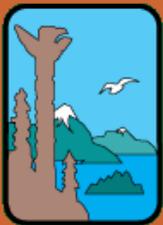


A guide to the

2010 Toxics Release Inventory for Alaska



**Alaska
Department of
Environmental
Conservation**

January 2012

Introduction

Under Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA), 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 the U.S. Environmental Protection Agency (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

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 Persistent 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.

Total on- and off-site disposal or other releases of TRI chemicals in Alaska since 2001 have averaged more than 500 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.”

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

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.

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 does not require monitoring or measurements by facilities to calculate 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.

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

Mining Operations

Metal mining as an industry encompasses 99% of Alaska's TRI data. Six mines fall within the TRI reporting requirements for reporting year 2010. 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. The ore is then crushed and processed to concentrate the minerals and extract the valuable metal. Processing can involve adding chemicals and the use of thermal processes.

Reported Land Releases

The federal and state governments permit the disposal of waste products from mining and review and authorize discharges to the environment to ensure that 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. Tailings may be disposed under water in impoundments or on land in engineered structures.



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

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 structures. The purpose of these engineered structures is to control and manage metals that may leach from the wastes. Waste rock is naturally occurring rock which has been mined to gain access to the ore and is not of sufficient ore grade to warrant further processing. This rock is usually separated from the ore body and disposed in another part of the facility.

Waste Rock

The non-ore bearing rock or “waste rock” is disposed on site in engineered facilities; or, it can be used in construction if determined to be inert. Trace concentrations of naturally occurring TRI substances (mostly metals) may be present in the waste rock. National Pollutant Discharge Elimination System (NPDES) regulations, now delegated to the State of Alaska under the Department of Environmental Conservation’s Alaska Pollutant Discharge Elimination System (APDES) program, and Alaska State Water Quality Standards apply to storm water runoff and seepage from waste rock piles, along with other mine site components. In addition, mine reclamation regulations administered by the Department of Natural Resources, require that waste rock piles be stabilized, reclaimed and revegetated to provide a productive post-mining land use. Regardless of land ownership, mines must have an approved reclamation and closure plan from the state and remit a bond or other financial assurance to cover closure costs.

**Metal Mining
as an industry
encompasses 99.9%
of Alaska’s TRI data.**

Surface Water Releases

Mineshafts and pit excavations may come into contact with groundwater, requiring dewatering to enable further mining. TRI releases reported to water, such as acid and metal compounds, represent naturally occurring substances found in the groundwater that is discharged during dewatering. Other surface water TRI releases may include mine drainage, process water and wastewater related to specific mining operations, and storm water runoff. Discharges to surface waters are regulated by State and Federal agencies to ensure they comply with water quality standards.

Heap Leach Pads

Fort Knox Mine, the second highest producing gold mine in Alaska, as well as a few smaller mines have operations that have included heap leach facilities where diluted cyanide is used to recover gold and silver. When a heap leach pad is closed, 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 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.

Reported Air Releases

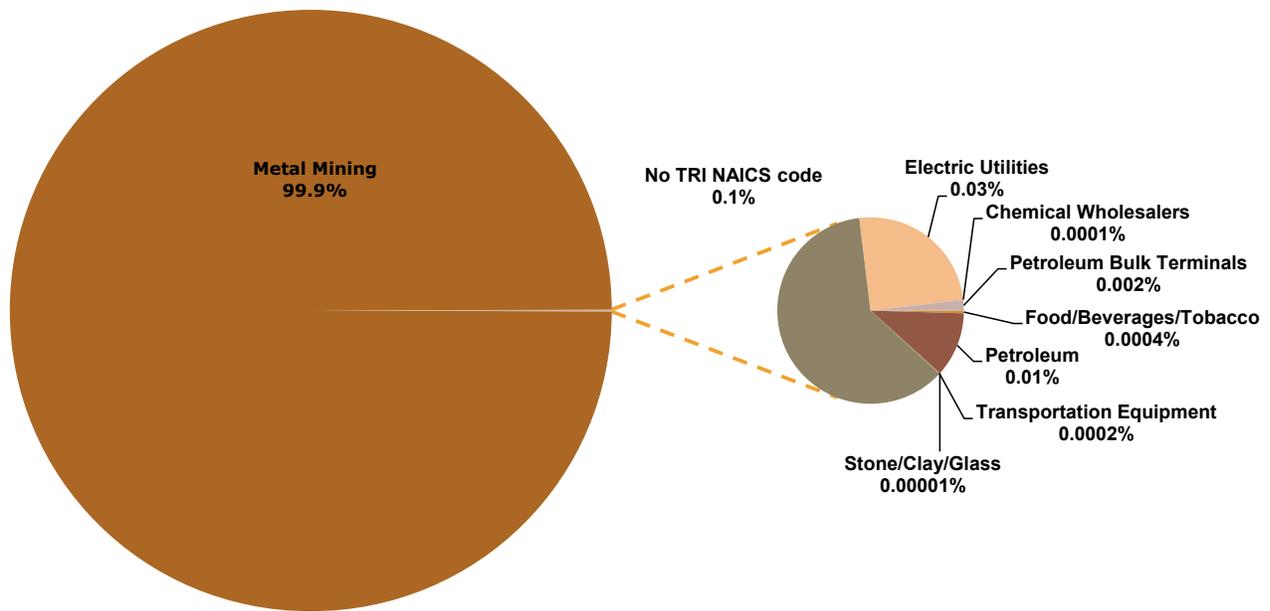
Mines operate under the Air Quality Control Permit conditions issued by the State, according to the provisions of the Federal Clean Air Act. Air emissions are categorized as either Stack Air Emissions or Fugitive Air Emissions. Stack Air Emissions are associated with a point source such as a baghouse. Fugitive Air Emissions are diffuse such as smoke, particulate matter (dust) generated by activities such as construction, operation of large mining equipment, and windblown 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

