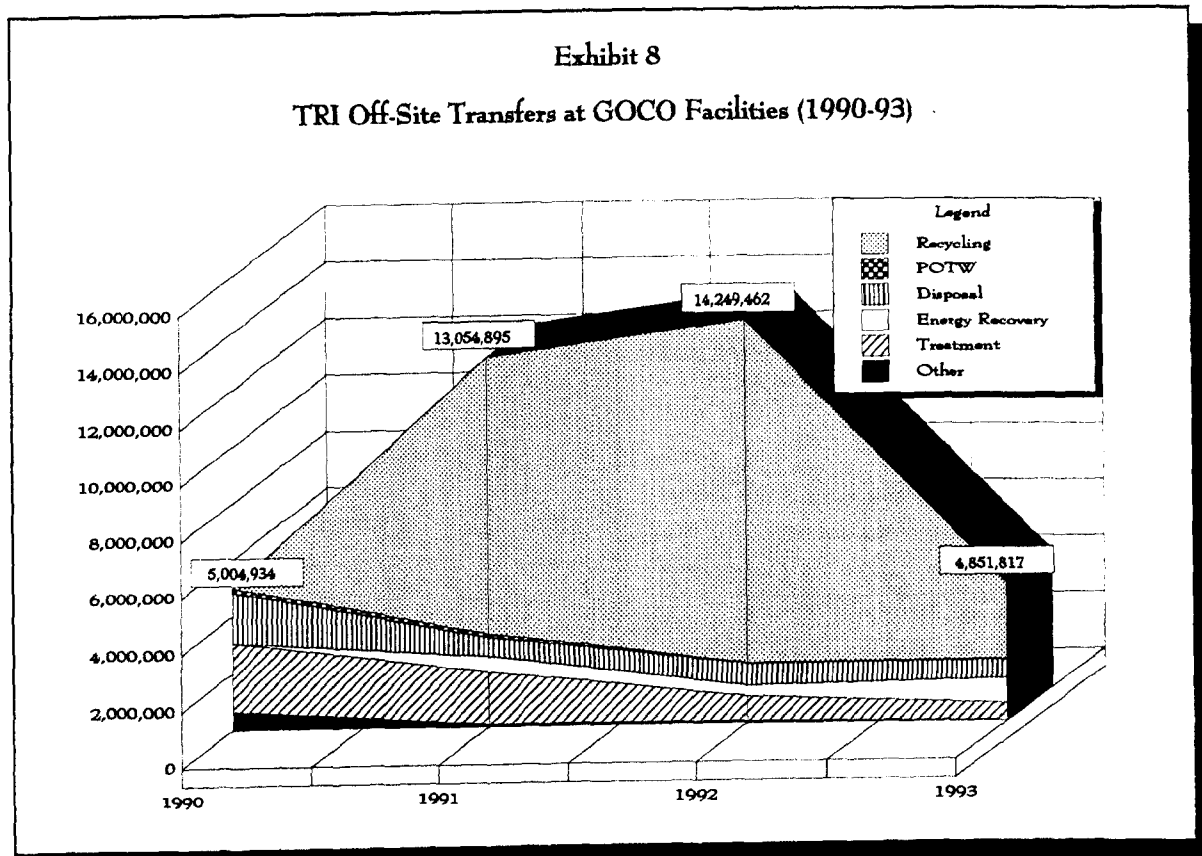
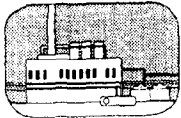
Transfers for Recycling may be recovered or regenerated by a variety of methods, and once recycled, may be returned to the originating facility or sold for further processing or use.

Transfers for Energy Recovery are combusted in industrial furnaces or boilers that generate energy for use at the off-site location.

Transfers for Treatment involve techniques that generally result in varying degrees of destruction of the toxic chemical, although some treatment (e.g., stabilization) simply prepares the chemical for further waste management.

Transfers for Disposal eventually result in releases to land or underground injection of toxic chemicals off-site.

