
CALENDAR YEAR 2002 TOXIC RELEASE INVENTORY

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 both routine and accidental releases of toxic chemicals into the environment. Citizens, businesses, and governments can then use this information to work together to be aware of toxic chemicals present in their community and prepare for potential emergency releases. Although Federal agencies are not regulated under EPCRA, Executive Order (E.O.) 13148, “Greening the Government through Leadership in Environmental Management,” requires Federal facilities to comply with TRI reporting requirements.

Although the reporting period for this Environmental Quality Annual Report to Congress covers Fiscal Year 2003 (October 1, 2002 through September 30, 2003), the TRI reporting period covers Calendar Year 2002 (January 1 through December 31, 2002). Facilities are required to report their TRI releases to EPA by July 1, 2003.

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. The chemical list for the 2002 report contained over 600 chemicals and 30 chemical categories.

EXECUTIVE ORDER 13148 REDUCTION REQUIREMENTS

DoD works hard to comply with TRI reporting requirements and reduce releases of toxic chemicals. Executive Order (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 E.O. establishes calendar year 2001 as the baseline year for reduction goals. The 40 percent reduction is on top of the 50 percent reduction DoD achieved by 1999, under E.O. 12856, "Federal Compliance with Right-to-Know Laws and Pollution Prevention Requirements."

A large portion of TRI reported releases occur as a by-product of necessary DoD manufacturing and utilities processes. These coincidentally manufactured chemicals, such as nitrate compounds from wastewater treatment and hydrochloric acid from coal-fired heating plants, cannot be reduced unless processes change and expensive, long-term infrastructure projects are funded. Another significant releaser is munitions life-cycle related activities, particularly use on ranges and demilitarizations whose processes are beyond the direct influence of pollution prevention programs. A longer-term initiative for reducing TRI releases due to munitions involves substituting chemicals in the munitions acquisition design phase. The impacts of such changes will take time to have a significant impact on range training TRI release totals.

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 publicly accessible database.

TRI-reported releases may have been released evenly over the course of the calendar year, intermittently, or in a single event. 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.

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 was 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. As munitions reach the end of their useful life, it is necessary for DoD to demilitarize excess, obsolete, or unserviceable munitions. Demilitarization activities vary depending on mission requirements, mission activity levels, and the budget available for demilitarization actions.

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, 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 reclassified 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 otherwise 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.

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, 73 facilities reported in 2002 due to range-only activities. These facilities reported 5.7 million pounds of releases and off-site transfers.

Reporting Thresholds for Coincidental Manufacturing

In September 2001, a DoD question and answer document clarified the reporting of chemicals coincidentally manufactured during other processes. One of the most common chemicals reported at DoD installations from coincidental manufacture is nitrate compounds, which are produced during wastewater treatment. Other common chemicals reported from coincidental manufacture include coal combustion byproducts. If installations use coal, fuel oil, and other raw materials there is a potential for the coincidental manufacture of toxic chemicals such as sulfuric acid, hydrochloric acid, hydrogen fluoride, and metal compounds. For example, some DoD installations have coal-fired power plants to provide heating for the base facilities. The presence of chlorine in coal results in the coincidental manufacture of hydrochloric acid during the coal burning process. The amount of TRI chemicals coincidentally manufactured and released as a by-product must be calculated and counted toward the facility's TRI threshold.

Some DoD installations had sufficient information to implement this clarification with the 2001 reporting year even though they were not required to do so until the 2002 reporting year. Other facilities however, were not able to begin reporting until the 2002 reporting period.

DoD's 2002 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.

In 2002, DoD reported releases and off-site transfers of 16.9 million pounds, an increase of 22 percent from the 2001 TRI Report total. The increase between 2001 and 2002 reporting is primarily due to new requirements and new interpretations for TRI reporting, not because of a rise in actual releases. The EPA reported a total of 4.8 billion pounds of TRI chemicals released in 2002 for all reporting United States industries. The DoD total of 16.9 million pounds represents 0.35 percent (less than two fifths of one percent) of all the United States TRI releases in 2002.

