



State of Utah
Department of Environmental Quality

Utah Toxic Release Inventory
Reporting Year 2013
Data Summary Report

Division of Environmental Response and Remediation
December 2014

TABLE OF CONTENTS

List of Figures	ii
List of Tables	ii
Executive Summary	1
Introduction.....	1
Duplicate Amounts Reduction Calculation	2
Excluded Data.....	2
Reasons for Variations in Data Values	2
Total Releases	3
Releases to Air (on-site).....	3
Releases to Land (on-site).....	3
Releases to Surface Water (on-site).....	3
Transfers to POTWs	4
Total Off-site Transfers.....	4
Persistent Bioaccumulative Toxic (PBT) Chemicals – Dioxin & Dioxin-Like Compounds ...	4
About the TRI Program	5
What is the Toxic Release Inventory?	5
Who Must Report to TRI?	5
What Type of Information Must Be Reported?	5
What Types of Chemicals are Subject to Reporting?	5
What Are the Benefits and Uses of TRI Data?	6
What Are the Limitations of the Data?	6
What Cautions Should Be Used in Interpreting TRI Data?	7
Changes to the Regulations.....	7
How Can the Public Obtain TRI Information?	7
Release Details: Figures and Tables Illustrating RY 2013 TRI Data	8
General Statistics	8
Facility Locations.....	9
Industrial Sectors	10
Total Releases	11
Releases to Air.....	14
Releases to Land.....	16
Mining.....	17
Kennecott Facilities	17
Waste Disposal Facilities.....	19
Electric Utilities	22
Releases to Surface Water.....	23
Transfers to Publicly Owned Treatment Works	24
Utah Facility Transfers to other Off-Site Locations.....	25
Persistent Bioaccumulative Toxic (PBT) Chemicals	30
Summary.....	31

List of Figures

- Figure 1 Quantity of Utah TRI Submissions 1988-2013
- Figure 2 Utah 2013 TRI Facility Locations & Wasatch Front
- Figure 3 2013 Utah TRI Facilities Quantity Reporting by Industrial Sector
- Figure 4 Utah TRI Total Releases 1988-2013
- Figure 5 Utah TRI Total Releases to Air 1988-2013
- Figure 6 U.S. Magnesium LLC TRI Releases to Air 1988-2013
- Figure 7 Kennecott Utah Copper Mine, Concentrators, and Power Plant TRI Releases to Land 1988-2013
- Figure 8 Kennecott Utah Copper Smelter & Refinery TRI Releases to Land 1988-2013
- Figure 9 Clean Harbors Grassy Mountain, LLC TRI Releases to Land 1988-2013
- Figure 10 Energy Solutions LLC TRI Releases to Land 1988-2013
- Figure 11 Utah 2013 TRI Chemical Transfers by Final Disposition Type
- Figure 12 Utah 2013 TRI Chemicals Transferred to Other States
- Figure 13 Utah 2013 TRI Total On-site Releases by Media

List of Tables

- Table 1 Top 10 Facilities - Total On-Site and Off-Site Releases
- Table 2 Top 10 Chemicals - Total On-Site and Off-Site Chemical Releases
- Table 3 Top 10 Facilities - Total On-Site Releases
- Table 4 Top 10 Chemicals - Total On-Site Chemical Releases
- Table 5 Top 10 Facilities - Total Releases to Air
- Table 6 Top 10 Chemicals - Total Releases to Air
- Table 7 Top 10 Facilities - Total Releases to Land
- Table 8 Top 10 Chemicals - Total Releases to Land
- Table 9 Waste Disposal Facility Releases to Land
- Table 10 Top 10 Chemicals - Releases to Land from Waste Disposal Facilities
- Table 11 Coal-Fired Electric Utility Releases to Land by Facility
- Table 12 Top 10 Chemical Releases to Land from Coal-Fired Electric Utilities
- Table 13 Top Facility Releases to Surface Water
- Table 14 Top 10 Chemical Releases to Surface Water
- Table 15 Top 10 Facility Transfers to POTWs
- Table 16 Top 10 Chemicals Transferred to POTWs
- Table 17 Top 10 Facilities Transferring Chemicals Off-Site
- Table 18 Top 10 Chemicals Transferred to Off-Site Facilities
- Table 19 Facilities Reporting PBT Dioxin and Dioxin-Like Compound Releases

EXECUTIVE SUMMARY

Introduction

Under Section 313 of the federal Emergency Planning and Community Right-to-Know Act (EPCRA) the Toxic Release Inventory (TRI) is a compilation of data submitted by certain facilities subject to the reporting requirements of EPCRA. TRI data provides select information for a finite list of chemicals defined by the statute concerning releases and transfers into the environment and the transfers of chemicals to other off-site facilities for final disposition. Section 313 requires a facility to submit TRI data to the U.S. Environmental Protection Agency and the State Hazardous Chemical Emergency Response Commission (SERC). This report is a summary of the data submitted to the Utah Department of Environmental Quality (DEQ) in its role as a member of the SERC for Reporting Year (RY) 2013. TRI information includes only selected industrial sectors using larger volumes of certain listed chemicals. Therefore, TRI data may only include 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 the relative level of human health or environmental risk.

Beginning in 2002, EPA made preliminary TRI data available via the internet. Persons interested may query data using a variety of query tools to retrieve multiple facility data across multiple years of reporting. In 2002 EPA began publishing state fact sheets which provide a summary of TRI data for each state.

Beginning with RY 2006, Utah started participating in the State Data Exchange (SDX) Network-National Environment Information Exchange Network. This partnership provides DEQ the mechanism to receive TRI data directly from EPA, and beginning with RY 2006 SDX is the exclusive source of TRI data for the State of Utah. Data is transmitted electronically to a state server where it is permanently retained.

It is traditionally the practice of EPA to “freeze”¹ TRI data several months after the annual July 1st submission deadline. TRI data including revision data may be submitted by a facility at any time during the calendar year. Data is then processed dynamically at the EPA Data Processing Center and transmitted in real-time to the Utah data-server. DEQ does not freeze the Utah data set. Information offered in this report reflects the presentation of all data within the DEQ data management system received at the time this summary report was prepared.

For RY 2013, EPA received a total of 893 chemical submission forms, 826 Form-R submissions and 67 Form-A submissions, from 185 facilities.

¹ Freeze – TRI data submissions or revisions submitted after the date on which EPA sets a freeze on the dataset are not used in the final statistical calculations published in the annual EPA TRI report.

This report presents data submitted from facilities that are subject to the TRI reporting criteria for releases that occurred for the reporting year of January 1 to December 31, 2013. The deadline for reporting this data was July 1, 2014.

The Wasatch Front is defined to include Davis, Salt Lake, Utah and Weber counties. The distribution of facilities in these counties for RY 2013 is: Davis, 23; Salt Lake, 65; Utah, 17; and Weber, 15. The Wasatch Front accounts for about 67% of all facilities reporting under the TRI program and about 57% of all chemical submissions. Ten facilities from Tooele County reported to the TRI program for RY 2013. These facilities submitted a total of 176 chemical reports or about 20% of all chemical reports submissions statewide.

Duplicate Amounts Reduction Calculation

EPA incorporates a correction calculation for data that has been “double-counted.” Double counting is the term applied by EPA to amounts of waste that have effectively been reported two times.² The Utah system was modified to perform a similar correction calculation beginning with RY 2010 data and for this reason totals related to select categories (e.g. total off-site transfers) show more consistent values with those reported by EPA since RY 2010.

Excluded Data

Several logistical issues exist that prevent the Utah system from matching the EPA data set exactly. At the present time there are several facility data files that cannot be loaded into the Utah system. These facilities exist as pairs where each facility of the pair is related. Each facility of the pair submits TRI separately, however, each paired facility submits under the same TRI Facility Identification number. The Utah system does not currently accommodate this circumstance and as a result of this conflict, the data submitted by these facilities cannot be loaded into the DEQ data management system.

EPA publishes TRI data available on the internet for all past reporting years. These datasets serve as an independent source to cross-check past years. Please note that facilities may submit data revisions for past years which may affect the statistics. The latest reporting year data is made available after release of the TRI National Analysis report.

Reasons for Variations in Data Values

Total state-wide release amounts and corresponding percentages presented within this report have been rounded for purposes of simplicity. As a result of either basing calculations on raw data (which is not provided in this report), or of rounding to whole numbers, various total and percentage values presented may not correspond exactly to each other, or to the tables or figures within this report. In addition, significant figures are sometimes used when it was considered necessary to show a difference between reporting year data values.

² 2006 State Fact Sheet (Fact Sheets are accessible at www.epa.gov/triexplorer; click tab titled “Fact Sheets”).

