

State of Utah
Department of Environmental Quality

Utah Toxic Release Inventory
Reporting Year 2014
Data Summary Report



January 2016

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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 (EPA) 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) 2014. 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 2014, EPA received a total of 883 chemical submission forms, 806 Form-R submissions and 77 Form-A submissions, from 183 facilities.²

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.

² From TRI Explorer (www.epa.gov/triexplorer) accessed November 4, 2015.

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, 2014. The deadline for reporting this data was July 1, 2015.

The Wasatch Front is defined to include Davis, Salt Lake, Utah and Weber counties. The distribution of facilities in these counties for RY 2014 is: Davis, 22; Salt Lake, 64; Utah, 15; and Weber, 18. The Wasatch Front accounts for about 67% of all facilities reporting under the TRI program and about 56% of all chemical submissions. Nine facilities from Tooele County reported to the TRI program for RY 2014. These facilities submitted a total of 175 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 occurs when a facility (Facility A) reports off-site disposal or off-site transfers of wastes that were conveyed to another facility (Facility B) and Facility B reports the received wastes under on-site disposal. Double counting is the term applied by EPA to amounts of waste that have effectively been reported two times.³ The Utah system was modified to perform a similar correction calculation beginning with RY 2010 data and totals related to select categories (e.g. total off-site transfers) now show more consistent values with those reported by EPA since RY 2010. EPA has since changed the presentation and format of fact sheets from pdf to a online, web-based format. Older Factsheets containing this statement are no longer readily available.

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. EPA data can be viewed here: <http://www.epa.gov/toxics-release-inventory-tri-program>. These datasets serve as an independent source to cross-check past years. This is useful because facilities may submit data revisions at any time for past years which may affect the statistics. The latest reporting year data is made available after release of the TRI National Analysis report.

Variations in Data Values in this Report

Calculations for state-wide releases were made using significant figures provided in the data received from the data exchange (SDX). However, some of the state-wide release amounts and corresponding percentages in this data summary report have been rounded off for the

³ Older Fact Sheets (e.g. 2004-2006) included a statement describe steps taken to avoid double counting.

sake of simplicity. As a result, slight discrepancies in some values and percentages presented in this report should be expected.

Total Releases

Total on-site and off-site release amounts reported by all facilities reporting TRI in Utah for the current reporting year decreased by 60.6% from 526.4 million pounds in RY 2013 to 207.4 million pounds for RY 2014 showing a net decrease of about 319 million pounds.

Releases to Air (on-site)

Total TRI releases to air reported by Utah facilities for RY 2014 increased by 3.8% from 6.1 million pounds to 6.4 million pounds showing an increase of about 235,000 pounds.

Chemicals reported in largest quantities were chlorine, and hydrochloric acid (aerosol forms only) reported at 2.7 million pounds, and 1.9 million pounds respectively.

Releases to Land (on-site)

For the current report year, total chemical releases to land decreased by 61.6%. Total releases to land decreased from 517 million pounds to 198 million pounds resulting in a net decrease of 318 million pounds. The largest quantities reported were for metals compounds of arsenic, barium, copper, lead and zinc.

Releases to land reported by the Kennecott Mine Concentrator & Power Plant facility decreased from 290 million pounds in RY 2013 to 162 million pounds in RY 2014, a decrease of approximately 44%. Kennecott's Smelter and Refinery facility reported an increase of approximately 32.5% from 19 million pounds in RY2013 to 25.2 million pounds in RY2014. The Barney's Canyon Mine facility releases to land dropped significantly in RY 2014 because of a one-time release event which caused a spike in the quantity of releases reported in RY2013.

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 a decrease of 62.7%, from 502.5 million pounds in RY 2013 to 187.4 million pounds for RY 2014. More details about the Kennecott facilities are presented below.

Releases to Surface Water (on-site)

Total releases to surface water increased by 12.3%, a change of 13,800 pounds, from approximately 112,300 pounds to about 126,200 pounds. Chevron Products Company is the largest contributor to this category of reporting. Chevron reported a total release of 113,200 pounds which is approximately 90% of the total for all releases to surface waters for this reporting year. Nitrate compounds comprised the single largest fraction of chemicals released. At 112,000 pounds, nitrate compounds comprised approximately 89% of the total amount by weight of chemicals released to surface waters. Chevron Products Company reported approximately 110,000 pounds of nitrate compounds.

The total release to surface water reported by two Kennecott facilities (Mine Concentrator and Power Plant, and the Smelter & Refinery) was slightly less than 11,400 pounds for a variety of TRI chemicals representing about 9% 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 decreased by 9.9% from 1.9 million pounds down to 1.7 million pounds showing a decrease of about 189,300 pounds. Nitrate compounds constitute about 81% of the total chemicals transferred to POTWs. The remaining percentages of chemicals transferred to POTWs are comprised of nitric acid (6.9%), ammonia (4.8%), hydrogen sulfide (3.1%), and glycol ethers (1.6%). A combination of metal compounds and organic chemicals make up the remaining percentage.

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 3.6% from 21.3 million pounds to 22.0 million pounds. Metal compounds (zinc), nitrate compounds, and copper 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 increased 254.5% from 4,250.53 grams in RY 2013 to 15,067.52 grams for RY 2014. This is an increase of 10,816.99 grams. The total on-site release amount reported by all facilities is 15,052.97 grams. The distribution of on-site releases by media is 15,030.75 grams to land, 22.10 grams to air; and 0.12 grams to water. Total off-site release reported is 14.55 grams.

The total release amount reported by US Magnesium for dioxin and dioxin-like chemicals on-site and off-site is 15,039.91 grams. The total amount reported by US Magnesium comprises 99.82% 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 EPCRA Section 313 chemicals. Nationally, a facility subject to EPCRA reports TRI information annually to the EPA and to the state in which it is located. The Utah Hazardous Chemical Emergency Response Commission, more commonly known as the SERC, was established under Utah Code §53-2a-701. The Utah Department of Environmental Quality 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 DEQ for EPCRA Reporting Year RY 2014.

Who Must Report to TRI?

A facility must report TRI information to the EPA and SERC 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://www2.epa.gov/toxics-release-inventory-tri-program/tri-listed-chemicals>. 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 in a specific geographic location.
- 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.
- TRI data may be reviewed and downloaded from <http://www2.epa.gov/toxics-release-inventory-tri-program/tri-data-and-tools>.

What Are the Limitations of the TRI 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.

Year to Year Comparison of Statewide TRI Totals. The TRI list of chemicals requiring reporting, and the methods used for estimating emissions have changed significantly throughout the history of the TRI reporting program. Furthermore, a facility may satisfy the program reporting threshold requirement for some years and not others. A facility may also submit revisions at any time for prior years. These activities will alter the totals for the impacted reporting category and report year. Release totals will change perhaps across multiple report years as a result of the revisions and make the interpretation and comparison of release numbers less consistent to the layman.