Figure 31 DoD Component Percentages of TRI Releases from Ranges

Range Installations	2002
Army	34.2%
Navy	1.3%
Marine Corps	60.5%
Air Force	34.3%
Total	34.0%

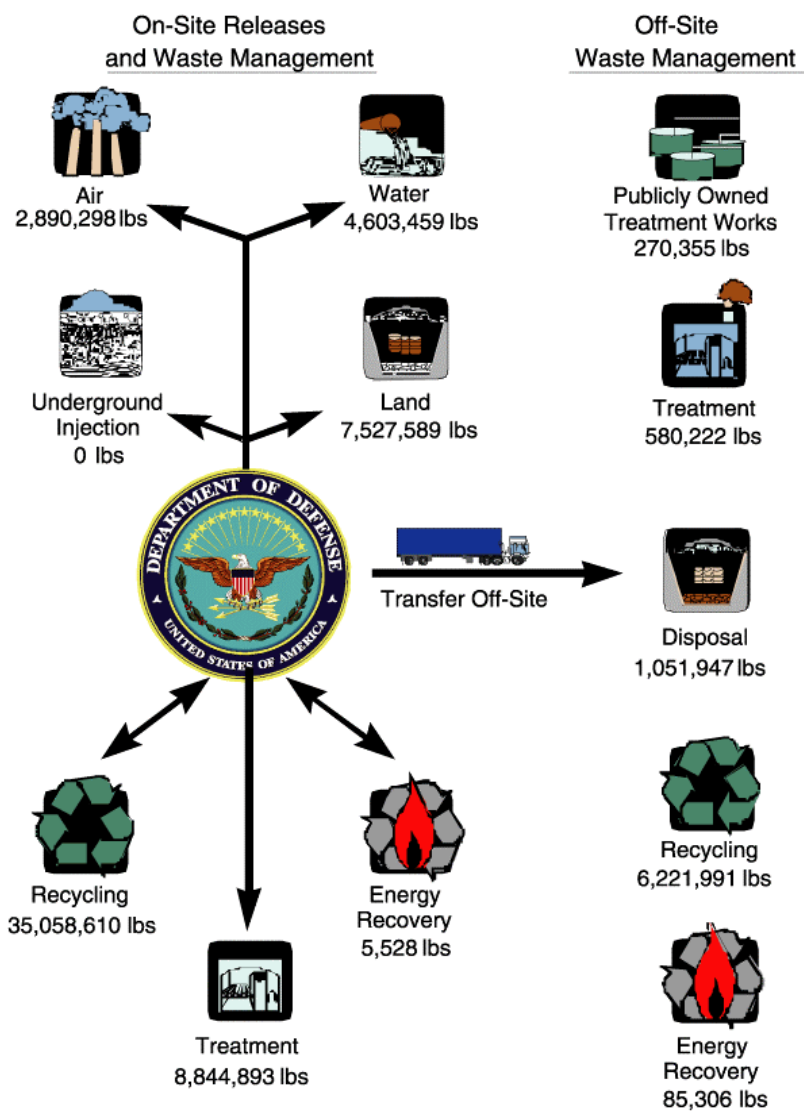
When subtracting the amounts reported as a result of operational range activities, DoD released and transferred off-site 11.2 million pounds of TRI chemicals in 2002. Compared to 2001 non-range release totals of 9.4 million pounds, 2002 releases of 11.2 million pounds represent an increase of 15.5 percent. Range installation releases accounted for approximately 34 percent of the total DoD reportable releases,

with the Marine Corps having the highest percentage of their releases originating from range activities (Figure 31).

Releases to land and water dominate the 2001 and 2002 TRI data, while past TRI releases were largely air releases from painting, depainting, and cleaning operations (Figure 32). Releases to land

are primarily metals from munitions used on training ranges or treated during open burning and open detonation (OB/OD). Releases to water are mainly nitrate compounds released as a by-product of wastewater treatment operations. These types of releases have not been the traditional focus of installation pollution prevention programs.

Figure 32
2002 TRI Data
(assuming changes to reporting requirements)



**Figure 33
DoD TRI Reportable Quantities (pounds), 2001 to 2002
Not Including Range Releases**

Category	2001	2002	2001 - 2002 % Change
On-site to Water	3,583,968	4,601,923	28.40%
On-site to Air	2,675,393	2,849,766	6.52%
On-site Underground Injection	0	0	0
On-site Land	1,545,586	1,796,674	16.25%
Off-site to POTW	220,140	270,355	22.81%
Off-site Treatment	474,080	580,222	22.39%
Off-site Disposal	945,823	1,049,434	10.95%
Calculated Baseline	9,444,991	11,148,374	18.03%

Figure 33 shows DoD's toxic chemical releases and off-site transfers since 2001, assuming range facilities are not included in the total. This figure shows an increase in the amount of chemicals released or transferred off-site in 2002. The largest increase is from on-site releases to water. Releases to water are mainly nitrate compounds released as a byproduct of wastewater treatment operations. More facilities began reporting nitrates as coincidentally manufactured chemicals in 2002. Twenty-six facilities reported nitrate compound releases in 2002, compared to 14 facilities in 2001.

