

Federal Register

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Part II

**Department of
Health and Human
Services**

**Agency for Toxic Substances and
Disease Registry**

**Environmental
Protection Agency**

**Hazardous Substances Priority List,
Toxicological Profiles; Notice**

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Agency for Toxic Substances and Disease Registry

ENVIRONMENTAL PROTECTION AGENCY

[ATSDR-6]

Hazardous Substances Priority List, Toxicological Profiles; Second List

AGENCIES: Department of Health and Human Services (DHHS), Agency for Toxic Substances and Disease Registry (ATSDR); and Environmental Protection Agency (EPA).

ACTION: Notice.

SUMMARY: The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), as amended by the Superfund Amendments and Reauthorization Act (SARA), establishes certain requirements for EPA and ATSDR of DHHS with regard to hazardous substances which are most commonly found at facilities on the CERCLA National Priorities List (NPL). Section 104(i)(2) (42 U.S.C. 9604(i)(2)) of CERCLA requires that the two agencies prepare a list of at least 100 hazardous substances, in order of priority, which are most commonly found at NPL facilities and which the agencies determine are posing the most significant potential threat to human health. The agencies complied with that requirement with the publication of the priority list of 100 substances (52 FR 12866, April 17, 1987). Section 104(i)(2) of CERCLA also requires the agencies to revise the priority list no later than October 17, 1988. Such revision shall include, in order of priority, the addition of 100 or more such hazardous substances. This notice contains the revised priority list containing an additional 100 substances, and provides a brief summary of the procedure used to assemble the list.

ADDRESS: Comments on this notice should bear the docket control number ATSDR-6, and should be submitted to: Director, Office of External Affairs, Agency for Toxic Substances and Disease Registry, Chamblee 28S, F-38, 1600 Clifton Road, NE., Atlanta, Georgia, 30333.

Comments which contain confidential business information (CBI) should clearly note that they contain CBI and should be sent in triplicate to the address given above. For further information regarding the submission of comments containing CBI, see unit V of this notice. Non-confidential versions of

comments on this notice will be available for public inspection at the Agency for Toxic Substances and Disease Registry, Building 28S, Room 1103, 4770 Buford Highway, NE., Chamblee, Georgia from 8 a.m. until 4:30 p.m., Monday through Friday, except for legal holidays.

FOR FURTHER INFORMATION CONTACT:

Ms. Georgi Jones, Director, Office of External Affairs, Agency for Toxic Substances and Disease Registry, Building 28S, F-38, 1600 Clifton Road, NE., Atlanta, Georgia 30333, Telephone: 404-488-4620.

SUPPLEMENTARY INFORMATION:

I. Background

On October 17, 1986, the President signed the Superfund Amendments and Reauthorization Act of 1986 (Pub. L. 99-499), which extends and amends the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 *et seq.*).

As added by SARA, section 104(i)(2) of CERCLA requires the preparation of: (1) A list of hazardous substances found at NPL sites (in order of priority), (2) toxicological profiles of those substances, and (3) a research program to fill data gaps associated with the substances.

A priority list of the first 100 substances was published (52 FR 12866, April 17, 1987) (See Appendix), with a short summary of the procedure used by ATSDR and EPA to compile that list. In that notice, the agencies solicited public comment on the approach adopted for evaluating and ranking hazardous substances found at NPL sites, and announced the intention to refine the listing process in response to these comments and ongoing efforts by the agencies to improve the listing process.

The changes in the procedure used to prepare the second priority list are summarized below. The agencies solicit public comment on this approach; such comments should be submitted in accordance with the instructions given in this notice. The agencies will continue to seek improvements in the listing process as future revisions of the list are prepared. All nonconfidential comments will be placed in the public file for this notice. A more detailed description of the revised listing methodology is contained in support documents which have been placed in the public file and are available for public review (see unit V of this notice).

