

A guide to the
Reporting Year
2007

Toxics Release Inventory for Alaska



State of Alaska
Department of Environmental Conservation

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

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

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 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.”

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.



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

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.

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 2007. 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.

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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.

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.



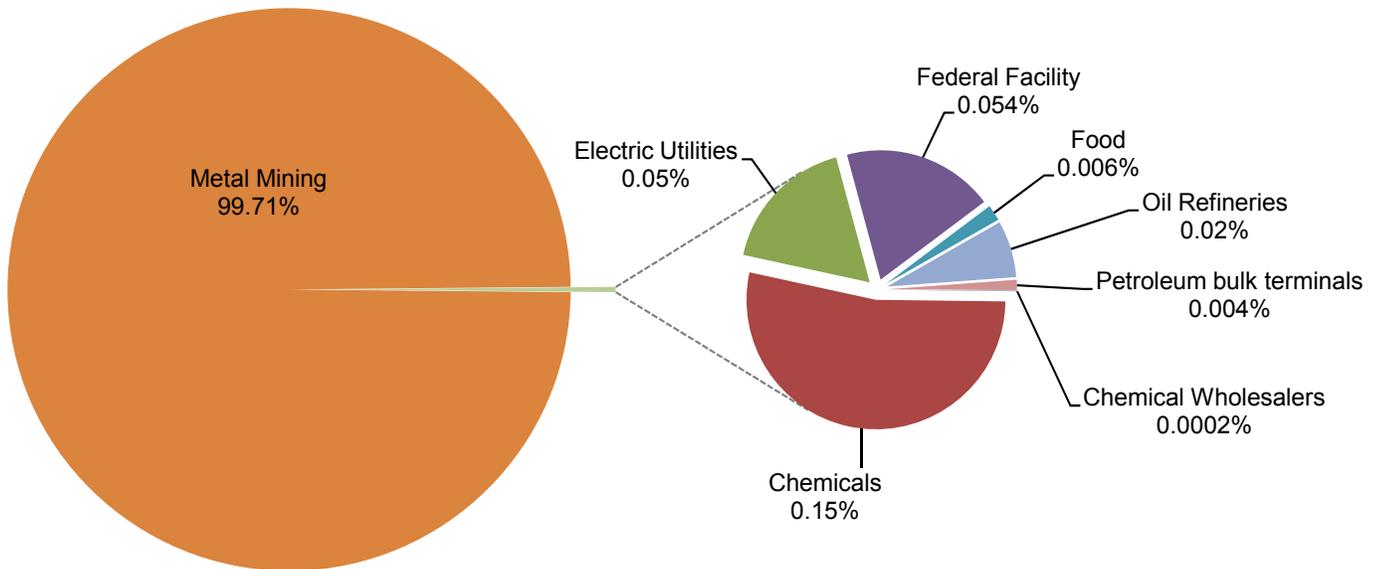
Sulfate reduction monitoring study at Kennecott Greens Creek Mine

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 piles. Trace concentrations of naturally occurring TRI chemicals may be present in the waste rock. Federal National Pollutant Discharge Elimination

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



System (NPDES) regulations 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.

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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

A few smaller mines in Alaska have operated as heap leach facilities where diluted cyanide is used to recover gold and silver. When a heap leach pad is decommissioned (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 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.



The open pit at Red Dog Mine

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 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 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.

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 -- Reporting Year 2007

Note: These data summaries are based on information provided by the US EPA prior to the RY 2007 Public Data Release. Complete and up-to-date TRI data is available online using EPA's TRI Explorer at 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	1,023				1,023	0	1,023
Chemicals	804,499	60,827	15	7,100	872,441	20,500	892,941
Electric Utilities	55,169			119	55,288	236,467	291,755
Federal Facility	42,972	31		267,894	310,898	6,946	317,844
Food	29,950	4			29,957	3,450	33,407
Metal Mining	322,015	1,690	21,278,290	561,438,976	583,040,971	33	583,041,003
Oil Refineries	113,851	1,350		1,396	116,597	2,399	118,996
Petroleum bulk terminals	19,971	60		113	20,144	1,900	22,044
TOTAL	1,389,450	63,962	21,278,305	561,715,599	584,447,318	271,695	584,719,013
Total Pounds (adjusted to reflect net off-site disposal and other releases)						286,576	584,716,753

