APPENDIX D

Area Sources

- **D-1 Data Gathering and Calculation Methodology**
- **D-2 Municipality of Anchorage Area Sources**
- **D-3 Fairbanks North Star Borough Area Sources**
- **D-4 City and Borough of Juneau Area Sources**

APPENDIX D-1

Data Gathering and Calculation Methodology

Appendix D-1

Data Gathering and Calculation Methodology

The following sections provide backup information on each area source category addressed in the 1999 Air Toxics Inventory and should be referenced in conjunction with the comments provided in the emission calculation spreadsheets included for area sources within the Municipality of Anchorage, Fairbanks Northstar Borough, and the City and Borough of Juneau (Appendices D-2, D-3, and D-4, respectively).

Asphalt Plants

Discussions with an Anchorage asphalt plant operator lead to the following assumptions: Most stationary plants are natural gas (NG) batch systems. Most mobile systems are oil-fired (diesel-) drum systems; NG-drum systems are rare. A reasonable estimate of the operating plants in Alaska is a 75/25 split – that is, 75% of the plants are stationary NG batch and 25% are mobile diesel drum.

Department of Transportation (DOT) activity data for 1999 (94,000 tons) were obtained from the "Contracts Report (Engineer's Estimates)". Municipality of Anchorage (MOA) information was obtained from Jerry Hansen, Project Manager. Fairbanks/Juneau activity data were pro-rated based on the ratio of their populations to Anchorage's population in 1999.

Factors: NG-batch: AP-42 Tables 11.1-9 and 11.1-12
Oil-drum: AP-42 Tables 11.1-10 and 11.1-13

All asphalt production was assumed to occur during the summer (April-September) months.

Asphalt Paving

Asphalt paving activity levels were based on the assumption that all material produced in the asphalt plants (see above) is used for paving. This simplified the need to obtain distance/depth paving data from many different pavement contractors in each of the three cities/boroughs. Fairbanks/Juneau activity data were pro-rated based on the ratio of their populations to Anchorage's population in 1999. As with asphalt production, all asphalt paving was assumed to occur during the summer (April-September) months.

A representative at Emulsion Products in Anchorage provided information on typical types of produced paving material. AP-42 lists factors for three types of paving material: RC, MC, and SC. Emulsion Products stated that RC, MC, and SC types were popular many years ago but were rarely used any more. However, on *rare* occasions MC30 is used in federal projects as a prime coat between the crushed aggregate and the asphalt. MC30 was chosen to obtain the AP-42 emission factors, which are considered higher than those encountered in modern low-emulsion pavement materials. As a result, a conservative estimate of HAPs has been calculated. The number "30" denotes 30% of diluent in the cutback: Therefore, 17% of the cutback (solvent) evaporated (see AP-42 Table 4.5-1).

Gasoline Distribution/Service Stations

Factors were obtained from AP-42, Section 5.2, where the following formulas were located:

EFvoc total = (EFvoc fill + EFvoc b&e + EFvoc vd + EFvoc s)

where,

EFvoc fill = 0.3 lb/kgal	VOC emission factor associated with filling USTs (Balanced submerged filling, Stage I controls)
EFvoc b&e = 1.0 lb/kgal	VOC emission factor associated with breathing and emptying losses from USTs
EFvoc vd = 1.1 lb/kgal	VOC emission factor associated with vapor displacement from automobile tanks during refilling (Stage II controls)
EFvoc s = 0.7 lb/kgal	VOC emission factor associated with spillage during automobile refilling
EFvoc total = 3.1 lb/kgal	

An Anchorage gasoline station operator stated that all stations should have been converted to stringent Stage I (filling) controls by now. EPA's SPECIATE database was used to speciate the gasoline vapors (Profile No. 7000, Service Station Profile). All gasoline distribution calculations were assumed to occur equally between the summer (April-September) and winter (January-March and October-December) months.

Used Oil Combustion

HCG researched *used* oil (not to be confused with *waste* oil which is officially designated as hazardous waste and whose combustion is illegal in the state of AK).

The only data on used oil was located in AP-42 Section 1.11, where it stated that nationally, used oil was burned at a rate of 590,000,000 gallons in 1983. This value was prorated to Anchorage/Fairbanks/Juneau 1999 levels based on US Census population data. Therefore Anchorage was calculated to have combusted 650,607 gallons, Fairbanks: 212,907 gallons, and Juneau: 76,193 gallons. All used oil combustion was assumed to occur equally between the summer (April-September) and winter (January-March and October-December) months.

Surface Coatings

Activity data were obtained from "1998 US Census Bureau Report MA32F(98)-1: Paint and Allied Products". The volumes were pro-rated to 1998 populations of the 3 cities/boroughs. US activity data fall into 3 categories: architectural, product, and special coatings. All coating activities were assumed to occur equally between summer (April-September) and winter (January-March and October-December) months.

Architectural paint:

- Architectural paints are assumed to be sold and used as two types: 70% water-based (low-solvent) and 30% solvent-based.
- Solvent is assumed to be 60% (by volume) of the solvent-based paint/coatings.
- Solvent densities are assumed to be 7.36 lb/gallon.
- Water-based paints are assumed to emit 25% of the VOCs as solvent-based paints.

Product Coatings and Special Purpose Coatings calculations:

- Product and special coatings are assumed to be sold as 30% water-based (low-solvent) and 70% solvent-based. Note: this is the opposite distribution of architectural paint sales, since more solvent-based paints were/are used in product coatings.
- Again, water-based paints are assumed to emit 25% of the VOCs as solvent-based paints.

Factors: 1998 US Census Bureau Report MA32F(98)-1: Paint and Allied Products
AP-42 Section 4.2.2.1.2, Tables 4.2.2.1-2 and 4.2.2.1-3
Speciate: Profile No. 1003 (Surface coating – solvent-based paint)
Profile No. 1013 (Surface coating – water-based paint)
Profile No. 6002 (Surface coating – industrial)

Wildfires

An Alaska Department of Natural Resources (DNR) website was used to obtain activity data (http://www.dnr.state.ak.us/forestry/firestats.htm). According to the information at this website, Fairbanks had 6,206 acres of burned land due to wildfires in 1999, and Anchorage had 781 acres of wildfires in the same year. The DNR's definition of Anchorage includes the area from Girdwood to the Mat-Su valley and therefore the 781 acres is considered a conservative estimate of the area of land damaged by wildfires. No data were presented for Juneau because the statistics fall under the jurisdiction of the US Forest Service (USFS). However, Ms. Dean Brown of DNR obtained the USFS data and found that no wildfires occurred in 1999.

Factors: Dept. of Nat. Resources website (http://www.dnr.state.ak.us/forestry/firestats.htm)
AP-42, Table 13.1-1 and Section 13.1.2
Speciate (Profile No. 0307 – Miscellaneous Burning, Forest Fires)

AP-42, Table 13.1-1 yielded two factors:	Coastal zones = 60 tons/acre fuel loading
	Interior zones = 11 tons/acre fuel loading
Section 13.1.2 yielded two more factors:	17 pounds particulate/ton fuel burned
	24 pounds hydrocarbon/ton fuel burned

However, SPECIATE only yielded one emission factor, 1,3-Butadiene (0.52% of VOC's). Emission factors for metals were not found. All wildfires were assumed to occur during the summer (April-September) months, when conditions were warm and dry.

Open Burning

Estimating the amount of open burning that occurs in a borough is difficult to do accurately because much of the activity occurs without a permit. Two open burning scenarios in which permit approvals were issued were considered:

- Firefighter Training
- Brush Burning

Firefighting Training

Firefighting activity data were obtained from Ann Lawton/Rachel Cunningham of ADEC in the form of Open Burn approvals and "Summary of Fire Training" reports. Rough

volumes of diesel, gasoline and propane were provided in the reports. However, it was impossible to obtain valid factors for propane and gasoline combustion, so all fuel was assumed to be diesel.

For Alyeska Pipeline, a firm within the study area with an Open-Burn Approval for firefighter training, the consumption of diesel was estimated to be 200 gallons/exercise (maximum usage as outlined in the Open-Burn Approval) with 28 exercises/year in 1999 (as mentioned in Open-burn Approval) for a total of 5,600 gallons total. All open burning was assumed to occur equally between summer (April-September) and winter (January-March and October-December) months.

Factors: AP-42, Tables 1.3-2 (assume residential furnace factor) and 1.3-9 (metals)
SPECIATE (Profile No. 0002, External Combustion Boiler – Distillate Oil)

Brush Burning

Brush burning approvals are available from DNR. The approvals are considered inadequate because (1) many burns occur without a permit, and (2) no mention is made as to the actual volume of burned brush in the approvals. Therefore, brush burning is not included in this report.

Residential Woodstoves/Fireplaces

Wood combustion activity data were estimated based on surveys previously performed in conjunction with the preparation of 1990 CO inventories for Anchorage and Fairbanks and a 1993 Mendenhall Valley (Juneau) wood use study. The activity data were converted to a per-household level using 1990 household data, and then extrapolated to 1999 using 1990 and 1999 US Census data. Anchorage wood use data from 1990 is available, but only for the portion of the Municipality classified as non-attainment for CO. Thus, the 1990 non-attainment area wood use was adjusted to reflect the total Municipality of Anchorage wood use. Then the total mass of wood was scaled up again to reflect wood use in 1999. Juneau data were extrapolated in similar fashion in that the Mendenhall Valley is a subset of Juneau. Wood use patterns in the Valley were extended to the entire City and Borough of Juneau. Pollutant emission factors were based on those contained in AP-42 for residential woodstoves and fireplaces.

Propane Heating

The 1990 US Census contains activity data necessary to complete the calculations. Additionally, AP-42 contains a Total VOC emission factor. However, no speciated data

exist and therefore propane heating was discounted from this study. The expected emissions from this source category are negligible.

Residential/Commercial Natural Gas Heating

Natural Gas heating activity data were estimated based on surveys previously performed in conjunction with the preparation of 1990 CO inventory for Anchorage. In general, the activity data converted to a per-household level using 1990 household data, and then extrapolated to 1999 using 1990 and 1999 US Census data. This method was required because the 1990 data for Anchorage consisted only of the portion of the municipality which is classified as non-attainment for CO.

Fugitive Dust Sources

Fugitive Dust contains five sub-categories, which are listed below:

- Paved Roads – see Appendix B (Onroad Mobile Sources)
- Unpaved Roads – see Appendix C (Offroad Mobile Sources)
- Heavy Construction Operations – see Appendix C (Offroad Mobile Sources)
- Aggregate Handling and Storage Piles – see below
- Industrial Wind Erosion – see below

Aggregate Handling and Storage Piles

HCG researched the amount of wind-borne particulates that arise from aggregate handling and storage piles (for example, sand/gravel processing). Although AP-42 contains TSP and PM_{10} emission factors for airborne particulates (dust) produced from open ground, AP-42 and SPECIATE do not contain speciated information on this dust. Therefore, HAP emissions from aggregate handling/storage piles were not available for this study.

Industrial Wind Erosion

AP-42 only considers airborne dust arising from coal piles. Therefore as with aggregate handling and storage piles, no information on HAP emissions from industrial wind erosion was available.

Consumer Products

Per capita emission factors were available for the following categories: personal care products, household products, automotive after market products, adhesives and

sealants, FIFRA-regulated products, coatings and related products, and miscellaneous. 36 hazardous air pollutants were listed throughout the various seven categories. Emissions were estimated using per capita factors and census data.

Factors Reference: Emission Inventory Improvement Program. August 1996. Chapter 5: Consumer and Commercial Solvent Use. In: EIIP Volume III, Area Sources Preferred and Alternative Methods. U.S, Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-454/R-97-004c. Research Triangle Park, North Carolina. July 1997.

Structure Fires

Activity data were provided from the State of Alaska Fire Marshall's Office in Anchorage. The Fire Marshall's office only identified those fires reported that were residential and nonresidential. Total number of fires for Anchorage, Fairbanks, and Juneau were 406, 71, and 49, respectively.

Factors References: Radian Corporation. Development of Area Source Hazardous Air Pollutant Inventories, Volume 1: Air Toxic Emission Inventory for the Chicago Area, Draft Report. Prepared for the EPA Air and Energy Engineering Research Laboratory. Research Triangle Park, North Carolina. July 1995. Pp. 3-59 through 3-61.

Emission Inventory Improvement Program. August 1996. Chapter 5: Consumer and Commercial Solvent Use. In: EIIP Volume III, Area Sources Preferred and Alternative Methods. U.S, Environmental Protection Agency, Office of Air Quality Planning and Standards, EPA-454/R-97-004c. Research Triangle Park, North Carolina. July 1997. Pp. 4-4 and 4-5.

Table D-1-1

Screening of AP-42 Area Source Categories
Based on Expected Significance of Source Category

Source Category	High Priority	Medium Priority	Low Priority	Not In Study Area	Unsure If In Study Area
External Combustion Sources					
Bituminous And Subbituminous Coal Combustion	X				
Anthracite Coal Combustion				X	
Fuel Oil Combustion	X				
Natural Gas Combustion	X				
Liquefied Petroleum Gas Combustion			X		
Wood Waste Combustion In Boilers				X	
Lignite Combustion				X	
Bagasse Combustion In Sugar Mills				X	
Residential Fireplaces	X				
Residential Wood Stoves	X				
Waste Oil Combustion		X			
Solid Waste Disposal					
Refuse Combustion	X				
Sewage Sludge Incineration	X				
Medical Waste Incineration	X				
Landfills			X		
Open Burning		X			
Automobile Body Incineration				X	
Conical Burners				X	
Stationary Internal Combustion Sources					
Stationary Gas Turbines For Electricity Generation	X				
Heavy-duty Natural Gas-fired Pipeline Compressor Engines				X	
Gasoline And Diesel Industrial Engines		X			
Large Stationary Diesel And All Stationary Dual-fuel Engines		X			
Evaporation Loss Sources					
Dry Cleaning		X			
Nonindustrial Surface Coating		X			
General Industrial Surface Coating		X			
Can Coating				X	
Magnet Wire Coating				X	
Other Metal Coating			X		
Flat Wood Interior Panel Coating				X	
Paper Coating				X	
Polymeric Coating Of Supporting Substrates				X	
Automobile And Light Duty Truck Surface Coating Operations			X		
Pressure Sensitive Tapes And Labels				X	
Metal Coil Surface Coating				X	
Large Appliance Surface Coating				X	
Metal Furniture Surface Coating				X	
Magnetic Tape Manufacturing				X	
Surface Coating Of Plastic Parts For Business Machines				X	
Waste Water Collection, Treatment And Storage			X		
Polyester Resin Plastic Products Fabrication				X	
Asphalt Paving Operations		X			
Solvent Degreasing			X		
Waste Solvent Reclamation			X		
Tank And Drum Cleaning			X		
Graphic Arts			X		

Table D-1-1

Screening of AP-42 Area Source Categories
Based on Expected Significance of Source Category

Source Category	High Priority	Medium Priority	Low Priority	Not In Study Area	Unsure If In Study Area
General Graphic Printing			X		
Publication Gravure Printing			X		
Commercial/Consumer Solvent Use		X			
Textile Fabric Printing				X	
Petroleum Industry					
Petroleum Refining	X				
Transportation And Marketing Of Petroleum Liquids	X				
Natural Gas Processing				X	
Organic Chemical Process Industry					
Carbon Black				X	
Adipic Acid				X	
Explosives				X	
Paint And Varnish				X	
Phthalic Anhydride				X	
Plastics				X	
Polyvinyl Chloride				X	
Poly(ethylene terephthalate)				X	
Polystyrene				X	
Polypropylene				X	
Printing Ink				X	
Soap And Detergents				X	
Synthetic Fibers				X	
Synthetic Rubber				X	
Terephthalic Acid				X	
Lead Alkyl				X	
Pharmaceuticals Production				X	
Maleic Anhydride				X	
Methanol				X	
Acetone And Phenol				X	
Propylene				X	
Benzene, Toluene And Xylenes				X	
Butadiene				X	
Cumene				X	
Ethanol				X	
Ethyl Benzene				X	
Ethylene				X	
Ethylene Dichloride And Vinyl Chloride				X	
Ethylene Glycol				X	
Ethylene Oxide				X	
Formaldehyde				X	
Glycerine				X	
Isopropyl Alcohol				X	
Liquid Storage Tanks					
Organic Liquid Storage Tanks		X			
Inorganic Chemical Industry					
Synthetic Ammonia				X	
Urea			X		
Ammonium Nitrate				X	

Table D-1-1

Screening of AP-42 Area Source Categories
Based on Expected Significance of Source Category

Source Category	High Priority	Medium Priority	Low Priority	Not In Study Area	Unsure If In Study Area
Ammonium Sulfate				X	
Normal Superphosphates				X	
Triple Superphosphates				X	
Ammonium Phosphate				X	
Hydrochloric Acid				X	
Hydrofluoric Acid				X	
Nitric Acid				X	
Phosphoric Acid				X	
Sulfuric Acid				X	
Chlor-Alkali				X	
Sodium Carbonate				X	
Sulfur Recovery				X	
Hydrogen Cyanide			X		
Food And Agricultural Industries					
Tilling Operations			X		
Fertilizer Application			X		
Pesticide Application			X		
Orchard Heaters				X	
Cotton Harvesting				X	
Grain Harvesting			X		
Rice Harvesting				X	
Cane Sugar Harvesting				X	
Cattle Feedlots				X	
Swine Feedlots				X	
Poultry Houses				X	
Dairy Farms			X		
Meat Packing Plants				X	
Meat Smokehouses			X		
Meat Rendering Plants				X	
Manure Processing			X		
Poultry Slaughtering				X	
Natural And Processed Cheese				X	
Cotton Ginning				X	
Canned Fruits And Vegetables				X	
Dehydrated Fruits And Vegetables				X	
Pickles, Sauces And Salad Dressings				X	
Grain Processing				X	
Grain Elevators And Processes				X	
Cereal Breakfast Food				X	
Pet Food				X	
Alfalfa Dehydration				X	
Pasta Manufacturing				X	
Bread Baking			X		
Corn Wet Milling				X	
Confectionery Products				X	
Sugar Processing				X	
Cane Sugar Processing				X	
Beet Sugar Processing				X	
Salted And Roasted Nuts And Seeds				X	
Almond Processing				X	
Peanut Processing				X	

Table D-1-1

Screening of AP-42 Area Source Categories
Based on Expected Significance of Source Category

Source Category	High Priority	Medium Priority	Low Priority	Not In Study Area	Unsure If In Study Area
Fats And Oils				X	
Vegetable Oil Processing				X	
Beverages			X		
Malt Beverages			X		
Wines And Brandy				X	
Distilled Spirits			X		
Miscellaneous Food And Kindred Products			X		
Fish Processing			X		
Coffee Roasting			X		
Snack Chip Deep Fat Frying				X	
Yeast Production				X	
Tobacco Products				X	
Leather Tanning				X	
Agricultural Wind Erosion			X		
Wood Products Industry					
Lumber			X		
Chemical Wood Pulping				X	
Pulp Bleaching				X	
Papermaking				X	
Plywood				X	
Reconstituted Wood Products				X	
Waferboard And Oriented Strand Board				X	
Particleboard				X	
Medium Density Fiberboard				X	
Charcoal				X	
Wood Preserving			X		
Mineral Products Industry					
Hot Mix Asphalt Plants		X			
Asphalt Roofing		X			
Bricks And Related Clay Products				X	
Calcium Carbide Manufacturing				X	
Refractory Manufacturing				X	
Portland Cement Manufacturing				X	
Ceramic Products Manufacturing				X	
Clay And Fly Ash Sintering				X	
Western Surface Coal Mining				X	
Coal Cleaning			X		
Coal Conversion					X
Concrete Batching			X		
Glass Fiber Manufacturing					X
Frit Manufacturing					X
Glass Manufacturing					X
Gypsum Manufacturing			X		
Lime Manufacturing				X	
Mineral Wool Manufacturing				X	
Construction Aggregate Processing			X		
Sand And Gravel Processing		X			
Crushed Stone Processing			X		
Lightweight Aggregate Manufacturing			X		
Phosphate Rock Processing				X	

Table D-1-1

Screening of AP-42 Area Source Categories
Based on Expected Significance of Source Category

Source Category	High Priority	Medium Priority	Low Priority	Not In Study Area	Unsure If In Study Area
Diatomite Processing				X	
Taconite Ore Processing				X	
Metallic Minerals Processing			X		
Clay Processing				X	
Talc Processing				X	
Feldspar Processing				X	
Vermiculite Processing				X	
Alumina Manufacturing				X	
Perlite Manufacturing				X	
Abrasives Manufacturing				X	
Metallurgical Industry					
Primary Aluminum Production				X	
Coke Production				X	
Primary Copper Smelting				X	
Ferroalloy Production				X	
Iron And Steel Production				X	
Primary Lead Smelting				X	
Zinc Smelting				X	
Secondary Aluminum Operations				X	
Secondary Copper Smelting And Alloying				X	
Gray Iron Foundries				X	
Secondary Lead Processing				X	
Secondary Magnesium Smelting .				X	
Steel Foundries				X	
Secondary Zinc Processing				X	
Storage Battery Production				X	
Lead Oxide And Pigment Production				X	
Miscellaneous Lead Products				X	
Leadbearing Ore Crushing And Grinding				X	
Electric Arc Welding			X		
Electroplating			X		
Miscellaneous Sources					
Wildfires And Prescribed Burning		X			
Fugitive Dust Sources		X			
Paved Roads		X			
Unpaved Roads		X			
Heavy Construction Operations		X			
Aggregate Handling And Storage Piles			X		
Industrial Wind Erosion			X		
Explosives Detonation			X		
Wet Cooling Towers (cooling ponds in FNSB)			X		
Industrial Flares			X		

APPENDIX D-2

Municipality of Anchorage Area Sources

Table D-2-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Anchorage TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Residential Heating - NG	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	CAS No.	Chemical Name																
1	79345	1,1,2,2-Tetrachloroethane	0.010 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	0.003 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	0.005 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	2.925 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	2.924 tpy	0.001 tpy
10	542756	1,3-Dichloropropene	20.62 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	20.62 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	10.74 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	10.71 tpy	----- ---	0.017 tpy	----- ---	----- ---	----- ---	0.009 tpy
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.460 tpy	0.038 tpy	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.416 tpy
36	60355	Acetamide	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	0.041 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.041 tpy
38	98862	Acetophenone	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	1.068 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	1.030 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.038 tpy
40	79061	Acrylamide	0.160 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.160 tpy
41	79107	Acrylic Acid	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
42	107131	Acrylonitrile	0.010 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	0.012 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	0.011 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	0.133 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.001 tpy	0.003 tpy	----- ---	----- ---	----- ---	0.130 tpy
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
48	71432	Benzene (including benzene from gasoline)	7.187 tpy	0.017 tpy	0.003 tpy	----- ---	----- ---	2.328 tpy	2.548 tpy	----- ---	----- ---	0.001 tpy	----- ---	0.030 tpy	0.885 tpy	----- ---	----- ---	1.375 tpy

Table D-2-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Anchorage TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Residential Heating - NG	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	CAS No.	Chemical Name																
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	0.007 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	0.006 tpy
52	N/A	Beryllium Compounds	0.104 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.103 tpy
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---
58	N/A	Cadmium Compounds	0.045 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.002 tpy	0.016 tpy	----- ---	----- ---	----- ---	0.027 tpy
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
64	463581	Carbonyl sufide	0.004 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.004 tpy
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
69	79118	Chloroacetic acid	0.005 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy
70	108907	Chlorobenzene	9.235 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	9.231 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.004 tpy
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	0.128 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.128 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	0.062 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.062 tpy	----- ---	----- ---
75	N/A	Chromium Chompounds	0.079 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.012 tpy	0.020 tpy	----- ---	0.002 tpy	----- ---	0.044 tpy
76	N/A	Cobalt Compounds	0.012 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	0.010 tpy
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	0.010 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy
83	N/A	Cyanide Compounds	8.604 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	8.284 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.320 tpy
84	3547044	DDE	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ether)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	0.032 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.004 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.027 tpy
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-2-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Anchorage TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Residential Heating - NG	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	**CAS No.**	**Chemical Name**																
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	0.002 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.002 tpy
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
99	100414	Ethyl benzene	3.333 tpy	0.121 tpy	0.021 tpy	----- ---	----- ---	----- ---	0.249 tpy	----- ---	----- ---	0.268 tpy	----- ---	----- ---	2.276 tpy	----- ---	----- ---	0.398 tpy
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	1.525 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.525 tpy	----- ---	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	1.427 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.426 tpy	----- ---	----- ---	0.000 tpy
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	1.946 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.946 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
109	5000	Formaldehyde	4.519 tpy	0.059 tpy	0.010 tpy	----- ---	----- ---	----- ---	----- ---	0.010 tpy	0.239 tpy	0.163 tpy	1.553 tpy	1.081 tpy	----- ---	----- ---	----- ---	1.403 tpy
110	N/A	Glycol ethers	5.219 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	5.219 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	0.059 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.059 tpy
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	51.37 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	4.652 tpy	0.002 tpy	----- ---	11.13 tpy	0.344 tpy	25.95 tpy	----- ---	----- ---	----- ---	9.298 tpy
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	5.052 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	3.528 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	1.524 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	0.193 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.002 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.191 tpy
122	123319	Hydroquinone	0.021 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.021 tpy
123	78591	Isophorone	0.122 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.122 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
124	N/A	Lead Compounds	0.020 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.002 tpy	----- ---	----- ---	----- ---	----- ---	0.019 tpy
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.043 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.020 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.002 tpy	0.005 tpy	----- ---	----- ---	----- ---	0.015 tpy
128	N/A	Mercury Compounds	0.068 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.001 tpy	0.004 tpy	----- ---	----- ---	----- ---	0.064 tpy
129	67561	Methanol	89.97 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	89.94 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.033 tpy
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide(Bromomethane)	28.62 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	28.62 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	50.21 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	49.93 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.272 tpy
133	78933	Methyl ethyl ketone (2-Butanone)	94.03 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	0.348 tpy	----- ---	----- ---	----- ---	6.520 tpy	----- ---	----- ---	86.47 tpy	----- ---	----- ---	0.691 tpy
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	64.52 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.976 tpy	----- ---	----- ---	62.85 tpy	----- ---	----- ---	0.700 tpy
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	0.042 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.039 tpy
140	74873	Methylchloride (Chloromethane)	1.391 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.353 tpy	----- ---	----- ---	0.038 tpy
141	75092	Methylene chloride(Dichloromethane)	22.02 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	4.693 tpy	----- ---	----- ---	13.57 tpy	----- ---	----- ---	3.748 tpy
142	101688	Methylene diphenyl diisocyante (MDI)	0.058 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.058 tpy
143	N/A	Mineral fibers	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	0.004 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.004 tpy	----- ---	----- ---

Table D-2-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Anchorage TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Residential Heating - NG	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	**CAS No.**	**Chemical Name**																
145	91203	Naphthalene	6.324 tpy	----- ---	----- ---	----- ---	----- ---	0.346 tpy	----- ---	----- ---	----- ---	5.944 tpy	----- ---	0.009 tpy	----- ---	----- ---	----- ---	0.025 tpy
146	N/A	Nickel Compounds	0.060 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.003 tpy	0.030 tpy	----- ---	----- ---	----- ---	0.026 tpy
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	0.038 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.038 tpy
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzene)	0.141 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.141 tpy
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	1.258 tpy	0.011 tpy	----- ---	----- ---	0.242 tpy	0.877 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.127 tpy
163	106503	p-Phenylemediamine	3.710 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	3.710 tpy
164	123386	Propionaldehyde	0.081 tpy	0.002 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.079 tpy
165	114261	Propoxur(Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropane)	0.013 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.013 tpy
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	0.019 tpy	0.011 tpy	0.002 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	172.0 tpy	----- ---	----- ---	167.6 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	3.639 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.809 tpy
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	378.7 tpy	0.072 tpy	0.012 tpy	----- ---	----- ---	0.877 tpy	2.963 tpy	----- ---	----- ---	55.32 tpy	----- ---	0.049 tpy	312.5 tpy	----- ---	----- ---	6.982 tpy
177	8001352	Toxaphene (chlorinated camphene)	0.003 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy
178	79016	Trichloroethylene	0.252 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.063 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.189 tpy
179	121448	Triethylamine	0.108 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.108 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	0.295 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.295 tpy	----- ---	----- ---	----- ---
182	593602	Vinyl bromide	0.042 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.042 tpy
183	75014	Vinyl chloride	0.016 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.016 tpy
184	75354	Vinylidene chloride (1,1-Dichloroethylene)	0.016 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.016 tpy
185	1330207	Xylenes (isomers and mixture)	209.2 tpy	0.154 tpy	0.026 tpy	----- ---	----- ---	0.243 tpy	1.302 tpy	----- ---	----- ---	26.16 tpy	----- ---	----- ---	179.8 tpy	----- ---	----- ---	1.517 tpy
186	95476	Xylenes (isomers and mixture)	19.73 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.360 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	18.84 tpy	----- ---	----- ---	0.523 tpy
187	108383	Xylenes (isomers and mixture)	0.010 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy
188	106423	Xylenes (isomers and mixture)	0.030 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.030 tpy
		Total HAP Emissions	**1280 tpy**	**0.49 tpy**	**0.08 tpy**	**168 tpy**	**0.24 tpy**	**5.04 tpy**	**12.1 tpy**	**0.01 tpy**	**13.1 tpy**	**331 tpy**	**1.92 tpy**	**27.2 tpy**	**682 tpy**	**0.07 tpy**	**2.92 tpy**	**35.64 tpy**

Asphalt Plants - Anchorage

	NG-Fired Batch Asphalt Plant		Oil-Fired Drum Asphalt Plant		
Activity Data Input:	70,613 **tons**		**Activity Data Input:**	23,538 **tons**	
Activity Period/Year:	1999 **Year**		**Activity Period/Year:**	1999 **Year**	
Section 112 Hazardous Air Pollutants	**Source Category Emission Calculations**		**Source Category Emission Calculations**		**Total - All Categories**
No. **CAS No.** **Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35 75070 Acetaldehyde	6.40E-04 lb/ton	2.26E-02 tpy	1.30E-03 lb/ton	1.53E-02 tpy	3.79E-02 tpy
39 107028 Acrolein			2.60E-05 lb/ton	3.06E-04 tpy	3.06E-04 tpy
46 N/A Arsenic Compounds (inorganic including arsine)	6.60E-07 lb/ton	2.33E-05 tpy	1.10E-06 lb/ton	1.29E-05 tpy	3.62E-05 tpy
48 71432 Benzene (including benzene from gasoline)	3.50E-04 lb/ton	1.24E-02 tpy	4.10E-04 lb/ton	4.83E-03 tpy	1.72E-02 tpy
58 N/A Cadmium Compouns	8.40E-07 lb/ton	2.97E-05 tpy	4.40E-07 lb/ton	5.18E-06 tpy	3.48E-05 tpy
75 N/A Chromium Chompounds	8.90E-07 lb/ton	3.14E-05 tpy	1.20E-05 lb/ton	1.41E-04 tpy	1.73E-04 tpy
99 100414 Ethyl benzene	3.30E-03 lb/ton	1.17E-01 tpy	3.80E-04 lb/ton	4.47E-03 tpy	1.21E-01 tpy
109 5000 Formaldehyde	8.60E-04 lb/ton	3.04E-02 tpy	2.40E-03 lb/ton	2.82E-02 tpy	5.86E-02 tpy
124 N/A Lead Compounds	7.40E-07 lb/ton	2.61E-05 tpy	3.30E-06 lb/ton	3.88E-05 tpy	6.50E-05 tpy
127 N/A Manganese Compounds	9.90E-06 lb/ton	3.50E-04 tpy	1.10E-05 lb/ton	1.29E-04 tpy	4.79E-04 tpy
128 N/A Mercury Compounds	4.50E-07 lb/ton	1.59E-05 tpy	7.30E-09 lb/ton	8.59E-08 tpy	1.60E-05 tpy
133 78933 Methyl ethyl ketone (2-Butanone)			2.00E-05 lb/ton	2.35E-04 tpy	2.35E-04 tpy
146 N/A Nickel Compounds	4.20E-06 lb/ton	1.48E-04 tpy	1.50E-05 lb/ton	1.77E-04 tpy	3.25E-04 tpy
162 N/A Polycylic Organic Matter	1.27E-04 lb/ton	4.49E-03 tpy	5.81E-04 lb/ton	6.83E-03 tpy	1.13E-02 tpy
164 123386 Propionaldehyde			1.30E-04 lb/ton	1.53E-03 tpy	1.53E-03 tpy
169 106514 Quinone	2.70E-04 lb/ton	9.53E-03 tpy	1.60E-04 lb/ton	1.88E-03 tpy	1.14E-02 tpy
176 108883 Toluene	1.80E-03 lb/ton	6.36E-02 tpy	7.50E-04 lb/ton	8.83E-03 tpy	7.24E-02 tpy
185 1330207 Xylenes (isomers and mixture)	4.30E-03 lb/ton	1.52E-01 tpy	1.60E-04 lb/ton	1.88E-03 tpy	1.54E-01 tpy
	Total HAP Emissions	**0.412 tpy**	**Total HAP Emissions**	**0.075 tpy**	**0.487 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12.
2. Activity data from DOT and MOA.

Notes/Comments:
1. Reference: AP-42, Tables 11.1-10 and 11.1-13.
2. Activity data from DOT and MOA.

Asphalt Plants - Anchorage

Asphalt Plants Activity Data

DOT Contracts 1999
Engineers

Estimate	**Units**			
52,819	tons	=	52,819	tons
5,103	tons	=	5,103	tons
2,273	tons	=	2,273	tons
126	tons	=	126	tons
660	tons	=	660	tons
177	tons	=	177	tons
13,300	Mg	=	13,087	tons
608	Mg	=	598	tons
5,006	Mg	=	4,926	tons
276	Mg	=	272	tons
420	Mg	=	413	tons
210	Mg	=	207	tons

DOT total	80,661	tons
MOA total	13,490	tons
Anchorage total	**94,151**	**tons**

Notes:

1. DOT info from Contracts Report (engineer's estimates).
2. MoA info from Jerry Hansen, Project Manager.
3. Assume the following proportions: 75% to stationary NG-fired plants and 25% to diesel-fired mobile plants.
4. NG-fired = batch and Diesel = drum (conversation with operator at Wilder hot plant, Anchorage, 6/15/00).