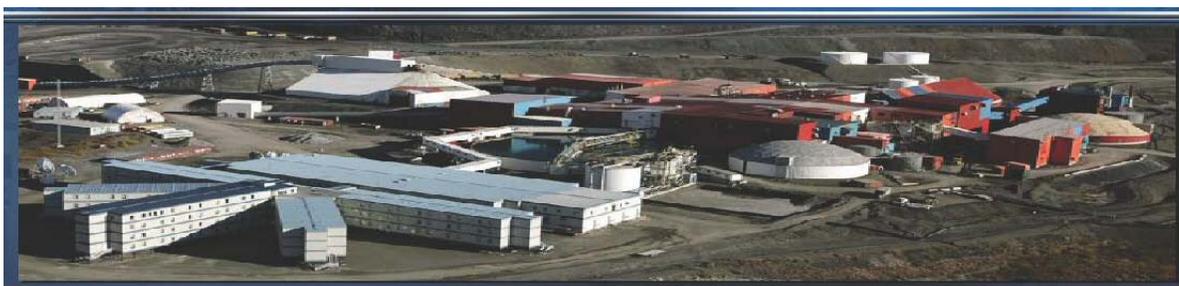
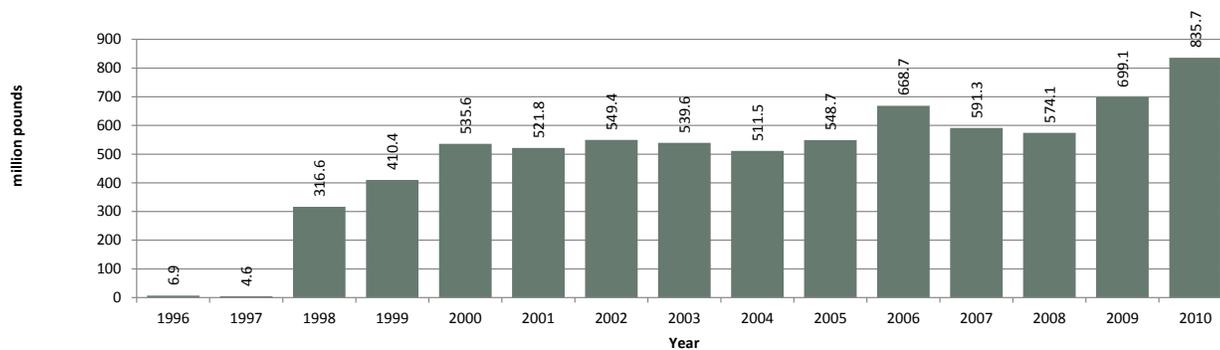
Some metal compounds are contained in the dust (or particulate matter) that is wind blown off of heap leach pads, waste rock or ore stockpiles, and dry tailings stacks. The metal compounds in this dust are reported as non-point source air releases. Air pollution control permits require management practices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

Total On and Off-Site Disposal and Other Releases Reported by Industry Type



Total Releases (1996-2010)



Red Dog Mine

Summary of Alaska TRI Releases -- 2010 *(source: US EPA - TRI.NET)*

Total Releases by Industry (pounds)

Industry	Total Air Releases	Surface Water Discharges	Underground Injection	Total On-site Land Releases	Total Off-site Releases	Total On-site Releases
Metal Mining	257,408	188,845	27,452,902	806,990,857	101	834,890,013
No TRI NAICS code	41,893	18	-	366,362	114,115	408,273
Petroleum	94,398	1,334	-	67	30	95,800
Electric Utilities	60,689	-	-	128	152,798	60,817
Petroleum Bulk Terminals	15,704	60	-	118	43	15,882
Food/Beverages/Tobacco	3,600	-	-	-	-	3,600
Chemical Wholesalers	829	-	-	-	-	829
Stone/Clay/Glass	-	-	-	51	-	51
Transportation Equipment	-	-	-	-	1,657	-
TOTAL	474,521	190,257	27,452,902	807,357,583	268,744	835,475,264

Total Releases by Location (pounds)