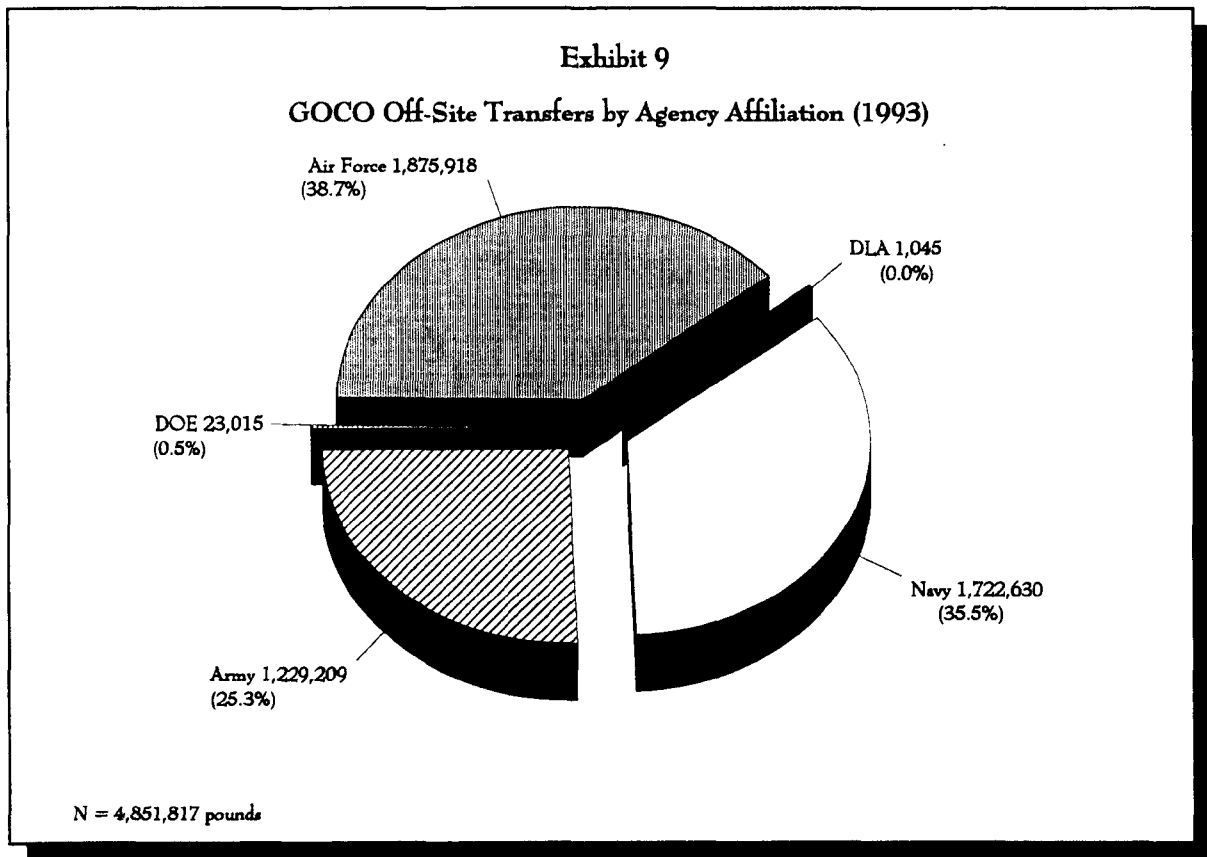
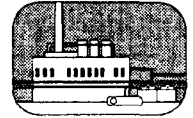
Other Transfers are transfers reported without a proper TRI waste management activity code and are therefore unidentifiable.



Off-site transfers at GOCO facilities declined by nearly three percent from 1990 to 1993.

TRI Off-Site Transfers by Agency Affiliation

As shown in Exhibit 9, Air Force and Navy GOCO facilities accounted for the majority (38.7 percent and 35.5 percent, respectively) of off-site transfers in 1993. Nearly all of the remaining off-site transfers were made by Army GOCOs. Unlike reported TRI releases (see Exhibit 4), DOE and DLA did not contribute significantly to off-site transfers -- accounting for approximately 0.5 percent in 1993.

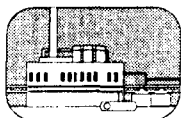


Army, Navy, and Air Force each contributed roughly one-third of the total off-site transfers for GOCOs in 1993.

TRI Off-Site Transfers by Chemical

The types of chemicals transferred off-site by GOCO facilities in 1993 differed substantially from those released. While many of the chemicals released at GOCO facilities were solvents, most of the off-site transfers were metals or acids. In addition, only one of the 10 most frequently released chemicals at GOCO facilities (1,1,1 Trichloroethane) also made it into the top 10 chemicals transferred off-site (see Exhibit 5).

Chemicals transferred off-site from GOCO facilities also deviated from those typically reported by all TRI facilities. As shown in Exhibit 10, only three of the top 10 chemicals transferred at GOCO facilities (Sulfuric Acid, Copper, and Zinc Compounds) were among the top 10 for TRI facilities as a whole. In addition, the 10 most frequently transferred chemicals at



GOCO facilities in 1993 accounted for 10.6 percent more of annual transfers than did the top 10 chemicals transferred at all TRI facilities.