Asphalt Paving - Anchorage

	NG-Fired Batch Asphalt Plant		Oil-Fired Drum Asphalt Plant	
Activity Data Input:	70,613	**tons**	23,538	**tons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde	6.40E-04 lb/ton	3.84E-03 tpy	1.30E-03 lb/ton	2.60E-03 tpy	6.44E-03 tpy
39	107028	Acrolein			2.60E-05 lb/ton	5.20E-05 tpy	5.20E-05 tpy
48	71432	Benzene (including benzene from gasoline)	3.50E-04 lb/ton	2.10E-03 tpy	4.10E-04 lb/ton	8.20E-04 tpy	2.92E-03 tpy
99	100414	Ethyl benzene	3.30E-03 lb/ton	1.98E-02 tpy	3.80E-04 lb/ton	7.60E-04 tpy	2.06E-02 tpy
109	5000	Formaldehyde	8.60E-04 lb/ton	5.16E-03 tpy	2.40E-03 lb/ton	4.80E-03 tpy	9.96E-03 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			2.00E-05 lb/ton	4.00E-05 tpy	4.00E-05 tpy
164	123386	Propionaldehyde			1.30E-04 lb/ton	2.60E-04 tpy	2.60E-04 tpy
169	106514	Quinone	2.70E-04 lb/ton	1.62E-03 tpy	1.60E-04 lb/ton	3.20E-04 tpy	1.94E-03 tpy
176	108883	Toluene	1.80E-03 lb/ton	1.08E-02 tpy	7.50E-04 lb/ton	1.50E-03 tpy	1.23E-02 tpy
185	1330207	Xylenes (isomers and mixture)	4.30E-03 lb/ton	2.58E-02 tpy	1.60E-04 lb/ton	3.20E-04 tpy	2.61E-02 tpy
			Total HAP Emissions	**0.069 tpy**	**Total HAP Emissions**	**0.011 tpy**	**TOTAL** **0.081 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12.
2. Activity data from DOT and MOA.

Notes/Comments:
1. Reference: AP-42, Tables 11.1-10 and 11.1-13.
2. Activity data from DOT and MOA.

Asphalt Paving Activity Data - Anchorage

DOT Contracts 1999
Engineers

Estimate	**Units**		
52,819	ton	=	52,819 tons
5,103	ton	=	5,103 tons
2,273	ton	=	2,273 tons
126	ton	=	126 tons
660	ton	=	660 tons
177	ton	=	177 tons
13,300	Mg	=	13,087 tons
608	Mg	=	598 tons
5,006	Mg	=	4,926 tons
276	Mg	=	272 tons
420	Mg	=	413 tons
210	Mg	=	207 tons

DOT total	80,661 tons
MOA total	13,490 tons
Anchorage TOTAL	**94,151 tons**

Notes:

1. DOT info from Contracts Report (engineer's estimates).
2. MoA info from Jerry Hansen, Project Manager.
3. Assume the following proportions: 75% to stationary NG-fired plants and 25% to diesel-fired mobile plants.
4. NG-fired = batch and Diesel = drum (conversation with operator at Wilder hot plant, Anchorage, 6/15/00).

Source: Phone coversation with Summit Paving, Lake Otis, Anchorage, 344-2644. Assume 4 inches of pavment for 90% of roads.
Assume remaining 10% of roads are private/residential and are ~3 inches in depth.
Therefore, average weighted depth = 3.9 inches.

Phone conversation with Jerry at Emulsion Products in Anchorage, 277-7752
RC, MC, and SC very rarely used any more. On rare occasions MC30 is used in federal projects (therefore MC30 was used as a factor).
MC30 thought to be 30% of diluent in cutback: Therefore 17% of cutback evaporated (see AP-42 Table 4.5-1).

Formula:

Evoc = VOC emissions in lb/yr = QA * (WPevap/100)
QA = mass of cutback asphalt used (lb)
WPevap = weight % of asphalt that evaporates

Dry Cleaners - Anchorage

Dry Cleaners

Activity Data Input: 257,808 **capita**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
174	127184	Tetrachloroethylene (Perchloroethylene)	1.3 lb/yr/capita	167.6 tpy
		Total HAP Emissions		**168 tpy**

Notes/Comments:
1. Reference: AP-42, Table 4.1-2.
2. Activity (population) data from MoA census information.

Residential Fireplaces - Anchorage

Residential Fireplaces

Activity Data Input: 30,252 **tons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
162	N/A	Polycylic Organic Matter	1.60E-02 lb/ton	2.42E-01 tpy

Total HAP Emissions **0.242 tpy**

Notes/Comments:

1. Reference: AP-42, Table 1.9-1.
2. Activity data extrapolated from 1990 CO study (see backup).

Estimated Woodstove and Fireplace Activity Data - Anchorage

Description	Survey Data West	East	South	Rabbit C.	North	Central	Eagle R.
% households w/ woodstove*	7	0	8	32	5	0	19
% households w/ fireplace*	67	57	63	70	40	50	60
Number of Households*	11,359	16,989	11,141	5,992	14,815	2,065	8,129
Number of households w/ woodstove*	795	0	891	1,917	741	0	1,545
Number of households w/ fireplace*	7,611	9,684	7,019	4,194	5,926	1,033	4,877
Hrs of burning per week (houses w/fireplace or woodstove)*	5	1	3	6	1	2	18
wooduse (lb/hr) - woodstove*	4	4	4	4	4	4	4
wooduse (lb/hr) - fireplace*	11	11	11	11	11	11	11
Wooduse per week (lb) - woodstoves (sector)*	12,523	0	7,799	42,951	2,852	0	97,304
Wooduse per week - fireplaces (sector)*	376,721	138,477	193,018	295,286	71,705	17,036	965,725

Extrapolations

Wooduse per week - woodstoves (total - all sectors)	163,429	lb
Wooduse per week - fireplaces (total - all sectors)	2,057,968	lb
Total number of households 1990 (NAA, from above)	70,490	
Total number of households 1990 (from census data for MoA)	82,702	
Wooduse per week - woodstoves (total - all sectors) 1990 MoA data	191,742	lb
Wooduse per week - fireplaces (total - all sectors) 1990 MoA data	2,414,500	lb
Total population 1990 (MoA data)	226,338	
Total population 1999 (MoA data)	257,808	
Wooduse per week - woodstoves (total - all sectors) 1999	**218,402**	lb
Wooduse per week - fireplaces (total - all sectors) 1999	**2,750,211**	lb
Wooduse per Year - woodstoves (total - all sectors) 1999	**2,402**	ton/yr
Wooduse per Year - fireplaces (total - all sectors) 1999	**30,252**	ton/yr

assume wooduse from November - March (22 weeks)

* Indicates data from Anchorage 1990 Base Year Carbon Monoxide Emission Inventory

Residential Woodstoves - Anchorage

Residential Woodstoves

Activity Data Input: 2,402 **tons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
48	71432	Benzene (including benzene from gasoline)	1.94E+00	lb/ton	2.33E+00	tpy
58	N/A	Cadmium Compouns	2.20E-05	lb/ton	2.64E-05	tpy
75	N/A	Chromium Chompounds	1.00E-06	lb/ton	1.20E-06	tpy
127	N/A	Manganese Compounds	1.70E-02	lb/ton	2.04E-02	tpy
133	78933	Methyl ethyl ketone (2-Butanone)	2.90E-01	lb/ton	3.48E-01	tpy
145	91203	Naphthalene	2.88E-01	lb/ton	3.46E-01	tpy
146	N/A	Nickel Compounds	1.40E-05	lb/ton	1.68E-05	tpy
162	N/A	Polycylic Organic Matter	7.30E-01	lb/ton	8.77E-01	tpy
176	108883	Toluene	7.30E-01	lb/ton	8.77E-01	tpy
185	1330207	Xylenes (isomers and mixture)	2.02E-01	lb/ton	2.43E-01	tpy
		Total HAP Emissions			**5.039**	**tpy**

Notes/Comments:

1. Reference: AP-42, Table 1.10-2, 10-3 and 10-4.
2. Activity data extrapolated from 1990 CO study (see backup).

Estimated Woodstove and Fireplace Activity Data - Anchorage

Description	Survey Data West	East	South	Rabbit C.	North	Central	Eagle R.
% households w/ woodstove*	7	0	8	32	5	0	19
% households w/ fireplace*	67	57	63	70	40	50	60
Number of Households*	11,359	16,989	11,141	5,992	14,815	2,065	8,129
Number of households w/ woodstove*	795	0	891	1,917	741	0	1,545
Number of households w/ fireplace*	7,611	9,684	7,019	4,194	5,926	1,033	4,877
Hrs of burning per week (houses w/fireplace or woodstove)*	5	1	3	6	1	2	18
wooduse (lb/hr) - woodstove*	4	4	4	4	4	4	4
wooduse (lb/hr) - fireplace*	11	11	11	11	11	11	11
Wooduse per week (lb) - woodstoves (sector)*	12,523	0	7,799	42,951	2,852	0	97,304
Wooduse per week - fireplaces (sector)*	376,721	138,477	193,018	295,286	71,705	17,036	965,725

Extrapolations

Wooduse per week - woodstoves (total - all sectors)	163,429	lb
Wooduse per week - fireplaces (total - all sectors)	2,057,968	lb
Total number of households 1990 (NAA, from above)	70,490	
Total number of households 1990 (from census data for MoA)	82,702	
Wooduse per week - woodstoves (total - all sectors) 1990 MoA data	191,742	lb
Wooduse per week - fireplaces (total - all sectors) 1990 MoA data	2,414,500	lb
Total population 1990 (MoA data)	226,338	
Total population 1999 (MoA data)	257,808	
Wooduse per week - woodstoves (total - all sectors) 1999	**218,402**	lb
Wooduse per week - fireplaces (total - all sectors) 1999	**2,750,211**	lb
Wooduse per Year - woodstoves (total - all sectors) 1999	**2,402**	ton/yr
Wooduse per Year - fireplaces (total - all sectors) 1999	**30,252**	ton/yr
Assume wooduse from November - March (22 weeks)		

* Indicates data from Anchorage 1990 Base Year Carbon Monoxide Emission Inventory

Gasoline Distribution / Service Stations - Anchorage

Gasoline Distribution - Service Stations

Activity Data Input: 178,663,083 **gallons**

Activity Period/Year: 2000 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
48	71432	Benzene (including benzene from gasoline)	0.92 %	2.55 tpy
99	100414	Ethyl benzene	0.09 %	0.25 tpy
118	110543	Hexane	1.68 %	4.65 tpy
176	108883	Toluene	1.07 %	2.96 tpy
185	1330207	Xylenes (isomers and mixture)	0.47 %	1.30 tpy
186	95476	Xylenes (isomers and mixture)	0.13 %	0.36 tpy
			Total HAP Emissions	**12.074 tpy**

Gasoline Distribution / Service Stations - Anchorage

Gasoline Distribution Activity Data:

1. Reference: AP-42, Section 5.2
2. Assumptions:
   EFvoc total = (EFvoc fill + EFvoc b&e + EFvoc vd + EFvoc s)

EFvoc fill =	0.3	lb/kgal	VOC emission factor associated with filling USTs (Balanced submerged filling, Stage I controls)
EFvoc b&e =	1.0	lb/kgal	VOC emission factor associated with breathing and emptying losses from USTs
EFvoc vd =	1.1	lb/kgal	VOC emission factor associated with vapor displacement from automobile tanks during refilling (Stage II controls)
EFvoc s =	0.7	lb/kgal	VOC emission factor associated with spillage during automobile refilling
	3.1	lb/kgal	

3. Source: Phone conversation with Raymond Measles, Tesoro, Anchorage, June 13, 2000 (561-5521)
   R.M. stated that all stations should have been converted to Stage I (filling) controls by now.
4. Speciate was used to obtain the refined emission factors (Profile Number 7000).

Anchorage 1999 Aggregated Fuel Sales (from ADEC)

Gasoline	178,663,083	
Diesel	16,030,257	inlcudes Diesel #1, Diesel #2, and Diesel #2 Blended
Jet A Fuel	34,166,580	
Avgas	10,855,446	

quantities are stated in GALLONS

Open Burning (Diesel) - Anchorage

Open Burning (Diesel)

Activity Data Input:	17,192	**gallons**
Activity Period/Year:	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.000 tpy
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.000 tpy
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.000 tpy
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.000 tpy
109	5000	Formaldehyde	1.214 lb/Mgal	0.010 tpy
118	110543	Hexane	0.269 lb/Mgal	0.002 tpy
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.000 tpy
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.000 tpy
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.000 tpy
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.000 tpy
		Total HAP Emissions		**0.013 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Firefighter training was the only activity considered in open burning.

Structural Fires - Anchorage

Activity Data Input: 406 **total fires**
Activitiy Period: 1999 **year**

Section 112 Hazardous Air Pollutants

No.	CAS No.	Chemical Name
39	107028	Acrolein
83	N/A	Cyanide Compounds
109	5000	Formaldehyde
120	7647010	Hydrochloric acid

Source Category Emission Calculations

Emission Factor		Estimated Emissions	
2.55E-05	lb/dscf	1.03E+00	tons
2.05E-04	lb/dscf	8.28E+00	tons
5.91E-06	lb/dscf	2.39E-01	tons
8.73E-05	lb/dscf	3.53E+00	tons

Total HAP Emissions **13.081** **tons**

Notes/Comments:
1. Emission factors apply to sum of residential and nonresidential fires.
2. Activity data provided courtesy of State of Alaska Fire Marshall's Office, Anchora(

Structural Fires Backup Data - Anchorage

F-Factor (Ref. 1)	9,570	**dscf/MMBtu**
HHV Factor (Ref. 2)	9,044	**Btu/lb**
Fuel Loading Factor (Ref. 2)	1.15	**tons of material buned/fire**

Sample calculation for volume of gas generated per amount burned:
Volume Gas Generated (dscf) / Material Burned (ton)
= F-Factor (dscf/MMBtu) * HHV (Btu/lb) * (1/2000) * (1/1e6)
= 173,102 dscf / ton burned
Sample calculation for emission rate of acrolein produced per amount burned:
Weight of Gas Generated (lb) / Material Burned (ton)
= Emission Factor (lb/dscf) * Volume Gas Generated Per Amount Burned (dscf/ton)
= 4.41 lb Acrolein / ton burned
Sample calculation for emission estimate for Acrolein:
= Number of Fires * Fuel Loading Factor (tons of material burned/fire) * Emission Rate of Acrolein (lb/ton burned)
= 1.03E+00 tons of Acrolein

Notes/Comments:
1. Reference: Development of Area Source Hazardous Air Pollutant Inventories, Vol 1: Air Toxic Emission Inventory.
2. Reference: EIIP Volume III, Area Sources Preferred and Alternative Methods.

Consumer Products - Anchorage

			Personal Care Products		Household Products		Automotive Aftermarket Products		Adhesives & Sealants		FIFRA-Regulated Products		Coatings & Related Products		Miscellaneous		
			Activity Data: 257,808 Capita		Activity Data: 257,808 Capita		Activity Data: 257,808 Capita		Activity Data: 257,808 Capita		Activity Data: 257,808 Capita		Activity Data: 257,808 Capita		Activity Data: 257,808 Capita		
			Acitvity Period: 1999 year		Acitvity Period: 1999 year		Acitvity Period: 1999 year		Acitvity Period: 1999 year		Acitvity Period: 1999 year		Acitvity Period: 1999 year		Acitvity Period: 1999 year		
	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Emissions
10	542756	1,3-Dichloropropene									1.60E-01 lb/yr/cap	2.06E+01 tons					2.06E+01 tons
12	106467	1,4-Dichlorobenzene(p)			4.79E-02 lb/yr/cap	6.17E+00 tons					3.52E-02 lb/yr/cap	4.54E+00 tons					1.07E+01 tons
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)							1.09E-05 lb/yr/cap	1.41E-03 tons							1.41E-03 tons
25	79469	2-Nitropropane							2.12E-06 lb/yr/cap	2.73E-04 tons							2.73E-04 tons
36	60355	Acetamide	1.38E-07 lb/yr/cap	1.78E-05 tons													1.78E-05 tons
38	98862	Acetophenone											8.53E-06 lb/yr/cap	1.10E-03 tons			1.10E-03 tons
41	79107	Acrylic Acid							3.94E-09 lb/yr/cap	5.08E-07 tons							5.08E-07 tons
48	71432	Benzene (including benzene from gasoline)					4.72E-06 lb/yr/cap	6.08E-04 tons									6.08E-04 tons
63	56235	Carbon tetrachloride											4.10E-10 lb/yr/cap	5.29E-08 tons			5.29E-08 tons
70	108907	Chlorobenzene									7.16E-02 lb/yr/cap	9.23E+00 tons	1.51E-05 lb/yr/cap	1.95E-03 tons			9.23E+00 tons
72	67663	Chloroform					3.60E-05 lb/yr/cap	4.64E-03 tons					9.55E-04 lb/yr/cap	1.23E-01 tons			1.28E-01 tons
86	132649	Dibenzofurans							8.07E-06 lb/yr/cap	1.04E-03 tons							1.04E-03 tons
94	68122	Dimethyl formamide	2.71E-05 lb/yr/cap	3.49E-03 tons			2.78E-08 lb/yr/cap	3.58E-06 tons	2.29E-07 lb/yr/cap	2.95E-05 tons					7.43E-06 lb/yr/cap	9.58E-04 tons	4.48E-03 tons
99	100414	Ethyl benzene			2.56E-06 lb/yr/cap	3.30E-04 tons	7.51E-05 lb/yr/cap	9.68E-03 tons	1.36E-05 lb/yr/cap	1.75E-03 tons	1.30E-03 lb/yr/cap	1.68E-01 tons	6.86E-04 lb/yr/cap	8.84E-02 tons			2.68E-01 tons
103	107062	Ethylene dichloride (1,2-Dichloroethane)	4.62E-06 lb/yr/cap	5.96E-04 tons	3.52E-08 lb/yr/cap	4.54E-06 tons											6.00E-04 tons
106	75218	Ethylene oxide									1.51E-02 lb/yr/cap	1.95E+00 tons					1.95E+00 tons
109	5000	Formaldehyde			6.74E-06 lb/yr/cap	8.69E-04 tons			2.51E-05 lb/yr/cap	3.24E-03 tons	3.81E-04 lb/yr/cap	4.91E-02 tons	8.55E-04 lb/yr/cap	1.10E-01 tons			1.63E-01 tons
110	N/A	Glycol ethers	1.52E-05 lb/yr/cap	1.96E-03 tons	5.31E-03 lb/yr/cap	6.84E-01 tons	2.69E-02 lb/yr/cap	3.47E+00 tons	1.28E-04 lb/yr/cap	1.65E-02 tons	5.65E-03 lb/yr/cap	7.28E-01 tons	2.24E-03 lb/yr/cap	2.89E-01 tons	2.42E-04 lb/yr/cap	3.12E-02 tons	5.22E+00 tons
118	110543	Hexane			2.09E-03 lb/yr/cap	2.69E-01 tons	3.53E-03 lb/yr/cap	4.55E-01 tons	7.83E-02 lb/yr/cap	1.01E+01 tons			2.39E-03 lb/yr/cap	3.08E-01 tons			1.11E+01 tons
120	7647010	Hydrochloric acid			1.75E-06 lb/yr/cap	2.26E-04 tons											2.26E-04 tons
121	7664393	Hydrogen fluoride (Hydrofluoric acid)			8.75E-08 lb/yr/cap	1.13E-05 tons	1.41E-05 lb/yr/cap	1.82E-03 tons									1.83E-03 tons
123	78591	Isophorone									9.47E-04 lb/yr/cap	1.22E-01 tons					1.22E-01 tons
129	67561	Methanol	5.67E-07 lb/yr/cap	7.31E-05 tons	6.66E-04 lb/yr/cap	8.59E-02 tons	6.61E-01 lb/yr/cap	8.52E+01 tons	6.82E-04 lb/yr/cap	8.79E-02 tons	9.48E-04 lb/yr/cap	1.22E-01 tons	1.60E-02 lb/yr/cap	2.06E+00 tons	1.84E-02 lb/yr/cap	2.37E+00 tons	8.99E+01 tons
131	74839	Methyl bromide(Bromomethane)									2.22E-01 lb/yr/cap	2.86E+01 tons					2.86E+01 tons
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	7.45E-04 lb/yr/cap	9.60E-02 tons	2.85E-02 lb/yr/cap	3.67E+00 tons	7.63E-02 lb/yr/cap	9.84E+00 tons	2.14E-01 lb/yr/cap	2.76E+01 tons	5.99E-02 lb/yr/cap	7.72E+00 tons	7.69E-03 lb/yr/cap	9.91E-01 tons	2.46E-04 lb/yr/cap	3.17E-02 tons	4.99E+01 tons
133	78933	Methyl ethyl ketone (2-Butanone)	1.75E-05 lb/yr/cap	2.26E-03 tons	4.49E-04 lb/yr/cap	5.79E-02 tons	3.04E-03 lb/yr/cap	3.92E-01 tons	3.91E-02 lb/yr/cap	5.04E+00 tons	2.01E-05 lb/yr/cap	2.59E-03 tons	7.94E-03 lb/yr/cap	1.02E+00 tons	1.01E-05 lb/yr/cap	1.30E-03 tons	6.52E+00 tons
136	108101	Methyl isobutyl ketone (Hexone)			1.08E-04 lb/yr/cap	1.39E-02 tons	8.73E-04 lb/yr/cap	1.13E-01 tons	1.24E-03 lb/yr/cap	1.60E-01 tons	9.01E-05 lb/yr/cap	1.16E-02 tons	5.26E-03 lb/yr/cap	6.78E-01 tons			9.76E-01 tons
139	1634044	Methyl tert butyl ether					2.36E-05 lb/yr/cap	3.04E-03 tons									3.04E-03 tons
141	75092	Methylene chloride(Dichloromethane)			2.39E-03 lb/yr/cap	3.08E-01 tons	4.83E-03 lb/yr/cap	6.23E-01 tons	8.78E-03 lb/yr/cap	1.13E+00 tons	6.81E-04 lb/yr/cap	8.78E-02 tons	1.97E-02 lb/yr/cap	2.54E+00 tons	2.38E-05 lb/yr/cap	3.07E-03 tons	4.69E+00 tons
145	91203	Naphthalene			5.52E-07 lb/yr/cap	7.12E-05 tons	2.26E-06 lb/yr/cap	2.91E-04 tons	1.07E-04 lb/yr/cap	1.38E-02 tons	4.60E-02 lb/yr/cap	5.93E+00 tons	5.75E-06 lb/yr/cap	7.41E-04 tons			5.94E+00 tons
174	127184	Tetrachloroethylene (Perchloroethylene)			2.96E-03 lb/yr/cap	3.82E-01 tons	2.35E-02 lb/yr/cap	3.03E+00 tons	6.75E-04 lb/yr/cap	8.70E-02 tons	1.92E-04 lb/yr/cap	2.47E-02 tons	1.48E-04 lb/yr/cap	1.91E-02 tons	7.53E-04 lb/yr/cap	9.71E-02 tons	3.64E+00 tons
176	108883	Toluene	3.41E-03 lb/yr/cap	4.40E-01 tons	5.82E-04 lb/yr/cap	7.50E-02 tons	2.49E-02 lb/yr/cap	3.21E+00 tons	8.43E-02 lb/yr/cap	1.09E+01 tons			3.16E-01 lb/yr/cap	4.07E+01 tons	2.46E-06 lb/yr/cap	3.17E-04 tons	5.53E+01 tons
178	79016	Trichloroethylene			4.34E-05 lb/yr/cap	5.59E-03 tons	2.67E-04 lb/yr/cap	3.44E-02 tons	3.88E-05 lb/yr/cap	5.00E-03 tons			1.37E-04 lb/yr/cap	1.77E-02 tons			6.27E-02 tons
179	121448	Triethylamine									3.13E-04 lb/yr/cap	4.03E-02 tons	5.26E-04 lb/yr/cap	6.78E-02 tons			1.08E-01 tons
181	108054	Vinyl acetate							4.94E-08 lb/yr/cap	6.37E-06 tons							6.37E-06 tons
185	1330207	Xylenes (isomers and mixture)			3.28E-03 lb/yr/cap	4.23E-01 tons	1.20E-02 lb/yr/cap	1.55E+00 tons	9.76E-03 lb/yr/cap	1.26E+00 tons	1.37E-01 lb/yr/cap	1.77E+01 tons	4.05E-02 lb/yr/cap	5.22E+00 tons	4.31E-04 lb/yr/cap	5.56E-02 tons	2.62E+01 tons
			Total HAPs	**0.5 tons**	**Total HAPs**	**12.2 tons**	**Total HAPs**	**107.9 tons**	**Total HAPs**	**56.4 tons**	**Total HAPs**	**97.6 tons**	**Total HAPs**	**54.3 tons**	**Total HAPs**	**2.6 tons**	**Total 331.5 tons**

Notes/Comments (all categories):
1. Reference: EIIP Volume III, Area Sources Preferred and Alternative Methods.
2. Activity (population) data based on Anchorage Bowl Comprehensive Plan (March 2000).

Residential / Commercial Fuel Oil Heating - Anchorage

Residential/Commercial Heating - Oil

Activity Data Input: 2,558,119 **gallons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.001 tons
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.000 tons
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.002 tons
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.012 tons
109	5000	Formaldehyde	1.214 lb/Mgal	1.553 tons
118	110543	Hexane	0.269 lb/Mgal	0.344 tons
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.002 tons
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.002 tons
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.001 tons
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.003 tons
		Total HAP Emissions		**1.920 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from from 1990 Anchorage CO Emissions Inventory (see backup info).

Residential / Commercial Fuel Oil Heating - Anchorage

Estimated Residential/Commercial Activity

Description	Data/Extrapolations	
Total number of households 1990 (US Census data for MoA)	82,702	
Total Anchorage population, 1990 (US Census data for MoA)	226,338	
Total Anchorage population, 1999 (MoA data)	257,808	
Calculated number of households in MoA, 1999	94,201	
Percentage of Households w/ Oil Heat	1.2	%
Calculated number of households in MoA w/ Oil Heat, 1999	1130	
Estimated Daily fuel Oil Use (households w/ oil heat; average for year)*	6.2	gal/day
Estimated Total Daily Fuel Oil Use	7009	gal/day
Estimated Total Annual Fuel Oil Use	**2,558,119**	**gal/yr**

* Indicates data from Fairbanks 1990 Base Year Carbon Monoxide Emission Inventory (Sierra Research)

Residential / Commercial Natural Gas Heating - Anchorage

Residential / Commercial Heating - NG

Activity Data Input: 28,835 **MMscf**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Calculated Emissions**
12	106467	1,4-Dichlorobenzene(p)	1.20E-03 lb/MMscf	1.73E-02 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	2.00E-04 lb/MMscf	2.88E-03 tpy
48	71432	Benzene (including benzene from gasoline)	2.10E-03 lb/MMscf	3.03E-02 tpy
52	N/A	Beryllium Compounds	1.20E-05 lb/MMscf	1.73E-04 tpy
58	N/A	Cadmium Compouns	1.10E-03 lb/MMscf	1.59E-02 tpy
75	N/A	Chromium Chompounds	1.40E-03 lb/MMscf	2.02E-02 tpy
76	N/A	Cobalt Compounds	8.40E-05 lb/MMscf	1.21E-03 tpy
109	5000	Formaldehyde	7.50E-02 lb/MMscf	1.08E+00 tpy
118	110543	Hexane	1.80E+00 lb/MMscf	2.60E+01 tpy
127	N/A	Manganese Compounds	3.80E-04 lb/MMscf	5.48E-03 tpy
128	N/A	Mercury Compounds	2.60E-04 lb/MMscf	3.75E-03 tpy
145	91203	Naphthalene	6.10E-04 lb/MMscf	8.79E-03 tpy
146	N/A	Nickel Compounds	2.10E-03 lb/MMscf	3.03E-02 tpy
171	N/A	Selenium Compounds	2.40E-05 lb/MMscf	3.46E-04 tpy
176	108883	Toluene	3.40E-03 lb/MMscf	4.90E-02 tpy

Total HAP Emissions **27.22 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.4-2, 1.4-3, and 1.4-4.

Residential Commercial NG Heating Activity Data - Anchorage

Residential/Commercial NG Heating Activity Data

Number of Households in non-attainment area (NAA)*	11,359	
West	16,989	
East	14,815	
North	2,065	
Central		
Total number of households 1990 (NAA, from above)	45,228	
Total number of households 1990 (US Census data for MoA)	82,702	
Total Anchorage population, 1990	226,338	
Residential/Commercial Natural Gas consumption in NAA, 1990*	13,844	MMscf
Extrapolated Residential/Commercial Natural Gas consumption in MoA, 1990	25,315	MMscf
Calculated number of households in NAA, 1999	51,516	
Calculated number of households in MoA, 1999	94,201	
Total Anchorage population, 1999	257,808	
Extrapolated Residential/Commercial Natural Gas consumption in NAA, 1999	15,769	MMscf
Extrapolated Residential/Commercial Natural Gas consumption in MoA, 1999	**28,835**	**MMscf**

* Indicates data from Anchorage 1990 Base Year Carbon Monoxide Emission Inventory, Sierra Research, 1993.

Surface Coating - Anchorage

			Architectural Coatings				Product Coatings		Special Purpose Coatings		
			Water-based		Oil-based						
			Activity Data: 445,504 gallons		Activity Data: 190,930 gallons		Activity Data: 442,064 gallons		Activity Data: 165,382 gallons		
			Activity Period: 1998 Year		Activity Period: 1998 Year		Activity Period: 1998 Year		Activity Period: 1998 Year		
	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categorie
No.	CAS No.	Chemical Name	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Emissions
48	71432	Benzene (including benzene from gasoline)	0.36 %	0.9 tpy							0.89 tpy
99	100414	Ethyl benzene			0.54 %	2.3 tpy					2.28 tpy
101	75003	Ethyl chloride (Chloroethane)	0.62 %	1.5 tpy							1.52 tpy
104	107211	Ethylene glycol	0.58 %	1.4 tpy							1.43 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			0.54 %	2.3 tpy	8.1 %	61.3 tpy	8.1 %	22.9 tpy	86.47 tpy
136	108101	Methyl isobutyl ketone (Hexone)			0.36 %	1.5 tpy	5.9 %	44.6 tpy	5.9 %	16.7 tpy	62.85 tpy
140	74873	Methylchloride (Chloromethane)	0.55 %	1.4 tpy							1.35 tpy
141	75092	Methylene chloride(Dichloromethane)	5.52 %	13.6 tpy							13.57 tpy
176	108883	Toluene			37.87 %	159.7 tpy	14.7 %	111.2 tpy	14.7 %	41.6 tpy	312.45 tpy
181	108054	Vinyl acetate	0.12 %	0.3 tpy							0.30 tpy
185	1330207	Xylenes (isomers and mixture)			3.7 %	15.6 tpy	15.8 %	119.5 tpy	15.8 %	44.7 tpy	179.83 tpy
186	95476	Xylenes (isomers and mixture)			4.47 %	18.8 tpy					18.84 tpy
			Total HAPs	**19.1 tpy**	**Total HAPs**	**200.2 tpy**	**Total HAPs**	**336.6 tpy**	**Total HAPs**	**125.9 tpy**	**681.8 tpy**

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Coating Application, Water-based Paint.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Solvent-base Paint.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Industrial.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Coating Application, Water-based Paint Industrial.

Surface Coating Backup Data - Anchorage

Surface Coatings Calculations, Based on Population (1999)

U.S. Population	272,690,813	
Alaska Populations:	1998	1999
Anchorage	255,618	257,808
Fairbanks	84,253	84,366
Juneau	30,143	30,192

United States 1998 Quantity of Shipments of Paint, Varnish, and Lacquer (Gallons)

Location	Percent of US Population	Architectural Coatings	Product Coatings	Special Purpose	TOTAL GALLONS
USA	100%	673,174,000	467,584,000	174,929,000	1,315,687,000

Data from 1998 US Census Bureau Report MA32F(98)-1: Paint and Allied Products

1999 Surface Coating Allocation, Based on Population (Gallons)

Location	1998 % of US Population	Architectural Coatings	Product Coatings	Special Purpose	TOTAL GALLONS
Anchorage	0.0937%	636,434	442,064	165,382	1,243,880
Fairbanks	0.0309%	209,772	145,707	54,511	409,989
Juneau	0.0111%	75,050	52,129	19,502	146,681
TOTAL		921,255	639,900	239,395	1,800,550

VOC Emissions (Pounds)

Location	1998 % of US Population	Architectural Coatings		Product Coatings	Special Purpose
		Water-based	Oil-based		
Anchorage	0.0937%	491,836	843,147	1,512,921	566,003
Fairbanks	0.0309%	162,112	277,906	498,667	186,557
Juneau	0.0111%	57,998	99,426	178,407	66,744
TOTAL		711,946	1,220,479	2,189,994	819,304

Notes on architectural paint calculations:

1. Solvent is assumed to be 60% (by volume) of the paint/coatings.
2. Solvent densities are assumed to be 7.36 lb/gallon.
3. Architectural paints are assumed to be 70% water-based (low-solvent) and 30% solvent-based.
4. Water-based paints are assumed to emit 25% of the VOCs in solvent-based paints.
5. Reference: AP-42 Section 4.2.2.1.2, Tables 4.2.2.1-2 and 4.2.2.1-3.

Notes on product coatings and special purpose calculations:

1. Product coatings are assumed to be 30% water-based (low-solvent) and 70% solvent-based.
2. Water-based paints are assumed to emit 25% of the VOCs in solvent-based paints.

Definitons:

Architectural

- Exterior waterborne (latex)
- Interior waterborne (latex)
- Exterior solvent-borne (oil)
- Interior solvent-borne (oil)
- Architectural lacquers
- "Do-it-yourself" wood and furniture finishes

Special Purpose Coatings:

- Industrial maintenance paints (interior, exterior)
- Marine coatings (off-shore structures, marine refinishing coatings)
- Traffic paints
- Metallic paints (aluminum, zinc bronze, etc.)
- Automobile refinishing coatings
- Aerosol paints
- Roof coatings
- Multi-color paints

Product Coatings

- Automotive finishes
- Truck and bus finishes
- Other transportation finishes (aircraft, railroad, etc.)
- Wood and composition board flat-stock finishes
- Wood furniture and fixture finishes
- Appliance finishes
- Sheet, strip and coil coatings on metals
- Metal decorating finishes (can, container and closure coatings)
- Machinery and equipment finishes
- Paper and paperboard coatings (not ink)
- Metal furniture and fixtures finishes
- Electrical insulating varnishes
- Magnet wire coatings

Percentages based on 1999 Population data (http://venus.census.gov/cdrom/lookup/961017877)

Used Oil Combustion - Anchorage

Activity Data Input: 650,607 **gallons**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)	8.30E-07 lb/kgal	2.70E-07 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	2.50E-03 lb/kgal	8.13E-04 tpy
52	N/A	Beryllium Compounds	1.80E-03 lb/kgal	5.86E-04 tpy
58	N/A	Cadmium Compouns	2.90E-04 lb/kgal	9.43E-05 tpy
75	N/A	Chromium Chompounds	1.90E-01 lb/kgal	6.18E-02 tpy
76	N/A	Cobalt Compounds	7.60E-03 lb/kgal	2.47E-03 tpy
145	91203	Naphthalene	1.20E-02 lb/kgal	3.90E-03 tpy
			Total HAP Emissions	**0.070 tpy**

Notes/Comments:
1. Reference: AP-42, Section 1.11, including 1996 revisions.
2. Activity data also from AP-42, Section 1.11.