Total Releases

Total on-site and off-site release amounts reported by all facilities reporting TRI in Utah for the current reporting year increased by 175.3% from 191.2 million pounds in RY 2012 to 526.3 million pounds for RY 2013 showing a net increase of about 335.1 million pounds.

Releases to Air (on-site)

Total TRI releases to air reported by Utah facilities for RY 2013 decreased by from 7.9 million pounds to 6.1 million pounds showing a decrease of about 1.9 million pounds or 23.5%. Chemicals reported in largest quantities were chlorine and hydrochloric acid (aerosol forms only) reported at 2.3 million pounds and 2.0 million pounds respectively.

Releases to Land (on-site)

For the current report year, total chemical releases to land increased by 187%. Total releases to land increased from 180 million pounds to 517 million pounds resulting in a net increase of 336 million pounds. The largest quantities reported were for metals compounds of lead, barium, arsenic, copper, zinc and thallium.

At the Kennecott Mine Concentrator & Power Plant facility reported releases rose from 149 million pounds in RY 2012 to 290 million pounds in RY 2013, an increase of 94.6%. This is primarily due to the increased amount of material moved at the mine and increased metals concentrations in ore and waste rock. Kennecott's Barney's Canyon Mine facility has not shown significant release numbers in past reporting years since 2002. The Barney's Canyon Mine release total to land in RY 2012 was zero. This year, RY 2013 the facility reported releases of 193 million pounds due to a "one-time only" release because the heap leach pad material was placed in closure. This figure contributed significantly to the aggregate totals reported by Kennecott facilities.

Kennecott facilities comprise the largest single-source quantity reported for releases to land. The combined release reported by Kennecott facilities for releases to land show an increase, from 168 million pounds in RY 2012 to 503 million pounds for RY 2013.

Releases to Surface Water (on-site)

Total releases to surface water increased by 7.5% or 7,800 pounds from 104,500 pounds to 112,300 pounds.

Chevron Products Company reported a release of about 98,400 pounds contributing slightly under 88% of the total release statewide. Nitrate compounds comprised 96% (95,000 pounds) of the total amount reported by Chevron.

The total release to surface water reported by two Kennecott facilities (Mine Concentrator and Power Plant, and the Smelter & Refinery) was slightly less than 13,000 pounds for a variety of TRI chemicals representing about 11.5% of the total statewide release to surface water. The majority of the chemicals reported in releases to surface water by Kennecott facilities are metals compounds. The aggregate amounts reported from Chevron and the two

Kennecott facilities comprise about 99% of the total quantities released to surface waters statewide.

Transfers to POTWs

Publicly Owned Treatment Works (POTWs) are wastewater treatment plants. Transfers reported to POTWs increased by 6.7% from 1.6 million pounds up to 1.7 million pounds representing an increase of about 109,000 pounds. Nitrate compounds constitute about 81% of the total chemicals transferred to POTWs. The remaining percentages are comprised of nitric acid (6.8%), ammonia (5.3%), glycol ethers (1.5%) and hydrogen sulfide (1.4%). A combination of metal compounds and organic chemicals make up the remaining portions.

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.

Total Off-site Transfers

Transfers of TRI chemicals to “other off-site” locations are transfers to facilities other than POTWs. Often these facilities include chemical recyclers and waste disposal sites. The amount of chemicals reported transferred off-site increased by 15.5% from 18 million pounds to 20.7 million pounds. Metal compounds (zinc) and nitrate compounds topped the list of chemicals transferred off-site.

Persistent Bioaccumulative Toxic (PBT) Chemicals – Dioxin & Dioxin-Like Compounds

The total amount of PBT dioxin & dioxin-like compounds reported decreased 69% from 13,723.62 grams in RY 2012 to 4,250.53 grams for RY 2013. This is a decrease of 9,473.09 grams. Total on-site release amounts reported by all facilities was 4,230.37 grams. The distribution of on-site releases by media is 4,209.28 grams to land, 20.96 grams to air; and 0.12 grams to water. Total off-site releases reported is 20.16 grams.

The total release amount reported by US Magnesium for dioxin and dioxin-like chemicals on-site and off-site is 4,218.35 grams. The total amount reported by US Magnesium comprises 99.24% of the total amount of dioxin and dioxin-like compounds released by all facilities.

ABOUT THE TRI PROGRAM

What is the Toxic Release Inventory?

The Toxic Release Inventory (TRI) is a database providing information about releases of certain TRI program-specific chemicals and chemical categories into the environment, and transfers to off-site facilities by facilities that manufacture, process, or otherwise use Emergency Planning and Community Right to Know Act (EPCRA) Section 313 chemicals. Nationally, a facility subject to EPCRA reports TRI information annually to the U.S. Environmental Protection Agency (EPA) and to the state in which it is located. The Utah Hazardous Chemical Emergency Response Commission, more commonly known as the State Emergency Response Commission (SERC), was established under Utah Code §53-2a-701. The Utah Department of Environmental Quality (UDEQ) acts on behalf of the SERC to administer the EPCRA program in Utah and manage all associated data submitted by facilities subject to the reporting requirements of EPCRA. TRI data must be submitted annually by July 1 for the previous calendar year. This report is a summary of data submitted to the UDEQ for EPCRA Reporting Year RY 2013.

Who Must Report to TRI?

A facility must report to TRI if it:

- Conducts operations within specified Standard Industrial Classification (SIC) Codes or North American Industrial Classification System (NAICS) codes;
- 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.

TRI data only includes reports from manufacturing facilities, federally owned facilities, 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
- A Facility's pollution reduction activities.

What Types of Chemicals are Subject to Reporting?

There are over 600 chemicals and chemical categories subject to reporting under TRI-based on acute or chronic human health or environmental effects. TRI program specific chemicals are listed under Title 40 of the Code of Federal Regulations Part 372. For additional

information on chemicals subject to reporting under TRI, visit EPA's website at <http://www.epa.gov/tri/trichemicals/index.htm>. Changes promulgated by EPA to the TRI program, (i.e., additions or deletions of TRI program chemicals or chemical categories) are published in the Federal Register and updated annually in the Code of Federal Regulations.

What Are the Benefits and Uses of TRI Data?

TRI data can be used in a variety of ways as described below:

- The public can use TRI data to identify potential concerns.
- Government agencies 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 public health or the environment.
- Industry can use TRI data to establish release reduction targets and document release reduction progress.
- Data may be reviewed and downloaded from <http://www.epa.gov/tri/tridata/index.html>

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 are allowed to report ranges of 1-10, 11-499, and 500-999 pounds. In such cases, the mid-point of the range was entered into Utah's database. These estimations may, therefore, be above or below the actual amount.

TRI Statewide Totals Cannot Be Compared Easily From Year to Year. The TRI list of chemicals requiring reporting and methods used for estimating emissions have changed significantly throughout the history of the TRI reporting program. Facilities may meet the TRI reporting requirements and submit TRI reports for some years and not others. These changes make calculating and reporting 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 human 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. Conversely, a small release in volume may have a relatively high concentration and be more toxic than a larger release.

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.

Changes to the Regulations

There was a change in the Toxic Release Inventory program for RY 2013.

Current report year - Effective January 21, 2014, facilities are required to report non-trade secret forms to EPA using electronic software provided by the agency (Federal Register / Vol. 78, No. 166, August, 27, 2013).

TRI regulations can be reviewed on-line at the following websites:

<http://www.epa.gov/lawsregs/laws/epcra.html> or <http://www.epa.gov/fedrgstr>. A list of changes for reporting year 2013 can be reviewed at <http://www2.epa.gov/toxics-release-inventory-tri-program/reporting-tri-facilities>.

How Can the Public Obtain TRI Information?

National TRI information can be obtained from the EPA website www.epa.gov/tri.

TRI information for Utah can be obtained as noted above or by submitting a written GRAMA (Government Records Access Management Act) request to:

Utah Division of Environmental Response and Remediation
195 North 1950 West, 1st Floor
P.O. Box 144840
Salt Lake City, Utah 84114-4840
Or e-mail a completed GRAMA request form to errgrama@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 specialized reports require less than one hour's time to create. Please call UDEQ (801-536-4100) for current hourly rates for these services.