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 effects.

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 were several changes made for reporting year 2015. One new chemical category for nonylphenol was added and EPA introduced enhancements to TRI-MEweb. Changes for reporting year 2015 can be reviewed online at EPA's TRI website here:

<http://www.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.

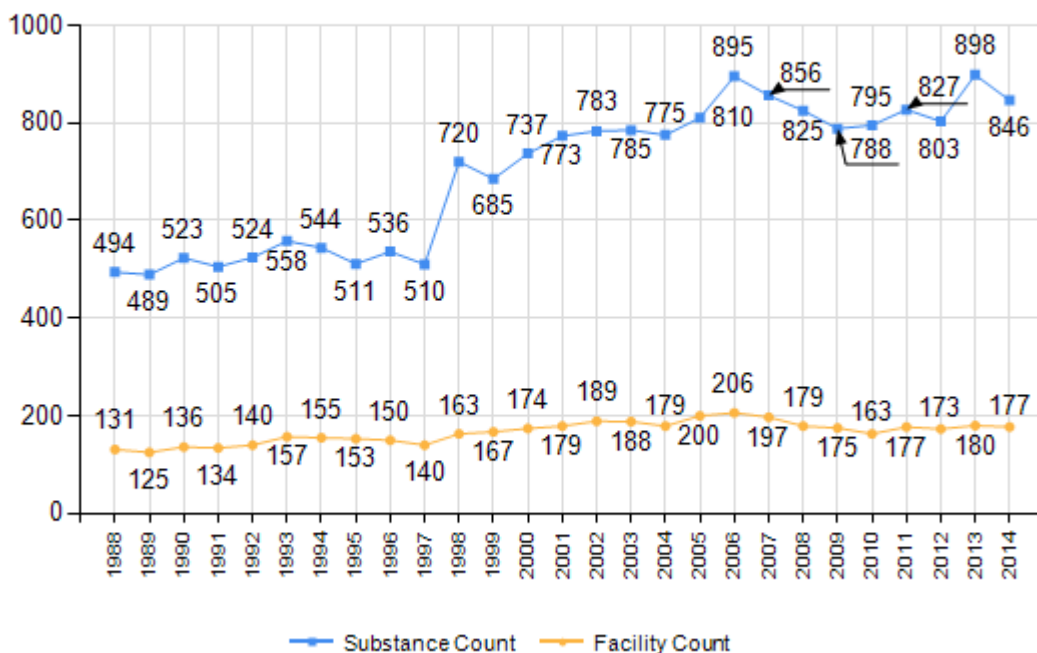
RELEASE DETAILS: FIGURES AND TABLES ILLUSTRATING RY 2014 TRI DATA

The following pages contain the relevant figures and tables that summarize the TRI data for RY 2014. 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

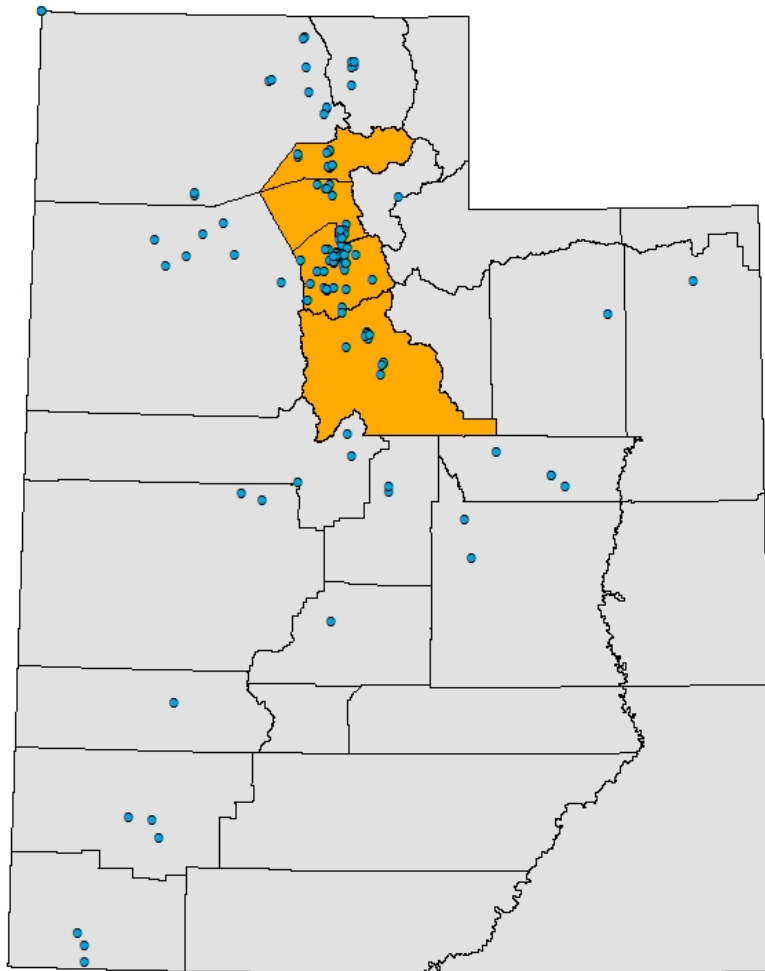
**Quantity of Utah TRI Submissions
1988 - 2014**



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 Davis, Salt Lake, Utah and Weber Counties. For RY 2014, facilities along the Wasatch Front comprised 67% of all facilities reporting in Utah.