II. Review of Methodology for Selecting Substances on the First Priority List

A. General Approach for the First Priority List

To obtain the first list of 100 hazardous substances, ATSDR and EPA defined a subset of the 717 hazardous substances which formed the CERCLA list (under section 102 of CERCLA). The subset was defined as those chemicals which EPA has identified at National Priority List (NPL) sites. To rank the chemicals within this subset, three criteria were considered: (1) Chemical toxicity, (2) frequency-of-occurrence of subset substances at NPL sites or facilities, and (3) potential for human exposure to the substances. These criteria reflect the requirements of section 104(i)(2) of CERCLA, as well as the general practice of defining human exposure potential of a chemical substance. To develop a detailed ranking system employing these criteria, ATSDR and EPA first reviewed a number of hazard scoring systems for their applicability to the ranking criterion of toxicity. From all the approaches considered, the Reportable Quantity (RQ) scoring scheme was selected for ranking toxicity of the 100 priority substances. The RQ scoring scheme is described in several Federal Register documents (50 FR 13456, April 4, 1985; 51 FR 34534, September 29, 1986; and 52 FR 8140, March 18, 1987).

The second criterion used by ATSDR and EPA to prepare the first priority list of hazardous substances was the frequency-of-occurrence at NPL sites. Data from the Contract Laboratory Program (CLP) was used for determining frequency-of-occurrence. The CLP is an EPA program which supports that Agency's hazardous waste activities by providing a range of contract chemical analysis services. A statistically-designed survey of a subset of the CLP data (CLP survey) was developed in 1984. The CLP survey represents a random, stratified sample of sites and waste samples from those sites that were analyzed under the CLP from 1980 to 1984. The survey provides data on the percentage of sites at which a substance was detected at least once in any medium (i.e., frequency-of-occurrence) and the average and range of concentrations across media or matrices (e.g., soil, ground water, drums).

The third criterion used to prepare the first priority list of hazardous substances was the potential for human exposure. ATSDR and EPA evaluated various sources of data associated with this criterion, and selected the CLP survey data to derive a rough estimate

of potential for human exposure to hazardous substances at NPL sites. Three types of exposure-related data from the CLP survey were used: the average concentration of the candidate substances detected in ground water and surface water across the 358 NPL sites included in the CLP survey; the frequency of detection of those substances in ground water and surface water across the 358 sites; and whether the substances had been selected for detailed exposure and risk assessment at Superfund Remedial sites.

B. Generation of the First Priority List

Using the ranking factors described above, as well as some minor criteria, ATSDR and EPA developed an algorithm incorporating these criteria to calculate a hazard index value for each candidate substance. This algorithm served as the basis for generating the ranked order of the first 100 priority list substances.

The starting point for the hazard index calculation was the subset of hazardous substances which EPA had identified at NPL sites based on the site percent data from the CLP survey. The agencies divided the site percent data value for each substance (representing frequency-of-occurrence) by the lowest RQ value for the substance (based on acute toxicity, chronic toxicity, or potential carcinogenicity) to generate a site index for each substance. ATSDR and EPA ranked the candidate substances based on their site indices. The agencies then calculated an exposure index for each substance by ranking them based on the three exposure-related factors (with each factor receiving equal weight). The final step in the algorithm was to combine the site index rank and the exposure index value to obtain a hazard index for each substance. The substances were prioritized based on their hazard indices.

For purposes of assessing hazardous substances in toxicity profiles, ATSDR and EPA combined some of the candidate substances into groups. If substances are stereoisomers of one another, are readily metabolized to other substances on the list, or generally are characterized as mixtures with respect to toxicity and/or frequency-of-occurrence; they were grouped together and occupy only one position of the priority list. Examples of these types of substances include: heptachlor and heptachlor epoxide; endrin and endrin aldehyde; PCB's.

III. Methodology for Selecting Substances on the Second Priority List

A. Bases for Improvements in Methodology for Selecting Substances

Since publication of the first priority list of hazardous substances, ATSDR and EPA have continued to seek improvements in the listing process to incorporate into future revisions of the list. The agencies have solicited public comment and conducted critical reviews of the above-described prioritizing method in order to identify potential improvements. The resulting suggestions for improving the method center primarily on improving the estimation of the potential for human exposure to substances at NPL sites. The supporting document for the first priority list of 100 substances identified optimal site-specific data for an exposure assessment that include identification of human exposure pathways, characterization of potentially exposed populations, and determination of exposure concentrations and durations. Lacking such data, rough estimates of potential human exposure were made which relied primarily on surface water and ground water concentrations as measures of potential human exposure. Consequently, no consideration was given to exposure by air or soil, which may be more relevant for some substances than exposure by ground water or surface water. Considering this limitation in the exposure estimate, ATSDR and EPA sought to expand the ranking system to include a better estimate of potential for human exposure than was used for the first priority list of 100 substances.