Borough	Total Air Releases	Surface Water Discharges	Underground Injection	Total On-site Land Releases	Total Off-site Releases	Total On-site Releases
Northwest Arctic	229,911	8,430	-	777,157,312	19	777,395,653
Juneau	20,957	175	27,452,902	19,805,638	1	47,279,673
Fairbanks North Star	132,434	180,242	-	10,343,163	122,003	10,655,840
Kenai Peninsula	66,202	1,332	-	184	30	67,718
Anchorage	11,701	60	-	31,441	54	43,202
Southeast Fairbanks	341	-	-	18,773	-	19,114
Denali	5,466	-	-	182	144,814	5,647
Aleutians West	3,893	-	-	-	165	3,893
Aleutians East	3,600	-	-	-	-	3,600
Kodiak Island	16	18	-	890	1	924
Ketchikan Gateway	-	-	-	-	1,657	-
Valdez-Cordova	-	-	-	-	-	-
Wrangell-Petersburg	-	-	-	-	-	-
TOTAL	474,521	190,257	27,452,902	807,357,583	268,744	835,475,264



Tailings disposal site at Hecla Greens Creek Mine near Juneau

List of Alaska Facilities Reporting TRI Releases for 2010 *(source: US EPA - TRI.NET)*

Facility	Industry	City	Total Releases (pounds)	
			On-Site	Off-Site
Trident Seafoods Corp Akutan Shore Plant	Food/Beverages/Tobacco	Akutan	3,600	-
Unisea Inc	Food/Beverages/Tobacco	Dutch Harbor	-	-
Emulsion Products Co - North Pole Facility	Petroleum	North Pole	62	-
Flint Hills Resources Alaska LLC Anchorage Terminal	Petroleum	North Pole	33,347	0
Petro Star Inc North Pole Refinery	Petroleum	North Pole	-	-
Petro Star Valdez Refinery	Petroleum	Valdez	-	-
Tesoro Alaska - Kenai Refinery	Petroleum	Kenai	62,391	30
Anchorage Sand & Gravel Co Inc	Stone/Clay/Glass	Anchorage	51	-
Us Coast Guard BSU Ketchikan	Transportation Equipment	Ketchikan	-	1,657
Doyon Utilities Ft Greely AK	No TRI NAICS code	Fort Greely	1	-
Doyon Utilities Ft Wainwright AK	No TRI NAICS code	Fort Wainwright	34,855	113,878
Us Army Donnelly Training Area	No TRI NAICS code	Delta Junction	19,113	-
Us Army Fort Wainwright Cantonment	No TRI NAICS code	Fort Wainwright	206,561	-
Us Coast Guard Base Support Unit Kodiak	No TRI NAICS code	Kodiak	924	1
US DOD USAF Clear AFS	No TRI NAICS code	Clear	185	61
US DOD USAF Eareckson Air Station	No TRI NAICS code	Shemya Island	3,893	165
US DOD USAF Eielson AFB AK	No TRI NAICS code	Eielson AFB	110,974	-
US DOD USAF Joint Base Elmendorf-Richardson	No TRI NAICS code	Elmendorf AFB	31,767	11
Coeur Alaska Inc Kensington Gold Project	Metal Mining	Juneau	94,205	1
Fort Knox Mine	Metal Mining	Fairbanks	2,443,892	1
Hecla Greens Creek Mining Co	Metal Mining	Juneau	47,185,468	-
Pogo Mine	Metal Mining	Delta Junction	7,770,796	80
Red Dog Operations	Metal Mining	Kotzebue	777,395,653	19
Aurora Energy LLC	Electric Utilities	Fairbanks	55,228	8,045
Golden Valley Electric Assoc Healy Power Plant	Electric Utilities	Healy	5,462	144,753
Golden Valley Electric Assoc North Pole Power Plant	Electric Utilities	North Pole	126	-
Brenntag Pacific Inc	Chemical Wholesalers	Fairbanks	-	-
Univar Usa Inc	Chemical Wholesalers	Anchorage	829	-
Flint Hills Resources Alaska Llc Anchorage Terminal	Petroleum Bulk Terminals	Anchorage	7,476	-
Kenai Pipeline Co - KPL Facility	Petroleum Bulk Terminals	Kenai	4,015	0
Tesoro Alaska Co - Anchorage Terminal	Petroleum Bulk Terminals	Anchorage	3,079	43
Tesoro Alaska Co - Nikiski Terminal	Petroleum Bulk Terminals	Kenai	1,312	-

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.

FOR MORE INFORMATION

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 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 2002 and later are available on the web at www.epa.gov/triexplorer/statefactsheet.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

EPA Region 10 TRI Coordinator

For general TRI Program information in US EPA Region 10, which includes Alaska, Washington, Oregon and Idaho, contact 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>. A variety of tools are available which allow users to easily extract the information they need.

For More Information

For information concerning environmental regulatory programs administered by the Alaska Department of Environmental Conservation, access the website at <http://www.dec.alaska.gov>.



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