State of Alaska
Department of Environmental Conservation

A guide to the

Reporting Year 2004

Toxics Release Inventory

for Alaska

Introduction

TRI requires certain industries to report releases and waste management activities for more than 650 chemicals.

Under Section 313 of the Emergency Planning and Community Right-to-Know Act, certain businesses are required to submit reports each year on the amounts of more than 650 chemicals their facilities released into the environment (either routinely or as a result of accidents), or otherwise managed as waste. The purpose of this reporting requirement is to inform the public about the releases and other waste management of EPCRA section 313 chemicals in their communities and to provide the government with information for research and the development of appropriate regulations.

Section 313 requires facilities to report for each listed chemical the amount released to air, water, land, underground injection and transferred off-site to disposal. Facilities also must report the amounts of those EPCRA section 313 chemicals otherwise managed as waste, including on-site treatment, combustion for energy recovery, recycling and transfers offsite for treatment, combustion for energy recovery and recycling.

The information reported under Section 313 is compiled by EPA into the Toxics Release Inventory (TRI) which is available to the public on the web. This report is intended to serve as a guide to TRI for Alaska. It provides an overview of the TRI program and describes the limitations of the data and factors to consider when using information submitted by Alaska facilities.

Overview of TRI Reporting Requirements

The term "release" in the TRI program is very broad and includes permitted emissions and discharges, management of wastes in regulated disposal units as well as accidental spills and releases.

Facilities in specified industries are required to report to the U. S. Environmental Protection Agency if they have ten or more employees and exceed thresholds for use of certain chemicals on the TRI list. For most TRI chemicals, more than 25,000 pounds of a TRI chemical must be manufactured or processed, or more than 10,000 pounds otherwise used to trigger reporting for that chemical. EPA has set a much lower threshold for Persistant Bioaccumulative and Toxic (PBT) chemicals: 100 pounds for persistent and bioaccumulative chemicals; 10 pounds for highly persistent and highly bioaccumulative chemicals; and, 0.1 grams for dioxin and dioxin-like compounds.

The term "release" in the TRI program is very broad and includes permitted emissions and discharges, management of wastes in regulated disposal units as well as accidental spills and releases. Facilities are also required to report other waste management activities which occur on-site or which involve transfers of waste off-site.

"On-site releases" involve TRI chemicals that are either emitted to the air, disposed of on-land, or are discharged to surface waters or underground injection wells. "Off-site releases" are reported when wastes are shipped off-site for management in land disposal units.

Reported releases of TRI chemicals in Alaska since 1997 have averaged more

than 400 million pounds per year. The majority of Alaska's reported releases are chemicals that are present as naturally occurring minerals contained in waste rock excavated from mine sites and are not the result of changes in environmental management or operating practices at mining facilities.

Uses of TRI Information

Under Section 313(h) of EPCRA, Congress clearly provided for the wide distribution of TRI data to government agencies and the public:

"The release form shall inform persons about releases of toxic chemicals to the environment; to assist governmental agencies, researchers, and other persons in the conduct of research and data gathering; to aid in the development of appropriate regulations, guidelines, and standards; and for other similar purposes."

Limitations of TRI Information

The chemicals included on the TRI list have been designated based upon potential human health or environmental impacts if exposed to the chemicals. However, the TRI data alone do not reflect exposure to these chemicals or potential risk. Actual exposure or risk would depend upon actual chemical concentrations and potential routes of exposure.

TRI data alone do not reflect exposure to these chemicals or potential risk.

TRI does not require monitoring or measurements by facilities to calculate

The Red Dog Mine mill where ore is processed into zinc and lead concentrate.

the actual release amounts. If measured data are not available, facilities may calculate release amounts using a variety of methods. Actual releases may vary considerably from the estimates derived by these computational methods. In addition, TRI data do not represent the concentration of a chemical release nor information about the mobility of the chemical in the environment.

Mining Operations

Metal Mining as an industry encompasses 99% of Alaska's TRI data. Five mines fall within the TRI reporting requirements. Most of Alaska's mines process gold, silver, lead and zinc. Typically a pit or underground mineshaft is excavated to access and remove ore. This requires drilling holes and blasting the rock, then crushing and processing the ore to extract the minerals. Mineral processing can involve additional chemicals to concentrate valuable ore.

