State of Utah
Department of Environmental Quality

Utah Toxic Release Inventory 2002 Data Summary Report

Division of Environmental Response and Remediation
July 2004

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EXECUTIVE SUMMARY

Introduction

The Toxic Release Inventory (TRI) is a database providing information concerning releases of certain chemicals into the environment, and transfers to off-site facilities. Facilities in certain industrial sectors using more than established volumes of TRI-listed chemicals report their TRI information annually to the U.S. Environmental Protection Agency (EPA) and to the state in which they are located. Reports must be submitted by July 1 of the following year in which the releases occurred. This report is a summary of data submitted to the Utah Department of Environmental Quality (UDEQ) for calendar year 2002.

2002 TRI Summary

TRI information includes only selected industrial sectors using larger volumes of certain listed chemicals. Therefore, TRI data only includes a relatively small portion of all chemical releases of environmental significance. TRI data can be used to provide basic information on the types and volumes of waste and emissions at a facility, but the data must be used with other concentration, migration, environmental target, and exposure information to assess a level of human health or environmental risk.

For calendar year 2002, 178 facilities filed a total of 764 TRI reports for 121 different TRI-listed chemicals and chemical categories. One hundred-sixteen of the 178 TRI facilities (63%) are located along the Wasatch Front in Weber, Davis, Salt Lake, and Utah counties.

Total Releases

On-site and off-site release totals of TRI listed chemicals decreased from 258.3 million pounds in 2001 to 180.6 million pounds in 2002. This is a reduction by 77.7 million pounds, which represents a decrease of 30.1% between 2001 and 2002. This decrease is largely attributable to increased copper recovery efficiencies and decreased total mining at Kennecott Utah Copper.

Releases to Air

TRI-reported releases to the air totaled 18.5 million pounds in 2002. This is a reduction of 768,000 pounds from 19.3 million pounds in 2001. This reduction represents a decrease of 4% between 2001 and 2002.

Releases to Land

TRI chemical releases to land in Utah totaled 154.5 million pounds in 2002. This represents a 33% decrease of 74 million pounds from the 229.3 million pounds reported released in 2001. Kennecott facilities reported a decrease in releases to land that accounts for the majority of the decrease of releases to land for Utah. The combined total release to land for all three Kennecott facilities in 2002 was 138.7 million pounds. This represents a 36% reduction from the combined total of 216.1 million pounds reported by the three Kennecott facilities in 2001.

In the court decision *Barrick Goldstrike Mines, Inc., Plaintiff,* v. *Christine T. Whitman and United States Environmental Protection Agency, Defendants,* filed on April 2, 2003 in United States District Court for the District of Columbia, the Court nullified the requirement for mining facilities to report certain chemicals present at low concentrations in waste rock. Several mining facilities filed amended reports for previous years as a result of this decision. The impact was that "release to land" totals were significantly lower than previously reported levels for those years for which a revision was submitted. Thus, "release to land" totals in this report for years prior to 2002 are significantly less than totals published in TRI annual reports for those previous years. A more detailed discussion of this is provided later in this report.

Releases to Surface Water

TRI releases to surface water in 2002 dropped significantly since 2001. Total TRI chemical releases to surface water showed a 93.7 % decrease from just over 1 million pounds in 2001 down to 63,000 pounds in reporting year 2002. This reduction is attributable to the cessation of operations at Geneva Steel and related reporting of TRI data from that facility. In 2001 Geneva accounted for 96% of the total release to surface waters. Releases to surface water consisted almost entirely of nitrate compounds. Chevron Products Company has replaced Geneva as the primary contributor for releases to surface water. For reporting year 2002 Chevron reported a release of 33,000 pounds of nitrate compounds, which is the same amount Chevron reported in reporting year 2001. Approximately 25,000 pounds of various TRI chemicals were released to surface waters from Kennecott facilities.

Transfers to POTWs

Publicly Owned Treatment Works (POTWs) are publicly owned wastewater treatment plants. During 2002 reported discharges of TRI chemicals to POTWs in Utah totaled 1.18 million pounds. This represents a 29.4% increase above the 2001 release of 912,000 pounds. Nitrates constitute 75% of the total chemicals released, while the remaining 25% is comprised of a variety of organic and inorganic chemicals.

TRI-reported releases to POTWs do not include information concerning the rate of release or concentrations of chemicals in the release. However, State and Federal law requires industrial facilities with wastewater flows exceeding federally established chemical concentrations to operate industrial pretreatment equipment to reduce such concentrations below harmful levels before discharging to the POTWs.

Other Off-Site Transfers

Transfers to "other off-site" locations are transfers to facilities other than POTWs. Often these facilities include chemical recyclers and waste disposal sites. In 2002 7.5 million pounds of TRI chemicals were transferred to these "other off-site" locations. This is a 1 million pound decrease (12.5%) from the 8.6 million pound total reported for 2001.

Persistent Bioaccumulative Toxic (PBT) Chemicals

The total amount of dioxins reported released in 2002 was 2641.92 grams. The amount of dioxins reported in 2001 was 2502.43 grams. The increase of 139.5 grams reported in 2002 represents a 5.6% increase in the amount of dioxin releases reported.

INTRODUCTION

What is the Toxic Release Inventory?

The Toxic Release Inventory (TRI) is a database providing information about releases of certain chemicals into the environment, and transfers to off-site facilities. Facilities report their TRI information annually to the U.S. Environmental Protection Agency (EPA) and to the state in which they are located. Reports must be submitted by July 1 of the following year in which the release(s) occurred. This report is a summary of data submitted to the Utah Department of Environmental Quality for calendar year 2002.

Who Must Report a TRI?

A faciiity must report to TRI if it:

- Conducts operations within specified Standard Industrial Classification (SIC) Codes; and
- Has 10 or more full-time employees (or equivalent); and
- Manufactures or processes more than 25,000 pounds or uses more than 10,000 pounds of any TRI listed chemical during the calendar year.

Before 1998, TRI data only included reports from manufacturing and federally owned facilities. Beginning in 1998, EPA expanded coverage of the TRI program to include additional industry sectors. These additional industrial sectors included: coal mining, metal mining, electrical generation facilities combusting coal or oil, hazardous waste disposal, wholesale bulk petroleum distribution, chemical wholesale distribution, and solvent recycling.

What Type of Information Must Be Reported?

A facility must report the:

- Amount of each listed chemical released to the air, water, or soil;
- Amount of each listed chemical transferred off-site or sent to a wastewater treatment plant;
- Amount of each listed chemical recycled, treated, or disposed; and
- Facility's pollution reduction activities.
- Starting with reporting year 2002, facilities can determine their latitude and longitude by using the TRI Facility Siting Tool found on the TRI home page.

What Types of Chemicals are Subject to Reporting?

Over 600 chemicals and chemical categories were included in the reporting list for 2002, based on acute or chronic human health or environmental effects. There were no additions to the list of chemicals for reporting year 2002.

Starting in reporting year 2001, lead and lead compounds were classified as persistent, bioaccumulative and toxic (PBT) chemicals. The reporting thresholds for lead and lead compounds, except when lead is contained in stainless steel, brass, or bronze alloys, have been

lowered to 100 pounds; the *de minimus* exemption is no longer applicable for lead and lead compounds except for lead when it is contained in stainless steel brass or bronze alloys.

Starting with reporting year 2000 an additional seven chemicals and two chemical-compound categories were added to the list of toxic chemicals subject to reporting under EPCRA section 313. EPA made the determination that 18 of the chemicals and chemical categories meet the EPCRA section 313 criteria for persistence and bioaccumulation. Thus EPA lowered the reporting threshold for all of these toxic chemicals. These modifications are for chemicals considered to be highly persistent in the environment, to bio-accumulate, or to be highly toxic.

What Are the Benefits and Uses of TRI Data?

TRI data can be used in a variety of ways:

- The public can use TRI data to identify potential concerns.
- Governments can use TRI data to evaluate environmental programs and establish regulatory priorities.
- The data can be used to provide basic information on the types and volumes of waste being generated or managed at a facility and, in conjunction with other data, can be utilized to study and identify potential hazards to the public health or environment.
- Industry can use TRI data to establish release reduction targets and document release reduction progress.

What Are the Limitations of the Data?

- *Not All Toxic Releases/Transfers Are Reported.* Only a few sectors of industry are currently required to submit TRI reports. Thus, only a portion of all chemical releases or transfers is included in the inventory. Additionally, the list of chemicals for which reporting is required is not inclusive of all chemicals known to have significant public health or environmental impact.

- *Reported Release/Transfer Totals Usually Are Based on Estimations Only.* No special monitoring is required to calculate emission or transfer totals. Reported data is often based on estimations.

- *Smaller Release Totals Are Reported as Ranges, Not Exact Numbers.* If a chemical release or transfer estimate was below 1,000 pounds, companies were allowed to report ranges of 1-10, 11-499, and 500-999 pounds. In such cases, staff entered the mid-point of the range in the State database. These estimations may, therefore, be above or below the actual figure.

- *TRI Statewide Totals Cannot Be Compared Easily From Year to Year.* The TRI list of chemicals requiring reporting and methods requiring the estimating of emissions have changed significantly through the 16-year history of TRI reporting. Facilities may meet the TRI reporting requirements and submit TRI reports for some years and not others. These changes make accurate multi-year comparisons of statewide release or transfer totals very difficult.

What Cautions Should Be Used in Interpreting TRI Data?

- *TRI Reports Releases, Not Exposures.* Release estimates alone are not sufficient to determine exposure, risk of exposure, or calculate potential adverse health or environmental affects.

- *TRI Does Not Report Concentrations.* TRI emission totals do not include information on the concentration of chemicals in air, water, or wastes placed on land. A large release may be a large volume at low concentration.

- *TRI Releases Are Often Permitted by State or Federal Law.* TRI releases are often permitted by state or federal environmental agencies after an evaluation has concluded the release will not adversely affect human health or the environment.

How Can the Public Obtain TRI Information?

Extracts of TRI information can be obtained from several sources:

- Computer summaries of Utah TRI information or copies of original TRI submissions can be obtained by submitting a written request to:

  Utah Division of Environmental Response and Remediation
  168 North 1950 West, 1st Floor
  P.O. Box 14840
  Salt Lake City, Utah 84114-4840

  Or email the request to mzucker@utah.gov

A customer may choose to have pages copied by a DERR employee at a cost of $0.25 per single-sided page. Pages copied by the customer are $0.05 per single-sided page with the first 10 pages free. Specialized computer summaries are available for a fee charged at an hourly rate. Most reports require less than one hour's time to create a specialized summary. Please call DEQ (801-536-4100) for current hourly rates.

The EPA offers access to TRI data on the World Wide Web at the following two websites:

- www.epa.gov/tri
- www.epa.gov/enviro/html/tris

EPA and EPA Region VHI provides a variety of information about the Emergency Planning and Community Right-To-Know Act at these websites:

- http://www.epa.gov/Region8/toxics_pesticides/epcra/epcra.html
- http://yosemite.epa.gov/oswer/ceppoweb.nsf/content/epcraoverview.htm

FACILITY OVERVIEW

Number of Reporting Facilities

For calendar year 2002, 178 Utah facilities filed a total of 764 TRI reports for 121 different TRI-listed chemicals. Figure 1 shows the annual trend of the count of facilities and quantity of chemical reports submitted. In comparison with 2001 data, the number of facilities that submitted under TRI increased by 3, while the number of chemical reports decreased by 12.

