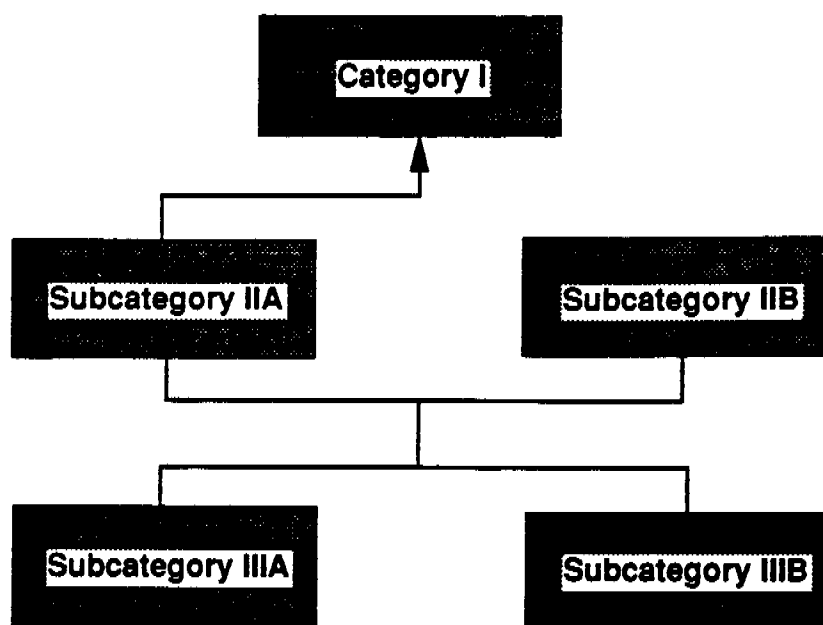




California Air Resources Board

PROPOSED UPDATE TO THE LIST OF SUBSTANCES FOR THE TOXIC AIR CONTAMINANT PROGRAM



State of California

Air Resources Board
Stationary Source Division

February 1991

SL 063393

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Prepared by:

State of California
Air Resources Board
Stationary Source Division

Principal Author:

Richard Corey

Contributing Staff:

Jay Emerson
Greg Harris
Kitty Howard
Roger Korenberg
Linda Martz

Reviewed by:

Janette Brooks, Manager, Special Projects Section
Joan Denton, Manager, Substance Evaluation Section
Genevieve Shiroma, Chief, Toxic Air Contaminant Identification Branch
Donald J. Ames, Assistant Chief, Stationary Source Division
Peter D. Venturini, Chief, Stationary Source Division

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PROPOSED UPDATE TO THE LIST OF SUBSTANCES FOR THE
TOXIC AIR CONTAMINANT PROGRAM

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on

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at

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California Air Resources Board
1102 Q Street
P.O. Box 2815
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This report has been prepared by the staff of the Air Resources Board and approved for publication. Approval does not signify that the contents necessarily reflect the views and policies of the Air Resources Board.

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OVERVIEW AND RECOMMENDATION

OVERVIEW

Each year the Toxic Air Contaminant Identification List of substances is reviewed and presented to the Air Resources Board ("the Board") as an informational item. This report presents proposed changes to the February 1990 list of substances (Appendix A) used in the Toxic Air Contaminant Program. The revised list is entitled "The Toxic Air Contaminant Identification List, February 1991."

1. What is the purpose of the list of substances?

The purpose of the list of substances is to assist the Air Resources Board staff (ARB staff) with the selection of pollutants for review as Toxic Air Contaminants. In addition to assisting with the selection of substances for review as Toxic Air Contaminants, the list serves to: identify the substances of potential concern in California as Toxic Air Contaminants; fulfill the requirements of state law by setting priorities for the review of listed substances (Health and Safety Code section 39660(f)); informs the public of the substances under evaluation; and provides the public with the opportunity to comment on the priorities of the Toxic Air Contaminant Program.

Subsections 2, 3, and 4 provide general background information on the Toxic Air Contaminant Program. This information is intended to provide a more complete perspective concerning the role that the list plays in the Toxic Air Contaminant Program.

2. What is a Toxic Air Contaminant?

California Health and Safety Code section 39655 defines a Toxic Air Contaminant as an air pollutant which may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. In addition, substances which have been identified as Hazardous Air Pollutants pursuant to section 7412 of Title 42 of the United States Code shall be identified by the Air Resources Board as Toxic Air Contaminants.

3. How are substances selected for review as Toxic Air Contaminants?

In setting priorities for the substances being evaluated as Toxic Air Contaminants, the ARB staff is required to consider factors relating to public exposure and health risk, quantity of emissions, use and atmospheric persistence. These evaluation activities are done in consultation with the Department of Health Services, the Scientific Review Panel, and local air pollution control districts.

4. How are substances identified as Toxic Air Contaminants?

Prior to listing a substance as a Toxic Air Contaminant, the ARB and Department of Health Services' staffs develop a comprehensive report on the candidate Toxic Air Contaminant. The report includes estimates of outdoor and indoor exposure and health risk, estimated emissions, and the atmospheric persistence of the candidate substance.

After public review and comment, the report is revised as appropriate before being submitted to the Scientific Review Panel (SRP) on Toxic Air Contaminants (Health and Safety Code section 39670 et. seq.). This prestigious panel of experts, representing a range of scientific disciplines, evaluates the scientific procedures and methods used, the health effects and exposure data, as well as the conclusions presented in the report.

Based on the SRP's comments, the report may require revisions. The SRP is required to submit written findings to the Board regarding the document. As part of their findings, the SRP makes a recommendation as to whether the substance should be identified by the Board as a Toxic Air Contaminant. The next step in the process is formal submittal of the report to the Board for consideration.

The final decision regarding the listing of a candidate substance as a Toxic Air Contaminant is made by the Board at a public hearing. If the Board approves the ARB staff's recommendation that the candidate substance meets the criteria for identification as a Toxic Air Contaminant, it is listed as a Toxic Air Contaminant in the California Code of Regulations.

5. What happens after a substance is identified as a Toxic Air Contaminant?

Once a substance is identified as a Toxic Air Contaminant the ARB staff in consultation with local air pollution control districts (districts), affected sources and the interested public, evaluates the need for and appropriate degree of regulation for each Toxic Air Contaminant. The result of the evaluation may lead to the development of a control regulation(s) which the Board would consider for adoption at a public hearing.

6. Why is it necessary to revise the list of substances?

This year it is necessary to revise the list to: update the status of substances that were on the February 1990 list (e.g., inorganic arsenic, vinyl chloride, trichloroethylene, and chloroform have now been formally identified by the Board as Toxic Air Contaminants and as such are no longer in the review process); revise the list category definitions to more accurately reflect the status of substances in the process as well as the factors evaluated for selecting substances for review as Toxic Air Contaminants; and reflect recent amendments to the Federal Clean Air Act.

7. How are we proposing to revise the category definitions?

Category II on the February 1990 Toxic Air Contaminant Identification List is defined as "Substances currently under review for identification as Toxic Air Contaminants, scheduled for review, or nominated for review but not yet scheduled. It will be necessary to develop information on exposure in California to some substances in this category before pursuing review."

The February 1990 list includes two Subcategories (IIA and IIB). Subcategory IIA includes "Substances already in the review process." Subcategory IIB includes "Substances not yet under review."

The revised definition to Category II is proposed to state "Substances currently under review or nominated for review for identification as Toxic Air Contaminants." Subcategory IIA is proposed to be revised to state "Substances already in the review process." Subcategory IIB is proposed to be revised to state "Substances nominated for review."

Category III on the February 1990 Toxic Air Contaminant Identification List is defined as "Compounds for which health effects information is limited or not yet sufficient to support review. Substances in this category are produced and emitted to the air in quantities which might make them of concern at such time as health effects information is strong enough to support review."

The revised definition to Category III is proposed to state "Substances which are being evaluated for entry into Category II (IIA or IIB). Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California."

