Appendix B: Indiana Toxic Emissions Inventory

BACKGROUND

The Indiana Department of Environmental Management, Office of Air Quality (OAQ), has developed a statewide inventory of Hazardous Air Pollutants (HAPS) for the Great Lakes Air Toxic Emissions Inventory Project for calendar year 1999.

This portion of the inventory includes estimates and emissions data for point and area sources. Mobile source documentation and estimates will be released at some future time, dependent on the timing of the release of mobile source HAP emissions inventories being developed by U.S.EPA as part of the 1999 National Toxics Inventory effort.

Point source estimates were made using information from the state criteria pollutant inventory database and the Factor Information Retrieval System (FIRE 6.22). Point source emissions data from other databases maintained by the OAQ were also included. Area source estimates were made using published data, FIRE emission factors, speciation profiles, and reported information.

DATA SOURCES - POINT SOURCE

The point source inventory consists of HAP emissions data voluntarily reported by sources, data from U.S.EPA Community Right to Know Toxic Release Inventory (TRI), and estimates made by IDEM.

Large point sources throughout the state are required to submit an annual criteria pollutant emissions report under the state emission statement rule, Title 326 Indiana Administrative Code, Article 2, Rule 6 (326 IAC 2-6). The data submitted by sources are managed using the State Environmental Programs System (STEPS). The information from STEPS is used for making estimates for point sources included in the toxics inventory. As part of the annual criteria pollutant emissions reporting package sent to sources subject to this rule IDEM explains this inventory effort and requests that sources voluntarily provide HAPS emissions data.

EMISSION ESTIMATIONS - POINT SOURCE

Point source emission estimates were generally made using a generic emission factor approach. Source specific stack test data were used where available. The emission estimates were made using STEPS information, U.S.EPA FIRE (v 6.22) emission factors or stack test information, and information from AP-42. IDEM used data obtained by EPA as part of the utility mercury study for mercury emission estimates from coal burning electric utilities. For landfills and gasoline handling emission estimates IDEM developed speciation profiles based on available information and used those to estimate HAP emissions from source reported VOC information. Data used for making emission estimates using the emission factor approach include source classification

codes (SCC) codes, fuel process rates (FPRT), conversion factors, FIRE 6.22 emission factors, reported criteria pollutant emissions and the efficiencies of any capture and control equipment used. All estimated emissions are at the process level.

Below is an example of a point source emission estimation calculation.

SCC - 10100202 (from STEPS)
FPRT - 37,000 tons coal (from STEPS)
Pollutant - Arsenic (from FIRE 6.22)
Emission Factor - 4.1 e -4 lb/MMbtu heat input, MISC CONTROL DEVICES (from FIRE, version 6.22), quality rating A
Conversion factor (heat content of coal) - 13,000 Btu/lb (from AP-42)

(37,000 tons) * (2000 lbs/ton) * (13,000 btu/lb) * (4.1e-4 lb/MMbtu) = 0.2 lbs Arsenic

Because of the uncertainty associated with the effectiveness of various control devices in controlling hazardous air pollutants (HAPS), controlled emission factors were given priority and used wherever they best matched the source control devices, with consideration also given to U.S.EPA's emission factor quality rating.

SOURCE REPORTED EMISSIONS

Point Source Emissions

As part of the annual emissions reporting package Indiana requests information on hazardous air pollutant emissions from point sources required to report to STEPS. Indiana has included this voluntarily reported information, and information from the TRI database, for many point sources. The voluntarily reported emissions and TRI data are primarily source totals, however some sources did report process level HAPs in STEPS.

Area Source Emissions

Sources included in the area source inventory are those sources which are generally too small and/or too numerous to survey individually. Area sources include stationary sources which fall below reporting levels for the emissions statement rule or TRI such as dry cleaners and gas stations, and consumer and commercial based activities (residential fuel consumption and consumer products). The area source inventory consists of estimates using data sets such as population data, employment data, agriculture data, sales data, and other data from different local, state and federal agencies. 1999 data were used wherever possible. The following categories were inventoried:

Agricultural Pesticide Use
Chrome Electroplating
Consumer and Commercial Solvent Use
Commercial/Industrial Dry Cleaning Operations