Further suggestions for changes in methodology stem from differences in the type and quality of information available for substances of lower priority. It is noted, for example, that toxicity information on those substances that are more frequently encountered (and therefore, more likely to rank higher on the hazard index than less frequently-encountered substances) tends to be of a higher quality and more readily available. In addition, using the CLP statistical data base alone, the frequency-of-occurrence tends to vary significantly only for the most frequently detected substances, which makes the frequency of occurrence term relatively nonselective for prioritizing the second list of 100 hazardous substances.

Based on the foregoing considerations, ATSDR and EPA have considered suggestions for utilizing alternative methods to estimate (1) the frequency of occurrence of substances and (2) the relative toxicity of substances. The changes adopted are described in the

following description of the procedure used to generate the second priority list of 100 hazardous substances under SARA Section 110.

B. Determination of the Frequency-of-Occurrence Criterion of the Ranking Methodology

In the procedure for selection of the first 100 priority substances, the number of NPL sites at which a substance is known to occur was estimated from the information on the substance drawn from the CLP statistical data base as it existed at the time of development of the first list (e.g., April, 1987). For selection of the second 100 priority substances, an updated CLP statistical data base, containing additional data entered through August 10, 1988, formed one of the bases for selection of frequency-of-occurrence data on candidate chemicals. Two additional estimates of frequency-of-occurrence were employed.

The first source of additional information for frequency-of-occurrence was the Hazard Ranking System (HRS) data base. The HRS was developed to evaluate hazardous waste sites for listing on the NPL, and assigns a score to a site based upon a uniform scheme incorporating information on toxicity, persistence, and quantity at the site. During evaluation through the HRS method, up to 15 chemicals of concern can be listed at each site. The number of times that a given substance was listed as a chemical of concern in a HRS evaluation was used to estimate the frequency-of-occurrence at NPL sites, by dividing the number of times listed as a chemical of concern by the total number of NPL sites in the current data base (1,177).

The second source of additional information used to estimate frequency-of-occurrence was the Special Analytical Service (SAS) data base. This data base contains information on the occurrence of substances which do not appear in the CLP statistical database for methodological reasons. Most of the information in the CLP statistical data base is obtained under the Routine Analytical Services (RAS) program, in which samples submitted for analysis are screened for certain target chemicals; additional substances are then determined by matching their mass spectra to known standards. A request for determination of a substance under SAS may occur when there is reason to believe that a specific hazardous compound is present in a sample at a concentration below the detection limit of the RAS, or when there is reason to believe that a specific hazardous

substance which is not a target substance may be present in a sample.

The SAS data files were examined to identify substances with five or more requests for SAS which are not present in the CLP statistical database. Those substances were then examined further to determine the number of NPL sites at which the substance had actually been detected. This number was then divided by the total number of NPL sites to obtain a site percent frequency.

The overall site percent value used for a particular substance was the higher of the CLP statistical data base site percent (as determined by either RAS or SAS data) and the NPL Technical data base site percent when both were available.

C. Determination of the Exposure Component of the Ranking Methodology

ATSDR and EPA expanded the bases for evaluating the potential for human exposure to the priority substances in two ways: (1) By considering the air and soil as additional routes of potential exposure, and (2) by considering additional databases reflecting the potential for human exposure to the substances.

The potential for exposure to candidate substances through soil was considered by incorporating data on soil concentrations from the CLP statistical data base in the calculation of an exposure index for each substance. To estimate the potential for air exposure, ATSDR and EPA used an indirect method, since no data are readily available on actual air concentrations of the candidate substances at NPL sites. ATSDR and EPA considered the retention time on a gas chromatography column to be a useful indicator of potential for air exposure, since these values can be determined from the SAS and RAS databases, and since these values correlate positively with boiling point, which in turn correlates negatively with volatility. The potential for air exposure was included in the calculation of an overall exposure index.