In addition, we are proposing to add two Subcategories (IIIA and IIIB). Subcategory IIIA is proposed to state "Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California)." Subcategory IIIB is proposed to state "Substances identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available."

8. What is the reason for revising the Category II definitions?

The reason for revising the definitions for Category II is to clarify that substances in Category II are either currently under review for identification as Toxic Air Contaminants or nominated for review for identification as Toxic Air Contaminants.

9. What is the reason for revising the Category III definitions?

The reason for revising the definition for Category III is to clarify that carcinogenic as well as noncarcinogenic health effects are considered when evaluating substances for possible review as Toxic Air Contaminants. The definition is also clearer in identifying the factors that are evaluated to determine whether a substance should be elevated into the review phase of the process (Category II).

In addition, Category III is revised to address recent amendments to section 112 of the Federal Clean Air Act. Specifically, 189 substances are now listed as Federal Hazardous Air Pollutants. This amendment has a direct effect on the list because the Board is required to identify Hazardous Air Pollutants as Toxic Air Contaminants (see subsection 2 of the Overview for background). As a result, it is appropriate to include all (189) of the Hazardous Air Pollutants on the list.

To focus evaluation efforts on the substances with available information, it is proposed that Category III be revised to include Subcategory IIIA and IIIB. The purpose of Subcategory IIIA and IIIB is to separate the substances based on the availability of California emissions data. Emissions information was selected as the criterion for separating substances into Category IIIA and IIIB because emissions are an indicator of potential public exposure, and toxics emissions data are available for many facilities throughout California.

The information relied upon to determine whether a substance is emitted in California included: the Toxic Chemical List developed pursuant to Title III, section 313 of the Superfund Amendments and Reauthorization Act of 1986; the Bay Area Air Quality Management District's Air Toxics Inventory (October 27, 1990); the South Coast Air Quality Management District's Air Toxics Inventory (1983 and 1985 Update); and summaries of preliminary emissions information provided by districts under the Air Toxics "Hot Spots" Information and Assessment Act of 1987.

As stated, Federal Hazardous Air Pollutants added to the list were placed in either Subcategory IIIA or IIIB based on review of California emissions data. In addition, if emissions were reported for substances that are not Federal Hazardous Air Pollutants, they were added to Subcategory IIIA. Thus, Subcategory IIIA includes substances (Federal Hazardous Air Pollutants as well as substances that are not Federal Hazardous Air Pollutants) for which California emissions data are available.

10. Who reviewed the proposed Toxic Air Contaminant Identification List?

On December 4, 1990, the category definitions for the draft proposed Toxic Air Contaminant Identification List were considered by the SRP. Based on the SRP's comments, the list was revised prior to being released for public review and comment.

On December 26, 1990, the Proposed Toxic Air Contaminant Identification List was sent out for public review and comment (Appendix B). The list was sent to over 800 members of the interested public. Comments received from the public as well as ARB staff responses are included in Appendix C.

11. Summary of the recommended revisions to the February 1990 list

The revised list entitled "Toxic Air Contaminant Identification List, February 1991" is presented in Table 1. The revised list includes; 14 substances in Category I (the February 1990 list included ten substances in this category); nine substances in Subcategory IIA (the February 1990 list included 11 substances in this category); 22 substances in Subcategory IIB (the February 1990 list included 25 substances in this category); 117 substances in Subcategory IIIA (the February 1990 list included 16 substances in Category III); and 70 substances in Subcategory IIIB. The recommended revisions to the February 1990 Toxic Air Contaminant Identification List are as follows:

- o Move inorganic arsenic, trichloroethylene, vinyl chloride, and chloroform from Subcategory IIA to Category I. The purpose of this change is to reflect the fact that these substances have been identified by the Board as Toxic Air Contaminants;
- o Move styrene from Subcategory IIB to Subcategory IIA. The purpose of this change is to reflect the fact that styrene is currently under review for identification as a Toxic Air Contaminant. Styrene was selected for review because it is considered a possible human carcinogen by IARC, significant amounts of styrene are emitted to the atmosphere in California, and styrene is detected in the ambient air throughout the state;
- o Move inorganic lead from Subcategory IIB to Subcategory IIA. The purpose of this change is to reflect the fact that inorganic lead is currently under review for identification as a Toxic Air Contaminant. Inorganic lead was selected for review because lead and inorganic lead compounds are considered possible human carcinogens by IARC, significant amounts of lead and lead compounds are emitted to the atmosphere in California, and lead is detected in the ambient air throughout the state;

Table 1
Proposed Toxic Air Contaminant Identification List
February 1991

I. Substances identified as Toxic Air Contaminants by the Air Resources Board, pursuant to the provisions of AB 1807.

Asbestos	Chromium VI
Benzene	Ethylene dibromide
Cadmium (metallic cadmium and cadmium compounds)	Ethylene dichloride
Carbon tetrachloride	Ethylene oxide
Chlorinated dioxins and dibenzofurans (15 species)	Inorganic arsenic
Chloroform	Methylene chloride
	Trichloroethylene
	Vinyl chloride

II. Substances currently under review or nominated for review for identification as Toxic Air Contaminants.

A. Substances already in the review process.

Acetaldehyde	Formaldehyde
Benzo(a)pyrene	Inorganic lead
1,3-Butadiene	Nickel and nickel compounds
Diesel exhaust	Perchloroethylene
	Styrene

B. Substances nominated for review.

Acrylamide	Dimethyl sulfate	4,4'-Methylenedianiline
Acrylonitrile	Environmental tobacco smoke	N-Nitrosomorpholine
Beryllium compounds	Ethyl acrylate	PAHs
Dialkylnitrosamines	Hexachlorobenzene	PCBs
p-Dichlorobenzene	Hydrazine	Propylene oxide
1,1-Dimethylhydrazine	Mercury compounds	Radionuclides
Di(2-ethylhexyl)phthalate		Toluene diisocyanates
1,4-Dioxane		2,4,6-Trichlorophenol

III. Substances which are being evaluated for entry into Category II (IIA or IIB). Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California.

A. Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California).

Acetone	Benzoyl chloride	Catechol
Acetonitrile	Benzyl chloride	Chlorinated fluorocarbons
Acrolein	Biphenyl	Chlorine
Acrylic acid	Bis(2-ethylhexyl) adipate	Chlorine dioxide
Allyl chloride	Bromine compounds (inorganic)	Chloroacetic acid
Aluminum	Butyl acrylate	Chlorobenzenes
Ammonia	Butyl benzyl phthalate	Chlorophenols
Ammonium nitrate	Captan	Chromium compounds
Ammonium sulfate	Carbon black extracts	Cobalt compounds
Antimony compounds	Carbaryl	Copper compounds
Arsenic compounds	Carbon disulfide	Creosotes
Barium compounds	Carbonyl sulfide	Cresols/cresylic acid (isomers and mixtures)
		Crystalline silica

Subcategory IIIA Continued

Cumene hydroperoxide	Hydrochloric acid	Phenol
Cyanide compounds	Hydrogen fluoride	2-Phenylphenol
Cyclohexane	Hydrogen sulfide	Phosphine
Cumene	Hydroquinone	Phosphoric acid
2,4-D (salts and esters)	Isopropyl alcohol	Phosphorus
Diaminotoluene (mixed isomers)	4,4'-Isopropylidenediphenol	Phthalic anhydride
Dibenzofuran	Lead compounds	1,3-Propane sultone
Dibutylphthalate	Maleic anhydride	Propionaldehyde
Decabromodiphenyl oxide	Manganese compounds	Propoxur
1,3-Dichloropropene	Methanol	Propene
Dichlorvos	Methyl bromide	Propylene dichloride
Dicofol	Methyl chloride	sec-Butyl alcohol
Diethanolamine	Methyl ethyl ketone	Silver compounds
Dimethyl phthalate	Methyl hydrazine	Sodium hydroxide
4,6-Dinitro-o-cresol (and salts)	Methyl isobutyl ketone	Sulfuric acid
Epichlorohydrin	Methyl methacrylate	Titanium tetrachloride
1,2-Epoxybutane	Methyl tert-butyl ether	Terephthalic acid
Ethyl benzene	Methylene diphenyl diisocyanate	tert-Butyl alcohol
Ethyl chloride	Molybdenum trioxide	Thiourea
Ethylene glycol	n-Butyl alcohol	Toluene
Ethylene thiourea	Nitrobenzene	1,1,1-Trichloroethane
Gasoline vapors	2-Nitropropane	1,2,4-Trimethylbenzene
Glutaraldehyde	Nitric acid	2,2,4-Trimethylpentane
Glycol ethers	Nitrioltriacetic acid	Vinyl acetate
Hexachlorocyclohexanes	Parathion	Vinylidene chloride
Hexachloroethane	Peracetic acid	Xylenes (o, m, p)
Hexane		Zinc compounds