**Figure 34 DoD TRI Reportable Quantities (pounds), 2001 to 2002
Including Range Releases**

Category	2001	2002	2001 - 2002 % change
On-site to Water	3,583,995	4,603,459	28.44%
On-site to Air	2,702,128	2,890,298	6.96%
On-site Underground Injection	0	0	0.00%
On-site Land	5,879,801	7,552,634	28.45%
Off-site to POTW	220,140	270,355	22.81%
Off-site Treatment	474,080	580,222	22.39%
Off-site Disposal	988,849	1,050,066	6.19%
Total	13,848,994	16,947,034	22.38%

Figure 34 illustrates DoD's overall reportable quantities of toxic chemical releases and off-site transfers. These measurements include reporting TRI data specific to operational range training.

TOP TEN CHEMICALS REPORTED IN 2002

The top ten chemicals released in 2002 are similar to last year's top ten list except for the addition of zinc and the removal of barium (Figure 35). Changes in TRI reporting requirements and new DoD

Figure 35
Top 10 CY 2002 DoD Chemicals

Name of Chemical	
NITRATE COMPOUNDS	5,302,196
COPPER	3,275,746
LEAD COMPOUNDS	1,449,669
LEAD	1,143,543
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	648,271
ALUMINUM (FUME OR DUST)	633,764
COPPER COMPOUNDS	627,995
METHYL ETHYL KETONE	530,798
ZINC	433,131

interpretation of TRI reporting requirements have vastly changed the makeup of the top ten list since the last baseline year for reductions in 1994.

Releases of nitrate compounds and hydrochloric acid continue to increase due to a new interpretation of “coincidental manufacture” by DoD and increased reporting. Reporting of heavy metals such as copper, copper compounds, lead, lead compounds, aluminum (fume or dust), and zinc (fume or dust) occur on operational ranges and from munitions demilitarization activities. Reporting of releases from operational ranges has increased as a result of new reporting procedures for range activities, not an actual rise in releases.

Methyl ethyl ketone and dichloromethane are the main components released during aircraft and vehicle maintenance. These chemicals perform operations for which suitable alternatives have not been developed.

TOP TEN INSTALLATIONS REPORTED IN 2002

The nature of DoD’s top ten installations releases has not changed compared to the 2001 baseline even though some of the installations are different. In 2002 installations involved with the lifecycle of munitions (manufacturing, use, and demilitarization) were DoD’s largest reporters of TRI releases and off-site transfers (Figure 36).

Figure 36
Top 10 CY 2002 DoD Installation

Name of Installation	
RADFORD ARMY AMMUNITION PLANT	3,047,324
HAWTHORNE ARMY DEPOT NEW BOMB	801,273
ANNISTON ARMY DEPOT	719,241
NELLIS AFB AND TRAINING RANGE	422,261
SCHOFIELD BARRACKS	420,317
FORT BRAGG RANGE	403,638
BARRY M. GOLDWATER RANGE	338,620
NAVAL AMPHIBIOUS BASE LITTLE CREEK	336,717
OGDEN AIR LOGISTICS CENTER	336,373
FORT LEONARD WOOD MANEUVER SUPPORT CENTER RANGES	300,828

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 by-products of manufacturing processes and increased workload. Schofield Barracks also increased reporting of nitrates. Both installation releases are attributable to discharges from wastewater treatment plants. Naval Amphibious Base Little

Creek had releases associated with heating. These releases consist almost entirely of zinc (fume or dust) generated coincidentally during the burning of coal in the Little Creek steam plant.

Hawthorne Army Depot and Anniston Army Depot demilitarize munitions. OB/OD is the most common method for disposing of munitions. Releases from munitions disposal include heavy metals similar to those from operational ranges.

Nellis Air Force Base Training Range, Fort Bragg Range, Barry M. Goldwater Range, and Fort Leonard Wood Maneuver Support Center Ranges report releases and offsite transfers associated with operational range activities, including range training, live fire, and clearance activities. Reporting of operational range releases began in 2001.

Ogden Air Logistics Center's releases consist of heavy metals and solvents from aircraft maintenance operations.

STATUS OF DOD COMPONENT REDUCTION PLANS

DoD requires its components to report the status of their reduction plans to meet the E.O. 13148 goal.

Army

The E.O. 13148 reduction goal presents a significant challenge for the Army as it increases wartime operating tempo and industrial activities. From 2001 to 2002, the Army experienced a 34 percent increase in releases from training ranges. Similarly, while releases from OB/OD operations fluctuate with the program activity level, the long-term outlook indicates that defense stockpiles of outdated and expired munitions are increasing at a faster rate than disposal.