Exposure potential also was represented in the second 100 ranking procedure through the incorporation of eight separate data sources. The data sources used were:

- CLP statistical data base (CLPs)
- NPL Technical data base (NPLt)
- National Human Adipose Tissue Survey (NHATS)
- Department of Transportation Hazardous Materials Information System (DOT/HMIS)
- Acute Hazardous Events data base (AHE)
- National Response Center data base (NRC)

Removal Tracking system data base (RTS) NEXIS

Information from these sources was incorporated in one of three ways: (1) As part of the water, soil and air exposure potential rank (CLP soil and water concentration data, and gas chromatography retention time); (2) as an alternate to the exposure potential rank in determining the overall exposure rank (NPL chemical of concern rank); and (3) as a weighting function applied to the overall exposure rank (NHATS, DOT/HMIS, AHE, NRC, NEXIS, RTS).

The CLP Statistical Data Base (CLPs)

The Contract Laboratory Program (CLP) statistical data base contains data on the occurrence and concentration of chemicals found at NPL and other hazardous waste sites. The data base was derived from CLP Routine Analytical Service (RAS) analyses and contains concentrations of specific chemicals found in soil, ground water, and surface water from a subset of the total NPL sites.

NPL Technical Data Base (NPLt)

The Hazard Ranking System (HRS) was developed to evaluate hazardous waste sites for listing on the NPL, and assigns a score to a site. Data from the HRS evaluation are stored in the NPL technical data base (NPLt). The HRS scores chemicals based upon toxicity, persistence, and quantity at the site. During evaluation through the HRS method, up to 15 chemicals of concern may be listed at each site. The number of times that a given substance was listed as a chemical of concern in the NPL data base was used to estimate the frequency-of-occurrence at all NPL sites and as a correlate of exposure potential.

Special Analytical Services Data Base (SAS)

Under the Routine Analytical Service (RAS) contracts, samples from CERCLA sites are analyzed for a limited set of "target chemicals." When there is reason to believe that a specific hazardous compound is present at concentrations below the detection limits of the RAS, or when the substance is not a target chemical, a request may be processed through the Special Analytical Services (SAS) contract, in which the contractor makes an analytical determination of the presence and concentration of the specified substance. Frequency of detection of a substance at NPL sites through the SAS was determined by direct analysis of SAS data files.

National Human Adipose Tissue Survey (NHATS)

The National Human Adipose Tissue Survey (NHATS) data base contains chemical analysis data of human adipose tissue collected from individuals in hospitals across the United States. Information is available for 372 substances, derived from 800 individual adipose tissue samples that were pooled into 46 composite samples (approximately 17 individual samples per composite). This data base gives some indication of the degree to which the population of the United States has been exposed to the substances detected. The ATSDR and EPA considered occurrence of a substance in human tissue, as reported in the NHATS, to be an indication of potential for significant human exposure, and therefore ATSDR and EPA assigned greater weight to the exposure index for such candidate substances.

Department of Transportation Hazardous Materials Information System (DOT/HMIS)

The Department of Transportation's Hazardous Materials Information System (DOT/HMIS) data base contains information concerning accidental release of hazardous substances during transportation. A written report must be submitted to HMIS within 15 days of the accidental release. The reports contain an identification of the substance released and an accounting of any injuries or fatalities resulting from the release. The ATSDR and EPA considered occurrence of a substance in the HMIS data base to be an indication of potential for significant human exposure, and therefore ATSDR and EPA assigned greater weight to the exposure index for such candidate substances.

Acute Hazardous Events Data Base (AHE)

The Acute Hazardous Events (AHE) data base was developed by the EPA, following the tragic release of a toxic substance in Bhopal, India, to provide information concerning sudden, accidental releases of toxic chemicals in the United States. The main purpose of the data base is to characterize the kinds of events releasing acutely toxic substances, the substances involved, and the causative factors leading to their release. The ATSDR and EPA considered occurrence of a substance in the AHE data base to be an indication of potential for significant human exposure, and therefore ATSDR and EPA assigned greater weight to the

exposure index for such candidate substances.