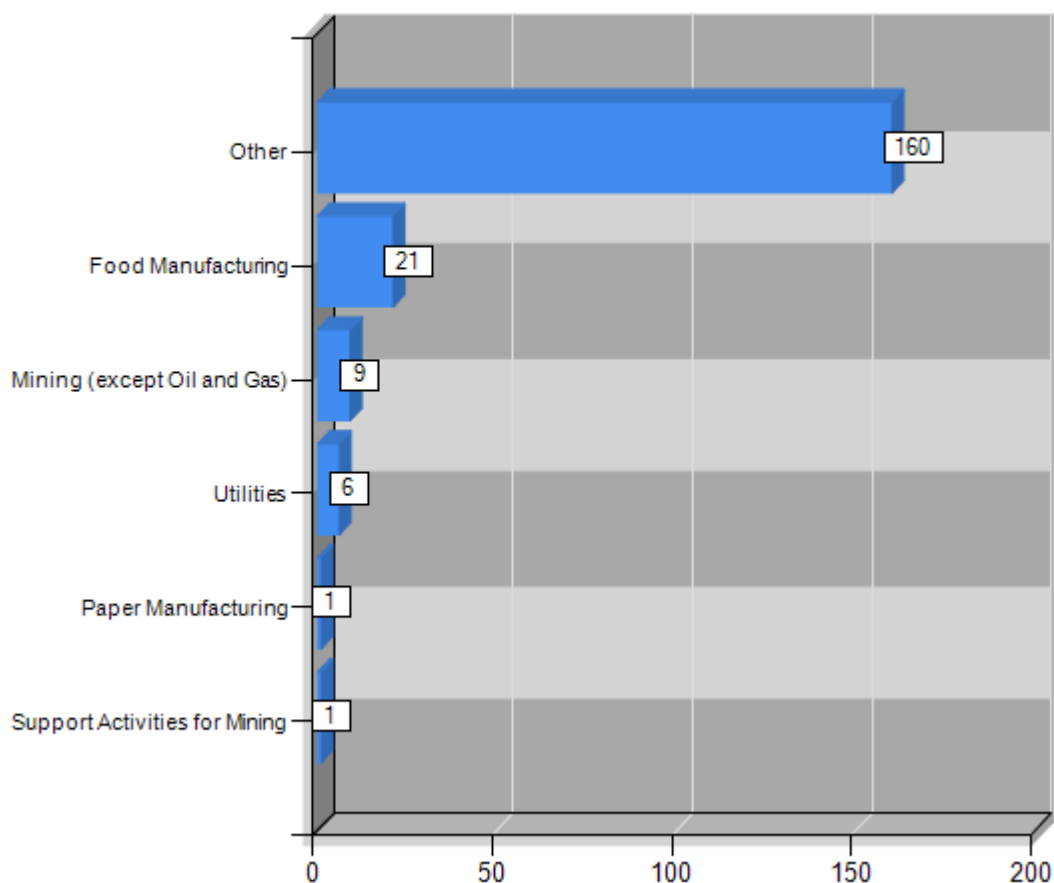
FIGURE 2
Utah 2014 TRI Facility Locations & Wasatch Front



Industrial Sectors

Figure 3 shows a breakdown of industrial sectors reporting TRI data.

FIGURE 3
2014 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; durable goods; non-durable 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 - 2014**

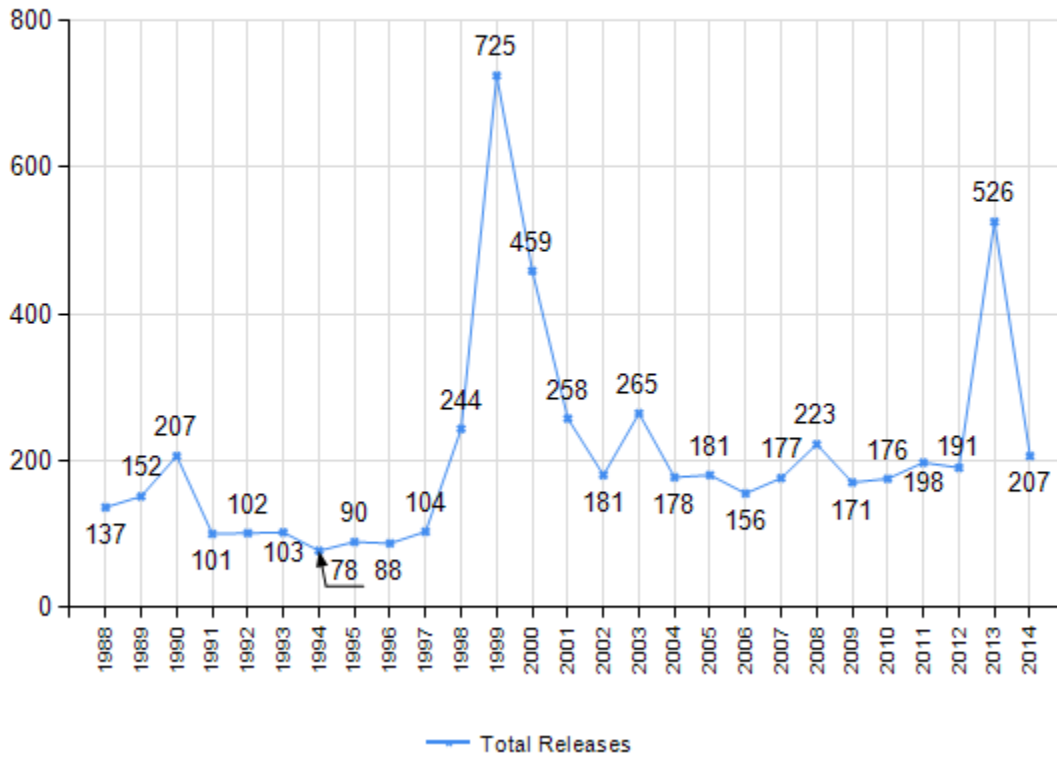


TABLE 1

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

Facility Name	Pounds/Year
1 KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	162,196,728
2 KENNECOTT UTAH COPPER SMELTER & REFINERY	25,328,561
3 US MAGNESIUM, LLC	4,200,515
4 CLEAN HARBORS GRASSY MOUNTAIN, LLC	1,968,725
5 ENERGY SOLUTIONS LLC	1,817,555
6 BRUSH RESOURCES INC, MILL	1,634,046
7 INTERMOUNTAIN POWER GENERATING STATION	1,622,182
8 PACIFICORP - HUNTINGTON PLANT	1,553,277
9 PACIFICORP HUNTER PLANT	1,336,793
10 NUCOR STEEL - A DIVISION OF NUCOR CORPORATION	890,480

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	130,010,400
2 Copper Compounds	47,626,885
3 Zinc Compounds	7,329,307
4 Arsenic Compounds	3,523,827
5 Barium Compounds	2,873,791
6 Chlorine	2,694,723
7 Ammonia	2,036,150
8 Hydrochloric acid	1,935,146
9 Chromium Compounds	1,352,346
10 Nitrate compounds	1,282,485

TABLE 3

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

Facility Name	Pounds/Year
1 KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	162,196,196
2 KENNECOTT UTAH COPPER SMELTER & REFINERY	25,326,926
3 US MAGNESIUM, LLC	4,200,514
4 CLEAN HARBORS GRASSY MOUNTAIN, LLC	1,968,379
5 ENERGY SOLUTIONS LLC	1,817,555
6 BRUSH RESOURCES INC, MILL	1,634,046
7 INTERMOUNTAIN POWER GENERATING STATION	1,622,182
8 PACIFICORP - HUNTINGTON PLANT	1,553,056
9 PACIFICORP HUNTER PLANT	1,336,783
10 WESTERN ZIRCONIUM	670,848

TABLE 4

Top 10 Chemicals - Total On-site Chemical Releases

Chemical Name	Pounds/Year
1 Lead Compounds	129,793,930
2 Copper Compounds	47,609,998
3 Zinc Compounds	6,471,000
4 Arsenic Compounds	3,523,750
5 Barium Compounds	2,824,784
6 Chlorine	2,694,723
7 Ammonia	2,036,137
8 Hydrochloric acid	1,935,135
9 Chromium Compounds	1,287,791
10 Manganese Compounds	1,158,362