B. Substances Identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available.

Acetamide	Dichloroethyl ether	Methyl iodide
Acetophenone	Diethyl sulfate	Methyl isocyanate
2-Acetylaminofluorene	3,3'-Dimethoxybenzidine	N,N-Dimethylaniline
4-Aminobiphenyl	Dimethylaminoazobenzene	4-Nitrobiphenyl
Aniline	3,3'-Dimethyl benzidine	4-Nitrophenol
o-Anisidine	Dimethyl carbamoyl chloride	N-Nitroso-N-methyl urea
Benzidine	Dimethyl formamide	Pentachloronitrobenzene
Benzotrichloride	2,4-Dinitrophenol	p-Phenylenediamine
Bis(chloromethyl)ether	2,4-Dinitrotoluene	Phosgene
Bromoform	1,2-Diphenylhydrazine	Polycyclic organic matter
Calcium cyanamide	Ethyl carbamate	beta-Propiolactone
Caprolactam	Ethylene imine	1,2-Propylenimine
Chloramben	Ethylidene dichloride	Quinoline
Chlordane	Fine mineral fibers	Quinone
2-Chloroacetophenone	Heptachlor	Selenium compounds
Chlorobenzilate	Hexachlorobutadiene	Styrene oxide
Chloromethyl methyl ether	Hexachlorocyclopentadiene	1,1,2,2-Tetrachloroethane
Chloroprene	Hexamethylene-1,6-diisocyanate	2,4-Toluene diamine
Coke-oven emissions	Hexamethylphosphoramide	o-Toluidine
DDE	Isophorone	Toxaphene
Diazomethane	Lindane	1,1,2-Trichloroethane
1,2-Dibromo-3-chloropropane	Methoxychlor	Triethylamine
3,3'-Dichlorobenzidine	4,4'-Methylene bis(2-chloroaniline)	Trifluralin
		Vinyl bromide

- o Move coke-oven emissions from Subcategory IIB to Subcategory IIIB. The purpose of this change is to reflect the fact that there are no known emission sources of coke-oven emissions operating in California;
- o Revise the definition of Category II to state "Substances currently under review or nominated for review for identification as Toxic Air Contaminants";
- o Revise Subcategory IIA to state "Substances already in the review process";
- o Revise Subcategory IIB to state "Substances nominated for review";
- o Revise Category III to state "Substances which are being evaluated for entry into Category II (IIA or IIB). Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California";
- o Add Subcategory IIIA which states "Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California)";
- o Add Subcategory IIIB which states "Substances identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available"; and
- o Add 170 substances to the February 1990 Toxic Air Contaminant Identification List: 102 to Subcategory IIIA and 68 to Subcategory IIIB. The purpose of this change is to reflect recent amendments to the Federal Clean Air Act whereby 189 substances are now listed as Hazardous Air Pollutants. In addition, substances for which California emissions data is available, based on review of air toxics databases, were added to the list.

RECOMMENDATION

The ARB staff recommends that the Board approve the proposed revisions to the February 1990 Toxic Air Contaminant Identification List presented in this report.

I.

CHANGES IN SUBSTANCE STATUS

The purpose of this Chapter is to summarize the changes in the status of substances which were on the February 1990 Toxic Air Contaminant Identification List. These changes are reflected in the Proposed Toxic Air Contaminant Identification List, February 1991 (Table 1).

A. INORGANIC ARSENIC

On July 13, 1990 inorganic arsenic was identified as a Toxic Air Contaminant by the Board. As a result of this action, it is recommended that inorganic arsenic be moved from Subcategory IIA to Category I. The following information which is presented in the staff report "Proposed Identification of Inorganic Arsenic as a Toxic Air Contaminant" (ARB, 1990a) contributed towards the Board's decision to identify inorganic arsenic as a Toxic Air Contaminant:

- o the California Department of Health Services found "the evidence for human carcinogenicity due to inhaled arsenic to be strong;"
- o inorganic arsenic is listed as a Federal Hazardous Air Pollutant;
- o inorganic arsenic is emitted from a variety of sources and is detected in the ambient air throughout California; and
- o inorganic arsenic is highly mobile in the environment, and is not naturally removed or detoxified at a rate that would significantly reduce public exposure.

B. TRICHLOROETHYLENE

On October 12, 1990 trichloroethylene was identified as a Toxic Air Contaminant by the Board. As a result of this action, it is recommended that trichloroethylene be moved from Subcategory IIA to Category I. The

following information which is presented in the staff report to the "Proposed Identification of Trichloroethylene as a Toxic Air Contaminant" (ARB, 1990b) contributed towards the Board's decision to identify trichloroethylene as a Toxic Air Contaminant:

- o trichloroethylene has been identified as an animal carcinogen and should be regarded as a potential human carcinogen;
- o trichloroethylene is emitted into the air by a variety of stationary sources in California;
- o trichloroethylene is detected in the ambient air throughout California;
- o indoor exposure to trichloroethylene may be a major route of exposure for many people; and
- o trichloroethylene has an atmospheric lifetime estimated to range from four to 15 days.

C. VINYL CHLORIDE

On December 13, 1990 vinyl chloride was identified as a Toxic Air Contaminant by the Board. As a result of the Board's action, it is recommended that vinyl chloride be moved from Subcategory IIA to Category I. The following information which is presented in the staff report "Proposed Identification of Vinyl Chloride as a Toxic Air Contaminant" (ARB, 1990c) contributed towards the Board's decision to identify vinyl chloride as a Toxic Air Contaminant:

- o there is strong evidence that exposure to vinyl chloride results in animal and human carcinogenicity;
- o vinyl chloride is listed as a Federal Hazardous Air Pollutant;
- o vinyl chloride is detected in the ambient and indoor air near known emission sources of vinyl chloride; and
- o vinyl chloride does not break down in the atmosphere at a rate that would eliminate public exposure.

D. CHLOROFORM

On December 13, 1990 chloroform was identified as a Toxic Air Contaminant by the Board. As a result of the Board's action, it is recommended that chloroform be moved from Subcategory IIA to Category I. The following information which is presented in the staff report "Proposed

Identification of Chloroform as a Toxic Air Contaminant" (ARB, 1990d) contributed towards the Board's decision to identify chloroform as a Toxic Air Contaminant:

- o chloroform has been identified as an animal carcinogen and should be regarded as a potential human carcinogen;
- o chloroform is emitted into the air by a variety of stationary sources in California. It is emitted indoors and can give rise to concentrations that are greater than outdoor levels;
- o chloroform is detected in the ambient air throughout California; and
- o chloroform has an atmospheric lifetime (based on its reaction with hydroxyl radicals) estimated to range from 150 to 230 days.