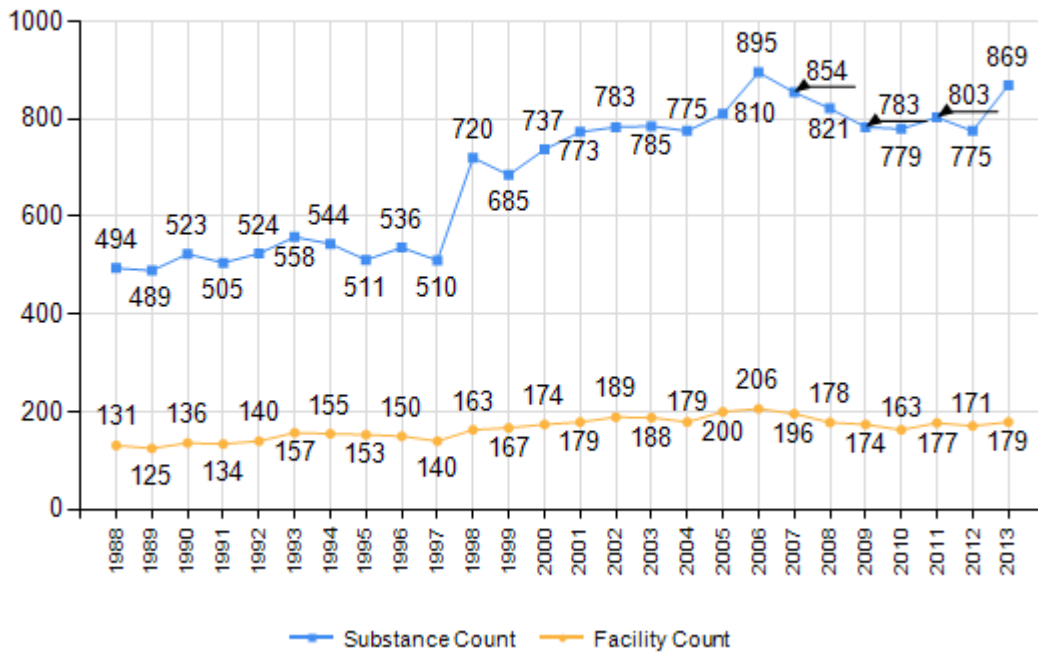
RELEASE DETAILS: FIGURES AND TABLES ILLUSTRATING RY 2013 TRI DATA

The following pages contain the relevant figures and tables that summarize the TRI data for RY 2013. These figures and tables are compilations made from the data submitted by various facilities in Utah. Data are presented under headings that describe general categories discussed in this report.

GENERAL STATISTICS

FIGURE 1

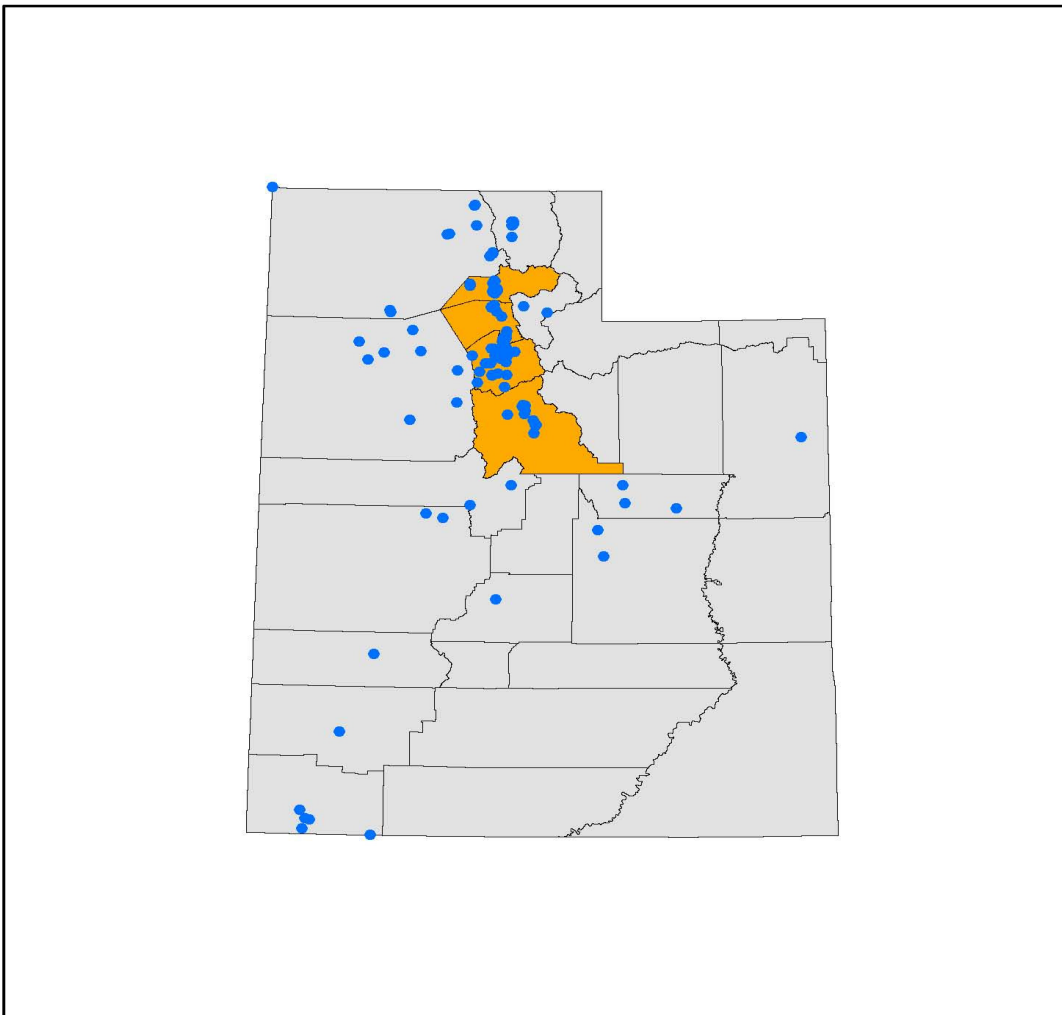
**Quantity of Utah TRI Submissions
1988 - 2013**



Facility Locations

Each facility reports the coordinate data in latitude and longitude as part of the TRI submission. Figure 2 shows the geographic distribution of TRI reporting facilities across Utah. For purposes of reporting, the Wasatch Front is comprised of Weber, Davis, Salt Lake and Utah Counties. For RY 2013, facilities along the Wasatch Front comprised 67% of all facilities in Utah.

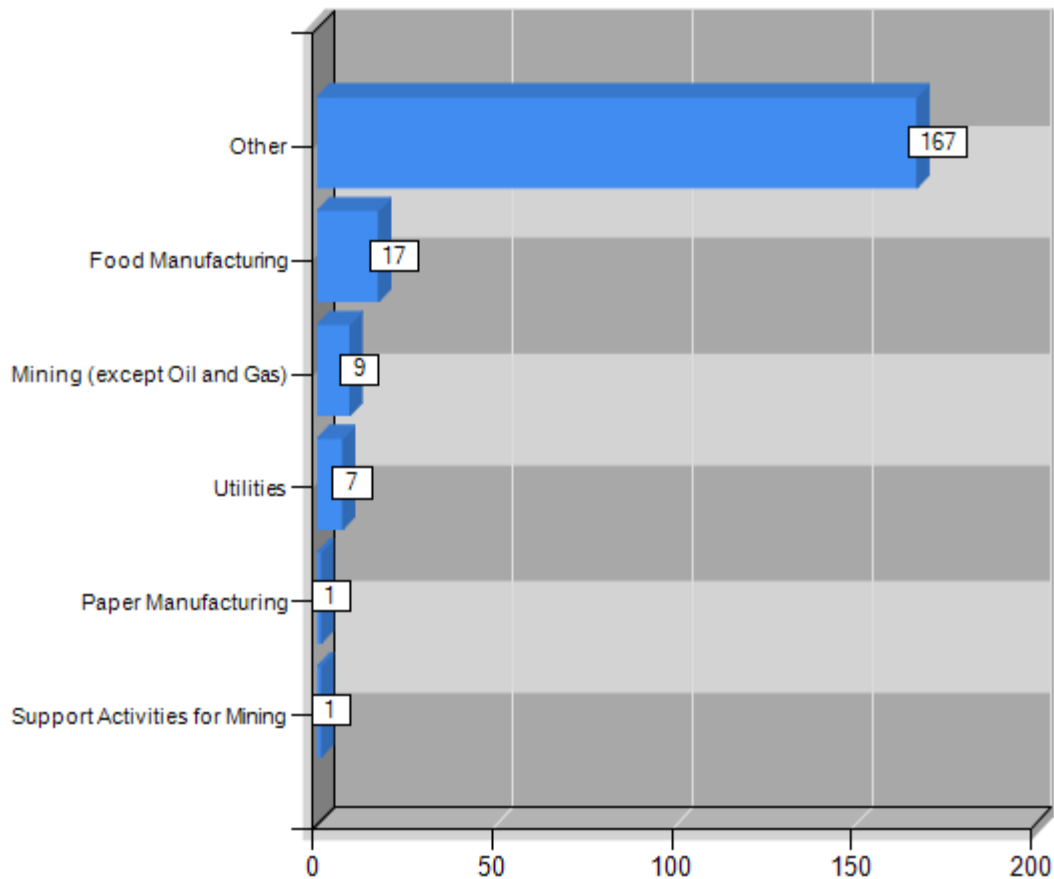
FIGURE 2
Utah 2013 TRI Facility Locations & Wasatch Front



Industrial Sectors

This figure shows a breakdown of industrial sectors reporting TRI data.