Exhibit 10

Top 10 Chemicals Transferred in 1993

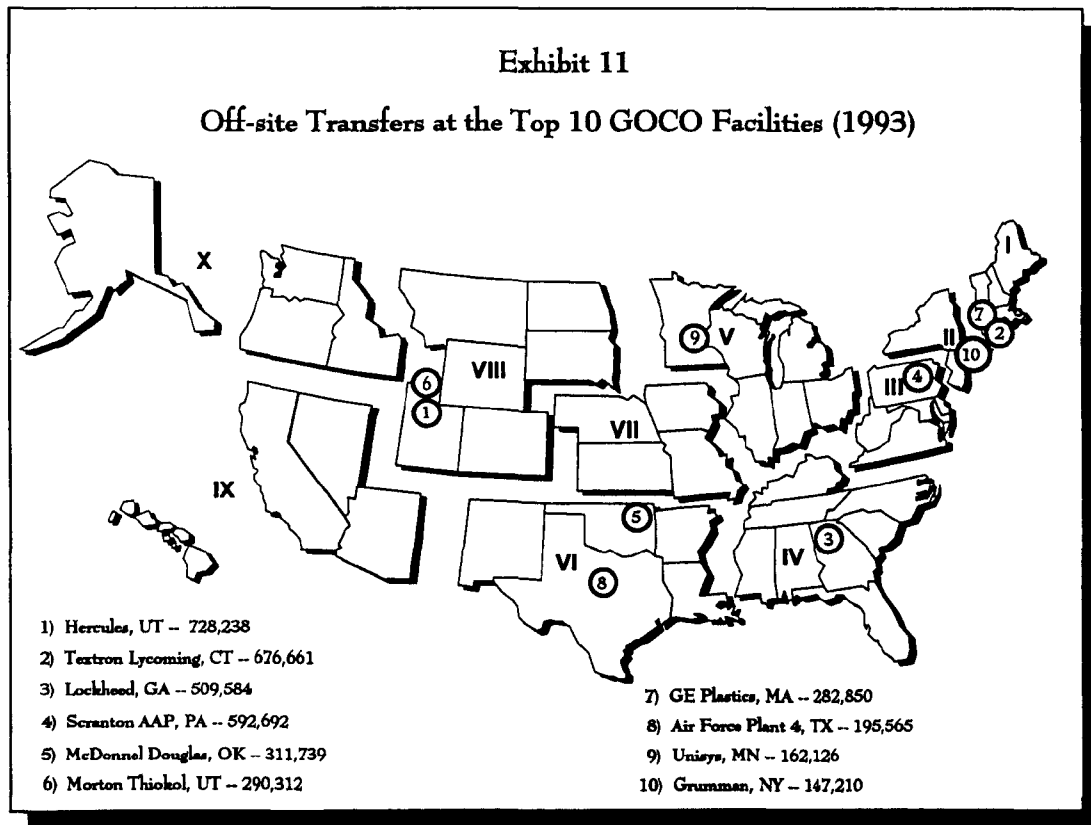
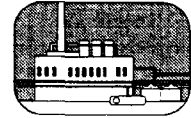
GOCO Facilities		All TRI Facilities	
Chemical	Pounds	Chemical	Pounds
1. 1,1,1 Trichloroethane	760,575	1. <i>Sulfuric Acid</i>	1,275,321,793
2. <i>Sulfuric Acid</i>	655,551	2. <i>Copper</i>	471,270,744
3. Chromium	506,947	3. <i>Zinc Compounds</i>	326,495,783
4. Nickel	435,142	4. Lead Compounds	274,803,365
5. Nitric Acid	328,515	5. Methanol	208,309,729
6. <i>Copper</i>	312,394	6. Hydrochloric Acid	149,206,149
7. Methyl Ethyl Ketone	302,993	7. Ethylene Glycol	146,150,460
8. Aluminum	198,462	8. Toluene	136,329,128
9. Manganese	180,312	9. Copper Compounds	135,838,535
10. <i>Zinc Compounds</i>	156,533	10. Xylene	103,709,852
Top 10 Total	3,837,424	Top 10 Total	3,227,435,538
Percent of Total Transfers	(79.1%)	Percent of Total Transfers	(68.5%)

Of the most commonly transferred chemicals in 1993, most involved metals or acids.

TRI Off-Site Transfers by Facility

As shown in Exhibit 11, in 1993, five of the top 10 GOCO facilities reporting off-site transfers of chemicals under the TRI program were among the top 10 facilities reporting releases (see Exhibit 6). Five GOCO facilities were affiliated with the Air Force, and three were affiliated with the Navy. Together, the top 10 facilities accounted for 72.8 percent of all off-site transfers at GOCO facilities in 1993. For more information, see Appendix I, which presents total off-site transfers for each GOCO facility that reported in 1993.

In general, the GOCO facilities reporting the largest quantities of off-site transfers were more widely distributed across the country than were GOCOs with the most releases. Regions I, VI, and VIII each had two of the top 10 GOCO facilities reporting off-site transfers in 1993.