The largest single category of TRI releases in the Army is water-dissociable nitrate compounds. Radford Army Ammunition Plant represents the largest single source in DoD. The release results from discharge of nitric acid to the wastewater stream from the production of a wide variety of nitrocellulose products. In 1998, the Army initiated a pilot project to improve acid recovery and to more efficiently screen nitrocellulose lint from the waste stream. In 2003, the Army initiated a more comprehensive project to quantify acid loss from the primary nitrocellulose manufacturing areas. Based on this study, Radford installed new screens on the production line where most of the nitric acid nitrating occurs. Several other projects recommended by the study are under consideration, but ultimately significant reductions can only be made through changes to the basic processes of the

manufacture of nitrocellulose, which remains unchanged since Radford initiated operations in 1941. Radford's discharges are well below the limits set in their wastewater permits.

Navy

Using a proactive management approach, the Navy strategy is to first assess whether the current 2001 baseline fully reflects coincidental manufactured releases. The Navy will next identify processes where releases can be economically reduced using pollution prevention efforts and identify targeted efforts for concentrated areas of opportunity.

With this approach, the goal remains challenging for the Navy. Processes within the scope of traditional pollution prevention solutions have been addressed, and due to the significant reductions previously achieved, workload variations now cause significant swings in Navy releases. Navy will continue to make a focused effort to reduce TRI releases.

Marine Corps

Achieving the new TRI reduction goal will be difficult and present a significant challenge for the Marine Corps. The Marine Corps 2001 non-range baseline is 480,567 pounds of releases to the environment and off-site transfers. As of 2002, Marine Corps non-range releases have increased, not decreased, to approximately 802,128 pounds. Approximately 716,673 pounds of the 2002 releases resulted from DoD implementation of the EPA reinterpretation on "coincidental manufacture," with:

- 62,406 pounds of air releases from coincidental manufacture involving hydrochloric acid from coal burning operations; and
- 654,267 pounds of water and land (i.e., sludge land application) releases involving nitrate compounds coincidentally manufactured during wastewater treatment operations.

Although not included in the baseline for reduction goals, the total reportable quantity for ranges increased from 930,089 pounds in 2001 to 1,245,016 pounds in 2002, an increase of 34 percent.

The Marine Corps will continue to identify processes where releases can be economically reduced using pollution prevention efforts and will work to identify targeted efforts for specific concentrated areas of opportunity.

Even with this effort, it is anticipated that it will be a challenge for the Marine Corps to meet the reduction goal because of the large portion of the releases of coincidentally manufactured chemicals that are not addressed by the traditional P2 program. Those processes that can be addressed through P2 solutions have, for the most part, already been addressed due to significant past reduction efforts and workload variations.

Air Force

The Air Force is approaching reduction goals using a two-prong approach. The first strategy is to develop and implement new pollution prevention technologies. The majority of TRI chemical use is for aircraft maintenance functions. Research is underway to find pollution prevention technologies that provide alternative cleaners, paint stripping processes, protective coatings, etc. that use low levels of or no TRI chemicals. TRI reductions made through technological advancement can lead to long-term success provided sufficient funding is available to continue research efforts. The Air Force invested \$17.0 million in FY 2003 for weapon system pollution prevention technology demonstration and validation research efforts.

The second strategy is to better manage the release and off-site transfer of TRI chemicals. Proactive management practices, such as the on-site reuse of off-specification jet fuel, help to reduce TRI releases attributable to the off-site transfer of fuel to a recycling facility. Additionally, installations are continually seeking environmentally friendly substitutes for TRI chemicals presently in use for a variety of purposes.

Defense Logistic Agency

Ozone Depleting Substances (ODSs) Reserve operation at Defense Supply Center Richmond (DSCR) Virginia is the Defense Logistics Agency's (DLA's) only remaining contributor to TRI releases. The ODS recycling facility at DSCR engages in the purification, repackaging, and storage of these gases in cylinders and accounts for all of DLA's current TRI releases. DLA reported low levels of releases in 2001 due to a temporary drop in production while DSCR relocated the ODS Reserve operations to a more modern facility. The Reserve only supports mission-critical weapons platforms. There are no acceptable ODS alternatives for many of the major weapon systems currently deployed. TRI releases are process-based, so it is unlikely that DLA will be able to reduce this percentage, especially with the unusually low baseline year releases. The ODS Reserve mission to support DoD weapons systems is planned to continue well into the future.

FUTURE DIRECTIONS

Given the changes in reporting requirements and the great reductions DoD has already achieved, the challenges of meeting further reduction goals are great. Given the make up of current TRI releases—treatment of wastewater, burning coal, and the life-cycle of munitions—the traditional pollution prevention solutions are not applicable. These problems are much more complex and the solutions are much longer term.

