

## INTRODUCTION

The Toxic Release Inventory (TRI) Report provides information about toxic chemicals released into the environment or transferred off-site from a facility. The Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and the Pollution Prevention Act of 1990 required the U.S. Environmental Protection Agency (EPA) to develop and maintain a publicly accessible toxic chemical database. This database, known as the TRI, contains information on—

- Chemicals released into the local environment during the preceding year
- The quantity of each chemical released into the air, water, and land in that year
- How chemical wastes were treated at the reporting facility
- The quantity of chemicals transported away from the reporting facility for disposal, treatment, or recycling.

The primary purpose of TRI reporting is to establish an inventory of toxic chemical releases and inform the public about routine and accidental releases of toxic chemicals into the environment. Citizens, businesses, and governments can then use this information to work together to protect the quality of the land, air, and water. Although Federal agencies are not regulated under EPCRA, Executive Order (E.O.) 12856, “Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements,” required Federal facilities to comply with TRI reporting requirements. E.O. 13148, “Greening the Government through Leadership in Environmental Management,” continues this requirement.

*Although the reporting period for this Environmental Quality Annual Report to Congress covers Fiscal Year 2002 (October 1, 2001 through September 30, 2002), the TRI reporting period covers Calendar Year 2001 (January 1 through December 31, 2001).*

Facilities must report all releases of listed toxic chemicals that exceed the reporting threshold, the maximum amount of the listed chemical located on-site during the calendar year (CY).

EPA’s original TRI database included a list of 300 reportable chemicals. EPA selected these chemicals based on the criterion that each chemical’s toxicity caused serious chronic or acute human health risks and/or adverse environmental effects. EPA can add to the list of TRI-reportable chemicals and can remove, or delist, chemicals according to industry standards and best available science. TRI chemicals are added and delisted through either EPA-initiated action or an independent petition process. EPA’s TRI reporting program is constantly evolving through the addition and removal of chemicals, chemical categories, newly regulated facilities, and new data elements.

## REPORTING TRI DATA

Facilities manufacturing, processing, or otherwise using TRI chemicals in excess of reporting thresholds use chemical release inventory forms (Form Rs) to report their releases and transfers. Facilities must submit Form Rs to EPA and state authorities on or before July 1 of each year for activities that occurred during the previous calendar year. EPA checks these data submissions for reporting errors and compiles the information into a central database.

TRI-reported releases may have been released evenly over the course of the calendar year, intermittently, or in a single event. Figure 34 lists Department of Defense (DoD) facilities that reported TRI data in previous years but have since closed.

A facility may revise its TRI estimates if new information, better data, or more accurate measurement tools become available. Facilities may update their TRI data after the reporting deadline has passed. Enabling facilities to revise historical data encourages review and recalculation of original data submissions to improve accuracy.

## CHANGES TO REPORTING REQUIREMENTS

In 1995, EPA added over 300 chemicals and chemical categories to the list of TRI reportable chemicals, more than doubling the original list. These additions had a noteworthy impact on DoD's reported releases, particularly with the addition of nitrates and nitrate compounds.

Treating wastewater resulting from munitions manufacturing generates large quantities of nitrate compounds. Radford Army Ammunition Plant (RFAAP) reported almost double its historic TRI releases with the inclusion of these compounds on

*Currently, there are 582 individual chemicals and 30 chemical categories on the TRI reporting list.*

the list. RFAAP uses baled Gluckstadt cotton linters to produce certain ammunition. This provides a better final ammunition product but discharges more nitric and sulfuric acids into the plant's wastewater. Each time the machinery is shut down for a product changeover, the system purges a significant quantity of that product's acid makeup and discharges it into the sewer, creating an increase in released nitrates and nitrate compounds. Manufacturing process requirements and the demand for this ammunition will make the reduction of nitrate compound releases at these facilities difficult.

**Figure 34  
Specific Facilities Closed**

Army	<ul style="list-style-type: none"> <li><i>Kansas City Ammunition Plant, Kansas</i></li> <li><i>Longhorn Ammunition Plant, Texas (layaway status)</i></li> <li><i>Stratford Army Engine Plant, Connecticut</i></li> <li><i>Sunflower Army Ammunition Plant, Kansas</i></li> </ul>	DLA	<ul style="list-style-type: none"> <li><i>Defense Depot Ogden, Utah</i></li> <li><i>William Langer Jewel Bearing Plant, North Dakota (GOCO*)</i></li> <li><i>DFSP Anchorage, Alaska (GOCO*)</i></li> <li><i>DFSP Cincinnati, Ohio (GOCO*)</i></li> <li><i>DFSP Escanaba, Michigan (GOCO*)</i></li> <li><i>DFSP Melville, Rhode Island (GOCO*)</i></li> <li><i>DFSP Norwalk, California (GOCO*)</i></li> <li><i>DFSP Ozol, California (GOCO*)</i></li> <li><i>DFSP Searsport, Maine (GOCO*)</i></li> <li><i>DFSP Whittier, Arkansas (GOCO*)</i></li> </ul>
Navy	<ul style="list-style-type: none"> <li><i>Naval Air Station, Alameda, California</i></li> <li><i>Naval Shipyard, Long Beach, California</i></li> <li><i>Naval Shipyard, Philadelphia, Pennsylvania</i></li> <li><i>Naval Air Warfare Center, Trenton, New Jersey</i></li> <li><i>Hercules Corporation, McGregor, Texas (GOCO*)</i></li> <li><i>Northrop Grumman Calverton, Maryland (GOCO*)</i></li> <li><i>Northrop Grumman Bethpage, Maryland (GOCO*)</i></li> </ul>	Air Force	<ul style="list-style-type: none"> <li><i>Kelly Air Force Base, Texas</i></li> <li><i>McClellan Air Force Base, California</i></li> </ul>

\* GOCO = Government-Owned, Contractor-Operated Facility

## Munitions Demilitarization Reporting Requirements

In 2000, DoD began reporting releases and off-site transfers from munitions demilitarization activities. Although reporting releases associated with these activities is not a new requirement, DoD deferred reporting until it developed detailed guidance and tools to ensure consistent reporting.

The Department maintains a large stockpile of munitions. The current stockpile inventory is estimated at 400,000 tons and is growing at a rate of 40,000 tons per year. As munitions reach the end of their useful life, it is necessary for DoD to either demilitarize, or destroy, excess, obsolete, or unserviceable munitions. Demilitarization activities vary depending on mission requirements, mission activity levels, and the budget available for demilitarization actions.