In 1993, the GOCO facilities reporting the largest off-site transfers were located throughout seven EPA Regions

TRI CHEMICALS MANAGED IN WASTE AT GOCO FACILITIES

Most TRI chemicals present at GOCO facilities are not released or transferred off-site; the majority (in terms of total volume) are managed on-site. Waste management involves recycling, combustion of waste for energy recovery, or treatment, as well as disposal/release into the environment.

As shown in Exhibit 12, the quantity of TRI chemicals managed in waste that GOCO facilities reported as released in 1993 totaled nearly 7.9 million pounds. Note that in the context of waste management reporting under the TRI program, the definition of "release" includes: fugitive and stack air emissions; releases at the facility to water, land, or underground

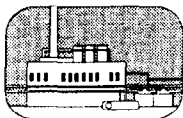
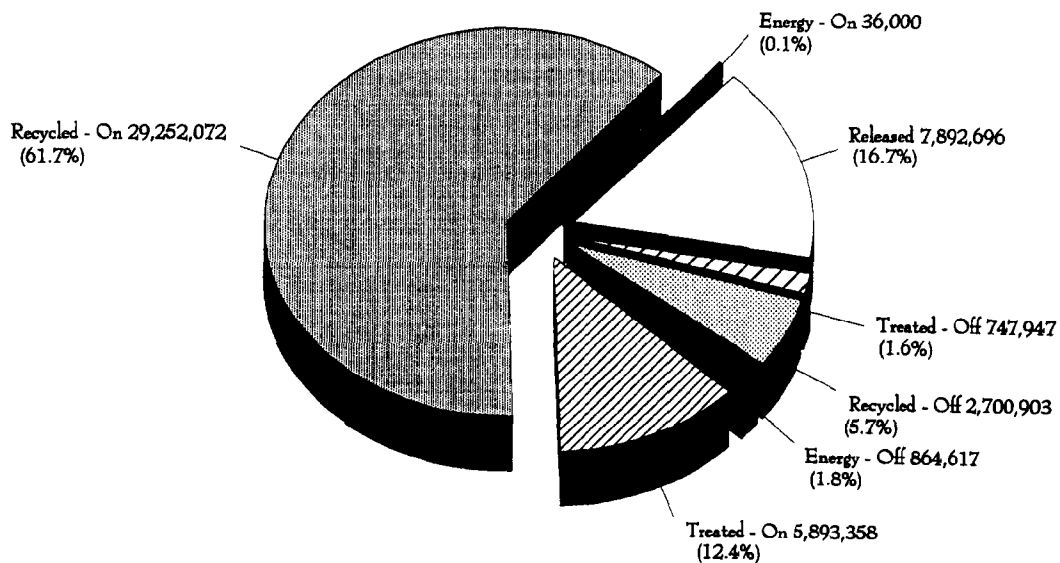


Exhibit 12

TRI Chemical Managed in Waste at GOCO Facilities (1993)

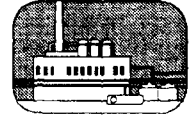


N = 47,387,593 pounds

Recycling accounted for more than two-thirds of all TRI chemicals managed in waste at GOCO facilities in 1993

injection wells; *and off-site transfers for disposal*. Other forms of off-site waste management in 1993 accounted for an additional 4.3 million pounds of TRI chemicals. Thus, all waste managed off-site or released into the environment accounted for slightly more than one-fourth of all waste reported under the TRI program at GOCO facilities. In contrast, on-site recycling accounted for approximately 61.7 percent of all TRI chemicals managed in waste at GOCO facilities, with on-site treatment contributing an additional 12.4 percent.

In 1993, TRI facilities as a whole recycled a substantially smaller portion of their TRI chemicals managed in waste (39.4 percent and 9.9 percent for on- and off-site recycling, respectively) than did GOCO facilities. Similarly, releases/disposal of waste at all TRI facilities accounted for a much smaller share of total waste management (9.6 percent) relative to GOCOs. The percentage of TRI chemicals in waste subjected to on- and off-site treatment at all facilities was more than twice that of GOCO facilities in 1993.



As shown in Exhibit 13, the total quantity of TRI chemicals managed in waste at GOCO facilities declined from more than 113 million pounds in 1990 to approximately 47.4 million pounds in 1993 -- a decline of nearly 60 percent.

Total releases/disposal of TRI chemicals in waste decreased by 54.5 percent, from slightly more than 17.3 million pounds to just under 8.0 million pounds over the same period.

On- and off-site energy recovery at GOCO facilities actually increased dramatically, in percentage terms, from 1990 to 1993 (146.6 percent and 162.5 percent, respectively). However, relative to the total quantity of TRI chemicals managed in waste, these increases were fairly modest.