TOTAL DoD TRI DATA

Table 1

DoD TRI Reportable Quantities, 2001 to 2002
(pounds released or transferred)

Category	2001	2002	2001 - 2002 % change
On-site to Water	3,583,995	4,603,459	28.44%
On-site to Air	2,702,128	2,890,298	6.96%
On-site Underground Injection	0	0	0%
On-site Land	5,879,801	7,552,634	28.45%
Off-site to POTW	220,140	270,355	22.81%
Off-site Treatment	474,080	580,222	22.39%
Off-site Disposal	988,849	1,050,066	6.19%
Calculated Baseline			22.38%

Table 2

Change in Top 10 DoD Chemicals Released and Transferred based on 2001 baseline
(pounds released or transferred)

Name of Chemical	2001	2002	2001 - 2002 % change
NITRATE COMPOUNDS	4,153,949	5,302,196	27.64%
COPPER	2,834,102	3,275,746	15.58%
LEAD COMPOUNDS	1,010,917	1,449,669	43.40%
LEAD	976,690	1,143,543	17.08%
ALUMINUM (FUME OR DUST)	948,188	633,764	-33.16%
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	854,013	648,271	-24.09%
METHYL ETHYL KETONE	469,204	530,798	13.13%
DICHLOROMETHANE	386,483	391,782	1.37%
COPPER COMPOUNDS	207,014	627,995	203.36%
BARIUM	197,364	137,000	-30.59%
TOTAL	12,037,924	14,140,764	17.47%

Table 3

Change in Top 10 DoD Installations' Releases and and Transfers based on 2001 baseline
(pounds released or transferred)

Name of Installation	2001	2002	2001 - 2002 % change
RADFORD ARMY AMMUNITION PLANT	3,162,293	3,047,324	-3.64%
TINKER AFB	479,956	293,605	-38.83%
PUGET SOUND NSY	479,773	139,465	-70.93%
SIERRA ARMY DEPOT	441,409	859	-99.81%
FORT WAINWRIGHT	440,103	166,503	-62.17%
SCHOFIELD BARRACKS	326,667	420,317	28.67%
TWENTYNINE PALMS RANGE	293,501	261,452	-10.92%
NELLIS AFB TRAINING RANGE	290,920	422,261	45.15%
ANNISTON ARMY DEPOT	283,462	719,241	153.73%
NSWC CRANE DIV-DEMIL	264,937	131,316	-50.44%
TOTAL	6,463,021	5,602,343	-13.32%

Table 4

Top 10 CY 2002 DoD Chemicals
(pounds released or transferred)

Name of Chemical	
NITRATE COMPOUNDS	5,302,196
COPPER	3,275,746
LEAD COMPOUNDS	1,449,669
LEAD	1,143,543
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	648,271
ALUMINUM (FUME OR DUST)	633,764
COPPER COMPOUNDS	627,995
METHYL ETHYL KETONE	530,798
ZINC	433,131
DICHLOROMETHANE	391,782

Table 5

Top 10 CY 2002 DoD Installations
(pounds released or transferred)

Name of Installation	
RADFORD ARMY AMMUNITION PLANT	3,047,324
HAWTHORNE ARMY DEPOT NEW BOMB	801,273
ANNISTON ARMY DEPOT	719,241
NELLIS AFB AND TRAINING RANGE	422,261
SCHOFIELD BARRACKS	420,317
FORT BRAGG RANGE	403,638
BARRY M. GOLDWATER RANGE	338,620
NAVAL AMPHIBIOUS BASE LITTLE CREEK	336,717
OGDEN AIR LOGISTICS CENTER	336,373
FORT LEONARD WOOD MANEUVER SUPPORT CENTER RANGES	300,828

TOTAL ARMY TRI DATA

Table 1

Army TRI Reportable Quantities, 2001 to 2002
(pounds released or transferred)

Category	2001	2002	2001-2002 % change
On-site to Water	3,133,507	3,324,496	6.10%
On-site to Air	1,334,187	1,359,027	1.86%
On-site Underground Injection	0	-	0.00%
On-site Land	3,787,162	5,039,861	33.08%
Off-site to POTW	7,420	67,026	803.32%
Off-site Treatment	185,566	267,714	44.27%
Off-site Disposal	438,124	746,166	70.31%
Calculated baseline			22.19%

Table 2

Change in Top 10 Army Chemicals Released and Transferred based on 2001 baseline
(pounds released or transferred)

Name of Chemical	2001	2002	2001 - 2002 % change
NITRATE COMPOUNDS	3,497,464	3,852,789	10.16%
COPPER	1,722,224	2,018,669	17.21%
LEAD	679,642	974,454	43.38%
ALUMINUM (FUME OR DUST)	665,824	633,764	-4.82%
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	634,263	426,860	-32.70%
LEAD COMPOUNDS	577,222	826,077	43.11%
METHYL ETHYL KETONE	176,424	255,037	44.56%
COPPER COMPOUNDS	156,650	577,085	268.39%
NITROGLYCERIN	156,305	155,969	-0.21%
DICHLOROMETHANE	122,015	152,265	24.79%