Reported Land Releases

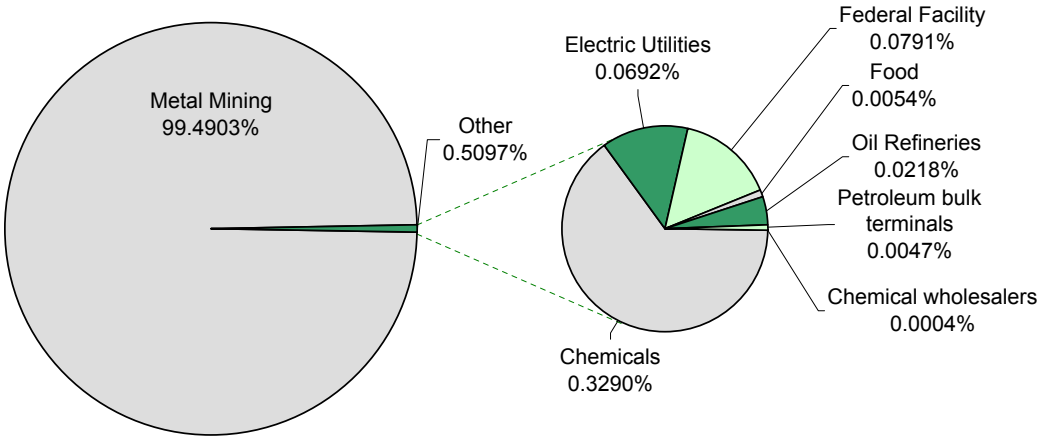
The federal and state governments review and approve all discharges to the environment to ensure they comply with air, land and water quality standards. Residual materials from processing, milling and leaching of ores are managed in a tailings storage facility at the mine site. Storage facilities can be for tailings under water or engineered on land.

Metals contained in unprocessed mined materials such as "waste rock" and processed materials such as "tailings," that are placed on the land at the mine are currently included in the TRI report as a "release to land," even though those materials are placed in engineered containment structures. Waste rock is naturally occurring rock which has been mined but is not of sufficient ore grade to warrant further processing. This rock is usually separated from the ore body and set aside in another part of the facility.

Sulfate reduction monitoring study at Kennecott Greens Creek Mine

Waste Rock

The non-ore bearing rock or "waste rock" is managed on site in piles. Trace concentrations of naturally occurring TRI chemicals may be present in the waste rock. Alaska Water Pollution discharge regulations apply to waste rock piles, along with other mine site components, to ensure runoff over or through the waste rock complies with State water quality standards, if there is a problem with waste management. In addition, mine reclamation regulations administered by the Department of Natural Resources as the lead agency of the Large Mine Project Teams,



For 2004, mines in Alaska reported 484 million pounds in TRI releases to land, representing about 94 percent of all Alaska TRI releases from all industries.

require that waste rock piles be reclaimed and revegetated to provide a productive post-mining land use.

Surface Water Releases

Mineshafts and pit excavations may come into contact with groundwater, requiring dewatering to enable further mining. Most of the TRI releases reported to water, such as acid and metal compounds, represent naturally occurring substances found in the groundwater that is discharged during dewatering. Water effluents include process water and wastewater related to specific mining operations or storm water runoff, which may come in contact with a facility's operations. All water discharges are regulated by State and Federal agencies to ensure they comply with water quality standards.

Process water, where chemicals have been used, is the largest part of surface water releases. Mine dewatering accounts for 20.5 million pounds of reported TRI releases to water or about 0.04 percent of total reported mine releases. State or federal pollution discharge permits to prevent degradation of waters of the state, govern discharges from mine dewatering.

Heap Leach Pads

A few smaller mines in Alaska have operated as heap leach facilities where diluted cyanide is used to concentrate valuable metals, usually gold. When a mine

The open pit at Red Dog Mine.