Over the same period, on- and off-site recycling experienced the largest decreases, in terms of the total quantity of waste managed. On-site recycling decreased by more than 46.5 million pounds (61.4 percent), while off-site recycling declined 69.9 percent, from approximately 9.0 million pounds to slightly more than 2.7 million pounds.

Lastly, on- and off-site treatment experienced declines of 31.6 and 72.2 percent, respectively, from 1990 to 1993.

TRI Chemicals Managed in Waste

Quantity Released is the total quantity of toxic chemicals released to the environment or disposed of at the facility (directly discharged to air, land, and water, and injected underground), plus the quantity sent off-site for disposal.

Quantity Used for Energy Recovery On-Site includes the amount of TRI chemicals destroyed during the combustion process, not the amount that entered the energy recovery unit.

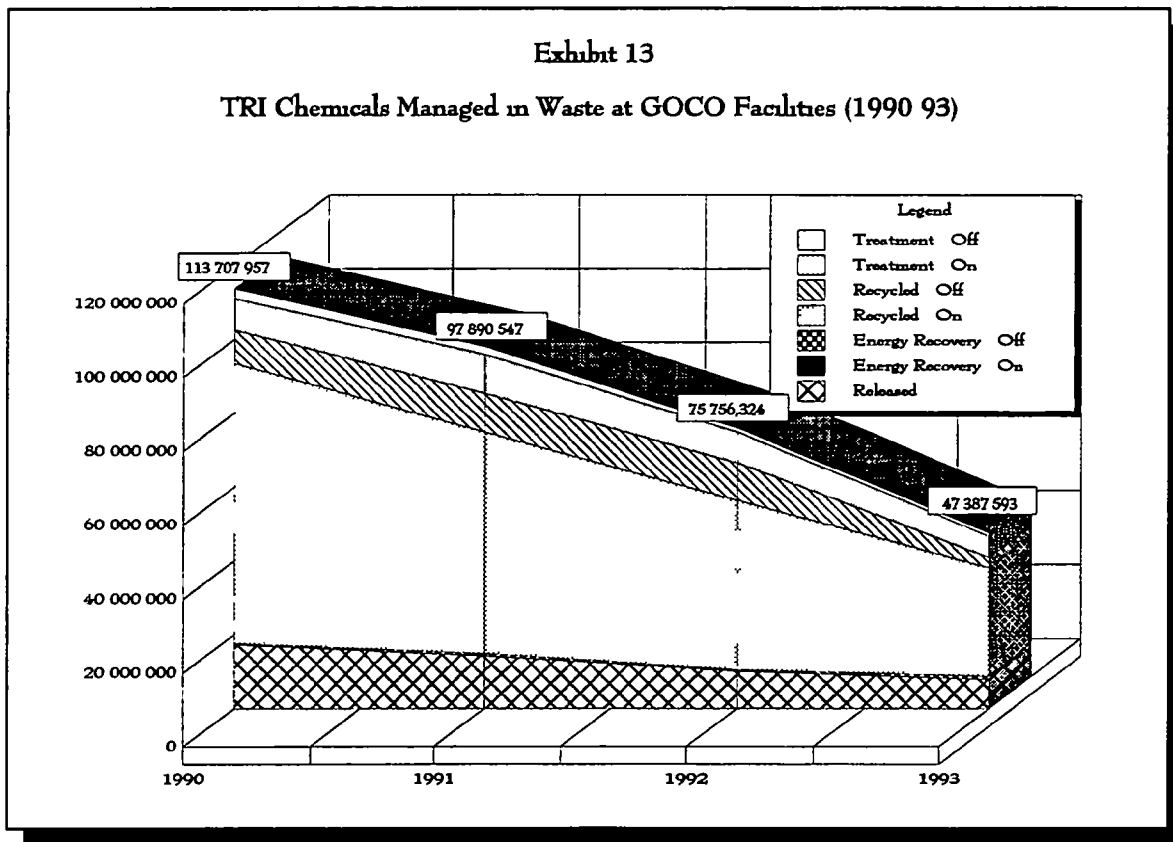
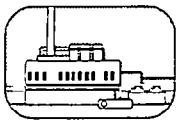
Quantity Used for Energy Recovery Off-Site is the amount of TRI chemicals in waste sent off-site for combustion, not the amount combusted at the off-site location.

Quantity Recycled On-Site is the amount of TRI chemicals recovered for further use, not the amount entering the recycling facility/process.

Quantity Recycled Off-Site is the amount of TRI chemicals in waste sent off-site for recycling, not the amount recycled at the off-site location.

Quantity Treated On-Site is the quantity of TRI chemicals destroyed during treatment, not the amount that entered the treatment operation.

Quantity Treated Off-Site is the amount of TRI chemicals in waste sent to a POTW or other off-site location for treatment, not the amount destroyed at the off-site location.



