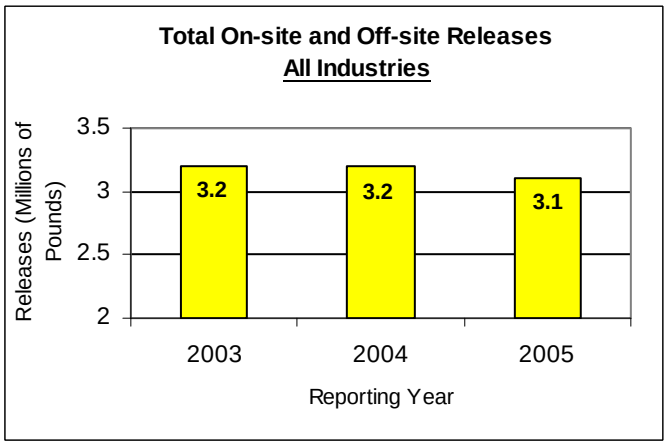
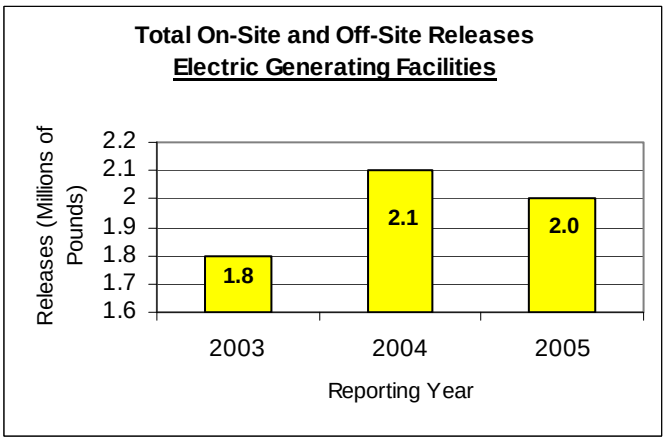
Hawaii Report: 2005 Toxics Release Inventory

U.S. EPA Region 9
Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations

March 2007

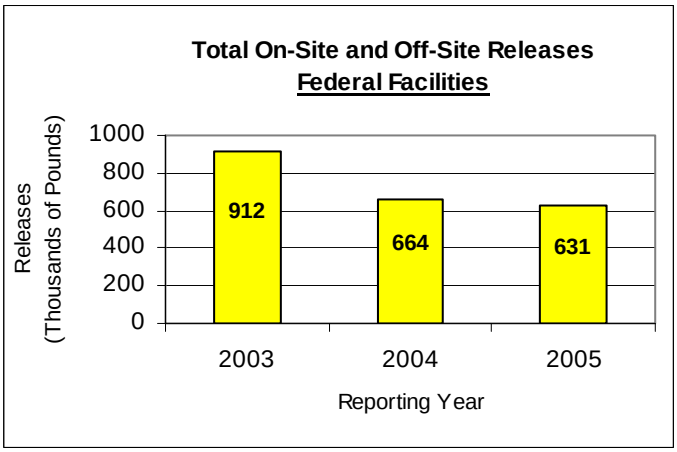
Trends in Toxic Chemical Releases for 2003 – 2005*





Total Releases for Reporting Years 2003 – 2005

Year	Air	Land	Water	Under-ground Injection	Off-Site
2003	2,131,959	249,267	364,067	2,670	415,094
2004	2,358,736	227,719	296,415	6,601	274,014
2005	2,311,630	89,734	522,217	2,736	176,407



The 2005 Public Data Release

EPA has made public the 2005 data on toxic chemicals that were released to Hawaii's air, water and land. This information comes from the Toxics Release Inventory (TRI), a federal community right-to-know program. In Hawaii, 39 facilities reported a total of 3.1 million pounds of toxic chemical releases.

Facilities that meet certain criteria must report the amounts of toxic chemicals disposed of or otherwise released on-site to air, water, land and injected underground and the amounts of chemicals transferred off-site for disposal or release. Off-site disposal or release can include land disposal at permitted hazardous waste facilities.**

The data does not indicate whether a facility is violating environmental laws. Many of the facilities reporting under this program are subject to state and federal regulations designed to protect human health

** Year to year data comparisons does not reflect changes in reporting requirements.*
*** No adjustments were made to account for double counting that could occur as a result of off-site transfers of some TRI facilities also being reported as on-site releases at permitted hazardous waste landfills and other TRI facilities that receive the on-site transfers.*

and the environment. For instance Resource Conservation and Recovery Act (RCRA) Subtitle C Landfills, a type of permitted hazardous waste facility, must comply with stringent requirements for liners, leak detection systems, and groundwater monitoring. Disposal in underground injection wells is regulated by EPA's Underground Injection Control Program to provide safeguards so that injection wells do not endanger current and future underground sources of drinking water.