Used Oil Combustion Activity Data - Anchorage

Used Oil Combustion, Based on Population (1999)

U.S. Population (1983)	233,791,994
U.S. Population (1999)	272,690,813
Alaska Populations:	
Anchorage	257,808
Fairbanks	84,366
Juneau	30,192

United States Quantity of Used Oil Burned (Gallons)

Location	Used Oil Burned (1983)	Estimated Used Oil Burned (1999)
USA	590,000,000	688,165,480

1983 data from from AP-42section 1.11, Waste Oil Combustion

Population data from US Census web-site

Used-oil Combustion Allocation, Based on 1999 Population (Gallons)

Location	Percent of US Population*	Gallons Used Oil Burned (1999)
Anchorage	0.0945%	650,607
Fairbanks	0.0309%	212,907
Juneau	0.0111%	76,193
TOTAL	0.1366%	939,707

*Percentages based on 1999 Population data (http://venus.census.gov/cdrom/lookup/961017877)

Wildfires - Anchorage

Anchorage Wildfires

Activity Data Input:	781	**acres**
Activity Period/Year:	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
9	106990	1,3-Butadiene	0.520 lb/lb/ VOC	2.924 tons

Total HAP Emissions **2.924 tons**

Notes/Comments:

1. Reference: AP-42, Tables 13.1-1 and 13.1-2 and Speciate.
2. Activity data from AK Division of Forestry website.
3. Emission Factor Development:

AP-42 Table 13.1-1. Fuel Consumed in Wildfires.

Coastal	=	135	Mg/hectare
	=	60	ton/acre
Interior	=	25	Mg/hectare
	=	11	ton/acre

AP-42 Table 13.1-2. Emission Factors. Use Region 10 data.

Particulate	=	17	lb/ton
VOCs	=	24	lb/ton

Speciate. Miscellaneous Burning - Forest Fires.

1,3-Butadiene	=	0.52	percent of TOCs

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6	Facility No. 7	Facility No. 8	Facility No. 9	Facility No. 10	TOTAL
No.	CAS No.	Chemical Name	AK Seafood Int.	Airline Support	Native Med Ctr	ML&P Plant 1	ML&P Plant 2	Air Traffic Ctr	AIA	WWater Facility	Chevron Ter.	Equilon Ter.	Facilities 1-10
1	79345	1,1,2,2-Tetrachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy	----- ---	----- ---	0.003 tpy
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy	----- ---	----- ---	0.005 tpy
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
10	542756	1,3-Dichloropropene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	----- ---	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.008 tpy	----- ---	----- ---	0.005 tpy	0.157 tpy	0.000 tpy	0.000 tpy	0.160 tpy	----- ---	----- ---	0.330 tpy
36	60355	Acetamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
38	98862	Acetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	0.001 tpy	----- ---	----- ---	0.001 tpy	0.025 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.027 tpy
40	79061	Acrylamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.160 tpy	----- ---	----- ---	0.160 tpy
41	79107	Acrylic Acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
42	107131	Acrylonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	----- ---	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.001 tpy	----- ---	----- ---	0.001 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.118 tpy	----- ---	----- ---	0.119 tpy
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
48	71432	Benzene (including benzene from gasoline)	0.010 tpy	0.000 tpy	0.000 tpy	0.001 tpy	0.047 tpy	0.000 tpy	0.542 tpy	----- ---	0.100 tpy	0.250 tpy	0.951 tpy
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy	----- ---	----- ---	0.006 tpy
52	N/A	Beryllium Compounds	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.093 tpy	----- ---	----- ---	0.093 tpy
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6	Facility No. 7	Facility No. 8	Facility No. 9	Facility No. 10	TOTAL
No.	CAS No.	Chemical Name	AK Seafood Int.	Airline Support	Native Med Ctr	ML&P Plant 1	ML&P Plant 2	Air Traffic Ctr	AIA	WWater Facility	Chevron Ter.	Equilon Ter.	Facilities 1-10
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
58	N/A	Cadmium Compounds	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.006 tpy	----- ---	----- ---	0.007 tpy
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy
64	463581	Carbonyl sufide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
69	79118	Chloroacetic acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy	----- ---	----- ---	0.005 tpy
70	108907	Chlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
75	N/A	Chromium Chompounds	0.006 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.007 tpy
76	N/A	Cobalt Compounds	----- ---	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
83	N/A	Cyanide Compounds	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.320 tpy	----- ---	----- ---	0.320 tpy
84	3547044	DDE	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ether)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
99	100414	Ethyl benzene	----- ---	----- ---	----- ---	0.004 tpy	0.126 tpy	----- ---	0.002 tpy	----- ---	----- ---	----- ---	0.131 tpy
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6	Facility No. 7	Facility No. 8	Facility No. 9	Facility No. 10	TOTAL
No.	CAS No.	Chemical Name	AK Seafood Int.	Airline Support	Native Med Ctr	ML&P Plant 1	ML&P Plant 2	Air Traffic Ctr	AIA	WWater Facility	Chevron Ter.	Equilon Ter.	Facilities 1-10
109	5000	Formaldehyde	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
110	N/A	Glycol ethers	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	0.180 tpy	0.046 tpy	0.088 tpy	----- ---	----- ---	----- ---	0.014 tpy	----- ---	0.371 tpy	0.500 tpy	1.199 tpy
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	----- ---	0.024 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.024 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
122	123319	Hydroquinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
123	78591	Isophorone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
124	N/A	Lead Compounds	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.001 tpy	----- ---	----- ---	----- ---	0.002 tpy
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.001 tpy	0.000 tpy	0.000 tpy	0.001 tpy	0.001 tpy	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.003 tpy
128	N/A	Mercury Compounds	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.001 tpy	0.051 tpy	----- ---	----- ---	0.052 tpy
129	67561	Methanol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide(Bromomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
133	78933	Methyl ethyl ketone (2-Butanone)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.073 tpy	----- ---	----- ---	----- ---	0.073 tpy
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy	----- ---	----- ---	0.003 tpy
140	74873	Methylchloride (Chloromethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.038 tpy	----- ---	----- ---	0.038 tpy
141	75092	Methylene chloride(Dichloromethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	3.570 tpy	----- ---	----- ---	----- ---	3.570 tpy
142	101688	Methylene diphenyl diisocyante (MDI)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.058 tpy	----- ---	----- ---	0.058 tpy
143	N/A	Mineral fibers	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
145	91203	Naphthalene	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.005 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.006 tpy
146	N/A	Nickel Compounds	0.002 tpy	0.000 tpy	0.000 tpy	0.003 tpy	0.002 tpy	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.007 tpy
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.038 tpy	----- ---	----- ---	0.038 tpy
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.141 tpy	----- ---	----- ---	0.141 tpy
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	----- ---	----- ---	----- ---	0.001 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	----- ---	0.000 tpy	0.000 tpy	0.000 tpy	0.009 tpy	----- ---	0.111 tpy	0.001 tpy	----- ---	----- ---	0.121 tpy

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6	Facility No. 7	Facility No. 8	Facility No. 9	Facility No. 10	TOTAL
No.	CAS No.	Chemical Name	AK Seafood Int.	Airline Support	Native Med Ctr	ML&P Plant 1	ML&P Plant 2	Air Traffic Ctr	AIA	WWater Facility	Chevron Ter.	Equilon Ter.	Facilities 1-10
163	106503	p-Phenylemediamine	0.824 tpy	0.002 tpy	0.004 tpy	0.086 tpy	2.786 tpy	0.000 tpy	0.008 tpy	----- ---	----- ---	----- ---	3.710 tpy
164	123386	Propionaldehyde	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.018 tpy	0.061 tpy	----- ---	----- ---	0.079 tpy
165	114261	Propoxur(Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	----- ---	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	0.048 tpy	----- ---	----- ---	0.049 tpy
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	0.004 tpy	0.000 tpy	0.000 tpy	0.016 tpy	0.510 tpy	0.000 tpy	4.090 tpy	----- ---	0.073 tpy	0.500 tpy	5.193 tpy
177	8001352	Toxaphene (chlorinated camphene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy	----- ---	----- ---	0.003 tpy
178	79016	Trichloroethylene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	0.001 tpy
179	121448	Triethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
182	593602	Vinyl bromide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.042 tpy	----- ---	----- ---	0.042 tpy
183	75014	Vinyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy	----- ---	----- ---	0.006 tpy
184	75354	Vinylidene chloride (1,1-Dichloroethylene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy	----- ---	----- ---	0.006 tpy
185	1330207	Xylenes (isomers and mixture)	0.003 tpy	----- ---	----- ---	0.008 tpy	0.251 tpy	0.000 tpy	0.001 tpy	0.006 tpy	0.017 tpy	0.250 tpy	0.535 tpy
186	95476	Xylenes (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy	----- ---	----- ---	0.006 tpy
187	108383	Xylenes (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy	----- ---	----- ---	0.010 tpy
188	106423	Xylenes (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.030 tpy	----- ---	----- ---	0.030 tpy
		Total HAP Emissions	**1.04 tpy**	**0.07 tpy**	**0.09 tpy**	**0.13 tpy**	**3.92 tpy**	**0.001 tpy**	**8.43 tpy**	**1.42 tpy**	**0.56 tpy**	**1.50 tpy**	**17.2 tpy**

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			TOTAL	Facility No. 11	Facility No. 12	Facility No. 13	Facility No. 14	Facility No. 15	Facility No. 16	Facility No. 17	Facility No. 18	Facility No. 19	TOTAL
No.	CAS No.	Chemical Name	Facilities 1-10	AS&G Klatt Rd	AS&G Recycle	CEA IGT	Delta Storage	EAFB	Ft Richardson	Providence	Tesoro Ter.	Williams Ter.	Area Facilities
1	79345	1,1,2,2-Tetrachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy	----- ---	----- ---	----- ---	0.010 tpy
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	0.003 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	0.005 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	0.001 tpy
10	542756	1,3-Dichloropropene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	0.000 tpy	----- ---	0.000 tpy	----- ---	0.000 tpy	0.008 tpy	----- ---	0.001 tpy	----- ---	----- ---	0.009 tpy
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.330 tpy	0.013 tpy	----- ---	0.001 tpy	----- ---	0.021 tpy	----- ---	0.051 tpy	----- ---	----- ---	0.416 tpy
36	60355	Acetamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	0.041 tpy	----- ---	----- ---	----- ---	----- ---	0.041 tpy
38	98862	Acetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	0.027 tpy	0.000 tpy	----- ---	0.000 tpy	----- ---	0.002 tpy	----- ---	0.008 tpy	----- ---	----- ---	0.038 tpy
40	79061	Acrylamide	0.160 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.160 tpy
41	79107	Acrylic Acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
42	107131	Acrylonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy	----- ---	----- ---	----- ---	0.010 tpy
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	0.001 tpy	----- ---	0.000 tpy	----- ---	0.000 tpy	0.000 tpy	0.010 tpy	0.000 tpy	----- ---	----- ---	0.011 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	0.119 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.001 tpy	0.010 tpy	----- ---	----- ---	----- ---	0.130 tpy
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
48	71432	Benzene (including benzene from gasoline)	0.951 tpy	0.007 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.071 tpy	0.080 tpy	0.017 tpy	0.136 tpy	0.113 tpy	1.375 tpy
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy
52	N/A	Beryllium Compounds	0.093 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.000 tpy	0.010 tpy	0.000 tpy	----- ---	----- ---	0.103 tpy
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			TOTAL	Facility No. 11	Facility No. 12	Facility No. 13	Facility No. 14	Facility No. 15	Facility No. 16	Facility No. 17	Facility No. 18	Facility No. 19	TOTAL
No.	CAS No.	Chemical Name	Facilities 1-10	AS&G Klatt Rd	AS&G Recycle	CEA IGT	Delta Storage	EAFB	Ft Richardson	Providence	Tesoro Ter.	Williams Ter.	Area Facilities
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
58	N/A	Cadmium Compounds	0.007 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.009 tpy	0.010 tpy	0.001 tpy	----- ---	----- ---	0.027 tpy
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.001 tpy
64	463581	Carbonyl sufide	----- ---	----- ---	----- ---	----- ---	----- ---	0.004 tpy	----- ---	----- ---	----- ---	----- ---	0.004 tpy
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	0.001 tpy
69	79118	Chloroacetic acid	0.005 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy
70	108907	Chlorobenzene	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.003 tpy	----- ---	----- ---	----- ---	----- ---	0.004 tpy
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
75	N/A	Chromium Chompounds	0.007 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.006 tpy	0.030 tpy	0.001 tpy	----- ---	----- ---	0.044 tpy
76	N/A	Cobalt Compounds	0.000 tpy	----- ---	0.000 tpy	----- ---	0.000 tpy	0.000 tpy	0.010 tpy	0.000 tpy	----- ---	----- ---	0.010 tpy
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	0.010 tpy	----- ---	----- ---	----- ---	0.010 tpy
83	N/A	Cyanide Compounds	0.320 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.320 tpy
84	3547044	DDE	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ether)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	----- ---	----- ---	----- ---	----- ---	----- ---	0.027 tpy	----- ---	----- ---	----- ---	----- ---	0.027 tpy
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	----- ---	----- ---	----- ---	----- ---	----- ---	0.002 tpy	----- ---	----- ---	----- ---	----- ---	0.002 tpy
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
99	100414	Ethyl benzene	0.131 tpy	0.068 tpy	----- ---	0.001 tpy	----- ---	0.077 tpy	0.050 tpy	0.041 tpy	0.010 tpy	0.021 tpy	0.398 tpy
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			TOTAL	Facility No. 11	Facility No. 12	Facility No. 13	Facility No. 14	Facility No. 15	Facility No. 16	Facility No. 17	Facility No. 18	Facility No. 19	TOTAL
No.	CAS No.	Chemical Name	Facilities 1-10	AS&G Klatt Rd	AS&G Recycle	CEA IGT	Delta Storage	EAFB	Ft Richardson	Providence	Tesoro Ter.	Williams Ter.	Area Facilities
109	5000	Formaldehyde	----- ---	0.043 tpy	0.000 tpy	0.013 tpy	0.001 tpy	0.290 tpy	0.100 tpy	0.956 tpy	----- ---	----- ---	1.403 tpy
110	N/A	Glycol ethers	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	0.059 tpy	----- ---	----- ---	----- ---	----- ---	0.059 tpy
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	1.199 tpy	0.006 tpy	0.000 tpy	----- ---	0.029 tpy	6.294 tpy	0.200 tpy	1.225 tpy	0.119 tpy	0.227 tpy	9.298 tpy
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	0.024 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	1.500 tpy	----- ---	----- ---	----- ---	1.524 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	0.190 tpy	----- ---	----- ---	----- ---	0.191 tpy
122	123319	Hydroquinone	----- ---	----- ---	----- ---	----- ---	----- ---	0.021 tpy	----- ---	----- ---	----- ---	----- ---	0.021 tpy
123	78591	Isophorone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
124	N/A	Lead Compounds	0.002 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.003 tpy	0.010 tpy	0.003 tpy	----- ---	----- ---	0.019 tpy
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.003 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.001 tpy	0.010 tpy	0.000 tpy	----- ---	----- ---	0.015 tpy
128	N/A	Mercury Compounds	0.052 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.002 tpy	0.010 tpy	0.000 tpy	----- ---	----- ---	0.064 tpy
129	67561	Methanol	----- ---	----- ---	----- ---	----- ---	----- ---	0.033 tpy	----- ---	----- ---	----- ---	----- ---	0.033 tpy
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide(Bromomethane)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	0.272 tpy	----- ---	----- ---	----- ---	----- ---	0.272 tpy
133	78933	Methyl ethyl ketone (2-Butanone)	0.073 tpy	----- ---	----- ---	----- ---	----- ---	0.598 tpy	0.020 tpy	----- ---	----- ---	----- ---	0.691 tpy
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	----- ---	----- ---	----- ---	----- ---	----- ---	0.690 tpy	0.010 tpy	----- ---	----- ---	----- ---	0.700 tpy
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	0.003 tpy	----- ---	----- ---	----- ---	----- ---	0.036 tpy	----- ---	----- ---	----- ---	----- ---	0.039 tpy
140	74873	Methylchloride (Chloromethane)	0.038 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.038 tpy
141	75092	Methylene chloride(Dichloromethane)	3.570 tpy	----- ---	----- ---	----- ---	----- ---	0.148 tpy	0.030 tpy	----- ---	----- ---	----- ---	3.748 tpy
142	101688	Methylene diphenyl diisocyante (MDI)	0.058 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.058 tpy
143	N/A	Mineral fibers	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
145	91203	Naphthalene	0.006 tpy	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.005 tpy	0.010 tpy	0.002 tpy	----- ---	----- ---	0.025 tpy
146	N/A	Nickel Compounds	0.007 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.007 tpy	0.010 tpy	0.001 tpy	----- ---	----- ---	0.026 tpy
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	0.038 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.038 tpy
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzene)	0.141 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.141 tpy
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	0.121 tpy	0.002 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.002 tpy	----- ---	0.003 tpy	----- ---	----- ---	0.127 tpy

Table D-2-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Municipality of Anchorage

Section 112 Hazardous Air Pollutants			TOTAL	Facility No. 11	Facility No. 12	Facility No. 13	Facility No. 14	Facility No. 15	Facility No. 16	Facility No. 17	Facility No. 18	Facility No. 19	TOTAL
No.	CAS No.	Chemical Name	Facilities 1-10	AS&G Klatt Rd	AS&G Recycle	CEA IGT	Delta Storage	EAFB	Ft Richardson	Providence	Tesoro Ter.	Williams Ter.	Area Facilities
163	106503	p-Phenylemediamine	3.710 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	3.710 tpy
164	123386	Propionaldehyde	0.079 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.079 tpy
165	114261	Propoxur(Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropane)	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy	0.010 tpy	----- ---	----- ---	----- ---	0.013 tpy
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	----- ---	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	0.049 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.760 tpy	----- ---	----- ---	----- ---	0.809 tpy
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	5.193 tpy	0.004 tpy	0.000 tpy	0.002 tpy	0.000 tpy	0.827 tpy	0.430 tpy	0.168 tpy	0.128 tpy	0.230 tpy	6.982 tpy
177	8001352	Toxaphene (chlorinated camphene)	0.003 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.003 tpy
178	79016	Trichloroethylene	0.001 tpy	----- ---	----- ---	----- ---	----- ---	0.149 tpy	0.040 tpy	----- ---	----- ---	----- ---	0.189 tpy
179	121448	Triethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
182	593602	Vinyl bromide	0.042 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.042 tpy
183	75014	Vinyl chloride	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy	----- ---	----- ---	----- ---	0.016 tpy
184	75354	Vinylidene chloride (1,1-Dichloroethylene)	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy	----- ---	----- ---	----- ---	0.016 tpy
185	1330207	Xylenes (isomers and mixture)	0.535 tpy	0.089 tpy	----- ---	0.001 tpy	----- ---	0.083 tpy	0.280 tpy	0.082 tpy	0.088 tpy	0.360 tpy	1.517 tpy
186	95476	Xylenes (isomers and mixture)	0.006 tpy	0.000 tpy	tpy	----- ---	----- ---	0.497 tpy	0.020 tpy	----- ---	----- ---	----- ---	0.523 tpy
187	108383	Xylenes (isomers and mixture)	0.010 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy
188	106423	Xylenes (isomers and mixture)	0.030 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.030 tpy
Total HAP Emissions			**17.2 tpy**	**0.24 tpy**	**0.001 tpy**	**0.02 tpy**	**0.03 tpy**	**10.3 tpy**	**3.9 tpy**	**2.6 tpy**	**0.48 tpy**	**0.95 tpy**	**35.64 tpy**

Alaska Seafood International - Anchorage

	Diesel-Fired Boilers/Heaters		Diesel-Fired Engines less than 600 hp	
Activity Data Input:	1,338,000	**gallons**	150,000	**gallons**
Activity Period/Year:	see Note 3	**Year**	see Note 3	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations			Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**		**Estimated Emissions**
35	75070	Acetaldehyde			7.67E-04 lb/MMBtu	7.88E-03 tpy		7.88E-03 tpy
39	107028	Acrolein			9.25E-05 lb/MMBtu	9.50E-04 tpy		9.50E-04 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.000 tons				3.85E-04 tpy
48	71432	Benzene(including benzene from gasoline)			9.33E-04 lb/MMBtu	9.59E-03 tpy		9.59E-03 tpy
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.000 tons				2.29E-04 tpy
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.001 tons				1.01E-03 tpy
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.006 tons				6.14E-03 tpy
109	5000	Formaldehyde	1.214 lb/Mgal	0.812 tons	1.18E-03 lb/MMBtu	1.21E-02 tpy		8.24E-01 tpy
118	110543	Hexane	0.269 lb/Mgal	0.180 tons				1.80E-01 tpy
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.001 tons				8.16E-04 tpy
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.001 tons				1.28E-03 tpy
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.000 tons				2.75E-04 tpy
145	91203	Naphthalene			8.48E-05 lb/MMBtu	8.71E-04 tpy		8.71E-04 tpy
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.002 tons				1.65E-03 tpy
176	108883	Toluene			4.09E-04 lb/MMBtu	4.20E-03 tpy		4.20E-03 tpy
185	1330207	Xylenes (isomers and mixture)			2.85E-04 lb/MMBtu	2.93E-03 tpy		2.93E-03 tpy
		Total HAP Emissions		**1.004 tpy**	**Total HAP Emissions**	**0.039 tpy**	**TOTAL**	**1.04 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 1.3-2
(assume residential furnace factor), 1.3-9, and Spe
2. Assume diesel fuel heat content of 137,000 Btu/
3. Activity data from permit application potential

Notes/Comments:
1. Reference: AP-42, Table 3.3-2
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from permit, since built in 8/99

Airline Support - Anchorage

	Starved Air Incinerators		NG-Fired Boilers/Heaters	
Activity Data Input:	22 **tons**		**Activity Data Input:**	51 **MMscf**
Activity Period/Year:	1999 **Year**		**Activity Period/Year:**	1999 **Year**

	Section 112 Hazardous Air Pollutants		Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)			1.20E-03 lb/MMscf	3.07E-05 tpy	3.07E-05 tpy
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	2.94E-06 lb/ton	3.24E-08 tpy			3.24E-08 tpy
45	N/A	Antimony Compounds			2.04E-04 lb/MMscf	5.21E-06 tpy	5.21E-06 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	6.69E-04 lb/ton	7.37E-06 tpy			7.37E-06 tpy
48	71432	Benzene (including benzene from gasoline)			2.10E-03 lb/MMscf	5.37E-05 tpy	5.37E-05 tpy
52	N/A	Beryllium Compounds			1.20E-05 lb/MMscf	3.07E-07 tpy	3.07E-07 tpy
58	N/A	Cadmium Compouns	2.41E-03 lb/ton	2.65E-05 tpy	1.10E-03 lb/MMscf	2.81E-05 tpy	5.46E-05 tpy
75	N/A	Chromium Chompounds	3.31E-03 lb/ton	3.64E-05 tpy	1.40E-03 lb/MMscf	3.58E-05 tpy	7.22E-05 tpy
76	N/A	Cobalt Compounds			8.40E-05 lb/MMscf	2.15E-06 tpy	2.15E-06 tpy
109	5000	Formaldehyde			7.50E-02 lb/MMscf	1.92E-03 tpy	1.92E-03 tpy
118	110543	Hexane			1.80E+00 lb/MMscf	4.60E-02 tpy	4.60E-02 tpy
120	7647010	Hydrochloric acid	2.15E+00 lb/ton	2.37E-02 tpy			2.37E-02 tpy
124	N/A	Lead Compounds			5.00E-03 lb/MMscf	1.28E-04 tpy	1.28E-04 tpy
127	N/A	Manganese Compounds			3.80E-04 lb/MMscf	9.71E-06 tpy	9.71E-06 tpy
128	N/A	Mercury Compounds	5.60E-03 lb/ton	6.17E-05 tpy	2.60E-04 lb/MMscf	6.65E-06 tpy	6.83E-05 tpy
145	91203	Naphthalene			6.10E-04 lb/MMscf	1.56E-05 tpy	1.56E-05 tpy
146	N/A	Nickel Compounds	5.52E-03 lb/ton	6.08E-05 tpy	2.10E-03 lb/MMscf	5.37E-05 tpy	1.14E-04 tpy
162	N/A	Polycylic Organic Matter			8.82E-05 lb/MMscf	2.25E-06 tpy	2.25E-06 tpy
171	N/A	Selenium Compounds			2.40E-05 lb/MMscf	6.13E-07 tpy	6.13E-07 tpy
176	108883	Toluene			3.40E-03 lb/MMscf	8.69E-05 tpy	8.69E-05 tpy
		Total HAP Emissions		**0.024 tpy**	**Total HAP Emissions**	**0.048 tpy**	**TOTAL** **0.072 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 2.1-9
2. Activity data from 1999 FOR

Notes/Comments:
1. Reference: AP-42, Tables 1.4-2, 1.4-3, and 1.4-4
3. Activity data from 1999 FOR

Alaska Native Medical Center - Anchorage

	Diesel-Fired Boilers/Heaters		Natural Gas-Fired Boilers/Heaters	
Activity Data Input:	556	**gallons**	98	**MMscf**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)			1.20E-03 lb/MMscf	5.86E-05 tpy	5.86E-05 tpy
45	N/A	Antimony Compounds			2.04E-04 lb/MMscf	9.96E-06 tpy	9.96E-06 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.000 tons			1.60E-07 tpy
48	71432	Benzene (including benzene from gasoline)			2.10E-03 lb/MMscf	1.02E-04 tpy	1.02E-04 tpy
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.000 tons	1.20E-05 lb/MMscf	5.86E-07 tpy	6.81E-07 tpy
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.000 tons	1.10E-03 lb/MMscf	5.37E-05 tpy	5.41E-05 tpy
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.000 tons	1.40E-03 lb/MMscf	6.83E-05 tpy	7.09E-05 tpy
76	N/A	Cobalt Compounds			8.40E-05 lb/MMscf	4.10E-06 tpy	4.10E-06 tpy
109	5000	Formaldehyde	1.214 lb/Mgal	0.000 tons	7.50E-02 lb/MMscf	3.66E-03 tpy	4.00E-03 tpy
118	110543	Hexane	0.269 lb/Mgal	0.000 tons	1.80E+00 lb/MMscf	8.79E-02 tpy	8.79E-02 tpy
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.000 tons	5.00E-03 lb/MMscf	2.44E-04 tpy	2.44E-04 tpy
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.000 tons	3.80E-04 lb/MMscf	1.85E-05 tpy	1.91E-05 tpy
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.000 tons	2.60E-04 lb/MMscf	1.27E-05 tpy	1.28E-05 tpy
145	91203	Naphthalene			6.10E-04 lb/MMscf	2.98E-05 tpy	2.98E-05 tpy
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.000 tons	2.10E-03 lb/MMscf	1.02E-04 tpy	1.03E-04 tpy
162	N/A	Polycylic Organic Matter			8.82E-05 lb/MMscf	4.30E-06 tpy	4.30E-06 tpy
171	N/A	Selenium Compounds			2.40E-05 lb/MMscf	1.17E-06 tpy	1.17E-06 tpy
176	108883	Toluene			3.40E-03 lb/MMscf	1.66E-04 tpy	1.66E-04 tpy
		Total HAP Emissions		**0.000 tpy**	**Total HAP Emissions**	**0.092 tpy**	**TOTAL** **0.09 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 1.3-2
(assume residential furnace factor), 1.3-9, and Speciate
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from 1999 FORs.

Notes/Comments:
1. Reference: AP-42, Tables 1.4-2, 1.4-3, and 1.4-4
2. Activity data from 1999 FORs.

Anchorage Municipal Light Power Plant 1

	Natural Gas-Fired Turbines		Diesel-Fired Turbines for Electricity Generation	
Activity Data Input:	238	**MMscf**	32,653	**gallons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations			Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**		**Estimated Emissions**
35	75070	Acetaldehyde	4.00E-05 lb/MMBtu	4.85E-03 tpy				4.85E-03 tpy
39	107028	Acrolein	6.40E-06 lb/MMBtu	7.76E-04 tpy				7.76E-04 tpy
45	N/A	Antimony Compounds			2.20E-05 lb/MMBtu	4.92E-05 tpy		4.92E-05 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)			4.90E-06 lb/MMBtu	1.10E-05 tpy		1.10E-05 tpy
48	71432	Benzene(including benzene from gasoline)	1.20E-05 lb/MMBtu	1.45E-03 tpy				1.45E-03 tpy
52	N/A	Beryllium Compounds			3.30E-07 lb/MMBtu	7.38E-07 tpy		7.38E-07 tpy
58	N/A	Cadmium Compouns			4.20E-06 lb/MMBtu	9.39E-06 tpy		9.39E-06 tpy
75	N/A	Chromium Chompounds			4.70E-05 lb/MMBtu	1.05E-04 tpy		1.05E-04 tpy
76	N/A	Cobalt Compounds			9.10E-06 lb/MMBtu	2.04E-05 tpy		2.04E-05 tpy
99	100414	Ethyl benzene	3.20E-05 lb/MMBtu	3.88E-03 tpy				3.88E-03 tpy
109	5000	Formaldehyde	7.10E-04 lb/MMBtu	8.60E-02 tpy				8.60E-02 tpy
124	N/A	Lead Compounds			5.80E-05 lb/MMBtu	1.30E-04 tpy		1.30E-04 tpy
127	N/A	Manganese Compounds			3.40E-04 lb/MMBtu	7.60E-04 tpy		7.60E-04 tpy
128	N/A	Mercury Compounds			8.40E-06 lb/MMBtu	1.88E-05 tpy		1.88E-05 tpy
145	91203	Naphthalene	1.30E-06 lb/MMBtu	1.58E-04 tpy				1.58E-04 tpy
146	N/A	Nickel Compounds			1.20E-03 lb/MMBtu	2.68E-03 tpy		2.68E-03 tpy
158	7723140	Phosphorus			3.00E-04 lb/MMBtu	6.71E-04 tpy		6.71E-04 tpy
162	N/A	Polycylic Organic Matter	2.20E-06 lb/MMBtu	2.67E-04 tpy				2.67E-04 tpy
171	N/A	Selenium Compounds			5.30E-06 lb/MMBtu	1.19E-05 tpy		1.19E-05 tpy
176	108883	Toluene	1.30E-04 lb/MMBtu	1.58E-02 tpy				1.58E-02 tpy
185	1330207	Xylenes (isomers and mixture)	6.40E-05 lb/MMBtu	7.76E-03 tpy				7.76E-03 tpy
			Total HAP Emissions	**0.121 tpy**	**Total HAP Emissions**	**0.004 tpy**	**TOTAL**	**0.13 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-3
2. Assume NG heating value of 1020 Btu/scf.
3. Activity data from 1999 FOR.

Notes/Comments:
1. Reference: AP-42, Table 3.1-4
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from 1999 FOR

Anchorage Municipal Light Power Plant 2

	Natural Gas-Fired Turbines		Diesel-Fired Turbines for Electricity Generation	
Activity Data Input:	7,693	**MMscf**	24,012	**gallons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations			Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**		**Estimated Emissions**
35	75070	Acetaldehyde	4.00E-05 lb/MMBtu	1.57E-01 tpy				1.57E-01 tpy
39	107028	Acrolein	6.40E-06 lb/MMBtu	2.51E-02 tpy				2.51E-02 tpy
45	N/A	Antimony Compounds			2.20E-05 lb/MMBtu	3.62E-05 tpy		3.62E-05 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)			4.90E-06 lb/MMBtu	8.06E-06 tpy		8.06E-06 tpy
48	71432	Benzene(including benzene from gasoline)	1.20E-05 lb/MMBtu	4.71E-02 tpy				4.71E-02 tpy
52	N/A	Beryllium Compounds			3.30E-07 lb/MMBtu	5.43E-07 tpy		5.43E-07 tpy
58	N/A	Cadmium Compouns			4.20E-06 lb/MMBtu	6.91E-06 tpy		6.91E-06 tpy
75	N/A	Chromium Chompounds			4.70E-05 lb/MMBtu	7.73E-05 tpy		7.73E-05 tpy
76	N/A	Cobalt Compounds			9.10E-06 lb/MMBtu	1.50E-05 tpy		1.50E-05 tpy
99	100414	Ethyl benzene	3.20E-05 lb/MMBtu	1.26E-01 tpy				1.26E-01 tpy
109	5000	Formaldehyde	7.10E-04 lb/MMBtu	2.79E+00 tpy				2.79E+00 tpy
124	N/A	Lead Compounds			5.80E-05 lb/MMBtu	9.54E-05 tpy		9.54E-05 tpy
127	N/A	Manganese Compounds			3.40E-04 lb/MMBtu	5.59E-04 tpy		5.59E-04 tpy
128	N/A	Mercury Compounds			8.40E-06 lb/MMBtu	1.38E-05 tpy		1.38E-05 tpy
145	91203	Naphthalene	1.30E-06 lb/MMBtu	5.10E-03 tpy				5.10E-03 tpy
146	N/A	Nickel Compounds			1.20E-03 lb/MMBtu	1.97E-03 tpy		1.97E-03 tpy
158	7723140	Phosphorus			3.00E-04 lb/MMBtu	4.93E-04 tpy		4.93E-04 tpy
162	N/A	Polycylic Organic Matter	2.20E-06 lb/MMBtu	8.63E-03 tpy				8.63E-03 tpy
171	N/A	Selenium Compounds			5.30E-06 lb/MMBtu	8.72E-06 tpy		8.72E-06 tpy
176	108883	Toluene	1.30E-04 lb/MMBtu	5.10E-01 tpy				5.10E-01 tpy
185	1330207	Xylenes (isomers and mixture)	6.40E-05 lb/MMBtu	2.51E-01 tpy				2.51E-01 tpy
			Total HAP Emissions	**3.915 tpy**	**Total HAP Emissions**	**0.003 tpy**	**TOTAL**	**3.92 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-3
2. Assume NG heating value of 1020 Btu/scf.
3. Activity data from 1999 FOR.