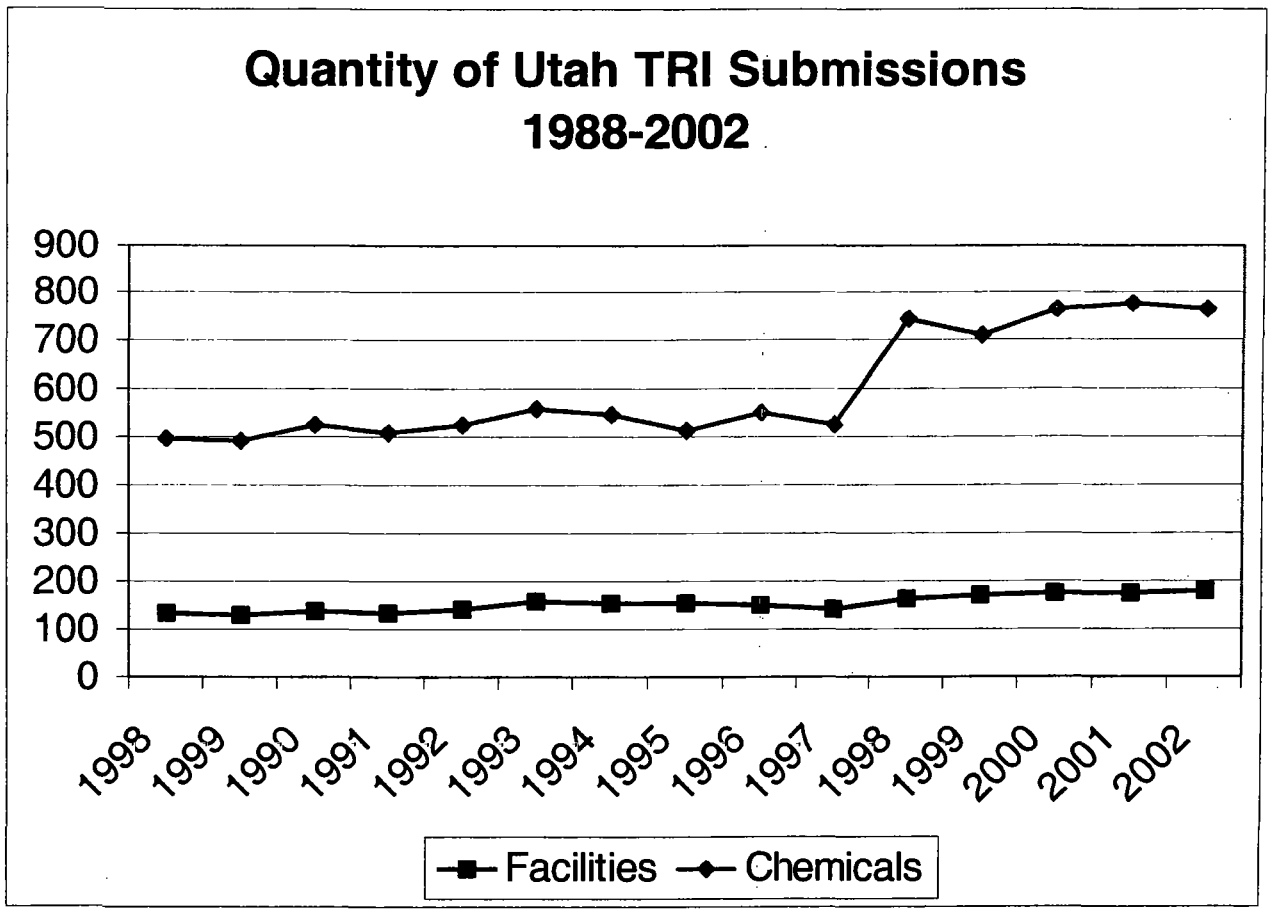

Figure 1

Facility Location

Each facility reports its latitude and longitude as part of the TRI submission. This information permits mapping of the TRI facility location. In Figure 2, each dot represents the location of a TRI facility. The majority of TRI reporting facilities (116 out of 178 or 65%) are located along the Wasatch Front.

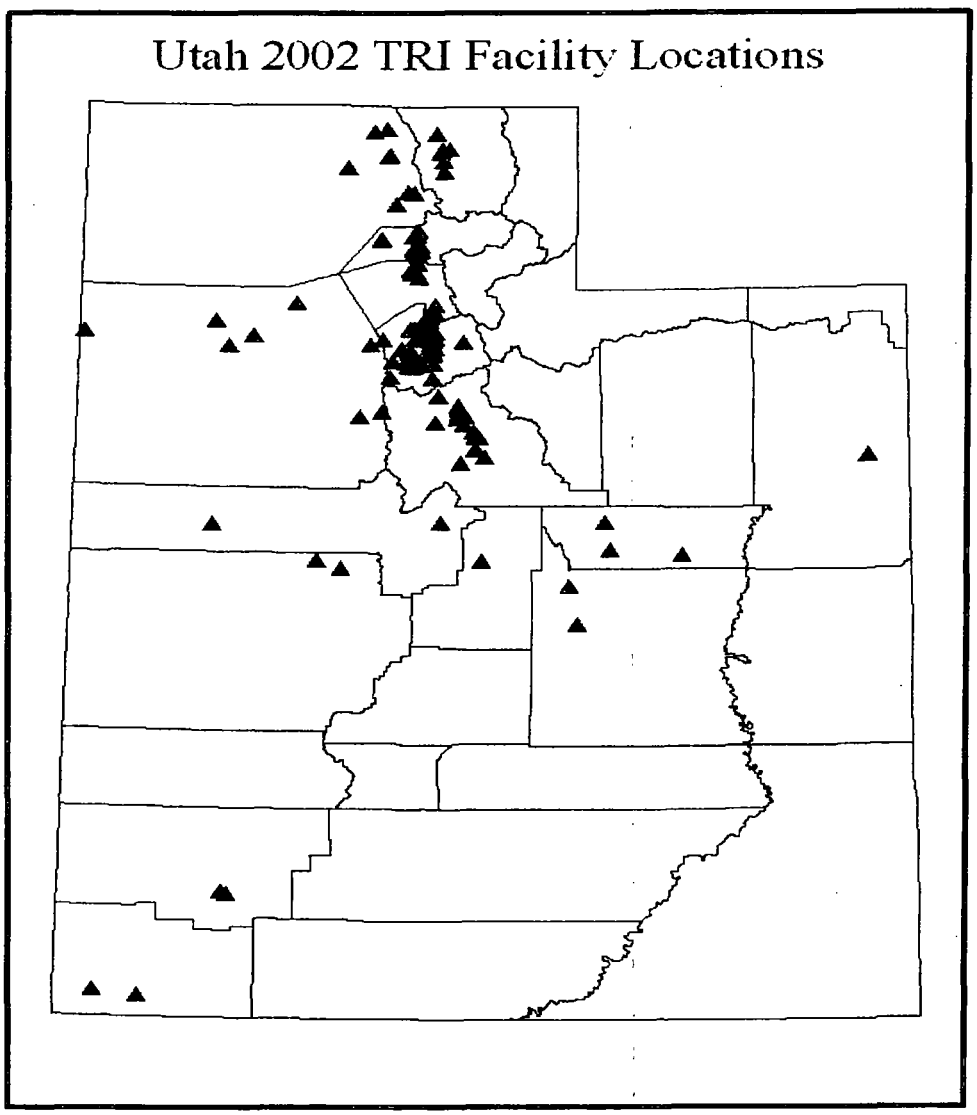

Figure 2

Figure 3 below displays the 2002 TRI reporting by industry sector category. The 175 facilities reporting are categorized into 21 industrial sectors based on Standard Industrial Classification (SIC) Code groups. The eight industrial sectors with the greatest number of facilities reporting are identified in Figure 3. The remaining 13 industrial sectors comprise the "Other" category from which 50 facilities reported. The greatest number of facilities reported from the Fabricated Metal Products (26 facilities) and Chemicals and Allied Products (22 facilities) industry sectors.

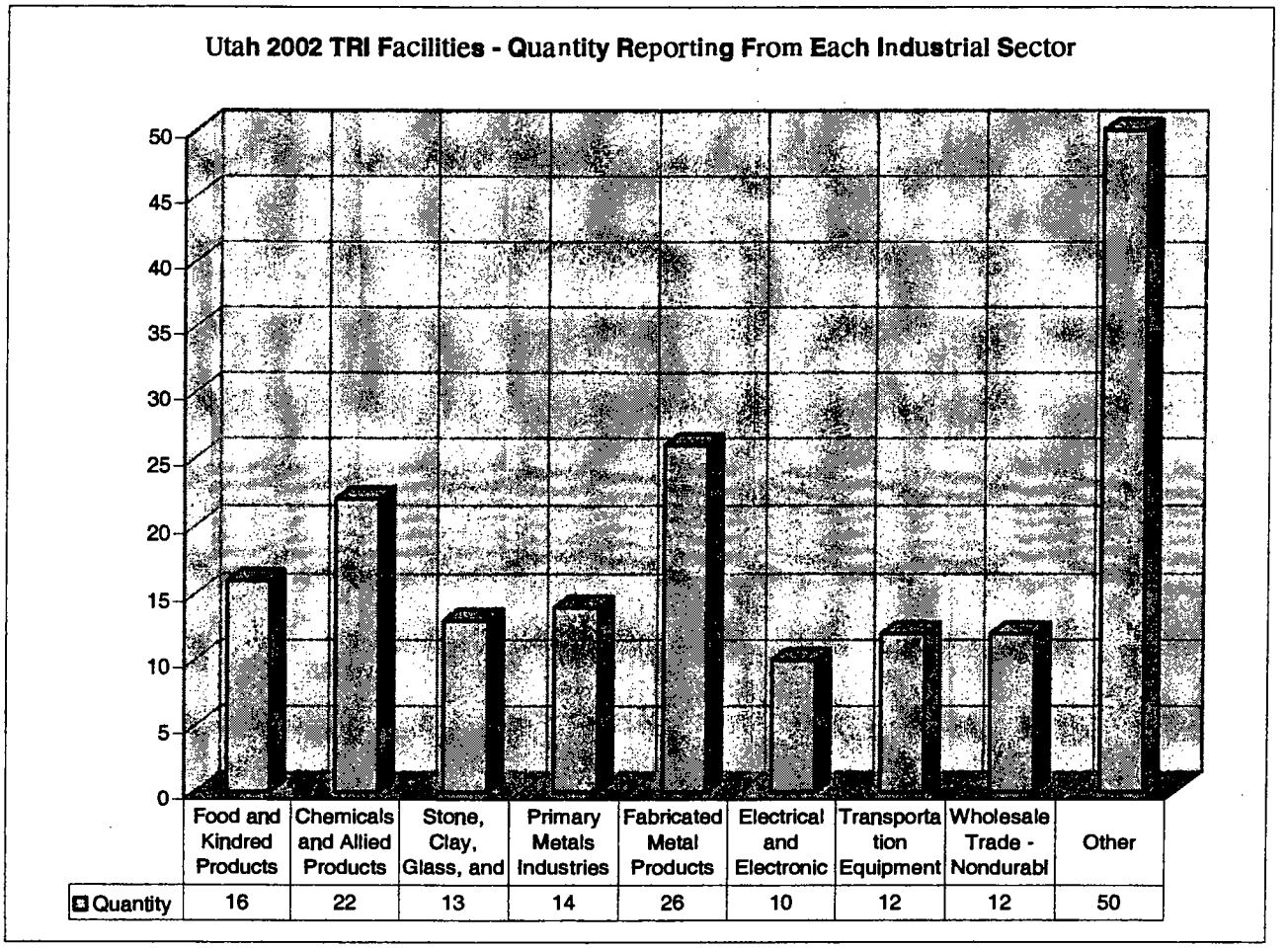

Figure 3

The 13 industrial sectors that comprise the "Other" category are:

1. Metal Mining
2. Coal Mining
3. Lumber and Wood Products
4. Furniture and Fixtures
5. Printing and Publishing
6. Petroleum and Coal Products
7. Rubber and Miscellaneous Plastics Products
8. Industrial Machinery and Equipment
9. Instmments and Related Products
10. Miscellaneous Manufacturing Industries

11. Electric Gas and Sanitary Services
12. Business Services
13. National Security and International Affairs

Total Releases

Total releases from Utah facilities decreased from 258 million pounds in 2001 to 180 million pounds in 2002. This represents a 30% reduction in total releases.