E. STYRENE

It is recommended that styrene be moved from Subcategory IIB to Subcategory IIA. The purpose for this change is to reflect that styrene is currently under review for identification as a Toxic Air Contaminant. A formal request for a health effects evaluation of styrene was sent to the California Department of Health Services on April 4, 1990 (Appendix D). The decision to review styrene for identification as a Toxic Air Contaminant was based on the following information:

- o the International Agency for Research on Cancer has listed styrene in Group 2B of their weighting scheme (IARC, 1987). Substances in Group 2B of IARC's weighting scheme are considered possible human carcinogens;
- o limited monitoring data show that styrene is detected in the ambient air at toxics monitoring stations located throughout California;
- o styrene is emitted in substantial amounts in California (COEA, 1990). California emissions for reporting facilities in 1989 are estimated at approximately 1.7 million pounds;
- o there are individual facilities operating in California that emit significant amounts of styrene (BAAQMD, 1990). Eleven facilities in the Bay Area Air Quality Management District are each estimated to emit over 10,000 pounds of styrene per year; and
- o based on its reaction with hydroxyl radical, the daytime atmospheric lifetime of styrene is estimated at approximately three hours (Atkinson, 1989). Therefore, styrene does not break down in the atmosphere at a rate sufficient to eliminate public exposure.

F. COKE-OVEN EMISSIONS

It is recommended that coke-oven emissions be moved from Subcategory IIB to Subcategory IIIB. The purpose of this recommendation is to reflect the fact that there are no known emission sources of "coke-oven emissions" operating in California.

The Environmental Protection Agency (EPA) defines "coke-oven emissions" as emissions that are emitted directly from a coke oven (49 FR 36560). Based on EPA's definition there are no sources of "coke-oven emissions" in California (ARB, 1991).

G. INORGANIC LEAD

It is recommended that inorganic lead be moved from Subcategory IIB to Subcategory IIA. The purpose for this change is to reflect that inorganic lead is currently under review for identification as a Toxic Air Contaminant. A formal request for a health effects evaluation was sent to the Department of Health Services on February xx, 1991 (Appendix E). The decision to review inorganic lead for identification as a Toxic Air Contaminant was based on the following information:

- o the International Agency for Research on Cancer has listed lead and inorganic lead compounds in Group 2B of their weighting scheme (IARC, 1987). Substances in Group 2B of IARC's weighting scheme are considered possible human carcinogens;
- o monitoring data show that lead is detected in the ambient air throughout California;
- o lead and lead compounds are emitted in substantial amounts in California (COEA, 1990). California emissions for reporting facilities in 1989 are estimated at 75,533 pounds for lead and 23,756 pounds for lead compounds;
- o there are individual facilities operating in California that emit significant amounts of lead or lead compounds (BAAQMD, 1990). Several facilities in the Bay Area Air Quality Management District are estimated to emit over 50 pounds per year with one facility estimated to emit 520 pounds per year; and
- o exposure to lead and lead compounds may also occur through noninhalation pathways (e.g., soil ingestion). As a result, risk assessments prepared under the Air Toxics "Hot Spots" Information and Assessment act are to address inhalation as well as noninhalation exposure and risk to lead and lead compounds (CAPCOA, 1991).

II.

PROPOSED CHANGES TO DEFINITIONS AND LIST FRAMEWORK

A. CATEGORY DEFINITIONS

The ARB staff proposes to revise the definitions for Category II and III of the Toxic Air Contaminant Identification List of substances. The recommendation to revise the list category definitions reflects comments made by the SRP on December 4, 1990.

In addition, over 800 letters presenting the proposed revisions to the list were sent out to the interested public for review and comment (Appendix B). The comments received as well as ARB staff responses are presented in Appendix C.

1. Revisions to Category II definition

Category II on the February 1990 Toxic Air Contaminant Identification List is defined as "Substances currently under review for identification as Toxic Air Contaminants, scheduled for review, or nominated for review but not yet scheduled. It will be necessary to develop information on exposure in California to some substances in this category before pursuing review."

The February 1990 list includes two Subcategories (IIA and IIB). Subcategory IIA includes "Substances already in the review process." Subcategory IIB includes "Substances not yet under review."

It is recommended that the definition for Category II be revised to state that Category II includes "Substances currently under review or nominated for review for identification as Toxic Air Contaminants."

In addition, it is recommended that Subcategory IIA be revised to state that it represents "Substances already in the review process" and Subcategory IIB be revised to state that it represents "Substances nominated for review."

The purpose of the revisions to Category II and Subcategory IIA and IIB is to clarify the role of Category II. Specifically, the purpose of Category II is to identify those substances that are currently in the

identification process of the Toxic Air Contaminant Program (IIA) and those substances which have been nominated for review as Toxic Air Contaminants (IIB) and as such are undergoing further evaluation to determine if and when movement to Subcategory IIA is appropriate.

2. Revisions to Category III definition

Category III on the February 1990 Toxic Air Contaminant Identification List is defined as "Compounds for which health effects information is limited or not yet sufficient to support review. Substances in this category are produced and emitted to the air in quantities which might make them of concern at such time as health effects information is strong enough to support review."

It is recommended that the definition for Category III be revised to state that Category III includes "Substances which are being evaluated for entry into Category II (IIA or IIB). Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California."

The purpose of the revisions to Category III is to clarify that substances associated with carcinogenic and/or noncarcinogenic health effects are included and evaluated for nomination for review as Toxic Air Contaminants. The revised definition is also clearer as to the factors that are evaluated prior to nominating a substance for review as a Toxic Air Contaminant.

B. CHANGES TO LIST FRAMEWORK

Addition of Subcategory IIIA and IIIB

It is recommended that two Subcategories (IIIA and IIIB) be added to the Toxic Air Contaminant Identification List. The primary purpose of this change is to address recent amendments to section 112 of the Federal Clean Air Act.

Amendments to the Federal Clean Air Act. On November 15, 1990, the President of the United States signed into law amendments to the Federal Clean Air Act. The amendments are broad in scope and will impact federal, state, and local air pollution control programs on a number of fronts. However, one of the amendments has a direct and immediate impact on ARB's Toxic Air Contaminant Identification List.

Specifically, the amendments to the Federal Clean Air Act identify 189 substances as Hazardous Air Pollutants. Prior to the amendments, eight substances were listed as Hazardous Air Pollutants. These amendments are important to ARB's list because California Health and Safety Code section

39655 states that substances which have been identified as Hazardous Air Pollutants pursuant to section 7412 of Title 42 of the United States Code shall be identified by the Board as Toxic Air Contaminants. Thus, it is appropriate to incorporate the new Hazardous Air Pollutants into the Toxic Air Contaminant Identification List.

Add Hazardous Air Pollutants to Category III. Including the new Hazardous Air Pollutants on the Toxic Air Contaminant Identification List will allow ARB staff to prioritize the substances for evaluation.

Rather than listing all of the Hazardous Air Pollutants under Category III, it was determined that including two Subcategories (IIIA and IIIB) would be a more effective approach for evaluating and selecting substances for review as Toxic Air Contaminants. The purpose of the subcategories is to separate substances based on available data. Using this approach, those substances with available emissions information would be placed into Subcategory IIIA and as a result be further evaluated for entry into Category II sooner than those substances in Subcategory IIIB.

Use of emissions data. Emissions information was identified as an effective tool for initially separating substances under Category III. Emissions information was selected for placing substances in Category III because emissions information is an indicator of potential public exposure, emissions information is currently available from some local air pollution control districts that maintain air toxics inventories, emissions information for air toxics is reported in response to federal law, and a comprehensive emissions database at the state level is currently under development. Emissions information for thousands of facilities submitted in response to state law (the Air Toxics "Hot Spots" Information and Assessment Act of 1987) will be incorporated into an ARB maintained database over the next several years. Section C, Emissions Data Used to Categorize New Substances, discusses the emissions information that was used to place substances into Category III.

Subcategory IIIA. For the reasons discussed above it is recommended that Subcategory IIIA and IIIB be added to the list. Subcategory IIIA states that it includes "Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California)." As indicated, Subcategory IIIA is to include Hazardous Air Pollutants as well as other substances for which California emissions data are available.

Subcategory IIIB. The proposed Subcategory IIIB is to state that it includes "Substances identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available."

C. EMISSIONS DATA USED TO CATEGORIZE NEW SUBSTANCES

In order to place the new Hazardous Air Pollutants into the proper Subcategory (IIIA or IIIB) as well as identify additional substances for placement into Subcategory IIIA, it was necessary to review California emissions data.