National Response Center Data Base (NRC)

The National Response Center (NRC) data base contains information concerning hazardous substance releases exceeding the RQ, pipeline failures and certain transportation incidents involving hazardous substances, and certain releases of toxic or flammable gases. ATSDR and EPA considered the occurrence of a candidate substance in this data base for any release that resulted in death, injury, or evacuation, to be an indication of potential for significant human exposure. Consequently the agencies increased the weight of the exposure index for any candidate substances listed in the NRC.

Removal Tracking System Data Base (RTS)

The Removal Tracking System (RTS) data base describes activities undertaken to clean up a site under the Superfund removal program. It lists the materials of concern that triggered a removal action and frequently lists other major contaminants being addressed at a site. ATSDR and EPA considered that the occurrence of a candidate substance in this data base indicates potential for significant human exposure. Consequently the agencies increased the weight of the exposure index for any candidate substances listed in the RTS.

NEXIS

The NEXIS information system contains full-text articles reporting the release of toxic substances in over 125 newspapers, newsletters, and wire services. ATSDR and EPA considered the reporting in this data base of release of a candidate substance which led to human death, injury, or evacuation, to be a significant indicator of potential for significant human exposure. Consequently, the agencies increased the weight of the exposure index for any such substance.

D. Determination of the Toxicity Component of the Ranking Methodology

ATSDR and EPA decided to continue to use the reportable quantity (RQ) approach as a hazard scoring system, for the same reasons that guided its choice for the first priority list of hazardous substances. This approach provides the most complete characterization of toxicity of all hazard scoring systems reviewed by the agencies, and all other schemes reviewed were more limited in some aspect of toxicity evaluation.

The reportable quantity ranking scheme was developed by EPA to set RQ's for hazardous substances as required by CERCLA. Each RQ category corresponds to a weight, in pounds, for which releases must be reported. Section 103 of CERCLA requires immediate notification from any person in charge of a vessel or an offshore or onshore facility that releases an amount of a hazardous substance equal to or greater than its RQ. RQ's are developed for individual chemicals and waste streams that have already been designated under CERCLA as hazardous substances.

Each CERCLA hazardous substance is assigned to one of five RQ categories based on chronic toxicity, acute toxicity, carcinogenicity, aquatic toxicity, and ignitability and reactivity. RQ's are determined for each criterion separately, and the lowest of these is selected to represent the RQ adopted for the substance. Only values for acute and chronic mammalian toxicity or carcinogenicity were considered for ranking the second 100 hazardous substances.

Some of the candidate hazardous substances have not yet been assigned RQ values. In these cases, the ATSDR and EPA adopted a technique used by EPA's Office of Toxic Substances (OTS) to evaluate the potential health hazards associated with new chemicals submitted to the Premanufacture Notice Program. Generally, there are few experimental data available for these chemicals. In these cases, OTS employs a panel of expert toxicologists to assign a level of concern for the potential for toxicity, based upon the limited available experimental data, and other information, including physical-chemical properties, known toxicities of analogous substances, and known toxicities of possible metabolites of the substance, or of substances analogous to possible metabolites. Based on this expert opinion, a consensus level of concern for potential toxicity was adjusted to a five-point scale to coincide with the five-point RQ scale. This value was then used to represent the RQ value in the ranking algorithm.

As was done for the first priority list of hazardous substances, ATSDR and EPA used secondary criteria to adjust the RQ's (or RQ-equivalents assigned by the panel of experts) where appropriate. One set of secondary criteria includes biodegradation, hydrolysis, and photolysis. The use of these criteria is based on the fact that substances which have a tendency to be transformed to innocuous products pose a less serious health concern than equally toxic substances that have less tendency to

be so transformed. ATSDR and EPA also used other secondary criteria such as bioaccumulation, high reactivity, and hazardous reaction products to determine if an adjustment of RQ values was appropriate for a given substance.