RELEASES TO AIR

FIGURE 5

Utah TRI Total Releases to Air
(Millions of Pounds)
1988 - 2014

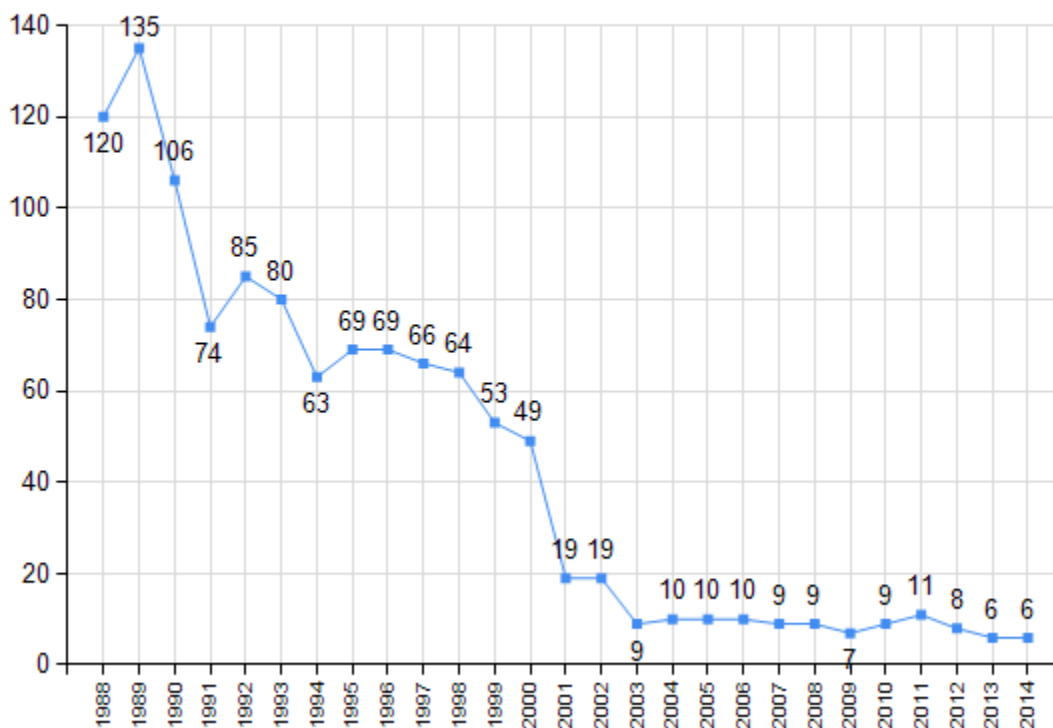


TABLE 5

Top 10 Facilities - Total Releases to Air

Facility Name	Pounds/Year
1 US MAGNESIUM, LLC	4,197,614
2 HEXCEL CORPORATION	343,414
3 PACIFICORP - CARBON PLANT	297,930
4 BRUSH RESOURCES INC, MILL	244,826
5 TESORO REFINING AND MARKETING COMPANY	131,651
6 INTERMOUNTAIN POWER GENERATING STATION	130,187
7 CHEVRON PRODUCTS COMPANY - SALT LAKE REFINERY	106,005
8 KENNECOTT UTAH COPPER SMELTER & REFINERY	104,656
9 SUNNYSIDE COGENERATION ASSOCIATES	67,786
10 PACIFICORP - HUNTINGTON PLANT	63,827

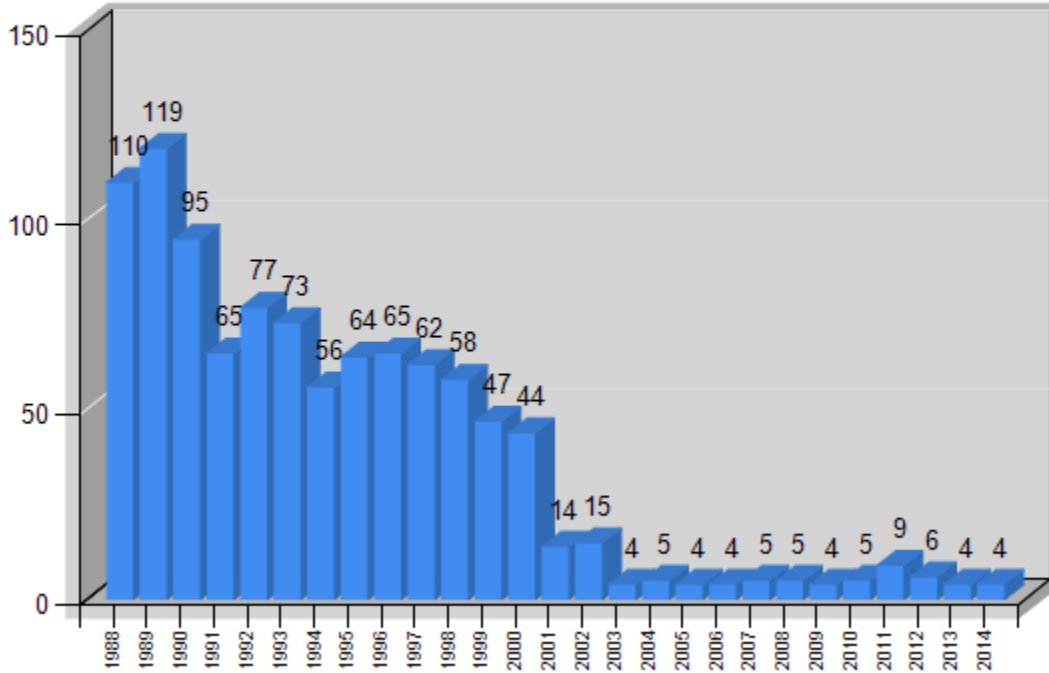
TABLE 6

Top 10 Chemicals - Total Releases to Air

	Chemical Name	Pounds/Year
1	Chlorine	2,694,723
2	Hydrochloric acid	1,935,135
3	Ammonia	551,844
4	Hydrogen cyanide	225,188
5	Hydrofluoric acid	194,831
6	Sulfuric acid	119,836
7	Hexane	87,594
8	Toluene	75,131
9	Styrene	62,766
10	Xylene (mixed)	58,635

FIGURE 6

**US MAGNESIUM, LLC
TRI Releases To Air
(Millions of Pounds)
1988 - 2014**



RELEASES TO LAND

TABLE 7

Top 10 Facilities - Total Releases to Land

Facility Name	Pounds/Year
1 KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	162,180,150
2 KENNECOTT UTAH COPPER SMELTER & REFINERY	25,216,361
3 CLEAN HARBORS GRASSY MOUNTAIN, LLC	1,968,320
4 ENERGY SOLUTIONS LLC	1,817,555
5 INTERMOUNTAIN POWER GENERATING STATION	1,491,994
6 PACIFICORP - HUNTINGTON PLANT	1,489,228
7 BRUSH RESOURCES INC, MILL	1,389,210
8 PACIFICORP HUNTER PLANT	1,274,794
9 WESTERN ZIRCONIUM	659,518
10 NUCOR STEEL - A DIVISION OF NUCOR CORPORATION	433,978