Table 3

Change in Top 10 Army Installations' Releases and and Transfers based on 2001 baseline
(pounds released or transferred)

Name of Installation	2001	2002	2001 - 2002 % change
RADFORD ARMY AMMUNITION PLANT	3,162,293	3,047,324	-3.64%
SIERRA ARMY DEPOT	441,409	859	-99.81%
FORT WAINWRIGHT	440,103	166,503	-62.17%
SCHOFIELD BARRACKS	326,667	420,285	28.66%
ANNISTON ARMY DEPOT	283,462	719,241	153.73%
FORT HOOD RANGE FACILITY	263,902	263,902	0.00%
FORT BENNING RANGE FACILITY	251,363	157,270	-37.43%
FORT BRAGG RANGE FACILITY	245,215	403,638	64.61%
HOLSTON AAP	235,302	269,214	14.41%
RED RIVER ARMY DEPOT	216,679	147,981	-31.70%

Table 4

Top 10 CY 2002 Army Chemicals
(pounds released or transferred)

Name of Chemical	
NITRATE COMPOUNDS	3,852,789
COPPER	2,018,669
LEAD	974,438
LEAD COMPOUNDS	826,077
ALUMINUM (FUME OR DUST)	633,764
COPPER COMPOUNDS	577,085
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	426,860
METHYL ETHYL KETONE	255,037
NITROGLYCERIN	155,969
DICHLOROMETHANE	152,265

Table 5

Top 10 CY 2002 Army Installations
(pounds released or transferred)

Name of Installation	
RADFORD ARMY AMMUNITION PLANT	3,047,324
HAWTHORNE ARMY DEPOT	
NEW BOMB	801,273
ANNISTON ARMY DEPOT	719,241
SCHOFIELD BARRACKS	420,285
RANGE FACILITY FOR FORT BRAGG	403,638
FORT LEONARD WOOD MANEUVER	300,828
FT POLK JRTC	293,427
HOLSTON ARMY AMMUNITION PLANT	269,214
FORT HOOD RANGE FACILITY	263,902
USATC & FORT JACKSON RANGES	254,625

TOTAL NAVY TRI DATA

Table 1

Navy TRI Reportable Quantities, 2001 to 2002
(pounds released or transferred)

Category	2001	2002	2001 - 2002 % change
On-site to Water	35,108	482,730	1274.97%
On-site to Air	330,727	752,716	127.59%
On-site Underground Injection	0	0	0
On-site Land	363,280	198,513	-45.36%
Off-site to POTW	950	1,373	44.51%
Off-site Treatment	184,477	133,229	-27.78%
Off-site Disposal	379,994	166,035	-56.31%
Calculated baseline			33.99%

Table 2

Change in Top 10 Navy Chemicals Released and Transferred based on 2001 baseline
(pounds released or transferred)

Name of Chemical	2001	2002	2001 - 2002 % change
COPPER	415,190	146,113	-64.81%
LEAD	126,425	25,690	-79.68%
N-BUTYL ALCOHOL	111,743	169,139	51.36%
NITRATE COMPOUNDS	68,129	564,458	728.51%
ETHYLENE GLYCOL	67,452	27,550	-59.16%
XYLENE (MIXED ISOMERS)	66,959	92,514	38.17%
AMMONIA	55,300	59,799	8.14%
N-METHYL-2-PYRROLIDONE	51,660	21,200	-58.96%
COPPER COMPOUNDS	50,364	50,910	1.08%
METHYL ETHYL KETONE	43,892	36,517	-16.80%

Table 3

Change in Top 10 Navy Installations' Releases and and Transfers based on 2001 baseline
(pounds released or transferred)

Name of Installation	2001	2002	2001 - 2002 % change
PUGET SOUND NAVAL SHIPYARD	479,773	277,190	-42.22%
NSWC CRANE DEMIL	264,937	125,289	-52.71%
NORFOLK NAVAL SHIPYARD	139,901	209,134	49.49%
NAWS CHINA LAKE	89,018	60,480	-32.06%
NSWC INDIAN HEAD	68,514	79,411	15.90%
NAS CORPUS CHRISTI	51,660	115,496	123.57%
PEARL HARBOR NAVAL COMPLEX	46,734	97,229	108.05%
NAS NORTH ISLAND	44,579	32,467	-27.17%
NAS JACKSONVILLE	32,684	188,561	476.93%
NAVAL AUXILIARY LANDING FIELD SAN CLEMENTE ISLAND	26,580	0	-100.00%

Table 4

Top 10 CY 2002 Navy Chemicals
(pounds released or transferred)