FIGURE 3
2013 Utah TRI Facilities
Quantity Reporting by Industrial Sector



Additional industrial sectors (but not all) that comprise the “Other” category include: Petroleum and coal products manufacturing, chemical manufacturing, plastics and rubber products manufacturing, nonmetallic mineral product manufacturing, primary metal manufacturing, fabricated metal product manufacturing, machinery manufacturing, computer and electronic product manufacturing, electrical equipment, appliance, and component manufacturing, transportation equipment manufacturing, miscellaneous manufacturing, merchant wholesalers, nondurable goods, administrative support services, waste management and remediation services, national security and international affairs.

TOTAL RELEASES

The following section shows figures and tables related to total TRI releases in Utah.

FIGURE 4

**Utah TRI Total Releases
(Millions of Pounds)
1988 - 2013**

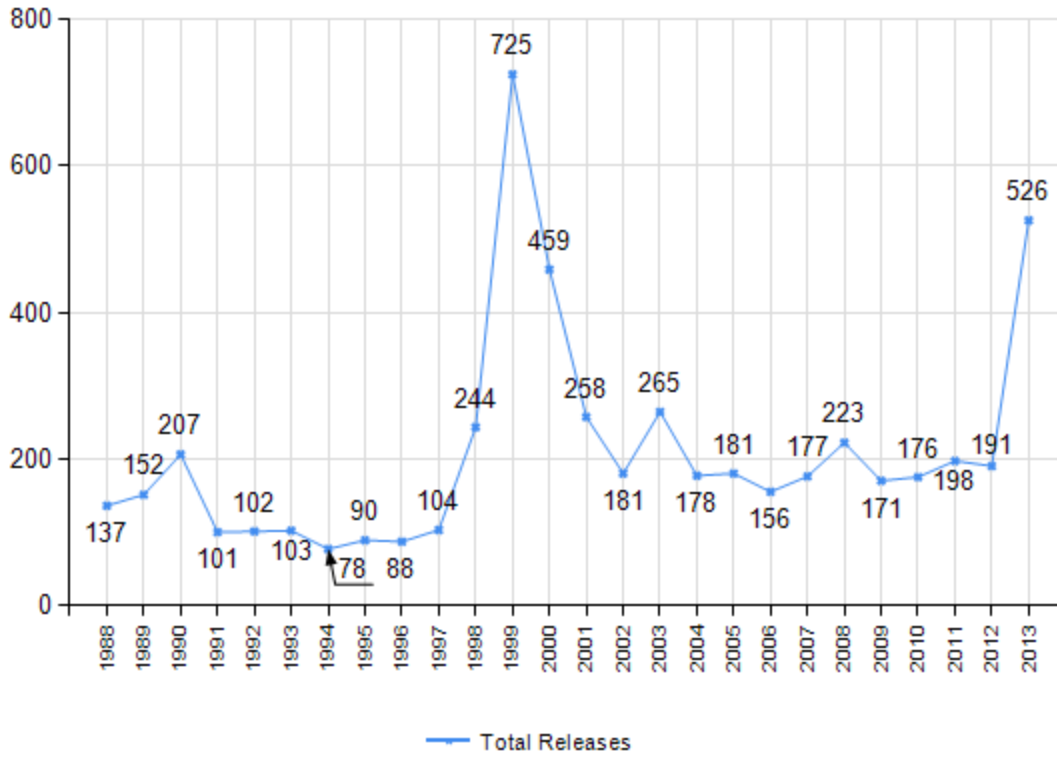


TABLE 1

TOP 10 FACILITIES
Total On-site and Off-site Releases

Facility Name	Pounds/Year
1 KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	290,490,644
2 KENNECOTT BARNEYS CANYON MINING COMPANY	193,036,768
3 KENNECOTT UTAH COPPER SMELTER & REFINERY	19,144,234
4 US MAGNESIUM, LLC	3,787,581
5 CLEAN HARBORS GRASSY MOUNTAIN, LLC	2,937,108
6 ENERGY SOLUTIONS LLC	2,305,624
7 BONANZA POWER PLANT	1,857,695
8 INTERMOUNTAIN POWER GENERATING STATION	1,808,813
9 PACIFICORP - HUNTINGTON PLANT	1,722,667
10 CLEAN HARBORS ARAGONITE, LLC.	1,554,243

TABLE 2

Top 10 Chemicals - Total On-site and Off-site Chemical Releases
(Reported in an amount equal to or greater than 1 million pounds)

Chemical Name	Pounds/Year
1 Lead Compounds	239,351,143
2 Barium Compounds	106,244,281
3 Arsenic Compounds	82,118,641
4 Copper Compounds	65,776,077
5 Zinc Compounds	9,944,102
6 Thallium Compounds	4,130,893
7 Chromium Compounds	3,640,704
8 Chlorine	2,292,018
9 Hydrochloric acid	2,032,382
10 Ammonia	1,618,779

TABLE 3

Top 10 Facilities - Total On-site Releases
(Equal to or greater than 1/2 million pounds)

	Facility Name	Lbs/Year
1	KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	290,490,385
2	KENNECOTT BARNEYS CANYON MINING COMPANY	193,036,768
3	KENNECOTT UTAH COPPER SMELTER & REFINERY	19,142,584
4	US MAGNESIUM, LLC	3,787,581
5	CLEAN HARBORS GRASSY MOUNTAIN, LLC	2,936,070
6	ENERGY SOLUTIONS LLC	2,305,624
7	BONANZA POWER PLANT	1,826,792
8	INTERMOUNTAIN POWER GENERATING STATION	1,808,813
9	PACIFICORP - HUNTINGTON PLANT	1,722,644
10	PACIFICORP HUNTER PLANT	1,446,183

TABLE 4

Top 10 Chemicals - Total On-site Chemical Releases

	Chemical Name	Lbs/Year
1	Lead Compounds	238,438,836
2	Barium Compounds	106,176,546
3	Arsenic Compounds	82,118,155
4	Copper Compounds	65,749,795
5	Zinc Compounds	8,979,366
6	Thallium Compounds	4,130,862
7	Chromium Compounds	3,557,159
8	Chlorine	2,292,018
9	Hydrochloric acid	2,032,372
10	Ammonia	1,618,628

RELEASES TO AIR

FIGURE 5

**Utah TRI Total Releases to Air
(Millions of Pounds)
1988 - 2013**

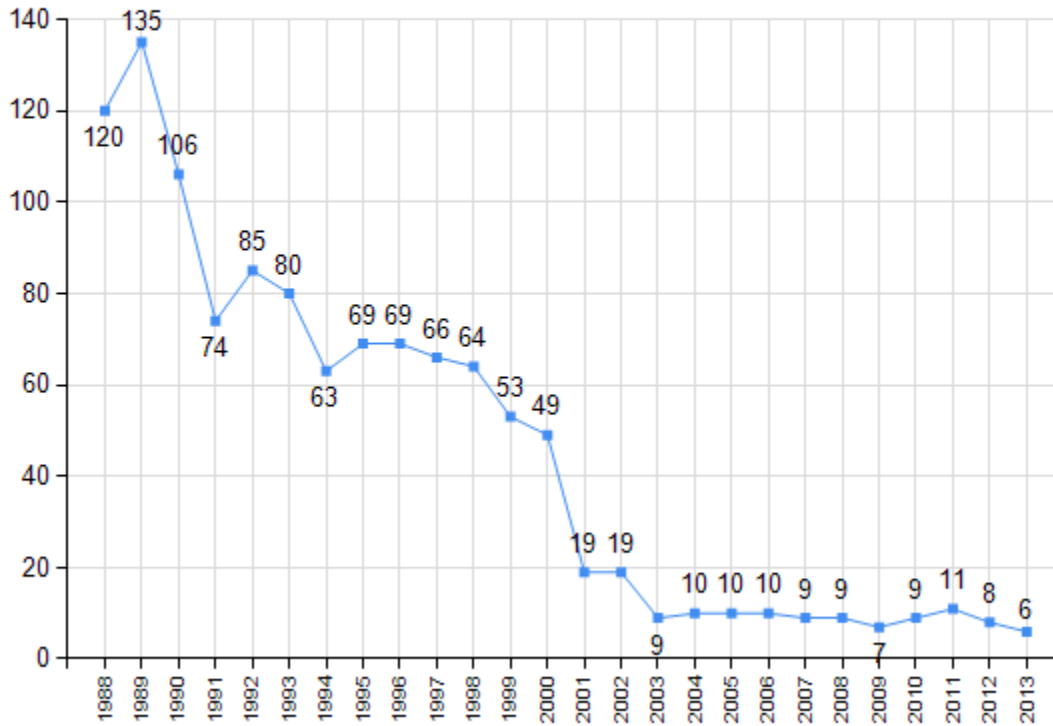


TABLE 5

Top 10 Facilities - Total Releases to Air

Facility Name	Lbs/Year
1 US MAGNESIUM, LLC	3,786,329
2 PACIFICORP - CARBON PLANT	348,630
3 HEXCEL CORPORATION	236,840
4 BRUSH RESOURCES INC, MILL	212,569
5 PACIFICORP HUNTER PLANT	152,019
6 TESORO REFINING AND MARKETING COMPANY	149,044
7 INTERMOUNTAIN POWER GENERATING STATION	133,678
8 KENNECOTT UTAH COPPER SMELTER & REFINERY	106,350
9 PACIFICORP - HUNTINGTON PLANT	105,746
10 U.S. DOD USAF OGDEN AIR LOGIST ICS CENTER	89,377