TABLE 8

Top 10 Chemicals - Total Releases to Land

	<u>Chemical Name</u>	<u>Pounds/Year</u>
1	Lead Compounds	129,783,860
2	Copper Compounds	47,561,341
3	Zinc Compounds	6,451,743
4	Arsenic Compounds	3,520,244
5	Barium Compounds	2,821,395
6	Ammonia	1,482,787
7	Chromium Compounds	1,284,261
8	Manganese Compounds	1,148,783
9	Aluminum oxide	815,126
10	Nickel Compounds	687,086

Mining

Five mining facilities reported under the TRI program for RY 2014:

- Brush Resources, Inc., Mill;
- Kennecott Barney's Canyon Mining Company;
- Kennecott Utah Copper Mine, Concentrators & Power Plant;
- Kennecott Utah Copper Smelter & Refinery; and,
- 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 MCP reported a decrease of approximately 44% in releases to land for this reporting year compared to RY 2013. The reduction is primarily due to the decrease in lead and

copper concentrations in the ore body and waste rock, as well as decreased amounts of those materials moved. The Smelter and Refinery facility reported an increase of approximate 33% which is primarily due to an increase in the amount of slag mill tailings generated at the smelter and the subsequent management of the materials in the tailings impoundment. Changes in releases are directly attributable to changes in the concentration of reportable chemicals in mined material and quantity of material mined.

Kennecott is reporting under the guidance provided by EPA. The tailings impoundment is sited, engineered, and constructed to prevent an actual release to the environment. The rules require the facility to report the managed mining residuals containing trace amounts of TRI constituents placed into the impoundment as a release.

The trend of releases to land reported by Kennecott's Barney's Canyon Mine facility generally do not show significant changes in past reporting years since 2002. Barney's Canyon Mine reporting in report year 2013 showed an exception. For RY2013, the facility reported releases of 193 million pounds due to a "one-time only" event in which the heap leach pad material was placed in closure. This figure contributed significantly to the aggregate totals reported by Kennecott facilities for that report year. For RY2014 Barney's Canyon Mine did not have similar events to report, and releases for this report year returned to the lower values consistent with the trend noted for prior years.

FIGURE 7

**KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT
TRI Releases To Land
(Millions of Pounds)
1988 - 2014**

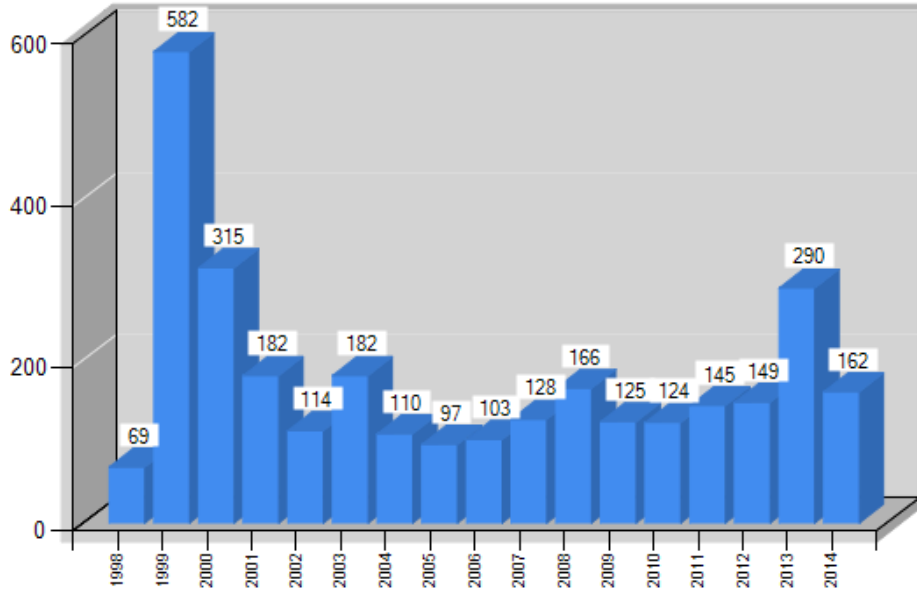
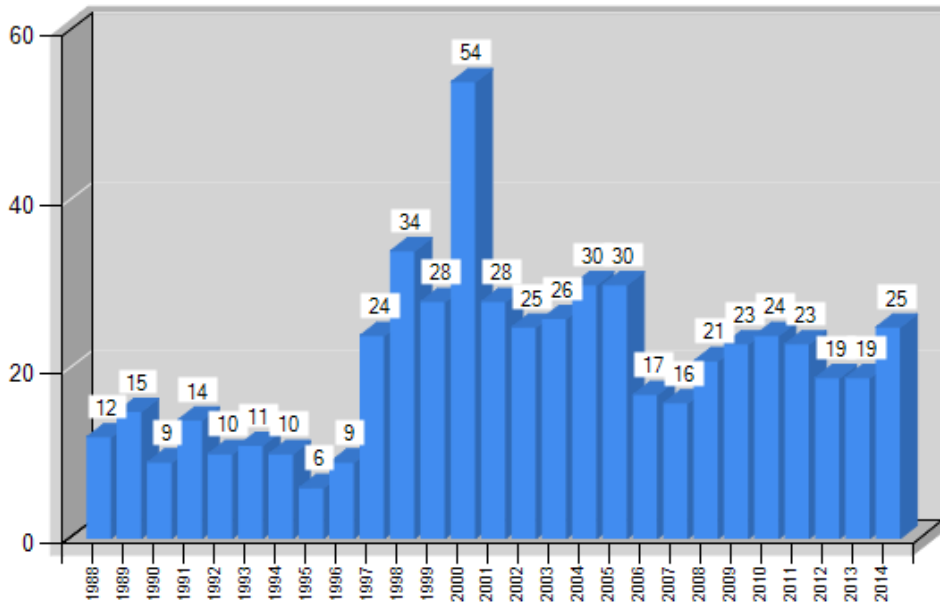


FIGURE 8

**KENNECOTT UTAH COPPER SMELTER & REFINERY
TRI Releases To Land
(Millions of Pounds)
1988 - 2014**



Waste Disposal Facilities

TABLE 9

Waste Disposal Facility Releases to Land

	<u>Facility Name</u>	<u>Pounds/Year</u>
1	CLEAN HARBORS GRASSY MOUNTAIN, LLC	1,968,320
2	ENERGY SOLUTIONS LLC	1,817,555