The decrease in total releases is largely attributable to increased copper recovery efficiencies and decreased total mining at Kennecott Utah Copper[1].

Total on-site and off-site releases include:

- On-site releases at the reporting facility to air, land, and water.
- Transfers of TRI-listed metals to municipal wastewater treatment plants. Generally, metals pass untreated through conventional treatment plants and are discharged in the plant effluent.
- TRI chemicals transferred to and disposed at off-site facilities, which are released to the environment.

Barrick v. *EPA Court Decision – Impact on Total Releases*

In a decision filed on April 2, 2003, by the United States District Court for the District of Columbia, under Civil Action No. 99-958 (TPJ) Barrick Goldstrike Mines, Inc. (Plaintiff) v. Christine T. Whitman and United States Environmental Protection Agency (Defendants), the court determined that non-PBT (Persistent Bio-accumulative, Toxic) chemicals present in a mixture (waste rock) below concentrations of 1% (or 0.1% for OSHA carcinogens) are not subject to reporting under the TRI program.[2]

As a result of the Barrick decision, Kennecott Utah Copper Mine Concentrators and Power Plant facility filed revised Form R data submissions for reporting years 2001, 2000, 1999, and 1998. This resulted in much lower release totals for the mining category of facilities for these years. The differences are shown in Figure 4 below. Tabular data provided in this report includes only the revised totals submitted in compliance with the court decision.

[1] Personal conversation with Kennecott Environmental Management personnel June 25, 2004.
[2] Barrick Goldstrike Mines, Inc., Plaintiff, v. Christine T. Whitman and United States Environmental Protection Agency, Defendants; Civil Action No. 99-958 (TPJ), April 2, 2003.
[3] Personal conversation with Kennecott Environmental Management personnel, June 14, 2004.

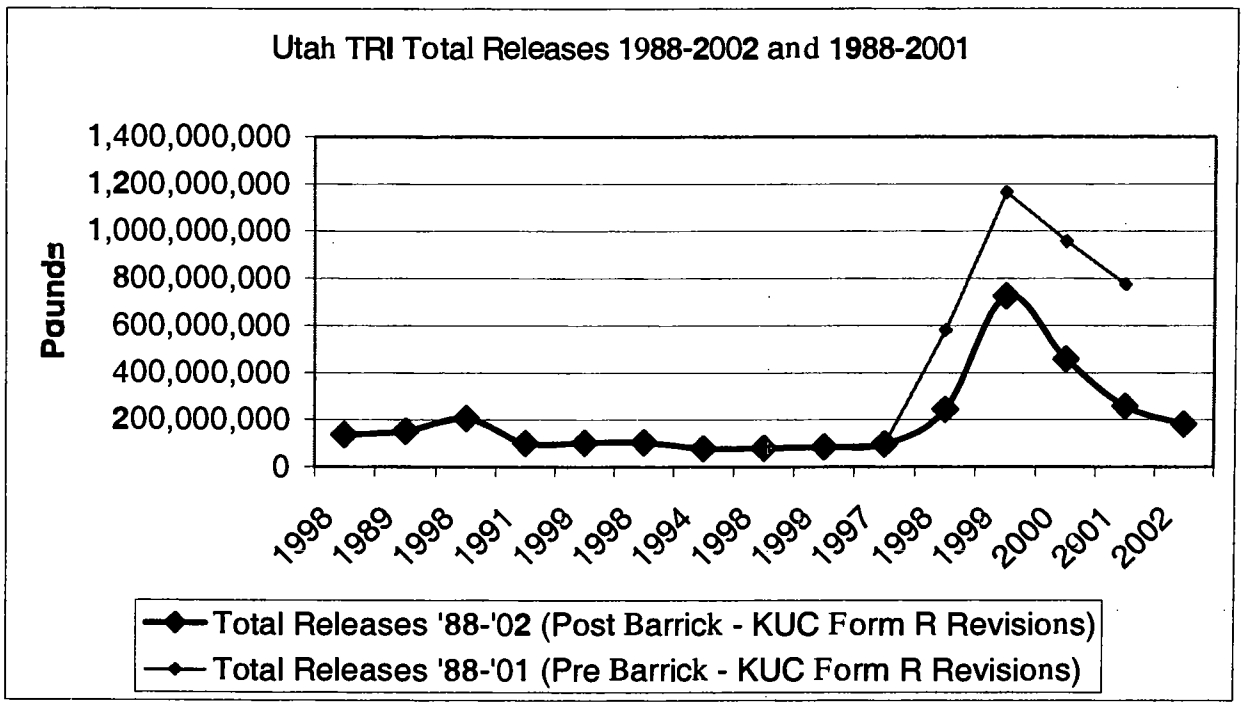

Figure 4

The trend analyses shown in Figure 4 depict two data series. The 2002 series (large diamond, 1988-2002) shows revised total release data following the Barrick decision. The 2001 series (small diamond, 1988-2001) shows total release data prior to the Barrick decision. As Figure 4 illustrates, the Barrick decision resulted in a significant reduction in total reported releases beginning in 1998 compared to releases reported prior to the Barrick decision.

The top 10 facilities for on-site and off-site releases are given in Tables 1. As indicated in Table 1, Kennecott Mine, Kennecott Smelter facilities, and U.S. Magnesium were the three top contributors to total releases occurring in 2002 in Utah.

Table 1
Utah 2002 TRI Top 10 Facilities - Total On- and Off-Site Releases

Lbs/Year	Facility Name
113,641,044	KENNECOTT UTAH COPPER MINE, CONCENTRATORS & POWER PLANT
25,231,982	KENNECOTT UTAH COPPER SMELTER & REFINERY
14,776,851	US MAGNESIUM, LLC
7,354,987	NUCOR STEEL - A DIV. OF NUCOR CORP
6,318,152	CLEAN HARBORS GRASSY MOUNTAIN, LLC
1,956,540	PACIFICORP HUNTINGTON PLANT
1,695,855	WESTERN ZIRCONIUM
1,637,617	BONANZA POWER PLANT
1,270,938	PACIFICORP HUNTER PLANT
1,216,481	INTERMOUNTAIN POWER GENERATING STATION

The top 10 chemicals for on-site and off-site releases are given in Table 2. Copper compounds, lead compounds, chlorine and zinc compounds constitute the chemicals released in greatest quantities.

Table 2
Utah 2002 TRI Top 10 Chemicals
Total On- and Off-Site Releases

Lbs/Year	Chemical Name
80,066,300	Copper Compounds
51,713,799	Lead Compounds
13,874,160	Chlorine
12,711,764	Zinc Compounds
3,854,605	Barium Compounds
3,177,305	Arsenic Compounds
2,470,453	Hydrochloric acid (aerosol forms only)
2,368,596	Nitrate Compounds
1,250,278	Manganese Compounds
1,185,184	Ammonia

Totals for on-site releases include releases to air, land, and water occurring strictly at the facility and exclude releases that may occur after materials are transferred off-site. The top 10 facilities totals for on-site releases are given in Table 3. A comparison of the data presented in Table 2 and Table 4 shows little change. The differences between on-site and off-site reporting, and off-site only reporting are comprised of (1) metals released from POTWs and (2) TRI chemicals transferred off-site for disposal. Thus the small differences found in on- and off-site compared to off-site (only) shows that TRI metals released by POTWs and other TRI chemicals transferred off-site for disposal is relatively low.

Table 3 Utah 2002 TRI Top 10 Facilities - Total On-Site Releases	
Facility Name	**Lbs/Year**
KENNECOTT UTAH COPPER MINE, CONCENTRATORS & POWER PLANT	113,640,794
KENNECOTT UTAH COPPER SMELTER & REFINERY	25,220,896
US MAGNESIUM, LLC	14,776,851
CLEAN HARBORS GRASSY MOUNTAIN, LLC	6,311,180
PACIFICORP HUNTINGTON PLANT	1,954,933
WESTERN ZIRCONIUM	1,695,855
BONANZA POWER PLANT	1,637,617
PACIFICORP HUNTER PLANT	1,270,566
INTERMOUNTAIN POWER GENERATING STATION	1,216,481
PACIFIC STATES CAST IRON PIPE COMPANY	1,173,208

The top 10 chemicals for on-site releases to air, land, and water are shown in Table 4.

Table 4 Utah 2002 TRI Top 10 Chemicals - Total On-Site Releases	
Lbs/Year	**Chemical Name**
79,965,624	Copper Compounds
51,064,221	Lead Compounds
13,874,160	Chlorine
6,738,249	Zinc Compounds
3,845,403	Barium Compounds
3,176,292	Arsenic Compounds
2,470,453	Hydrochioric acid (aerosol forms only)
2,368,596	Nitrate Compounds
1,184,690	Ammonia
1,012,712	Chromium Compounds

Releases to Air

As illustrated in Figure 5, Releases to air decreased from 19.3 million pounds in 2001 to 18.5 million pounds in 2002, a decrease of 4%. This is the lowest release to air total for Utah in the 16-year history of the TRI program. Several Pacificorp power plants, ATK Thiokol, and Geneva Steel, (the latter of whom has ceased operations), noted the largest decreases. These facilities contributed approximately 88% of the total decrease.

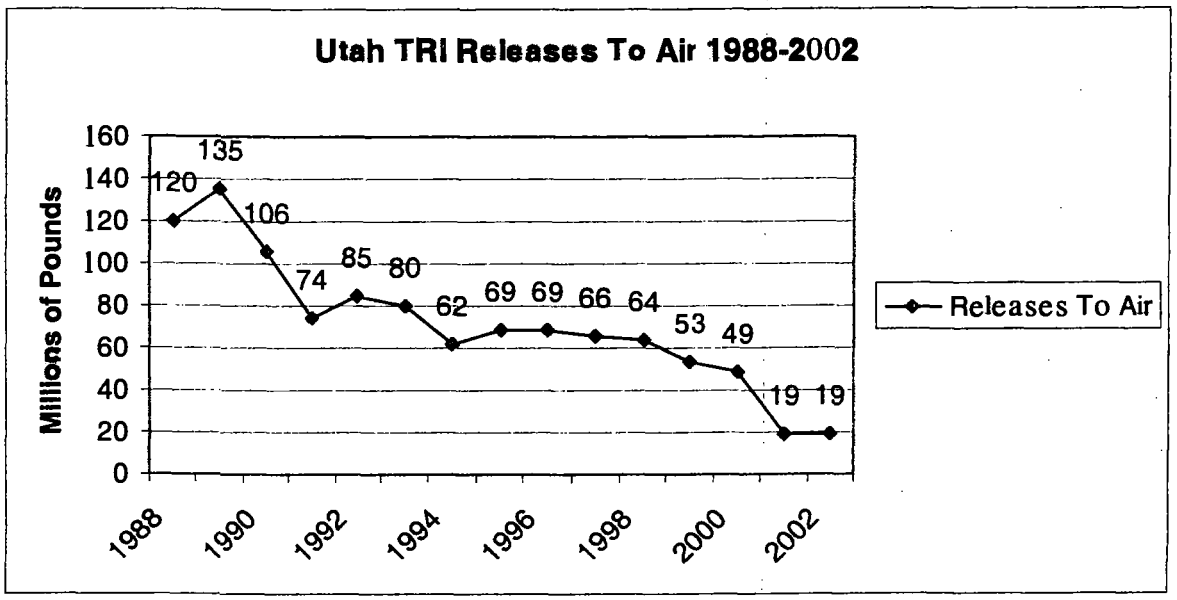

Figure 5

Top 10 facility totals for releases to air are shown in Table 5 and the top 10 chemical totals for releases to air are shown in Table 6 below. U.S. Magnesium is the primary contributor to the 14 million pounds of chlorine reported released. Primary industry contributors to the release of 2.4 million pounds of hydrochloric acid (aerosols only) include: coal fired power plants (850,000 pounds), U.S. Magnesium (930,000 pounds), and rocket motor manufacturing (540,000 pounds).