Releases and Risk

Release is defined as the amount of a toxic chemical released on-site (to air, water, underground injection, landfills, and other land disposal), and the amount transferred off-site for disposal.

It is important to note that a release should not be directly equated with risk. To evaluate risk, release data must be combined with information about site-specific conditions, exposure, and chemical toxicity. TRI chemicals vary widely in toxicity. High volume releases of less toxic chemicals may pose less environmental risk than lower volume releases of highly toxic chemicals. Increases in on-site releases at permitted hazardous waste facilities may indicate a reduction in risk.

Industries

A facility is subject to TRI reporting requirements if it: has 10 or more full-time employees; is classified under a reportable Standard Industrial Classification (SIC) code; and manufactures, processes, or otherwise uses any of the listed toxic chemicals in amounts greater than the threshold quantities. For most chemicals (excluding Persistent Bioaccumulative and Toxic (PBT) chemicals) the thresholds are 25,000 pounds for manufactured or processed, and 10,000 pounds for otherwise used.

Manufacturing industries have been reporting their releases since 1987, and federal facilities started reporting in 1994. In 1998, an additional seven industry sectors began reporting their toxic chemical releases for the first time. These sectors are metal and coal mining, electricity generation, commercial hazardous waste treatment, solvent recovery, petroleum bulk terminals, and wholesale chemical distributors.

Hawaii's Releases

Hawaii's total reported on-site and off-site releases had 1.9% decrease (61 thousand pounds) when compared to 2004 data. However, there was a 76% increase in reported releases to water (226 thousand pounds). The major contributor to the increase of water releases was U.S. Navy Pearl Harbor Naval Complex, which increased its water releases by 219 thousand pounds or 91%. The largest water releases came from federal facilities (498 thousand pounds).

On-site land releases decreased by 61% (138 thousand pounds). U.S. Army Schofield/ Wheeler Army Airfield was mainly responsible for this decrease with an 80% or 133 thousand pound reduction to land releases.

There was a 36% decrease in reported transfers off-site for disposal and other waste management (98 thousand pounds). This decrease was primarily due to one federal facility, U.S. Army Schofield Barracks/Wheeler Army Airfield, reporting 0 pounds off-site transfers while the previous year it reported 115 thousand pounds.

Releases to air decreased by 2%, approximately 47 thousand pounds. This decrease was largely due to one facility, Hawaiian Electric Co Inc Kahe Generating Station, reporting 110 thousand fewer pounds of air releases. The electric services industry reported the largest decrease of air releases (1.9 million pounds).

Persistent, Bioaccumulative, and Toxic Chemicals

In the year 2000, TRI was expanded to include additional Persistent Bioaccumulative and Toxic (PBT) chemicals and to require reporting for these chemicals at lower thresholds, ranging from 0.1 grams to 100 pounds. PBT pollutants are toxic chemicals that persist in the environment and bioaccumulate in food chains, posing risks to human health and ecosystems.

In Hawaii, approximately 46 thousand pounds of total on-site and off-site releases of PBT chemicals were

reported. This is a 66% decrease (88 thousand pounds) from the previous year. The reported decrease in lead and lead compounds is primarily responsible for this change.

In determining release quantities for metal compounds, facilities only consider the primary metal portion of the compound. For instance, a facility reporting for lead compounds only reports the lead portion of the lead compounds released. Hence, the table below gives combined values for lead and lead compound releases and mercury and mercury compound releases. The PBT chemicals are ranked by 2005 total releases. The data is in pounds for all chemicals except dioxin and dioxin compounds, which is in grams.

Table of PBT Chemical Releases in Hawaii

Releases of persistent, bioaccumulative and toxic (PBT) chemicals in pounds. Dioxin and dioxin-like compounds data are not in Toxicity Equivalence (TEQ).

Chemical	Total On- and Off-Site Releases		Percent Change
	2004	2005	
Lead and Lead Compounds (in pounds)	131,952	43,437	- 67%
Polycyclic Aromatic Compounds (PACs) (in pounds)	1,786	1,669	- 7%
Benzo (g,h,i) Perylene (in pounds)	9.84	212.95	2,064%
Mercury and Mercury Compounds (in pounds)	187	210	12%
Dioxin and Dioxin-like Compounds (in grams)	5.39	5.18	- 4%

Lead and Lead Compounds

Starting in the year 2001, lead and lead compounds were reported as Persistent Bioaccumulative and Toxic (PBT) chemicals. While lead and lead compounds have been on the list of reportable chemicals since 1987, for the year 2001 the reporting threshold was drastically lowered (from 25,000 pounds manufactured or processed, and 10,000 pounds otherwise used to 100 pounds manufactured, processed or otherwise used). As a result, additional facilities are required to report releases of lead and lead compounds.