Notes/Comments:
1. Reference: AP-42, Table 3.1-4
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from 1999 FOR

Anchorage Air Route Traffic Control Center

Diesel-Fired Engines less than 600 hp

Activity Data Input: 5,711 **gallons**

Activity Period/Year: 1998 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
35	75070	Acetaldehyde	7.67E-04 lb/MMBtu	3.00E-04 tpy
39	107028	Acrolein	9.25E-05 lb/MMBtu	3.62E-05 tpy
48	71432	Benzene(including benzene from gasoline)	9.33E-04 lb/MMBtu	3.65E-04 tpy
109	5000	Formaldehyde	1.18E-03 lb/MMBtu	4.62E-04 tpy
145	91203	Naphthalene	8.48E-05 lb/MMBtu	3.32E-05 tpy
176	108883	Toluene	4.09E-04 lb/MMBtu	1.60E-04 tpy
185	1330207	Xylenes (isomers and mixture)	2.85E-04 lb/MMBtu	1.11E-04 tpy
			Total HAP Emissions	**0.001 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.3-2
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from 1998 Annual Report

Anchorage International Airport

Anchorage International Airport
Activity Data Input: -
Activity Period/Year: 1996 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
35	75070	Acetaldehyde		4.09E-04
39	107028	Acrolein		8.08E-06 tpy
45	N/A	Antimony Compounds		8.21E-06 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)		1.32E-04 tpy
48	71432	Benzene(including benzene from gasoline)		5.42E-01 tpy
52	N/A	Beryllium Compounds		5.45E-06 tpy
58	N/A	Cadmium Compouns		3.83E-05 tpy
63	56235	Carbon tetrachloride		4.80E-04 tpy
75	N/A	Chromium Chompounds		4.69E-04 tpy
76	N/A	Cobalt Compounds		1.56E-05 tpy
99	100414	Ethyl benzene		1.60E-03 tpy
109	5000	Formaldehyde		7.88E-03 tpy
110	N/A	Glycol ethers		1.81E-02 tpy
118	110543	Hexane		1.44E-02 tpy
124	N/A	Lead Compounds		9.73E-04 tpy
127	N/A	Manganese Compounds		1.14E-04 tpy
128	N/A	Mercury Compounds		5.28E-04 tpy
133	78933	Methyl ethyl ketone (2-Butanone)		7.25E-02 tpy
141	75092	Methylene chloride(Dichloromethane)		3.57E+00 tpy
145	91203	Naphthalene		2.12E-04 tpy
146	N/A	Nickel Compounds		4.75E-04 tpy
156	108952	Phenol		5.38E-08 tpy
162	N/A	Polycylic Organic Matter		1.11E-01 tpy
174	127184	Tetrachloroethylene (Perchloroethylene)		5.76E-04 tpy
176	108883	Toluene		4.09E+00 tpy
178	79016	Trichloroethylene		5.27E-04 tpy
185	1330207	Xylenes (isomers and mixture)		5.17E-04 tpy
			Total HAP Emissions	**8.433 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 1.4-2, 1.4-3, and 1.4-4
3. Activity data from 12/97 Final Emission Inventory Report

Anchorage Water Wastewaster Utility

Sewage Sludge Incinerators

Activity Data Input: 6,404 **tons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
5	96128	1,2-Dibromo-3-chloropropane	8.20E-04 lb/ton	2.63E-03 tpy
7	106887	1,2-Epoxybutane	1.60E-03 lb/ton	5.12E-03 tpy
35	75070	Acetaldehyde	5.00E-02 lb/ton	1.60E-01 tpy
40	79061	Acrylamide	5.00E-02 lb/ton	1.60E-01 tpy
45	N/A	Antimony Compounds	3.00E-04 lb/ton	9.61E-04 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	3.70E-02 lb/ton	1.18E-01 tpy
51	100447	Benzyl chloride	1.90E-03 lb/ton	6.08E-03 tpy
52	N/A	Beryllium Compounds	2.90E-02 lb/ton	9.29E-02 tpy
58	N/A	Cadmium Compouns	1.80E-03 lb/ton	5.76E-03 tpy
61	63252	Carbaryl	2.00E-05 lb/ton	6.40E-05 tpy
69	79118	Chloroacetic acid	1.50E-03 lb/ton	4.80E-03 tpy
70	108907	Chlorobenzene	6.00E-05 lb/ton	1.92E-04 tpy
83	N/A	Cyanide Compounds	1.00E-01 lb/ton	3.20E-01 tpy
84	3547044	DDE	7.60E-06 lb/ton	2.43E-05 tpy
110	N/A	Glycol ethers	1.90E-02 lb/ton	6.08E-02 tpy
128	N/A	Mercury Compounds	1.60E-02 lb/ton	5.12E-02 tpy
131	74839	Methyl bromide(Bromomethane)	1.20E-04 lb/ton	3.84E-04 tpy
139	1634044	Methyl tert butyl ether	8.00E-04 lb/ton	2.56E-03 tpy
140	74873	Methylchloride (chloromethane)	1.20E-02 lb/ton	3.84E-02 tpy
142	101688	Methylene diphenyl diisocyante (MDI)	1.80E-02 lb/ton	5.76E-02 tpy
143	N/A	Mineral fibers	1.70E-06 lb/ton	5.44E-06 tpy
151	90040	o-Anisidine	1.20E-02 lb/ton	3.84E-02 tpy
154	82688	Pentachloromitrobenzene(Quintobenzene)	4.40E-02 lb/ton	1.41E-01 tpy
162	N/A	Polycylic Organic Matter	3.00E-04 lb/ton	9.61E-04 tpy
174	127184	Tetrachloroethylene (Perchloroethylene)	1.50E-02 lb/ton	4.80E-02 tpy
177	8001352	Toxaphene(chlorinated camphene)	8.00E-04 lb/ton	2.56E-03 tpy
182	593602	Vinyl bromide	1.30E-02 lb/ton	4.16E-02 tpy
183	75014	Vinyl chloride	1.90E-03 lb/ton	6.08E-03 tpy
184	75354	Vinylidene chloride(1,1-Dichloroethylene)	1.90E-03 lb/ton	6.08E-03 tpy
185	1330207	Xylenes (isomers and mixture)	1.90E-03 lb/ton	6.08E-03 tpy
186	95476	Xylenes (isomers and mixture)	1.90E-03 lb/ton	6.08E-03 tpy
187	108383	Xylenes (isomers and mixture)	3.00E-03 lb/ton	9.61E-03 tpy
188	106423	Xylenes (isomers and mixture)	9.40E-03 lb/ton	3.01E-02 tpy

Total HAP Emissions **1.425 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 2.2-1, 2.2-3, 2.2-4 & 2.2-5
2. Activity data from 1999 FORs.

Anchorage Terminal Chevron

Activity Data Input:
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
48	71432	Benzene(including benzene from gasoline)		0.100 tpy
118	110543	Hexane		0.371 tpy
176	108883	Toluene		0.073 tpy
185	1330207	Xylenes (isomers and mixture)		0.017 tpy
			Total HAP Emissions	**0.560 tpy**

Notes/Comments:
1. TRI Inventory for Chevron

Anchorage Terminal Equilon

Activity Data Input:
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
48	71432	Benzene(including benzene from gasoline)	500 lb/yr	2.50E-01 tpy
118	110543	Hexane	1000 lb/yr	5.00E-01 tpy
176	108883	Toluene	1000 lb/yr	5.00E-01 tpy
185	1330207	Xylenes (isomers and mixture)	500 lb/yr	2.50E-01 tpy
			Total HAP Emissions	**1.5 tpy**

Notes/Comments:
1. TRI Inventory for Chevron

ASG Klatt Road Facility - Anchorage

	Batch Hot Mix Asphalt Plant		NG-Fired Boilers/Heaters		Diesel-Fired Engines less than 600 hp	
Activity Data Input:	41,260	**tons**	0.141	**MMscf**	1,950	**gallons**
Activity Period:	1999	**Year**	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde	6.40E-04 lb/ton	0.013 tpy			7.67E-04 lb/MMBtu	1.02E-04 tpy	1.33E-02 tpy
46		Arsenic Compounds (inorganic including arsin	6.60E-07 lb/ton	0.000 tpy	4.2 lb/10^{12} Btu	0.000 tons			2.55E-05 tpy
48	71432	Benzene (including benzene from gasoline)	3.50E-04 lb/ton	0.007 tpy			9.33E-04 lb/MMBtu	1.25E-04 tpy	7.35E-03 tpy
52		Beryllium Compounds	2.20E-07 lb/ton	0.000 tpy	2.5 lb/10^{12} Btu	0.000 tons			1.16E-05 tpy
58		Cadmium Compouns	8.40E-07 lb/ton	0.000 tpy	11 lb/10^{12} Btu	0.000 tons			4.84E-05 tpy
75		Chromium Chompounds	8.90E-07 lb/ton	0.000 tpy	67 lb/10^{12} Btu	0.000 tons			2.08E-04 tpy
99	100414	Ethyl benzene	3.30E-03 lb/ton	0.068 tpy					6.81E-02 tpy
109	5000	Formaldehyde	8.60E-04 lb/ton	0.018 tpy	1.214 lb/Mgal	0.025 tons	1.18E-03 lb/MMBtu	1.58E-04 tpy	4.29E-02 tpy
124		Lead Compounds	7.40E-07 lb/ton	0.000 tpy	8.9 lb/10^{12} Btu	0.000 tons			4.04E-05 tpy
127		Manganese Compounds	9.90E-06 lb/ton	0.000 tpy	14 lb/10^{12} Btu	0.000 tons			2.44E-04 tpy
128		Mercury Compounds	4.50E-07 lb/ton	0.000 tpy	3.0 lb/10^{12} Btu	0.000 tons			1.78E-05 tpy
145	91203	Naphthalene	4.20E-05 lb/ton	0.001 tpy			8.48E-05 lb/MMBtu	1.13E-05 tpy	8.78E-04 tpy
146		Nickel Compounds	4.20E-06 lb/ton	0.000 tpy	18 lb/10^{12} Btu	0.000 tons			1.38E-04 tpy
162		Polycylic Organic Matter	8.50E-05 lb/ton	0.002 tpy					1.75E-03 tpy
169	106514	Quinone	2.70E-04 lb/ton	0.006 tpy					5.57E-03 tpy
171		Selenium Compounds	9.20E-08 lb/ton	0.000 tpy					1.90E-06 tpy
176	108883	Toluene	1.80E-04 lb/ton	0.004 tpy			4.09E-04 lb/MMBtu	5.46E-05 tpy	3.77E-03 tpy
185	1330207	Xylenes (isomers and mixture)	4.30E-03 lb/ton	0.089 tpy			2.85E-04 lb/MMBtu	3.81E-05 tpy	8.87E-02 tpy
									0.00E+00 tpy
			Total HAP Emissions	**0.207 tpy**	**Total HAP Emissions**	**0.031 tpy**	**Total HAP Emissions**	**0.001 tpy**	**TOTAL** 2.39E-01 tpy

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12
2. Activity data from 1999 FOR and Title V Application

Notes/Comments:
1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate
2. Activity data from 1999 FOR and Title V Application

Notes/Comments:
1. Reference: AP-42, Table 3.3-2
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from 1999 FOR and Title V Application

Alaska Soil Recycling - Anchorage

	Diesel-Fired Engines less than 600 hp		Natural Gas-Fired Boilers/Heaters	
Activity Data Input:	0	**gallons**	0.404	**MMscf**
Activity Period/Year:	1999	**Year**	1999	**Year**

	Section 112 Hazardous Air Pollutants		Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)			1.20E-03 lb/MMscf	2.42E-07 tpy	2.42E-07 tpy
35	75070	Acetaldehyde	7.67E-04 lb/MMBtu	0.00E+00 tpy			0.00E+00 tpy
39	107028	Acrolein	9.25E-05 lb/MMBtu	0.00E+00 tpy			0.00E+00 tpy
45	N/A	Antimony Compounds			2.04E-04 lb/MMscf	4.12E-08 tpy	4.12E-08 tpy
48	71432	Benzene(including benzene from gasoline)	9.33E-04 lb/MMBtu	0.00E+00 tpy	2.10E-03 lb/MMscf	4.24E-07 tpy	4.24E-07 tpy
52	N/A	Beryllium Compounds			1.20E-05 lb/MMscf	2.42E-09 tpy	2.42E-09 tpy
58	N/A	Cadmium Compouns			1.10E-03 lb/MMscf	2.22E-07 tpy	2.22E-07 tpy
75	N/A	Chromium Chompounds			1.40E-03 lb/MMscf	2.83E-07 tpy	2.83E-07 tpy
76	N/A	Cobalt Compounds			8.40E-05 lb/MMscf	1.70E-08 tpy	1.70E-08 tpy
109	5000	Formaldehyde	1.18E-03 lb/MMBtu	0.00E+00 tpy	7.50E-02 lb/MMscf	1.51E-05 tpy	1.51E-05 tpy
118	110543	Hexane			1.80E+00 lb/MMscf	3.64E-04 tpy	3.64E-04 tpy
124	N/A	Lead Compounds			5.00E-03 lb/MMscf	1.01E-06 tpy	1.01E-06 tpy
127	N/A	Manganese Compounds			3.80E-04 lb/MMscf	7.68E-08 tpy	7.68E-08 tpy
128	N/A	Mercury Compounds			2.60E-04 lb/MMscf	5.25E-08 tpy	5.25E-08 tpy
145	91203	Naphthalene	8.48E-05 lb/MMBtu	0.00E+00 tpy	6.10E-04 lb/MMscf	1.23E-07 tpy	1.23E-07 tpy
146	N/A	Nickel Compounds			2.10E-03 lb/MMscf	4.24E-07 tpy	4.24E-07 tpy
162	N/A	Polycylic Organic Matter			8.82E-05 lb/MMscf	1.78E-08 tpy	1.78E-08 tpy
171	N/A	Selenium Compounds			2.40E-05 lb/MMscf	4.85E-09 tpy	4.85E-09 tpy
176	108883	Toluene	4.09E-04 lb/MMBtu	0.00E+00 tpy	3.40E-03 lb/MMscf	6.87E-07 tpy	6.87E-07 tpy
185	1330207	Xylenes (isomers and mixture)	2.85E-04 lb/MMBtu	0.00E+00 tpy			0.00E+00 tpy
		Total HAP Emissions	**0.000 tpy**		**Total HAP Emissions**	**0.000 tpy**	**TOTAL** **3.82E-04 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.3-2
2. Assume diesel fuel heat content of 137,000 Btu/(
3. Activity data from 1999 FORs.

Notes/Comments:
1. Reference: AP-42, Tables 1.4-2, 1.4-3, and 1.4-4
2. Note that these emissions represent a natural gas fired dirt burner.
3. Activity data from 1999 FORs.

Chugach Electric Association International Generation Terminal - Anchorage

	Natural Gas-Fired Turbines - Anchorage		Diesel-Fired Engines less than 600 hp - Anchorage	
Activity Data Input:	35	**MMscf**	22	**gallons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations			Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**		**Estimated Emissions**
35	75070	Acetaldehyde	4.00E-05 lb/MMBtu	7.16E-04 tpy	7.67E-04 lb/MMBtu	1.17E-06 tpy		7.17E-04 tpy
39	107028	Acrolein	6.40E-06 lb/MMBtu	1.15E-04 tpy	9.25E-05 lb/MMBtu	1.41E-07 tpy		1.15E-04 tpy
48	71432	Benzene(including benzene from gasoline)	1.20E-05 lb/MMBtu	2.15E-04 tpy	9.33E-04 lb/MMBtu	1.42E-06 tpy		2.16E-04 tpy
99	100414	Ethyl benzene	3.20E-05 lb/MMBtu	5.73E-04 tpy				5.73E-04 tpy
109	5000	Formaldehyde	7.10E-04 lb/MMBtu	1.27E-02 tpy	1.18E-03 lb/MMBtu	1.79E-06 tpy		1.27E-02 tpy
145	91203	Naphthalene	1.30E-06 lb/MMBtu	2.33E-05 tpy	8.48E-05 lb/MMBtu	1.29E-07 tpy		2.34E-05 tpy
162	N/A	Polycylic Organic Matter	2.20E-06 lb/MMBtu	3.94E-05 tpy				3.94E-05 tpy
176	108883	Toluene	1.30E-04 lb/MMBtu	2.33E-03 tpy	4.09E-04 lb/MMBtu	6.22E-07 tpy		2.33E-03 tpy
185	1330207	Xylenes (isomers and mixture)	6.40E-05 lb/MMBtu	1.15E-03 tpy	2.85E-04 lb/MMBtu	4.33E-07 tpy		1.15E-03 tpy
			Total HAP Emissions	**0.018 tpy**	**Total HAP Emissions**	**0.000 tpy**	**TOTAL**	**0.02 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-3
2. Assume NG heating value of 1020 Btu/scf.
3. Activity data from 1999 FORs

Notes/Comments:
1. Reference: AP-42, Table 3.3-2
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from 1999 FORs

Delta Airlines Glycol Storage - Anchorage

Natural Gas-Fired Boilers/Heaters

Activity Data Input: 32 **MMscf**

Activity Period/Year: 1996 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)	1.20E-03 lb/MMscf	1.94E-05 tpy
45	N/A	Antimony Compounds	2.04E-04 lb/MMscf	3.30E-06 tpy
48	71432	Benzene(including benzene from gasoline)	2.10E-03 lb/MMscf	3.40E-05 tpy
52	N/A	Beryllium Compounds	1.20E-05 lb/MMscf	1.94E-07 tpy
58	N/A	Cadmium Compouns	1.10E-03 lb/MMscf	1.78E-05 tpy
75	N/A	Chromium Chompounds	1.40E-03 lb/MMscf	2.27E-05 tpy
76	N/A	Cobalt Compounds	8.40E-05 lb/MMscf	1.36E-06 tpy
109	5000	Formaldehyde	7.50E-02 lb/MMscf	1.22E-03 tpy
118	110543	Hexane	1.80E+00 lb/MMscf	2.92E-02 tpy
124	N/A	Lead Compounds	5.00E-03 lb/MMscf	8.10E-05 tpy
127	N/A	Manganese Compounds	3.80E-04 lb/MMscf	6.16E-06 tpy
128	N/A	Mercury Compounds	2.60E-04 lb/MMscf	4.21E-06 tpy
145	91203	Naphthalene	6.10E-04 lb/MMscf	9.88E-06 tpy
146	N/A	Nickel Compounds	2.10E-03 lb/MMscf	3.40E-05 tpy
162	N/A	Polycylic Organic Matter	8.82E-05 lb/MMscf	1.43E-06 tpy
171	N/A	Selenium Compounds	2.40E-05 lb/MMscf	3.89E-07 tpy
176	108883	Toluene	3.40E-03 lb/MMscf	5.51E-05 tpy
		Total HAP Emissions		**0.031 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.4-2, 1.4-3, and 1.4-4
2. Activity data from 1997 Title V application
3. Only the N.G. fired equipment are included.
   The application identifies about 0.5 tpy of VOCs from fuel tanks, solvents, and paint booths.

Elmendorf Air Force Base - Anchorage

Activity Data Input: N/A
Activity Period/Year: 1998

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	79345	1,1,2,2-Tetrachloroethane		
9	106990	1,3-Butadiene		1.05E-03 tpy
12	106467	1,4-Dichlorobenzene(p)		7.94E-03 tpy
35	75070	Acetaldehyde		2.05E-02 tpy
37	75058	Acetonitrile		4.09E-02 tpy
39	107028	Acrolein		2.48E-03 tpy
45	N/A	Antimony Compounds		2.10E-04 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)		7.05E-04 tpy
48	71432	Benzene(including benzene from gasoline)		7.12E-02 tpy
52	N/A	Beryllium Compounds		5.00E-05 tpy
58	N/A	Cadmium Compouns		9.25E-03 tpy
63	56235	Carbon tetrachloride		1.00E-04 tpy
64	463581	Carbonyl sufide		3.60E-03 tpy
68	7782505	Chlorine		6.65E-04 tpy
70	108907	Chlorobenzene		3.40E-03 tpy
72	67663	Chloroform		4.00E-04 tpy
75	N/A	Chromium Chompounds		6.30E-03 tpy
76	N/A	Cobalt Compounds		2.90E-04 tpy
82	98828	Cumene		4.00E-04 tpy
94	68122	Dimethyl formamide		2.71E-02 tpy
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)		1.65E-03 tpy
99	100414	Ethyl benzene		7.70E-02 tpy
104	107211	Ethylene glycol		4.85E-04 tpy
109	5000	Formaldehyde		2.90E-01 tpy
116	822060	Hexamethylene-1,6 diisocyanate		5.93E-02 tpy
118	110543	Hexane		6.29E+00 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)		9.45E-04 tpy
122	123319	Hydroquinone		2.05E-02 tpy
124	N/A	Lead Compounds		2.65E-03 tpy
127	N/A	Manganese Compounds		1.35E-03 tpy
128	N/A	Mercury Compounds		1.62E-03 tpy
129	67561	Methanol		3.26E-02 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)		2.72E-01 tpy
133	78933	Methyl ethyl ketone (2-Butanone)		5.98E-01 tpy
136	108101	Methyl isobutyl ketone (Hexone)		6.90E-01 tpy
139	1634044	Methyl tert butyl ether		3.60E-02 tpy
141	75092	Methylene chloride(Dichloromethane)		1.48E-01 tpy
145	91203	Naphthalene		5.40E-03 tpy
146	N/A	Nickel Compounds		7.30E-03 tpy
162	N/A	Polycylic Organic Matter		1.62E-03 tpy
166	78875	Propylene dichloride (1,2-Dichloropropane)		2.50E-03 tpy
171	N/A	Selenium Compounds		1.30E-04 tpy
176	108883	Toluene		8.27E-01 tpy
178	79016	Trichloroethylene		1.49E-01 tpy
185	1330207	Xylenes (isomers and mixture)		8.25E-02 tpy
186	95476	Xylenes (isomers and mixture)		4.97E-01 tpy

Total HAP Emissions **10.3 tpy**

Notes/Comments:
1. Reference: EAFB 1998 HAPs Emissions Inventory
2. Values shown are total base-wide actual 1998 emissions.

Fort Richardson Army Base - Anchorage

Activity Data Input: N/A
Activity Period/Year: 1997 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
1	79345	1,1,2,2-Tetrachloroethane		1.00E-02 tpy
42	107131	Acrylonitrile		1.00E-02 tpy
45	N/A	Antimony Compounds		1.00E-02 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)		1.00E-02 tpy
48	71432	Benzene (including benzene from gasoline)		8.00E-02 tpy
52	N/A	Beryllium Compounds		1.00E-02 tpy
58	N/A	Cadmium Compouns		1.00E-02 tpy
75	N/A	Chromium Chompounds		3.00E-02 tpy
76	N/A	Cobalt Compounds		1.00E-02 tpy
82	98828	Cumene		1.00E-02 tpy
99	100414	Ethyl benzene		5.00E-02 tpy
109	5000	Formaldehyde		1.00E-01 tpy
118	110543	Hexane		2.00E-01 tpy
120	7647010	Hydrochloric acid		1.50E+00 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)		1.90E-01 tpy
124	N/A	Lead Compounds		1.00E-02 tpy
127	N/A	Manganese Compounds		1.00E-02 tpy
128	N/A	Mercury Compounds		1.00E-02 tpy
133	78933	Methyl ethyl ketone (2-Butanone)		2.00E-02 tpy
136	108101	Methyl isobutyl ketone (Hexone)		1.00E-02 tpy
141	75092	Methylene chloride(Dichloromethane)		3.00E-02 tpy
145	91203	Naphthalene		1.00E-02 tpy
146	N/A	Nickel Compounds		1.00E-02 tpy
166	78875	Propylene dichloride (1,2-Dichloropropane)		1.00E-02 tpy
174	127184	Tetrachloroethylene (Perchloroethylene)		7.60E-01 tpy
176	108883	Toluene		4.30E-01 tpy
178	79016	Trichloroethylene		4.00E-02 tpy
183	75014	Vinyl chloride		1.00E-02 tpy
184	75354	Vinylidene chloride (1,1-Dichloroethylene)		1.00E-02 tpy
185	1330207	Xylenes (isomers and mixture)		0.28 tpy
186	95476	Xylenes (isomers and mixture)		2.00E-02 tpy
			Total HAP Emissions	**11.4 tpy**

Notes/Comments:
1. Reference: Ft Rich 1997 Title V Application
2. Values shown are total base-wide actual 1997 emissions.
3. Total also includes 7.54 tpy from "insignificant sources" per Title V application.

Providence Alaska Medical Center - Anchorage

	NG-Fired Turbines	NG-Fired Boilers/Heaters	Diesel-Fired Engines greater than 600 hp
Activity Data Input:	2,500 MMscf	1,361 MMscf	12,500 gallons
Activity Period:	7/97 - 6/98 Year	7/97 - 6/98 Year	7/97 - 6/98 Year

	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Emission Factor	Estimated Emissions	Emission Factor	Estimated Emissions	Emission Factor	Estimated Emissions	Estimated Emissions
12	106467	1,4-Dichlorobenzene(p)			1.20E-03 lb/MMscf	8.17E-04 tpy			8.17E-04 tpy
35	75070	Acetaldehyde	4.00E-05 lb/MMBtu	5.10E-02 tpy			2.52E-05 lb/MMBtu	2.16E-05 tpy	5.10E-02 tpy
39	107028	Acrolein	6.40E-06 lb/MMBtu	8.16E-03 tpy			7.88E-06 lb/MMBtu	6.75E-06 tpy	8.17E-03 tpy
45	N/A	Antimony Compounds			2.04E-04 lb/MMscf	1.39E-04 tpy			1.39E-04 tpy
48	71432	Benzene (including benzene from gasoline)	1.20E-05 lb/MMBtu	1.53E-02 tpy	2.10E-03 lb/MMscf	1.43E-03 tpy	7.76E-04 lb/MMBtu	6.64E-04 tpy	1.74E-02 tpy
52	N/A	Beryllium Compounds			1.20E-05 lb/MMscf	8.17E-06 tpy			8.17E-06 tpy
58	N/A	Cadmium Compouns			1.10E-03 lb/MMscf	7.49E-04 tpy			7.49E-04 tpy
75	N/A	Chromium Chompounds			1.40E-03 lb/MMscf	9.53E-04 tpy			9.53E-04 tpy
76	N/A	Cobalt Compounds			8.40E-05 lb/MMscf	5.72E-05 tpy			5.72E-05 tpy
99	100414	Ethyl benzene	3.20E-05 lb/MMBtu	4.08E-02 tpy					4.08E-02 tpy
109	5000	Formaldehyde	7.10E-04 lb/MMBtu	9.05E-01 tpy	7.50E-02 lb/MMscf	5.10E-02 tpy	7.89E-05 lb/MMBtu	6.76E-05 tpy	9.56E-01 tpy
118	110543	Hexane			1.80E+00 lb/MMscf	1.22E+00 tpy			1.22E+00 tpy
124	N/A	Lead Compounds			5.00E-03 lb/MMscf	3.40E-03 tpy			3.40E-03 tpy
127	N/A	Manganese Compounds			3.80E-04 lb/MMscf	2.59E-04 tpy			2.59E-04 tpy
128	N/A	Mercury Compounds			2.60E-04 lb/MMscf	1.77E-04 tpy			1.77E-04 tpy
145	91203	Naphthalene	1.30E-06 lb/MMBtu	1.66E-03 tpy	6.10E-04 lb/MMscf	4.15E-04 tpy	1.30E-04 lb/MMBtu	1.11E-04 tpy	2.18E-03 tpy
146	N/A	Nickel Compounds			2.10E-03 lb/MMscf	1.43E-03 tpy			1.43E-03 tpy
162	N/A	Polycylic Organic Matter	2.20E-06 lb/MMBtu	2.81E-03 tpy	8.82E-05 lb/MMscf	6.00E-05 tpy	2.12E-04 lb/MMBtu	1.82E-04 tpy	3.05E-03 tpy
171	N/A	Selenium Compounds			2.40E-05 lb/MMscf	1.63E-05 tpy			1.63E-05 tpy
176	108883	Toluene	1.30E-04 lb/MMBtu	1.66E-01 tpy	3.40E-03 lb/MMscf	2.31E-03 tpy	2.81E-04 lb/MMBtu	2.41E-04 tpy	1.68E-01 tpy
185	1330207	Xylenes (isomers and mixture)	6.40E-05 lb/MMBtu	8.16E-02 tpy			1.93E-04 lb/MMBtu	1.65E-04 tpy	8.18E-02 tpy
									0.00E+00 tpy
		Total HAP Emissions		**1.272 tpy**	**Total HAP Emissions**	**1.288 tpy**	**Total HAP Emissions**	**0.001 tpy**	**TOTAL 2.56 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-3
2. Assume NG heating value of 1020 Btu/scf.
3. Activity data from Title V application

Notes/Comments:
1. Reference: AP-42, Tables 1.4-2, 1.4-3, an
3. Activity data from Title V application

Notes/Comments:
1. Reference: AP-42, Table 3.4-3
2. Assume diesel fuel heat content of 137,000 Btu/gal
3. Activity data from Title V application

Tesoro Terminals I and II - Anchorage

Activity Data Input: N/A
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
48	71432	Benzene(including benzene from gasoline)		1.36E-01 tpy
99	100414	Ethyl benzene		9.50E-03 tpy
118	110543	Hexane		1.19E-01 tpy
176	108883	Toluene		1.28E-01 tpy
185	1330207	Xylenes (isomers and mixture)		8.80E-02 tpy

Total HAP Emissions **0.5 tpy**

Notes/Comments:
1. 1999 TRI Inventory data

Williams Alaska Petroleum - Anchorage

Activity Data Input: N/A
Activity Period/Year: 1999 **Year**

Source Category Emission Calculations

No.	CAS No.	Chemical Name	Emission Factor	Estimated Emissions
48	71432	Benzene(including benzene from gasoline)		1.13E-01 tpy
99	100414	Ethyl benzene		2.10E-02 tpy
118	110543	Hexane		2.27E-01 tpy
176	108883	Toluene		2.30E-01 tpy
185	1330207	Xylenes (isomers and mixture)		3.60E-01 tpy

Total HAP Emissions **1.0 tpy**

Notes/Comments:
1. 1999 TRI Inventory data

APPENDIX D-3

Fairbanks North Star Borough Area Sources

Table D-3-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	CAS No.	Chemical Name															
1	79345	1,1,2,2-Tetrachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	4.271 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	4.260 tpy	0.011 tpy
10	542756	1,3-Dichloropropene	6.640 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	6.640 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	3.449 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	3.449 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	0.612 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.612 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.227 tpy	0.012 tpy	0.002 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.213 tpy
36	60355	Acetamide	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
38	98862	Acetophenone	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	0.543 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.180 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.363 tpy
40	79061	Acrylamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
41	79107	Acrylic Acid	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
42	107131	Acrylonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	0.032 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.032 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	0.028 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.016 tpy	----- ---	0.000 tpy	----- ---	0.012 tpy
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
48	71432	Benzene (including benzene from gasoline)	31.02 tpy	0.006 tpy	0.001 tpy	----- ---	----- ---	27.174 tpy	0.476 tpy	----- ---	----- ---	0.000 tpy	----- ---	0.290 tpy	----- ---	----- ---	3.075 tpy
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-3-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	**CAS No.**	**Chemical Name**															
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
52	N/A	Beryllium Compounds	0.010 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.009 tpy	----- ---	0.000 tpy	----- ---	0.001 tpy
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
58	N/A	Cadmium Compounds	0.050 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.041 tpy	----- ---	0.000 tpy	----- ---	0.009 tpy
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
64	463581	Carbonyl sufide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
69	79118	Chloroacetic acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
70	108907	Chlorobenzene	2.972 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	2.972 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	0.041 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.041 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
75	N/A	Chromium Chompounds	0.363 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.249 tpy	----- ---	0.020 tpy	----- ---	0.093 tpy
76	N/A	Cobalt Compounds	0.014 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	0.013 tpy
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	0.220 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.220 tpy
83	N/A	Cyanide Compounds	1.449 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.449 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
84	3547044	DDE	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ether)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-3-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	CAS No.	Chemical Name															
99	100414	Ethyl benzene	1.551 tpy	0.040 tpy	0.007 tpy	----- ---	----- ---	----- ---	0.002 tpy	----- ---	----- ---	0.086 tpy	----- ---	0.745 tpy	----- ---	----- ---	0.671 tpy
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	0.499 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.499 tpy	----- ---	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	0.467 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.467 tpy	----- ---	----- ---	----- ---
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	0.627 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.627 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
109	5000	Formaldehyde	33.37 tpy	0.019 tpy	0.003 tpy	----- ---	----- ---	----- ---	----- ---	0.009 tpy	0.042 tpy	0.053 tpy	32.960 tpy	----- ---	----- ---	----- ---	0.288 tpy
110	N/A	Glycol ethers	1.680 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.680 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	13.71 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.295 tpy	0.002 tpy	----- ---	3.582 tpy	7.310 tpy	----- ---	----- ---	----- ---	2.519 tpy
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	1.104 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.617 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.487 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
122	123319	Hydroquinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
123	78591	Isophorone	0.039 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.039 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
124	N/A	Lead Compounds	0.118 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.033 tpy	----- ---	----- ---	----- ---	0.085 tpy
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.782 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.238 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.052 tpy	----- ---	----- ---	----- ---	0.492 tpy
128	N/A	Mercury Compounds	0.026 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.011 tpy	----- ---	----- ---	----- ---	0.015 tpy
129	67561	Methanol	28.95 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	28.95 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide (Bromomethane)	9.213 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	9.213 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	16.08 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	16.08 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
133	78933	Methyl ethyl ketone (2-Butanone)	34.46 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	4.066 tpy	----- ---	----- ---	----- ---	2.099 tpy	----- ---	28.30 tpy	----- ---	----- ---	----- ---
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	20.88 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.314 tpy	----- ---	20.57 tpy	----- ---	----- ---	----- ---
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
140	74873	Methylchloride (Chloromethane)	0.443 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.443 tpy	----- ---	----- ---	----- ---
141	75092	Methylene chloride (Dichloromethane)	8.403 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.511 tpy	----- ---	4.442 tpy	----- ---	----- ---	2.450 tpy
142	101688	Methylene diphenyl diisocyante (MDI)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
143	N/A	Mineral fibers	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
145	91203	Naphthalene	5.977 tpy	----- ---	----- ---	----- ---	----- ---	4.038 tpy	----- ---	----- ---	----- ---	1.914 tpy	----- ---	----- ---	0.001 tpy	----- ---	0.023 tpy
146	N/A	Nickel Compounds	1.797 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.067 tpy	----- ---	----- ---	----- ---	1.729 tpy
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-3-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Wildfires	Area Source Facilities
No.	**CAS No.**	**Chemical Name**															
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	0.431 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.431 tpy
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	10.28 tpy	0.004 tpy	----- ---	----- ---	0.010 tpy	10.236 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.033 tpy
163	106503	p-Phenylemediamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
164	123386	Propionaldehyde	0.001 tpy	0.001 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
165	114261	Propoxur (Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	0.004 tpy	0.004 tpy	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	0.008 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.008 tpy
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	55.12 tpy	----- ---	----- ---	53.950 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	1.171 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	137.58 tpy	0.024 tpy	0.004 tpy	----- ---	----- ---	10.236 tpy	1.977 tpy	----- ---	----- ---	17.81 tpy	----- ---	102.2 tpy	----- ---	----- ---	5.276 tpy
177	8001352	Toxaphene (chlorinated camphene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
178	79016	Trichloroethylene	0.020 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.020 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
179	121448	Triethylamine	0.035 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.035 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	0.097 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.097 tpy	----- ---	----- ---	----- ---
182	593602	Vinyl bromide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
183	75014	Vinyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
184	75354	Vinylidene chloride (1,1-Dichloroethylene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
185	1330207	Xylenes (isomers and mixture)	73.31 tpy	0.050 tpy	0.009 tpy	----- ---	----- ---	2.832 tpy	0.093 tpy	----- ---	----- ---	8.423 tpy	----- ---	58.85 tpy	----- ---	----- ---	3.049 tpy
186	95476	Xylenes (isomers and mixture)	6.167 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	6.167 tpy	----- ---	----- ---	0.000 tpy
187	108383	Xylenes (isomers and mixture)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
188	106423	Xylenes (isomers and mixture)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
		Total HAP Emissions	**515.2 tpy**	**0.16 tpy**	**0.03 tpy**	**54.0 tpy**	**0.01 tpy**	**58.8 tpy**	**3.5 tpy**	**0.01 tpy**	**2.29 tpy**	**106.7 tpy**	**40.7 tpy**	**223 tpy**	**0.02 tpy**	**4.26 tpy**	**21.6 tpy**

Asphalt Plants - Fairbanks

	NG-Fired Batch Asphalt Plants		Oil-Fired Drum Asphalt Plants	
Activity Data Input:	23,108 **tons**		**Activity Data Input:**	7,703 **tons**
Activity Period/Year:	1999 **Year**		**Activity Period/Year:**	1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde	0.00064 lb/ton	7.39E-03 tpy	0.0013 lb/ton	5.01E-03 tpy	1.24E-02 tpy
39	107028	Acrolein			0.000026 lb/ton	1.00E-04 tpy	1.00E-04 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	6.60E-07 lb/ton	7.63E-06 tpy	1.10E-06 lb/ton	4.24E-06 tpy	1.19E-05 tpy
48	71432	Benzene (including benzene from gasoline)	0.00035 lb/ton	4.04E-03 tpy	0.00041 lb/ton	1.58E-03 tpy	5.62E-03 tpy
52	N/A	Beryllium Compounds	2.20E-07 lb/ton	2.54E-06 tpy			2.54E-06 tpy
58	N/A	Cadmium Compouns	8.40E-07 lb/ton	9.71E-06 tpy	4.40E-07 lb/ton	1.69E-06 tpy	1.14E-05 tpy
75	N/A	Chromium Chompounds	8.90E-07 lb/ton	1.03E-05 tpy	1.20E-05 lb/ton	4.62E-05 tpy	5.65E-05 tpy
99	100414	Ethyl benzene	0.0033 lb/ton	3.81E-02 tpy	0.00038 lb/ton	1.46E-03 tpy	3.96E-02 tpy
109	5000	Formaldehyde	0.00086 lb/ton	9.94E-03 tpy	0.0024 lb/ton	9.24E-03 tpy	1.92E-02 tpy
124	N/A	Lead Compounds	7.40E-07 lb/ton	8.55E-06 tpy	3.30E-06 lb/ton	1.27E-05 tpy	2.13E-05 tpy
127	N/A	Manganese Compounds	9.90E-06 lb/ton	1.14E-04 tpy	1.10E-05 lb/ton	4.24E-05 tpy	1.57E-04 tpy
128	N/A	Mercury Compounds	4.50E-07 lb/ton	5.20E-06 tpy	7.30E-09 lb/ton	2.81E-08 tpy	5.23E-06 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)					0.00E+00 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			0.00002 lb/ton	7.70E-05 tpy	7.70E-05 tpy
146	N/A	Nickel Compounds	4.20E-06 lb/ton	4.85E-05 tpy	1.50E-05 lb/ton	5.78E-05 tpy	1.06E-04 tpy
162	N/A	Polycylic Organic Matter	1.27E-04 lb/ton	1.47E-03 tpy	5.81E-04 lb/ton	2.24E-03 tpy	3.70E-03 tpy
164	123386	Propionaldehyde			0.00013 lb/ton	5.01E-04 tpy	5.01E-04 tpy
169	106514	Quinone	0.00027 lb/ton	3.12E-03 tpy	0.00016 lb/ton	6.16E-04 tpy	3.74E-03 tpy
176	108883	Toluene	0.0018 lb/ton	2.08E-02 tpy	0.00075 lb/ton	2.89E-03 tpy	2.37E-02 tpy
185	1330207	Xylenes (isomers and mixture)	0.0043 lb/ton	4.97E-02 tpy	0.00016 lb/ton	6.16E-04 tpy	5.03E-02 tpy
			Total HAP Emissions	**0.135 tpy**	**Total HAP Emissions**	**0.024 tpy**	**TOTAL** **0.159 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12
2. Activity data derived from Anchorage DOT and MoA and 1999 population data.