Name of Chemical	
NITRATE COMPOUNDS	564,458
ZINC (FUME OR DUST)	336,599
N-BUTYL ALCOHOL	169,139
COPPER	146,113
XYLENE (MIXED ISOMERS)	92,514
AMMONIA	59,799
COPPER COMPOUNDS	50,910
ZINC COMPOUNDS	49,900
NAPHTHALENE	41,124
METHYL ETHYL KETONE	36,517

Table 5

Top 10 CY 2002 Navy Installations
(pounds released or transferred)

Name of Installation	
AMPHIBIOUS BASE LITTLE CREEK	336,717
PUGET SOUND NAVAL SHPYD	277,190
NORFOLK NAVAL SHIPYARD	209,134
NAS JACKSONVILLE	188,561
NSWC CRANE DEMIL	125,289
NAVAL STATION MAYPORT	123,789
NAS CORPUS CRISTI	115,496
PEARL HARBOR NAVAL COMPLEX	97,229
NSWC INDIAN HEAD	79,411
KINGS BAY NAVAL SUBMARINE BASE	67,546

TOTAL MARINE CORPS TRI DATA

Table 1

Marine Corps TRI Reportable Quantities, 2001 to 2002
(pounds released or transferred)

Category	2001	2002	2001 - 2002 % change
On-site to Water	338,784	652,454	92.59%
On-site to Air	132,920	133,359	0.33%
On-site Underground Injection	0	0	0.00%
On-site Land	885,236	1,244,632	40.60%
Off-site to POTW	48	0	-100.00%
Off-site Treatment	7,291	7,416	1.71%
Off-site Disposal	46,376	9,273	-80.00%
Calculated baseline			45.12%

Table 2

Change in Top 10 Marine Corps Chemicals Released and Transferred based on 2001 baseline
(pounds released or transferred)

Name of Chemical	2001	2002	2001 - 2002 % change
COPPER	452,758	826,495	82.55%
LEAD COMPOUNDS	370,284	348,540	-5.87%
NITRATE COMPOUNDS	338,793	654,266	93.12%
LEAD	111,662	62,266	-44.24%
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	65,740	62,406	-5.07%
METHYL ETHYL KETONE	28,087	27,770	-1.13%
DICHLOROMETHANE	19,741	20,395	3.31%
TOLUENE	11,901	12,763	7.24%
ETHYLENE GLYCOL	7,506	6,772	-9.78%
XYLENE (MIXED ISOMERS)	3,792	2,819	-25.66%

Table 3

Change in Top 10 Marine Corps Installations' Releases and and Transfers based on 2001 baseline
(pounds released or transferred)

Name of Installation	2001	2002	2001 - 2002 % change
TWENTYNINE PALMS RANGE	293,501	261,452	-10.92%
CAMP PENDLETON RANGE	237,607	188,052	-20.86%
CAMP LEJEUNE BASE	212,219	225,179	6.11%
CAMP PENDLETON	203,810	254,585	24.91%
QUANTICO RANGE COMPLEX	108,000	116,919	8.26%
CAMP LEJEUNE RANGE	84,398	175,760	108.25%
PARRIS ISLAND RANGE	67,402	72,575	7.67%
MCAS CHERRY POINT	49,787	107,223	115.36%
PUULOLOA TRAINING FACILITY	48,200	6,200	-87.14%
CAMP BILLY MACHEN GUNNERY RANGE	46,270	0	-100.00%

Table 4

Top 10 CY 2002 Marine Corps Chemicals
(pounds released or transferred)

Name of Chemical	
COPPER	826,495
NITRATE COMPOUNDS	654,266
LEAD COMPOUNDS	348,540
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	62,406
LEAD	62,266
METHYL ETHYL KETONE	27,770
DICHLOROMETHANE	20,395
TOLUENE	12,763
NICKEL	11,760
N-METHYL-2-PYRROLIDONE	10,249

Table 5

Top 10 CY 2002 Marine Corps Installations
(pounds released or transferred)

Name of Installation	
BARRY M. GOLDWATER RANGE, YUMA AZ	338,620
TWENTYNINE PALMS RANGE	261,452
CAMP PENDLETON	254,585
CAMP LEJEUNE BASE	225,179
CAMP PENDLETON RANGE	188,052
CAMP LEJEUNE RANGE	175,760
MCB QUANTICO	118,000
QUANTICO RANGE COMPLEX	116,919
MCAS CHERRY PT	107,223
PARRIS ISLAND	83,360

TOTAL AIR FORCE TRI DATA

Table 1

Air Force TRI Reportable Quantities, 2001 to 2002
(pounds released or transferred)

Category	2001	2002	2001 - 2002 % change
On-site to Water	76,596	143,779	87.71%
On-site to Air	903,424	640,405	-29.11%
On-site Underground Injection	0	0	0.00%
On-site Land	844,123	1,917,706	127.18%
Off-site to POTW	211,722	220,171	3.99%
Off-site Treatment	96,746	54,221	-43.96%
Off-site Disposal	124,355	277,749	123.35%
Calculated baseline			44.18%