1. What emissions data were used?

To ensure that substances known to be emitted in California were included on the list, the most comprehensive sources of information were used.

The emissions data that were relied upon included: the Bay Area Air Quality Management District's Air Toxics Inventory for emissions year 1989/1990 (BAAQMD, 1990); the Toxic Chemical List developed pursuant to Title III, section 313 of the Superfund Amendments and Reauthorization Act of 1986 for emissions year 1989 (COEA, 1990); the South Coast Air Quality Management District's Air Toxics Inventory for emissions years 1982 and 1984 (SCAQMD, 1983; SCAQMD, 1985); and summaries of preliminary emissions information, collected under the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (AB 2588) for emissions year 1989. The Air Toxics "Hot Spots" Program information was informally provided by local air pollution control districts to the ARB staff for purposes of revising the Toxic Air Contaminant Identification List.

To obtain the emission data reported under AB 2588, the ARB staff surveyed California's 41 local air pollution control districts. A number of districts provided a summary of emissions information for facilities that submitted inventory reports under the program. However, the data provided in the survey do not reflect formal transmittal of AB 2588 inventory reports by districts to the ARB staff.

2. How were the emissions data used?

The emissions data reviewed to update the list were used to answer a basic question; that is, what substances are emitted to the air in California? For Federal Hazardous Air Pollutants that were not included on the February 1990 list, the answer to the question on emissions determined whether the substance was placed in Subcategory IIIA or IIIB. For air pollutants, other than the Federal Hazardous air Pollutants that were not included on the February 1990 list, the answer to the question on emissions was used to determine what additional substances should be placed into Subcategory IIIA.

D. EFFECT OF REVISED CATEGORY DEFINITIONS

The purpose of this section is to summarize the effect the revised definitions have on the list. The revisions to the Category II definitions

do not affect the status of substances on the proposed list. However, as presented in Chapter I, the status of certain substances in Category I and II has changed due to progress in the Toxic Air Contaminant Program during 1990.

The revision to the Category III definition has resulted in the addition of Federal Hazardous Air Pollutants to Subcategory IIIA and IIIB. In addition, if California emissions data are available, substances which are not Hazardous Air Pollutants were also placed in Subcategory IIIA. The number of substances that have been added to Category III (IIIA and IIIB) is discussed under Section E.

E. SUMMARY OF PROPOSED CHANGES TO THE LIST

As a result of the recommended changes to the list, there are 232 substances on the Proposed February 1991 Toxic Air Contaminant Identification List. The February 1990 Toxic Air Contaminant List included 62 substances. Thus, we are proposing to add 170 substances to the list. The Proposed February 1991 Toxic Air Contaminant Identification List includes: 14 substances in Category I; nine substances in Subcategory IIA; 22 substances in Subcategory IIB; 117 substances in Subcategory IIIA; and 70 substances in Subcategory IIIB.

Table 2 summarizes the results of revising the list to include Subcategory IIIA. Based on the proposed revisions, 117 substances are listed in Subcategory IIIA. However, fifteen of the substances (acrolein, allyl chloride, benzyl chloride, chlorobenzene, chlorophenols, cresols, glycol ethers, maleic anhydride, manganese, methyl bromide, methyl chloroform (1,1,1-trichloroethane), nitrobenzene, phenol, vinylidene chloride, and xylenes) were present in Category III of the February 1990 Toxic Air Contaminant Identification List.

Table 3 summarizes the results of revising the list to include Subcategory IIIB. Based on the proposed revisions, 70 substances are listed in Category IIIB. However, two of these substances were previously present on the February 1990 Toxic Air Contaminant Identification List; one was listed in Subcategory IIB (coke-oven emissions) and the other was listed in Category III (chloroprene).

F. LISTING OF SUBSTANCES AND SUBSTANCE CATEGORIES

Table 4 (this table, which provides the same information as Table 1, is presented again for the reader's convenience) lists the 232 substances that are included on the February 1991 Proposed Toxic Air Contaminant Identification List. The table also specifies which category or subcategory each substance is in.

Table 2

Summary of Substances in Proposed Subcategory IIIA

Substances previously in Category III	15 ^a
Hazardous Air Pollutants with emissions data	71
Other pollutants with emissions data	46 ^b
Total substances in Subcategory IIIA	117 ^c

a - These 15 substances which were previously in Category III of the February 1990 Toxic Air Contaminant Identification List are also Hazardous Air Pollutants.

b - These pollutants which are not Federal Hazardous Air Pollutants were added to the list based on available California emissions data.

c - This total of 117 substances includes 15 substances that were previously in Category III of the February 1990 Toxic Air Contaminant Identification List.

Table 3

Summary of Substances in Proposed Subcategory IIIB

Substances previously in Subcategory IIB	1 ^a
Substances previously in Category III	1 ^b
Hazardous Air Pollutants without emissions data	70
Total substances in Subcategory IIIB	70 ^c

a - Coke oven emissions which is a Hazardous Air Pollutant was moved from Subcategory IIB to Subcategory IIIB because there are no known emission sources in California.

b - Chloroprene was previously listed in Category III of the February 1990 Toxic Air Contaminant Identification List.

c - This total of 70 substances includes one substance that was previously in Category III (chloroprene) and 1 substance that was previously in Subcategory IIB (coke-oven emissions) of the February 1990 Toxic Air Contaminant Identification List.

Table 4

**Proposed Toxic Air Contaminant Identification List
February 1991**

I. Substances identified as Toxic Air Contaminants by the Air Resources Board, pursuant to the provisions of AB 1807.

Asbestos	Chromium VI
Benzene	Ethylene dibromide
Cadmium (metallic cadmium and cadmium compounds)	Ethylene dichloride
Carbon tetrachloride	Ethylene oxide
Chlorinated dioxins and dibenzofurans (15 species)	Inorganic arsenic
Chloroform	Methylene chloride
	Trichloroethylene
	Vinyl chloride

II. Substances currently under review or nominated for review for identification as Toxic Air Contaminants.

A. Substances already in the review process.

Acetaldehyde	Formaldehyde
Benzo(a)pyrene	Inorganic lead
1,3-Butadiene	Nickel and nickel compounds
Diesel exhaust	Perchloroethylene
	Styrene

B. Substances nominated for review.

Acrylamide	Dimethyl sulfate	4,4'-Methylenedianiline
Acrylonitrile	Environmental tobacco smoke	N-Nitrosomorpholine
Beryllium compounds	Ethyl acrylate	PAHs
Dialkylnitrosamines	Hexachlorobenzene	PCBs
p-Dichlorobenzene	Hydrazine	Propylene oxide
1,1-Dimethylhydrazine	Mercury compounds	Radionuclides
Di(2-ethylhexyl)phthalate		Toluene diisocyanates
1,4-Dioxane		2,4,6-Trichlorophenol

III. Substances which are being evaluated for entry into Category II (IIA or IIB). Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California.

A. Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California).