Notes/Comments:
1. Reference: AP-42, Tables 11.1-10 and 11.1-13
2. Activity data derived from Anchorage DOT and MoA and 1999 population data.

Asphalt Plant Production Data - Fairbanks

DOT Contracts 1999

Engineers Estimate	**Units**	**Units - tons**
52819	ton	52,819
5103	ton	5,103
2273	ton	2,273
126	ton	126
660	ton	660
177	ton	177
13300	Mg	13,087
608	Mg	598
5006	Mg	4,926
276	Mg	272
420	Mg	413
210	Mg	207

DOT total	80,661
MOA total	13,490
Anchorage total	**94,151**
Faribanks total	**30,810**

Populations	
Anchorage	**Fairbanks**
257,808	84,366

Notes:

1. DOT info from Contracts Report (engineer's estimates)
2. MoA info from Jerry Hansen, Project Manager
3. Assume the following proportions: 75% to stationary NG-fired plants and 25% to diesel-fired mobile plants.
4. NG-fired = batch and Diesel = drum (conversation with operator at Wilder hot plant, Anchorage, 6/15/00)

Asphalt Paving - Fairbanks

	NG-Fired Batch Asphalt Plant		Oil-Fired Drum Asphalt Plant	
Activity Data Input:	23,108	**tons**	7,703	**tons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde	0.00064 lb/ton	1.26E-03 tpy	0.0013 lb/ton	8.51E-04 tpy	2.11E-03 tpy
39	107028	Acrolein			0.000026 lb/ton	1.70E-05 tpy	1.70E-05 tpy
48	71432	Benzene (including benzene from gasoline)	0.00035 lb/ton	6.87E-04 tpy	0.00041 lb/ton	2.68E-04 tpy	9.56E-04 tpy
99	100414	Ethyl benzene	0.0033 lb/ton	6.48E-03 tpy	0.00038 lb/ton	2.49E-04 tpy	6.73E-03 tpy
109	5000	Formaldehyde	0.00086 lb/ton	1.69E-03 tpy	0.0024 lb/ton	1.57E-03 tpy	3.26E-03 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			0.00002 lb/ton	1.31E-05 tpy	1.31E-05 tpy
164	123386	Propionaldehyde			0.00013 lb/ton	8.51E-05 tpy	8.51E-05 tpy
169	106514	Quinone	0.00027 lb/ton	5.30E-04 tpy	0.00016 lb/ton	1.05E-04 tpy	6.35E-04 tpy
176	108883	Toluene	0.0018 lb/ton	3.54E-03 tpy	0.00075 lb/ton	4.91E-04 tpy	4.03E-03 tpy
185	1330207	Xylenes (isomers and mixture)	0.0043 lb/ton	8.45E-03 tpy	0.00016 lb/ton	1.05E-04 tpy	8.55E-03 tpy
			Total HAP Emissions	**0.023 tpy**	**Total HAP Emissions**	**0.004 tpy**	**TOTAL** **0.026 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12
2. Activity data from DOT and MoA, adjusted for Fairbanks' population.

Notes/Comments:
1. Reference: AP-42, Tables 11.1-10 and 11.1-13
2. Activity data from DOT and MoA, adjusted for Fairbanks' population.

Asphalt Paving Activity Data - Fairbanks

Asphalt Paving Activity Data

DOT Contracts 1999, Anchorage
Engineers

Estimate	**Units**			
52,819	ton	=	52,819	tons
5,103	ton	=	5,103	tons
2,273	ton	=	2,273	tons
126	ton	=	126	tons
660	ton	=	660	tons
177	ton	=	177	tons
13,300	Mg	=	13,087	tons
608	Mg	=	598	tons
5,006	Mg	=	4,926	tons
276	Mg	=	272	tons
420	Mg	=	413	tons
210	Mg	=	207	tons

DOT total	80,661	tons
MOA total	13,490	tons
Anchorage total	**94,151**	**tons**
Fairbanks total	**30,810**	**tons**

Populations	
Anchorage	**Fairbanks**
257,808	84,366

Notes:

1. DOT info from Contracts Report (engineer's estimates).
2. MoA info from Jerry Hansen, Project Manager.
3. Assume the following proportions: 75% to stationary NG-fired plants and 25% to diesel-fired mobile plants.
4. NG-fired = batch and Diesel = drum (conversation with operator at Wilder hot plant, Anchorage, 6/15/00).
5. Fairbanks tonnage prorated based on 1999 population estimates (32.7%).

Other Notes:

1. Emissions above are volatile organic HAP emissions from asphalt plants.

2. Source: Phone coversation with Summit Paving, Lake Otis, Anchorage, 344-2644. Assume 4 inches of pavment for 90% of roads.
Assume remaining 10% of roads are private/residential and are ~3 inches in depth.
Therefore, average weighted depth = 3.9 inches.

3. Phone conversation with Jerry at Emulsion Products in Anchorage, 277-7752
RC, MC, and SC very rarely used any more. On rare occasions MC30 is used in federal projects (therefore MC30 was used as a factor).
MC30 thought to be 30% of diluent in cutback: Therefore 17% of cutback evaporated (see AP-42 Table 4.5-1).

4. Formula:
Evoc = VOC emissions in lb/yr = QA * (WPevap/100)
QA = mass of cutback asphalt used (lb)
WPevap = weight % of asphalt that evaporates

Dry Cleaners - Fairbanks

	All Dry Cleaners	
Activity Data Input:	83,000	**capita**
Activity Period/Year:	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
174	127184	Tetrachloroethylene (Perchloroethylene)	1.3 lb/yr/capita	53.95 tpy
		Total HAP Emissions		**53.950 tpy**

Notes/Comments:
1. Reference: AP-42, Table 4.1-2
2. Activity (population) data based on Fairbanks North Star Borough website (www.co.fairbanks.ak.us/).

Residential Wood Combustion in Fireplaces - Fairbanks

	Residential Fireplaces	
Activity Data Input:	1,296	**tons**
Activity Period/Year:	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
162	N/A	Polycylic Organic Matter	1.60E-02	lb/ton	1.04E-02	tpy
			Total HAP Emissions		**0.010**	**tpy**

Notes/Comments:
1. Reference: AP-42, Table 1.9-1
2. Activity data extrapolated from 1990 CO study (see backup)

Estimated Woodstove and Fireplace Activity Data - Fairbanks

Description	Survey Data/Extrapolations	
% households w/ woodstove*	28.28	%
% households w/ fireplace*	6.31	%
Number of Households in survey*	428	
Number of households in survey w/ woodstove*	121	
Number of households in survey w/ fireplace*	27	
Total number of cords burned per year in survey - woodstoves*	327	
Total number of cords burned per year in survey - fireplaces*	15	
Total weight of wood burned per year in survey - woodstoves*	785,088	lb/yr
Total wieght of wood burned per year in survey - fireplaces* - 80 ft3/cord, 30 lb/ft3	36,288	lb/yr
Total number of Fairbanks households 1990 (from census data)	26,693	
Extrapolated wood burned per year (based on 1990 census) - woodstoves	48,963,444	lb/yr
Extrapolated wood burned per year (based on 1990 census) - fireplaces	2,263,167	lb/yr
Total population 1990 (Fairbanks Borough data)	73,624	
Total population 1999 (Fairbanks Borough data)	84,336	
Extrapolated wood burned per year (1999) - woodstoves	**28,044**	ton/yr
Extrapolated wood burned per year (1999) - fireplaces	**1,296**	ton/yr

* Indicates data from Anchorage 1990 Base Year Carbon Monoxide Emission Inventory (based on 1990 Fairbanks RWC Survey data)

Woodstoves - Fairbanks

Residential Woodstoves

Activity Data Input: 28,044 **tons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
48	71432	Benzene (including benzene from gasoline)	1.94E+00	lb/ton	2.72E+01	tpy
58	N/A	Cadmium Compouns	2.20E-05	lb/ton	3.08E-04	tpy
75	N/A	Chromium Chompounds	1.00E-06	lb/ton	1.40E-05	tpy
127	N/A	Manganese Compounds	1.70E-02	lb/ton	2.38E-01	tpy
133	78933	Methyl ethyl ketone (2-Butanone)	2.90E-01	lb/ton	4.07E+00	tpy
145	91203	Naphthalene	2.88E-01	lb/ton	4.04E+00	tpy
146	N/A	Nickel Compounds	1.40E-05	lb/ton	1.96E-04	tpy
162	N/A	Polycylic Organic Matter	7.30E-01	lb/ton	1.02E+01	tpy
176	108883	Toluene	7.30E-01	lb/ton	1.02E+01	tpy
185	1330207	Xylenes (isomers and mixture)	2.02E-01	lb/ton	2.83E+00	tpy

Total HAP Emissions **58.822** **tpy**

Notes/Comments:

1. Reference: AP-42, Table 1.10-2, 10-3 and 10-4.
2. Activity data extrapolated from 1990 CO study (see backup)

Estimated Woodstove and Fireplace Activity Data - Fairbanks

Description	Survey Data/Extrapolations
% households w/ woodstove*	28.28 %
% households w/ fireplace*	6.31 %
Number of Households in survey*	428
Number of households in survey w/ woodstove*	121
Number of households in survey w/ fireplace*	27
Total number of cords burned per year in survey - woodstoves*	327
Total number of cords burned per year in survey - fireplaces*	15
Total weight of wood burned per year in survey - woodstoves*	785,088 lb/yr
Total wieght of wood burned per year in survey - fireplaces* - 80 ft3/cord, 30 lb/ft3	36,288 lb/yr
Total number of Fairbanks households 1990 (from census data)	26,693
Extrapolated wood burned per year (based on 1990 census) - woodstoves	48,963,444 lb/yr
Extrapolated wood burned per year (based on 1990 census) - fireplaces	2,263,167 lb/yr
Total population 1990 (Fairbanks Borough data)	73,624
Total population 1999 (Fairbanks Borough data)	84,336
Extrapolated wood burned per year (1999) - woodstoves	**28,044** ton/yr
Extrapolated wood burned per year (1999) - fireplaces	**1,296** ton/yr

* Indicates data from Anchorage 1990 Base Year Carbon Monoxide Emission Inventory (based on 1990 Fairbanks RWC Survey data)

Gasoline Service Stations - Fairbanks

Gasoline Service Stations

Activity Data Input: 39,858,095 **gallons**
Activity Period/Year: 2000 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
14	540841	2,24-Trimethylpentane	0.0099 lb/lb VOC	0.61 tons
48	71432	Benzene (including benzene from gasoline)	0.0077 lb/lb VOC	0.48 tons
99	100414	Ethyl benzene	0.00004 lb/lb VOC	0.00 tons
118	110543	Hexane	0.00478 lb/lb VOC	0.30 tons
176	108883	Toluene	0.032 lb/lb VOC	1.98 tons
185	1330207	Xylenes (isomers and mixture)	0.0015 lb/lb VOC	0.09 tons
			Total HAP Emissions	**3.455 tpy**

Notes/Comments:

1. Reference: AP-42, Section 5.2
2. Assumptions:
   EFvoc total = (EFvoc fill + EFvoc b&e + EFvoc vd + EFvoc s)

EFvoc fill =	0.3	lb/kgal	VOC emission factor associated with filling USTs (Balanced submerged filling, Stage I controls)
EFvoc b&e =	1.0	lb/kgal	VOC emission factor associated with breathing and emptying losses from USTs
EFvoc vd =	1.1	lb/kgal	VOC emission factor for vapor displacement from automobile tanks during refilling (Stage II control
EFvoc s =	0.7	lb/kgal	VOC emission factor associated with spillage during automobile refilling

3. Source: Phone conversation with Raymond Measles, Tesoro, Anchorage, June 13, 2000 (561-5521)>
   RM stated that all stations should have been converted to Stage I (filling) controls by now.
4. Activity data extrapolated from Anchorage using vehicle miles traveled (VMT) ratio. Anchorage activity data and VMT data obtained from ADEC.
   178663083 gallons x 419.5/1880.4 = 39858095 gallons

Gasoline Service Stations - Fairbanks

ls)

Open Burning - Fairbanks

Open Burning (Diesel)

Activity Data Input: 14,753 **gallons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.000 tpy
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.000 tpy
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.000 tpy
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.000 tpy
109	5000	Formaldehyde	1.214 lb/Mgal	0.009 tpy
118	110543	Hexane	0.269 lb/Mgal	0.002 tpy
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.000 tpy
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.000 tpy
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.000 tpy
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.000 tpy
			Total HAP Emissions	**0.011 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Firefighter training was the only activity considered in open burning.
   Assume Alyeska trained once per week for 28 weeks @ 200 gallons per seesion.

Structural Fires - Fairbanks

Activity Data Input: 71 **total fires**
Acitivity Period: 1999 **year**

Section 112 Hazardous Air Pollutants

No.	CAS No.	Chemical Name
39	107028	Acrolein
83	N/A	Cyanide Compounds
109	5000	Formaldehyde
120	7647010	Hydrochloric acid

Source Category Emission Calculations

Emission Factor		Estimated Emissions	
2.55E-05	lb/dscf	1.80E-01	tons
2.05E-04	lb/dscf	1.45E+00	tons
5.91E-06	lb/dscf	4.18E-02	tons
8.73E-05	lb/dscf	6.17E-01	tons

Total HAP Emissions **2.288** **tons**

Notes/Comments:
1. Emission factors apply to sum of residential and nonresidential fires.
2. Activity data provided courtesy of State of Alaska Fire Marshall's Office, Anchorage.

Structural Fires Data - Fairbanks

F-Factor (Ref. 1)	9,570	**dscf/MMBtu**
HHV Factor (Ref. 2)	9,044	**Btu/lb**
Fuel Loading Factor (Ref. 2)	1.15	**tons of material buned/fire**

Sample calculation for volume of gas generated per amount burned:
Volume Gas Generated (dscf) / Material Burned (ton)
= F-Factor (dscf/MMBtu) * HHV (Btu/lb) * (1/2000) * (1/1e6)
= 173,102 dscf / ton burned
Sample calculation for emission rate of acrolein produced per amount burned:
Weight of Gas Generated (lb) / Material Burned (ton)
= Emission Factor (lb/dscf) * Volume Gas Generated Per Amount Burned (dscf/ton)
= 4.41 lb Acrolein / ton burned
Sample calculation for emission estimate of Acrolein:
= Number of Fires * Fuel Loading Factor (tons of material burned/fire) * Emission Rate of Acrolein (lb/ton burned)
= 1.80E-01 tons of Acrolein

Notes/Comments:
1. Reference: Development of Area Source Hazardous Air Pollutant Inventories, Vol 1: Air Toxic Emission Inventory.
2. Reference: EIIP Volume III, Area Sources Preferred and Alternative Methods.

Consumer Products - Fairbanks

			Personal Care Products		Household Products		Automotive Aftermarket Products		Adhesives & Sealants		FIFRA-Regulated Products		Coatings & Related Products		Miscellaneous		
			Activity Data: 83,000 capita		Activity Data: 83,000 capita		Activity Data: 83,000 capita		Activity Data: 83,000 capita		Activity Data: 83,000 capita		Activity Data: 83,000 capita		Activity Data: 83,000 capita		
			Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		
	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Emissions
10	542756	1,3-Dichloropropene									1.60E-01 lb/yr/cap	6.64E+00 tons					6.64E+00 tons
12	106467	1,4-Dichlorobenzene(p)			4.79E-02 lb/yr/cap	1.99E+00 tons					3.52E-02 lb/yr/cap	1.46E+00 tons					3.45E+00 tons
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)							1.09E-05 lb/yr/cap	4.52E-04 tons							4.52E-04 tons
25	79469	2-Nitropropane							2.12E-06 lb/yr/cap	8.80E-05 tons							8.80E-05 tons
36	60355	Acetamide	1.38E-07 lb/yr/cap	5.73E-06 tons													5.73E-06 tons
38	98862	Acetophenone											8.53E-06 lb/yr/cap	3.54E-04 tons			3.54E-04 tons
41	79107	Acrylic Acid							3.94E-09 lb/yr/cap	1.64E-07 tons							1.64E-07 tons
48	71432	Benzene (including benzene from gasoline)					4.72E-06 lb/yr/cap	1.96E-04 tons									1.96E-04 tons
63	56235	Carbon tetrachloride											4.10E-10 lb/yr/cap	1.70E-08 tons			1.70E-08 tons
70	108907	Chlorobenzene									7.16E-02 lb/yr/cap	2.97E+00 tons	1.51E-05 lb/yr/cap	6.27E-04 tons			2.97E+00 tons
72	67663	Chloroform					3.60E-05 lb/yr/cap	1.49E-03 tons					9.55E-04 lb/yr/cap	3.96E-02 tons			4.11E-02 tons
86	132649	Dibenzofurans							8.07E-06 lb/yr/cap	3.35E-04 tons							3.35E-04 tons
94	68122	Dimethyl formamide	2.71E-05 lb/yr/cap	1.12E-03 tons			2.78E-08 lb/yr/cap	1.15E-06 tons	2.29E-07 lb/yr/cap	9.50E-06 tons					7.43E-06 lb/yr/cap	3.08E-04 tons	1.44E-03 tons
99	100414	Ethyl benzene			2.56E-06 lb/yr/cap	1.06E-04 tons	7.51E-05 lb/yr/cap	3.12E-03 tons	1.36E-05 lb/yr/cap	5.64E-04 tons	1.30E-03 lb/yr/cap	5.40E-02 tons	6.86E-04 lb/yr/cap	2.85E-02 tons			8.62E-02 tons
103	107062	Ethylene dichloride (1,2-Dichloroethane)	4.62E-06 lb/yr/cap	1.92E-04 tons	3.52E-08 lb/yr/cap	1.46E-06 tons											1.93E-04 tons
106	75218	Ethylene oxide									1.51E-02 lb/yr/cap	6.27E-01 tons					6.27E-01 tons
109	5000	Formaldehyde			6.74E-06 lb/yr/cap	2.80E-04 tons			2.51E-05 lb/yr/cap	1.04E-03 tons	3.81E-04 lb/yr/cap	1.58E-02 tons	8.55E-04 lb/yr/cap	3.55E-02 tons			5.26E-02 tons
110	N/A	Glycol ethers	1.52E-05 lb/yr/cap	6.31E-04 tons	5.31E-03 lb/yr/cap	2.20E-01 tons	2.69E-02 lb/yr/cap	1.12E+00 tons	1.28E-04 lb/yr/cap	5.31E-03 tons	5.65E-03 lb/yr/cap	2.34E-01 tons	2.24E-03 lb/yr/cap	9.30E-02 tons	2.42E-04 lb/yr/cap	1.00E-02 tons	1.68E+00 tons
118	110543	Hexane			2.09E-03 lb/yr/cap	8.67E-02 tons	3.53E-03 lb/yr/cap	1.46E-01 tons	7.83E-02 lb/yr/cap	3.25E+00 tons			2.39E-03 lb/yr/cap	9.92E-02 tons			3.58E+00 tons
120	7647010	Hydrochloric acid			1.75E-06 lb/yr/cap	7.26E-05 tons											7.26E-05 tons
121	7664393	Hydrogen fluoride (Hydrofluoric acid)			8.75E-08 lb/yr/cap	3.63E-06 tons	1.41E-05 lb/yr/cap	5.85E-04 tons									5.89E-04 tons
123	78591	Isophorone									9.47E-04 lb/yr/cap	3.93E-02 tons					3.93E-02 tons
129	67561	Methanol	5.67E-07 lb/yr/cap	2.35E-05 tons	6.66E-04 lb/yr/cap	2.76E-02 tons	6.61E-01 lb/yr/cap	2.74E+01 tons	6.82E-04 lb/yr/cap	2.83E-02 tons	9.48E-04 lb/yr/cap	3.93E-02 tons	1.60E-02 lb/yr/cap	6.64E-01 tons	1.84E-02 lb/yr/cap	7.64E-01 tons	2.90E+01 tons
131	74839	Methyl bromide(Bromomethane)									2.22E-01 lb/yr/cap	9.21E+00 tons					9.21E+00 tons
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	7.45E-04 lb/yr/cap	3.09E-02 tons	2.85E-02 lb/yr/cap	1.18E+00 tons	7.63E-02 lb/yr/cap	3.17E+00 tons	2.14E-01 lb/yr/cap	8.88E+00 tons	5.99E-02 lb/yr/cap	2.49E+00 tons	7.69E-03 lb/yr/cap	3.19E-01 tons	2.46E-04 lb/yr/cap	1.02E-02 tons	1.61E+01 tons
133	78933	Methyl ethyl ketone (2-Butanone)	1.75E-05 lb/yr/cap	7.26E-04 tons	4.49E-04 lb/yr/cap	1.86E-02 tons	3.04E-03 lb/yr/cap	1.26E-01 tons	3.91E-02 lb/yr/cap	1.62E+00 tons	2.01E-05 lb/yr/cap	8.34E-04 tons	7.94E-03 lb/yr/cap	3.30E-01 tons	1.01E-05 lb/yr/cap	4.19E-04 tons	2.10E+00 tons
136	108101	Methyl isobutyl ketone (Hexone)			1.08E-04 lb/yr/cap	4.48E-03 tons	8.73E-04 lb/yr/cap	3.62E-02 tons	1.24E-03 lb/yr/cap	5.15E-02 tons	9.01E-05 lb/yr/cap	3.74E-03 tons	5.26E-03 lb/yr/cap	2.18E-01 tons			3.14E-01 tons
139	1634044	Methyl tert butyl ether					2.36E-05 lb/yr/cap	9.79E-04 tons									9.79E-04 tons
141	75092	Methylene chloride(Dichloromethane)			2.39E-03 lb/yr/cap	9.92E-02 tons	4.83E-03 lb/yr/cap	2.00E-01 tons	8.78E-03 lb/yr/cap	3.64E-01 tons	6.81E-04 lb/yr/cap	2.83E-02 tons	1.97E-02 lb/yr/cap	8.18E-01 tons	2.38E-05 lb/yr/cap	9.88E-04 tons	1.51E+00 tons
145	91203	Naphthalene			5.52E-07 lb/yr/cap	2.29E-05 tons	2.26E-06 lb/yr/cap	9.38E-05 tons	1.07E-04 lb/yr/cap	4.44E-03 tons	4.60E-02 lb/yr/cap	1.91E+00 tons	5.75E-06 lb/yr/cap	2.39E-04 tons			1.91E+00 tons
174	127184	Tetrachloroethylene (Perchloroethylene)			2.96E-03 lb/yr/cap	1.23E-01 tons	2.35E-02 lb/yr/cap	9.75E-01 tons	6.75E-04 lb/yr/cap	2.80E-02 tons	1.92E-04 lb/yr/cap	7.97E-03 tons	1.48E-04 lb/yr/cap	6.14E-03 tons	7.53E-04 lb/yr/cap	3.12E-02 tons	1.17E+00 tons
176	108883	Toluene	3.41E-03 lb/yr/cap	1.42E-01 tons	5.82E-04 lb/yr/cap	2.42E-02 tons	2.49E-02 lb/yr/cap	1.03E+00 tons	8.43E-02 lb/yr/cap	3.50E+00 tons			3.16E-01 lb/yr/cap	1.31E+01 tons	2.46E-06 lb/yr/cap	1.02E-04 tons	1.78E+01 tons
178	79016	Trichloroethylene			4.34E-05 lb/yr/cap	1.80E-03 tons	2.67E-04 lb/yr/cap	1.11E-02 tons	3.88E-05 lb/yr/cap	1.61E-03 tons			1.37E-04 lb/yr/cap	5.69E-03 tons			2.02E-02 tons
179	121448	Triethylamine									3.13E-04 lb/yr/cap	1.30E-02 tons	5.26E-04 lb/yr/cap	2.18E-02 tons			3.48E-02 tons
181	108054	Vinyl acetate							4.94E-08 lb/yr/cap	2.05E-06 tons							2.05E-06 tons
185	1330207	Xylenes (isomers and mixture)			3.28E-03 lb/yr/cap	1.36E-01 tons	1.20E-02 lb/yr/cap	4.98E-01 tons	9.76E-03 lb/yr/cap	4.05E-01 tons	1.37E-01 lb/yr/cap	5.69E+00 tons	4.05E-02 lb/yr/cap	1.68E+00 tons	4.31E-04 lb/yr/cap	1.79E-02 tons	8.42E+00 tons
			Total HAPs	**0.175 tons**	**Total HAPs**	**3.913 tons**	**Total HAPs**	**34.748 tons**	**Total HAPs**	**18.143 tons**	**Total HAPs**	**31.429 tons**	**Total HAPs**	**17.474 tons**	**Total HAPs**	**0.835 tons**	**106.716 tons**

Notes/Comments:
1. Reference: EIIP Volume III, Area Sources Preferred and Alternative Methods.
2. Activity (population) data based on Fairbanks North Star Borough website (www.co.fairbanks.ak.us/).

Residential / Commercial Fuel Oil Heating - Fairbanks

Residential/Commercial Oil Combustion

Activity Data Input: 54,296,512 **gallons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 $lb/10^{12}$ Btu	0.016 tons
52	N/A	Beryllium Compounds	2.5 $lb/10^{12}$ Btu	0.009 tons
58	N/A	Cadmium Compouns	11 $lb/10^{12}$ Btu	0.041 tons
75	N/A	Chromium Chompounds	67 $lb/10^{12}$ Btu	0.249 tons
109	5000	Formaldehyde	1.214 lb/Mgal	32.960 tons
118	110543	Hexane	0.269 lb/Mgal	7.310 tons
124	N/A	Lead Compounds	8.9 $lb/10^{12}$ Btu	0.033 tons
127	N/A	Manganese Compounds	14 $lb/10^{12}$ Btu	0.052 tons
128	N/A	Mercury Compounds	3.0 $lb/10^{12}$ Btu	0.011 tons
146	N/A	Nickel Compounds	18 $lb/10^{12}$ Btu	0.067 tons
			Total HAP Emissions	**40.748 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data extrapolated from 1990 Fairbanks CO Emissions Inventory.

Residential / Commercial Fuel Oil Heating - Fairbanks

Estimated Residential/Commercial Activity

Description	Data/Extrapolations
Annual Fuel Oil Sales*	47,400,000 gal/yr
Total population 1990 (Fairbanks Borough data)	73,624
Total population 1999 (Fairbanks Borough data)	84,336
Extrapolated Residential/Commercial Fuel Oil Sales (1999)	**54,296,512** gal/yr

* Indicates data from Fairbanks 1990 Base Year Carbon Monoxide Emission Inventory (Sierra Research)

Surface Coating - Fairbanks

			Architectural Coatings				Product Coatings		Special Purpose Coatings		
			Water-based		Oil-based						
			Activity Data:	145,788 gallons	Activity Data:	62,481 gallons	Activity Data:	144,663 gallons	Activity Data:	54,120 gallons	
			Activity Period:	1998 Year	Activity Period:	1998 Year	Activity Period:	1998 Year	Activity Period:	1998 Year	
	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Emissions
48	71432	Benzene (including benzene from gasoline)	0.36 %	0.3 tons							2.90E-01 tpy
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)									0.00E+00 tpy
98	140885	Ethyl acrylate									0.00E+00 tpy
99	100414	Ethyl benzene			0.54 %	0.7 tons					7.45E-01 tpy
101	75003	Ethyl chloride (Chloroethane)	0.62 %	0.5 tons							4.99E-01 tpy
104	107211	Ethylene glycol	0.58 %	0.5 tons							4.67E-01 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			0.54 %	0.7 tons	8.1 %	20.1 tons	8.1 %	7.5 tons	2.83E+01 tpy
136	108101	Methyl isobutyl ketone (Hexone)			0.36 %	0.5 tons	5.9 %	14.6 tons	5.9 %	5.5 tons	2.06E+01 tpy
140	74873	Methylchloride (Chloromethane)	0.55 %	0.4 tons							4.43E-01 tpy
141	75092	Methylene chloride(Dichloromethane)	5.52 %	4.4 tons							4.44E+00 tpy
176	108883	Toluene			37.87 %	52.2 tons	14.7 %	36.4 tons	14.7 %	13.6 tons	1.02E+02 tpy
181	108054	Vinyl acetate	0.12 %	0.1 tons							9.66E-02 tpy
185	1330207	Xylenes (isomers and mixture)			3.7 %	5.1 tons	15.8 %	39.1 tons	15.8 %	14.6 tons	5.88E+01 tpy
186	95476	Xylenes (isomers and mixture)			4.47 %	6.2 tons					6.17E+00 tpy
			Total HAPs	**6.237 tpy**	**Total HAPs**	**65.502 tpy**	**Total HAPs**	**110.159 tpy**	**Total HAPs**	**41.212 tpy**	**223.109 tpy**

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Coating Application, Water-Based Paint.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Solvent-base Paint.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Industrial.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Industrial.

Surface Coating Data - Fairbanks

Surface Coatings Estimates, Based on Population (1999)

U.S. Population	272,690,813
Alaska Populations:	
Anchorage	257,808
Fairbanks	84,366
Juneau	30,192

United States 1998 Quantity of Shipments of Paint, Varnish, and Lacquer (Gallons)

Location	Percent of US Population	Architectural Coatings	Product Coatings	Special Purpose	TOTAL GALLONS
USA	100%	673,174,000	467,584,000	174,929,000	1,315,687,000

Data from 1998 US Census Bureau Report MA32F(98)-1: Paint and Allied Products

Surface Coating Allocation, Based on Population (Gallons)

Location	Percent of US Population	Architectural Coatings	Product Coatings	Special Purpose	TOTAL GALLONS
Anchorage	0.0945%	636,434	442,064	165,382	1,243,880
Fairbanks	0.0309%	208,269	144,663	54,120	407,052
Juneau	0.0111%	74,533	51,770	19,368	145,671
TOTAL		919,236	638,497	238,870	1,796,603

VOC Emissions (Pounds)

Location	Percent of US Population	Architectural Coatings		Product Coatings	Special Purpose
		Water-based	Oil-based		
Anchorage	0.0945%	491,836	843,147	1,512,921	566,003
Fairbanks	0.0309%	160,950	275,915	495,094	185,221
Juneau	0.0111%	57,599	98,741	177,179	66,285
TOTAL		710,385	1,217,803	2,185,194	817,508

Notes on architectural paint calculations:

1. Solvent is assumed to be 60% (by volume) of the paint/coatings.
2. Solvent densities are assumed to be 7.36 lb/gallon.
3. Architectural paints are assumed to be 70% water-based (low-solvent) and 30% solvent-based.
4. Water-based paints are assumed to emit 25% of the VOCs in solvent-based paints.
5. Reference: AP-42 Section 4.2.2.1.2, Tables 4.2.2.1-2 and 4.2.2.1-3.

Notes on product coatings and special purpose calculations:

1. Product coatings are assumed to be 30% water-based (low-solvent) and 70% solvent-based.
2. Water-based paints are assumed to emit 25% of the VOCs in solvent-based paints.