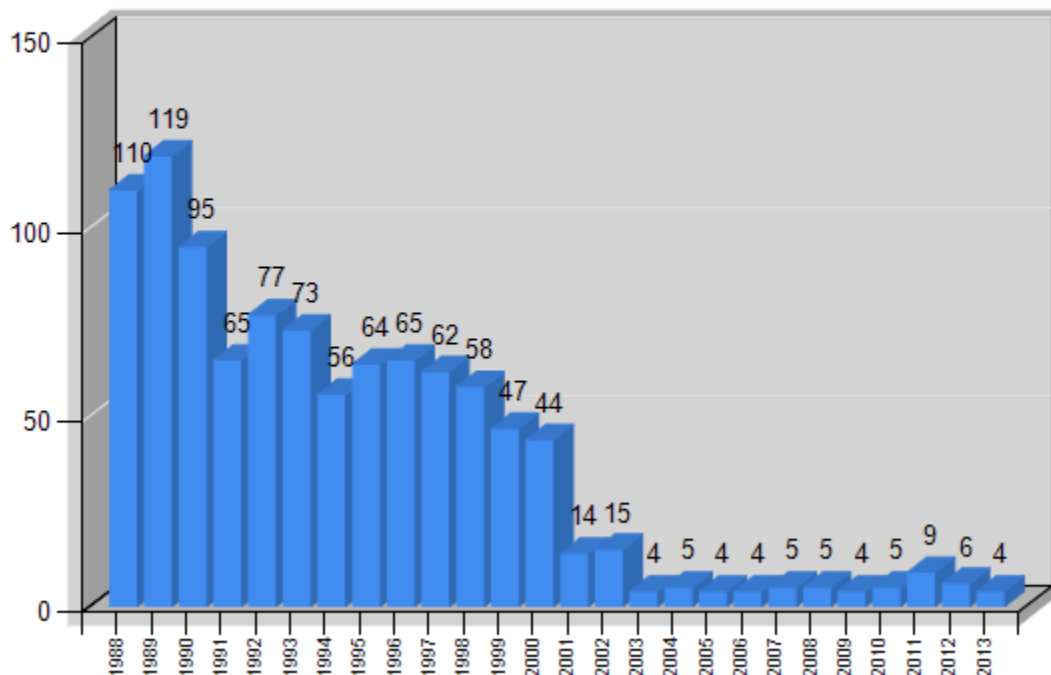
TABLE 6

Top 10 Chemicals - Total Releases to Air

Chemical Name	Lbs/Year
1 Chlorine	2,292,018
2 Hydrochloric acid	2,032,372
3 Ammonia	454,245
4 Hydrofluoric acid	236,560
5 Sulfuric acid	196,735
6 Hydrogen cyanide	129,261
7 Hexane	110,688
8 Toluene	83,835
9 Xylene (mixed)	76,795
10 Styrene	68,256

FIGURE 6

**US MAGNESIUM, LLC
TRI Releases To Air
(Millions of Pounds)
1988 - 2013**



RELEASES TO LAND**TABLE 7**

Top 10 Facilities - Total Releases to Land

	Facility Name	Lbs/Year
1	KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	290,472,608
2	KENNECOTT BARNEYS CANYON MINING COMPANY	193,035,899
3	KENNECOTT UTAH COPPER SMELTER & REFINERY	19,029,484
4	CLEAN HARBORS GRASSY MOUNTAIN, LLC	2,935,980
5	ENERGY SOLUTIONS LLC	2,305,624
6	BONANZA POWER PLANT	1,783,297
7	INTERMOUNTAIN POWER GENERATING STATION	1,675,134
8	PACIFICORP - HUNTINGTON PLANT	1,616,898
9	PACIFICORP HUNTER PLANT	1,294,163
10	BRUSH RESOURCES INC, MILL	1,061,988

TABLE 8

Top 10 Chemicals - Total Releases to Land

	Chemical Name	Lbs/Year
1	Lead Compounds	238,429,340
2	Barium Compounds	106,170,399
3	Arsenic Compounds	82,114,607
4	Copper Compounds	65,717,606
5	Zinc Compounds	8,962,246
6	Thallium Compounds	4,129,694
7	Chromium Compounds	3,552,898
8	Ammonia	1,162,891
9	Polychlorinated Biphenyls (PCBs)	1,081,424
10	Manganese Compounds	1,008,749

Mining

Five mining facilities reported under the TRI program for RY 2013:

- Brush Resources, Inc., Mill
- Kennecott Barney's Canyon Mining Company
- Kennecott Utah Copper Mine, Concentrators & Power Plant
- Kennecott Utah Copper Smelter & Refinery
- Lisbon Valley Mining Company

Kennecott Facilities

Kennecott Utah Copper operates through three facilities:

- Barney's Canyon Mine;
- Mine, Concentrators & Power Plant (MCP); and
- Smelter & Refinery (S&R).

Primary operations for mining facilities include gold ore, copper ore and nickel ore mining, smelting and refining. The MCP is one of the world's largest open pit mines. KUC conducts extensive mining, milling, smelting, and refining operations in western Salt Lake County. The MCP facility extracts millions of tons of overburden, waste rock, and ore during annual operations. Ore is concentrated and transported by pipeline to the smelter, which produces copper and gold. Sulfuric acid is also produced during the process.

The increased tonnage reported by the MCP facility this year is primarily due to the increased amount of material moved at the mine with increased metals concentrations in ore and waste rock. These disposed tailings are required to be reported as "releases" including the placement of mining residuals that contain trace amounts of TRI constituents into an engineered, secure and permitted on-site repository.

The Barney's Canyon Mine facility reported a release quantity of 193 million pounds this reporting year. The trend in reporting quantities by this facility over the past 10 years and more has been relatively low (15,000 pounds or less). This year's quantity is the result of a one-time only release reported due to the heap leach pad material placed into closure.