Acetone	Benzoyl chloride	Catechol
Acetonitrile	Benzyl chloride	Chlorinated fluorocarbons
Acrolein	Biphenyl	Chlorine
Acrylic acid	Bis(2-ethylhexyl) adipate	Chlorine dioxide
Allyl chloride	Bromine compounds (inorganic)	Chloroacetic acid
Aluminum	Butyl acrylate	Chlorobenzenes
Ammonia	Butyl benzyl phthalate	Chlorophenols
Ammonium nitrate	Captan	Chromium compounds
Ammonium sulfate	Carbon black extracts	Cobalt compounds
Antimony compounds	Carbaryl	Copper compounds
Arsenic compounds	Carbon disulfide	Creosotes
Barium compounds	Carbonyl sulfide	Cresols/cresylic acid (isomers and mixtures)
		Crystalline silica

Subcategory IIIA Continued

Cumene hydroperoxide	Hydrochloric acid	Phenol
Cyanide compounds	Hydrogen fluoride	2-Phenylphenol
Cyclohexane	Hydrogen sulfide	Phosphine
Cumene	Hydroquinone	Phosphoric acid
2,4-D (salts and esters)	Isopropyl alcohol	Phosphorus
Diaminotoluene (mixed isomers)	4,4'-Isopropylidenediphenol	Phthalic anhydride
Dibenzofuran	Lead compounds	1,3-Propane sultone
Dibutylphthalate	Maleic anhydride	Propionaldehyde
Decabromodiphenyl oxide	Manganese compounds	Propoxur
1,3-Dichloropropene	Methanol	Propene
Dichlorvos	Methyl bromide	Propylene dichloride
Dicofol	Methyl chloride	sec-Butyl alcohol
Diethanolamine	Methyl ethyl ketone	Silver compounds
Dimethyl phthalate	Methyl hydrazine	Sodium hydroxide
4,6-Dinitro-o-cresol (and salts)	Methyl isobutyl ketone	Sulfuric acid
Epichlorohydrin	Methyl methacrylate	Titanium tetrachloride
1,2-Epoxybutane	Methyl tert-butyl ether	Terephthalic acid
Ethyl benzene	Methylene diphenyl	tert-Butyl alcohol
Ethyl chloride	diisocyanate	Thiourea
Ethylene glycol	Molybdenum trioxide	Toluene
Ethylene thiourea	n-Butyl alcohol	1,1,1-Trichloroethane
Gasoline vapors	Nitrobenzene	1,2,4-Trimethylbenzene
Glutaraldehyde	2-Nitropropane	2,2,4-Trimethylpentane
Glycol ethers	Nitric acid	Vinyl acetate
Hexachlorocyclohexanes	Nitrotriacetic acid	Vinylidene chloride
Hexachloroethane	Parathion	Xylenes (o, m, p)
Hexane	Peracetic acid	Zinc compounds

B. Substances Identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available.

Acetamide	Dichloroethyl ether	Methyl iodide
Acetophenone	Diethyl sulfate	Methyl isocyanate
2-Acetylaminofluorene	3,3'-Dimethoxybenzidine	N,N-Dimethylaniline
4-Aminobiphenyl	Dimethylaminoazobenzene	4-Nitrobiphenyl
Aniline	3,3'-Dimethyl benzidine	4-Nitrophenol
o-Anisidine	Dimethyl carbamoyl chloride	N-Nitroso-N-methyl urea
Benzidine	Dimethyl formamide	Pentachloronitrobenzene
Benzotrichloride	2,4-Dinitrophenol	p-Phenylenediamine
Bis(chloromethyl)ether	2,4-Dinitrotoluene	Phosgene
Bromoform	1,2-Diphenylhydrazine	Polycyclic organic matter
Calcium cyanamide	Ethyl carbamate	beta-Propiolactone
Caprolactam	Ethylene imine	1,2-Propylenimine
Chloramben	Ethylidene dichloride	Quinoline
Chlordane	Fine mineral fibers	Quinone
2-Chloroacetophenone	Heptachlor	Selenium compounds
Chlorobenzilate	Hexachlorobutadiene	Styrene oxide
Chloromethyl methyl ether	Hexachlorocyclopentadiene	1,1,2,2-Tetrachloroethane
Chloroprene	Hexamethylene-1,6-diisocyanate	2,4-Toluene diamine
Coke-oven emissions	Hexamethylphosphoramide	o-Toluidine
DDE	Isophorone	Toxaphene
Diazomethane	Lindane	1,1,2-Trichloroethane
1,2-Dibromo-3-chloropropane	Methoxychlor	Triethylamine
3,3'-Dichlorobenzidine	4,4'-Methylene bis(2-chloroaniline)	Trifluralin
		Vinyl bromide

The list includes several individual substances (e.g., p-dichlorobenzene) and classes of substances (e.g., chlorobenzenes). As with this example, a listed substance may belong to a substance category which is also listed. The purpose of the apparent double-listing is to reflect where substances and substance categories are in the Toxic Air Contaminant Program.

For example, p-dichlorobenzene and hexachlorobenzene are in Subcategory IIB and as such have been nominated for review for identification as a Toxic Air Contaminants. However, chlorobenzenes (other than p-dichlorobenzene and hexachlorobenzene) is in Subcategory IIIA and as such will be evaluated for entry into Category II (IIA or IIB).

Based on future evaluation of chlorobenzenes (see Chapter III concerning the selection of substances for identification), the ARB staff may recommend that the entire class or a specific chlorinated benzene(s) be elevated to Category II.

III.

FUTURE DIRECTION

A. THE LIST OF SUBSTANCES

During 1991, the ARB staff plans to evaluate emissions data to determine if additional substances should be added to the list of substances. The primary source of emissions information that will be used for this purpose will be that submitted under the Air Toxics "Hot Spots" Program.

Use of AB 2588 emissions data

Currently, districts throughout California have received hundreds of comprehensive emissions inventory reports submitted by facilities complying with the requirements of the Air Toxics "Hot Spots" Program. This information will be formally transmitted to the ARB staff during 1991 where it will undergo further evaluation before being made available to the public through the Air Toxics Emission Data System.

When complete, this information will be one of the most comprehensive sources available for determining if a particular substance is emitted in California.

B. PRIORITIZATION OF SUBSTANCES

In setting priorities for which substances should be evaluated and regulated as Toxic Air Contaminants, the ARB staff in consultation with the Department of Health Services is to give priority to substances based on factors relating to the risk of harm to public health, amount or potential amount of emissions, manner of usage in California, persistence in the atmosphere, and ambient concentrations in the community (Health and Safety Code section 39660 (f)). Taking these factors into account and in consultation with the SRP and local air pollution control districts, the ARB staff maintains and updates the list of substances.

1. Use of AB 2588 emissions data

One of the primary sources of emissions information relied upon to prioritize substances for identification is that submitted in response to the requirements of AB 2588.

2. Use of health effects data

We also rely on the most recent information available concerning adverse health effects of substances under evaluation. The ARB staff will continue to coordinate prioritization activities with the Department of Health Services to ensure that the best available health effects data are used.

One source of information that will be relied upon is the CAPCOA Air Toxics "Hot Spots" Program Risk Assessment Guidelines. The guidelines, which were developed for the Hot Spots Program, include health guidance values for both carcinogenic and noncarcinogenic health effects. The health guidance values in these guidelines are based on recommendations by the Department of Health Services and are updated on an annual basis.

Other sources of health effects information that will be relied upon include literature developed by the International Agency for Research on Cancer, the National Toxicology Program, and the Environmental Protection Agency. Another source of information that will be used is the Integrated Risk Information System (IRIS). The IRIS is an on-line computer database which provides information such as chemical properties and carcinogenic and noncarcinogenic health effects data for a number of substances.

3. Use of ambient monitoring data

Currently, the ARB monitors for over 30 toxic substances at 20 monitoring stations located at sites throughout California. Results from these monitoring efforts will also be used to prioritize substances.

In addition to data from ARB's toxics monitoring network, monitoring data collected by air pollution control districts, researchers and others is utilized in our prioritization efforts.

4. Use of information on atmospheric lifetimes of substances

Finally, we also make use of information on the atmospheric persistence of substances being evaluated. ARB staff will obtain information on the atmospheric persistence of substances from ARB sponsored-research as well as the published literature.