Table 5
Utah 2002 TRI Top 10 Facilities - Total Releases to Air

Lbs/Year	Facility Name
14,764,046	US MAGNESIUM, LLC
756,296	PACIFICORP HUNTINGTON PLANT
577,000	ATK THIOKOL PROPULSION
295,228	PACIFICORP CARBON PLANT
196,588	PACIFICORP HUNTER PLANT
166,204	BD MEDICAL SYSTEMS
154,362	TESORO REFINING AND MARKETING COMPANY
142,883	INTERMOUNTAIN POWER GENERATING STATION
134,130	U.S. DOD, U.S. AIR FORCE, OGDEN AIR LOGISTICS CENTER
102,640	KENNECOTT UTAH COPPER SMELTER & REFINERY

Table 6 Utah 2002 TRI Top 10 Chemicals – Total Releasee to Air	
Lbs/Year	Chemical Name
13,874,160	Chlorine
2,398,453	Hydrochloric acid (aerosol forms only)
478,533	Hydrogen fluoride
282,344	Sulfuric acid (aerosol forms only)
262,629	Ammonia
206,473	1,1-Dichloro-1-fluoroethane
130,776	Toluene
79,402	n-Hexane
73,433	Styrene
73,090	Xylene (mixed isomers)

U.S. Magnesium

U.S. Magnesium is historically the largest contributor to TRI releases to air in Utah. Nationally, USM has been among the highest-ranking facilities in emissions of TRI chemicals to air. U.S. Magnesium is located along the west side of the Great Salt Lake in the western desert of Tooele County and produces magnesium metal by extraction of magnesium chloride from brines drawn from the lake. Chlorine and hydrochloric acid are produced as by-products of the magnesium extraction process.

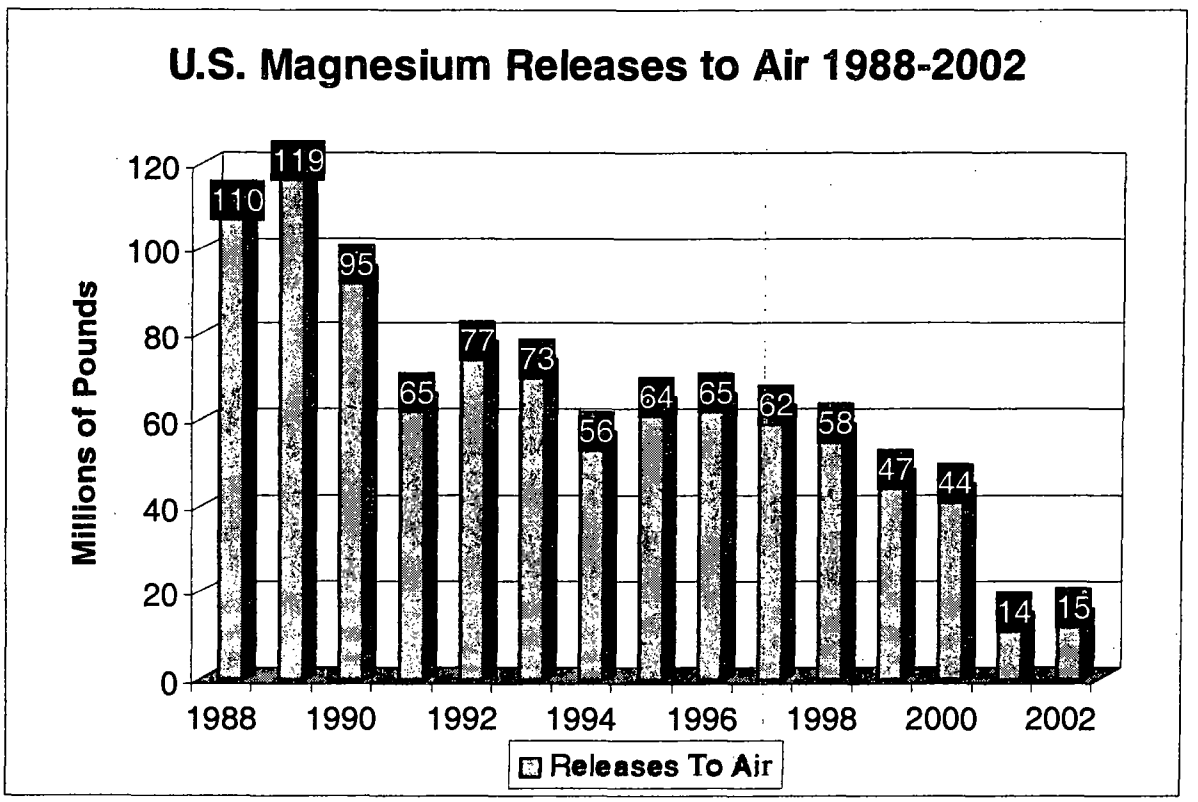

Figure 6

As shown in Figure 6, U.S. Magnesium emissions of TRI chemicals increased slightly from 14.4 million pounds in 2001 to 14.8 million pounds in 2002. The amount of chlorine released increased slightly from 13.1 million pounds in 2001 to 13.8 million pounds in 2002, an increase of 5.3 percent. The facility's output of hydrochloric acid decreased by 23.7%, from 1.2 million pounds in 2001 to 926,000 pounds in 2002.

RELEASES TO LAND

Releases to land include releases made to: (1) landfills designed to receive solid waste; (2) surface impoundments for liquid waste; (3) land treatment, incorporating the waste into the soil; or (4) other disposal, such as placing material containing TRI chemicals on land.

TRI chemical releases to land in Utah totaled 154 million pounds in 2002. This represents a decrease of 74.8 million pounds or a 33% decrease from 229 million pounds reported in 2001. This decrease is largely attributable to increased copper recovery efficiencies and decreased total mining related activities at Kennecott Utah Copper.

As shown in Table 7, the top two release-to-land totals were from Kennecott facilities. Kennecott facilities contributed 90% of the total releases to land, and 76% of the total amount of TRI chemicals released in Utah.

Table 7
Utah 2002 TRI Top 10 Facilities - Total Releases to Land

Lbs/Year	Facility Name
113,603,195	KENNECOTT UTAH COPPER MINE, CONCENTRATORS & POWER PLANT
25,110,922	KENNECOTT UTAH COPPER SMELTER & REFINERY
6,310,899	CLEAN HARBORS GRASSY MOUNTAIN, LLC
1,641,668	WESTERN ZIRCONIUM
1,575,229	BONANZA POWER PLANT
1,198,637	PACIFICORP HUNTINGTON PLANT
1,169,161	PACIFIC STATES CAST IRON PIPE COMPANY
1,073,978	PACIFICORP HUNTER PLANT
1,073,598	INTERMOUNTAIN POWER GENERATING STATION
544,790	BRUSH RESOURCES INC, MILL

Table 8 identifies the top 10 chemicals released to land. Kennecott Utah Copper Mine Concentrators & Power Plant and Smelter & Refinery comprise the largest releases consisting of 78.4 million pounds of copper compounds and 49.8 million pounds of lead compounds contained in waste rock and tailings processed through these facilities. Additional metals compounds of zinc, barium, arsenic, chromium, and nickel, and nitrate compounds comprise the remaining majority of largest quantity releases to land.

Table 8

Utah 2002 TRI Top 10 Chemicals - Total Releases to Land

Lbs/Year	Chemical Name
79,906,868	Copper Compounds
51,050,893	Lead Compounds
6,722,143	Zinc Compounds
3,838,686	Barium Compounds
3,172,750	Arsenic Compounds
2,327,455	Nitrate Compounds
1,009,653	Chromium Compounds
921,561	Ammonia
891,693	Nickel Compounds
798,943	Manganese

Mining

Three mining facilities reported under the TRI program for reporting year 2002:

- Kennecott Barneys Canyon Mining Company
- Kennecott Utah Copper Mine, Concentrators & Power Plant
- Brush Resources, Inc., Mill

For 2002 virtually 100% of releases reported from mines are releases to land. According to the mining industry, major sources of TRI releases to land totals are:

- Metals in materials no longer undergoing heap leaching; and
- Processed materials such as tailings placed on-site, often near the mine or mill.

Kennecott Facilities

Kennecott Utah Copper (KUC) operates extensive mining, milling, smelting, and refining operations in western Salt Lake County. The company's mine is one of the world's largest open pit mines. Annually the facility extracts millions of tons of overburden, waste rock, and ore as part of its operations. Ore is concentrated and shipped by pipeline to the smelter, which produces copper, gold, and sulfuric acid. The Kennecott Barneys Canyon Mine is an open pit gold mine. About 74% of the Utah release-to-land total was reported by Kennecott facilities in the form of copper, lead, manganese, chromium, arsenic and other metals compounds.

Releases to land reported under TRI from Kennecott facilities consist largely of metals present at lower concentrations in mill tailings.

The Kennecott Utah Copper Smelter and Refinery has submitted TRI reports separate from Kennecott's mining facilities since 1987. As shown in Figure 7, releases to land that originated from smelter operations decreased from 27.7 million pounds reported in 2001 to 25.1 million pounds in 2002.

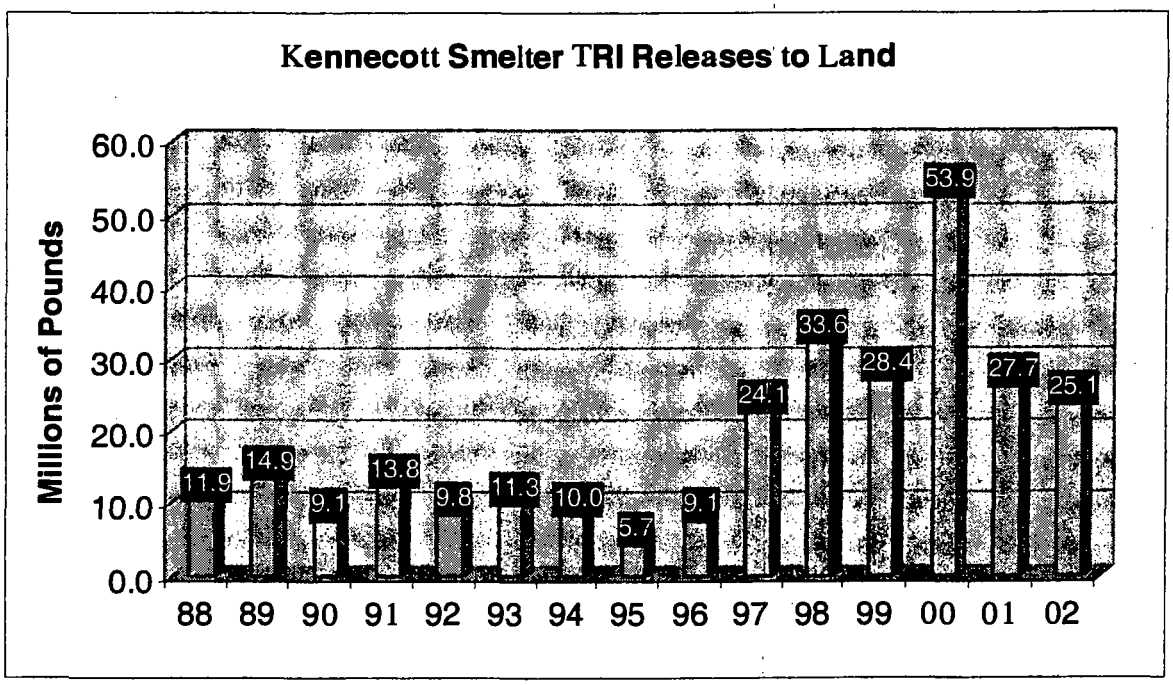

Figure 7

The top compounds in the total combined highest releases (in millions of pounds) to land in 2002 for Kennecott facilities are copper (12.4), zinc (5.3), lead (3.7), and arsenic (2.8).