The most common method for disposing of excess, obsolete, or unserviceable munitions is open burning and open detonation (OB/OD). In open burning operations, munitions are destroyed by a self-sustained combustion, which is ignited remotely by an external source such as heat or flame. In open detonation operations, explosives and munitions are destroyed through a controlled series of detonations. Both methods may generate TRI-reportable releases.

## Reporting Thresholds for Persistent Bioaccumulative Toxics

In 2000, EPA lowered the reporting threshold for persistent bioaccumulative toxic (PBT) chemicals and added other PBT chemicals to the TRI list of toxic chemicals. PBTs are of concern because they are toxic, they remain in the environment for long periods of time, are not readily destroyed, and can accumulate in body tissue.

The lowered thresholds require facilities, including DoD installations, to report the amount of PBT chemicals released into air, land, and water at much lower levels than previously reported. EPA finalized two thresholds based on the chemicals' potential to persist and bioaccumulate in the environment. The two levels include setting manufacture, process, and otherwise use thresholds to 100 pounds for PBT chemicals and to 10 pounds for a subset of PBT chemicals that are highly persistent and highly bioaccumulative. One exception is the dioxin and dioxin-like compounds category threshold set at 0.1 gram.

In 2001, EPA published the TRI lead rule classifying lead and lead compounds as PBT chemicals and lowered their previously existing thresholds. Lead and lead compounds were on the original TRI list of reportable chemicals, but with this ruling EPA classified these compounds as PBT chemicals due to their bioaccumulative properties. Facilities that manufacture, process, or otherwise use more than 100 pounds of lead or lead compounds must now report releases and off-site transfers. Previously, facilities were required to report lead and lead compound releases only if they manufactured or processed more than 25,000 pounds annually or used more than 10,000 pounds annually.

## Reporting from Ranges

Beginning in 2001, DoD reported releases and off-site transfers associated with operational range activities, including training, live fire, and clearance activities. Tools to accurately measure, quantify, and calculate releases and off-site transfers from these activities were previously not available.

DoD developed and implemented the necessary tools to identify and report releases from munitions activities on operational ranges. An example of one of these reporting tools is the Toxic Release Inventory Data Delivery System. The system uses emissions factors and munitions use information supplied by installations to calculate the amount of EPCRA-listed toxic chemicals released into the air, water, and land.

Activities on an operational range that are subject to TRI reporting include munitions use in training (target practice, live fire exercises, aerial bombing, obscurant and smoke training, burning of unused propellant, etc.) and destruction of munitions on an operational range (range clearance and range sweep

operations, explosive ordnance disposal training, etc.). Activities exempt from reporting include munitions or weapons research, development, testing, and evaluation; non-military training or personal munitions use activities conducted on DoD ranges (gun club events, hunting, etc.); and structural use of toxic chemicals in targets.

*A range with fewer than ten full-time employees or full-time equivalents (20,000 employee work hours) is not required to report TRI releases. Employees whose time counts as part of the employee work hour threshold are persons who spend time on the range and whose responsibilities include operating, managing, or maintaining the range. This includes target construction and maintenance crews, contractors, natural resources managers, and military personnel who perform range clearance sweeps and cleanup activities. Civilian and military personnel conducting training or testing on ranges do not count toward employee work hour threshold.*

The requirement for reporting operational range training activities has widespread implications for DoD. Many installations that previously were not required to file Form R reports now find themselves required to report TRI releases. Many National Guard bases and Reserve installations are filing Form R reports for the first time. As a result, the number of DoD facilities reporting TRI releases and off-site transfers increased. Specifically, 69 facilities reported in 2001 due to range-only activities. These facilities reported 4,404,003 pounds of releases and off-site transfers.

## Reporting Thresholds for Coincidental Manufacturing

In 2001, DoD clarified its TRI reporting guidance to require reporting of byproducts of coal combustion and other products meeting the definition of “coincidental manufacturing.” If installations use coal, fuel oil, and other raw materials that contain EPCRA-listed toxic chemicals, there is a potential for the coincidental manufacture of toxic chemicals such as sulfuric acid, hydrochloric acid, hydrogen fluoride, and metal compounds. Installations must now calculate these byproducts and include them in their TRI reporting.

For example, Fort Wainright has a coal fired power plant on its installation that provides electricity for the base. The presence of chlorine in coal results in the coincidental manufacture of hydrochloric acid during the coal burning process. The amount of hydrochloric acid released as a byproduct must be calculated and reported toward Fort Wainright’s TRI threshold.

## DoD's 2001 TRI REPORT

Calculating, reporting, and reducing TRI releases and off-site transfers is a priority at DoD facilities. By complying with TRI reporting requirements, DoD can identify—

- Processes that produce the releases and off-site transfers of these chemicals
- Procedures or processes that require the use of these chemicals
- Pollution prevention opportunities.

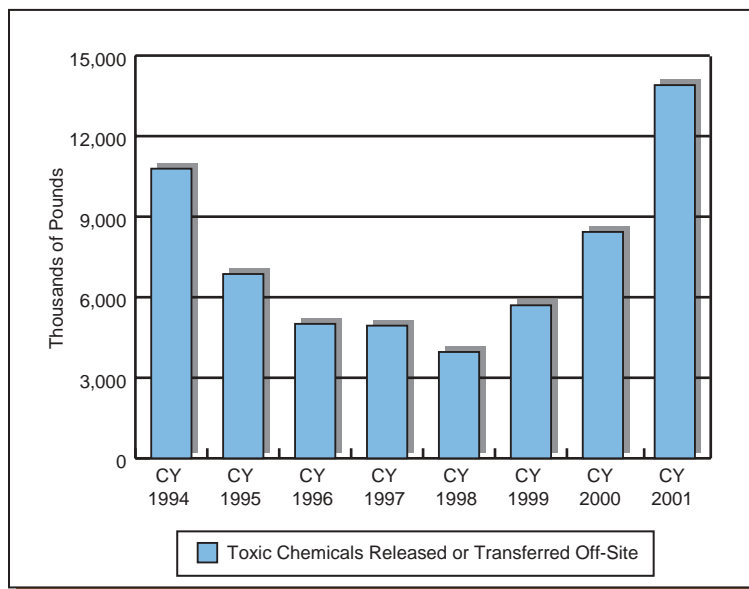
This analysis helps DoD develop a strategy for reducing releases and off-site transfers of TRI reportable chemicals. By reducing releases and off-site transfers of toxic chemicals, DoD minimizes its impact on the environment, DoD personnel, their families, and surrounding communities.