The Clean Harbors Aragonite facility is also a Treatment, Storage and Disposal (TSD) facility. It does not appear in Table 9 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>Pounds/Year</u>
1	Aluminum oxide	815,126
2	Lead Compounds	663,267
3	Polychlorinated Biphenyls (PCBs)	620,476
4	Asbestos	536,029
5	Chromium Compounds	345,519
6	Nickel Compounds	236,180
7	Copper	170,599
8	Copper Compounds	117,763
9	Sodium dimethyldithiocarbamate	82,950
10	Selenium	51,714

FIGURE 9

**CLEAN HARBORS GRASSY MOUNTAIN, LLC
TRI Releases To Land
(Millions of Pounds)
1988 - 2014**

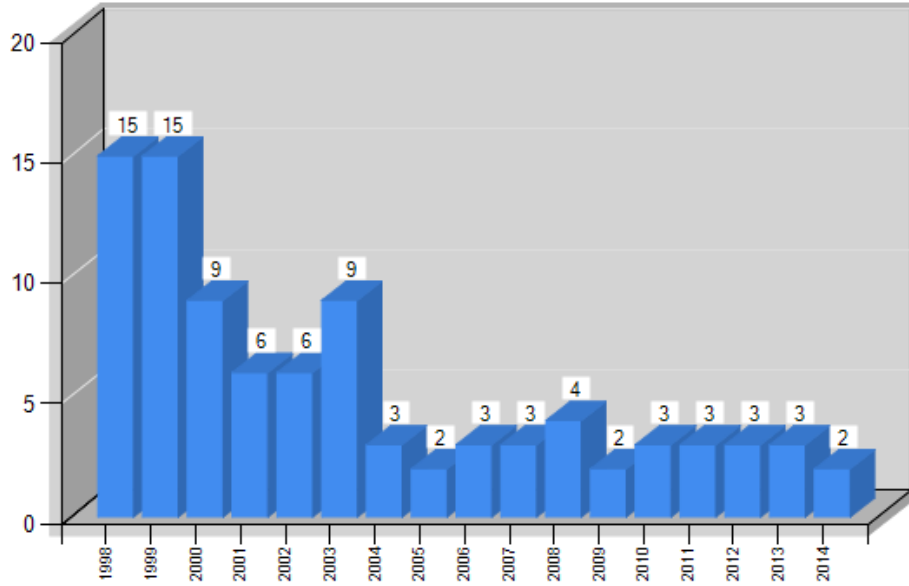
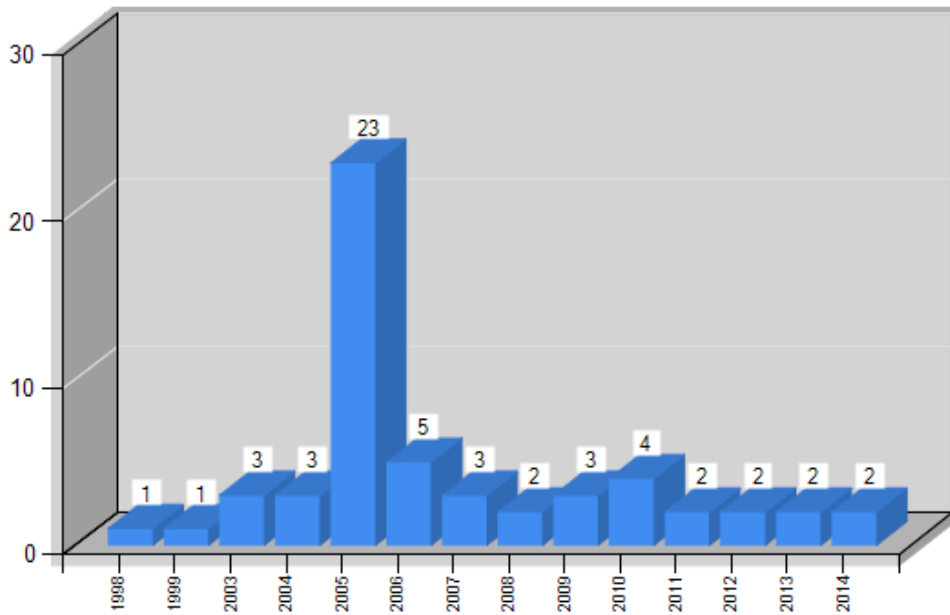


FIGURE 10

**ENERGY SOLUTIONS LLC
TRI Releases To Land
(Millions of Pounds)
1988 - 2014**



Electric Utilities

TABLE 11

Coal-Fired Electric Utility Releases to Land by Facility

	Facility Name	Pounds/Year
1	INTERMOUNTAIN POWER GENERATING STATION	1,491,994
2	PACIFICORP - HUNTINGTON PLANT	1,489,228
3	PACIFICORP HUNTER PLANT	1,274,794
4	PACIFICORP - CARBON PLANT	78,098
5	SUNNYSIDE COGENERATION ASSOCIATES	16,273

TABLE 12

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

	Chemical Name	Pounds/Year
1	Barium Compounds	2,632,507
2	Manganese Compounds	461,904
3	Chromium Compounds	382,518
4	Nickel Compounds	207,233
5	Zinc Compounds	177,050
6	Vanadium Compounds	147,871
7	Copper Compounds	147,194
8	Lead Compounds	83,472
9	Arsenic Compounds	45,300
10	Antimony Compounds	17,800

RELEASES TO SURFACE WATER

TABLE 13

Top Facility Releases to Surface Water

	Facility Name	Pounds/Year
1	CHEVRON PRODUCTS COMPANY - SALT LAKE REFINERY	113,186
2	KENNECOTT UTAH COPPER SMELTER & REFINERY	5,909
3	KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	5,476

TABLE 14

Top 10 Chemical Releases to Surface Water

	Chemical Name	Pounds/Year
1	Nitrate compounds	112,000
2	Zinc Compounds	2,197
3	Xylene (mixed)	1,500
4	Ammonia	1,497
5	Chromium Compounds	1,021
6	Manganese Compounds	1,004
7	Antimony Compounds	1,000
8	Vanadium Compounds	1,000
9	Silver Compounds	1,000
10	Thallium Compounds	1,000

TRANSFERS TO PUBLICLY OWNED TREATMENT WORKS

TABLE 15

Top 10 Facility Transfers to POTWs

	Facility Name	Pounds/Year
1	DANNON COMPANY	409,801
2	JOHNSON MATTHEY	241,574
3	MICRON TECHNOLOGY, INC. - LEHI DIVISION	162,000
4	EASTON TECHNICAL PRODUCTS	158,095
5	TYCO PRINTED CIRCUIT GROUP, LP ., LOGAN DIVISION	155,511
6	SCHREIBER FOODS, INC.	139,131
7	NESTLE USA - PREPARED FOODS DIVISION, INC.	93,323
8	TESORO REFINING AND MARKETING COMPANY	78,209
9	FAIRCHILD SEMICONDUCTOR	56,602
10	PILKINGTON METAL FINISHING LLC 2	52,126