Waste Disposal Facilities

Waste disposal facilities that treat, store, and/or dispose of hazardous waste are another industrial class required to submit TRI reports. Subtitle C of RCRA and the Utah Solid and Hazardous Waste Act regulate these facilities. Facilities in this class reporting in 2002 include:

- Clean Harbors Grassy Mountain, LLC.
- Clean Harbors Aragonite, LLC.

Well over 99% of releases reported by these facilities are releases to land. The EPA TRI definition of release to land includes the placement of TRI chemicals into landfills, even landfills specifically constructed under requirements of RCRA and Utah Law to contain the waste inside the landfill and preclude a release. Clean Harbors (formerly Safety Kleen Lone & Grassy Mountain) reported 5.9 million pounds of waste treated, stored and/or disposed in 2001.

Releases for 2002 are slightly up to 6.3 million pounds. Table 9 shows that Clean Harbors Grassy Mountain is the only facility in 2002 to report a release to land from a waste disposal facility. Releases to land have been comprised of metals compounds, primarily copper, zinc, and lead with a variety of additional metals. Clean Harbors Aragonite reported no releases to land.

Table 10 lists the top 10 TRI chemical totals identified as released to land from waste disposal facilities.

Table 9 Utah 2002 TRI Waste Disposal Facility Releases to Land	
Lbs/Year	Facility Name
6,310,899	CLEAN HARBORS GRASSY MOUNTAIN, LLC

Table 10 Utah 2002 TRI Top Chemical Releases to Land from Waste Disposal Facilities	
Lbs/Year	Chemical
1,389,007	Copper Compounds
1,180,168	Zinc Compounds
998,474	Lead Compounds
361,033	Cadmium Compounds
267,245	Arsenic Compounds
262,893	Silver Compounds
261,485	Barium Compounds
249,078	Nickel Compounds
237,761	Selenium Compounds
227,066	Antimony Compounds

Electric Utilities

Electric utilities that bum coal or oil for electric energy production were first required to submit TRI reports in 1998. Table 11 shows facilities that reported in 2002.

Table 11 Utah 2002 TRI Coal-Fired Electric Utility Releases to Land	
Lbs/Year	Facility Name
1,575,229	BONANZA POWER PLANT
1,198,637	PACIFICORP HUNTINGTON PLANT
1,073,598	INTERMOUNTAIN POWER GENERATING STATION
114,255	PACIFICORP CARBON PLANT
33,180	SUNNYSIDE COGENERATION ASSOCIATES

Table 12 below provides the top 10 chemicals released to land by the coal-fired electric utility sector.

Table 12 Utah 2002 TRI Top 10 Chemical Releases to Land from Coal-Fired Electric Utilities	
Lbs/Year	Chemical
2,943,866	Barium Compounds
231,448	Chromium Compounds
194,433	Manganese Compounds
106,320	Lead Compounds
105,767	Vanadium Compounds
100,839	Copper Compounds
95,084	Zinc Compounds
71,000	Arsenic Compounds
67,110	Nickel Compounds
39,300	Cobalt Compounds
23,800	Antimony Compounds
14,900	Selenium Compounds
776	Mercury Compounds
250	Ammonia
6.5092*	Dioxin and Dioxin Like Compounds
* Grams	

RELEASES TO SURFACE WATER

TRI-reported releases to surface water in Utah are a small percentage of total releases reported under TRI. Also, as only a small percentage of industries in Utah are required to submit TRI reports, the TRI report totals identify only a portion of total chemical discharges to water bodies. However, in addition to TRI reports, many facilities are also required to submit "discharge monitoring reports" to the Utah Division of Water Quality which provide additional information on chemical concentrations and chemical amounts released to water.

Total TRI chemical releases to surface water in Utah in 2002 amounted to slightly more than 63,000 pounds. This is a significant decrease from 2001 for which the total release to surface water was slightly greater than 1 million pounds. This dramatic decrease is largely attributable to cessation of operations at Geneva Steel, which reported the vast majority of the chemicals released (primarily nitrates to Utah Lake) to surface waters in past years. Table 13 provides the list of the top facilities that released to surface waters in 2002.

Table 13 Utah 2002 TRI Top Facilities Releases to Surface Water	
Lbs/Year	Facility Name
37,092	CHEVRON PRODUCTS COMPANY- SALT LAKE REFINERY
18,178	KENNECOTT UTAH COPPER MINE, CONCENTRATORS & POWER PLANT
7,334	KENNECOTT UTAH COPPER SMELTER & REFINERY
110	PACIFICORP CARBON PLANT
94	VALMONT COATINGS - INTERMOUNTAIN GALVANIZING
78	NUCOR STEEL - A DIV. OF NUCOR CORP
61	GENEVA STEEL, LLC
52	CERROWIRE & CABLE CO.
19	SOUTHWIRE COMPANY
15	RUBBER ENGINEERING

Table 14 lists the top chemical releases to water in 2002.

Chevron Products Company released 33,000 pounds of nitrate compounds to the Great Salt Lake in 2002. An additional 25,500 pounds of total TRI chemicals were reported released from Kennecott Copper facilities to Surface Waters in 2002.

Table 14 Utah 2002 TRI Top Chemical Releases to Surface Water	
Lbs/Year	Chemical Name
40,850	Nitrate Compounds
3,660	Zinc Compounds
3,450	Nickel Compounds
2,366	Copper Compounds
1,700	Cyanide Compounds
1,450	Selenium Compounds
1,000	Xylene (mixed isomers)
1,000	Arsenic Compounds
750	Benzene
750	Toluene
750	Ethylbenzene

TRANSFERS TO POTWS

Publicly Owned Treatment Works (POTWs) are publicly owned wastewater treatment plants designed to treat sanitary sewage. They may also receive industrial wastes. TRI "transfers to POTWs" identify the annual total amount of TRI chemicals discharged to POTW facilities.

Total discharge to POTWs increased in 2002 to 1.2 million pounds, up from 912,000 pounds in 2001.

Table 15 identifies the top 10 facilities transferring chemicals to POTWs during 2002.

Table 15 Utah 2002 TRI Top 10 Facility Transfers to POTWs	
Lbs/Year	Facility Name
239,154	JOHNSON MATTHEY
231,503	EASTON TECHNICAL PRODUCTS
130,220	TYCO PRINTED CIRCUIT GROUP INC., LOGAN DIVISION
107,307	DANNON COMPANY, THE
63,434	FUTURA INDUSTRIES
61,150	GENEVA NITROGEN LLC
60,857	COMPEQ INTERNATIONAL
57,547	FAIRCHILD SEMICONDUCTOR
49,344	NESTLE USA - PREPARED FOODS DIVISION, INC.
32,076	MEADOW GOLD DAIRY

Table 16 below lists top chemical transfers to POTWs for reporting year 2002. Nitrate compounds account for about 79% of all releases to POTWs in 2002.

Table 10 Utah 2002 TRI Top Chemical Transfers to POTWs	
Lbs/Year	Chemical Name
930,753	Nitrate Compounds
71,529	Glycol Ethers
67,815	Nitric acid
31,291	Aluminum (fume or dust)
18,720	Ammonia
14,958	Toluene
14,546	Formaldehyde
11,214	Xylene (mixed isomers)
8,611	Benzene
4,100	Diethanolamine

TRI-reported releases to POTWs do not include information conceming the rate of release or concentration of chemicals in the release. However, State and Federal law requires industrial facilities exceeding federally established chemical concentrations in wastewater to operate industrial pretreatment equipment to reduce such concentrations below harmful levels before discharging to the POTWs.

Transfers of metals to POTWs are considered a release to the environment under the TRI program. Generally, metals pass untreated through conventional treatment plants and are discharged in the plant effluent.

UTAH FACILITY TRANSFERS TO OTHER OFF-SITE LOCATIONS

Transfers to "other off-site" locations are transfers of TRI chemicals to facilities other than POTWs. Often these facilities include chemical recyclers and waste disposal sites. If the chemical is disposed of at this location, it is considered a release to the environment. The material transferred may or may not be classified a "hazardous waste", but it contains a listed TRI chemical.

Table 17 lists the top 10 facilities that transferred chemicals to off-site locations in 2002. Nucor Steel transferred 7.2 million pounds of chemicals to off-site locations. The amount comprises almost 95% of all chemicals transferred to off-site locations in 2002.

The top 10 facilities responsible for transferring chemicals off-site in reporting year 2002 are shown in Table 17.

Table 17
Utah 2002 TRI Top 10 Facilities Transferring Chemicals Off-Site

Lbs/Year	Facility
7,164,035	NUCOR STEEL - A DIV. OF NUCOR CORP
622,093	CLEAN HARBORS ARAGONITE, LLC.
556,738	IBA S & I, INC.
422,187	TYCO PRINTED CIRCUIT GROUP INC., LOGAN DIVISION
253,037	PACIFICORP HUNTINGTON PLANT
242,474	ATK THIOKOL PROPULSION CO. - BACCHUS
236,882	U.S. DOD, U.S. AIR FORCE, OGDEN AIR LOGISTICS CENTER
200,800	AMERICAN PACIFIC CORPORATION UTAH OPERATIONS
184,376	COMPEQ INTERNATIONAL
168,561	LIFETIME PRODUCTS INC.

Table 18 lists the top 10 chemicals transferred off-site. Total transfer of TRI chemicals off-site was reduced from 8.6 million pounds in 2001 to 7.6 million pounds in 2002. This represents a 12.5% reduction in chemicals transferred off-site.

Zinc compounds comprise 83.8% of all TRI chemicals transferred off-site in 2002. Copper compounds; lead compounds, PCBs, ethylene glycol, and manganese compounds comprise the bulk of the remaining chemicals transferred to off-site facilities during 2002.

Table 18
Utah 2002 TRI Top 10 Chemicals Transferred to Off-Site Facilities

Lbs/Year	Chemical Name
6,335,946	Zinc Compounds
853,876	Copper Compounds
732,185	Lead Compounds
580,365	Polychlorinated biphenyls
572,034	Ethylene glycol
564,669	Manganese Compounds
163,523	Nitric acid
150,481	Chromium Compounds
139,266	Dichloromethane
117,555	Aluminum (fume or dust)

Figure 8 displays how chemicals were managed after being transferred from Utah facihties. Seventy-three percent of the total TRI chemicals transferred off-site in 2002 were transferred for disposal, while 22% of the total were transferred for recycling. The remaining 5% of chemicals were transferred for treatment.