*DoD 2001 TRI releases increased primarily due to new reporting requirements, not changes in mission or new releases.*

In 2001, DoD reported releases and off-site transfers of 13.8 million pounds, an increase of 28 percent from the 1994 TRI Report total (Figure 35). The increase between 1994 and 2001 reporting is primarily due to new requirements and new interpretations for TRI reporting, not because of a rise in actual releases. When subtracting the amounts reported as a result of operational range activities, DoD released and transferred off-site 9.7 million pounds, representing a decrease in releases of 13 percent.

The EPA reported a total of 6.1 billion pounds of TRI chemicals released in 2001 for all reporting United States industries. The DoD total of 13.8 million pounds represents only 0.225 percent (less than a quarter of 1 percent) of all of the TRI releases in 2001.

**Figure 35**  
**Toxic Chemicals Released or Transferred Off-Site**



**Figure 36**  
**DoDTRI Reportable Quantities (pounds), 1994 to 2001**  
**Assuming no changes to reporting requirements**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	90,629	359,994	393,844	1,224,137	941,140	854,068	57,389	61,514	-32.13%
On-site to Air	6,981,117	4,990,877	3,452,010	2,739,503	2,129,652	2,007,700	2,237,966	2,708,412	-61.20%
On-site Underground Injection	390	0	0	0	0	0	0	0	-100.00%
On-site Land	113,714	28,945	32,164	101,335	11,800	1,860,989	1,022,799	5,927,331	5112.49%
Off-site to POTW	95,377	11,104	56,219	73,970	90,689	234,108	48,983	5,492	-94.24%
Off-site Treatment	1,403,991	804,362	554,821	431,001	418,665	275,504	304,241	434,266	-69.07%
Off-site Disposal	2,109,636	672,174	518,953	291,292	406,165	476,059	377,532	661,238	-68.66%
<b>Calculated Baseline</b>									<b>-74.32%</b>

Figure 36 highlights DoD's achievements in reducing toxic chemical releases and off-site transfers since 1994. This figure shows the reductions from the original reporting guidelines, assuming no changes to the reporting requirements or additions of new reportable chemicals and compounds. This reduction compares the amount of reportable chemicals released or transferred off-site in 1994 with the amounts of the same chemicals released or transferred off-site in 2001.

**Figure 37**  
**DoDTRI Reportable Quantities (pounds), 1994 to 2001**  
**Assuming changes to reporting requirements**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	90,629	359,994	393,844	1,224,137	941,140	854,068	1,740,924	3,583,995	3854.58%
On-site to Air	6,981,117	4,990,877	3,452,010	2,739,503	2,129,652	2,007,700	2,983,487	2,702,128	-61.29%
On-site Underground Injection	390	0	0	0	0	0	0	0	-100.00%
On-site Land	113,714	28,945	32,164	101,335	11,800	1,860,989	2,364,439	5,879,801	5070.69%
Off-site to POTW	95,377	11,104	56,219	73,970	90,689	234,108	337,151	220,140	130.81%
Off-site Treatment	1,403,991	804,362	554,821	431,001	418,665	275,504	323,669	474,080	-66.23%
Off-site Disposal	2,109,636	672,174	518,953	291,292	406,165	476,059	682,490	988,849	-53.13%
<b>Calculated Baseline</b>									<b>28.29%</b>

Figure 37 illustrates DoD's overall reportable quantities of toxic chemical releases and off-site transfers. These measurements take into account changes in reporting requirements since 1994, such as changes to the chemical and chemical compound list; reporting from demilitarization activities; lower reporting thresholds for PBT chemicals; reporting TRI data specific to operational range training, live fire, and clearance; and reporting of nitrate compounds and other chemical byproducts coincidentally manufactured.

## TOP TEN CHEMICALS REPORTED IN 2001

DoD's TRI reports have changed significantly since 1994. The top ten chemicals reported in 1994 consisted of heavy metals and solvents from large maintenance and depot operations. Successful pollution prevention



initiatives reduced these releases. Seven of the chemicals from the 1994 list are not on the 2001 top ten chemicals list. The top two ranked chemicals from the 1994 list are now numbers seven and eight.

The top six spots for chemicals reported released in 2001 (Table 4, Top 10 2001 DoD Chemicals) reflect changes in the TRI reporting requirements or new DoD interpretation of TRI reporting requirements. Releases of nitrates, nitrate compounds, and hydrochloric acid increased exponentially due to a new interpretation of “coincidental manufacture” by DoD as well as the addition of nitrates to the TRI chemical list in 1995. Reporting of copper, copper compounds, lead, lead compounds, and aluminum (fume or dust) releases on operational ranges has increased as a result of new reporting procedures for range activities. Releases from operational ranges are similar to those from the demilitarization of munitions.

The appearance of lead and lead compounds in the top five of the DoD 2001 chemicals reported is a combination of two factors. More DoD installations are required to file Form R reports to comply with lower reporting thresholds for PBTs, such as lead and lead compounds. Lead is also a large portion of operational range releases.

## TOP TEN INSTALLATIONS REPORTED IN 2001

The nature of DoD’s top ten facilities reporting releases has also changed. Since reporting began in 1994, DoD’s large maintenance and depot operations (primarily those engaged in munitions manufacturing and overhauling and repairing aircraft, ships, and tanks) reported the largest volumes of DoD releases and off-site transfers.

In 2001, changes in reporting requirements, lower PBT thresholds, and clarified definitions caused installations involved with the life-cycle of munitions (manufacturing, use, and demilitarization) to be DoD’s largest reporters of TRI releases and off-site transfers (Table 5, Top 10 2001 DoD Installations). Radford Army Ammunition Plant is the largest contributor to DoD’s totals, with over 3 million pounds reported. The increases from Radford Army Ammunition Plant are a result of revised coincidental manufacturing reporting requirements to include byproducts of manufacturing processes. Schofield Barracks also increased reporting of nitrates. These releases are attributable to increased releases from wastewater treatment.