Forest Fires and Prescribed Burning
Residential/Commercial Fuel Combustion (Coal, Natural Gas, Fuel Oil and Wood)
Gasoline Dispensing
Graphic Arts
Hospital Sterilizers
Human Cremation
Industrial Surface Coatings
Miscellaneous Surface Coatings (automobile refinishing and architectural surface coating)
Miscellaneous Mercury Sources (fluorescent lamp breakage, dental preparation and general laboratory use)
Municipal Solid Waste Landfills
Public Owned Treatment Works
Solvent Metal Cleaning
Structure Fires
Traffic Markings

The methodology documents developed by the Great Lakes Air Emissions Inventory Steering Committee and U.S. EPA's Emissions Inventory Improvement Program (EIIP) were followed where applicable. The remainder of this report contains more information for each area source category inventoried.

Agricultural Pesticide Use

The amount of atrazine used in the state and county acres planted with corn were obtained from Purdue University's Agricultural Statistics web site. Hexachlorobenzene emissions are estimated based on the amount of atrazine used. Non-agricultural pesticide estimates are included in the consumer and commercial solvent use category.

Chrome Electroplating

Estimates were made from stack test information and operating data included in inspection and compliance reports for sources subject to the Chrome Plating NESHAP.

Consumer and Commercial Solvent Use

Estimates were made using county populations and per capita HAP emission factors.

Commercial/Industrial Dry Cleaning Operations

OAQ maintains a database of annual perchloroethylene use (in gallons) for dry cleaners which is obtained during NESHAP compliance inspections. County total emissions are calculated using this information. The density of perchloroethylene was used to convert gallons consumed into pounds for air emission estimates.

Forest Fires and Prescribed Burning

The acres of wood and grassland burned by county were obtained from the Department of Natural Resources from the State Forest, State Parks, Nature Preserves and Fish and Wildlife Divisions. Fuel loading factors of 2 tons/acre for grassland and 10 tons/acre woodland were used. Emission factors from the 1998 Great Lakes area source methodology document were used to estimate emissions.

Fossil Fuel – Residential/Commercial Fuel Combustion

This category includes estimates for residential and commercial coal, natural gas, fuel oil and wood combustion.

Residential – The county number of residential housing units using different fuels were obtained from 1990 Census of Housing, Detailed Housing Characteristics. The amount of different fuels used by residential units was obtained from the Energy Information Administration.

Commercial – The county number of commercial employees was obtained from 1999 County Business Patterns. The amount of different fuels used by the commercial sector was obtained from Energy Information Administration.

Gasoline Dispensing

Information on statewide total fuel use was obtained from the Federal Highway Administration's 1999 Highway Statistics. Gallons per county were estimated based on county sales in NAICS 4471X from 1997 US Census Bureau Economic Census data. VOC emission factors and expected control efficiencies from AP42 were used. Average speciation profiles for HAPS obtained from EPA's Bulk Gasoline MACT Background Information Document were used. It was assumed 50% of the reformulated gas sold in Lake and Porter Counties contained MTBE. Control efficiencies and rule effectiveness were applied in certain areas in the state with applicable rules.

Graphic Arts

State specific lb VOC/employee emission factors and air toxic speciation profiles were developed from 1999 data reported by graphic arts sources in the point source inventory. County employment data for the SIC 2752 and 2759 was obtained from the 1999 Harris Industrial Directory. Point source employment data were subtracted from the county employment totals.

Hospital Sterilizers

The methodology used makes estimates based hospital size (determined by the number of hospital beds) in each county. This information is available from the Indiana Department of Health.

Human Cremation

Data on the number of human cremations by county were obtained from the Indiana Department

of Health. A weight of 150 lbs/person was used to estimate emissions.

Industrial Surface Coatings

The industrial surface coating estimates are based on SIC employment data, except SCC Codes 2401090000, 2401100000, 2401200000, which are based on population. VOC were estimated using emission factors from the Great Lakes guidance document and employment information from the Harris Indiana Industrial Directory. Point source employment data were subtracted from county employment totals to eliminate double counting of emissions. Speciation profiles from SPECIATE 3.1 were used to estimate HAP emissions.

Miscellaneous Mercury Area Sources

This category includes estimates for fluorescent lamp breakage, dental preparation and general laboratory use. National mercury emissions data from EPA's 1997 Mercury Report to Congress were used to estimate 1999 emissions for Indiana.