Definitons:

Architectural

- Exterior waterborne (latex)
- Interior waterborne (latex)
- Exterior solvent-borne (oil)
- Interior solvent-borne (oil)
- Architectural lacquers
- "Do-it-yourself" wood and furniture finishes

Special Purpose Coatings:

- Industrial maintenance paints (interior, exterior)
- Marine coatings (off-shore structures, marine refinishing coatings)
- Traffic paints
- Metallic paints (aluminum, zinc bronze, etc.)
- Automobile refinishing coatings
- Aerosol paints
- Roof coatings
- Multi-color paints

Product Coatings

- Automotive finishes
- Truck and bus finishes
- Other transportation finishes (aircraft, railroad, etc.)
- Wood and composition board flat-stock finishes
- Wood furniture and fixture finishes
- Appliance finishes
- Sheet, strip and coil coatings on metals
- Metal decorating finishes (can, container and closure coatings)
- Machinery and equipment finishes
- Paper and paperboard coatings (not ink)
- Metal furniture and fixtures finishes
- Electrical insulating varnishes
- Magnet wire coatings

Used Oil Combustion - Fairbanks

	Used Oil Combustion	
Activity Data Input:	212,907	**gallons**
Activity Period/Year:	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)	8.30E-07 lb/kgal	8.84E-08 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	2.50E-03 lb/kgal	2.66E-04 tpy
52	N/A	Beryllium Compounds	1.80E-03 lb/kgal	1.92E-04 tpy
58	N/A	Cadmium Compouns	2.90E-04 lb/kgal	3.09E-05 tpy
75	N/A	Chromium Chompounds	1.90E-01 lb/kgal	2.02E-02 tpy
76	N/A	Cobalt Compounds	7.60E-03 lb/kgal	8.09E-04 tpy
145	91203	Naphthalene	1.20E-02 lb/kgal	1.28E-03 tpy
			Total HAP Emissions	**0.023 tpy**

Notes/Comments:

1. Reference: AP-42, Section 1.11, including 1996 revisions.

Used Oil Backup Info - Fairbanks

Waste Oil Combustion, based on population (1999)

U.S. Population (1983)	233,791,994
U.S. Population (1999)	272,690,813
Alaska Populations:	
Anchorage	257,808
Fairbanks	84,366
Juneau	30,192

United States Quantity of Used Oil Burned (Gallons)

Location	Used Oil Burned (1983)	Estimated Used Oil Burned (1999)
USA	590,000,000	688,165,480

1983 data from from AP-42section 1.11, Waste Oil Combustion

Population data from US Census web-site

Used-oil Combustion Allocation, Based on 1999 Population (Gallons)

Location	Percent of US Population	Gallons Used Oil Burned (1999)
Anchorage	0.0945%	650,607
Fairbanks	0.0309%	212,907
Juneau	0.0111%	76,193
TOTAL	0.1366%	939,707

Percentages based on 1999 Population data (http://venus.census.gov/cdrom/lookup/961017877)

Wildfires - Fairbanks

Wildfires

Activity Data Input: 6,206 **acres**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants

No.	CAS No.	Chemical Name
9	106990	1,3-Butadiene

Source Category Emission Calculations

Emission Factor	Estimated Emissions
0.520 %	4.260 tons

Total HAP Emissions **4.260 tons**

Notes/Comments:
1. Reference: AP-42, Tables 13.1-1 and 13.1-2 and Speciate.
2. Activity data from AK Division of Forestry website.
3. Emission Factor Development:

AP-42 Table 13.1-1. Fuel Consumed in Wildfires.

Coastal	=	135	Mg/hectare
	=	60	ton/acre
Interior	=	25	Mg/hectare
	=	11	ton/acre

AP-42 Table 13.1-2. Emission Factors. Use Region 10 data.

Particulate	=	17	lb/ton
VOCs	=	24	lb/ton

Speciate. Miscellaneous Burning - Forest Fires.

1,3-Butadiene	=	0.52	percent of TOCs

Table D-3-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL Area Facilities	Facility No. 1 Alyeska	Facility No. 2 Fort Knox Mine	Facility No. 3 Fairbanks Hospital	Facility No. 4 Fairbanks Airport	Facility No. 5 GVEA Chena 6	Facility No. 6 GVEA N. Pole	Facility No. 7 GVEA Zehnder	Facility No. 8 PetroStar Refinery	Facility No. 9 Williams N. Pole
No.	CAS No.	Chemical Name										
1	79345	1,1,2,2-Tetrachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	0.011 tpy	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.010 tpy
10	542756	1,3-Dichloropropene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.213 tpy	----- ---	0.022 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	0.000 tpy	0.000 tpy	0.190 tpy
36	60355	Acetamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
38	98862	Acetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	0.363 tpy	----- ---	0.003 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	0.000 tpy	0.000 tpy	0.360 tpy
40	79061	Acrylamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
41	79107	Acrylic Acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
42	107131	Acrylonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	0.032 tpy	----- ---	----- ---	----- ---	0.000 tpy	0.000 tpy	0.030 tpy	0.001 tpy	----- ---	----- ---
46	N/A	Arsenic Compounds (inorganic including arsine)	0.012 tpy	----- ---	0.004 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.007 tpy	0.000 tpy	0.000 tpy	----- ---
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
48	71432	Benzene (including benzene from gasoline)	3.075 tpy	----- ---	0.027 tpy	0.000 tpy	0.005 tpy	----- ---	----- ---	0.001 tpy	0.023 tpy	3.020 tpy
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
52	N/A	Beryllium Compounds	0.001 tpy	----- ---	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.000 tpy	----- ---
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
58	N/A	Cadmium Compouns	0.009 tpy	----- ---	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.006 tpy	0.000 tpy	0.001 tpy	----- ---

Table D-3-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL Area Facilities	Facility No. 1 Alyeska	Facility No. 2 Fort Knox Mine	Facility No. 3 Fairbanks Hospital	Facility No. 4 Fairbanks Airport	Facility No. 5 GVEA Chena 6	Facility No. 6 GVEA N. Pole	Facility No. 7 GVEA Zehnder	Facility No. 8 PetroStar Refinery	Facility No. 9 Williams N. Pole
No.	CAS No.	Chemical Name										
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
64	463581	Carbonyl sufide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
69	79118	Chloroacetic acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
70	108907	Chlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
75	N/A	Chromium Chompounds	0.093 tpy	----- ---	0.019 tpy	0.001 tpy	0.000 tpy	0.000 tpy	0.065 tpy	0.003 tpy	0.005 tpy	----- ---
76	N/A	Cobalt Compounds	0.013 tpy	----- ---	0.000 tpy	----- ---	0.000 tpy	0.000 tpy	0.013 tpy	0.001 tpy	----- ---	----- ---
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	0.220 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.220 tpy
83	N/A	Cyanide Compounds	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
84	3547044	DDE	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ether)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
99	100414	Ethyl benzene	0.671 tpy	----- ---	----- ---	0.000 tpy	0.001 tpy	----- ---	----- ---	----- ---	0.000 tpy	0.670 tpy
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
109	5000	Formaldehyde	0.288 tpy	----- ---	0.062 tpy	0.008 tpy	0.001 tpy	----- ---	----- ---	0.000 tpy	0.026 tpy	0.190 tpy
110	N/A	Glycol ethers	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-3-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL Area Facilities	Facility No. 1 Alyeska	Facility No. 2 Fort Knox Mine	Facility No. 3 Fairbanks Hospital	Facility No. 4 Fairbanks Airport	Facility No. 5 GVEA Chena 6	Facility No. 6 GVEA N. Pole	Facility No. 7 GVEA Zehnder	Facility No. 8 PetroStar Refinery	Facility No. 9 Williams N. Pole
No.	CAS No.	Chemical Name										
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	2.519 tpy	----- ---	0.013 tpy	----- ---	0.005 tpy	----- ---	----- ---	----- ---	0.130 tpy	2.370 tpy
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	0.487 tpy	----- ---	----- ---	0.387 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.100 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
122	123319	Hydroquinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
123	78591	Isophorone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
124	N/A	Lead Compounds	0.085 tpy	----- ---	0.001 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.080 tpy	0.003 tpy	0.001 tpy	----- ---
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.492 tpy	----- ---	0.003 tpy	0.000 tpy	0.000 tpy	0.001 tpy	0.468 tpy	0.019 tpy	----- ---	----- ---
128	N/A	Mercury Compounds	0.015 tpy	----- ---	0.002 tpy	0.001 tpy	0.000 tpy	0.000 tpy	0.012 tpy	0.000 tpy	----- ---	----- ---
129	67561	Methanol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide(Bromomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
133	78933	Methyl ethyl ketone (2-Butanone)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
140	74873	Methylchloride (Chloromethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
141	75092	Methylene chloride(Dichloromethane)	2.450 tpy	----- ---	----- ---	----- ---	2.450 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
142	101688	Methylene diphenyl diisocyante (MDI)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
143	N/A	Mineral fibers	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
145	91203	Naphthalene	0.023 tpy	----- ---	0.002 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	0.000 tpy	0.001 tpy	0.020 tpy
146	N/A	Nickel Compounds	1.729 tpy	----- ---	0.003 tpy	0.001 tpy	0.001 tpy	0.003 tpy	1.651 tpy	0.068 tpy	0.001 tpy	----- ---
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	0.431 tpy	----- ---	----- ---	----- ---	----- ---	0.001 tpy	0.413 tpy	0.017 tpy	----- ---	----- ---
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	0.033 tpy	----- ---	----- ---	0.000 tpy	0.000 tpy	----- ---	----- ---	0.000 tpy	0.002 tpy	0.030 tpy
163	106503	p-Phenylemediamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
164	123386	Propionaldehyde	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
165	114261	Propoxur(Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	0.008 tpy	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	0.007 tpy	0.000 tpy	----- ---	----- ---
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-3-2

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - Area Source Facilities
Fairbanks North Star Borough

Section 112 Hazardous Air Pollutants			Fairbanks TOTAL Area Facilities	Facility No. 1 Alyeska	Facility No. 2 Fort Knox Mine	Facility No. 3 Fairbanks Hospital	Facility No. 4 Fairbanks Airport	Facility No. 5 GVEA Chena 6	Facility No. 6 GVEA N. Pole	Facility No. 7 GVEA Zehnder	Facility No. 8 PetroStar Refinery	Facility No. 9 Williams N. Pole
No.	CAS No.	Chemical Name										
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	5.276 tpy	----- ---	0.119 tpy	0.001 tpy	1.350 tpy	----- ---	----- ---	0.000 tpy	0.016 tpy	3.790 tpy
177	8001352	Toxaphene (chlorinated camphene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
178	79016	Trichloroethylene	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---
179	121448	Triethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
182	593602	Vinyl bromide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
183	75014	Vinyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
184	75354	Vinylidene chloride (1,1-Dichloroethylene)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
185	1330207	Xylenes (isomers and mixture)	3.049 tpy	----- ---	0.008 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	0.000 tpy	0.000 tpy	3.040 tpy
186	95476	Xylenes (isomers and mixture)	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
187	108383	Xylenes (isomers and mixture)	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
188	106423	Xylenes (isomers and mixture)	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
Total HAP Emissions			**21.60 tpy**	**0.00 tpy**	**0.29 tpy**	**0.40 tpy**	**3.81 tpy**	**0.01 tpy**	**2.75 tpy**	**0.12 tpy**	**0.21 tpy**	**14.01 tpy**

Note: Eielson Air Force Base is also an area source facility within the FNSB. Based on the facility's Title 5 permit application, total base-wide HAP emissions are 17 tpy. These total emissions were not speciated in the application, and as such, have not been included in this table.

Alyeska Pipeline Service Company - Fairbanks

Alyeska Pipeline Service Company
Activity Data Input: N/A
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
		Total HAP Emissions		**0.0 tpy**

Notes/Comments:
1. Reference: 1999 FOR, no activity.

Fairbanks Gold Mining - Fort Knox Mine

	Fort Knox Mine - Title V data	Fort Knox Mine - TRI Data
Activity Data Input:	N/A	
Activity Period/Year:	1997 **Year**	1998 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
9	106990	1,3-Butadiene		1.14E-03 tpy			1.14E-03 tpy
35	75070	Acetaldehyde		2.23E-02 tpy			2.23E-02 tpy
39	107028	Acrolein		2.68E-03 tpy			2.68E-03 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)		4.40E-03 tpy			4.40E-03 tpy
48	71432	Benzene(including benzene from gasoline)		2.71E-02 tpy			2.71E-02 tpy
52	N/A	Beryllium Compounds		1.79E-04 tpy			1.79E-04 tpy
58	N/A	Cadmium Compouns		1.16E-03 tpy			1.16E-03 tpy
75	N/A	Chromium Chompounds		5.50E-03 tpy	2.80E+01 lb/yr	1.40E-02 tpy	1.95E-02 tpy
76	N/A	Cobalt Compounds		8.00E-06 tpy			8.00E-06 tpy
109	5000	Formaldehyde		6.23E-02 tpy			6.23E-02 tpy
118	110543	Hexane		1.33E-02 tpy			1.33E-02 tpy
124	N/A	Lead Compounds		6.35E-04 tpy			6.35E-04 tpy
127	N/A	Manganese Compounds		3.45E-03 tpy			3.45E-03 tpy
128	N/A	Mercury Compounds		2.14E-03 tpy			2.14E-03 tpy
145	91203	Naphthalene		2.46E-03 tpy			2.46E-03 tpy
146	N/A	Nickel Compounds		1.68E-03 tpy	3.00E+00 lb/yr	1.50E-03 tpy	3.18E-03 tpy
176	108883	Toluene		1.19E-01 tpy			1.19E-01 tpy
185	1330207	Xylenes (isomers and mixture)		8.28E-03 tpy			8.28E-03 tpy
			Total HAP Emissions	**0.28 tpy**	**Total HAP Emissions**	**0.02 tpy**	**TOTAL** **0.29 tpy**

Notes/Comments:
1. Reference: Fairbanks Gold Mining, Fort Knox Mine, Title V application of 9/97.
2. Values shown are facility wide as reported in the application.

Notes/Comments:
1. 1998 TRI Inventory data.

Fairbanks Hospital

			Diesel-Fired Boilers/Heaters				Diesel-Fired Engines greater than 600 hp				Starved Air Incinerators				
			Activity Data Input:	258,545	**gallons**		**Activity Data Input:**	3,974	**gallons**		**Activity Data Input:**	360	**tons**		
			Activity Period/Year:	1997	**Year**		**Activity Period/Year:**	1997	**Year**		**Activity Period/Year:**	1997	**Year**		
	Section 112 Hazardous Air Pollutants		**Source Category Emission Calculations**				**Source Category Emission Calculations**				**Source Category Emission Calculations**				**Total - All Categories**
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**		**Emission Factor**		**Estimated Emissions**		**Emission Factor**		**Estimated Emissions**		**Estimated Emissions**
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin									2.94E-06	lb/ton	5.29E-07	tpy	5.29E-07 tpy
35	75070	Acetaldehyde					2.52E-05	lb/MMBtu	6.86E-06	tpy					6.86E-06 tpy
39	107028	Acrolein					7.88E-06	lb/MMBtu	2.15E-06	tpy					2.15E-06 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4	lb/10^{12} Btu	7.08E-05	tpy					6.69E-04	lb/ton	1.20E-04	tpy	1.91E-04 tpy
48	71432	Benzene (including benzene from gasoline)	2.14E-04	lb/Mgal	2.77E-05	tpy	7.76E-04	lb/MMBtu	2.11E-04	tpy					2.39E-04 tpy
52	N/A	Beryllium Compounds	3	lb/10^{12} Btu	5.31E-05	tpy									5.31E-05 tpy
58	N/A	Cadmium Compouns	3	lb/10^{12} Btu	5.31E-05	tpy					2.41E-03	lb/ton	4.34E-04	tpy	4.87E-04 tpy
75	N/A	Chromium Chompounds	3	lb/10^{12} Btu	5.31E-05	tpy					3.31E-03	lb/ton	5.96E-04	tpy	6.49E-04 tpy
99	100414	Ethyl benzene	6.36E-05	lb/Mgal	8.22E-06	tpy									8.22E-06 tpy
109	5000	Formaldehyde	6.10E-02	lb/Mgal	7.89E-03	tpy	7.89E-05	lb/MMBtu	2.15E-05	tpy					7.91E-03 tpy
120	7647010	Hydrochloric acid									2.15E+00	lb/ton	3.87E-01	tpy	3.87E-01 tpy
124	N/A	Lead Compounds	9	lb/10^{12} Btu	1.59E-04	tpy									1.59E-04 tpy
127	N/A	Manganese Compounds	6	lb/10^{12} Btu	1.06E-04	tpy									1.06E-04 tpy
128	N/A	Mercury Compounds	3	lb/10^{12} Btu	5.31E-05	tpy					5.60E-03	lb/ton	1.01E-03	tpy	1.06E-03 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	2.36E-04	lb/Mgal	3.05E-05	tpy									3.05E-05 tpy
145	91203	Naphthalene	1.13E-03	lb/Mgal	1.46E-04	tpy	1.30E-04	lb/MMBtu	3.54E-05	tpy					1.81E-04 tpy
146	N/A	Nickel Compounds	3	lb/10^{12} Btu	5.31E-05	tpy					5.52E-03	lb/ton	9.94E-04	tpy	1.05E-03 tpy
162	N/A	Polycylic Organic Matter	0.0033	lb/Mgal	4.27E-04	tpy	2.12E-04	lb/MMBtu	5.77E-05	tpy					4.84E-04 tpy
171	N/A	Selenium Compounds	15	lb/10^{12} Btu	2.66E-04	tpy									2.66E-04 tpy
176	108883	Toluene	6.20E-03	lb/Mgal	8.01E-04	tpy	2.81E-04	lb/MMBtu	7.65E-05	tpy					8.78E-04 tpy
185	1330207	Xylenes (isomers and mixture)	1.09E-04	lb/Mgal	1.41E-05	tpy	1.93E-04	lb/MMBtu	5.25E-05	tpy					6.66E-05 tpy
186	95476	Xylenes (isomers and mixture)	1.09E-04	lb/Mgal	1.41E-05	tpy	1.93E-04	lb/MMBtu	5.25E-05	tpy					6.66E-05 tpy
187	108383	Xylenes (isomers and mixture)	1.09E-04	lb/Mgal	1.41E-05	tpy	1.93E-04	lb/MMBtu	5.25E-05	tpy					6.66E-05 tpy
188	106423	Xylenes (isomers and mixture)	1.09E-04	lb/Mgal	1.41E-05	tpy	1.93E-04	lb/MMBtu	5.25E-05	tpy					6.66E-05 tpy
			Total HAP Emissions		**0.010**	**tpy**	**Total HAP Emissions**		**0.001**	**tpy**	**Total HAP Emissions**		**0.390**	**tpy**	**TOTAL** **0.401 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 1.3-9 and 1.3-10.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from Title V application.

Notes/Comments:

1. Reference: AP-42, Table 3.4-3.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from Title V application.
4. Facility has 2 engine-generator sets.

Notes/Comments:

1. Reference: AP-42, Table 2.1-9.
2. Activity data from Title V application.

Fairbanks International Airport

Activity Data Input: N/A
Activity Period/Year: 1997 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
35	75070	Acetaldehyde		2.45E-04 tpy
39	107028	Acrolein		5.33E-07 tpy
45	N/A	Antimony Compounds		2.25E-08 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)		3.55E-05 tpy
48	71432	Benzene(including benzene from gasoline)		4.69E-03 tpy
52	N/A	Beryllium Compounds		2.14E-05 tpy
58	N/A	Cadmium Compouns		9.19E-05 tpy
63	56235	Carbon tetrachloride		1.25E-06 tpy
75	N/A	Chromium Chompounds		4.83E-04 tpy
76	N/A	Cobalt Compounds		2.60E-08 tpy
99	100414	Ethyl benzene		5.79E-04 tpy
109	5000	Formaldehyde		1.48E-03 tpy
118	110543	Hexane		5.21E-03 tpy
124	N/A	Lead Compounds		1.58E-04 tpy
127	N/A	Manganese Compounds		1.12E-04 tpy
128	N/A	Mercury Compounds		2.40E-05 tpy
141	75092	Methylene chloride(Dichloromethane)		2.45E+00 tpy
145	91203	Naphthalene		3.58E-05 tpy
146	N/A	Nickel Compounds		1.36E-03 tpy
156	108952	Phenol		1.40E-10 tpy
162	N/A	Polycylic Organic Matter		2.44E-04 tpy
174	127184	Tetrachloroethylene (Perchloroethylene)		1.50E-06 tpy
176	108883	Toluene		1.35E+00 tpy
178	79016	Trichloroethylene		1.45E-06 tpy
185	1330207	Xylenes (isomers and mixture)		1.68E-04 tpy
			Total HAP Emissions	**3.815 tpy**

Notes/Comments:
3. Activity data from December 4, 1997 Application for Owner Requested Limits.

Golden Valley Electric Association Chena 6 - Fairbanks

Diesel-Fired Turbines for Electricity Generation

Activity Data Input: 40,159 **gallons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
45	N/A	Antimony Compounds	2.20E-05 lb/MMBtu	6.05E-05 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.90E-06 lb/MMBtu	1.35E-05 tpy
52	N/A	Beryllium Compounds	3.30E-07 lb/MMBtu	9.08E-07 tpy
58	N/A	Cadmium Compouns	4.20E-06 lb/MMBtu	1.16E-05 tpy
75	N/A	Chromium Chompounds	4.70E-05 lb/MMBtu	1.29E-04 tpy
76	N/A	Cobalt Compounds	9.10E-06 lb/MMBtu	2.50E-05 tpy
124	N/A	Lead Compounds	5.80E-05 lb/MMBtu	1.60E-04 tpy
127	N/A	Manganese Compounds	3.40E-04 lb/MMBtu	9.35E-04 tpy
128	N/A	Mercury Compounds	8.40E-06 lb/MMBtu	2.31E-05 tpy
146	N/A	Nickel Compounds	1.20E-03 lb/MMBtu	3.30E-03 tpy
158	7723140	Phosphorus	3.00E-04 lb/MMBtu	8.25E-04 tpy
171	N/A	Selenium Compounds	5.30E-06 lb/MMBtu	1.46E-05 tpy
			Total HAP Emissions	**0.005 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.1-4.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from 1999 FORs.

Golden Valley Electric Association North Pole - Fairbanks

Diesel-Fired Turbines for Electricity Generation

Activity Data Input: 20,087,676 **gallons**

Activity Period/Year: 1996 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
45	N/A	Antimony Compounds	2.20E-05 lb/MMBtu	3.03E-02 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.90E-06 lb/MMBtu	6.74E-03 tpy
52	N/A	Beryllium Compounds	3.30E-07 lb/MMBtu	4.54E-04 tpy
58	N/A	Cadmium Compouns	4.20E-06 lb/MMBtu	5.78E-03 tpy
75	N/A	Chromium Chompounds	4.70E-05 lb/MMBtu	6.47E-02 tpy
76	N/A	Cobalt Compounds	9.10E-06 lb/MMBtu	1.25E-02 tpy
124	N/A	Lead Compounds	5.80E-05 lb/MMBtu	7.98E-02 tpy
127	N/A	Manganese Compounds	3.40E-04 lb/MMBtu	4.68E-01 tpy
128	N/A	Mercury Compounds	8.40E-06 lb/MMBtu	1.16E-02 tpy
146	N/A	Nickel Compounds	1.20E-03 lb/MMBtu	1.65E+00 tpy
158	7723140	Phosphorus	3.00E-04 lb/MMBtu	4.13E-01 tpy
171	N/A	Selenium Compounds	5.30E-06 lb/MMBtu	7.29E-03 tpy
			Total HAP Emissions	**2.751 tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.1-4.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from Title V application.

Golden Valley Electric Associaiton Zehnder Facility - Fairbanks

Diesel-Fired Turbines for Electricity Generation Fairbanks
Activity Data Input: 829,248 **gallons**
Activity Period/Year: 1999 **Year**

Diesel-Fired Engines greater than 600 hp - Fairbanks
Activity Data Input: 13,562 **gallons**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Emission Factor	Estimated Emissions	Emission Factor	Estimated Emissions	Estimated Emissions
35	75070	Acetaldehyde			2.52E-05 lb/MMBtu	2.34E-05 tpy	2.34E-05 tpy
39	107028	Acrolein			7.88E-06 lb/MMBtu	7.32E-06 tpy	7.32E-06 tpy
45	N/A	Antimony Compounds	2.20E-05 lb/MMBtu	1.25E-03 tpy			1.25E-03 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.90E-06 lb/MMBtu	2.78E-04 tpy			2.78E-04 tpy
48	71432	Benzene(including benzene from gasoline)			7.76E-04 lb/MMBtu	7.21E-04 tpy	7.21E-04 tpy
52	N/A	Beryllium Compounds	3.30E-07 lb/MMBtu	1.87E-05 tpy			1.87E-05 tpy
58	N/A	Cadmium Compouns	4.20E-06 lb/MMBtu	2.39E-04 tpy			2.39E-04 tpy
75	N/A	Chromium Chompounds	4.70E-05 lb/MMBtu	2.67E-03 tpy			2.67E-03 tpy
76	N/A	Cobalt Compounds	9.10E-06 lb/MMBtu	5.17E-04 tpy			5.17E-04 tpy
109	5000	Formaldehyde			7.89E-05 lb/MMBtu	7.33E-05 tpy	7.33E-05 tpy
124	N/A	Lead Compounds	5.80E-05 lb/MMBtu	3.29E-03 tpy			3.29E-03 tpy
127	N/A	Manganese Compounds	3.40E-04 lb/MMBtu	1.93E-02 tpy			1.93E-02 tpy
128	N/A	Mercury Compounds	8.40E-06 lb/MMBtu	4.77E-04 tpy			4.77E-04 tpy
145	91203	Naphthalene			1.30E-04 lb/MMBtu	1.21E-04 tpy	1.21E-04 tpy
146	N/A	Nickel Compounds	1.20E-03 lb/MMBtu	6.82E-02 tpy			6.82E-02 tpy
158	7723140	Phosphorus	3.00E-04 lb/MMBtu	1.70E-02 tpy			1.70E-02 tpy
162	N/A	Polycylic Organic Matter			2.12E-04 lb/MMBtu	1.97E-04 tpy	1.97E-04 tpy
171	N/A	Selenium Compounds	5.30E-06 lb/MMBtu	3.01E-04 tpy			3.01E-04 tpy
176	108883	Toluene			2.81E-04 lb/MMBtu	2.61E-04 tpy	2.61E-04 tpy
185	1330207	Xylenes (isomers and mixture)			1.93E-04 lb/MMBtu	1.79E-04 tpy	1.79E-04 tpy
		Total HAP Emissions		**0.114 tpy**	**Total HAP Emissions**	**0.002 tpy**	**TOTAL** **0.12 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-4.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from 1999 FOR.

Notes/Comments:
1. Reference: AP-42, Table 3.4-3.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from 1999 FOR.

Petro Star North Pole Refinery - Fairbanks

Petro Star Refinery - Title V Data

Activity Data Input: N/A

Activity Period/Year: 1996 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
35	75070	Acetaldehyde		1.02E-06 tpy
39	107028	Acrolein		3.26E-06 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)		3.00E-04 tpy
48	71432	Benzene (including benzene from gasoline)		2.25E-02 tpy
52	N/A	Beryllium Compounds		2.00E-04 tpy
58	N/A	Cadmium Compouns		1.00E-03 tpy
75	N/A	Chromium Chompounds		5.00E-03 tpy
99	100414	Ethyl benzene		3.39E-05 tpy
109	5000	Formaldehyde		2.59E-02 tpy
118	110543	Hexane		1.30E-01 tpy
124	N/A	Lead Compounds		1.00E-03 tpy
145	91203	Naphthalene		6.03E-04 tpy
146	N/A	Nickel Compounds		1.00E-03 tpy
162	N/A	Polycylic Organic Matter		1.76E-03 tpy
176	108883	Toluene		1.63E-02 tpy
185	1330207	Xylenes (isomers and mixture)		6.61E-05 tpy
			Total HAP Emissions	**0.21 tpy**

Notes/Comments:

1. Reference: PetroStar Title V application.
2. Values shown are total facility-wide actual 1996 emissions.

Williams North Pole Refinery - Fairbanks

Williams North Pole Refinery

Activity Data Input: N/A

Activity Period/Year: 1998 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**		**Estimated Emissions**
1	79345	1,1,2,2-Tetrachloroethane				
9	106990	1,3-Butadiene		1.00E-02 tpy		1.00E-02 tpy
35	75070	Acetaldehyde		1.90E-01 tpy		1.90E-01 tpy
39	107028	Acrolein		3.60E-01 tpy		3.60E-01 tpy
48	71432	Benzene(including benzene from gasoline)		3.02E+00 tpy		3.02E+00 tpy
82	98828	Cumene		2.20E-01 tpy		2.20E-01 tpy
99	100414	Ethyl benzene		6.70E-01 tpy		6.70E-01 tpy
109	5000	Formaldehyde		1.90E-01 tpy		1.90E-01 tpy
118	110543	Hexane		2.37E+00 tpy		2.37E+00 tpy
120	7647010	Hydrochloric acid		1.00E-01 tpy		1.00E-01 tpy
145	91203	Naphthalene		2.00E-02 tpy		2.00E-02 tpy
162	N/A	Polycylic Organic Matter		3.00E-02 tpy		3.00E-02 tpy
176	108883	Toluene		3.79E+00 tpy		3.79E+00 tpy
185	1330207	Xylenes (isomers and mixture)		3.04E+00 tpy		3.04E+00 tpy
			Total HAP Emissions	14.0 tpy	**TOTAL**	**1.40E+01 tpy**

Notes/Comments:

1. Reference: Williams 1998 Actual emissions.
2. Values shown are total facility-wide actual 1998 emissions.

APPENDIX D-4

City and Borough of Juneau Area Sources

Table D-4-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Area Source Facilities
No.	CAS No.	Chemical Name														
1	79345	1,1,2,2-Tetrachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
10	542756	1,3-Dichloropropene	2.440 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	2.440 tpy	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	1.267 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.267 tpy	----- ---	----- ---	0.000 tpy	----- ---
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	0.095 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.095 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.030 tpy	0.004 tpy	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.024 tpy
36	60355	Acetamide	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
38	98862	Acetophenone	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	0.125 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.124 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
40	79061	Acrylamide	0.023 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.023 tpy
41	79107	Acrylic Acid	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---

Table D-4-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Area Source Facilities
No.	CAS No.	Chemical Name														
42	107131	Acrylonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
46	N/A	Arsenic Compounds (inorganic including	0.023 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.006 tpy	----- ---	0.000 tpy	0.017 tpy
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
48	71432	Benzene (including benzene from gasolir	0.369 tpy	0.002 tpy	0.000 tpy	----- ---	----- ---	0.161 tpy	0.074 tpy	----- ---	----- ---	0.000 tpy	----- ---	0.104 tpy	----- ---	0.028 tpy
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
52	N/A	Beryllium Compounds	0.017 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.003 tpy	----- ---	0.000 tpy	0.013 tpy
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
58	N/A	Cadmium Compouns	0.016 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.015 tpy	----- ---	0.000 tpy	0.001 tpy
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
64	463581	Carbonyl sufide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
69	79118	Chloroacetic acid	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
70	108907	Chlorobenzene	1.092 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.092 tpy	----- ---	----- ---	----- ---	0.000 tpy
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	0.015 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.015 tpy	----- ---	----- ---	----- ---	----- ---
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
75	N/A	Chromium Chompounds	0.097 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.089 tpy	----- ---	0.007 tpy	0.000 tpy
76	N/A	Cobalt Compounds	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	0.000 tpy
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixtu	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixtu	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixtu	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixtu	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-4-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Area Source Facilities
No.	CAS No.	Chemical Name														
83	N/A	Cyanide Compounds	1.046 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	1.000 tpy	----- ---	----- ---	----- ---	----- ---	0.046 tpy
84	3547044	DDE	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ethe	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---	----- ---
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxyprop	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
99	100414	Ethyl benzene	0.315 tpy	0.014 tpy	0.002 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.032 tpy	----- ---	0.267 tpy	----- ---	----- ---
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	0.179 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.179 tpy	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	0.167 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.167 tpy	----- ---	----- ---
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	0.230 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.230 tpy	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
109	5000	Formaldehyde	11.86 tpy	0.007 tpy	0.001 tpy	----- ---	----- ---	----- ---	----- ---	0.002 tpy	0.029 tpy	0.019 tpy	11.80 tpy	----- ---	----- ---	0.003 tpy
110	N/A	Glycol ethers	0.626 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.617 tpy	----- ---	----- ---	----- ---	0.009 tpy
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	3.980 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.046 tpy	0.000 tpy	----- ---	1.316 tpy	2.617 tpy	----- ---	----- ---	----- ---
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	0.474 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.426 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.048 tpy
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	----- ---
122	123319	Hydroquinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
123	78591	Isophorone	0.014 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.014 tpy	----- ---	----- ---	----- ---	----- ---

Table D-4-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Area Source Facilities
No.	**CAS No.**	**Chemical Name**														
124	N/A	Lead Compounds	0.012 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.012 tpy	----- ---	----- ---	0.000 tpy
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.023 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.001 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.019 tpy	----- ---	----- ---	0.003 tpy
128	N/A	Mercury Compounds	0.012 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	0.004 tpy	----- ---	----- ---	0.008 tpy
129	67561	Methanol	10.64 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	10.64 tpy	----- ---	----- ---	----- ---	----- ---
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide(Bromomethane)	3.386 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	3.386 tpy	----- ---	----- ---	----- ---	0.000 tpy
132	71556	Methyl chloroform (1,1,1-Trichloroethane	5.908 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	5.908 tpy	----- ---	----- ---	----- ---	----- ---
133	78933	Methyl ethyl ketone (2-Butanone)	10.92 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	0.024 tpy	----- ---	----- ---	----- ---	0.771 tpy	----- ---	10.13 tpy	----- ---	----- ---
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	7.475 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.115 tpy	----- ---	7.360 tpy	----- ---	----- ---
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy
140	74873	Methylchloride (Chloromethane)	0.164 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.158 tpy	----- ---	0.006 tpy
141	75092	Methylene chloride(Dichloromethane)	2.145 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.555 tpy	----- ---	1.590 tpy	----- ---	----- ---
142	101688	Methylene diphenyl diisocyante (MDI)	0.008 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.008 tpy
143	N/A	Mineral fibers	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
145	91203	Naphthalene	0.732 tpy	----- ---	----- ---	----- ---	----- ---	0.024 tpy	----- ---	----- ---	----- ---	0.703 tpy	----- ---	----- ---	0.000 tpy	0.005 tpy
146	N/A	Nickel Compounds	0.034 tpy	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.024 tpy	----- ---	----- ---	0.010 tpy
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzen	0.020 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.020 tpy
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	0.002 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.002 tpy
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	0.070 tpy	0.001 tpy	----- ---	----- ---	0.001 tpy	0.061 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.008 tpy
163	106503	p-Phenylemediamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
164	123386	Propionaldehyde	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-4-1

Summary of Estimated 1999 Hazardous Air Pollutant Emissions - All Area Sources
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Asphalt Plants	Asphalt Paving	Dry Cleaners	Residential Fireplaces	Residential Woodstoves	Service Stations	Open Burning	Structural Fires	Consumer Products	Residential Heating - Oil	Surface Coating	Used Oil Combustion	Area Source Facilities
No.	**CAS No.**	**Chemical Name**														
165	114261	Propoxur(Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	0.002 tpy	0.001 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	20.26 tpy	----- ---	----- ---	19.83 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	0.430 tpy	----- ---	----- ---	----- ---	0.007 tpy
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	43.53 tpy	0.008 tpy	0.001 tpy	----- ---	----- ---	0.061 tpy	0.309 tpy	----- ---	----- ---	6.545 tpy	----- ---	36.60 tpy	----- ---	0.010 tpy
177	8001352	Toxaphene (chlorinated camphene)	0.000 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy
178	79016	Trichloroethylene	0.007 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.007 tpy	----- ---	----- ---	----- ---	----- ---
179	121448	Triethylamine	0.013 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.013 tpy	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	0.035 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.000 tpy	----- ---	0.035 tpy	----- ---	----- ---
182	593602	Vinyl bromide	0.006 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.006 tpy
183	75014	Vinyl chloride	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
184	75354	Vinylidene chloride (1,1-Dichloroethylene	0.001 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.001 tpy
185	1330207	Xylenes (isomers and mixture)	24.21 tpy	0.018 tpy	0.003 tpy	----- ---	----- ---	0.017 tpy	0.014 tpy	----- ---	----- ---	3.095 tpy	----- ---	21.06 tpy	----- ---	0.005 tpy
186	95476	Xylenes (isomers and mixture)	2.212 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	2.207 tpy	----- ---	0.005 tpy
187	108383	Xylenes (isomers and mixture)	0.005 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.005 tpy
188	106423	Xylenes (isomers and mixture)	0.008 tpy	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	0.008 tpy
		Total HAP Emissions	**156 tpy**	**0.06 tpy**	**0.01 tpy**	**19.8 tpy**	**0.001 tpy**	**0.3 tpy**	**0.5 tpy**	**0.003 tpy**	**1.58 tpy**	**39.2 tpy**	**14.6 tpy**	**79.8 tpy**	**0.01 tpy**	**0.3 tpy**

Asphalt Plants - Juneau

	NG-Fired Batch Asphalt Plant		Oil-Fired Drum Asphalt Plant	
Activity Data Input:	8,270	**tons**	2,757	**tons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde	6.40E-04 lb/ton	2.65E-03 tpy	1.30E-03 lb/ton	1.79E-03 tpy	4.44E-03 tpy
39	107028	Acrolein			2.60E-05 lb/ton	3.58E-05 tpy	3.58E-05 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	6.60E-07 lb/ton	2.73E-06 tpy	1.10E-06 lb/ton	1.52E-06 tpy	4.25E-06 tpy
48	71432	Benzene (including benzene from gasoline)	3.50E-04 lb/ton	1.45E-03 tpy	4.10E-04 lb/ton	5.65E-04 tpy	2.01E-03 tpy
52	N/A	Beryllium Compounds	2.20E-07 lb/ton	9.10E-07 tpy			9.10E-07 tpy
58	N/A	Cadmium Compouns	8.40E-07 lb/ton	3.47E-06 tpy	4.40E-07 lb/ton	6.06E-07 tpy	4.08E-06 tpy
75	N/A	Chromium Chompounds	8.90E-07 lb/ton	3.68E-06 tpy	1.20E-05 lb/ton	1.65E-05 tpy	2.02E-05 tpy
99	100414	Ethyl benzene	3.30E-03 lb/ton	1.36E-02 tpy	3.80E-04 lb/ton	5.24E-04 tpy	1.42E-02 tpy
109	5000	Formaldehyde	8.60E-04 lb/ton	3.56E-03 tpy	2.40E-03 lb/ton	3.31E-03 tpy	6.86E-03 tpy
124	N/A	Lead Compounds	7.40E-07 lb/ton	3.06E-06 tpy	3.30E-06 lb/ton	4.55E-06 tpy	7.61E-06 tpy
127	N/A	Manganese Compounds	9.90E-06 lb/ton	4.09E-05 tpy	1.10E-05 lb/ton	1.52E-05 tpy	5.61E-05 tpy
128	N/A	Mercury Compounds	4.50E-07 lb/ton	1.86E-06 tpy	7.30E-09 lb/ton	1.01E-08 tpy	1.87E-06 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			2.00E-05 lb/ton	2.76E-05 tpy	2.76E-05 tpy
146	N/A	Nickel Compounds	4.20E-06 lb/ton	1.74E-05 tpy	1.50E-05 lb/ton	2.07E-05 tpy	3.80E-05 tpy
162	N/A	Polycylic Organic Matter	1.27E-04 lb/ton	5.25E-04 tpy	5.81E-04 lb/ton	8.00E-04 tpy	1.33E-03 tpy
164	123386	Propionaldehyde			1.30E-04 lb/ton	1.79E-04 tpy	1.79E-04 tpy
169	106514	Quinone	2.70E-04 lb/ton	1.12E-03 tpy	1.60E-04 lb/ton	2.21E-04 tpy	1.34E-03 tpy
176	108883	Toluene	1.80E-03 lb/ton	7.44E-03 tpy	7.50E-04 lb/ton	1.03E-03 tpy	8.48E-03 tpy
185	1330207	Xylenes (isomers and mixture)	4.30E-03 lb/ton	1.78E-02 tpy	1.60E-04 lb/ton	2.21E-04 tpy	1.80E-02 tpy
			Total HAP Emissions	**0.048 tpy**	**Total HAP Emissions**	**0.009 tpy**	**Total 0.057 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12.
2. Activity data derived from Anchorage DOT and MoA and 1999 population data.