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APPENDIX A

FEBRUARY 1990 TOXIC AIR CONTAMINANT IDENTIFICATION LIST

TOXIC AIR CONTAMINANT IDENTIFICATION LIST
FEBRUARY 1990

- I. Substances identified as toxic air contaminants by the Air Resources Board, pursuant to the provisions of AB 1807.
- asbestos, benzene, cadmium, carbon tetrachloride, chlorinated dioxins and dibenzofurans (15 species), chromium (VI), ethylene dibromide, ethylene dichloride, ethylene oxide, methylene chloride
- II. Substances currently under review for identification as toxic air contaminants, scheduled for review, or nominated for review but not yet scheduled. It will be necessary to develop information on exposure in California to some substances in this category before pursuing review.
- A. (Substances already in the review process.)
acetaldehyde, benzo(a)pyrene, 1,3-butadiene, chloroform, diesel exhaust, formaldehyde, inorganic arsenic, nickel, perchloroethylene, trichloroethylene, vinyl chloride
- B. (Substances not yet under review.)
acrylamide, acrylonitrile, beryllium, coke-oven emissions, dialkyl nitrosamines, p-dichlorobenzene, 1,1-dimethylhydrazine, di(2-ethylhexyl)phthalate, 1,4-dioxane, dimethyl sulfate, environmental tobacco smoke, ethyl acrylate, hexachlorobenzene, hydrazine, inorganic lead, mercury, 4,4'-methylenedianiline, N-nitrosomorpholine, PAHs, PCBs, propylene oxide, radionuclides, styrene, toluene diisocyanates, 2,4,6-trichlorophenol
- III. Compounds for which health effects information is limited or not yet sufficient to support review. Substances in this category are produced and emitted to the air in quantities which might make them of concern at such time as health effects information is strong enough to support review.
- acrolein, allyl chloride, benzyl chloride, chlorobenzene, chlorophenols, chloroprene, cresols, glycol ethers, maleic anhydride, manganese, methyl bromide, methyl chloroform, nitrobenzene, phenol, vinylidene chloride, xylenes

APPENDIX B

REQUEST FOR INFORMATION ON THE TOXIC AIR CONTAMINANT PROGRAM LIST

AIR RESOURCES BOARD

102 G STREET

P.O. BOX 2815

SACRAMENTO 95812



December 26, 1990

Dear Sir or Madam:

Request for Information on the Toxic Air Contaminant Program List

The purpose of this letter is to request information for use in updating the Toxic Air Contaminant Identification List of Substances. The proposed list (Attachment I) is used to assist the Air Resources Board with the selection of substances for entrance into the Toxic Air Contaminant Identification Process.

In addition to requesting information for use in updating the list, we are requesting your review and comment on proposed changes to the Toxic Air Contaminant Identification List of Substances. The specific changes that we propose to make to the list, including the basis for the change, are provided below:

Automatic Changes

Inorganic arsenic, trichloroethylene, chloroform, and vinyl chloride have been moved from Category IIA to Category I because they have been identified by the Air Resources Board as Toxic Air Contaminants (TACs). In addition, styrene has been moved from Category IIB to Category IIA because it has formally entered the identification phase of the process.

Proposed Changes to Category II

We are proposing to revise the definition of Category II to state that the substances in Category II are either under review for identification as TACs (IIA) or nominated for review for identification as TACs (IIB). The purpose of this change is to provide a clearer definition for Category II. The previous definition for Category II can be found on the February 1990 Toxic Air Contaminant Identification List (Attachment II).

December 21, 1990

Proposed Changes to Category III

We are also proposing to revise Category III to state that it includes substances being evaluated for entry into Category II (IIA or IIB). The definition also states that factors considered in the evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California. The purpose of this revision is to provide a more accurate definition of the factors that are considered prior to entry into Category II. The definition is also clearer in conveying the fact that the substances in Category III may be associated with carcinogenic and/or noncarcinogenic health effects.

For Category III we propose having two subcategories: IIIA and IIIB. Category IIIA would include Federal hazardous air pollutants as well as additional substances for which California emissions data are available. Category IIIB would only include hazardous air pollutants for which California emissions data are not available.

The purpose of including Category IIIA and IIIB is due to recent amendments to the Federal Clean Air Act. The amendments which were signed by the President in mid-November identify 189 substances as hazardous air pollutants. Because California Health and Safety Code Section 39655 states that substances identified as hazardous air pollutants shall be identified by the Air Resources Board as Toxic Air Contaminants, revisions to the list are needed.

The proposed revisions to the definition for Category III will provide the necessary framework for incorporating the hazardous air pollutants into the Toxic Air Contaminant Identification List.

Emissions Information for Revising Category III

In order to develop the draft proposed list of substances (Attachment I), staff reviewed three air toxics emissions databases: 1) Title III, Section 313 of the Superfund Amendments and Reauthorization Act (emissions year 1989); 2) the Bay Air Quality Management District's Air Toxics Inventory (October 27, 1990); and 3) the South Coast Air Quality Management District's Air Toxics Inventory (1983 and 1984 update).

Based on information in the aforementioned toxics databases, hazardous air pollutants were placed in Category IIIA (emissions in California) or Category IIIB (no California emissions data).

Currently, we are surveying local air pollution control districts to obtain information on the emission of toxic pollutants reported under the Air Toxics "Hot Spots" Information and Assessment Act of 1987. We plan to also use this information in updating the Toxic Air Contaminant Identification List.

December 23, 1990

We request that you provide any information or comments to us by January 9, 1991. Please send the information to the following address:

Richard Corey
Special Projects Section/SSD
Re: Toxic Air Contaminant Identification List
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

The information received from this request will be evaluated for use in preparing a draft report for updating the list of substances. We expect the draft report to be available in mid-February. If you are interested in obtaining a copy please fill out the attached request (Attachment III) and return to Richard Corey at the noted address.

If you have any questions regarding this request for information and comments, please call Janette Brooks, Manager of the Special Projects Section, at (916) 322-9148 or Richard Corey of her staff at (916) 327-5631.

Sincerely,

A handwritten signature in cursive script, appearing to read "Donald J. James for".

Peter D. Venturini, Chief
Stationary Source Division

cc: Scientific Review Panel for
Toxic Air Contaminants

Attachments

Attachment I

Proposed Toxic Air Contaminant Identification List December 1990

I. Substances Identified as Toxic Air Contaminants by the Air Resources Board, pursuant to the provisions of AB 1807.

Asbestos	Ethylene dibromide
Benzene	Ethylene dichloride
Cadmium	Ethylene oxide
Carbon tetrachloride	Inorganic arsenic
Chlorinated dioxins and dibenzofurans (15 species)	Methylene chloride
Chloroform	Trichloroethylene
Chromium VI	Vinyl chloride

II. Substances currently under review or nominated for review for identification as Toxic Air Contaminants.

A. Substances already in the review process.

Acetaldehyde	Formaldehyde
Benzo(a)pyrene	Nickel
1,3-Butadiene	Perchloroethylene
Diesel exhaust	Styrene

B. Substances nominated for review.

Acrylamide	1,4-Dioxane	Mercury
Acrylonitrile	Dimethyl sulfate	4,4'-Methylenedianiline
Beryllium	Environmental tobacco smoke	N-Nitrosomorpholine
Coke-oven emissions	Ethyl acrylate	PAHs
Dialkylnitrosamines	Hexachlorobenzene	PCBs
p-Dichlorobenzene	Hydrazine	Propylene oxide
1,1-Dimethylhydrazine	Inorganic lead	Radionuclides
Di(2-ethylhexyl)phthalate		Toluene diisocyanates
		2,4,6-Trichlorophenol

III. Substances which are being evaluated for entry into Category II (IIA or IIB). Factors considered in this evaluation include carcinogenic and noncarcinogenic health effects, emissions and exposure in California.

A. Substances known to be emitted in California (includes hazardous air pollutants identified in the Federal Clean Air Act known to be emitted in California).