FIGURE 7

**KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT
TRI Releases To Land
(Millions of Pounds)
1988 - 2013**

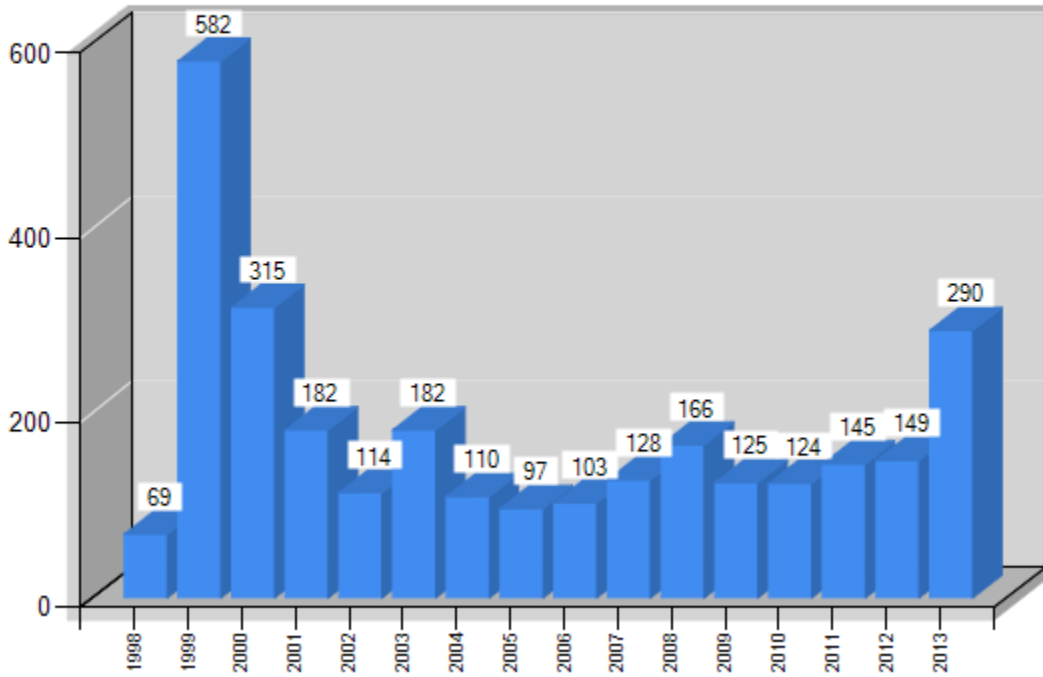
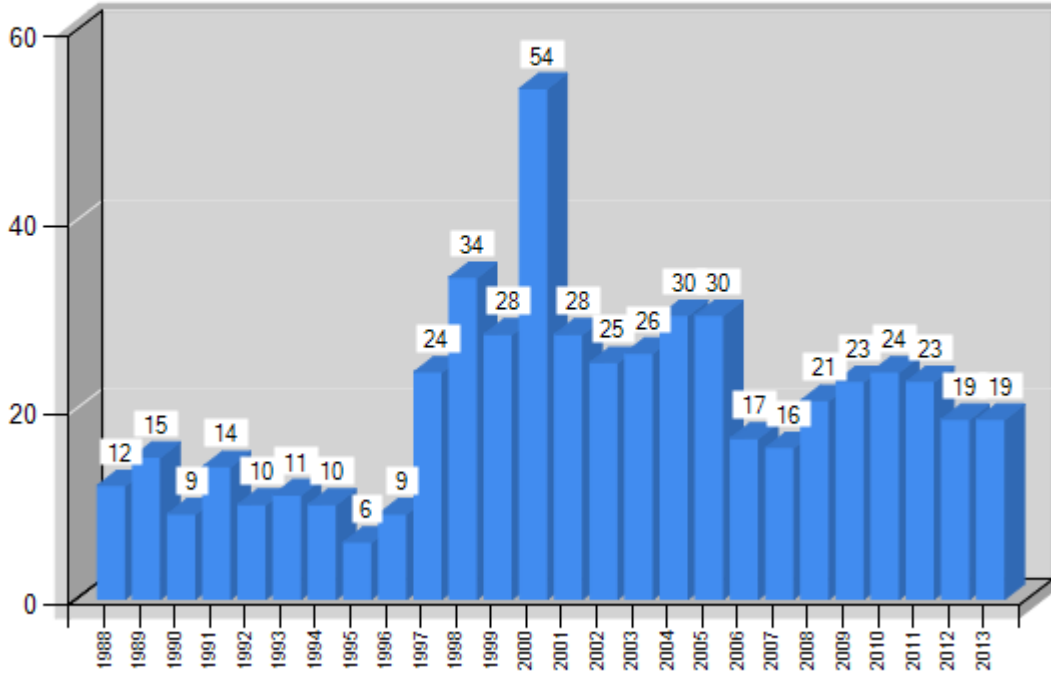


FIGURE 8

**KENNECOTT UTAH COPPER SMELTER & REFINERY
TRI Releases To Land
(Millions of Pounds)
1988 - 2013**



Waste Disposal Facilities

TABLE 9

Waste Disposal Facility Releases to Land

Facility Name	Lbs/Year
1 CLEAN HARBORS GRASSY MOUNTAIN, LLC	2,935,980
2 ENERGY SOLUTIONS LLC	2,305,624

The Clean Harbors Aragonite (CHA) facility is also a Treatment, Storage and Disposal facility. It does not appear in this table because all chemical quantities are reported as off-site transfers and off-site releases.

TABLE 10

Top 10 Chemicals - Releases to Land
From Waste Disposal Facilities

	<u>Chemical Name</u>	<u>Lbs/Year</u>
1	Lead Compounds	1,208,640
2	Polychlorinated Biphenyls (PCBs)	1,079,089
3	Aluminum oxide	879,830
4	Chromium Compounds	439,208
5	Asbestos	384,963
6	Vanadium Compounds	368,518
7	Nickel Compounds	283,079
8	Lead	169,535
9	Copper Compounds	139,654
10	Sodium dimethyldithiocarbamate	90,365

FIGURE 9

**CLEAN HARBORS GRASSY MOUNTAIN, LLC
TRI Releases To Land
(Millions of Pounds)
1988 - 2013**

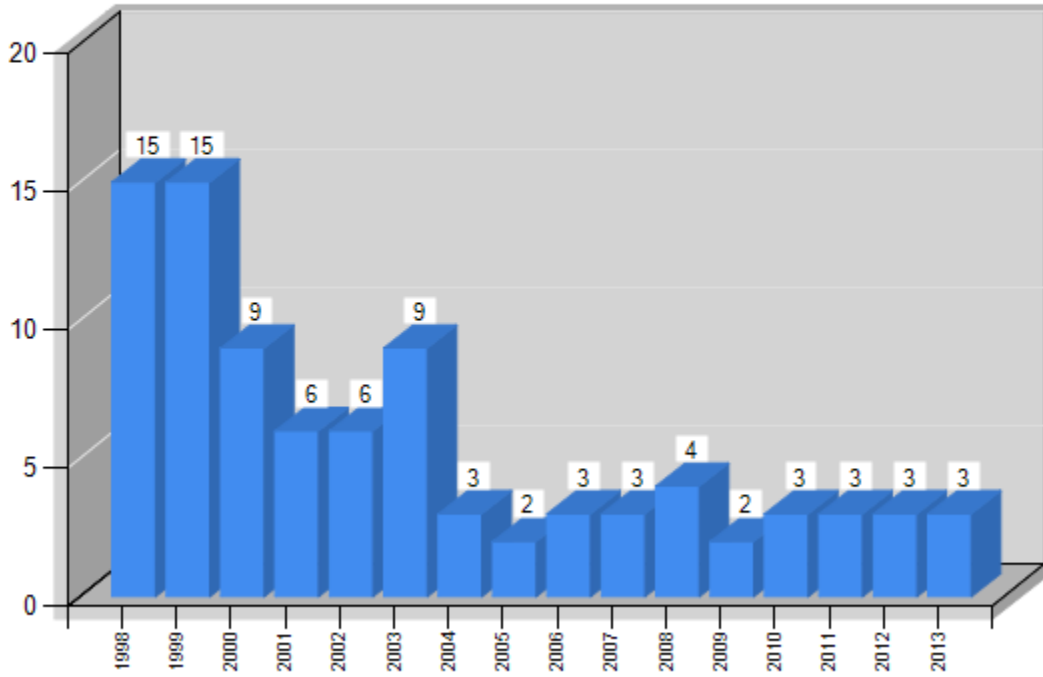
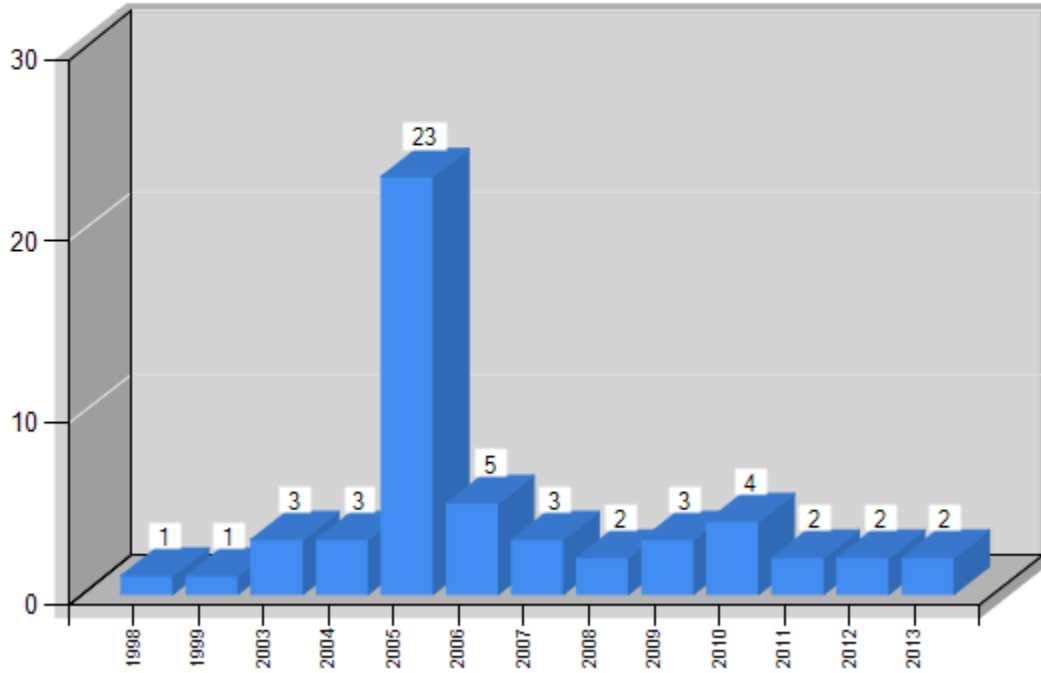