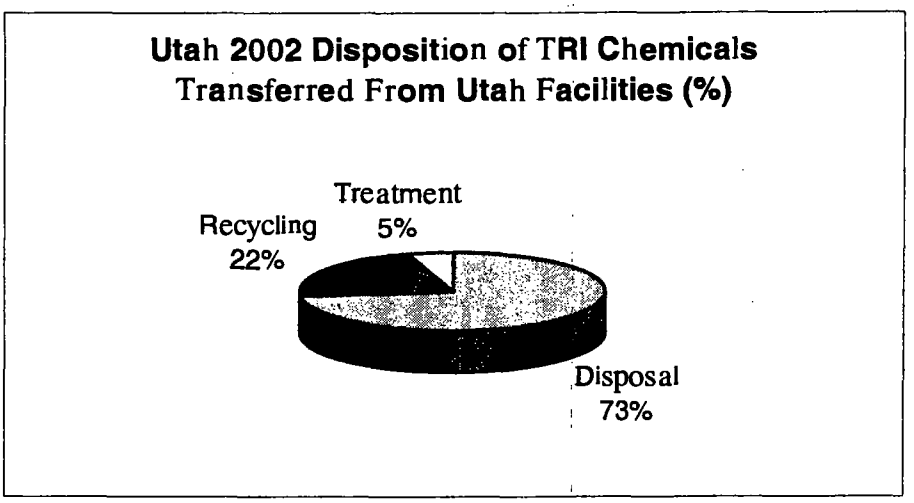

Figure 8

TRI chemicals transferred offsite may have been transferred to facilities inside or outside Utah. Figure 9 depicts the percentage of chemicals transferred to various states. About 49% of the 7.5 million pounds of TRI chemicals transferred off-site in 2002 were transferred to facilities in California. While 37% of TRI chemicals transferred off-site were sent to facilities in Idaho. Eleven percent of all chemicals transferred off-site were transferred to facilities in Utah, and 3% were transferred to locations other than those states listed above.

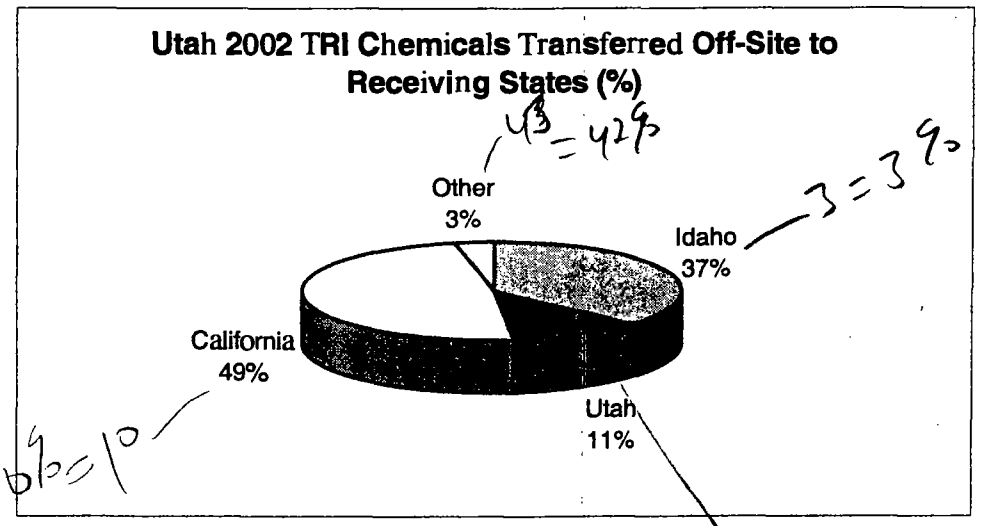

Figure 9

PERSISTENT BIOACCUMULATIVE TOXIC (PBT) CHEMICALS

In October 1999 EPA published a final rule (64 FR 58666) adding seven chemicals and two chemical compound categories to the list of toxic chemicals subject to reporting under EPCRA section 313 that meet the criteria for persistence and bioaccumulation. Dioxin and dioxin-like compounds, and polycyclic aromatic compounds (PACs) are the two chemical compound categories added. EPA also lowered the reporting threshold on certain other toxic chemicals. These changes became affective with the reporting year beginning January 1, 2000.[4] EPA eliminated the *de minimis* exemption for the PBT chemicals. All PBT and chemicals and chemical categories are excluded from the eligibility for the alternate threshold of one million pounds, thus the Form A cannot be used for PBT chemicals[5]. EPA also excluded PBT chemicals from range reporting for on-site releases and transfers off-site for further waste management. In 2001 EPA classified lead and lead compounds as PBT chemicals and lowered the reporting thresholds for each. Under the 1999 rule, EPA lowered the reporting thresholds for PBT chemicals to either 100 or 10 pounds, or in the case of dioxin and dioxin-like compounds chemical category, to 0.1 gram. Under the PBT classification, dioxin and dioxin-like compounds, lead compounds, mercury compounds, and polycyclic aromatic compounds (PACs) are the four PBT chemical categories with lower reporting thresholds.

EPCRA specifies the reporting threshold for section 313 chemicals in unit pounds, except in the case of the dioxin and dioxin-like compounds category EPA established the 0.1-gram reporting threshold. One pound is equal to 453.59 grams.

Prominent release data for other PBT chemicals commonly found among mining facilities in Utah such as lead and mercury were presented and discussed earlier in this report (see Tables 2, 4, 8, 10, 12 and 18) and are not presented again here. Dioxin and dioxin-like compounds are of particular interest because of the unique reporting threshold of 0.1 gram established by EPA.

[4] Federal Register/Vol. 64, No. 209 October 29, 1999.

[5] Except lead when it is in stainless steel, brass or bronze alloys when the 100 lbs threshold for lead has not been exceeded.

For reporting year 2002, 16 facilities in Utah reported a total release of 2,648.43 grams of dioxin and dioxin-like chemicals. The total amount of those chemicals released in Utah in 2001 was 2,502.43 grams. The increase from 2001 of 146 grams represents a 5.8% increase. U.S. Magnesium released 2,615 grams of dioxin and dioxin-like chemicals, which represents 98.7% of the total amount released. The Clear Harbors Aragonite facility reported the second largest release of 17.77 grams, which is 0.7% of the total amount of dioxin and dioxin-like chemicals released. Fourteen additional facilities comprise the remaining 0.3% of the total amount of dioxin and dioxin-like chemicals released in which amounts released fell into a range of 0.01 grams to 8.4 grams. Table 19 shows the 16 facilities in Utah reporting releases of dioxin and dioxin-like compounds and the amount of these chemicals released by each facility.

Table 19
Utah 2002 TRI - Facilities PBT Dioxin and Dioxin Like Compounds Total Releases

Facility	Air	Land	Total Releases
US MAGNESIUM, LLC	46.0000	2,569.0000	2,615.0000
CLEAN HARBORS ARAGONITE, LLC.	17.7700	0.0000	17.7700
INTERMOUNTAIN POWER GENERATING STATION	1.8888	6.5092	8.3980
BONANZA POWER PLANT	3.5475	0.0000	3.5475
SUNNYSIDE COGENERATION ASSOCIATES	0.6850	0.0000	0.6850
PACIFICORP HUNTER PLANT	0.6680	0.0000	0.6680
ALCOA EXTRUSIONS, INC.	0.6001	0.0000	0.6001
PACIFICORP HUNTINGTON PLANT	0.4213	0.0000	0.4213
KENNECOTT UTAH COPPER MINE, CONCENTRATORS & POWER PLANT	0.4000	0.0000	0.4000
WESTERN ZIRCONIUM	0.0000	0.3900	0.3900
ASH GROVE CEMENT COMPANY	0.2310	0.0000	0.2310
GRAYMONT WESTERN US INC., CRICKET MOUNTAIN	0.1040	0.0000	0.1040
PACIFICORP CARBON PLANT	0.1015	0.0000	0.1015
CHEVRON PRODUCTS COMPANY- SALT LAKE REFINERY	0.1000	0.0000	0.1000
TESORO REFINING AND MARKETING COMPANY	0.0100	0.0000	0.0100
KENNECOTT UTAH COPPER SMELTER & REFINERY	0.0030	0.0000	0.0030
Totals	72.5302	2,575.8992	2,648.4294

SUMMARY

In reporting year 2002 the total releases of hazardous chemicals in Utah decreased from the previous year by 30.1%. The material reduction was 77.7 milhon pounds. Total releases to air decreased by 4%, a decrease of 768,000 pounds in 2002. The figures for releases to land were impacted by a decision filed in April 2003 by the United States District Court For the District of Columbia. In the case of Barrick vs. U.S. EPA (April 2003) the ruling had a significant impact upon the reporting requirements by the mining industry to report toxic chemicals present in waste rock. In this decision, the court ruled in favor of the plaintiff wherein waste rock, containing toxic chemicals subject to TRI reporting which are present in concentrations considered de minimis (less than or equal to 1%), is eligible for the de minimis exemption and therefore reporting under TRI is not required. As a result, the total releases to land reported in

Utah decreased by 33% (74 million pounds) in 2002. Releases to surface waters decreased by 93.7%, a drop in excess of 1 million pounds. This enormous drop in the total release of chemicals to surface waters is attributable almost entirely to the cessation of operations at Geneva Steel. Transfers to publicly owned treatment works (POTWs; a.k.a. waste water treatment plants) increased by 29.4% in 2002. Transfers to other off-site facilities, which typically include chemical recyclers and waste disposal sites decreased by 12.5%, a decrease by 1 million pounds. The most notable PBT chemical is dioxin and dioxin-like compounds. The federal regulations require that chemicals subject to TRI reporting be reported in pounds. Dioxin and dioxin-like compounds are unique such that it is the only category of chemicals in which the amounts released are reported in grams. There was a 5.6% increase in the amount of dioxins reported released in 2002.

Appendix A

An Alphabetical Listing of Utah TRI 2002 Reporting Facilities

Facility Name	Street	City
AIROAS INTERMOUNTAIN, INC.	1731 WEST 2650 SOUTH	OGDEN
ALBION LABORATORIES, INC.	2332 B AVENUE	OGDEN
ALBION MANUFACTURINO TECHNOLODIES	2774 S. 1750 W.	OODEN
ALCOA EXTRUSIONS, INC.	1550 NORTH KIRBY LANE	SPANISH FORK
ALTA GROUP, L.L.C., THE	4603 WEST 2100 SOUTH	SALT LAKE CITY
AMCOR MASONRY PRODUCTS	333 SOUTH REDWOOD RD	NORTH SALT LAKE
AMERICAN PACIFIC OORPORATION UTAH OPERATIONS	10622 WEST 6400 NORTH	CEDAR CITY
AMERICAN WELDINO AND TANK CO.	5520 WEST OLD BINGHAM HIGHWAY	WEST JORDAN
ASH GROVE CEMENT COMFANY	6 MILES EAST OF LEAMINGTON, UTAH ON HIGHWAY	LEAMINGTON
ASHLAND DISTRIBUTION COMFANY	FREEPORT CENTER BUILDING 12 PO BOX 160367	CLEARFIELD
ATK THIOKOL PROPULSION	9160 NORTH HIGHWAY 83	PROMONTORY
ATK THIOKOL PROPULSION CO. - BAOCHUS	5000 SOUTH 8400 WEST	MAONA
ATWOOD MOBILE PRODS.	1874 S. PIONEER RD.	SALT LAKE CITY
AUTOLIV ASP INO.	250 AMERICAN WAY	BRIOHAM CITY
AUTOLIV ASP INC., OEA INITIATO R FACILITY	1360 NORTH 1000 WEST	TREMONTON
AUTOLIV ASP, INC	16700 W HWY 83	PROMONTORY
AUTOLIV ASP, INC.	3350 AIRPORT ROAD	OODEN
BAICOR	710 WEST 200 NORTH	LOGAN
BALLARD MEDICAL PROGUCTS	12050 LONE PEAK PARKWAY	DRAPER
BARNES AEROSPACE, OODEN DIVISION (BLDG. #2)	1483 W. 2550 S.	OODEN