IV. Second Priority List of 100 Hazardous Substances

A. Generation of the Priority List

ATSDR and EPA generated an algorithm to calculate the hazard index value for each candidate substance, for the purpose of placing the substance on the second priority list of hazardous substances. The starting point for the hazard index calculation was the subset of hazardous substances which EPA had identified at NPL sites by means of site percent data from the CLP survey, or from the NPL or the SAS data bases, for those substances not in the CLP. The agencies divided the site percent data value for each substance (representing frequency-of-occurrence) by the lowest RQ value for the substance (based on acute toxicity, chronic toxicity, or potential carcinogenicity) to generate a site index for each substance. ATSDR and EPA ranked the candidate substances based on their indices, then calculated an exposure potential index for each substance. This index was based upon water concentration, soil concentration, and gas column retention time of each substance. The final step in the algorithm was to combine the site index rank and the exposure index value to obtain a hazard index for each substance. The substances were prioritized based on their hazard indices.

The algorithm for calculating the hazard index is described in greater detail in the support document for this notice, which is contained in the public file notice.

B. List of Substances

ATSDR and EPA have continued the practice initiated with the first list of prioritized substances, of grouping the substances in the second list of 100 into 4 priority groups of 25 substances each. Within each group, the agencies have listed the substances in order of their Chemical Abstracts Services (CAS) Registry numbers, to reflect the somewhat inexact nature of the ranking algorithm and the uncertainties of the underlying databases.

The following 100 hazardous substances comprise the second set of 100 priority substances that will be the subject of toxicological profiles prepared by ATSDR. This set, and the first set of 100 priority substances

previously published by ATSDR and EPA, constitute the revised list of at least 200 hazardous substances required under SARA, section 110.

CAS No.	Substance name
Priority Group 1	
51752.....	Mechlorethamine.
77474.....	Hexachlorocyclopentadiene.
100425.....	Styrene.
108054.....	Vinyl acetate.
115297.....	Endosulfan (alpha, beta, sulfate).
118967.....	2,4,6-Trinitrotoluene.
120127.....	Anthracene.
129000.....	Pyrene.
302012.....	Hydrazine.
591786.....	2-Hexanone.
1332214.....	Asbestos.
1517483.....	Plutonium.
7439965.....	Manganese.
7440144.....	Radium and compounds.
7440291.....	Thorium and compounds.
7440315.....	Tin.
7440360.....	Antimony.
7440393.....	Barium and compounds.
7440428.....	Boron and compounds.
7440484.....	Cobalt and compounds.
7440611.....	Uranium and compounds.
8001589.....	Cresots.
10043922.....	Radon and compounds.
10061026.....	trans-1,3-Dichloropropene.
16984488.....	Fluorides/fluorine/hydrogen fluoride.
Priority Group 2	
None.....	Chlorodibenzodioxins.
50000.....	Formaldehyde.
56382.....	Parathion (DNTP).
67641.....	Acetone.
75445.....	Phosgene.
83329.....	Acenaphthene.
86737.....	Fluorene.
91576.....	2-Methylnaphthalene.
96184.....	1,2,3-Trichloropropane.
100027.....	4-Nitrophenol.
106478.....	4-Chloroaniline.
106934.....	1,2-Dibromoethane.
110758.....	2-Chloroethyl vinyl ether.
117840.....	Di-n-octyl phthalate.
132649.....	Dibenzofuran.
156592.....	cis-1,2-Dichloroethylene.
191242.....	Benzo(g,h,i) perylene.
207089.....	Benzo(k) fluoranthene.
208968.....	Acenaphthylene.
298044.....	Disulfoton.
505602.....	Mustard gas.
1912249.....	Atrazine.
7440622.....	Vanadium.
7446095.....	Sulfur Dioxide.
14797558.....	Nitrates/nitrites.
Priority Group 3	
None.....	Polybrominatedbiphenyls.
None.....	Chlorodibenzofurans.
63252.....	Sevin (Carbaryl).
68122.....	Dimethyl formamide (DMF).
72435.....	Methoxychlor.
74975.....	Bromochloromethane.
75456.....	Chlorodifluoromethane.
85687.....	Butylbenzyl phthalate.
88744.....	o-Nitroaniline.
88755.....	2-Nitrophenol.
93721.....	2,4,5-TP acid (silvex).
93765.....	2,4,5-T.
94757.....	2,4-D, salts and esters.
95578.....	2-Chlorophenol.
95954.....	2,4,5-Trichlorophenol.
96128.....	Dibromochloropropane.
100516.....	Benzyl alcohol.
101144.....	4,4'-Methylene-bis-(2-chloroaniline).