**DoD Component Percentages of  
TRI Releases Reported  
from Ranges**

Range Installations	2001
Army	31.32%
Navy	3.36%
Marine Corps	65.93%
Air Force	28.70%
Total	31.80%



**FACILITIES THAT REPORTED NO RELEASES OR OFF-SITE TRANSFERS**

<i>Army</i>	Signal Center Fort Gordon, Georgia U.S. Army Aviation And Missile Command, Alabama Tobyhanna Army Depot, Pennsylvania Hawthorne Army Depot, Nevada White Sands Range, New Mexico
<i>Air Force</i>	Avon Park Range, Florida
<i>Marine Corps</i>	Air Station Yuma, Arizona
<i>Defense Logistics Agency</i>	Defense National Supply Center (DNSC) Scotia, New York DNSC Curtis Bay Depot, New York DNSC Warren Depot, Ohio

**FACILITIES THAT REPORTED LESS THAN ONE POUND OF RELEASES OR OFF-SITE TRANSFERS**

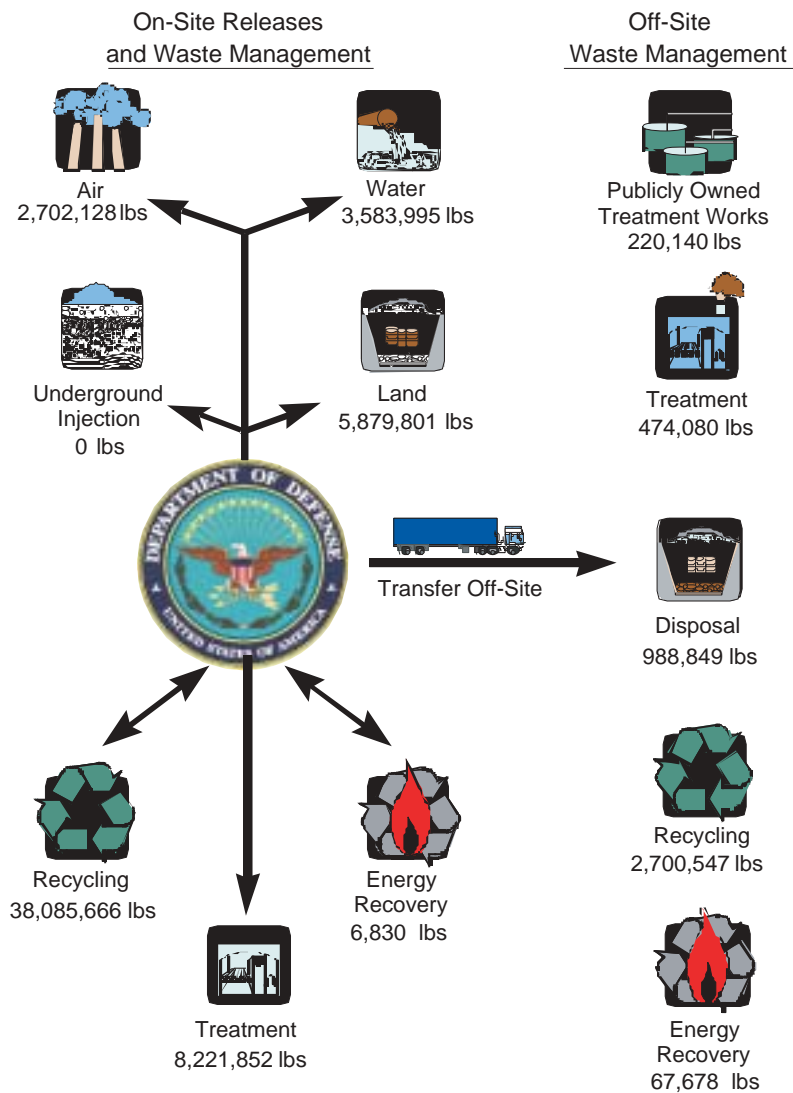
<i>Army</i>	Fort Stewart, Georgia (reported 0.600 lbs)
<i>Navy</i>	Newport Naval Station, Rhode Island (reported 0.073)
<i>Air Force</i>	Hanscom Air Force Base, Massachusetts (reported 0.100 lbs)

The releases at Fort Wainwright are due to DoD’s clarification of the definition of coincidental manufacturing to include byproducts of coal fired power plants. Hydrochloric acid is a reportable byproduct of coal fired power plants that use coal containing chlorine.

Sierra Army Depot, Anniston Army Depot, and Naval Station Weapon Center Crane Demilitarization Division all demilitarize munitions. In 2001, Nellis Air Force Base Training Range and Fort Hood Training Range began reporting releases and offsite transfers associated with operational range activities, including range training, live fire, and clearance activities.

Two installations in the top ten perform large maintenance and depot operations that result in releases consisting of heavy metals and solvents similar to those reported in 1994. Puget Sound Naval Shipyard performs ship demilitarization and disposal, which accounts for the majority of the installation’s reportable releases. Tinker Air Force Base’s releases consist of heavy metals and solvents from aircraft maintenance operations.

**Figure 38**  
**2001 TRI data**  
**(assuming changes to reporting requirements)**



## FUTURE DIRECTIONS

DoD works hard to comply with TRI reporting requirements and reduce releases of toxic chemicals. E.O. 13148 requires each agency to reduce its reported TRI releases and off-site transfers of toxic chemicals for treatment and disposal by 10 percent annually, or by 40 percent overall by December 31, 2006. The baseline year for these reductions is 2001.

The new reductions required by E.O. 13148 will pose a challenge for DoD because of the makeup of the reported releases. A large portion of TRI reported releases is from munitions-related activities (use on training ranges and demilitarization) that are beyond the direct influence of pollution prevention programs. A longer-term initiative for reducing TRI emissions involves substituting chemicals in the munitions acquisition design phase.

**Total DoDTRI Data**

**Table 1.**

**DoDTRI Reportable Quantities, 1994 to 2001 (pounds released or transferred)**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	90,629	359,994	393,844	1,224,137	941,140	854,068	1,740,924	3,583,995	3854.58%
On-site to Air	6,981,117	4,990,877	3,452,010	2,739,503	2,129,652	2,007,700	2,983,487	2,702,128	-61.29%
On-site Underground Injection	390	0	0	0	0	0	0	0	-100.00%
On-site Land	113,714	28,945	32,164	101,335	11,800	1,860,989	2,364,439	5,879,801	5070.69%
Off-site to POTW	95,377	11,104	56,219	73,970	90,689	234,108	337,151	220,140	130.81%
Off-site Treatment	1,403,991	804,362	554,821	431,001	418,665	275,504	323,669	474,080	-66.23%
Off-site Disposal	2,109,636	672,174	518,953	291,292	406,165	476,059	682,490	988,849	-53.13%
<b>Calculated Baseline</b>									<b>28.29%</b>