From 1990 to 1993, TRI chemicals managed in waste declined by nearly 60 percent

TRI Chemicals Managed in Waste by Agency Affiliation

Unlike agency-reported releases and off-site transfers of TRI chemicals (see Exhibits 4 and 9) Army GOCO facilities, rather than Air Force GOCO facilities, were responsible for the majority of TRI chemicals managed in waste reported in 1993. As shown in Exhibit 14, Army-affiliated GOCO facilities accounted for nearly 70 percent of all TRI chemicals managed in waste, with Air Force and Navy facilities a distant second and third at 15.1 percent and 12.7 percent, respectively.

A more detailed evaluation of the data reveals that the overwhelming majority of TRI chemicals managed in waste reported by GOCOs affiliated with the Army can be attributed to a

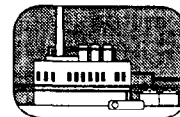
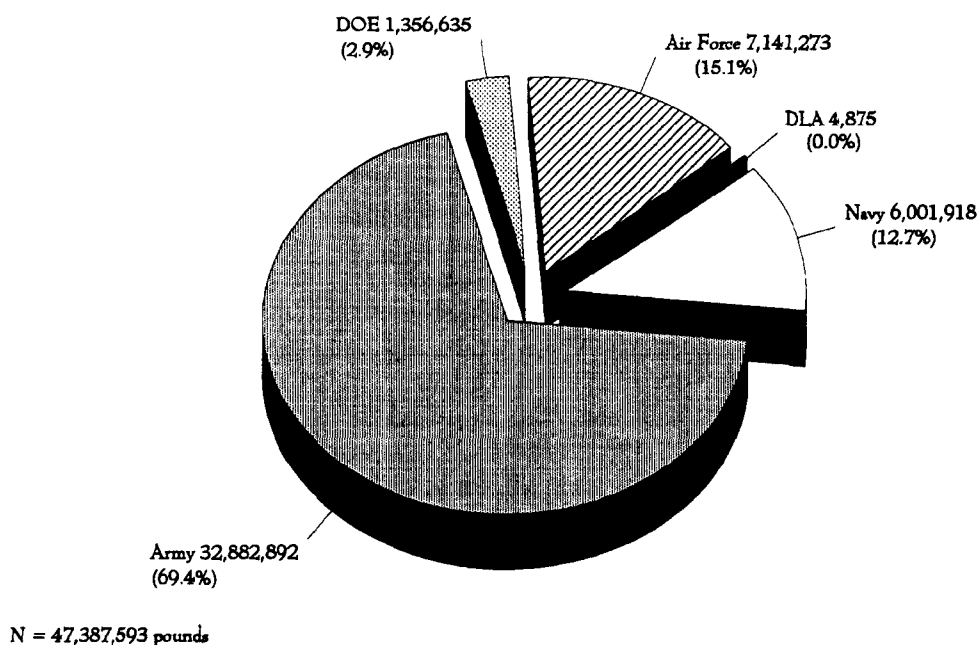


Exhibit 14

TRI Chemicals Managed in Waste by Agency Affiliation (1993)



Army-affiliated GOCOs accounted for 70 percent of TRI chemicals managed as waste.

single facility, Radford Army Ammunition Plant, VA (see Exhibit 16). This facility reported more than 27.3 million pounds of TRI chemicals managed in waste -- approximately 57.7 percent of all TRI chemicals managed in waste reported by GOCO facilities in 1993. Most of this total (98.7 percent) consisted of Nitric and Sulfuric Acids that were recycled on-site (see Exhibit 15), and therefore were not captured by release or off-site transfer reports.

TRI Chemicals Managed in Waste by Chemical

As discussed above, two chemicals (Sulfuric Acid and Nitric Acid) were clearly the most commonly reported as being managed in waste at GOCO facilities in 1993. Sulfuric Acid was the first chemical on both lists, however, Nitric Acid failed to appear within even the top 15 most frequently reported chemicals managed in waste at all TRI facilities. Only three of the top 10 chemicals managed in waste at GOCO facilities were among the 10 most frequently reported chemicals at all TRI facilities. Together, the top 10 chemicals accounted for roughly 25 percent more of all TRI chemicals managed in waste at GOCO facilities relative to all TRI facilities.