Table 2

Change in Top 10 Air Force Chemicals Released and Transferred based on 2001 baseline
(pounds released or transferred)

Name of Chemical	2001	2002	2001 - 2002 % change
COPPER	243,930	309,513	26.89%
ALUMINUM (FUME OR DUST)	271,464	0	-100.00%
NITRATE COMPOUNDS	249,563	302,297	21.13%
METHYL ETHYL KETONE	221,491	211,474	-4.52%
DICHLOROMETHANE	208,825	208,745	-0.04%
BARIUM	197,364	137,000	-30.59%
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS")	154,010	159,005	3.24%
GLYCOL ETHERS	114,250	18,215	-84.06%
ETHYLENE GLYCOL	108,586	88,166	-18.81%
PHENOL	95,780	48,131	-49.75%

Table 3

Change in Top 10 Air Force Installations' Releases and and Transfers based on 2001 baseline
(pounds released or transferred)

Name of Installation	2001	2002	2001 - 2002 % change
TINKER AFB	479,956	193,605	-59.66%
NELLIS AFB TRAINING RANGE	290,920	422,261	45.15%
HILL AFB (OGDEN ALC)	260,588	336,373	29.08%
EIELSON AFB	226,152	213,902	-5.42%
ROBINS AFB	220,351	176,146	-20.06%
BARRY M. GOLDWATER RANGE			
LUKE AFB	171,312	20,372	-88.11%
AIR FORCE PLANT NO. 4	145,868	166,998	14.49%
EGLIN AFB RANGES	129,333	80,761	-37.56%
WRIGHT-PATTERSON AFB	95,623	87,015	-9.00%
AIR FORCE PLANT NO. 6	65,481	47,360	-27.67%

Table 4

Top 10 CY 2002 Air Force Chemicals
(pounds released or transferred)

Name of Chemical	
COPPER	309,513
NITRATE COMPOUNDS	302,297
LEAD COMPOUNDS	267,109
METHYL ETHYL KETONE	211,474
DICHLOROMETHANE	208,745
HYDROCHLORIC ACID (1995 AND AFTER "ACID AEROSOLS" ONLY)	159,005
XYLENE (MIXED ISOMERS)	148,026
BARIUM	137,000
ETHYLENE GLYCOL	88,166
LEAD	81,133

Table 5

Top 10 CY 2002 Air Force Installations
(pounds released or transferred)

Name of Installation	
NELLIS AFB TRAINING RANGE	422,261
HILL AFB (OGDEN ALC)	336,373
EIELSON AFB	213,902
TINKER AFB	193,605
ROBINS AFB	176,146
AIR FORCE PLANT NO. 4	166,998
BEALE AFB	128,006
WRIGHT-PATTERSON AFB	87,015
EGLIN AFB RANGES	80,761
UTAH TEST AND TRAINING - DEMIL	72,000

TOTAL DLA TRI DATA

Table 1

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

Category	2001	2002	2001 - 2002 % change
On-site to Water	0	0	0.00%
On-site to Air	869	4,791	451.32%
On-site Underground Injection	0	0	0.00%
On-site Land	0	0	0.00%
Off-site to POTW	0	0	0.00%
Off-site Treatment	0	0	0.00%
Off-site Disposal	0	0	0.00%
Calculated baseline			451.32%

Table 2

Change in Top 10 DLA Chemicals Released and Transferred based on 2001 baseline
(pounds released or transferred)

Name of Chemical	2001	2002	2001 - 2002 % change
BROMOTRIFLUOROMETHANE	471	1,867	296.39%
DICHLORODIFLUOROMETHANE (CFC-12)	220	1,562	610.00%
BROMOCHLORODIFLUOROMETHANE	80	0	-100.00%
DICHLOROTETRAFLUROETHANE	55	1,362	2376.36%
TRICHLOROFLUOROMETHANE	43	0	-100.00%

Table 3

Change in Top DLA Installations' Releases and and Transfers based on 2001 baseline
(pounds released or transferred)

Name of Installation	2001	2002	2001 - 2002 % change
DEFENSE GENERAL SUPPLY CENTER RICHMOND	869	4791	451.32%

Table 4

Top 2002 DLA Chemicals
(pounds released or transferred)

Name of Chemical	
BROMOTRIFLUOROMETHANE	1,867
DICHLORODIFLUOROMETHANE (CFC-12)	1,562
DICHLOROTETRAFLUROETHANE	1,362

Table 5

Top 2002 DLA Installation
(pounds released or transferred)

Name of Installation	
DEFENSE GENERAL SUPPLY CENTER RICHMOND	4,791