TABLE 16

Top 10 Chemicals Transferred to POTWs

	Chemical Name	Pounds/Year
1	Nitrate compounds	1,395,181
2	Nitric acid	118,257
3	Ammonia	82,165
4	Hydrogen sulfide	53,032
5	Glycol Ethers	26,789
6	Peracetic acid	13,495
7	Xylene (mixed)	13,147
8	Toluene	8,874
9	Benzene	4,458
10	Zinc Compounds	2,470

UTAH FACILITY TRANSFERS TO OTHER OFF-SITE LOCATIONS

TABLE 17

Top 10 Facilities Transferring Chemicals Off-site

Facility Name	Pounds/Year
1 NUCOR STEEL - A DIVISION OF NUCOR CORPORATION	9,529,617
2 CLEAN HARBORS ARAGONITE, LLC.	4,052,157
3 CERROWIRE & CABLE CO.	1,420,146
4 THATCHER COMPANY	619,904
5 HEXCEL CORPORATION	426,891
6 DANNON COMPANY	409,801
7 ELKAY WEST	404,641
8 PACIFIC STATES CAST IRON PIPE COMPANY	398,301
9 JOHNSON MATTHEY	332,465
10 TYCO PRINTED CIRCUIT GROUP, LP ., LOGAN DIVISION	317,768

TABLE 18

Top 10 Chemicals Transferred to Off-site Facilities

Chemical Name	Pounds/Year
1 Zinc Compounds	9,202,136
2 Nitrate compounds	2,162,793
3 Copper	1,547,366
4 Manganese Compounds	834,069
5 Diazinon	683,440
6 Chromium	683,279
7 Lead Compounds	653,991
8 Nickel	485,500
9 Copper Compounds	400,514
10 Ammonia	247,443

FIGURE 11

Utah 2014 TRI Chemical Transfers
by Final Disposition Type

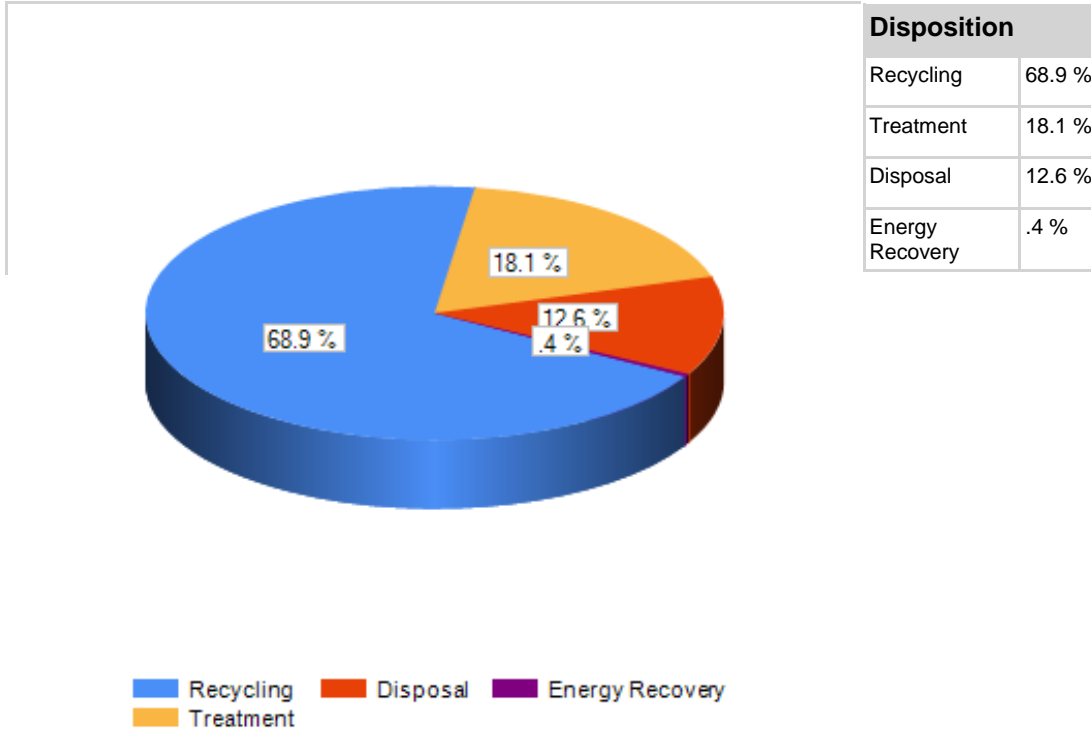
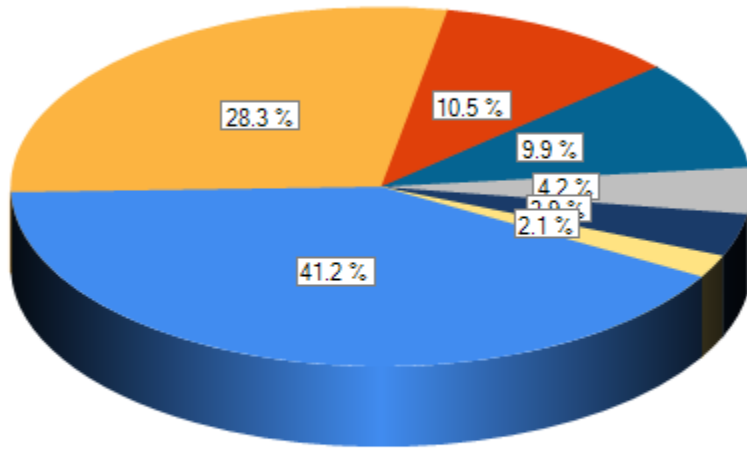