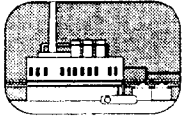


Exhibit 15

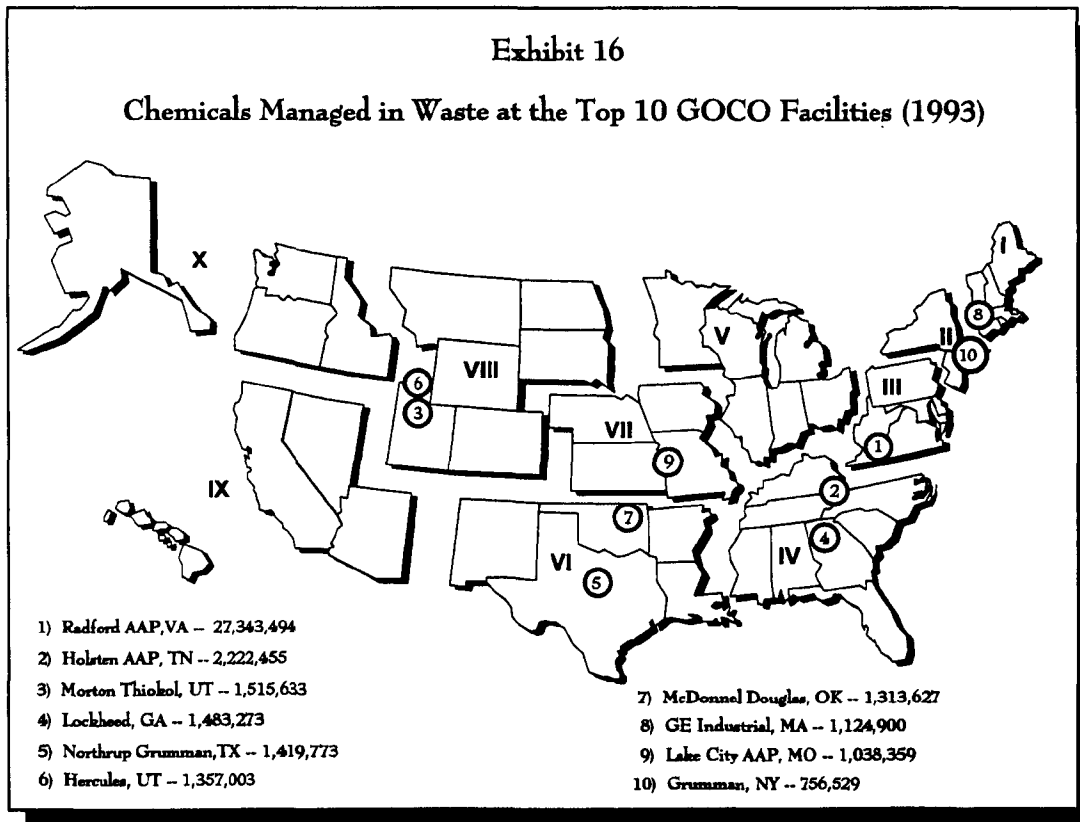
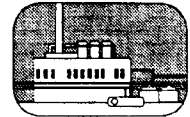
Top 10 Chemicals Managed in Waste in 1993

GOCO Facilities		All TRI Facilities	
Chemical	Pounds	Chemical	Pounds
1. <i>Sulfuric Acid</i>	18,276,786	1. <i>Sulfuric Acid</i>	10,392,389,465
2. Nitric Acid	13,459,558	2. <i>Hydrochloric Acid</i>	2,388,007,794
3. 1,1,1 Trichloroethane	3,863,916	3. Methanol	2,060,419,232
4. <i>Hydrochloric Acid</i>	2,175,150	4. Toluene	1,887,778,134
5. Acetone	1,980,299	5. Ethylene	1,257,889,911
6. Methyl Ethyl Ketone	1,208,819	6. Ammonia	1,150,253,942
7. Dichlorotetrafluoroethane	940,000	7. <i>Copper</i>	819,300,825
8. Trichloroethylene	864,838	8. Propylene	793,797,711
9. <i>Copper</i>	627,272	9. Lead Compounds	716,758,096
10. Chromium	512,055	10. Phosphoric Acid	704,786,071
Top 10 Total	43,908,693	Top 10 Total	22,171,381,181
Percent of Total Chemicals	(92.7%)	Percent of Total Chemicals	(66.2%)

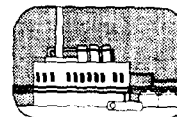
Sulfuric and Nitric Acids were clearly the most common TRI chemicals managed in waste at GOCO facilities in 1993.

TRI Chemicals Managed in Waste by Facility

Exhibit 16 presents the top 10 GOCO facilities according to their reported quantities of TRI chemicals managed in waste. Three Army-affiliated GOCO facilities accounted for approximately 64.5 percent of all TRI chemicals reported as managed in waste in 1993. As one would expect, most of these facilities also appeared in the top 10 lists for reported releases and off-site transfers (see Exhibits 6 and 11).

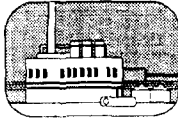


The vast majority of TRI chemicals managed in waste were reported at Army GOCOs.