**Table 2.**

**Change in Top 10 DoD Chemicals Released and Transferred based on 1994 baseline (pounds released or transferred)**

Name of Chemical	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
DICHLOROMETHANE	2,235,670	1,617,221	17,500	761,088	671,307	455,910	363,205	386,483	-82.71%
METHYL ETHYL KETONE	1,504,895	1,097,024	41,085	622,787	621,515	439,656	474,955	469,204	-68.82%
1,1,1-TRICHLOROETHANE	1,232,070	751,890	143,700	217,171	34,335	10	0	0	-100.00%
ETHYLENE GLYCOL	537,125	329,919	10,700	158,462	190,220	119,272	246,415	187,402	-65.11%
TOLUENE	445,350	234,517	18,000	126,245	103,489	120,103	94,616	141,648	-68.19%
PHENOL	411,988	266,784	19,400	87,281	76,791	52,144	41,434	95,780	-76.75%
ZINC COMPOUNDS	409,180	52,738	1,400	28,526	63,395	174,982	260,846	59,988	-85.34%
TETRACHLOROETHYLENE	359,039	217,682	112,000	195,572	69,838	70,815	60,265	50,286	-85.99%
HEXACHLOROETHANE	351,370	56,112	75,946	0	0	0	0	0	-100.00%
HYDROCHLORIC ACID	298,000	Delisted	Delisted	Delisted	Delisted	Delisted	Delisted	Delisted	
<b>TOTAL</b>	<b>7,784,687</b>	<b>4,623,887</b>	<b>439,731</b>	<b>2,197,132</b>	<b>1,830,890</b>	<b>1,432,892</b>	<b>1,541,736</b>	<b>1,390,791</b>	<b>-82.13%</b>

**Table 3.**

**Change in Top 10 DoD Installations' Releases and Transfers based on 1994 baseline (pounds released or transferred)**

Name of Installation	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
TINKER AFB	1,569,614	1,080,881	728,670	520,020	325,423	304,656	324,167	479,956	-69.42%
ROBINS AFB	776,616	578,562	334,898	403,058	368,442	322,549	237,599	220,351	-71.63%
ARMY PINE BLUFF ARSENAL	725,534	253,949	47,011	0	0	4,030	130	1,540	-99.79%
AIR FORCE PLANT 06	554,555	507,909	292,613	133,400	71,924	41,200	61,149	65,481	-88.19%
ANNISTON ARMY DEPOT	527,591	428,840	225,446	245,617	366,481	441,942	266,564	283,462	-46.27%
NORTHROP GRUMMAN CORP	462,481	496,710	249,900	256,800	134,170	187,083	259,018	0	-100.00%
HILL AFB (Ogden)	367,909	263,560	294,815	234,029	250,301	251,551	357,903	260,588	-29.17%
KELLY AFB	342,871	227,663	144,014	100,850	42,500	64,010	0	0	-100.00%
McCLELLAN AFB	340,750	231,800	279,100	162,161	64,100	20,700	0	0	-100.00%
NAS JACKSONVILLE	325,648	247,896	217,041	77,000	88,676	71,415	78,812	32,684	-89.96%
<b>TOTAL</b>	<b>5,993,569</b>	<b>4,317,770</b>	<b>2,813,508</b>	<b>2,132,935</b>	<b>1,712,017</b>	<b>1,709,136</b>	<b>1,585,342</b>	<b>1,341,155</b>	<b>-77.62%</b>

**Table 4.**

**Top 10 2001 DoD Chemicals (pounds released or transferred)**

Name of Chemical	2001
NITRATE COMPOUNDS	4,153,949
COPPER	2,834,102
LEAD COMPOUNDS	1,010,917
LEAD	976,690
ALUMINUM (FUME OR DUST)	948,188
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	854,013
METHYL ETHYL KETONE	469,204
DICHLOROMETHANE	386,483
COPPER COMPOUNDS	207,014
BARIUM	197,364

**Table 5.**

**Top 10 2001 DoD Installations (pounds released or transferred)**

Name of Installation	2001
RADFORD AAP	3,162,293
TINKER AFB	479,956
PUGET SOUND NSY	479,773
SIERRA ARMY DEPOT	441,409
FORT WAINWRIGHT	440,103
SCHOFIELD BARRACKS	326,667
TWENTYNINE PALMS RANGE	293,501
NELLIS AFB TRAINING RANGE	290,920
ANNISTON ARMY DEPOT	283,462
NSWC CRANE DIV-DEMIL	264,937

**Total Army TRI Data  
Table 1.  
Army TRI Reportable Quantities, 1994 to 2001 (pounds released or transferred)**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	39,809	282,768	249,265	1,088,518	714,328	686,938	1,607,796	3,133,507	7771.35%
On-site to Air	954,600	659,894	421,614	358,395	578,551	837,210	1,348,422	1,334,187	39.76%
On-site Underground Injection	0	0	0	0	0	0	0	0	0.00%
On-site Land	42,396	21,627	8,238	46,430	11,135	1,829,549	2,106,847	3,787,162	8832.83%
Off-site to POTW	18,570	2,195	2,147	5,870	7,434	2,407	11,533	7,420	-60.04%
Off-site Treatment	468,522	579,924	228,986	183,139	145,135	62,229	54,797	185,566	-60.39%
Off-site Disposal	954,544	163,315	177,334	82,614	146,236	172,468	213,583	438,124	-54.10%
<b>Calculated baseline</b>									<b>258.53%</b>

**Table 2.  
Change in Top 10 Army Chemicals Released and Transferred  
based on 1994 baseline (pounds released or transferred)**

Name of Chemical	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
ZINC COMPOUNDS	368,971	20,008	31,171	3,426	32,998	147,123	191,085	17,042	-95.38%
HEXACHLOROETHANE	351,370	56,112	23,461	0	0	0	0	0	-100.00%
METHYL ETHYL KETONE	230,817	152,486	103,353	65,994	85,359	98,728	104,066	175,734	-23.86%
1,1,1-TRICHLOROETHANE	226,377	137,450	86,833	40,719	22,335	0	0	0	-100.00%
TRICHLOROETHYLENE	214,223	148,508	40,000	71,028	34,253	55,881	37,148	60,317	-71.84%
DICHLOROMETHANE	186,409	150,300	86,990	115,002	162,155	100,908	74,715	122,015	-34.54%
PHOSPHORIC ACID	135,990	48,410	51,177	44,783	94,434	0	0	0	-100.00%
ETHYLENE GLYCOL	121,059	194,648	85,073	35,039	20,366	18,794	21,899	3,858	-96.81%
CHLORINE	67,470	11,345	5,418	16,838	21,713	2,154	1,827	1,959	-97.10%
CHROMIUM COMPOUNDS	67,413	48,996	61,499	48,159	31,738	38,819	13,052	140	-99.79%

**Table 3.  
Change in Top 10 Army Installations' Releases and Transfers  
based on 1994 baseline (pounds released or transferred)**