Figure 12

2014 Utah TRI Chemicals Transferred
to Other States

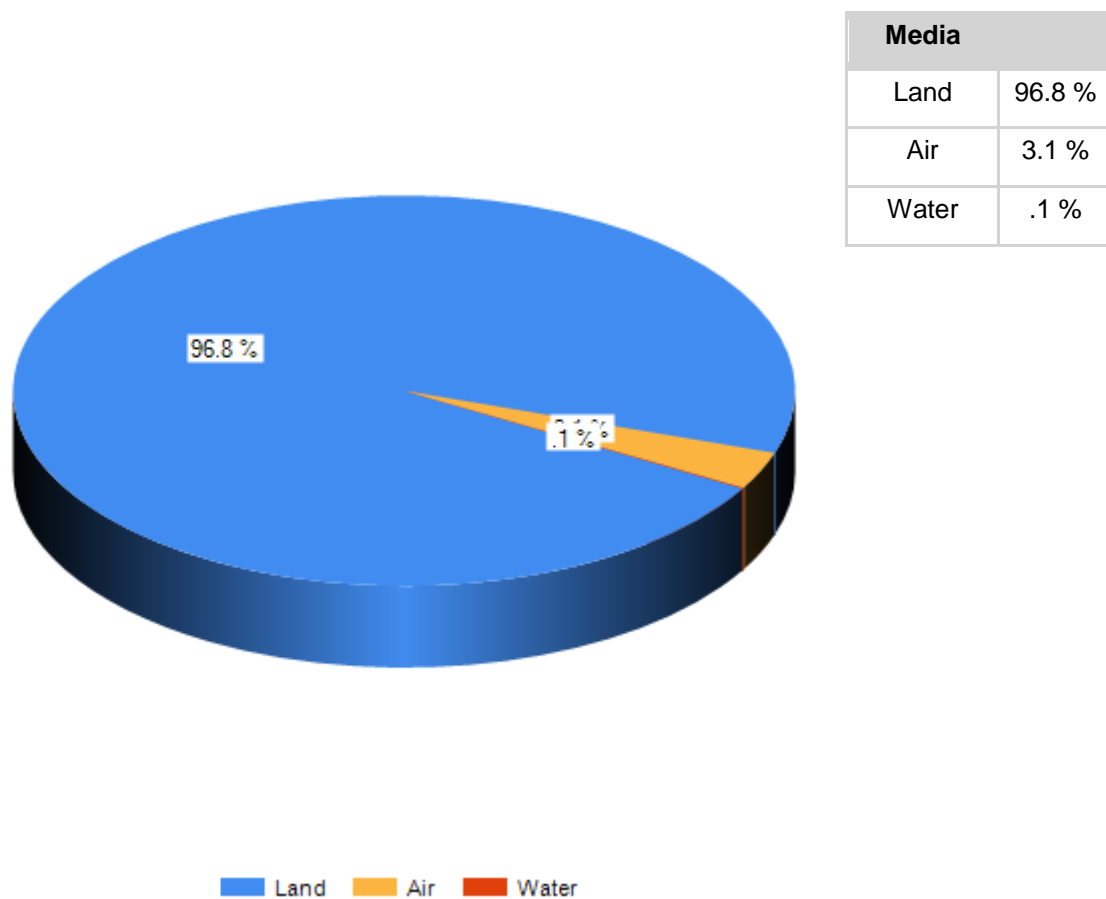


State	
IL	41.2 %
UT	28.3 %
AR	10.5 %
Other	9.9 %
NE	4.2 %
ID	3.9 %
CA	2.1 %

IL AR Other NE ID CA
UT

Figure 13

Utah 2014 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	O N S I T E				OFFSITE	Grand Total
	Total Water	Total Air	Total Land	Subtotal Releases	Offsite	
1 US MAGNESIUM, LLC	0.00	15.68	15,024.23	15,039.91	0.00	15,039.91
2 WESTERN ZIRCONIUM	0.00	0.00	0.12	0.12	14.55	14.67
3 INTERMOUNTAIN POWER GENERATING STATION	0.00	1.86	6.40	8.25	0.00	8.25
4 PACIFICORP HUNTER PLANT	0.00	1.63	0.00	1.63	0.00	1.63
5 PACIFICORP - HUNTINGTON PLANT	0.00	1.12	0.00	1.12	0.00	1.12
6 SUNNYSIDE COGENERATION ASSOCIATES	0.00	0.63	0.00	0.63	0.00	0.63
7 KENNECOTT UTAH COPPER MINE, CONCENTRATORS, & POWER PLANT	0.00	0.49	0.00	0.49	0.00	0.49
8 PACIFICORP - CARBON PLANT	0.00	0.25	0.00	0.25	0.00	0.25
9 CHEVRON PRODUCTS COMPANY - SALT LAKE REFINERY	0.12	0.10	0.00	0.21	0.00	0.21
10 CLEAN HARBORS ARAGONITE, LLC.	0.00	0.20	0.00	0.20	0.00	0.20
11 HOLCIM (US) INC., DEVIL'S SLIDE PLANT	0.00	0.10	0.00	0.10	0.00	0.10
12 TESORO REFINING AND MARKETING COMPANY	0.00	0.05	0.00	0.05	0.00	0.05
13 KENNECOTT UTAH COPPER SMELTER & REFINERY	0.00	0.00	0.00	0.00	0.00	0.00
14 THE PROCTER & GAMBLE PAPER PRODUCTS COMPANY	0.00	0.00	0.00	0.00	0.00	0.00
Totals	0.12	22.10	15,030.75	15,052.97	14.55	15,067.52

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 0.256 grams.

SUMMARY

Total state-wide release amounts and corresponding percentages presented within this TRI annual report have been rounded for 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, the number of place-holders was increased when it was considered beneficial to show a difference between reporting year data values.

Trends recognized in the Toxic Release Inventory data for RY 2014 may be summarized as follows:

- *Total On-site and Off-site Releases* decreased by 60.6%, from 526.4 million pounds to 207.4 million pounds, a decrease of about 319.0 million pounds.
- *Total Releases to Air* increased by 3.8% from 6.1 million pounds to 6.4 million pounds showing a increase of about 0.23 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 decreased by 61.6% from 516.6 million pounds to 198.4 million pounds for a total decrease of 318.2 million pounds. The Kennecott Mine Concentrators and Power Plant facility reported a 44% decrease from last year, while the Kennecott Smelter and Refinery facility reported a 32.5% increase. While Kennecott releases represent about 94.5 % of the total releases to land reported state-wide, the combined Kennecott facilities showed a net decrease of 62.7 percent in report year 2014.
- *Total Releases to Surfaces Water* increased by 12.3% from approximately 112,300 pounds in RY 2013 to approximately 126,200 pounds in the current report year. Nitrate compounds comprise about 89% of total releases to surface waters.
- *Total Transfers to Publicly Owned Treatment Works* decreased by 9.9% from 1.9 million pounds to 1.7 million pounds. Nitrate compounds comprised about 81% of all chemicals transferred to POTWs.
- *Transfers Off-site* to treatment, storage & disposal facilities increased by 3.6% from 21.3 million pounds to 22.0 million pounds. These facilities typically include chemical recyclers and waste disposal facilities.
- The most notable persistent bioaccumulative toxic (PBT) chemicals 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, increased by 254.5% from 4,250.53 grams in RY 2013 to 15,067.52 grams in the current report year.

- The total release amount reported by US Magnesium for dioxin and dioxin-like chemicals on-site and off-site is 15,039.91 grams. This amount comprises 99.82% of the total amount released by all facilities in Utah.
- Total on-site releases to land, air and water were 15,030.75 grams, 22.10 grams, and 0.12 grams, respectively, for a total on-site release amount of 15,052.97 grams. The total off-site release reported was 14.55 grams. On-site releases to land constitute 99.76% of the total on-site and off-site amounts reported.