APPENDIX I
GOVERNMENT-OWNED, CONTRACTOR-OPERATED FEDERAL
FACILITIES RELEASES AND TRANSFERS, 1993

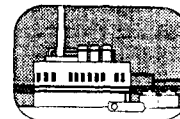
Facility Name	Location	Chemicals Released or Transferred in 1993	Total Releases in 1993 (pounds)	Total Off-Site Transfers in 1993 (pounds)
DOE Pinellas	Largo, FL	5	22,755	21,215
DOE Fernald Feed Materials Production	Fernald, OH	1	1,910	0
US Naval Hercules Industrial Reserve Plant	McGregor, TX	5	94,788	34,422
FMC Corporation Naval Systems Division	Fridley, MN	6	21,881	141,709
Uniroyal Chemical Joliet AAP	Joliet, IL	1	500	0
Army Alliant Techsystems	New Brighton, MN	3	191,005	45,495
AF Thiokol Utah Based Aerospace Operations	Promontory, UT	7	1,205,500	290,312
AF Thiokol Tactical Division	Brigham City, UT	1	42,000	7,700
Navy General Dynamics #1	San Diego, CA	1	131,974	81,406
AF GD Convair Division	San Diego, CA	6	49,065	128,500
Navy Unisys	Saint Paul, MN	9	33,654	162,126
AF Gencorp Aerojet Propulsion Division	Rancho Cordova, CA	11	156,756	68,717
DLA William Langer Jewell Bearing Plant	Rolla, ND	5	1,623	1,045
GE Industrial and Power Systems	Pittsfield, MA	4	7,284	72,570



GOCO Toxics Release Inventory

Facility Name	Location	Chemicals Released or Transferred in 1993	Total Releases in 1993 (pounds)	Total Off-Site Transfers in 1993 (pounds)
GE Plastics	Pittsfield, MA	6	67,987	232,316
GD Air Defense Systems	Pomona, CA	6	17,752	50,500
Navy Lockheed Missiles and Space	Sunnyvale, CA	4	88,220	76,220
Navy Grumman Aerospace	Calverton, NY	2	39,274	6,231
AF Rockwell North American Aircraft Site #9	Palmdale, CA	1	20,865	11,387
AF Lockheed Advanced Development	Palmdale, CA	1	20,600	20,450
Navy Kaman Aerospace	Bloomfield, CT	2	26,054	8,010
AF Martin Marietta Astronautics Group	Littleton, CO	1	380	0
AF McDonnell Douglas	Tulsa, OK	16	676,661	311,739
AF USAF #44	Tucson, AZ	7	189,850	38,800
AF Lockheed Aeronautical Systems	Marietta, GA	14	556,811	509,584
Vought Naval Weapons Industrial Reserve Plant	Dallas, TX	9	602,853	128,882
Mason Chambers Mississippi AAP	Stennis Space Center, MS	1	500	0
Army Thiokol	Huntsville, AL	2	26,700	37,488
Scranton AAP	Scranton, PA	6	27,972	392,070
Hercules Aerospace Sunflower AAP	DeSoto, KS	1	2,170	0
Army ISP Chemicals	Huntsville, AL	1	71,700	2,700

GOCO Toxics Release Inventory



Facility Name	Location	Chemicals Released or Transferred in 1993	Total Releases in 1993 (pounds)	Total Off-Site Transfers in 1993 (pounds)
General Dynamics Lima Army Tank Plant	Lima, OH	1	12,698	7,845
Lone Star AAP	Texarkana, TX	1	16,000	0
Milan AAP	Milan, TN	2	18,922	829
Textron Lycoming Stratford Army Engine Plant	Stratford, CT	7	140,009	576,367
Army Longhorn AAP	Karnack, TX	3	264,932	57,853
Army Holston AAP	Kingsport, TN	7	592,692	0
Army Radford AAP	Radford, VA	10	243,295	35
AF Rockwell	Tulsa, OK	6	90,250	110,746
Navy Hercules Composite Products	Magna, UT	12	187,309	728,238
AF McDonnell Douglas	St. Louis, MO	5	81,550	35,208
AF USAF #4	Ft. Worth, TX	15	282,850	195,565
AF Grumman	NY	8	240,187	147,210
Army General Dynamics	Warren, MI	2	255	10
Lake City AAP	Lake City, MO	10	37,954	108,517
DOE Mound Plant	Miamisburg, OH	1	250	500
DOE Paducah Gaseous Diffusion Plant	Paducah, KY	5	411,427	1,300
DOE Kansas City	Kansas City, MO	2	1,477	0
DOE Portsmouth Gaseous Diffusion	Piketon, OH	5	171,637	0
DOE Hanford	Richland, WA	1	14	0
TOTAL		248	7,190,752	4,851,817