Miscellaneous Surface Coatings

This category includes estimates for architectural surface coatings and automobile refinishing. Architectural surface coating emissions were calculated based on population data obtained from the U.S. Census Bureau. Estimates of emissions from both water based and solvent based coatings were made by multiplying populations times average usage factors and per capita VOC emission factors. Speciation profiles were then applied to estimate HAP emissions.

Automobile refinishing emissions were calculated using employment data for NAICS 81112 (from the 1999 County Business Patterns), a per employee VOC emission factor, and speciation profiles for HAPS. Midranges were used for counties with employment ranges. For counties with no employment data in this NAICS Code but data under a broader NAICS Code (811), a percentage of the state total was used. For counties with auto refinishing rules in place a 70% control efficiency and an 80% rule effectiveness was applied.

Municipal Solid Waste Landfills

U.S.EPA's Landfill Gas Emissions Model (Version 2.01) was used to estimate non-methane organic compound (NMOC) and HAP emissions for a model landfill. NMOC emissions were then calculated for all landfills where data was available. Speciation profiles for HAPS were developed using the model landfill information and were applied to model estimated NMOC emissions for each landfill. Actual tons of waste disposed at landfills is available from the Office of Land Quality (OLQ). This information has been tracked since the early 1990's. This information and other historical data were used to estimate current amounts of waste in place. In counties with more than one landfill, estimates were totaled and entered as a single area source.

Public Owned Treatment Works

Average daily flow rates for 1999 for all Public Owned Treatment Works (POTW's) were

obtained from the Office of Water Quality (OWQ). Composite emission factors from FIRE 6.22 were developed and used to estimate HAP emissions.

Solvent Metal Cleaning

The solvent metal cleaning estimates are based on employment data. Employment data for specific manufacturing SIC Codes were obtained from the Harris Industrial Directory for Indiana. Employment data for non-manufacturing sector were obtained from 1999 County Business Patterns. Point source employment data for sources reporting halogenated solvent cleaning processes were subtracted from county total employment data for each SIC. The VOC emission factors came from EIIP Solvent Cleaning document. Speciation profiles were obtained from RAPIDS. A 50% control efficiency (63% control efficiency and 80% rule effectiveness) was applied to halogenated solvent cleaning estimates subject to the NESHAP and operations located in the counties subject to more stringent state VOC rules. For the other non-halogenated degreasing operations in the state subject to general state control requirements a control effectiveness of 32% (40% control efficiency and 80% rule effectiveness) was applied.

Structure Fires

The state total number of residential and structure fires was obtained from the State Fire Marshall. Vehicle fires and industrial fires were not included. 1999 data were not available so 1997 data were used. County breakdowns were not available so the state totals were apportioned to the county level based on population. The estimated county activities were multiplied by a factor of 2 based on suggestion of the State Fire Marshall's Office who indicated that only approximately 50% of the fire departments in the state reported data. Fuel loading factors and emission factors were obtained from the EIIP guidance document.

Traffic Markings

Each county estimate of roadway paint emissions were determined based on data provided by INDOT and an average gallons per mile application rate for other traffic markings. INDOT reported using 620,000 gallons of water based coatings with a VOC content of 0.41 pounds per gallon. According to the MSDS approximately 2% of the VOC is Methanol for the most abundantly used coatings (white and yellow paints). For other traffic markings not applied by INDOT, the county total roadway miles, a 6.68 gallon per mile application rate (developed using INDOT application data), along with a VOC content of 3.36 lbs per gallon, and speciation profiles from SPECIATE 3.1 (profile 2403) were used to estimate emissions.

The methanol estimates from the traffic markings category were inadvertently omitted from the final data set sent to the Great Lakes Commission for the development of the regional portion of the report. However the estimates have been incorporated into the Indiana Emission Inventory tables included at the end of this section of the report.

MERCURY INVENTORY

Specific efforts were made by IDEM and the other Great Lakes States to improve the completeness and accuracy of mercury estimates included in the 1999 inventory. One regional and state effort undertaken was to identify common processes (identified by SCC) included in state inventories that were missing mercury estimates. In cases where emission estimates were missing due to missing emission factors and where mercury emission factors were available for similar processes, IDEM added estimates using the emission factors from the similar process. A second effort IDEM undertook involved using EPA section 114 mercury data for electric utilities to improve estimates for those facilities. Another effort involved including mercury estimates for medical waste incinerators developed by IDEM as part of the medical and municipal waste combustor State Implementation Plans. Mercury estimates for area source categories (human cremations, fluorescent lamp breakage, dental preparations and general laboratory use) were also added in 1999. The following is a breakdown of mercury emissions by point and area source sectors and by 1 digit SCC Code.