Approximately 43 thousand pounds of total releases of lead were reported in Hawaii in 2005. Eighty-eight percent of the lead was released to land. The decrease in lead releases was primarily due to one federal facility, U.S. Army Schofield Barracks/Wheeler Army Airfield, reporting a decrease of 78 thousand pounds (79%) of on-site land disposal for lead.

There was a 20%, or 311 pound, reported increase in lead off-site releases. This is primarily due to one electric services facility, AES Hawaii, reporting a 371 pound increase in its lead off-site releases.

Polycyclic Aromatic Compounds (PACs)

Electric generating facilities released to the air 75% of the total on-site and off-site PACs releases reported in 2005. One facility, Chevron Products Co. Hawaii Refinery in Kapolei, released all of the PACS to water, 270 pounds.

Other PBT Chemical Releases

The electric services industry released 74% (156 pounds) of all mercury releases and 97% (129 pounds) of all the mercury releases to air. Electric generating facilities also released nearly 95% of dioxin and dioxin-like compounds reported in Hawaii in 2005.

The increase in Benzo (g, h, i) Perylene was due predominantly to one facility, the Tesoro Hawaii Refinery. In 2004 this facility released 0.3 pounds of Benzo (g, h, i) into the air and in 2005 it increased its releases by 203 pounds, a 67 thousand percent increase from the previous year.

Facilities Releasing Largest Quantities of Chemicals

The top ten facilities in Hawaii for total on-site and off-site releases of all chemicals are:

1. Hawaiian Electric Co Inc Kahe Generating Station (Kapolei, Honolulu County) with 775 thousand pounds.
2. U.S. Navy Pearl Harbor Naval Complex (Pearl Harbor, Honolulu County) with 515 thousand pounds.
3. Hawaiian Electric Co Inc Waiau Generating Station (Pearl City, Honolulu County) with 341 thousand pounds.

4. Maui Electric Co LTD. Kahului Generating Station (Kahului, Maui County) with 245 thousand pounds.
5. Chevron Products Co - Hawaii Refinery (Kapolei, Honolulu County) with 217 thousand pounds.
6. Hawaii Electric Light Co Inc Hill Generating Station (Hilo, Hawaii County) with 216 thousand pounds.
7. AES Hawaii Inc (Kapolei, Honolulu County) with 161 thousand pounds.
8. Tesoro Hawaii Refinery (Kapolei, Honolulu County) with 145 thousand pounds.
9. Hawaii Electric Light Co Inc Puna Generating Station (Keaau, Hawaii County) with 101 thousand pounds.
10. Maui Electric Co LTD. Maalaea Generating Station (Kihei, Maui County) with 82 thousand pounds.

The top ten facilities in Hawaii for total on-site and off-site releases of PBT chemicals are:

1. U.S. Army Schofield Barracks/Wheeler Army Airfield (Schofield Barracks, Honolulu County) with 21 thousand pounds.
2. U.S. Army Pohakuloa Training Area - Range Facility (Hilo, Hawaii County) with 7.8 thousand pounds.
3. U.S. Marine Corps Base Hawaii (MCBH Kaneohe Bay, Honolulu County) with 6.5 thousand pounds.
4. U.S. Marine Corps Base Hawaii Puuloa Training Facility (Ewa Beach, Honolulu County) with 3.3 thousand pounds.
5. AES Hawaii Inc. (Kapolei, Honolulu County) with 1.7 thousand pounds.
6. Hawaiian Electric Co Inc Kahe Generating Station (Kapolei, Honolulu County) with 1.5 thousand pounds.
7. Maui Electric Co LTD. Maalea Generating Station (Kihei, Maui County) with 1.3 thousand pounds.
8. Hawaiian Electric Co Inc Waiau Generating Station (Pearl City, Honolulu County) with 609 pounds.
9. Chevron Products Co - Hawaii Refinery (Kapolei, Honolulu County) with 568 pounds.
10. Tesoro Hawaii Refinery (Kapolei, Honolulu County) with 290 pounds.

On-line Access

For national information on data releases, see:
http://www.epa.gov/tri

The TRI data is available through Envirofacts Warehouse, EPA's premier internet site for distributing environmental information at:
http://www.epa.gov/enviro

or the TRI Explorer tool:
http://www.epa.gov/triexplorer

For general information on the Toxics Release Inventory, including reporting requirements for businesses, go to:
http://www.epa.gov/region09/toxic/tri

For additional information on dioxin, go to:
http://www.epa.gov/ncea/dioxin.htm
For more information on the EPA's PBT Chemicals Program, go to:
http://www.epa.gov/opptintr/pbt/

Information and Assistance

Region 9 staff will answer questions and assist you in learning more about the TRI program in Region 9.

U.S. EPA Region 9, TRI Program

Nancy Sockabasin, (415) 972-3772
Mariela Lopez, (415) 972-3771