

A guide to the
Reporting Year 2005

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.

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.

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

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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. 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. 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.

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.



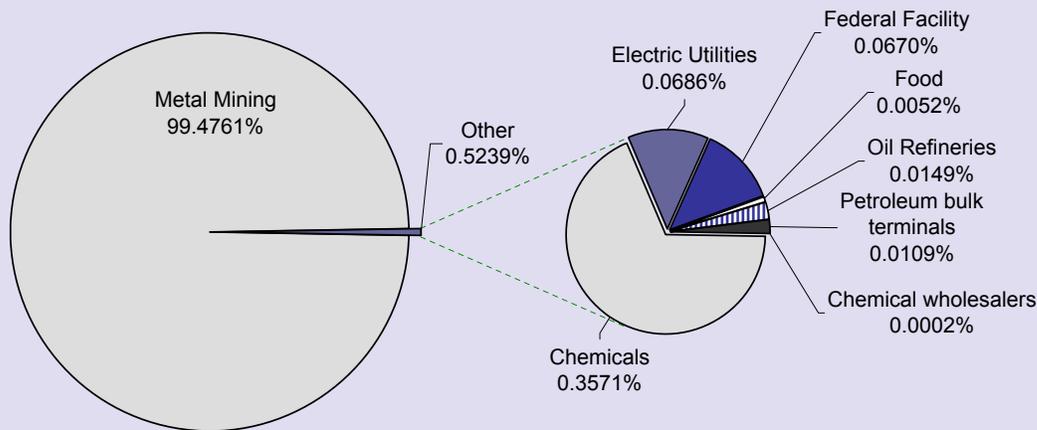
Sulfate reduction monitoring study at Kennecott Greens Creek Mine

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.

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



The open pit at Red Dog Mine

“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 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

Federal 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.



Tailings disposal site at Kennecott Greens Creek Mine near Juneau

Summary of Alaska TRI Releases -- 2005

Note: These data summaries are based on information provided by the US EPA prior to the RY 2005 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	Land	Underground Injection	Total On-Site	Total Off-Site	Total
Chemical wholesalers	1,018	0	0	0	1,018	0	1,018
Chemicals	1,874,155	84,939	250	15	1,959,359	0	1,959,359
Electric Utilities	97,324	0	0	0	97,324	278,885	376,209
Federal Facility	64,077	23	296,958	0	361,058	6,815	367,874
Food	28,595	0	0	0	28,595	0	28,595
Metal Mining	381,203	5,666	527,724,119	17,712,273	545,823,260	851	545,824,111
Oil Refineries	79,208	1,284	986	0	81,478	24	81,502
Petroleum bulk terminals	58,177	148	1,638	0	59,963	0	59,963
Total	2,583,755	92,060	528,023,951	17,712,288	548,412,055	286,576	548,698,631
Total Pounds (adjusted to reflect net off-site disposal and other releases)						280,042	548,692,097

Summary of TRI Releases by Location

Borough or Area	Total On-Site	Total Off-Site	Total
Aleutians East	25,195	0	25,195
Aleutians West	5,261	101	5,362
Anchorage	41,319	0	41,319
Denali	12,425	234,581	247,007
Fairbanks North Star	4,152,378	44,394	4,196,772
Juneau	43,364,398	0	43,364,398
Kenai Peninsula	2,056,318	24	2,056,342
Ketchikan Gateway	0	6,701	6,701
Kodiak Island	4,323	13	4,336
Northwest Arctic	498,748,639	761	498,749,400
Southeast Fairbanks	1,606	0	1,606
Valdez-Cordova	193	0	193
Total	548,412,055	286,576	548,698,631



List of Alaska Facilities Reporting TRI Releases -- Reporting Year 2005

Industry	Facility	City
Chemical wholesalers	Quadra Chemicals Inc	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	US Air Force Clear Air Force Station Ak	Clear
	US Air Force Eareckson Air Station	Shemya Island
	US Air Force Eielson AFB AK	Eielson Afb
	US Army Donnelly Training Area	Delta Junction
	US Army Fort Greely AK	Delta Junction
	US Army Fort Richardson Training Ranges	Fort Richardson
	US Army Fort Wainwright	Fort Wainwright
	US Coast Guard ISC Ketchikan	Ketchikan
	US Coast Guard Integrated Support Command Kodiak	Kodiak
Food	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
	Pogo Mine	Delta Junction
	Red Dog Operations	Kotzebue
Oil Refineries	Petro Star Inc North Pole Refinery	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
	Flint Hills Resources Alaska LLC	North Pole
	Kenai Pipeline Co - KPL Facility	Kenai
	Tesoro Alaska Co - Anchorage Terminal	Anchorage

crushers, and conveyor drop points are reported as point source emissions.

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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The TRI Contact for Alaska is:

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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>.

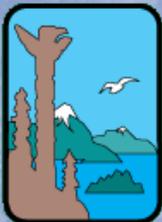
TRI Explorer is a searchable online database which lets users quickly and easily find TRI data for reporting facilities throughout the nation. The URL for TRI Explorer is: <http://www.epa.gov/triexplorer/>

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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