1999 Mercury (Pounds)	Point	Area
	7804	438

Table B-1: Mercury Emissions by Category (lb/yr)

Category	1999
External Combustion Boilers	4536
Waste Disposal	1824
Reported Source Totals (Unknown Processes)	893
Industrial Processes	688
Stationary Source Fuel Combustion	265
Waste Disposal, Treatment, and Recovery	24
Internal Combustion Engines	12

INFORMATION

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Table B-2: Indiana - Statewide Emissions (lb/yr)

Pollutant	Point Sources	Area Sources	TOTAL
ACENAPHTHEN	30.12	3,566.31	3,596.43
ACENAPHTHYL	20.78	75,527.50	75,548.29
ACETALDEHYDE	189,570.00	44,022.33	233,592.33
ACETAMIDE		0.71	0.71
ACETONITRILE	140,230.02		140,230.02
ACETOPHENONE	15,859.16	50.66	15,909.82
ACROLEIN	20,842.87	106,098.91	126,941.78
ACRYLAMIDE	4.40		4.40
ACRYLIC ACID	941.40	0.02	941.42
ACRYLONITRIL	4,143.81	4,555.37	8,699.18
ALLYL CHLORI	12.96		12.96
AMINOBIPHE,4	0.42		0.42
ANILINE	832.00		832.00
ANISIDINE,O-	1.27		1.27
ANTHRACENE	48,731.73	4,990.12	53,721.85
ANTIMONY	11,305.02	6.21	11,311.23
ARSENIC	30,958.71	2,400.99	33,359.71
ATRAZINE		1,199,880.00	1,199,880.00
BENZ(A)ANTHR	15,860.52	7,778.46	23,638.98
BENZ(BK)FL		0.22	0.22
BENZ(GHI)PE	1.70	1,425.64	1,427.34
BENZENE	396,638.91	1,761,301.51	2,157,940.42
BENZIDINE	5.56		5.56
BENZO(A)PYRE	12,765.09	1,581.01	14,346.09
BENZO(B)FLUO	0.35	2,137.92	2,138.27
BENZO(K)FLUO	0.04	712.90	712.94
BENZYL CHLOR	38,209.72		38,209.72
BERYLLIUM	2,788.33	323.10	3,111.43
BIPHENYL	34,057.60	3,879.48	37,937.08
BROMOFORM	2,122.99		2,122.99
BROMOMETH	10,351.43	1,319,324.04	1,329,675.47
BUTADIENE,13	1,119.57	42,614.68	43,734.25
CADMIUM	4,742.27	418.59	5,160.86
CAPTAN	25.00		25.00
CARBON DISUL	94,401.22	598.12	94,999.34
CARBON TETRA	431.53	2,982.02	3,413.55
CARBONYL SUL	1,657,419.64	396.44	1,657,816.08
CHLORINE	741,173.38	390.02	741,563.40
CHLOROBENZ	5,275.07	382.52	5,657.59
CHLOROETHANE	31,674.68	49,136.14	80,810.82
CHLOROFORM	4,619.91	23,123.66	27,743.57
CHLOROPRENE	24.00		24.00
CHROMIUM	81,340.51	1,108.36	82,448.87
CHROMIUM VI	4,327.15	67.28	4,394.43
CHRYSENE	15,245.21	4,929.88	20,175.09
CLACETOPHE,2	384.79		384.79
COBALT	10,566.70	63.10	10,629.80
COKE OVEN GS	569,870.17		569,870.17
COPPER	77,600.84	322.73	77,923.57
CRESOL MX IS	172,635.00		172,635.00
CRESOL,M	19,530.60		19,530.60
CRESOL,O	992.80		992.80
CRESOL,P	10,097.60		10,097.60
CUMENE	197,569.89	9,581.92	207,151.81
CYANIDE	143,681.33		143,681.33
DIBENZAHAN	0.16	1,617.36	1,617.51
DIBROMO3,12	9.82		9.82
DIBROMOET,12	65.71	2.92	68.63
DIBUTYL PHTH	10,027.81	2,308.15	12,335.96
DICHLORETH12	28,508.59	4,865.65	33,374.24
DICLBENZ,14	1,055.01	462,951.99	464,007.00