Name of Installation	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
PINE BLUFF ARSENAL	725,534	253,949	47,011	0	0	4,030	130	1,540	-99.79%
ANNISTON ARMY DEPOT	527,591	428,840	225,446	245,617	366,481	441,942	266,564	283,462	-4627.24%
LETTERKENNY ARMY DEPOT	144,485	109,693	39,621	18,968	27,804	27,852	178,200	70,565	-5116.10%
WATERVLIT ARSENAL	135,075	46,144	82,375	96,543	91,282	54,010	5,151	161	-99.88%
RED RIVER ARMY DEPOT	117,864	81,798	45,778	46,525	19,092	102,543	47,272	216,679	8383.82%
HOLSTON AAP	101,900	322,200	236,260	246,100	55,056	209,993	187,254	235,302	13091.46%
LAKE CITY AAP	83,911	67,497	49,041	42,662	68,012	31,574	49,064	39,426	-5301.45%
FORT HOOD	57,550	45,600	686	686	61	686	686	118	-99.79%
STRATFORD ENG. PL.	55,441	24,501	23,701	0	0	0	0	0	-100.00%
ROCK ISLAND ARSENAL	52,000	14,500	0	0	0	0	0	1,811	-96.52%

**Table 4.  
Top 10 2001 Army Chemicals  
(pounds released or transferred)**

Name of Chemical	2001
NITRATE COMPOUNDS	3,497,464
COPPER	1,722,224
LEAD	679,642
ALUMINUM (FUME OR DUST)	665,824
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	634,263
LEAD COMPOUNDS	577,222
METHYL ETHYL KETONE	176,424
COPPER COMPOUNDS	156,650
NITROGLYCERIN	156,305
DICHLOROMETHANE	122,015

**Table 5.  
Top 10 2001 Army Installations  
(pounds released or transferred)**

Name of Installation	2001
RADFORD AAP	3,162,293
SIERRA ARMY DEPOT	441,409
FORT WAINWRIGHT	440,103
SCHOFIELD BARRACKS	326,667
ANNISTON ARMY DEPOT	283,462
FORT HOOD RANGE FACILITY	263,902
FORT BENNING RANGE FACILITY	251,363
FORT BRAGG RANGE FACILITY	245,215
HOLSTON AAP	235,302
RED RIVER ARMY DEPOT	216,679

**Total Navy TRI Data  
Table 1.  
NavyTRI Reportable Quantities, 1994 to 2001 (pounds released or transferred)**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	37,954	10,481	56,439	63,387	86,459	6,017	6,976	35,108	-7.50%
On-site to Air	1,519,995	1,175,552	836,401	561,634	570,775	333,524	436,386	330,727	-78.24%
On-site Underground Injection	390	0	0	0	0	0	0	0	-100.00%
On-site Land	1,008	499	23,885	54,900	0	9,510	253,793	363,280	35939.71%
Off-site to POTW	12,369	4,286	21,801	56,767	8,566	117,455	221,727	950	-92.32%
Off-site Treatment	558,322	71,211	82,854	93,163	137,925	103,212	116,562	184,477	-66.96%
Off-site Disposal	187,491	132,886	127,287	109,846	128,820	160,003	358,411	379,994	102.67%
<b>Calculated baseline</b>									<b>-44.14%</b>

**Table 2.  
Change in Top 10 Navy Chemicals Released and Transferred  
based on 1994 baseline (pounds released or transferred)**

Name of Chemical	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
1,1,1-TRICHLOROETHANE	596,172	438,269	120,000	135,300	0	10	0	0	-100.00%
DICHLOROMETHANE	358,283	252,221	161,750	57,310	95,789	44,465	55,705	35,902	-89.98%
METHYL ETHYL KETONE	288,488	231,715	198,900	90,610	163,971	96,745	81,562	43,892	-84.79%
N-BUTYL ALCOHOL	184,055	131,463	137,372	126,837	157,191	117,999	87,968	111,743	-39.29%
NITRIC ACID	160,881	14,166	10,416	52,003	13,664	2,797	17	1	-100.00%
XYLENE (MIXED ISOMERS)	130,312	64,455	52,306	119,244	87,563	84,173	98,897	66,959	-48.62%
FREON 113	129,933	21,925	51,547	0	0	0	0	0	-100.00%
TOLUENE	92,078	15,352	29,959	32,800	26,500	12,260	16,810	8,790	-90.45%
PHENOL	48,068	31,949	31,490	0	9,950	0	0	0	-100.00%
COPPER	37,785	46,134	29,600	30,263	36,407	40,688	170,523	415,190	998.82%

**Table 3.  
Change in Top 10 Navy Installations' Releases and Transfers  
based on 1994 baseline (pounds released or transferred)**

Name of Installation	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
VOUGHT AIRCRAFT COMPANY (NORTHROP GRUMMAN)	462,481	496,710	249,900	256,800	134,170	187,083	259,018	0	-100.00%
NAS JACKSONVILLE	325,648	247,896	217,041	77,000	88,676	71,415	78,812	32,684	-89.96%
NAS ALAMEDA	227,500	0	0	0	0	0	0	0	-100.00%
NORFOLK NAVAL SHIPYARD	186,090	65,666	53,980	62,120	79,458	118,477	163,040	139,901	-24.82%
GRUMMAN AEROSPACE CORP BETHPAGE	184,602	0	0	0	0	0	0	0	-100.00%
PUGET SOUND NAVAL SHIPYARD	178,400	147,041	139,800	186,100	199,373	189,148	379,930	479,773	168.93%
NAVAL BASE NORFOLK	132,325	74,971	59,800	21,380	14,530	650	0	0	-100.00%
PHILADELPHIA NAVAL SHIPYARD	129,340	73,870	0	0	0	0	0	0	-100.00%
NAWC PATUXENT RIVER	76,174	0	0	0	0	0	0	80	-100.00%
NWIRP - HERCULES	73,016	0	0	0	0	0	0	0	-100.00%

**Table 4.  
Top 10 2001 Navy Chemicals  
(pounds released or transferred)**

Name of Chemical	2001
COPPER	415,190
LEAD	126,425
N-BUTYL ALCOHOL	111,743
NITRATE COMPOUNDS	68,129
ETHYLENE GLYCOL	67,452
XYLENE (MIXED ISOMERS)	66,959
AMMONIA	55,300
N-METHYL-2-PYRROLIDONE	51,660
COPPER COMPOUNDS	50,364
METHYL ETHYL KETONE	43,892

**Table 5.  
Top 10 2001 Navy Installations  
(pounds released or transferred)**

Name of Installation	2001
PUGET SOUND NAVAL SHIPYARD	479,773
NSWC CRANE DIV	264,937
NORFOLK NAVAL SHIPYARD	139,901
NAWS CHINA LAKE	89,018
INDIAN HEAD NAVAL SURFACE	68,514
NAS CORPUS CHRISTI	51,660
PEARL HARBOR NAVAL	46,734
NAS NORTH ISLAND	44,579
NAS JACKSONVILLE	32,684
NAVAL AUXILIARY LANDING	26,580