Facility Name	Street	City
BASIC ELEMENTS MANUFACTURING	8400 N. ELLERBECK ROAD	GRANTSVILLE
BD MEDICAL SYSTEMS	9450 SOUTH STATE STREET	SANDY
BIG WEST OIL LLC	333 WEST CENTER STREET	NORTH SALT LAKE
BLACK OIL COMPANY, INO.	33 NORTH MAIN	MONTICELLO
BLACK OIL COMPANY, INC.	995 NORTH HIGHWAY 191	MOAB
BONANZA POWER PLANT	12500 EAST 25500 SOUTH	VERNAL
BOURNS NETWORKS	1400 N 100 W	LOOAN
BRENNTAG WEST, INC.	450 EXCHANOE RD.	OGDEN
BRODY CHEMICAL	4S25 SOUTH 6200 WEST	SALT LAKE CITY
BROWNING ARMS COMPANY	1 BROWNING PLACE	MORGAN
BRUSH RESOURCES INC, MILL	10 MILES NORTH HIGHWAY #6	DELTA
BUCYRUS BLADES, INC.	8556 S. 4000 W.	WEST JORDAN
C & C CAST POUYMERS, INO.	1555 WEST 200 SOUTH	LINDON
CABINETEC	188 NORTH 3050 EAST	ST. OEOROE
CAMPBELL SCIENTIFIC, INC	815 WEST 1800 NORTH	LOOAN
CAROILL SALT	15100 WEST ROWLEY ROAD I-80 WEST, EXIT 77	GRANTSVILLE
CB&I CONSTRUCTORS INC	700 SOUTH 550 EAST	PROVO
CERRO COPPER WESTERN DIVISION	888 N 5300 W	CEDAR CITY
CERROWIRE & CABLE CO.	1160 W. 2150 N.	OODEN
CHAMPION TECHNOLOGIES, INC.	2060 SOUTH 1500 EAST	VERNAL
OHEMCENTRAL/SALT LAKE CITY	2465 SOUTH 1100 WEST	WOODS CROSS
CHEMIOAL LIME GRANTSVILLE PLANT	HIGHWAY 40	ORANTSVILLE
CHEVRON PRODUOTS COMPANY- SALT LAKE REFINER	2351 NORTH 1100 WEST	SALT LAKE CITY

Facility Name	Street	City
CHROMALOX	2150 NORTH RULON WHITE BLVD.	OODEN
CIRCUIT GRAPHICS, INC.	1120 SO. SWANER ROAD	SALT LAKE CITY
CUEAN HARBORS ARAOONITE, LLC.	11600 NORTH APTUS RD. HIGHWAY 80, ARAOONITE E	ORANTSVIULE
CUEAN HARBORS ORASSY MOUNTAIN, LLC	3 MIUES E. 7 MIUES N. EXIT 41 ON L80	GRANTSVILLE
COMPANION SYSTEMS INC.	645 W. 200 N.	NORTH SALT UAKE
COMPEQ INTERNATIONAL	620 NORTH JOHN OLENN ROAD	SALT LAKE CITY
CONOCO NORTH SALT LAKE PRODUCT TERMINAL	245 E. 1100 N.	NORTH SALT LAKE
CROWN ASPHALT PRODS. CO. COWBOY ASPHALT TERM	1710 W. 2600 S.	WOODS CROSS
CROWN ASPHALT PRODS. CO. GADSBY ASPHALT TERMI	1251 W. N. TEMPLE	SALT LAKE CITY
CYTOZYME LABORATORIES, INC.	134 SOUTH 700 WEST	SALT LAKE CITY
DAIRY FARMERS OF AMERICA, INC.	P.O. BOX 1087 330 WEST THIRD SOUTH	BEAVER
DAIRY FARMERS OF AMERICA, INC.	6350 NORTH 2150 WEST	AMALOA
DANNON COMPANY, THE	6165 WEST OANNON WAY	WEST JORDAN
DELTA EQUIPMENT INDUSTRIAL SYSTEMS	1235 SOUTH PIONEER ROAD	SALT LAKE CITY
E.A. MILLER	410 NORTH 200 WEST	HYRUM
EAGLE PRECAST COMPANY	6087 WEST 5400 SOUTH	SALT LAKE CITY
EASTON TECHNICAL PRODUCTS	5040 W. HAROLD GATTY DR.	SALT LAKE CITY
EDO CORPORATION - WESTERN DIVISION	2645 SOUTH 300 WEST	SALT LAKE CITY
EIMCO PROCESS EQUIPMENT	669 W. 200 S.	SALT UAKE CITY
ENSION-BRICKEORO COMPANY, THE	8305 SOUTH HIGHWAY 6 & 89	SPANISH FORK
FAIRCHILD SEMICONDUCTOR	3333 WEST 9000 SOUTH	WEST JORDAN
FIRESTONE BUILDING PRODUCTS	3790 WEST 2555 SOUTH	WEST VALLEY CITY
FLOWSERVE/SPRINOVIULE	1350 NORTH MOUNTAINSPRINOS PARKWAY	SPRINOVIULE

Facility Name	Street	City
FMC JETWAY SYSTEMS	3100 S. PENNSYLVANIA AVE.	OODEN
FRESENIUS MEDICAL CARE	475 WEST 13TH STREET	OODEN
FUTURA INDUSTRIES	BUILDINO H-11 FREEPORT CENTER	CLEARPIELD
GENEVA NITROOEN LLC	1165N 1600W	OREM
OENEVA STEEL, LLC	10 SOUTH GENEVA ROAD	VINEYARD
GENUINE PARTS COMPANY, RAYLOC DIVISION	700 NORTH 500 EAST	PAYSON
OLOBAL COATINGS, INC.	200 WEST 700 SOUTH	PUEASANT OROVE
OOSSNER FOODS, INC. (CHEESE)	1051 NORTH 1000 WEST	LOOAN
OOSSNER FOODS, INC. (ORADE A)	1105 NORTH 1000 WEST	LOGAN
ORAYMONT WESTERN US INC., CRICKET MOUNTAIN	32 MILES SW OF DELTA (HWY 257)	DELTA
GREAT SALT LAKE MINERALS CORPORATION	765 NORTH 10500 WEST	OODEN
GUIDANCE AND CONTROL, LITTON SYSTEMS	2211 WEST NORTH TEMPLE	SALT LAKE CITY
HARMAN MUSIC GROUP INCORPORATED	8670 SOUTH SANDY PARKWAY	SANDY
HEXCEL CORPORATION	P.O. BOX 18748	SALT LAKE CITY
HILL BROTHERS CHEMICAL CO.	75 N. 640 W.	NORTH SALT LAKE
HOLCIM (US) INC., DEVIL'S SLIDE PLANT	6055 EAST CROYDON ROAD	MOROAN
HONEYWELL INTERNATIONAL, INC.	BLDG C-13 FREEPORT CENTER	CLEARFIELD
HORIZON MILLING, LLC	2780 G. AVE.	OODEN
HUISH DETERGENTS, INC.	3540 WEST 1987 SOUTH	SALT LAKE CITY
IBA S & I, INC.	5725 W. HAROLD GATTY DRIVE	SALT LAKE CITY
IC OROUP - IC SECURITY PRINTERS, INC.	4080 S 500 W SUITE 300	SALT LAKE CITY
IMS- NUCOR PLYMOUTH	7285 W. 21200 N.	PUYMOUTH
INTERMOUNTAIN POWER GENERATING STATION	850 W. BRUSH WELLMAN RD	DELTA

Facility Name	Street	City
INTERPACE IND	736 WEST HARRISVILLE ROAD	HARRISVILLE
INTERSTATE BRICK	9750 SOUTH 5200 WEST	WEST JORDAN
JARDINE PETROLEUM	1117 N. 400 E.	NORTH SALT LAKE
JARDINE PETROUEUM	1070 W. 200 N.	LOOAN
JOHNSON MATTHEY	4601 WEST 2100 SOUTH	SALT LAKE CITY
JORDAN RIVER OALVANIZING	5447 WEST AXEL PARK ROAD	WEST JORDAN
KEUATRON CORPORATION	1675 W. 2750 S.	OODEN
KENNECOTT BARNEYS CANYON MININO OOMPANY	S200 SOUTH 9600 WEST	BINOHAM CANYON
KENNECOTT UTAH COPPER MINE, CONCENTRATORS &	12300 SOUTH UTAH HIGHWAY 111	OOPPERTON
KENNECOTT UTAH COPPER SMELTER & REFINERY	12000 WEST 2100 SOUTH AND 11500 WEST 2100 SOUT	MAGNA
KILFOYLE KRAFTS	1510 SOUTH CARBON AVE. ON HY #10	PRICE
KNOX MCDANIEL COMPANY	815 WEST 24TH STREET	OGDEN
KOCH PERFORMANCE ASPHALT CO - N. SALT LAKE, UT	95 WEST, 1100 NORTH	NORTH SALT LAKE CI
KWM ELECTRONICS CORP.	7172 S AIRPORT RD	WEST JORDAN
L-3 OOMMUNICATIONS	640 NORTH 2200 WEST	SALT LAKE CITY
LEVOLOR-KIRSCH WINDOW FASHIONS	1330 WEST 3300 SOUTH	OGDEN
LIFETIME PRODUCTS INC.	BUILDING D-11 FREEPORT CENTER	CLEARPIELD
MACA SUPPLY COMPANY	1415 WEST SPRING CREEK PLACE	SPRINOVILLE
MARK STEEL CORP, JORDAN RIVER PLANT	1230 WEST 200 S.	SALT LAKE CITY
MEADOW OOLD DAIRY	3730 WEST 1820 SOUTH	SALT LAKE OITY
MITY-LITE, INC.	1301 WEST 400 NORTH	OREM
MORONI FEED CO.	350 S. 300 W.	MORONI
NEPHI RUBBER PRODUCTS CORR.	255 WEST 1100 NORTH	NEPHI

Facility Name	Street	City
NESTLE USA - PREPARED FOODS DI VISION, INC.	815 WEST RAYMOND KLAUCK WAY	SPRINGVIULE
NUCOR CORP. - VULCRAFT DIVISION	1875 W. HWY 13	BRIOHAM CITY
NUCOR STEEL - A DIV. OF NUCOR CORP	7825 WEST 21200 NORTH	PLYMOUTH
O.C. TANNER MANUFACTURINO CO.	1930 SOUTH STATE STREET	SALT LAKE CITY
OMG APEX	15 MILES WEST, HIGHWAY 91	ST. OEOROE
OTTO & SONS - WEST JORDAN DIVISION	4980 W. 9470 S.	WEST JORDAN
OWENS CORNING	4340 WEST S50 SOUTH	SALT LAKE CITY
PACIFIC STATES CAST IRON PIPE COMPANY	2550 S. INDUSTRIAL PARKWAY	PROVO
PAOIFICORP CARBON PUANT	INTERSECTION HWY 6 & 191	HELPER
PACIFICORP HUNTER PLANT	3 MILES SOUTH OF CASTUE OALE O N STATE HWY 10	CASTLE DAUE
PACIFICORP HUNTINOTON PLANT	10 MILES WEST OF HUNTINGTON	HUNTINOTON
PARKER HANNIPIN CORPORATION CO NTROL SYSTEMS	1425 WEST 2675 NORTH	OODEN
PARKER SEAL, EPS - DIVISION	2220 SOUTH 3600 WEST	WEST VAULEY CITY
PETERSEN INC.	1527 N. 2000 W.	OGDEN
PHILLIPS 66 CO.	393 S. S00 W. NA	WOODS CROSS
PILKINGTON ANODIZINO AND ORAPHICS INC.	4088 WEST 1820 SOUTH	SALT LAKE CITY
POWDER RIVER INC.	3SS E. 900 S.	PROVO
POWER LINE CHEMICAL	14717 SOUTH HERITAOEOREST WAY	BLUFFDALE
QUALITY PLATING CO., INC.	420 SOUTH 500 WEST	SALT LAKE CITY
ROCKY MOUNTAIN FABRICATION	1125 WEST 2300 NORTH	SALT LAKE CITY
RT MANUFACTURING INC.	1186 NORTH INDUSTRIAL PARK OR	OREM
RUBBER ENGINEERING	3439 SOUTH 700 WEST	SALT UAKE CITY
SALT LAKE CIRCUITS	2036 WEST 2300 SOUTH	SALT LAKE CITY