Notes/Comments:
1. Reference: AP-42, Tables 11.1-10 and 11.1-13.
2. Activity data derived from Anchorage DOT and MoA and 1999 population data.

Ashpalt Plants - Juneau

DOT Contracts 1999
Engineers

Estimate	Units	Units - tons
52819	ton	52,819
5103	ton	5,103
2273	ton	2,273
126	ton	126
660	ton	660
177	ton	177
13300	Mg	13,087
608	Mg	598
5006	Mg	4,926
276	Mg	272
420	Mg	413
210	Mg	207

DOT total	80,661
MOA total	13,490
Anchorage total	**94,151**
Juneau total	**11,026**

Populations	
Anchorage	**Juneau**
257,808	30,192

Notes:

1. DOT info from Contracts Report (engineer's estimates).
2. MoA info from Jerry Hansen, Project Manager.
3. Assume the following proportions: 75% to stationary NG-fired plants and 25% to diesel-fired mobile plants.
4. NG-fired = batch and Diesel = drum (conversation with operator at Wilder hot plant, Anchorage, 6/15/00).

Asphalt Paving - Juneau

	NG-Fired Batch Asphalt Plant		Oil-Fired Drum Asphalt Plant	
Activity Data Input:	8,270	**tons**	2,757	**tons**
Activity Period/Year:	1999	**Year**	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
1	79345	1,1,2,2-Tetrachloroethane					
35	75070	Acetaldehyde	0.00064 lb/ton	4.50E-04 tpy	0.0013 lb/ton	3.05E-04 tpy	7.54E-04 tpy
39	107028	Acrolein			0.000026 lb/ton	6.09E-06 tpy	6.09E-06 tpy
48	71432	Benzene (including benzene from gasoline)	0.00035 lb/ton	2.46E-04 tpy	0.00041 lb/ton	9.61E-05 tpy	3.42E-04 tpy
99	100414	Ethyl benzene	0.0033 lb/ton	2.32E-03 tpy	0.00038 lb/ton	8.90E-05 tpy	2.41E-03 tpy
109	5000	Formaldehyde	0.00086 lb/ton	6.05E-04 tpy	0.0024 lb/ton	5.62E-04 tpy	1.17E-03 tpy
133	78933	Methyl ethyl ketone (2-Butanone)			0.00002 lb/ton	4.69E-06 tpy	4.69E-06 tpy
164	123386	Propionaldehyde			0.00013 lb/ton	3.05E-05 tpy	3.05E-05 tpy
169	106514	Quinone	0.00027 lb/ton	1.90E-04 tpy	0.00016 lb/ton	3.75E-05 tpy	2.27E-04 tpy
176	108883	Toluene	0.0018 lb/ton	1.27E-03 tpy	0.00075 lb/ton	1.76E-04 tpy	1.44E-03 tpy
185	1330207	Xylenes (isomers and mixture)	0.0043 lb/ton	3.02E-03 tpy	0.00016 lb/ton	3.75E-05 tpy	3.06E-03 tpy
			Total HAP Emissions	**0.008 tpy**	**Total HAP Emissions**	**0.001 tpy**	**Total** **0.009 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 11.1-9 and 11.1-12.
2. Activity data from DOT and MoA, adjusted for Juneau's population.

Notes/Comments:
1. Reference: AP-42, Tables 11.1-10 and 11.1-13.
2. Activity data from DOT and MoA, adjusted for Juneau's population.

Source: Phone coversation with Summit Paving, Lake Otis, Anchorage, 344-2644. Assume 4 inches of pavment for 90% of roads.
Assume remaining 10% of roads are private/residential and are ~3 inches in depth.
Therefore, average weighted depth = 3.9 inches.

Phone conversation with Jerry at Emulsion Products in Anchorage, 277-7752
RC, MC, and SC very rarely used any more. On rare occasions MC30 is used in federal projects (therefore MC30 was used as a factor).
MC30 thought to be 30% of diluent in cutback: Therefore 17% of cutback evaporated (see AP-42 Table 4.5-1).

Formula:
Evoc = VOC emissions in lb/yr = QA * (WPevap/100)
QA = mass of cutback asphalt used (lb)
WPevap = weight % of asphalt that evaporates

Asphalt Paving - Juneau

DOT Contracts 1999, Anchorage

Engineers Estimate	**Units**	
52,819	ton	52,819 tons
5,103	ton	5,103 tons
2,273	ton	2,273 tons
126	ton	126 tons
660	ton	660 tons
177	ton	177 tons
13,300	Mg	13,087 tons
608	Mg	598 tons
5,006	Mg	4,926 tons
276	Mg	272 tons
420	Mg	413 tons
210	Mg	207 tons

		Populations	
DOT total	80,661 tons		
MOA total	13,490 tons	**Anchorage**	**Juneau**
Anchorage total	**94,151 tons**	257,808	30,192
Juneau total	**11,026 tons**		

Notes:

1. DOT info from Contracts Report (engineer's estimates).
2. MoA info from Jerry Hansen, Project Manager.
3. Assume the following proportions: 75% to stationary NG-fired plants and 25% to diesel-fired mobile plants.
4. NG-fired = batch and Diesel = drum (conversation with operator at Wilder hot plant, Anchorage, 6/15/00).
5. Fairbanks tonnage prorated based on 1999 population estimates (32.7%).

Dry Cleaners - Juneau

Activity Data Input: 30,500 **capita**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
174	127184	Tetrachloroethylene (Perchloroethylene)	1.3 lb/yr/capita	19.825 tpy

Total HAP Emissions **20 tpy**

Notes/Comments:
1. Reference: AP-42, Table 4.1-2.
2. Activity (population) data based on Juneau website (www.juneau.lib.ak.us/).

Residential Fireplaces - Juneau

Activity Data Input: 70 **tons**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
162	N/A	Polycylic Organic Matter	1.60E-02	lb/ton	5.56E-04	tpy

Total HAP Emissions **0.001** **tpy**

Notes/Comments:
1. Reference: AP-42, Table 1.9-1.
2. Activity data extrapolated from 1990 CO study (see backup).

Residential Fireplaces - Juneau

Estimated Woodstove and Fireplace Activity

Description	Survey Data/Extrapolations	
% households w/ woodstove*	40	%
% households w/ fireplace*	3	%
% households w/ pellet stove*	4	%
Number of Households in survey*	353	
Number of households in survey w/ woodstove or pellet stove*	141	
Number of households in survey w/ fireplace*	11	
Number of households in survey w/ pellet stove*	14	
Total number of cords burned per year in survey - woodstoves*	1.8	
Total number of cords burned per year in survey - fireplaces*	1.8	
Total number of cords burned per year in survey - pellet stoves*	N/A	
Total weight of wood burned per year in survey - woodstoves*	4320	lb/yr
Total weight of wood burned per year in survey - fireplaces*	4320	lb/yr
Total weight of wood burned per year in survey - pellet stoves* - 80 ft3/cord, 30 lb/ft3	6000	lb/yr
Total number of Juneau households 1990 (from census data)	9902	
Extrapolated wood burned per year (based on 1990 census) - woodstoves	121180	lb/yr
Extrapolated wood burned per year (based on 1990 census) - fireplaces	121180	lb/yr
Extrapolated wood burned per year (based on 1990 census) - pellet stoves	168306	lb/yr
Total population 1990 (Municipality of Juneau data)	26313	
Total population 1999 (Municipality of Juneau data)	30192	
Extrapolated wood burned per year (1999) - woodstoves + pellet stoves	**166**	ton/yr
Extrapolated wood burned per year (1999) - fireplaces	**70**	ton/yr

* Indicates data from Mendenhall 1993 Wood Heating Survey

Residential Woodstoves - Juneau

	Residential Woodstoves	
Activity Data Input:	166	**tons**
Activity Period/Year:	1999	**Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
48	71432	Benzene (including benzene from gasoline)	1.94E+00	lb/ton	1.61E-01	tpy
58	N/A	Cadmium Compouns	2.20E-05	lb/ton	1.83E-06	tpy
75	N/A	Chromium Chompounds	1.00E-06	lb/ton	8.30E-08	tpy
127	N/A	Manganese Compounds	1.70E-02	lb/ton	1.41E-03	tpy
133	78933	Methyl ethyl ketone (2-Butanone)	2.90E-01	lb/ton	2.41E-02	tpy
145	91203	Naphthalene	2.88E-01	lb/ton	2.39E-02	tpy
146	N/A	Nickel Compounds	1.40E-05	lb/ton	1.16E-06	tpy
162	N/A	Polycylic Organic Matter	7.30E-01	lb/ton	6.06E-02	tpy
176	108883	Toluene	7.30E-01	lb/ton	6.06E-02	tpy
185	1330207	Xylenes (isomers and mixture)	2.02E-01	lb/ton	1.68E-02	tpy
			Total HAP Emissions		**0.348**	**tpy**

Notes/Comments:
1. Reference: AP-42, Table 1.10-2, 10-3 and 10-4.
2. Activity data extrapolated from Wood Heating Survey (see backup).

Residential Woodstoves - Juneau

Estimated Woodstove and Fireplace Activity

Description	Survey Data/Extrapolations	
% households w/ woodstove*	40	%
% households w/ fireplace*	3	%
% households w/ pellet stove*	4	%
Number of Households in survey*	353	
Number of households in survey w/ woodstove or pellet stove*	141	
Number of households in survey w/ fireplace*	11	
Number of households in survey w/ pellet stove*	14	
Total number of cords burned per year in survey - woodstoves*	1.8	
Total number of cords burned per year in survey - fireplaces*	1.8	
Total number of cords burned per year in survey - pellet stoves*	N/A	
Total weight of wood burned per year in survey - woodstoves*	4320	lb/yr
Total weight of wood burned per year in survey - fireplaces*	4320	lb/yr
Total weight of wood burned per year in survey - pellet stoves* - 80 ft3/cord, 30 lb/ft3	6000	lb/yr
Total number of Juneau households 1990 (from census data)	9902	
Extrapolated wood burned per year (based on 1990 census) - woodstoves	121180	lb/yr
Extrapolated wood burned per year (based on 1990 census) - fireplaces	121180	lb/yr
Extrapolated wood burned per year (based on 1990 census) - pellet stoves	168306	lb/yr
Total population 1990 (Municipality of Juneau data)	26313	
Total population 1999 (Municipality of Juneau data)	30192	
Extrapolated wood burned per year (1999) - woodstoves + pellet stoves	**166**	ton/yr
Extrapolated wood burned per year (1999) - fireplaces	**70**	ton/yr

* Indicates data from Mendenhall 1993 Wood Heating Survey

Gasoline Service Stations - Juneau

Activity Data Input: 6,223,374 **gallons**
Activity Period/Year: 2000 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**
14	540841	2,24-Trimethylpentane	0.0099	lb/lb VOC	0.10 tons
48	71432	Benzene (including benzene from gasoline)	0.0077	lb/lb VOC	0.07 tons
99	100414	Ethyl benzene	0.00004	lb/lb VOC	0.00 tons
118	110543	Hexane	0.00478	lb/lb VOC	0.05 tons
176	108883	Toluene	0.032	lb/lb VOC	0.31 tons
185	1330207	Xylenes (isomers and mixture)	0.0015	lb/lb VOC	0.01 tons
		Total HAP Emissions	**0.539**	**tpy**	

Notes/Comments:

1. Reference: AP-42, Section 5.2.
2. Assumptions:
   EFvoc total = (EFvoc fill + EFvoc b&e + EFvoc vd + EFvoc s)

EFvoc fill =	0.3	lb/kgal	VOC emission factor associated with filling USTs (Balanced submerged filling, Stage I controls)
EFvoc b&e =	1.0	lb/kgal	VOC emission factor associated with breathing and emptying losses from USTs
EFvoc vd =	1.1	lb/kgal	VOC emission factor associated with vapor displacement from automobile tanks during refilling (Stage II controls)
EFvoc s =	0.7	lb/kgal	VOC emission factor associated with spillage during automobile refilling

3. Source: Phone conversation with Raymond Measles, Tesoro, Anchorage, June 13, 2000 (561-5521)> RM stated that all stations should have been converted to Stage I (filling) controls by now.
4. Activity data extrapolated from Anchorage using vehicle miles traveled (VMT) ratio. Anchorage activity data and VMT data obtained from ADEC.
   178663083 gallons x 65.5/1880.4 = 6223374 gallons

Open Burning - Juneau

Activity Data Input: 3,431 **gallons**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.000 tons
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.000 tons
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.000 tons
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.000 tons
109	5000	Formaldehyde	1.214 lb/Mgal	0.002 tons
118	110543	Hexane	0.269 lb/Mgal	0.000 tons
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.000 tons
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.000 tons
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.000 tons
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.000 tons
		Total HAP Emissions		**0.003 tons**

Notes/Comments:
1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Firefighter training was the only activity considered in open burning.

Structural Fires - Juneau

Activity Data Input: 49 **total fires**
Activity Period: 1999 **year**

Section 112 Hazardous Air Pollutants

No.	CAS No.	Chemical Name
39	107028	Acrolein
83	N/A	Cyanide Compounds
109	5000	Formaldehyde
120	7647010	Hydrochloric acid

Source Category Emission Calculations

Emission Factor		Estimated Emissions	
2.55E-05	lb/dscf	1.24E-01	tons
2.05E-04	lb/dscf	1.00E+00	tons
5.91E-06	lb/dscf	2.88E-02	tons
8.73E-05	lb/dscf	4.26E-01	tons

Total HAP Emissions **1.579** **tons**

Notes/Comments:
1. Emission factors apply to sum of residential and nonresidential fires.
2. Activity data provided courtesy of State of Alaska Fire Marshall's Office, Anchorage.

Structural Fires Data - Juneau

F-Factor (Ref. 1)	9,570	**dscf/MMBtu**
HHV Factor (Ref. 2)	9,044	**Btu/lb**
Fuel Loading Factor (Ref. 2)	1.15	**tons of material buned/fire**

Sample calculation for volume of gas generated per amount burned:
Volume Gas Generated (dscf) / Material Burned (ton)
= F-Factor (dscf/MMBtu) * HHV (Btu/lb) * (1/2000) * (1/1e6)
= 173,102 dscf / ton burned
Sample calculation for emission rate of acrolein produced per amount burned:
Weight of Gas Generated (lb) / Material Burned (ton)
= Emission Factor (lb/dscf) * Volume Gas Generated Per Amount Burned (dscf/ton)
= 4.41 lb Acrolein / ton burned
Sample calculation for emission estimate for Acrolein:
= Number of Fires * Fuel Loading Factor (tons of material burned/fire) * Emission Rate of Acrolein (lb/ton burned)
= 1.24E-01 tons Acrolein

Notes/Comments:
1. Reference: Development of Area Source Hazardous Air Pollutant Inventories, Vol 1: Air Toxic Emission Inventory.
2. Reference: EIIP Volume III, Area Sources Preferred and Alternative Methods.

Consumer Products - Juneau

			Personal Care Products		Household Products		Automotive Aftermarket Products		Adhesives & Sealants		FIFRA-Regulated Products		Coatings & Related Products		Miscellaneous		
			Activity Data: 30,500 capita		Activity Data: 30,500 capita		Activity Data: 30,500 capita		Activity Data: 30,500 capita		Activity Data: 30,500 capita		Activity Data: 30,500 capita		Activity Data: 30,500 capita		
			Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		Activity Period: 1999 year		
	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Estimated Emissions
10	542756	1,3-Dichloropropene									1.60E-01 lb/yr/cap	2.44E+00 tons					2.44E+00 tons
12	106467	1,4-Dichlorobenzene(p)			4.79E-02 lb/yr/cap	7.30E-01 tons					3.52E-02 lb/yr/cap	5.37E-01 tons					1.27E+00 tons
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)							1.09E-05 lb/yr/cap	1.66E-04 tons							1.66E-04 tons
25	79469	2-Nitropropane							2.12E-06 lb/yr/cap	3.23E-05 tons							3.23E-05 tons
36	60355	Acetamide	1.38E-07 lb/yr/cap	2.10E-06 tons													2.10E-06 tons
38	98862	Acetophenone											8.53E-06 lb/yr/cap	1.30E-04 tons			1.30E-04 tons
41	79107	Acrylic Acid							3.94E-09 lb/yr/cap	6.01E-08 tons							6.01E-08 tons
48	71432	Benzene (including benzene from gasoline)					4.72E-06 lb/yr/cap	7.20E-05 tons									7.20E-05 tons
63	56235	Carbon tetrachloride											4.10E-10 lb/yr/cap	6.25E-09 tons			6.25E-09 tons
70	108907	Chlorobenzene									7.16E-02 lb/yr/cap	1.09E+00 tons	1.51E-05 lb/yr/cap	2.30E-04 tons			1.09E+00 tons
72	67663	Chloroform					3.60E-05 lb/yr/cap	5.49E-04 tons					9.55E-04 lb/yr/cap	1.46E-02 tons			1.51E-02 tons
86	132649	Dibenzofurans							8.07E-06 lb/yr/cap	1.23E-04 tons							1.23E-04 tons
94	68122	Dimethyl formamide	2.71E-05 lb/yr/cap	4.13E-04 tons			2.78E-08 lb/yr/cap	4.24E-07 tons	2.29E-07 lb/yr/cap	3.49E-06 tons					7.43E-06 lb/yr/cap	1.13E-04 tons	5.30E-04 tons
99	100414	Ethyl benzene			2.56E-06 lb/yr/cap	3.90E-05 tons	7.51E-05 lb/yr/cap	1.15E-03 tons	1.36E-05 lb/yr/cap	2.07E-04 tons	1.30E-03 lb/yr/cap	1.98E-02 tons	6.86E-04 lb/yr/cap	1.05E-02 tons			3.17E-02 tons
103	107062	Ethylene dichloride (1,2-Dichloroethane)	4.62E-06 lb/yr/cap	7.05E-05 tons	3.52E-08 lb/yr/cap	5.37E-07 tons											7.10E-05 tons
106	75218	Ethylene oxide									1.51E-02 lb/yr/cap	2.30E-01 tons					2.30E-01 tons
109	5000	Formaldehyde			6.74E-06 lb/yr/cap	1.03E-04 tons			2.51E-05 lb/yr/cap	3.83E-04 tons	3.81E-04 lb/yr/cap	5.81E-03 tons	8.55E-04 lb/yr/cap	1.30E-02 tons			1.93E-02 tons
110	N/A	Glycol ethers	1.52E-05 lb/yr/cap	2.32E-04 tons	5.31E-03 lb/yr/cap	8.10E-02 tons	2.69E-02 lb/yr/cap	4.10E-01 tons	1.28E-04 lb/yr/cap	1.95E-03 tons	5.65E-03 lb/yr/cap	8.62E-02 tons	2.24E-03 lb/yr/cap	3.42E-02 tons	2.42E-04 lb/yr/cap	3.69E-03 tons	6.17E-01 tons
118	110543	Hexane			2.09E-03 lb/yr/cap	3.19E-02 tons	3.53E-03 lb/yr/cap	5.38E-02 tons	7.83E-02 lb/yr/cap	1.19E+00 tons			2.39E-03 lb/yr/cap	3.64E-02 tons			1.32E+00 tons
120	7647010	Hydrochloric acid			1.75E-06 lb/yr/cap	2.67E-05 tons											2.67E-05 tons
121	7664393	Hydrogen fluoride (Hydrofluoric acid)			8.75E-08 lb/yr/cap	1.33E-06 tons	1.41E-05 lb/yr/cap	2.15E-04 tons									2.16E-04 tons
123	78591	Isophorone									9.47E-04 lb/yr/cap	1.44E-02 tons					1.44E-02 tons
129	67561	Methanol	5.67E-07 lb/yr/cap	8.65E-06 tons	6.66E-04 lb/yr/cap	1.02E-02 tons	6.61E-01 lb/yr/cap	1.01E+01 tons	6.82E-04 lb/yr/cap	1.04E-02 tons	9.48E-04 lb/yr/cap	1.45E-02 tons	1.60E-02 lb/yr/cap	2.44E-01 tons	1.84E-02 lb/yr/cap	2.81E-01 tons	1.06E+01 tons
131	74839	Methyl bromide(Bromomethane)									2.22E-01 lb/yr/per	3.39E+00 tons					3.39E+00 tons
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	7.45E-04 lb/yr/cap	1.14E-02 tons	2.85E-02 lb/yr/cap	4.35E-01 tons	7.63E-02 lb/yr/cap	1.16E+00 tons	2.14E-01 lb/yr/cap	3.26E+00 tons	5.99E-02 lb/yr/cap	9.13E-01 tons	7.69E-03 lb/yr/cap	1.17E-01 tons	2.46E-04 lb/yr/cap	3.75E-03 tons	5.91E+00 tons
133	78933	Methyl ethyl ketone (2-Butanone)	1.75E-05 lb/yr/cap	2.67E-04 tons	4.49E-04 lb/yr/cap	6.85E-03 tons	3.04E-03 lb/yr/cap	4.64E-02 tons	3.91E-02 lb/yr/cap	5.96E-01 tons	2.01E-05 lb/yr/cap	3.07E-04 tons	7.94E-03 lb/yr/cap	1.21E-01 tons	1.01E-05 lb/yr/cap	1.54E-04 tons	7.71E-01 tons
136	108101	Methyl isobutyl ketone (Hexone)			1.08E-04 lb/yr/cap	1.65E-03 tons	8.73E-04 lb/yr/cap	1.33E-02 tons	1.24E-03 lb/yr/cap	1.89E-02 tons	9.01E-05 lb/yr/cap	1.37E-03 tons	5.26E-03 lb/yr/cap	8.02E-02 tons			1.15E-01 tons
139	1634044	Methyl tert butyl ether					2.36E-05 lb/yr/cap	3.60E-04 tons									3.60E-04 tons
141	75092	Methylene chloride(Dichloromethane)			2.39E-03 lb/yr/cap	3.64E-02 tons	4.83E-03 lb/yr/cap	7.37E-02 tons	8.78E-03 lb/yr/cap	1.34E-01 tons	6.81E-04 lb/yr/cap	1.04E-02 tons	1.97E-02 lb/yr/cap	3.00E-01 tons	2.38E-05 lb/yr/cap	3.63E-04 tons	5.55E-01 tons
145	91203	Naphthalene			5.52E-07 lb/yr/cap	8.42E-06 tons	2.26E-06 lb/yr/cap	3.45E-05 tons	1.07E-04 lb/yr/cap	1.63E-03 tons	4.60E-02 lb/yr/cap	7.02E-01 tons	5.75E-06 lb/yr/cap	8.77E-05 tons			7.03E-01 tons
174	127184	Tetrachloroethylene (Perchloroethylene)			2.96E-03 lb/yr/cap	4.51E-02 tons	2.35E-02 lb/yr/cap	3.58E-01 tons	6.75E-04 lb/yr/cap	1.03E-02 tons	1.92E-04 lb/yr/cap	2.93E-03 tons	1.48E-04 lb/yr/cap	2.26E-03 tons	7.53E-04 lb/yr/cap	1.15E-02 tons	4.30E-01 tons
176	108883	Toluene	3.41E-03 lb/yr/cap	5.20E-02 tons	5.82E-04 lb/yr/cap	8.88E-03 tons	2.49E-02 lb/yr/cap	3.80E-01 tons	8.43E-02 lb/yr/cap	1.29E+00 tons			3.16E-01 lb/yr/cap	4.82E+00 tons	2.46E-06 lb/yr/cap	3.75E-05 tons	6.55E+00 tons
178	79016	Trichloroethylene			4.34E-05 lb/yr/cap	6.62E-04 tons	2.67E-04 lb/yr/cap	4.07E-03 tons	3.88E-05 lb/yr/cap	5.92E-04 tons			1.37E-04 lb/yr/cap	2.09E-03 tons			7.41E-03 tons
179	121448	Triethylamine									3.13E-04 lb/yr/cap	4.77E-03 tons	5.26E-04 lb/yr/cap	8.02E-03 tons			1.28E-02 tons
181	108054	Vinyl acetate							4.94E-08 lb/yr/cap	7.53E-07 tons							7.53E-07 tons
185	1330207	Xylenes (isomers and mixture)			3.28E-03 lb/yr/cap	5.00E-02 tons	1.20E-02 lb/yr/cap	1.83E-01 tons	9.76E-03 lb/yr/cap	1.49E-01 tons	1.37E-01 lb/yr/cap	2.09E+00 tons	4.05E-02 lb/yr/cap	6.18E-01 tons	4.31E-04 lb/yr/cap	6.57E-03 tons	3.10E+00 tons
			Total HAPs	**0.064 tons**	**Total HAPs**	**1.438 tons**	**Total HAPs**	**12.769 tons**	**Total HAPs**	**6.667 tons**	**Total HAPs**	**11.549 tons**	**Total HAPs**	**6.421 tons**	**Total HAPs**	**0.307 tons**	**39.215 tons**

Notes/Comments:
1. Reference: EIIP Volume III, Area Sources Preferred and Alternative Methods.
2. Activity (population) data based on Juneau website (www.juneau.lib.ak.us/).

Residential / Commercial Fuel Oil Heating - Juneau

Activity Data Input: 19,437,966 **gallons**
Activity Period/Year: **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
46	N/A	Arsenic Compounds (inorganic including arsine)	4.2 lb/10^{12} Btu	0.006 tons
52	N/A	Beryllium Compounds	2.5 lb/10^{12} Btu	0.003 tons
58	N/A	Cadmium Compouns	11 lb/10^{12} Btu	0.015 tons
75	N/A	Chromium Chompounds	67 lb/10^{12} Btu	0.089 tons
109	5000	Formaldehyde	1.214 lb/Mgal	11.800 tons
118	110543	Hexane	0.269 lb/Mgal	2.617 tons
124	N/A	Lead Compounds	8.9 lb/10^{12} Btu	0.012 tons
127	N/A	Manganese Compounds	14 lb/10^{12} Btu	0.019 tons
128	N/A	Mercury Compounds	3.0 lb/10^{12} Btu	0.004 tons
146	N/A	Nickel Compounds	18 lb/10^{12} Btu	0.024 tons
			Total HAP Emissions	**14.588 tpy**

Notes/Comments:
1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor), 1.3-9, and Speciate.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data extrapolated from 1990 Fairbanks CO Emissions Inventory extrapolated to Juneau.

Residential / Commercial Fuel Oil Heating - Juneau

Estimated Residential / Commercial Activity

Description	Data/Extrapolations
Annual Fuel Oil Sales (Fairbanks)*	47,400,000 gal/yr
Total population 1990 (Fairbanks Borough data)	73,624
Total population 1999 (Fairbanks Borough data)	84,336
Extrapolated Residential/Commercial Fuel Oil Sales (1999) - Fairbanks	54,296,512
Total population 1999 (Municpality of Juneau data)	30,192
Extrapolated Residential/Commercial Fuel Oil Sales (1999) - Juneau	**19,437,966** gal/yr

* Indicates data from Fairbanks 1990 Base Year Carbon Monoxide Emission Inventory (Sierra Research)

Surface Coating - Juneau

			Architectural Coatings									
			Water-based		Oil-based		Product Coatings		Special Purpose Coatings			
			Activity Data:	52,173 gallons	Activity Data:	22,366 gallons	Activity Data:	51,770 gallons	Activity Data:	19,368 gallons		
			Activity Period:	1998 Year	Activity Period:	1998 Year	Activity Period:	1998 Year	Activity Period:	1998 Year		
	Section 112 Hazardous Air Pollutants		Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories	
No.	CAS No.	Chemical Name	Factor	Emissions	Factor	Emissions	Factor	Emissions	Factor	Emissions	Estimated Emissions	
48	71432	Benzene (including benzene from gasoline)	0.36 %	0.1 tpy							0.10	tpy
99	100414	Ethyl benzene			0.54 %	0.3 tpy					0.27	tpy
101	75003	Ethyl chloride (Chloroethane)	0.62 %	0.2 tpy							0.18	tpy
104	107211	Ethylene glycol	0.58 %	0.2 tpy							0.17	tpy
133	78933	Methyl ethyl ketone (2-Butanone)			0.54 %	0.3 tpy	8.1 %	7.2 tpy	8.1 %	2.7 tpy	10.13	tpy
136	108101	Methyl isobutyl ketone (Hexone)			0.36 %	0.2 tpy	5.9 %	5.2 tpy	5.9 %	2.0 tpy	7.36	tpy
140	74873	Methylchloride (Chloromethane)	0.55 %	0.2 tpy							0.16	tpy
141	75092	Methylene chloride(Dichloromethane)	5.52 %	1.6 tpy							1.59	tpy
176	108883	Toluene			37.87 %	18.7 tpy	14.7 %	13.0 tpy	14.7 %	4.9 tpy	36.60	tpy
181	108054	Vinyl acetate	0.12 %	0.0 tpy							0.03	tpy
185	1330207	Xylenes (isomers and mixture)			3.7 %	1.8 tpy	15.8 %	14.0 tpy	15.8 %	5.2 tpy	21.06	tpy
186	95476	Xylenes (isomers and mixture)			4.47 %	2.2 tpy					2.21	tpy
			Total HAPs	**2.232 tpy**	**Total HAPs**	**23.447 tpy**	**Total HAPs**	**39.422 tpy**	**Total HAPs**	**14.748 tpy**	**79.850**	**tpy**

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Coating Application,

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Solvent-based Paint.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Industrial.

Notes/Comments:
1. Reference: AP-42, Section 4.2.
2. SPECIATE, Surface Coating Operations, Industrial.

Surface Coating Data - Juneau

Surface Coatings Calculations, Based on Population (1999)

U.S. Population	272,690,813
Alaska Populations:	
Anchorage	257,808
Fairbanks	84,366
Juneau	30,192

United States 1998 Quantity of Shipments of Paint, Varnish, and Lacquer (Gallons)

Location	Percent of US Population	Architectural Coatings	Product Coatings	Special Purpose	TOTAL GALLONS
USA	100%	673,174,000	467,584,000	174,929,000	1,315,687,000

Data from 1998 US Census Bureau Report MA32F(98)-1: Paint and Allied Products

Surface Coating Allocation, Based on Population (Gallons)

Location	Percent of US Population	Architectural Coatings	Product Coatings	Special Purpose	TOTAL GALLONS
Anchorage	0.0945%	636,434	442,064	165,382	1,243,880
Fairbanks	0.0309%	208,269	144,663	54,120	407,052
Juneau	0.0111%	74,533	51,770	19,368	145,671
TOTAL		919,236	638,497	238,870	1,796,603

VOC Emissions (Pounds)

Location	Percent of US Population	Architectural Coatings		Product Coatings	Special Purpose
		Water-based	Oil-based		
Anchorage	0.0945%	491,836	843,147	1,512,921	566,003
Fairbanks	0.0309%	160,950	275,915	495,094	185,221
Juneau	0.0111%	57,599	98,741	177,179	66,285
TOTAL		710,385	1,217,803	2,185,194	817,508

Notes on architectural paint calculations:

1. Solvent is assumed to be 60% (by volume) of the paint/coatings.
2. Solvent densities are assumed to be 7.36 lb/gallon.
3. Architectural paints are assumed to be 70% water-based (low-solvent) and 30% solvent-based.
4. Water-based paints are assumed to emit 25% of the VOCs in solvent-based paints.
5. Reference: AP-42 Section 4.2.2.1.2, Tables 4.2.2.1-2 and 4.2.2.1-3

Notes on product coatings and special purpose calculations:

1. Product coatings are assumed to be 30% water-based (low-solvent) and 70% solvent-based.
2. Water-based paints are assumed to emit 25% of the VOCs in solvent-based paints.