**Total Marine Corps TRI Data**

**Table 1.**

**Marine Corps TRI Reportable Quantities, 1994 to 2001 (pounds released or transferred)**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	19	27	27	3,969	15	0	0	338,784	1782973.68%
On-site to Air	453,652	324,937	165,625	67,386	57,203	62,387	22,446	132,920	-70.70%
On-site Underground Injection	0	0	0	0	0	0	0	0	0.00%
On-site Land	4,633	1,002	0	0	0	0	0	885,236	19007.19%
Off-site to POTW	61,313	2,047	1,015	4,560	209	320	170	48	-99.92%
Off-site Treatment	100,446	43,625	112,394	31,660	18,110	2,604	4,694	7,291	-92.74%
Off-site Disposal	468,894	124,097	36,309	10,475	31,364	9,319	632	46,376	-90.11%
<b>Calculated baseline</b>									<b>29.54%</b>

**Table 2.**

**Change in Top 10 Marine Corps Chemicals Released and Transferred based on 1994 baseline (pounds released or transferred)**

Name of Chemical	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
ETHYLENE GLYCOL	237,821	86,708	61,892	32,409	28,340	6,266	4,895	7,506	-96.84%
DICHLOROMETHANE	155,986	98,300	15,000	0	0	0	0	19,741	-87.34%
METHYL ETHYL KETONE	144,653	128,588	127,600	59,250	55,971	33,741	22,989	28,087	-80.58%
1,1,1-TRICHLOROETHANE	76,062	48,289	0	0	0	0	0	0	-100.00%
TOLUENE	68,054	53,350	37,000	8,900	6,600	10,054	0	11,901	-82.51%
XYLENE (MIXED ISOMERS)	51,535	37,416	21,400	5,600	3,800	3,243	0	3,792	-92.64%
FREON 113	28,000	27,000	0	0	0	0	0	0	-100.00%
GLYCOL ETHERS	28,000	47,000	20,000	0	12,500	0	0	0	-100.00%
CHROMIUM	25,897	0	0	0	0	0	0	0	-100.00%
N-BUTYL ALCOHOL	24,001	8,200	0	0	0	0	0	0	-100.00%

**Table 3.**

**Change in Top 10 Marine Corps Installations' Releases and Transfers based on 1994 baseline (pounds released or transferred)**

Name of Installation	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
MCLB BARSTOW	322,011	87,961	31,304	16,846	36,536	2,680	21	133	-99.96%
MCLB ALBANY	282,273	254,340	133,200	32,490	13,293	38,920	10,710	14,617	-94.82%
MCAS CHERRY POINT	263,370	216,673	110,091	33,664	39,472	29,391	12,484	49,787	-81.10%
MARINE CORPS BASE CAMP LEJEUNE	31,630	0	835	4,270	373	326	0	212,218	570.94%
USMC BLOUNT ISLAND COMMAND	20,000	0	10,700	0	0	0	0	0	-100.00%
MCAS YUMA	1,050	1,028	0	0	0	0	0	0	-100.00%
MCB QUANTICO	34	36	37	37	24	0	0	0	-100.00%
MC RECRUIT DEPOT/EASTERN REGION	5	0	0	0	0	0	0	0	-100.00%

**Table 4.**

**Top 10 2001 Marine Corps Chemicals (pounds released or transferred)**

Name of Chemical	
COPPER	452,758
LEAD COMPOUNDS	370,284
NITRATE COMPOUNDS	338,793
LEAD	111,662
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	65,740
METHYL ETHYL KETONE	28,087
DICHLOROMETHANE	19,741
TOLUENE	11,901
ETHYLENE GLYCOL	7,506
XYLENE (MIXED ISOMERS)	3,792

**Table 5.**

**Top 10 2001 Marine Corps Installations (pounds released or transferred)**

Name of Installation	
TWENTYNINE PALMS RANGE	293,501
CAMP PENDLETON RANGE	237,607
CAMP LEJEUNE BASE	212,219
CAMP PENDLETON	203,810
QUANTICO RANGE COMPLEX	108,000
CAMP LEJEUNE RANGE	84,398
PARRIS ISLAND RANGE	67,402
MCAS CHERRY POINT	49,787
PUULOA TRAINING FACILITY	48,200
CAMP BILLY MACHEN GUNNERY	46,270

**Total Air Force TRI Data**

**Table 1.**

**Air Force TRI Reportable Quantities, 1994 to 2001 (pounds released or transferred)**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	12,847	66,718	88,113	68,263	140,337	161,113	126,152	76,596	496.21%
On-site to Air	4,025,239	2,825,393	2,023,516	1,749,888	917,578	768,909	1,172,078	903,424	-77.56%
On-site Underground Injection	0	0	0	0	0	0	0	0	0.00%
On-site Land	65,677	5,637	41	5	665	21,930	3,799	844,123	1185.26%
Off-site to POTW	2,725	2,576	31,256	6,773	74,480	113,926	103,721	211,722	7669.62%
Off-site Treatment	267,987	107,502	130,587	123,039	117,495	107,459	147,626	96,746	-63.90%
Off-site Disposal	495,807	249,293	178,023	88,357	99,745	134,269	109,864	124,355	-74.92%
<b>Calculated baseline</b>									<b>-53.66%</b>

**Table 2.**

**Change in Top 10 Air Force Chemicals Released and Transferred based on 1994 baseline (pounds released or transferred)**

Name of Chemical	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
DICHLOROMETHANE	1,534,992	1,116,400	704,119	588,776	413,363	310,537	232,785	208,825	-86.40%
METHYL ETHYL KETONE	840,937	584,235	507,067	406,933	316,214	210,442	266,262	221,491	-73.66%
PHENOL	363,920	234,835	92,745	87,281	66,841	52,144	41,434	95,780	-73.68%
TETRACHLOROETHYLENE	335,798	217,340	241,835	195,572	69,838	70,815	60,265	50,116	-85.08%
1,1,1-TRICHLOROETHANE	333,459	127,882	76,501	41,152	12,000	0	0	0	-100.00%
TOLUENE	225,563	133,460	90,287	58,658	44,753	80,528	54,432	70,527	-68.73%
ETHYLENE GLYCOL	162,300	40,916	144,009	77,534	113,384	76,670	118,353	108,586	-33.10%
CHROMIUM COMPOUNDS	151,886	56,898	52,246	49,470	35,500	33,400	43,811	31,481	-79.27%
GLYCOL ETHERS	139,390	30,193	44,076	45,396	44,100	38,330	87,222	114,250	-18.04%
MANGANESE COMPOUNDS	136,000	0	0	0	0	0	2,407	0	-100.00%