CAS No.	Substance name
109660.....	n-Pentane.
110543.....	Hexane.
121824.....	RDX (Cyclonite).
540590.....	1,2-Dichloroethylene.
2385855.....	Mirex.
7783064.....	Hydrogen sulfide.
26471625.....	Toluene diisocyanate.
Priority Group	
67561.....	Methanol.
76131.....	1,1,2-Trichloro-1,2,2-trifluoroethane.
80626.....	Methyl methacrylate.
99092.....	m-Nitroaniline.
99354.....	1,3,5-Trinitrobenzene.
101553.....	1-Bromo-4-phenoxy benzene.
106445.....	4-Methylphenol.
107211.....	Ethylene glycol.
108941.....	Cyclohexanone.
109899.....	Tetrahydrofuran.
111659.....	Octane.
111911.....	bis(2-Chloroethoxy)methane.
121755.....	Malathion.
140578.....	Aramite.
142825.....	Heptane.
479458.....	Trinitrophenylmethyl nitramine.
608935.....	Pentachlorobenzene.
1319773.....	Cresols.
7005723.....	4-Chlorophenyl phenyl ether.
7439987.....	Molybdenum.
7440246.....	Strontium.
7664939.....	Sulfuric acid.
10028178.....	Tritium.
10061015.....	cis-1,3-Dichloropropene.
25154556.....	Nitrophenol.

V. Administrative Record

ATSDR and EPA are establishing a single administrative record for this notice. ATSDR has established a public version of this record with non-confidential materials pertaining to this notice (ATSDR docket control number --6). The public file is available for inspection from 8 a.m. to 4:30 p.m., Monday through Friday, except legal holidays, at the Agency for Toxic Substances and Disease Registry, Building 28-South, Room 1103, 4770 Buford Highway NE., Chamblee, Georgia. At this time there are no confidential materials in the record. The record includes support documents for the first and second priority lists. Any non-confidential public comments on the listing methodology or other non-confidential data or studies will be available for public inspection.

For the Agency for Toxic Substances and Disease Registry.

Dated: October 7, 1988.

James O. Mason,
Administrator, Agency for Toxic Substances and Disease Registry.

For the Environmental Protection Agency.

Dated: October 14, 1988.

Lee M. Thomas,
Administrator, Environmental Protection Agency.