Alaska water pollution discharge regulations apply to waste rock piles, along with other mine site components, to ensure waters of the state are not degraded.

site closes or a heap leach pad is decommissioned the cyanide solution in the heap is neutralized or treated to safe levels. The heap is required to be reclaimed and revegetated for return to future productive use. When a heap leach pad is decommissioned the trace metals remaining in the leached ore on the pad are reported to TRI as "other" land releases as is waste rock.

Reported Air Releases

Mines operate under the Air Quality Control Permit conditions issued by the State, according to the provisions of the Federal Clean Air Act Amendments of 1990. Air emissions are categorized as either Stack Air Emissions that are associated with a point source such as a baghouse, or Fugitive Air Emissions that are diffuse such as smoke, particulate matter (dust) generated by activities such as construction, operation of large mining equipment, and wind blown dust from exposed areas. Most releases of fine ore concentrates are unintentional and facility owners must follow the state's spill response requirements for cleanup.

Non-point Source Emissions

Some metal compounds are contained in the dust (or particulate matter) that is wind blown off of heap leach pads, waste rock or ore stockpiles. The metal compounds in this dust are reported as non-point source air releases. Air pollution control permits require management practices to minimize these emissions.

Methanol, propylene, and ethylene glycol are all used for freeze protection in either water sprays for dust control or for drilling fluids. Some of these chemicals may be reported as non-point source releases to the air.

Stack or Point Source Emissions

Air releases that come from discrete points at the mine or from stacks or pipes are reported as stack or point source emissions. Metal compounds in the dust from crushers, and conveyor drop points are reported as point source emissions.

Tailings disposal site at Kennecott Greens Creek Mine near Juneau

Summary of Alaska TRI Releases -- 2004

Note: These data summaries are based on information provided by the US EPA prior to the RY 2004 Public Data Release. Complete and up-to-date TRI data is available online using EPA's TRI Explorer at http://www.epa.gov/triexplorer/.

Summary of TRI Releases by Industry

Industry	Air	Water	Underground Injection	Land	Total On-Site	Total Off-Site	Total
Chemical wholesalers	1,793	0	0	0	1,793	0	1,793
Chemicals	1,179,106	506,363	15	0	1,685,484	0	1,685,484
Electric Utilities	84,389	0	0	0	84,389	270,069	354,458
Federal Facility	118,712	2	0	252,412	402,126	3,311	405,436
Food	27,741	0	0	0	27,741	0	27,741
Metal Mining	130,331	3,607	25,924,495	483,608,883	509,667,316	3,239	509,670,555
Oil Refineries	106,518	1,418	0	3,752	111,688	143	111,831
Petroleum bulk terminals	24,072	107	0	102	24,282	0	24,282
Total Pounds	1,672,662	511,497	25,924,510	483,896,149	512,004,818	273,762	512,281,580
Total Pounds (adjusted to reflect net off-site disposal and other releases)						273,456	512,278,274

Summary of TRI Releases by Location

Borough or Area	Total On-Site	Total Off-Site	Total
Aleutians East	23,530	0	23,530
Aleutians West	4,031	0	4,031
Anchorage	36,186	0	36,186
Bristol Bay	0	0	0
Denali	2,818	231,600	234,418
Fairbanks North Star	4,581,272	41,708	4,622,980
Juneau	47,384,288	0	47,384,288
Kenai Peninsula	1,777,902	143	1,778,046
Ketchikan Gateway	0	1,757	1,757
Kodiak Island	519	1,554	2,072
Northwest Arctic	458,170,852	0	458,170,852
Southeast Fairbanks	22,920	0	22,920
Valdez-Cordova	500	0	500
Yukon-Koyukuk	0	0	0