Definitons:

Architectural:

- Exterior waterborne (latex)
- Interior waterborne (latex)
- Exterior solvent-borne (oil)
- Interior solvent-borne (oil)
- Architectural lacquers
- "Do-it-yourself" wood and furniture finishes

Special Purpose Coatings:

- Industrial maintenance paints (interior, exterior)
- Marine coatings (off-shore structures, marine refinishing coatings)
- Traffic paints
- Metallic paints (aluminum, zinc bronze, etc.)
- Automobile refinishing coatings
- Aerosol paints
- Roof coatings
- Multi-color paints

Product Coatings:

- Automotive finishes
- Truck and bus finishes
- Other transportation finishes (aircraft, railroad, etc.)
- Wood and composition board flat-stock finishes
- Wood furniture and fixture finishes
- Appliance finishes
- Sheet, strip and coil coatings on metals
- Metal decorating finishes (can, container and closure coatings)
- Machinery and equipment finishes
- Paper and paperboard coatings (not ink)
- Metal furniture and fixtures finishes
- Electrical insulating varnishes
- Magnet wire coatings

Used Oil Combustion - Juneau

Activity Data Input: 76,193 **gallons**
Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations	
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**
12	106467	1,4-Dichlorobenzene(p)	8.30E-07 lb/kgal	3.16E-08 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	2.50E-03 lb/kgal	9.52E-05 tpy
52	N/A	Beryllium Compounds	1.80E-03 lb/kgal	6.86E-05 tpy
58	N/A	Cadmium Compouns	2.90E-04 lb/kgal	1.10E-05 tpy
75	N/A	Chromium Chompounds	1.90E-01 lb/kgal	7.24E-03 tpy
76	N/A	Cobalt Compounds	7.60E-03 lb/kgal	2.90E-04 tpy
145	91203	Naphthalene	1.20E-02 lb/kgal	4.57E-04 tpy
			Total HAP Emissions	**0.008 tpy**

Notes/Comments:
1. Reference: AP-42, Section 1.11, including 1996 revisions.

Used Oil Combustion - Juneau

Used Oil Combustion, based on population (1999)

U.S. Population (1983)	233,791,994
U.S. Population (1999)	272,690,813
Alaska Populations:	
Anchorage	257,808
Fairbanks	84,366
Juneau	30,192

United States Quantity of Used Oil Burned (Gallons)

Location	Used Oil Burned (1983)	Estimated Used Oil Burned (1999)
USA	590,000,000	688,165,480

1983 data from from AP-42section 1.11, Waste Oil Combustion

Population data from US Census web-site

Used-oil Combustion Allocation, Based on 1999 Population (Gallons)

Location	Percent of US Population	Gallons Used Oil Burned (1999)
Anchorage	0.0945%	650,607
Fairbanks	0.0309%	212,907
Juneau	0.0111%	76,193
TOTAL	0.1366%	939,707

Percentages based on 1999 Population data (http://venus.census.gov/cdrom/lookup/961017877)

Table D-4-2

Summary of Estimated 1998 Hazardous Air Pollutant Emissions - Area Source Facilities
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6
No.	CAS No.	Chemical Name	Area Facilities	Auke Bay	Juneau Airport	Wastewater Plant	Greens Creek Mine	Youngs Boat Dock	Lemon Creek
1	79345	1,1,2,2-Tetrachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
2	79005	1,1,2-Trichloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
3	57147	1,1-Dimethyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
4	120821	1,2,4-Trichlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
5	96128	1,2-Dibromo-3-chloropropane	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
6	122667	1,2-Diphenylhydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
7	106887	1,2-Epoxybutane	0.001 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---
8	75558	1,2-Propylenimine (2-Methyl aziridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
9	106990	1,3-Butadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
10	542756	1,3-Dichloropropene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
11	1120714	1,3-Propane sultone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
12	106467	1,4-Dichlorobenzene(p)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
13	123911	1,4-Dioxane (1,4-Diethyleneoxide)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
14	540841	2,24-Trimethylpentane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin	0.000 tpy	----- ---	----- ---	----- ---	0.000 tpy	----- ---	----- ---
16	95954	2,4,5-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
17	88062	2,4,6-Trichlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
18	94757	2,4-D, salts and esters	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
19	51285	2,4-Dinitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
20	121142	2,4-Dinitrotoluene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
21	584849	2,4-Tolluene diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
22	95807	2,4-Toluene diamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
23	53963	2-Acetylaminofluorene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
24	532274	2-Chloroacetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
25	79469	2-Nitropropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
26	91941	3,3-Dichlorobenzidene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
27	119904	3,3-Dimethoxybenzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
28	119937	3,3-Dimethyl benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
29	101144	4,4-Methylene bis (2-chloroaniline)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
30	101779	4,4'-Methylenedianiline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
31	534521	4,6-Dinitro-o-cresol, and salts	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
32	92671	4-Aminobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
33	92933	4-Nitrobiphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
34	100027	4-Nitrophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
35	75070	Acetaldehyde	0.024 tpy	0.000 tpy	0.000 tpy	0.023 tpy	0.000 tpy	0.000 tpy	0.000 tpy
36	60355	Acetamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
37	75058	Acetonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
38	98862	Acetophenone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
39	107028	Acrolein	0.000 tpy	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	0.000 tpy	0.000 tpy
40	79061	Acrylamide	0.023 tpy	----- ---	----- ---	0.023 tpy	----- ---	----- ---	----- ---
41	79107	Acrylic Acid	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
42	107131	Acrylonitrile	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
43	107051	Allyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
44	62533	Aniline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
45	N/A	Antimony Compounds	0.000 tpy	0.000 tpy	----- ---	0.000 tpy	----- ---	----- ---	0.000 tpy
46	N/A	Arsenic Compounds (inorganic including ars	0.017 tpy	0.000 tpy	----- ---	0.017 tpy	0.000 tpy	----- ---	0.000 tpy
47	1332214	Asbestos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-4-2

Summary of Estimated 1998 Hazardous Air Pollutant Emissions - Area Source Facilities
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6
No.	CAS No.	Chemical Name	Area Facilities	Auke Bay	Juneau Airport	Wastewater Plant	Greens Creek Mine	Youngs Boat Dock	Lemon Creek
48	71432	Benzene (including benzene from gasoline)	0.028 tpy	0.000 tpy	0.000 tpy	----- ---	0.012 tpy	0.001 tpy	0.015 tpy
49	92875	Benzidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
50	98077	Benzotricholoride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
51	100447	Benzyl chloride	0.001 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---
52	N/A	Beryllium Compounds	0.013 tpy	0.000 tpy	----- ---	0.013 tpy	----- ---	----- ---	0.000 tpy
53	57578	beta-Propiolactone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
54	92524	Biphenyl	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
55	117817	Bis(2-ethylhexyl)phthalate (DEHP)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
56	542881	Bis(chloromethyl)ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
57	75252	Bromoform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
58	N/A	Cadmium Compouns	0.001 tpy	0.000 tpy	----- ---	0.001 tpy	0.000 tpy	----- ---	0.000 tpy
59	156627	Calcium cyanamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
60	133062	Captan	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
61	63252	Carbaryl	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
62	75150	Carbon disulfide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
63	56235	Carbon tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
64	463581	Carbonyl sufide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
65	120809	Catechol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
66	133904	Chloramben	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
67	57749	Chlordane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
68	7782505	Chlorine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
69	79118	Chloroacetic acid	0.001 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---
70	108907	Chlorobenzene	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
71	510156	Chlorobenzilate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
72	67663	Chloroform	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
73	107302	Chloromethyl methyl ether	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
74	126998	Chloroprene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
75	N/A	Chromium Chompounds	0.000 tpy	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	0.000 tpy
76	N/A	Cobalt Compounds	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
77	N/A	Coke Oven Emissions	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
78	1319773	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
79	95487	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
80	108394	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
81	106445	Cresols/Creshlic acid (isomers and mixture)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
82	98828	Cumene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
83	N/A	Cyanide Compounds	0.046 tpy	----- ---	----- ---	0.046 tpy	----- ---	----- ---	----- ---
84	3547044	DDE	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
85	334883	Diazomethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
86	132649	Dibenzofurans	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
87	84742	Dibutylphthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
88	111444	Dichloroethyl ether (Bis[2-chloroethyl]ether)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
89	62737	Dichlorvos	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
90	111422	Diethanolamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
91	64675	Diethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
92	60117	Dimethyl aminoazobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
93	79447	Dimethyl caramoyl chloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
94	68122	Dimethyl formamide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-4-2

Summary of Estimated 1998 Hazardous Air Pollutant Emissions - Area Source Facilities
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6
No.	CAS No.	Chemical Name	Area Facilities	Auke Bay	Juneau Airport	Wastewater Plant	Greens Creek Mine	Youngs Boat Dock	Lemon Creek
95	131113	Dimethyl phthalate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
96	77781	Dimethyl sulfate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
97	106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
98	140885	Ethyl acrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
99	100414	Ethyl benzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
100	51796	Ethyl carbamate (Urethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
101	75003	Ethyl chloride (Chloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
102	1006934	Ethylene dibromide (Dibromoethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
103	107062	Ethylene dichloride (1,2-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
104	107211	Ethylene glycol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
105	151564	Ethylene imine (Axiridine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
106	75218	Ethylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
107	96457	Ethylene thiourea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
108	75343	Ethylidene dichloride (1,1-Dichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
109	5000	Formaldehyde	0.003 tpy	0.000 tpy	0.000 tpy	----- ---	0.001 tpy	0.001 tpy	0.002 tpy
110	N/A	Glycol ethers	0.009 tpy	----- ---	----- ---	0.009 tpy	----- ---	----- ---	----- ---
111	76448	Heptachlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
112	118741	Hexachlorobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
113	87683	Hexachlorobutadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
114	77474	Hexachlorocyclopentadiene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
115	67721	Hexachloroethane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
116	822060	Hexamethylene-1,6 diisocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
117	680319	Hexamethylphosphoramide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
118	110543	Hexane	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
119	302012	Hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
120	7647010	Hydrochloric acid	0.048 tpy	----- ---	----- ---	----- ---	0.048 tpy	----- ---	----- ---
121	7664393	Hydrogen fluoride (Hydrofluoric acid)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
122	123319	Hydroquinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
123	78591	Isophorone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
124	N/A	Lead Compounds	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
125	58899	Lindane (all isomers)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
126	108316	Maleic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
127	N/A	Manganese Compounds	0.003 tpy	0.001 tpy	----- ---	----- ---	----- ---	----- ---	0.002 tpy
128	N/A	Mercury Compounds	0.008 tpy	0.000 tpy	----- ---	0.007 tpy	0.000 tpy	----- ---	0.000 tpy
129	67561	Methanol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
130	72435	Methoxychlor	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
131	74839	Methyl bromide(Bromomethane)	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
132	71556	Methyl chloroform (1,1,1-Trichloroethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
133	78933	Methyl ethyl ketone (2-Butanone)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
134	60344	Methyl hydrazine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
135	74884	Methyl iodide (Iodomethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
136	108101	Methyl isobutyl ketone (Hexone)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
137	624839	Methyl isocyanate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
138	80626	Methyl methacrylate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
139	1634044	Methyl tert butyl ether	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
140	74873	Methylchloride (Chloromethane)	0.006 tpy	----- ---	----- ---	0.006 tpy	----- ---	----- ---	----- ---
141	75092	Methylene chloride(Dichloromethane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---

Table D-4-2

Summary of Estimated 1998 Hazardous Air Pollutant Emissions - Area Source Facilities
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6
No.	CAS No.	Chemical Name	Area Facilities	Auke Bay	Juneau Airport	Wastewater Plant	Greens Creek Mine	Youngs Boat Dock	Lemon Creek
142	101688	Methylene diphenyl diisocyante (MDI)	0.008 tpy	----- ---	----- ---	0.008 tpy	----- ---	----- ---	----- ---
143	N/A	Mineral fibers	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
144	121697	N,N-Diethyl anniline (N,N-Dimethylanine)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
145	91203	Naphthalene	0.005 tpy	0.000 tpy	0.000 tpy	----- ---	0.002 tpy	0.000 tpy	0.003 tpy
146	N/A	Nickel Compounds	0.010 tpy	0.004 tpy	----- ---	----- ---	0.000 tpy	----- ---	0.005 tpy
147	98953	Nitrobenzene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
148	62759	N-Nitrosodimethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
149	59892	N-Nitrosomorpholine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
150	684935	N-Nitroso-N-methylurea	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
151	90040	o-Anisidine	0.006 tpy	----- ---	----- ---	0.006 tpy	----- ---	----- ---	----- ---
152	95534	o-Toluidine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
153	56382	Parathion	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
154	82688	Pentachloromitrobenzene (Quintobenzene)	0.020 tpy	----- ---	----- ---	0.020 tpy	----- ---	----- ---	----- ---
155	87865	Pentachlorophenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
156	108952	Phenol	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
157	75445	Phosgene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
158	7723140	Phosphorus	0.002 tpy	0.001 tpy	----- ---	----- ---	----- ---	----- ---	0.001 tpy
159	7803512	Phospine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
160	85449	Phthalic anhydride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
161	1336363	Polychlorinated biphenyls (Aroclors)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
162	N/A	Polycylic Organic Matter	0.008 tpy	0.000 tpy	0.000 tpy	0.000 tpy	0.003 tpy	----- ---	0.004 tpy
163	106503	p-Phenylemediamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
164	123386	Propionaldehyde	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
165	114261	Propoxur(Baygon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
166	78875	Propylene dichloride (1,2-Dichloropropane)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
167	75569	Propylene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
168	91225	Quinoline	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
169	106514	Quinone	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
170	N/A	Radionuclides (including radon)	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
171	N/A	Selenium Compounds	0.000 tpy	0.000 tpy	----- ---	----- ---	----- ---	----- ---	0.000 tpy
172	100425	Styrene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
173	96093	Styrene oxide	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
174	127184	Tetrachloroethylene (Perchloroethylene)	0.007 tpy	----- ---	----- ---	0.007 tpy	----- ---	----- ---	----- ---
175	7550450	Titanium tetrachloride	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
176	108883	Toluene	0.010 tpy	0.000 tpy	0.000 tpy	----- ---	0.004 tpy	0.000 tpy	0.005 tpy
177	8001352	Toxaphene (chlorinated camphene)	0.000 tpy	----- ---	----- ---	0.000 tpy	----- ---	----- ---	----- ---
178	79016	Trichloroethylene	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
179	121448	Triethylamine	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
180	1582098	Trifluralin	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
181	108054	Vinyl acetate	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---	----- ---
182	593602	Vinyl bromide	0.006 tpy	----- ---	----- ---	0.006 tpy	----- ---	----- ---	----- ---
183	75014	Vinyl chloride	0.001 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---
184	75354	Vinylidene chloride (1,1-Dichloroethylene)	0.001 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	----- ---
185	1330207	Xylenes (isomers and mixture)	0.005 tpy	0.000 tpy	0.000 tpy	0.001 tpy	----- ---	0.000 tpy	0.004 tpy
186	95476	Xylenes (isomers and mixture)	0.005 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	0.004 tpy
187	108383	Xylenes (isomers and mixture)	0.005 tpy	----- ---	----- ---	0.001 tpy	----- ---	----- ---	0.004 tpy
188	106423	Xylenes (isomers and mixture)	0.008 tpy	----- ---	----- ---	0.004 tpy	----- ---	----- ---	0.004 tpy

Table D-4-2

Summary of Estimated 1998 Hazardous Air Pollutant Emissions - Area Source Facilities
City and Borough of Juneau

Section 112 Hazardous Air Pollutants			Juneau TOTAL	Facility No. 1	Facility No. 2	Facility No. 3	Facility No. 4	Facility No. 5	Facility No. 6
No.	CAS No.	Chemical Name	Area Facilities	Auke Bay	Juneau Airport	Wastewater Plant	Greens Creek Mine	Youngs Boat Dock	Lemon Creek
		Total HAP Emissions	0.3 tpy	0.008 tpy	0.0001 tpy	0.20 tpy	0.07 tpy	0.002 tpy	0.053 tpy

Auke Bay - Junueau

Diesel-Fired Turbines for Electricity Generation
Activity Data Input: 49,281 **gallons**
Activity Period/Year: 1996 **Year**

Diesel-Fired Engines greater than 600 hp
Activity Data Input: 6,831 **gallons**
Activity Period/Year: 1996 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	CAS No.	Chemical Name	Emission Factor	Estimated Emissions	Emission Factor	Estimated Emissions	Estimated Emissions
35	75070	Acetaldehyde			2.52E-05 lb/MMBtu	1.18E-05 tpy	1.18E-05 tpy
39	107028	Acrolein			7.88E-06 lb/MMBtu	3.69E-06 tpy	3.69E-06 tpy
45	N/A	Antimony Compounds	2.20E-05 lb/MMBtu	7.43E-05 tpy			7.43E-05 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.90E-06 lb/MMBtu	1.65E-05 tpy			1.65E-05 tpy
48	71432	Benzene(including benzene from gasoline)			7.76E-04 lb/MMBtu	3.63E-04 tpy	3.63E-04 tpy
52	N/A	Beryllium Compounds	3.30E-07 lb/MMBtu	1.11E-06 tpy			1.11E-06 tpy
58	N/A	Cadmium Compouns	4.20E-06 lb/MMBtu	1.42E-05 tpy			1.42E-05 tpy
75	N/A	Chromium Chompounds	4.70E-05 lb/MMBtu	1.59E-04 tpy			1.59E-04 tpy
76	N/A	Cobalt Compounds	9.10E-06 lb/MMBtu	3.07E-05 tpy			3.07E-05 tpy
109	5000	Formaldehyde			7.89E-05 lb/MMBtu	3.69E-05 tpy	3.69E-05 tpy
124	N/A	Lead Compounds	5.80E-05 lb/MMBtu	1.96E-04 tpy			1.96E-04 tpy
127	N/A	Manganese Compounds	3.40E-04 lb/MMBtu	1.15E-03 tpy			1.15E-03 tpy
128	N/A	Mercury Compounds	8.40E-06 lb/MMBtu	2.84E-05 tpy			2.84E-05 tpy
145	91203	Naphthalene			1.30E-04 lb/MMBtu	6.08E-05 tpy	6.08E-05 tpy
146	N/A	Nickel Compounds	1.20E-03 lb/MMBtu	4.05E-03 tpy			4.05E-03 tpy
158	7723140	Phosphorus	3.00E-04 lb/MMBtu	1.01E-03 tpy			1.01E-03 tpy
162	N/A	Polycylic Organic Matter			2.12E-04 lb/MMBtu	9.92E-05 tpy	9.92E-05 tpy
171	N/A	Selenium Compounds	5.30E-06 lb/MMBtu	1.79E-05 tpy			1.79E-05 tpy
176	108883	Toluene			2.81E-04 lb/MMBtu	1.31E-04 tpy	1.31E-04 tpy
185	1330207	Xylenes (isomers and mixture)			1.93E-04 lb/MMBtu	9.03E-05 tpy	9.03E-05 tpy
		Total HAP Emissions		**0.007 tpy**	**Total HAP Emissions**	**0.001 tpy**	**TOTAL** **0.01 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-4.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from operating permit application.
4. Facility has 2 turbines.

Notes/Comments:
1. Reference: AP-42, Table 3.4-3.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from operating permit application.
4. Facility has 1 engine-generator set.

Juneau International Airport

Diesel-Fired Engines less than 600 hp
Activity Data Input: 281 **gallons**
Activity Period/Year: Potential **Year**

Diesel-Fired Engines greater than 600 hp
Activity Data Input: 469 **gallons**
Activity Period/Year: Potential **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde	7.67E-04 lb/MMBtu	1.48E-05 tpy	2.52E-05 lb/MMBtu	8.10E-07 tpy	1.56E-05 tpy
39	107028	Acrolein	9.25E-05 lb/MMBtu	1.78E-06 tpy	7.88E-06 lb/MMBtu	2.53E-07 tpy	2.03E-06 tpy
48	71432	Benzene(including benzene from gasoline)	9.33E-04 lb/MMBtu	1.80E-05 tpy	7.76E-04 lb/MMBtu	2.49E-05 tpy	4.29E-05 tpy
109	5000	Formaldehyde	1.18E-03 lb/MMBtu	2.27E-05 tpy	7.89E-05 lb/MMBtu	2.53E-06 tpy	2.52E-05 tpy
145	91203	Naphthalene	8.48E-05 lb/MMBtu	1.63E-06 tpy	1.30E-04 lb/MMBtu	4.18E-06 tpy	5.81E-06 tpy
176	108883	Toluene	4.09E-04 lb/MMBtu	7.87E-06 tpy	2.81E-04 lb/MMBtu	9.03E-06 tpy	1.69E-05 tpy
185	1330207	Xylenes (isomers and mixture)	2.85E-04 lb/MMBtu	5.49E-06 tpy	1.93E-04 lb/MMBtu	6.20E-06 tpy	1.17E-05 tpy
			Total HAP Emissions	**0.0001 tpy**	**Total HAP Emissions**	**0.0001 tpy**	**TOTAL** **0.0001 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.3-2.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from July 6, 1998 application for Preapproved Limit.

Notes/Comments:
1. Reference: AP-42, Table 3.4-3.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from July 6, 1998 application for Preapproved Limit.
- Still missing other existing sources. These other sources have a combined NOx emission rate of 1.018 tpy.

Juneau-Douglas Wastewater Treatment Plant

Sewage Sludge Incinerator

Activity Data Input: 920 **tons**

Activity Period/Year: 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
5	96128	1,2-Dibromo-3-chloropropane	8.20E-04	lb/ton	3.77E-04	tpy
7	106887	1,2-Epoxybutane	1.60E-03	lb/ton	7.36E-04	tpy
35	75070	Acetaldehyde	5.00E-02	lb/ton	2.30E-02	tpy
40	79061	Acrylamide	5.00E-02	lb/ton	2.30E-02	tpy
45	N/A	Antimony Compounds	3.00E-04	lb/ton	1.38E-04	tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	3.70E-02	lb/ton	1.70E-02	tpy
51	100447	Benzyl chloride	1.90E-03	lb/ton	8.74E-04	tpy
52	N/A	Beryllium Compounds	2.90E-02	lb/ton	1.33E-02	tpy
58	N/A	Cadmium Compouns	1.80E-03	lb/ton	8.28E-04	tpy
61	63252	Carbaryl	2.00E-05	lb/ton	9.20E-06	tpy
69	79118	Chloroacetic acid	1.50E-03	lb/ton	6.90E-04	tpy
70	108907	Chlorobenzene	6.00E-05	lb/ton	2.76E-05	tpy
83	N/A	Cyanide Compounds	1.00E-01	lb/ton	4.60E-02	tpy
84	3547044	DDE	7.60E-06	lb/ton	3.50E-06	tpy
110	N/A	Glycol ethers	1.90E-02	lb/ton	8.74E-03	tpy
128	N/A	Mercury Compounds	1.60E-02	lb/ton	7.36E-03	tpy
131	74839	Methyl bromide(Bromomethane)	1.20E-04	lb/ton	5.52E-05	tpy
139	1634044	Methyl tert butyl ether	8.00E-04	lb/ton	3.68E-04	tpy
140	74873	Methylchloride (chloromethane)	1.20E-02	lb/ton	5.52E-03	tpy
142	101688	Methylene diphenyl diisocyante (MDI)	1.80E-02	lb/ton	8.28E-03	tpy
143	N/A	Mineral fibers	1.70E-06	lb/ton	7.82E-07	tpy
151	90040	o-Anisidine	1.20E-02	lb/ton	5.52E-03	tpy
154	82688	Pentachloromitrobenzene(Quintobenzene)	4.40E-02	lb/ton	2.02E-02	tpy
162	N/A	Polycylic Organic Matter	3.00E-04	lb/ton	1.38E-04	tpy
174	127184	Tetrachloroethylene (Perchloroethylene)	1.50E-02	lb/ton	6.90E-03	tpy
177	8001352	Toxaphene(chlorinated camphene)	8.00E-04	lb/ton	3.68E-04	tpy
182	593602	Vinyl bromide	1.30E-02	lb/ton	5.98E-03	tpy
183	75014	Vinyl chloride	1.90E-03	lb/ton	8.74E-04	tpy
184	75354	Vinylidene chloride(1,1-Dichloroethylene)	1.90E-03	lb/ton	8.74E-04	tpy
185	1330207	Xylenes (isomers and mixture)	1.90E-03	lb/ton	8.74E-04	tpy
186	95476	Xylenes (isomers and mixture)	1.90E-03	lb/ton	8.74E-04	tpy
187	108383	Xylenes (isomers and mixture)	3.00E-03	lb/ton	1.38E-03	tpy
188	106423	Xylenes (isomers and mixture)	9.40E-03	lb/ton	4.32E-03	tpy

Total HAP Emissions **0.205 tpy**

Notes/Comments:

1. Reference: AP-42, Tables 2.2-1, 2.2-3, 2.2-4 & 2.2-5.
2. Activity data from 1999 FOR.

Kennecott Greens Creek Mine - Juneau

	Diesel-Fired Engines greater than 600 hp	Diesel-Fired Engines less than 600 hp	Diesel-Fired Boilers/Heaters	Starved Air Incinerators
	Activity Data: 217,936 **gallons**	**Activity Data:** 123 **gallons**	**Activity Data:** 0.000 **gallons**	**Activity Data:** 45 **tons**
	Activity Period: 1999 **Year**	**Activity Period:** 1999 **Year**	**Activity Period:** 1999 **Year**	**Activity Period:** 1999 **Year**

Section 112 Hazardous Air Pollutants			Source Category Calculations		Source Category Calculations		Source Category Calculations		Source Category Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Factor**	**Emissions**	**Factor**	**Emissions**	**Factor**	**Emissions**	**Factor**	**Emissions**	**Estimated Emissions**
15	1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin							2.94E-06 lb/ton	6.57E-08 tpy	6.57E-08 tpy
35	75070	Acetaldehyde	2.52E-05 lb/MMBtu	3.76E-04 tpy	7.67E-04 lb/MMBtu	6.46E-06 tpy					3.83E-04 tpy
39	107028	Acrolein	7.88E-06 lb/MMBtu	1.18E-04 tpy	9.25E-05 lb/MMBtu	7.79E-07 tpy					1.18E-04 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)					4.2 lb/10^{12} Btu	0.000 tpy	6.69E-04 lb/ton	1.49E-05 tpy	1.49E-05 tpy
48	71432	Benzene(including benzene from gasoline)	7.76E-04 lb/MMBtu	1.16E-02 tpy	9.33E-04 lb/MMBtu	7.86E-06 tpy					1.16E-02 tpy
52	N/A	Beryllium Compounds					2.5 lb/10^{12} Btu	0.000 tpy			0.00E+00 tpy
58	N/A	Cadmium Compouns					11 lb/10^{12} Btu	0.000 tpy	2.41E-03 lb/ton	5.38E-05 tpy	5.38E-05 tpy
75	N/A	Chromium Chompounds					67 lb/10^{12} Btu	0.000 tpy	3.31E-03 lb/ton	7.39E-05 tpy	7.39E-05 tpy
109	5000	Formaldehyde	7.89E-05 lb/MMBtu	1.18E-03 tpy	1.18E-03 lb/MMBtu	9.94E-06 tpy	1.214 lb/Mgal	0.000 tpy			1.19E-03 tpy
118	110543	Hexane					0.269 lb/Mgal	0.000 tpy			0.00E+00 tpy
120	7647010	Hydrochloric acid							2.15E+00 lb/ton	4.80E-02 tpy	4.80E-02 tpy
124	N/A	Lead Compounds					8.9 lb/10^{12} Btu	0.000 tpy			0.00E+00 tpy
127	N/A	Manganese Compounds					14 lb/10^{12} Btu	0.000 tpy			0.00E+00 tpy
128	N/A	Mercury Compounds					3.0 lb/10^{12} Btu	0.000 tpy	5.60E-03 lb/ton	1.25E-04 tpy	1.25E-04 tpy
145	91203	Naphthalene	1.30E-04 lb/MMBtu	1.94E-03 tpy	8.48E-05 lb/MMBtu	7.14E-07 tpy					1.94E-03 tpy
146	N/A	Nickel Compounds					18 lb/10^{12} Btu	0.000 tpy	5.52E-03 lb/ton	1.23E-04 tpy	1.23E-04 tpy
162	N/A	Polycylic Organic Matter	2.12E-04 lb/MMBtu	3.16E-03 tpy							3.16E-03 tpy
176	108883	Toluene	2.81E-04 lb/MMBtu	4.19E-03 tpy	4.09E-04 lb/MMBtu	3.45E-06 tpy					4.20E-03 tpy
			Total HAPs	**0.025 tpy**	**Total HAPs**	**0.000 tpy**	**Total HAPs**	**0.000 tpy**	**Total HAPs**	**0.048 tpy**	**TOTAL** **0.07 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.4-3.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from 1999 FORs.

Notes/Comments:
1. Reference: AP-42, Table 3.3-2.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from 1999 FORs.

Notes/Comments:
1. Reference: AP-42, Tables 1.3-2 (assume residential furnace factor),
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from 1999 FORs.

Notes/Comments:
1. Reference: AP-42, Tables 2.1-9.
2. No incinerator identified in Title V.
3. Only 1st half of 1999 FOR lists tons material incinerated. Doubl

Kennecott Greens Creek Youngs Bay Boat Dock - Juneau

Diesel-Fired Engines less than 600 hp

Activity Data Input: 8,000 **gallons**

Activity Period/Year: N/A **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations			
No.	**CAS No.**	**Chemical Name**	**Emission Factor**		**Estimated Emissions**	
35	75070	Acetaldehyde	7.67E-04	lb/MMBtu	4.20E-04	tpy
39	107028	Acrolein	9.25E-05	lb/MMBtu	5.07E-05	tpy
48	71432	Benzene(including benzene from gasoline)	9.33E-04	lb/MMBtu	5.11E-04	tpy
109	5000	Formaldehyde	1.18E-03	lb/MMBtu	6.47E-04	tpy
145	91203	Naphthalene	8.48E-05	lb/MMBtu	4.65E-05	tpy
176	108883	Toluene	4.09E-04	lb/MMBtu	2.24E-04	tpy
185	1330207	Xylenes (isomers and mixture)	2.85E-04	lb/MMBtu	1.56E-04	tpy

Total HAP Emissions **0.002** **tpy**

Notes/Comments:

1. Reference: AP-42, Table 3.3-2.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from Pre-approved Limit No. PAL 000432.

Lemon Creek - Juneau

Diesel-Fired Turbines for Electricity
Activity Data Input: 66,260 **gallons**
Activity Period/Year: 1996 **Year**

Diesel-Fired Engines greater than 600 hp
Activity Data Input: 282,096 **gallons**
Activity Period/Year: 1996 **Year**

Section 112 Hazardous Air Pollutants			Source Category Emission Calculations		Source Category Emission Calculations		Total - All Categories
No.	**CAS No.**	**Chemical Name**	**Emission Factor**	**Estimated Emissions**	**Emission Factor**	**Estimated Emissions**	**Estimated Emissions**
35	75070	Acetaldehyde			2.52E-05 lb/MMBtu	4.87E-04 tpy	4.87E-04 tpy
39	107028	Acrolein			7.88E-06 lb/MMBtu	1.52E-04 tpy	1.52E-04 tpy
45	N/A	Antimony Compounds	2.20E-05 lb/MMBtu	9.99E-05 tpy			9.99E-05 tpy
46	N/A	Arsenic Compounds (inorganic including arsine)	4.90E-06 lb/MMBtu	2.22E-05 tpy			2.22E-05 tpy
48	71432	Benzene (including benzene from gasoline)			7.76E-04 lb/MMBtu	1.50E-02 tpy	1.50E-02 tpy
52	N/A	Beryllium Compounds	3.30E-07 lb/MMBtu	1.50E-06 tpy			1.50E-06 tpy
58	N/A	Cadmium Compouns	4.20E-06 lb/MMBtu	1.91E-05 tpy			1.91E-05 tpy
75	N/A	Chromium Chompounds	4.70E-05 lb/MMBtu	2.13E-04 tpy			2.13E-04 tpy
76	N/A	Cobalt Compounds	9.10E-06 lb/MMBtu	4.13E-05 tpy			4.13E-05 tpy
109	5000	Formaldehyde			7.89E-05 lb/MMBtu	1.52E-03 tpy	1.52E-03 tpy
124	N/A	Lead Compounds	5.80E-05 lb/MMBtu	2.63E-04 tpy			2.63E-04 tpy
127	N/A	Manganese Compounds	3.40E-04 lb/MMBtu	1.54E-03 tpy			1.54E-03 tpy
128	N/A	Mercury Compounds	8.40E-06 lb/MMBtu	3.81E-05 tpy			3.81E-05 tpy
145	91203	Naphthalene			1.30E-04 lb/MMBtu	2.51E-03 tpy	2.51E-03 tpy
146	N/A	Nickel Compounds	1.20E-03 lb/MMBtu	5.45E-03 tpy			5.45E-03 tpy
158	7723140	Phosphorus	3.00E-04 lb/MMBtu	1.36E-03 tpy			1.36E-03 tpy
162	N/A	Polycylic Organic Matter			2.12E-04 lb/MMBtu	4.10E-03 tpy	4.10E-03 tpy
171	N/A	Selenium Compounds	5.30E-06 lb/MMBtu	2.41E-05 tpy			2.41E-05 tpy
176	108883	Toluene			2.81E-04 lb/MMBtu	5.43E-03 tpy	5.43E-03 tpy
185	1330207	Xylenes (isomers and mixture)			1.93E-04 lb/MMBtu	3.73E-03 tpy	3.73E-03 tpy
186	95476	Xylenes (isomers and mixture)			1.93E-04 lb/MMBtu	3.73E-03 tpy	3.73E-03 tpy
187	108383	Xylenes (isomers and mixture)			1.93E-04 lb/MMBtu	3.73E-03 tpy	3.73E-03 tpy
188	106423	Xylenes (isomers and mixture)			1.93E-04 lb/MMBtu	3.73E-03 tpy	3.73E-03 tpy
			Total HAP Emissions	**0.009 tpy**	**Total HAP Emissions**	**0.044 tpy**	**TOTAL** **0.053 tpy**

Notes/Comments:
1. Reference: AP-42, Table 3.1-4.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from operating permit application.
4. Facility has 2 turbines.

Notes/Comments:
1. Reference: AP-42, Table 3.4-3.
2. Assume diesel fuel heat content of 137,000 Btu/gal.
3. Activity data from operating permit application.
4. Facility has 9 engine-generator sets.