FIGURE 10

**ENERGY SOLUTIONS LLC
TRI Releases To Land
(Millions of Pounds)
1988 - 2013**



Electric Utilities

TABLE 11

Coal-Fired Electric Utility Releases to Land by Facility

Facility Name	Lbs/Year
1 BONANZA POWER PLANT	1,783,297
2 INTERMOUNTAIN POWER GENERATING STATION	1,675,134
3 PACIFICORP - HUNTINGTON PLANT	1,616,898
4 PACIFICORP - HUNTER PLANT	1,294,163
5 PACIFICORP - CARBON PLANT	130,486

TABLE 12

Top 10 Chemical Releases to Land
From Coal-Fired Electric Utilities

Chemical Name	Lbs/Year
1 Barium Compounds	4,631,943
2 Manganese Compounds	545,421
3 Chromium Compounds	342,993
4 Vanadium Compounds	201,485
5 Zinc Compounds	197,111
6 Copper Compounds	191,885
7 Nickel Compounds	155,177
8 Lead Compounds	119,228
9 Arsenic Compounds	51,900
10 Antimony Compounds	20,000

RELEASES TO SURFACE WATER

TABLE 13

Top Facility Releases to Surface Water

Facility Name	Lbs/Year
1 CHEVRON PRODUCTS COMPANY- SALT LAKE REFINERY	98,383
2 KENNECOTT UTAH COPPER SMELTER & REFINERY	6,750
3 KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	6,149

TABLE 14

Top 10 Chemical Releases to Surface Water

	Chemical Name	Lbs/Year
1	Nitrate compounds	97,000
2	Zinc Compounds	1,802
3	Xylene (mixed)	1,600
4	Ammonia	1,484
5	Chromium Compounds	1,024
6	Arsenic Compounds	1,016
7	Manganese Compounds	1,005
8	Antimony Compounds	1,000
9	Vanadium Compounds	1,000
10	Thallium Compounds	1,000

TRANSFERS TO PUBLICLY OWNED TREATMENT WORKS**TABLE 15**

Top 10 Facility Transfers to POTWs

	Facility Name	Lbs/Year
1	DANNON COMPANY, THE	398,526
2	JOHNSON MATTHEY	250,782
3	MICRON TECHNOLOGY, INC. - LEHI DIVISION	170,000
4	SCHREIBER FOODS, INC.	150,816
5	EASTON TECHNICAL PRODUCTS	147,095
6	TYCO PRINTED CIRCUIT GROUP, LP ., LOGAN DIVISION	137,010
7	NESTLE USA - PREPARED FOODS DIVISION, INC.	105,931
8	FAIRCHILD SEMICONDUCTOR	58,192
9	PILKINGTON METAL FINISHING LLC 2	53,645
10	TESORO REFINING AND MARKETING COMPANY	48,364

TABLE 16

Top 10 Chemicals Transferred to POTWs

	Chemical Name	Lbs/Year
1	Nitrate compounds	1,420,246
2	Nitric acid	118,544
3	Ammonia	92,573
4	Glycol Ethers	26,981
5	Hydrogen sulfide	25,000
6	Peracetic acid	20,049
7	Toluene	13,251
8	Xylene (mixed)	12,844
9	Benzene	8,829
10	Zinc Compounds	2,662

UTAH FACILITY TRANSFERS TO OTHER OFF-SITE LOCATIONS**TABLE 17**

Top 10 Facilities Transferring Chemicals Off-site

	Facility Name	Lbs/Year
1	NUCOR STEEL - A DIVISION OF NUCOR CORPORATION	8,603,192
2	CLEAN HARBORS ARAGONITE, LLC.	2,763,356
3	CERROWIRE & CABLE CO.	1,670,237
4	ELKAY WEST	779,819
5	THATCHER COMPANY	612,172
6	UNIVERSAL INDUSTRIAL SALES INC	582,989
7	SHAW NAPTECH, INC. - CLEARFIELD 2	555,620
8	HEXCEL CORPORATION	406,103
9	THE DANNON COMPANY	398,526
10	JOHNSON MATTHEY	358,695

TABLE 18

Top 10 Chemicals Transferred to Off-site Facilities

	Chemical Name	Lbs/Year
1	Zinc Compounds	8,338,647
2	Nitrate compounds	2,284,392
3	Copper	1,795,314
4	Lead Compounds	1,418,170
5	Nickel	848,160
6	Manganese Compounds	808,236
7	Chromium	774,826
8	Copper Compounds	402,356
9	Ethylene glycol	303,999
10	Manganese	302,352

FIGURE 11

Utah 2013 TRI Chemical Transfers
by Final Disposition Type

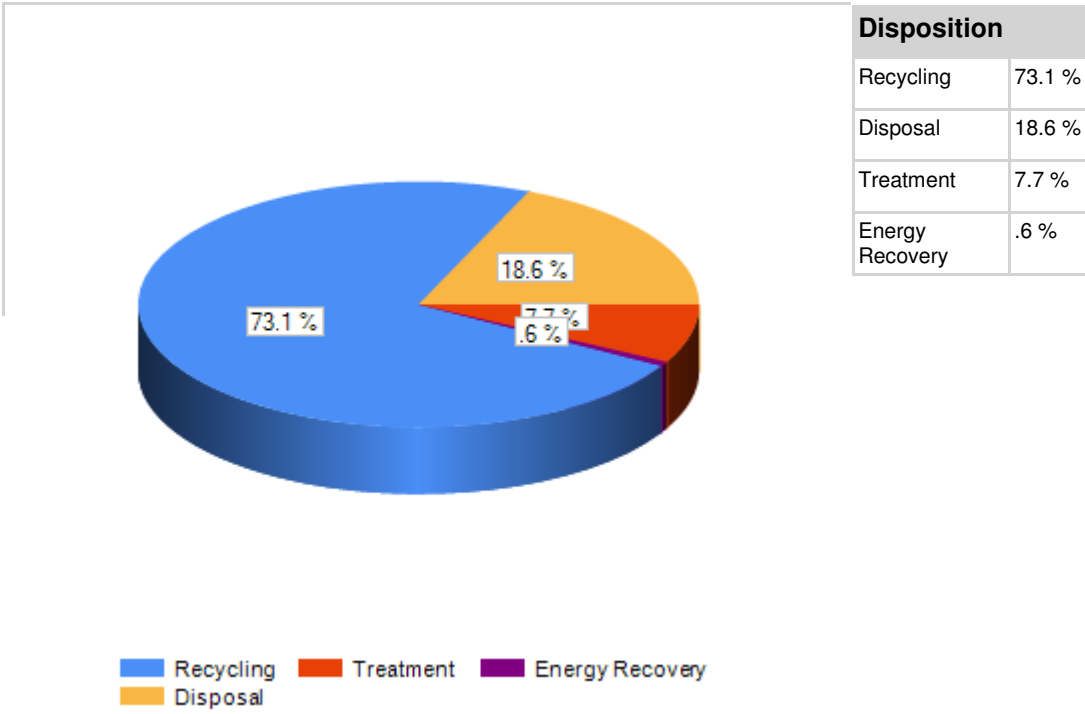
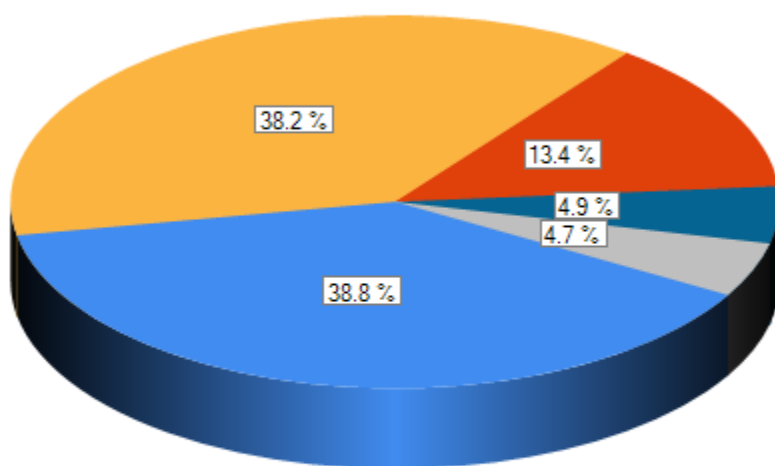