Facility Name	Street	City
SANMINA-SCI	560 ARAPEEN DRIVE	SALT LAKE CITY
SCHREIBER FOODS, INC. - LOOAN PLANT	SS5 NORTH 600 WEST	LOGAN
SHAW NAPTECH, INC.	S51 S. FREEPORT IND. PARKWAY	CLEARFIELD
SIUVER EAGLE REFINING-WOODS CROSS INC	2355 SOUTH 1100 WEST	WOODS CROSS
SMITHS FOOD & DRUO DAIRY DIVISION OF KROOER CO	500 NORTH SUOAR STREET	LAYTON
SOUTHERN POST - UTAH	920 W. 600 NORTH	BRIGHAM CITY
SOUTHWIRE COMPANY	3295 WEST S600 SOUTH	WEST JORDAN
ST. OEORGE STEEL FABRICATION, INC.	1301 EAST 700 NORTH	ST. GEORGE
ST. GEOROE STEEL NORTH	4315 SOUTH 300 WEST	MURRAY
STAKER AND PARSON COMPANIES, BECK STREET NORT	20S0 NORTH BECK STREET	SALT LAKE CITY
STAKER AND PARSON COMPANIES, LEHI	11700 NORTH FRONTAOE ROAD	LEHI
STAKER AND PARSON COMPANIES, SMITHFIELD	250 N 300 E	SMITHFIELD
STAKER AND PARSON COMPANIES, WEST OODEN	2350 SOUTH 1900 WEST	OGDEN
STAR FOUNDRY AND MACHINE	976 PIONEER ROAD	SALT LAKE CITY
STEEL COATINOS INCORPORATED	410 SOUTH 2650 WEST	SALT LAKE CITY
STORM PRODUCTS INC.	165 SOUTH 800 WEST	BRIGHAM CITY
SUNNYSIDE COOENERATION ASSOCIATES	ONE POWER PLANT ROAD	SUNNYSIDE
SYRO INC.	950 WEST 400 SOUTH	CENTERVILLE
TESORO REFININO AND MARKETINO COMPANY	474 WEST 900 NORTH	SALT LAKE CITY
THATCHER COMPANY	1905 FORTUNE ROAD	SALT LAKE CITY
TYOO PRINTED CIRCUIT OROUP INC., LOGAN DIVISION	710 NORTH 600 WEST	LOOAN
U.S. ARMY DUOWAY PROVING GROUND	5330 VALDEZ CIRCLE	DUGWAY
U.S. DOD, U.S. AIR FORCE, OODEN AIR LOGISTICS CENTE	7274 WARDLEIGH DRIVE	HILL AIR FOROE BASE

Facility Name	Street	City
U.S. DOD, U.S. AIR FORCE, RANGE FACILITY FOR UTTR	18 MILES NORTH OF EXIT 62 INTERSTATE 80	UTTR
U.S. DOD, U.S. AIR FORCE, UTTR - DEMILITARIZATION A	18 MILES NORTH OF EXIT 62 INTERSTATE 80	UTTR
U.S. DOD, U.S. ARMY, DESERET C HEMICAL DEPOT	AMSSB-ODC-RM BUILDINO 5108	TOOELE
U.S. TOOELE ARMY DEPOT - MUNITION TREATMENT	ATTN: SJMTE-CS-EO, BLDO 8	TOOELE
UNICHEM - A DIVISION OF BJ SERVICES	1661 WEST HIGHWAY 40	ROOSEVELT
UNITED STATES GYPSUM COMPANY - SIOURD, UT	81 NORTH STATE	SIOURD
UNIVAR USA INC. (FORMERLY VOPA K USA INC.)	650 W. S00 S.	SALT LAKE CITY
US MAGNESIUM, LLC	15 MILES N OF EXIT 77 OFF I-S0	ROWLEY
USA INDUSTRIES	1291 SOUTH PIONEER ROAD	SALT LAKE CITY
UTAH REFRACTORIES CORP.	2200 NORTH 1100 WEST	LEHI
UTAH STAMPING COMPANY	F5, SECTION 3, 5TH STREET, FREEPORT WEST INDUS	CLEARFIELD
UTILITY TRAILER MFG.	1111 SOUTH 1000 WEST	CLEARFIELD
VACATION VILLAOE INC.	4231 S. STATE ST.	SALT LAKE CITY
VALLEY PAINT MFG.	727 SOUTH 950 WEST	WOODS CROSS
VALMONT COATINGS - INTERMOUNTAIN OALVANIZING	10S5 WEST 400 NORTH	LINDON
VARIAN X-RAY PRODUOTS	1678 S. PIONEER ROAD	SALT UAKE CITY
W.R. ORACE & CO.-CONN., ORACE CONSTRUCTION PRO	FREEPORT CENTER, BUILDING J5	CLEARFIELD
WESTERN QUALITY FOODS LLC	997 NORTH AIRPORT ROAD	CEDAR CITY
WESTERN ZIRCONIUM	10,000 WEST 900 SOUTH	OODEN
ZERO MANUFACTURINO	500 WEST 200 NORTH	NORTH SALT LAKE

Appendix B

Utah TRI On-Site Chemical Release Totals - Report Year 2002

(All Relsases Reported In Pounds)

Chemical Name	Releases To Air	Releases to Land	Releases To Water	Total Releases
	1,300	1,106	0	2,406
1,1,1,2-Tetrachloroethane	1	0	0	1
1,1,1-Trichloroethane	37,937	0	0	37,937
1,1-Dichloro-1-fluoroethane	206,473	0	0	206,473
1,2,4-Trimethylbenzene	21,062	250	250	21,562
1,2-Dichloroethane	409	0	0	409
1,3-Butadiene	885	0	0	885
Acetaldehyde	493	0	0	493
Acetonitrile	97	0	0	97
Aluminum (fume or dust)	2,124	100,679	0	102,803
Aluminum oxide (fibrous forms)	1	0	0	1
Ammonia	262,629	921,561	500	1,184,690
Ammonium hydroxide	250	0	0	250
Anthracene	255	0	0	255
Antimony Compounds	766	361,866	500	363,132
Arsenic Compounds	2,542	3,172,750	1,000	3,176,292
Asbestos (friable)	5	90,266	0	90,271
Barium	0	123,268	0	123,268

Chemicel Name	Releases To Air	Releases to Land	Releases To Water	Total Releases
Barium Compounds	6,590	3,838,686	127	3,845,403
Benzene	28,362	250	750	29,362
Benzo(g,h,I,)perylene	0	261	7	268
Beryllium Compounds	87	161,707	0	161,794
Biphenyl	12	0	0	12
Cadmium Compounds	276	429,538	500	430,314
Carbon disulfide	255	0	0	255
Carbon tetrachloride	65	0	0	65
Carbonyl sulfide	255	0	0	255
Chlorine	13,874,160	0	0	13,874,160
Chlorobenzene	79	0	0	79
Chlorodifluommethane	17,115	0	0	17,115
Chloroform	1,322	0	0	1,322
Chromium	38,708	500	0	39,208
Chromium Compounds	2,553	1,009,653	506	1,012,712
Cobalt	3	0	0	3
Cobalt Compounds	566	76,142	0	76,708
Copper	750	23,257	65	24,072
Copper Compounds	56,590	79,906,868	2,366	79,965,624
Creosote	181	0	0	181
Cresol (mixed isomers)	500	2,505	500	3,505
Cumene	162	5	0	167
Cyanide Compounds	16,500	140,010	1,700	158,210

Chemical Name	Releases To Air	Releases to Land	Releases To Water	Total Releases
Cyclohexane	26,145	250	5	26,400
Di(2-ethylhexyl) phlhalate	7	0	0	7
Dichloromethane	49,691	0	0	49,691
Diethanolamine	5	0	0	5
Diisocyanates	1,642	0	0	1,642
Dioxin and Dioxin Like Compounds	73	2,576	0	2,648
Diphenylamine	4	90,196	0	90,200
Epichlorohydrin	8	0	0	8
Ethyl acrylate	6	0	0	6
Ethylbenzene	4,966	250	750	5,966
Ethylene	10,544	0	0	10,544
Ethylene glycol	6,958	37,936	0	44,894
Ethylene oxide	2,873	0	0	2,873
Formaldehyde	15,704	1	0	15,705
Formic acid	256	0	0	256
Glycol Ethers	31,508	0	0	31,508
Heptachlor	29	0	0	29
Hexachlorobenzene	46	908	0	954
Hydroehloric acid (aerosol forms only)	2,398,453	72,000	0	2,470,453
Hydrogen cyanide	23,508	0	0	23,508
Hydrogen fluoride	478,533	22,700	0	501,233
Lead	398	236,903	75	237,376
Lead Compounds	13,131	51,050,893	196	51,064,221

Chemleal Name	Releases To Air	Releases to Land	Releases To Water	Total Releases
Manganese	2,522	798,943	0	801,465
Manganese Compounds	5,304	682,250	510	688,064
Mercury Compounds	831	20,219	7	21,058
Methanol	19,687	0	0	19,687
Methyl ethyl ketone	47,862	0	0	47,862
Methyl isobutyl ketone	9,527	680	0	10,207
N,N-Dimethylformamide	1,898	0	0	1,898
Naphthalene	3,998	0	5	4,003
n-Butyl alcohol	11,252	0	0	11,252
n-Hoxane	79,402	750	5	80,157
Nickel	297	500	0	797
Nickel Compounds	2,374	891,693	3,450	897,517
Nitrate Compounds	291	2,327,455	40,850	2,368,596
Nitric acid	33,969	1,308	0	35,277
Nitroglycerin	300	0	0	300
N-Methyl-2-pyrrolidone	41	0	0	41
Ootachlorostyrene	0	173	0	173
Phenanthrene	250	0	0	250
Phenol	17,049	12,846	0	29,895
Phosgene	4,900	0	0	4,900
Polychlorinated biphenyls	4,599	39,877	0	44,476
Polycyclic aromatic compounds	190	5,797	59	6,046
Propylene	34,318	0	0	34,318

Chemical Name	Releases To Air	Releases to Land	Releases To Water	Total Releases
Pyridine	29	0	0	29
Selenium Compounds	3,966	361,416	1,450	366,832
Silver Compounds	650	270,893	500	272,043
Sodium azide (Na(N3))	24	20,822	0	20,846
Sodium dimethyldithiocarbamate	1	18,991	0	18,992
Styrene	73,433	68	0	73,501
Sulfuric acid (aerosol forms only)	282,344	0	0	282,344
Tetrachloroethylene	1,128	0	5	1,133
Thallium Compounds	267	215,141	500	215,908
Thiourea	0	250	0	250
Titanium tetrachloride	253	0	0	255
Toluene	130,776	1,100	750	132,626
Toxaphene	0	0	0	0
Trichloroethylene	12,172	0	0	12,172
Vanadium Compounds	1,309	204,017	500	205,826
Xylene (mixed isomers)	73,090	5	1,000	74,095
Zinc (fume or dust)	119	6,494	0	6,613
Zinc Compounds	12,446	6,722,143	3,660	6,738,249