Pollutant	Point Sources	Area Sources	TOTAL
DICLETH,11-	171.11	264.28	435.38
DICLPROPE,13		950,864.16	950,864.16
DIETHANOLAMI	9,499.44		9,499.44
DIEYLHEX PHT	6,073.04		6,073.04
DIMETH PHTHA	40,260.41		40,260.41
DIMETH SULFA	2,599.44		2,599.44
DIMETHFORMAM	16,625.01	68,034.30	84,659.31
DIMETHOXY,33	1.54		1.54
DIMETHYLANIL	321.24		321.24
DINITROPH,24	3.47		3.47
DINITRTOL,24	29.81		29.81
DIOCTYL PHTH	2.39	25.00	27.39
DIOXANE	1,628.89	214.00	1,842.89
EPICLHYDRIN	31.80		31.80
EPOXYBUT,12	455.90		455.90
ETH ACRYLATE	1.42		1.42
ETHYLBENZENE	691,822.61	715,437.31	1,407,259.91
ETHYLENE GLY	100,878.79	130,694.06	231,572.85
ETHYLENE OXI	3,492.41	130,976.10	134,468.51
ETHYLENE THI	10.00		10.00
FLUORANTHENE	45,374.93	7,839.23	53,214.17
FLUORENE	58.47	8,551.91	8,610.38
FORMALDEHYDE	350,857.45	315,181.68	666,039.13
GLYCOL ETHRS	2,189,499.85	638,397.94	2,827,897.79
HCL	54,382,084.51	210,336.18	54,592,420.69
HEXACL-1,3-C	1.63		1.63
HEXAMETHYL16	2,126.84		2,126.84
HEXANE	4,962,090.61	4,132,407.65	9,094,498.27
HEXCHLORETH	39,053.94		39,053.94
HEXCL-13-BUT	8.98		8.98
HEXCLBENZENE		0.54	0.54
HF	6,845,451.24	8.39	6,845,459.63
HYDROGEN CYA	12,222.00	494,008.02	506,230.02
HYDROQUINONE	1,066.73	11,750.47	12,817.20
INDN(123CDPY	3.23	7,125.34	7,128.56
ISOPHORONE	84,485.36	5,627.96	90,113.32
LEAD	161,474.23	4,967.01	166,441.24
LEAD OXIDE	102.20		102.20
MALEIC ANHYD	850.00		850.00
MANGANESE	286,250.33	1,549.75	287,800.08
MERCURY	7,804.10	438.51	8,242.61
METH ETH KET	2,217,337.59	2,616,748.61	4,834,086.20
METH HYDRAZI	9,207.09		9,207.09
METH IODIDE	48.50		48.50
METH ISOBUT	1,294,703.83	1,942,060.10	3,236,763.93
METH ISOCYAN	34.00		34.00
METH METHACR	232,665.94		232,665.94
METH TERT BU	81,699.10	100,262.04	181,961.14
METHANOL	3,263,389.73	3,854,353.44	7,117,743.17
METHENE DIAN	580.08		580.08
METHENE(B)4-	93,528.86		93,528.86
METHYL CHLOR	53,463.08	53,522.01	106,985.09
METHYLENE CL	4,518,756.95	1,254,025.71	5,772,782.66
NAPHTHALENE	331,865.60	668,605.80	1,000,471.40
NICKEL	59,506.58	4,271.18	63,777.76
NITRBIPHEN,4	0.77		0.77
NITROBENZ	0.21		0.21
NITROPHENL,4	14.42		14.42
NITROPROPA,2		11.61	11.61
NITROSODIMET	1.78		1.78
NITROSOMORPH	1.22		1.22
PCBS	0.29		0.29
PCDD	0.35	1.03	1.38
PCDF	1.13	5.62	6.74
PCP	3.06		3.06