**Table 3.**

**Change in Top 10 Air Force Installations' Releases and Transfers based on 1994 baseline (pounds released or transferred)**

Name of Installation	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
TINKER AFB	1,569,614	1,080,881	728,670	520,020	325,423	304,656	324,167	480,065	-69.42%
ROBINS AFB	776,616	578,562	334,898	403,058	368,442	322,549	237,599	220,351	-71.63%
AIR FORCE PLANT 06 (LOCKHEED MARTIN)	554,555	507,909	292,613	133,400	71,924	41,200	61,149	65,481	-88.19%
HILL AFB (OGDEN AIR LOGISTICS CENTER)	367,909	263,560	294,815	234,029	250,301	251,551	357,903	260,588	-29.17%
KELLY AFB	342,871	227,663	144,014	100,850	42,500	64,010	0	0	-100.00%
McCLELLAN AFB	340,750	231,800	279,100	162,161	64,100	20,700	0	0	-100.00%
ARNOLD AFB	154,096	125,833	131,966	93,992	94,779	60,570	51,300	47,997	-68.85%
EDWARDS AFB	132,062	0	0	0	0	22,009	0	0	-100.00%
AIR FORCE PLANT 44 (HUGHES MISSILE SYS)	123,430	35,502	18,800	3,100	0	0	8,700	3,782	-96.94%
AIR FORCE PLANT 03 (ROCKWELL INTERNATIONAL)	123,413	37,355	46,026	0	0	0	0	0	-100.00%

**Table 4.**

**Top 10 2001 Air Force Chemicals (pounds released or transferred)**

Name of Chemical	2001
COPPER	243,930
ALUMINUM (FUME OR DUST)	271,464
NITRATE COMPOUNDS	249,563
METHYL ETHYL KETONE	221,491
DICHLOROMETHANE	208,825
BARIUM	197,364
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	154,010
GLYCOL ETHERS	114,250
ETHYLENE GLYCOL	108,586
PHENOL	95,780

**Table 5.**

**Top 10 2001 Air Force Installations (pounds released or transferred)**

Name of Installation	2001
TINKER AFB	479,956
NELLIS AFB TRAINING RANGE	290,920
HILL AFB (OGDEN ALC)	260,588
EIELSON AFB	226,152
ROBINS AFB	220,351
BARRY M. GOLDWATER RANGE	171,312
AIR FORCE PLANT NO. 4	145,868
EGLIN AFB, RANGES, FL	129,333
WRIGHT-PATTERSON AFB	95,623
AIR FORCE PLANT NO. 6	65,481



**Total DLA TRI Data**

**Table 1.**

**DLA TRI Reportable Quantities, 1994 to 2001 (pounds released or transferred)**

Category	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
On-site to Water	0	0	0	0	0	0	0	0	0.00%
On-site to Air	27,631	5,101	4,854	2,200	5,545	5,670	4,156	869	-96.85%
On-site Underground Injection	0	0	0	0	0	0	0	0	0.00%
On-site Land	0	180	0	0	0	0	0	0	0.00%
Off-site to POTW	400	0	0	0	0	0	0	0	-100.00%
Off-site Treatment	8,714	2,100	0	0	0	0	0	0	-100.00%
Off-site Disposal	2,900	2,583	0	0	0	0	0	0	-100.00%
<b>Calculated baseline</b>									<b>-97.81%</b>

**Table 2.**

**Change in Top 10 DLA Chemicals Released and Transferred based on 1994 baseline (pounds released or transferred)**

Name of Chemical	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
TOLUENE	10,890	0	0	0	0	0	0	0	-100.00%
CYCLOHEXANE	8,037	0	0	0	0	0	0	0	-100.00%
BENZENE	6,353	0	0	0	0	0	0	0	-100.00%
NAPHTHALENE	2,919	0	0	0	0	0	0	0	-100.00%
METHANOL	2,908	0	0	0	0	0	0	0	-100.00%
XYLENE (MIXED ISOMERS)	2,648	0	0	0	0	0	0	0	-100.00%
BROMOTRIFLUOROMETHANE	1,372	3,685	645	800	3,448	2,980	1,838	471	-65.67%
BROMOCHLORODIFLUOROMETHANE	960	707	1,687	800	1,525	1,474	923	80	-91.67%
ETHYLBENZENE	494	0	0	0	0	0	0	0	-100.00%
DICHLORODIFLUOROMETHANE	100	485	1,513	500	226	915	789	220	120.00%

**Table 3.**

**Change in Top 10 DLA Installations' Releases and Transfers based on 1994 baseline (pounds released or transferred)**

Name of Installation	1994	1995	1996	1997	1998	1999	2000	2001	1994 - 2001 % change
GRAND FORK FUEL SUPPORT POINT	10,872	0	0	0	0	0	0	0	-100.00%
VERONA FUEL SUPPORT POINT	5,516	0	0	0	0	0	0	0	-100.00%
CHARLESTON FUEL SUPPORT POINT	4,274	0	0	0	0	0	0	0	-100.00%
ESCANABA FUEL SUPPORT POINT	2,819	0	0	0	0	0	0	0	-100.00%
WM LANGER JEWEL BEARING PLANT	2,972	0	0	0	0	0	0	0	-100.00%
DEFENSE GENERAL SUPPLY CENTER - RICHMOND	2,432	5,101	4,854	2,200	5,545	5,670	4,156	869	-64.27%
SEARSPORT FUEL SUPPORT POINT	1,780	0	0	0	0	0	0	0	-100.00%
SAN PEDRO FUEL SUPPORT POINT	1,200	0	0	0	0	0	0	0	-100.00%
FUEL SUPPORT POINT TAMPA	1,175	0	0	0	0	0	0	0	-100.00%
MELVILLE FUEL SUPPORT POINT	1,035	0	0	0	0	0	0	0	-100.00%

**Table 4.**

**Top 10 2001 DLA Chemicals (pounds released or transferred)**

Name of Chemical	2001
BROMOTRIFLUOROMETHANE	471
DICHLORODIFLUOROMETHANE (CFC-12)	220
BROMOCHLORODIFLUOROMETHANE	80
DICHLOROTETRAFLUOROETHANE	55
TRICHLOROFLUOROMETHANE	43

**Table 5.**

**Top 10 2001 DLA Installations (pounds released or transferred)**

Name of Installation	2001
DEFENSE GENERAL SUPPLY CENTER - RICHMOND	869