List of Alaska Facilities Reporting TRI Releases

Industry	Facility	City
Chemical Wholesalers	Quadra Chemicals Inc. Fairbanks	Fairbanks
	Univar USA Inc.	Anchorage
Chemicals	Agrium Kenai Nitrogen Operations	Kenai
Electric Utilities	Aurora Energy LLC	Fairbanks
	Golden Valley Electric Associates Inc., Healy Power Plant	Healy
Federal Facility	U.S. Air Force Clear Air Force Station	Clear
	U.S. Air Force Eareckson Air Station	Shemya Island
	U.S. Air Force Eielson AFB AK	Eielson AFB
	U.S. Air Force Galena Air Station	Galena
	U.S. Air Force King Salmon Alaska	King Salmon
	U.S. Army Delta Training Area	Delta Junction
	U.S. Army Fort Greely AK	Delta Junction
	U.S. Army Fort Richardson Training Ranges	Fort Richardson
	U.S. Army Fort Wainwright	Fort Wainwright
	U.S. Coast Guard Integrated Support Command Kodiak	Kodiak
	U.S. Coast Guard ISC Ketchikan	Ketchikan
Food	Creamery Corp. (DBA Matanuska Maid Dairy)	Anchorage
	Trident Seafoods Corp.	Sand Point
	Trident Seafoods Corp. Akutan Shore Plant	Akutan
	Trident Seafoods Corp Kodiak Plant	Kodiak
	Trident Seafoods St. Paul Plant	Saint Paul Island
	Unisea Inc.	Dutch Harbor
Metal Mining	Delong Mountain Transportation Facility Port Site	Kotzebue
	Fort Knox Mine	Fairbanks
	Kennecott Greens Creek Mining Co.	Juneau
	Red Dog Operations	Kotzebue
	True North Mine	Fairbanks
Oil Refineries	Flint Hills Resources Alaska LLC	North Pole
	Petro Star Inc.	North Pole
	Petro Star Valdez Refinery	Valdez
	Tesoro Alaska - Kenai Refinery	Kenai
Petroleum Bulk Terminals	Flint Hills Resources Alaska LLC Anchorage Terminal	Anchorage
	Flint Hills Resources Alaska LLC Fairbanks Terminal	Fairbanks
	Kenai Pipeline Co. - KPL Facility	Kenai
	Tesoro Alaska Co. Anchorage Terminal	Anchorage

MORE INFORMATION ON TRI RELEASES

Public Data Release Reports and State Fact Sheets

Public Data Release Reports, which are published annually by the US EPA to coincide with the release of TRI data to the public, provide summaries, analyses and comparison of TRI data by year. The annual report contains detailed analyses and supporting tables for releases and other waste management of TRI chemicals; geographic distribution of TRI releases; industrial patterns of releases and other waste management; the interstate and intrastate transport of TRI chemicals; chemicals with the largest releases and other waste management; and other topics. Reports for reporting year 1996 and later can be viewed on the web at http://www.epa.gov/tri/tridata/index.htm, printed, or downloaded (in PDF format) by section or by entire report.

State Fact Sheets are also published annually. They contain key TRI report data, including information about the reporting facilities; chemicals for which the most releases were reported; the number of state facilities reporting and the total reports received; total state releases and waste management reported by medium. The report also lists the names and telephone numbers of state and regional TRI coordinators. Copies of this report for 1996 and later are available on the web at www.epa.gov/tri/tridata/index.htm.

The Public Data Release consists of a short summary document, state fact sheet, and instructions for acquiring data using the TRI Explorer web site.

Additional Contacts

For general TRI Program information in US EPA Region 10, which includes Alaska, Washington, Oregon and Idaho, contact the the TRI Program Manager:

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On-line Access

The entire Toxics Release Inventory database is published by EPA and is available on the web at http://www.epa.gov/tri/tridata/index.htm.

TRI Explorer is a searchable online database which lets users quickly and easily find TRI data for reporting facilities throughout the nation. The URL for TRI Explorer is: http://www.epa.gov/triexplorer/

Envirofacts is the EPA's multi-system data warehouse which contains powerful query capability. This systems contains TRI and other data form other EPA database collections. The Envirofacts site is located at http://www.epa.gov/enviro/

RTKNet contains information from multiple environmental databases, including TRI, that can be searched by facility, location, chemical and other variables such as Standard Industrial Classification (SIC) code. The RTK Net site is located at http://www.rtknet.org

For More Information

For information concerning environmental regulatory programs administered by the Alaska Department of Environmental Conservation, access the website at http://www.dec.state.ak.us.

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