Pollutant	Point Sources	Area Sources	TOTAL
PENTCLNITBEN	1.86		1.86
PERC	115,585.76	3,137,242.54	3,252,828.30
PHENANTHRENE	139,343.82	27,796.53	167,140.34
PHENOL	873,848.41	381.24	874,229.66
PHENYLENED,P	1,100.00		1,100.00
PHOSGENE	161.00		161.00
PHOSPHORUS	77,913.24		77,913.24
PHTHALIC ANH	11,165.00		11,165.00
PROP IM, 12	6.22		6.22
PROPIONALDEH	21,937.47		21,937.47
PROPOXUR	97.20		97.20
PRPLENE DICH	11.28		11.28
PRPLENE GLYC	131.00		131.00
PRPLENE OXID	36,361.80		36,361.80
PYRENE	21.74	8,552.64	8,574.39
QUINOLINE	4,087.26		4,087.26
QUINONE	198.12		198.12
SELENIUM	75,787.17	598.17	76,385.34
STYRENE	5,974,749.40	2,308.27	5,977,057.68
TCDD,2378	0.0008	0.0027	0.0035
TCDF,2378	0.37	0.15	0.52
TCE,111	34,636.32	5,527,443.84	5,562,080.16
TETCLET,1122	1,301.36	2,503.72	3,805.08
TOL DIAMIN24	12.00		12.00
TOLUENE	6,830,611.99	13,948,396.21	20,779,008.20
TOLUENE24DII	6,073.02		6,073.02
TOLUIDINE,O-	113.42		113.42
TRICHLORETHY	1,030,083.13	2,859,840.26	3,889,923.39
TRICLBNZ,124	5.90		5.90
TRICLETH,112	481.00	180.83	661.83
TRICLPHN,245	1.24		1.24
TRICLPHN,246	629.32		629.32
TRIETHAMINE	909,785.05	4,986.12	914,771.17
TRIFLURALIN	1.45		1.45
TRIME-PENTAN	41,259.59	415,504.99	456,764.58
VINLIDENE CL	44.00	2,784.14	2,828.14
VINYL ACETAT	116,690.19	0.26	116,690.45
VINYL CHLOR	3,467.49	6,259.32	9,726.81
XYLENE,M	3,444.33	36,972.04	40,416.37
XYLENE,O	1,531.77	99,289.45	100,821.22
XYLENE,P	983.10	36,972.04	37,955.14
XYLENES ISO	5,774,832.27	12,298,887.09	18,073,719.35

Indiana – Pollutant Codes

Code	Pollutant	CAS Number
ACENAPHTHEN	Acenaphthene	83-32-9
ACENAPHTHYL	Acenaphthylene	208-96-8
ACETALDEHYDE	Acetaldehyde	75-07-0
ACETAMIDE	Acetamide	60-35-5
ACETONITRILE	Acetonitrile	75-05-8
ACETOPHENONE	Acetophenone	98-86-2
ACROLEIN	Acrolein	107-02-8
ACRYLAMIDE	Acrylamide	79-06-1
ACRYLIC ACID	Acrylic acid	79-10-7
ACRYLONITRIL	Acrylonitrile	107-13-1
ALLYL CHLORI	Allyl chloride	107-05-1
AMINOBIPHE,4	4-Aminobiphenyl	92-67-1
ANILINE	Aniline	62-53-3
ANISIDINE,O-	o-Anisidine	90-04-0
ANTHRACENE	Anthracene	120-12-7
ANTIMONY	Antimony	7440-36-0
ARSENIC	Arsenic (and compounds)	7440-38-2
ATRAZINE	Atrazine	1912-24-9
BENZ(A)ANTHR	Benz(a)anthracene	56-55-3
BENZ(GHI)PE	Benzo(g,h,i)perylene	191-24-2
BENZENE	Benzene	71-43-2
BENZIDINE	Benzidine	92-87-5
BENZO(A)PYRE	Benzo(a)pyrene	50-32-8
BENZO(B)FLUO	Benzo(b)fluoranthene	205-99-2
BENZO(K)FLUO	Benzo(k)fluoranthene	207-08-9
BENZYL CHLOR	Benzyl chloride	100-44-7
BERYLLIUM	Beryllium (and compounds)	7440-41-7
BIPHENYL	Biphenyl	92-52-4
BROMOFORM	Bromoform	75-25-2
BROMOMETH	Bromomethane	74-83-9
BUTADIENE,13	1,3-Butadiene	106-99-0
CADMIUM	Cadmium (and compounds)	7440-43-9
CAPTAN	Captan	133-06-2
CARBON DISUL	Carbon disulfide	75-15-0
CARBON TETRA	Carbon tetrachloride	56-23-5
CARBONYL SUL	Carbonyl sulfide	463-58-1
CHLORINE	Chlorine	7782-50-5
CHLOROBENZ	Chlorobenzene	108-90-7
CHLOROETHANE	Chloroethane	75-00-3
CHLOROFORM	Chloroform	67-66-3
CHLOROPRENE	Chloroprene	126-99-8
CHROMIUM	Chromium (and compounds)	11115-74-5
CHROMIUM VI	Chromium VI	18540-29-9
CHRYSENE	Chrysene	218-01-9
CLACETOPHE,2	2-Chloroacetophenone	532-27-4
COBALT	Cobalt (and compounds)	7440-48-4
COKE OVEN GS	Coke oven emissions	
COPPER	Copper (and compounds)	7440-50-8
CRESOL MX IS	Cresol (mixed isomers)	1319-77-3
CRESOL,M	m-Cresol	108-39-4
CRESOL,O	o-Cresol	95-48-7
CRESOL,P	p-Cresol	106-44-5
CUMENE	Cumene	98-82-8
CYANIDE	Cyanide	57-12-5
DIBENZAHAN	Dibenzo(a,h)anthracene	53-70-3
DIBROMO3,12	1,2-Dibromo-3-chloropropane	96-12-8
DIBROMOET,12	1,2-Dibromoethane	106-93-4
DIBUTYL PHTH	Dibutyl phthalate	84-74-2
DICHLORETH12	1,2-Dichloroethane	107-06-2
DICLBENZ,14	1,4-Dichlorobenzene	106-46-7
DICLETH,11-	1,1-Dichloroethane	75-34-3
DICLPROPE,13	1,3-Dichloropropene	542-75-6
DIETHANOLAMI	Diethanolamine	111-42-2