APPENDIX—LIST OF FIRST 100 HAZARDOUS SUBSTANCES

CAS No.	Substance name
Priority Group 1	
50-32-8.....	Benzo(a)pyrene.
53-70-3.....	Dibenzo(a,h)anthracene.
56-55-3.....	Benzo(a)anthracene.
57-12-5.....	Cyanide.
60-57-1, 309-00-2.....	Dieldrin/aldrin.
67-66-3.....	Chloroform.
71-43-2.....	Benzene.
75-01-4.....	Vinyl chloride.
75-09-2.....	Methylene chloride.
78-44-8, 1024-57-3.....	Heptachlor/heptachlor epoxide.
79-01-6.....	Trichloroethylene.
86-30-6.....	N-Nitrosodiphenylamine.
106-46-7.....	1,4-Dichlorobenzene.
117-81-7.....	Bis(2-ethylhexyl)phthalate.
127-18-4.....	Tetrachloroethylene.
205-99-2.....	Benzo(b)fluoranthene.
218-01-9.....	Chrysene.
1746-01-6.....	2,3,7,8-Tetrachlorodibenzo-p-dioxin
7439-92-1.....	Lead.
7440-02-0.....	Nickel.
7440-38-2.....	Arsenic.
7440-41-7.....	Beryllium.
7440-43-9.....	Cadmium.
7440-47-3.....	Chromium.
11096-82-5, 11097-69-1, 12672-29-6, 53469-21-9, 11141-16-5, 11104-28-2, 12674-11-2.....	PCBs-Aroclor 1260, 1254, 1248, 1242, 1232, 1221, 1016.
Priority Group 2	
56-23-5.....	Carbon tetrachloride.
57-74-9.....	Chlordane.
62-75-9.....	N-Nitrosodimethylamine.
72-55-9, 50-29-3, 72-54-8.....	4,4'-DDE, DDT, DDD.
75-00-3.....	Chloroethane.
75-27-4.....	Bromodichloromethane.
75-35-4.....	1,1-Dichloroethane.
78-59-1.....	Isophorone.
78-87-5.....	1,2-Dichloropropane.
79-00-5.....	1,1,2-Trichloroethane.
79-43-5.....	1,1,2,2-Tetrachloroethane.
87-86-5.....	Pentachlorophenol.
91-94-1.....	3,3'-Dichlorobenzidine.
92-87-5.....	Benzidine.
107-06-2.....	1,2-Dichloroethane.
108-88-3.....	Toluene.
108-95-2.....	Phenol.
111-44-4.....	Bis(2-chloroethyl) ether.
121-14-2.....	2,4-Dinitrotoluene.
319-84-6, 58-99-9, 319-85-7, 319-86-8.....	BHC-alpha, gamma, beta, delta.
542-88-1.....	Bis(chloromethyl) ether.
621-64-7.....	N-Nitrosodi-n-propylamine.
7439-87-6.....	Mercury.
7440-66-6.....	Zinc.
7782-49-2.....	Selenium.
Priority Group 3	
71-55-6.....	1,1,1-Trichloroethane.
74-87-3.....	Chloromethane.
75-21-8.....	Oxirane.
75-25-2.....	Bromoform.

APPENDIX—LIST OF FIRST 100
HAZARDOUS SUBSTANCES—Continued

CAS No.	Substance name
75-34-3	1,1-Dichloroethane.
84-74-2	Di-n-butyl phthalate.
88-06-2	2,4,6-Trichlorophenol.
91-20-3	Naphthalene.
100-41-4	Ethylbenzene.
107-02-8	Acrolein.
107-13-1	Acrylonitrile.
108-90-7	Chlorobenzene.
118-74-1	Hexachlorobenzene.
122-66-7	1,2-Dinitrotoluene.
124-48-1	Chlorodibromomethane.
156-60-5	1,2-Trans-dichloroethene.
193-39-5	Indeno(1,2,3-cd)pyrene.
606-20-2	2,6-Dinitrotoluene.
1330-2-07	Total xylenes.
7621-93-4-72-20-8	Endrin aldehyde/endrin.
7440-22-4	Silver.
7440-50-8	Copper.

APPENDIX—LIST OF FIRST 100
HAZARDOUS SUBSTANCES—Continued

CAS No.	Substance name
7664-41-7	Ammonia.
8001-35-2	Toxaphene.
Priority Group 4	
51-28-5	2,4-Dinitrophenol.
59-50-7	p-Chloro-m-cresol.
62-53-3	Aniline.
65-85-0	Benzoic acid.
67-72-1	1-Hexachloroethane.
74-83-9	Bromoethane.
75-15-0	Carbon disulfide.
75-69-4	Fluorotrichloromethane.
75-71-8	Dichlorodifluoromethane.
78-93-3	2-Butanone.
84-66-2	Diethyl phthalate.
85-01-8	Phenanthrene
87-68-3	Hexachlorobutadiene.

APPENDIX—LIST OF FIRST 100
HAZARDOUS SUBSTANCES—Continued

CAS No.	Substance name
95-48-7	Phenol,2-methyl.
95-50-1	1,2-Dichlorobenzene.
105-67-9	2,4-Dimethylphenol.
108-10-1	2-Pentanone, 4-Methyl.
120-82-1	1,2,4-Trichlorobenzene.
120-83-2	2,4-Dichlorophenol.
123-91-1	1,4-Dioxane.
131-11-3	Dimethyl phthalate.
206-44-0	Fluoranthene.
534-52-1	4,6-Dinitro-2-methylphenol.
541-73-1	1,3-Dichlorobenzene.
7440-28-0	Thallium.

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