Summary of TRI Releases by Location

Borough or Area	Total On-Site	Total Off-Site	Total
Aleutians East	16,950	3,450	20,400
Aleutians West	21,439	-	21,439
Anchorage	20,487	6,365	26,852
Denali	349	228,481	228,830
Fairbanks North Star	5,905,291	8,720	5,914,011
Juneau	44,090,292	-	44,090,292
Kenai Peninsula	959,176	22,366	981,542
Ketchikan Gateway		2,215	2,215
Kodiak Island	902	84	986
Northwest Arctic	533,428,805	14	533,428,820
Southeast Fairbanks	3,627		3,627
Valdez-Cordova			
Total	584,447,318	271,695	584,719,013



List of Alaska Facilities Reporting TRI Releases -- Reporting Year 2007

Facility	Industry	City	Pounds ¹
Red Dog Operations	Metal Mining	Kotzebue	533,421,606
Hecla Greens Creek Mining Co	Metal Mining	Juneau	44,089,994
Fort Knox Mine	Metal Mining	Fairbanks	3,563,705
Pogo Mine	Metal Mining	Delta Junction	1,958,186
Agrium Kenai Nitrogen Operations	Chemicals	Kenai	892,941
Golden Valley Electric Associates Inc Healy Power Plant	Electric Utilities	Healy	228,607
US Army Fort Wainwright	Federal Facility	Fort Wainwright	151,048
US Air Force Eielson AFB AK	Federal Facility	Eielson AFB	136,397
Tesoro Alaska - Kenai Refinery	Oil Refineries	Kenai	77,818
Aurora Energy LLC	Electric Utilities	Fairbanks	63,148
Flint Hills Resources Alaska LLC	Oil Refineries	North Pole	41,178
Trident Seafoods / St Paul	Food	Saint Paul Island	13,000
Trident Seafoods	Food	Sand Point	10,200
Trident Seafoods Corp Akutan Shore Plant	Food	Akutan	10,200
US Air Force Eareckson Air Station	Federal Facility	Shemya Island	8,432
US Air Force Elmendorf AFB	Federal Facility	Elmendorf AFB	7,510
US Army Fort Richardson-Training Ranges	Federal Facility	Fort Richardson	7,407
Delong Mountain Transportation Facility Port Site	Metal Mining	Kotzebue	7,214
Tesoro Alaska Co - Anchorage Terminal	Petroleum bulk terminals	Anchorage	6,964
Kenai Pipeline Co - KPL Facility	Petroleum bulk terminals	Kenai	6,018
Tesoro Alaska Co - Nikiski Terminal	Petroleum bulk terminals	Kenai	4,765
Flint Hills Resources Alaska LLC Anchorage Terminal	Petroleum bulk terminals	Anchorage	4,026
US Army Donnelly Training Area	Federal Facility	Delta Junction	3,472
US Coast Guard ISC Ketchikan	Federal Facility	Ketchikan	2,215
US Coast Guard Integrated Support Command Kodiak	Federal Facility	Kodiak	986
Univar USA Inc	Chemical Wholesalers	Anchorage	945
Coeur Alaska Inc Kensington Gold Project	Metal Mining	Juneau	299
Flint Hills Resources Alaska LLC Fairbanks Terminal	Petroleum bulk terminals	Fairbanks	271
US Air Force Clear Air Force Station AK	Federal Facility	Clear	223
US Army Fort Greely AK	Federal Facility	Fort Greely	155
Brenntag Pacific Inc	Chemical Wholesalers	Fairbanks	78
Unisea	Food	Dutch Harbor	7
Petro Star Inc North Pole Refinery ²	Oil Refineries	North Pole	0
Petro Star Inc Valdez Refinery ²	Oil Refineries	Valdez	0

NOTES:

¹Total On- and Off-site Disposal or Other Releases

²Submitted Form A (see EPA website for more information about TRI reporting requirements and exemptions)

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 1998 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 from 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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