Code	Pollutant	CAS Number
DIEYLHEX PHT	Diethylhexyl phthalate	117-81-7
DIMETH PHTHA	Dimethyl phthalate	131-11-3
DIMETH SULFA	Dimethyl sulfate	77-78-1
DIMETHFORMAM	N,N-Dimethylformamide	68-12-2
DIMETHOXY,33	3,3-Dimethoxybenzidine	119-90-4
DIMETHYLANIL	Dimethylaniline (N,N-Dimethylaniline)	121-69-7
DINITROPH,24	2,4-Dinitrophenol	51-28-5
DINITRTOL,24	2,4-Dinitrotoluene	121-14-2
DIOCTYL PHTH	Dioctyl phthalate	117-84-0
DIOXANE	1,4-Dioxane	123-91-1
EPICLHYDRIN	Epichlorohydrin	106-89-8
EPOXYBUT,12	1,2-Epoxybutane	106-88-7
ETH ACRYLATE	Ethyl acrylate	140-88-5
ETHYLBENZENE	Ethylbenzene	100-41-4
ETHYLENE GLY	Ethylene glycol	107-21-1
ETHYLENE OXI	Ethylene oxide	75-21-8
ETHYLENE THI	Ethylene thiourea	96-45-7
FLUORANTHENE	Fluoranthene	206-44-0
FLUORENE	Fluorene	86-73-7
FORMALDEHYDE	Formaldehyde	50-00-0
GLYCOL ETHRS	Glycol ethers	
HCL	Hydrochloric acid	7647-01-0
HEXACL-1,3-C	1,2,3,4,5,5-Hexachloro-1,3-cyclopentadiene	77-47-4
HEXAMETHYL16	Hexamethylene-1,6-diisocyanate	822-06-0
HEXANE	n-Hexane	110-54-3
HEXCHLORETH	Hexachloroethane	67-72-1
HEXCL-13-BUT	Hexachloro-1,3-butadiene	87-68-3
HEXCLBENZENE	Hexachlorobenzene	118-74-1
HF	Hydrogen fluoride	7664-39-3
HYDROGEN CYA	Hydrogen cyanide	74-90-8
HYDROQUINONE	Hydroquinone	123-31-9
INDN(123CDPY	Indeno(1,2,3-c,d)pyrene	193-39-5
ISOPHORONE	Isophorone	78-59-1
LEAD	Lead (and compounds)	7439-92-1
MALEIC ANHYD	Maleic anhydride	108-31-6
MANGANESE	Manganese (and compounds)	7439-96-5
MERCURY	Mercury (and compounds)	7439-97-6
METH ETH KET	Methyl ethyl ketone	78-93-3
METH HYDRAZI	Methyl hydrazine	60-34-4
METH IODIDE	Methyl iodide	74-88-4
METH ISOCYAN	Methyl isocyanate	624-83-9
METH METHACR	Methyl methacrylate	80-62-6
METH TERT BU	Methyl tert butyl ether	1634-04-4
METHANOL	Methanol	67-56-1
METHENE DIAN	4,4-Mmethylene dianiline	101-77-9
METHENE(B)4-	4,4-Methylenediphenyl diisocyanate	101-68-8
METHYL CHLOR	Methyl chloride	74-87-3
METHYLENE CL	Methylene chloride	75-09-2
NAPHTHALENE	Naphthalene	91-20-3
NICKEL	Nickel (and compounds)	7440-02-0
NITRBIPHEN,4	4-Nitrobiphenyl	92-93-3
NITROBENZ	Nitrobenzene	98-95-3
NITROPHENL,4	4-Nitrophenol	100-02-7
NITROPROPA,2	2-Nitropropane	79-46-9
NITROSODIMET	N-Nitrosodimethylamine	62-75-9
NITROSOMORPH	N-Nitrosomorpholine	59-89-2
PCBS	Polychlorinated biphenyls (PCBS)	1336-36-3
PCDD	Polychlorinated dibenzodioxins, Total	
PCDF	Polychlorinated dibenzofurans, Total	
PCP	Pentachlorophenol	87-86-5
PENTCLNITBEN	Pentachloronitrobenzene	82-68-8
PERC	Tetrachloroethylene	127-18-4
PHENANTHRENE	Phenanthrene	85-01-8
PHENOL	Phenol	108-95-2
PHENYLENED,P	p-Phenylenediamine	106-50-3
PHOSGENE	Phosgene	75-44-5