Figure 12

2013 Utah TRI Chemicals Transferred
to Other States

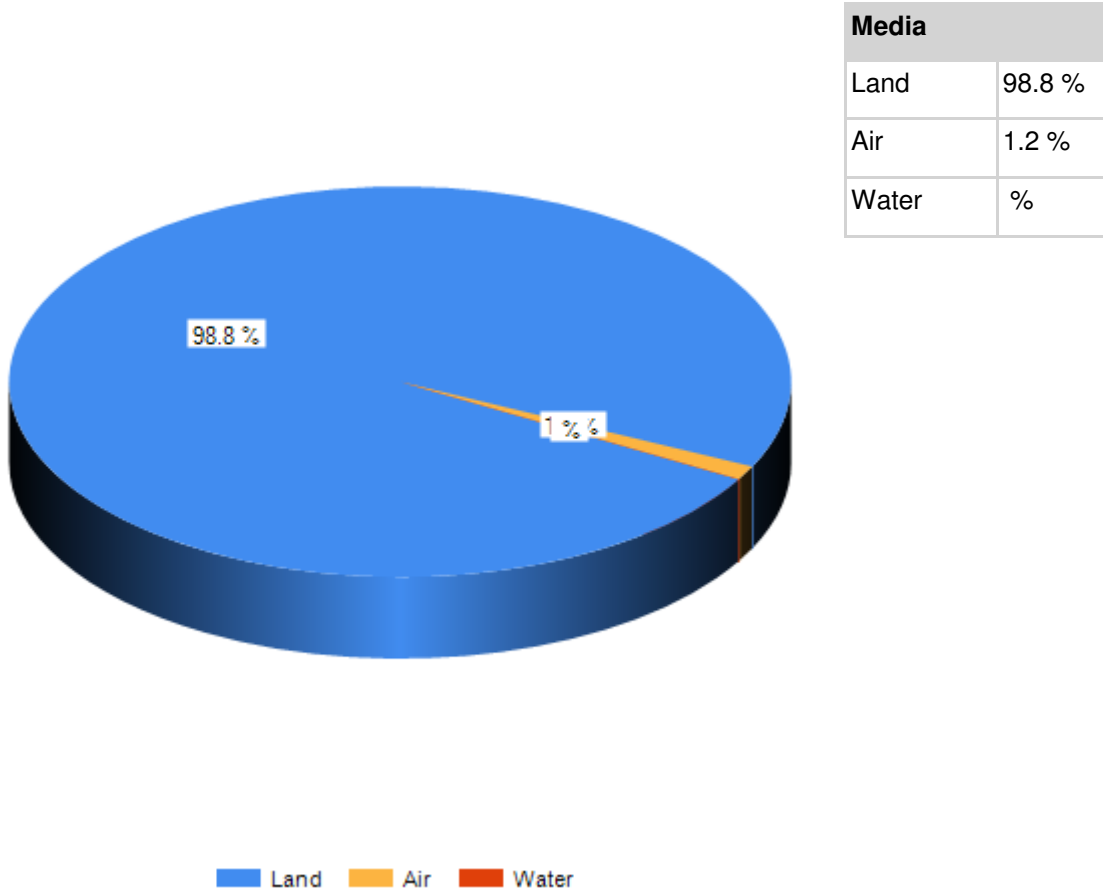


State	
UT	38.8 %
IL	38.2 %
Other	13.4 %
NE	4.9 %
ID	4.7 %

■ UT ■ IL ■ Other ■ NE ■ ID

Figure 13

Utah 2013 TRI Total On-site Releases By Media



PERSISTENT BIOACCUMULATIVE TOXIC (PBT) CHEMICALS

TABLE 19

Facilities Reporting PBT
Dioxin and Dioxin-like Compound Releases
(Units in Grams)

#	Facility	ONSITE				OFFSITE	Grand Total
		Total Water	Total Air	Total Land	Subtotal Releases	Offsite	
1	US MAGNESIUM, LLC	0.00	15.67	4202.68	4,218.35	0.00	4218.35
2	WESTERN ZIRCONIUM	0.00	0.00	0.13	0.13	20.16	20.29
3	INTERMOUNTAIN POWER GENERATING STATION	0.00	1.88	6.48	8.36	0.00	8.36
4	CLEAN HARBORS ARAGONITE, LLC.	0.00	0.77	0.00	0.77	0.00	0.77
5	PACIFICORP HUNTER PLANT	0.00	0.65	0.00	0.65	0.00	0.65
6	SUNNYSIDE COGENERATION ASSOCIATES	0.00	0.59	0.00	0.59	0.00	0.59
7	PACIFICORP - HUNTINGTON PLANT	0.00	0.47	0.00	0.47	0.00	0.47
8	KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	0.00	0.45	0.00	0.45	0.00	0.45
9	ASH GROVE CEMENT COMPANY	0.00	0.25	0.00	0.25	0.00	0.25
10	CHEVRON PRODUCTS COMPANY - SALT LAKE REFINERY	0.12	0.00	0.00	0.13	0.00	0.13
11	PACIFICORP - CARBON PLANT	0.00	0.09	0.00	0.09	0.00	0.09
12	HOLCIM (US) INC., DEVIL'S SLIDE PLANT	0.00	0.07	0.00	0.07	0.00	0.07
13	TESORO REFINING AND MARKETING COMPANY	0.00	0.05	0.00	0.05	0.00	0.05
14	KENNECOTT UTAH COPPER SMELTER & REFINERY	0.00	0.00	0.00	0.00	0.00	0.00
15	BONANZA POWER PLANT	0.00	0.00	0.00	0.00	0.00	0.00
16	THE PROCTER & GAMBLE PAPER PRODUCTS COMPANY	0.00	0.00	0.00	0.00	0.00	0.00

The GraymontWestern US Inc. facility is part of a facility related pair as explained above in the section of this report titled *Excluded Data*. Graymont was not included in the statistics presented in this report. Graymont reported total aggregate releases of Dioxin and dioxin-like compounds at 0.297 grams.

SUMMARY

Total state-wide release amounts and corresponding percentages presented within this report have been rounded for purposes of simplicity. As a result of either basing calculations on raw data (which is not provided in this report), or of rounding to whole numbers, various total and percentage values presented may not correspond exactly to each other, or to the tables or figures within this report. In addition, significant figures are sometimes used when it was considered necessary to show a difference between reporting year data values.

Trends recognized in the Toxic Release Inventory data for RY 2013 may be summarized as follows:

- *Total On-site and Off-site Releases* increased by 175.3%, from 191 million pounds to 526 million pounds, an increase of about 336 million pounds.
- *Total Releases to Air* decreased by 23.5% from 7.9 million pounds to 6.1 million pounds showing a decrease of about 1.9 million pounds. Chemicals ranked first and second for quantities released to air were chlorine and hydrochloric acid (aerosol forms only), respectively.
- *Total Releases to Land* statewide increased by 187% from 180 million pounds to 517 million pounds, a total increase of 336 million pounds. Kennecott reporting comprised approximately 99.4% of the increase (about 334 million pounds) of the total change. Mine Concentrators and Power Plant facility reported a 195% increase over last year. The increase is primarily the result of the amount of material moved at the mine and increased metals concentrations in the ore and waste rock. The Barney's Canyon Mine facility reported a one-time only release of 193 million pounds because the heap leach pad material is being placed in closure. Kennecott releases represent about 97.3 % of the total releases to land reported state-wide.
- *Total Releases to Surfaces Water* increased by 7.5% from 104,500 pounds in RY 2012 to 112,300 pounds in the current report year. Nitrate compounds comprise about 87% of total releases to surface waters. Metal compounds made up about 12% of the total releases to surface waters state-wide.
- *Total Transfers to Publicly Owned Treatment Works* increased by 6.7% to 1.7 million pounds from 1.6 million pounds. Nitrate compounds comprised about 81% of all chemicals transferred to POTWs.
- *Transfers Off-site* to treatment, storage & disposal facilities, which typically include chemical recyclers and waste disposal facilities, increased by 15.5% from 18 million pounds to almost 21 million pounds.

- The most notable persistent bioaccumulative Toxic (PBT) chemical category is dioxin and dioxin-like compounds. Dioxin and dioxin-like compounds are unique in that they comprise the only chemical/chemical category in the TRI program in which the releases are reported in grams. Total releases of PBT chemicals, dioxin and dioxin-like compounds, decreased by about 69% from 13,723.62 grams in RY 2012 to 4,250.53 grams in the current report year (RY 2013).
 - The total release amount reported by US Magnesium for dioxin and dioxin-like chemicals on-site and off-site is 4,218.35 grams. This amount comprises 99.2% of the total amount released by all facilities in Utah.
 - Total on-site releases to land, air and water were 4,209.28 grams, 20.96 grams and 0.12 grams, respectively, for a total on-site release amount of 4,230.37 grams. The total off-site release reported was 20.16 grams. On-site releases to land constitute 99.03% of the total on-site and off-site amounts reported.