Code	Pollutant	CAS Number
PHOSPHORUS	Phosphorus	7723-14-0
PHTHALIC ANH	Phthalic anhydride	85-44-9
PROP IM, 12	1,2-Propylenimine	75-55-8
PROPIONALDEH	Propionaldehyde	123-38-6
PROPOXUR	Propoxur	114-26-1
PRPLENE DICH	Propylene dichloride	78-87-5
PRPLENE OXID	Propylene oxide	75-56-9
PYRENE	Pyrene	129-00-0
QUINOLINE	Quinoline	91-22-5
QUINONE	Quinone	106-51-4
SELENIUM	Selenium (and compounds)	7782-49-2
STYRENE	Styrene	100-42-5
TCDD,2378	2,3,7,8-Tetrachlorodibenzo-p-dioxin	1746-01-6
TCDF,2378	2,3,7,8-Tetrachlorodibenzofuran	51207-31-9
TCE,111	1,1,1-Trichloroethane	71-55-6
TETCLET,1122	1,1,2,2-Tetrachloroethane	79-34-5
TOL DIAMIN24	2,4-Diaminotoluene	95-80-7
TOLUENE	Toluene	108-88-3
TOLUENE24DII	Toluene-2,4-diisocyanate	584-84-9
TOLUIDINE,O-	o-Toluidine	95-53-4
TRICHLORETHY	Trichloroethylene	79-01-6
TRICLBNZ,124	1,2,4-Trichlorobenzene	120-82-1
TRICLETH,112	1,1,2-Trichloroethane	79-00-5
TRICLPHN,245	2,4,5-Trichlorophenol	95-95-4
TRICLPHN,246	2,4,6-Trichlorophenol	88-06-2
TRIETHAMINE	Triethylamine	121-44-8
TRIFLURALIN	Trifluralin	1582-09-8
TRIME-PENTAN	2,2,4-Trimethylpentane	540-84-1
VINLIDENE CL	Vinylidene chloride	75-35-4
VINYL ACETAT	Vinyl acetate	108-05-4
VINYL CHLOR	Vinyl chloride	75-01-4
XYLENE,M	m-Xylene	108-38-3
XYLENE,O	o-Xylene	95-47-6
XYLENE,P	p-Xylene	106-42-3
XYLENES ISO	Xylene (mixed isomers)	1330-20-7