Acetone	Benzoyl chloride	Chlorinated fluorocarbons
Acetonitrile	Benzyl chloride	Chlorine
Acrylamide	Biphenyl	Chlorine dioxide
Acrylic acid	Bis(2-ethylhexyl) adipate	Chloroacetic acid
Allyl chloride	Butyl acrylate	Chlorobenzenes
Aluminum	Butyl benzyl phthalate	Chromium compounds
Ammonia	Captan	Cobalt compounds
Ammonium nitrate	Carboaryl	Copper compounds
Ammonium sulfide	Carbon disulfide	Cresols/cresylic acid (isomers and mixtures)
Antimony compounds	Carbonyl sulfide	Cumene hydroperoxide
Anthracene	Catechol	Cyanide compounds
Arsenic compounds		
Barium compounds		

Category IIIA Continued

Cyclohexane	Hydrogen sulfide	Pentachlorophenol
Cumene	Hydroquinone	Peracetic acid
2,4-D (salts and esters)	Isopropyl alcohol	Phenol
Diaminotoluene (mixed isomers)	4,4'-Isopropylidenediphenyl	2-Phenyl phenol
Dibenzofuran	Lead compounds	Phosphoric acid
Dibutylphthalate	Maleic anhydride	Phthalic anhydride
Decabromodiphenyl oxide	Manganese compounds	Propoxur
1,2-Dichloroethane	Methanol	Propene
1,3-Dichloropropene	Methyl bromide	Propylene dichloride
Dichlorvos	Methyl chloride	sec-Butyl alcohol
Diethanolamine	Methyl ethyl ketone	Silver compounds
Dimethyl phthalate	Methyl hydrazine	Sulfuric acid
Dimethyl sulfate	Methyl isobutyl ketone	Titanium tetrachloride
4,6-Dinitro-o-cresol (and salts)	Methyl methacrylate	Terephthalic acid
Epichlorohydrin	Methyl tert butyl ether	Tert-Butyl alcohol
1,2-Epoxybutane	Methylene diphenyl	Thiourea
Ethyl benzene	disocyanate	Toluene
Ethyl chloride	Molybdenum trioxide	1,2,4-Trichlorobenzene
Ethylene glycol	N-Butyl alcohol	1,1,1-Trichloroethane
Ethylene thiourea	Naphthalene	1,2,4-Trimethylbenzene
Gasoline	2-Nitropropane	Vinyl acetate
Glycol ethers	Nitric acid	Vinylidene chloride
Hexachloroethane	Nitrotriacetic acid	Xylenes (o, m, p)
Hydrochloric acid	Parathion	Zinc compounds
Hydrogen fluoride		

B. Substances identified as hazardous air pollutants in the Federal Clean Air Act for which California emissions information is not currently available.

Acetamide	3,3'-Dimethyl benzidine	4-Nitrophenol
Acetophenone	Dimethyl carbamoyl chloride	N-Nitroso-N-methyl urea
2-Acetylaminofluorene	Dimethyl formamide	N-Nitrosodimethylamine
Acrolein	1,1-Dimethylhydrazine	N-Nitrosomorpholine
4-Aminobiphenyl	2,4-Dinitrophenol	Pentachloronitrobenzene
Aniline	2,4-Dinitrotoluene	p-Phenylenediamine
o-Anisidine	1,2-Diphenylhydrazine	Phosphine
Benzidine	Ethyl carbamate	Phosphorus
Benzotrachloride	Ethyleneimine	Phosgene
Bis(2-chloroaniline)	Ethylidene dichloride	1,3-Propane sultone
Bis(chloromethyl)ether	Fine mineral fibers	Polycyclic organic matter
Bromoform	Heptachlor	beta-Propiolactone
Calcium cyanamide	Hexachlorobutadiene	Propionaldehyde
Caprolactam	Hexachlorocyclopentadiene	1,2-Propylenimine
Chloramben	Hexamethylene-1,6-disocyanate	Quinoline
Chlordane	Hexamethylphosphoramide	Quinone
2-Chloroacetophenone	Hexane	Selenium compounds
Chlorobenzilate	Isophorone	Styrene oxide
Chloromethyl methyl ether	Lindane	1,1,2,2-Tetrachloroethane
Chloroprene	Methoxychlor	2,4-Toluene diamine
DDE	Methyl iodide	o-Toluidine
Diazomethane	Methyl isocyanate	Toxaphene
1,2-Dibromo-3-chloropropane	N,N-Diethyl aniline	2,4,5-Trichlorophenol
3,3-Dichlorobenzidine	Nitrobenzene	1,1,2-Trichloroethane
Dichloroethyl ether	4-Nitrobiphenyl	Triethylamine
Diethyl sulfate		Trifluralin
3,3-Dimethoxybenzidine		2,2,4-Trimethylpentane
Dimethyl aminoazobenzene		Vinyl bromide

Attachment II

TOXIC AIR CONTAMINANT IDENTIFICATION LIST
FEBRUARY 1990

- I. Substances identified as toxic air contaminants by the Air Resources Board, pursuant to the provisions of AB 1807.
- asbestos, benzene, cadmium, carbon tetrachloride, chlorinated dioxins and dibenzofurans (15 species), chromium (VI), ethylene dibromide, ethylene dichloride, ethylene oxide, methylene chloride
- II. Substances currently under review for identification as toxic air contaminants, scheduled for review, or nominated for review but not yet scheduled. It will be necessary to develop information on exposure in California to some substances in this category before pursuing review.
- A. (Substances already in the review process.)
acetaldehyde, benzo(a)pyrene, 1,3-butadiene, chloroform, diesel exhaust, formaldehyde, inorganic arsenic, nickel, perchloroethylene, trichloroethylene, vinyl chloride
- B. (Substances not yet under review.)
acrylamide, acrylonitrile, beryllium, coke-oven emissions, dialkyl nitrosamines, p-dichlorobenzene, 1,1-dimethylhydrazine, di(2-ethylhexyl)phthalate, 1,4-dioxane, dimethyl sulfate, environmental tobacco smoke, ethyl acrylate, hexachlorobenzene, hydrazine, inorganic lead, mercury, 4,4'-methylenedianiline, N-nitrosomorpholine, PAHs, PCBs, propylene oxide, radionuclides, styrene, toluene diisocyanates, 2,4,6-trichlorophenol
- III. Compounds for which health effects information is limited or not yet sufficient to support review. Substances in this category are produced and emitted to the air in quantities which might make them of concern at such time as health effects information is strong enough to support review.
- acrolein, allyl chloride, benzyl chloride, chlorobenzene, chlorophenols, chloroprene, cresols, glycol ethers, maleic anhydride, manganese, methyl bromide, methyl chloroform, nitrobenzene, phenol, vinylidene chloride, xylenes

Attachment III

REQUEST FORM

for

Toxic Air Contaminant Identification List Update

To order a copy of the above report please supply your name and address below:

PLEASE PRINT OR TYPE CLEARLY

Name of Individual and Company

Address

City, State, Zip Code

Return this form to: Richard Corey
Special Projects Section/SSD
Re: Toxic Air Contaminant Identification List
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

APPENDIX C

COMMENTS RECEIVED FROM PUBLIC WITH STAFF RESPONSES

SL 063435

APPENDIX C

COMMENTS RECEIVED FROM PUBLIC WITH STAFF RESPONSES

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2. January 8, 1991 letter from R. Bruce Dickson of the Law Offices of Paul, Hastings, Janofsky, & Walker to Peter D. Venturini, Chief of the Stationary Source Division, of the Air Resources Board (Air Resources Board staff response attached)
3. January 8, 1991 letter from Jonathon T. Busch of the Chemical Manufacturers Association to Peter D. Venturini, Chief of the Stationary Source Division, of the Air Resources Board (Air Resources Board staff response attached)
4. January 8, 1991 letter from Dr. Geraldine V. Cox of the Chemical Manufacturers Association to Richard Corey of the Air Resources Board (Air Resources Board staff response attached)
5. January 4, 1991 letter from Mark Poindexter of the Kings County Air Pollution Control District to Peter D. Venturini, Chief of the Stationary Source Division, of the Air Resources Board (Air Resources Board staff response attached)
6. January 8, 1991 letter from Paul Buttner of Resource Management International, Incorporated to Richard Corey of the Air Resources Board (Air Resources Board staff response attached)
7. January 3, 1991 letter from Dr. R. J. Barnhart of the Chrome Coalition to Richard Corey of the Air Resources Board (Air Resources Board staff response attached)
8. January 3, 1991 letter from Dr. Thomas A. Robinson of Vulcan Chemicals to Richard Corey of the Air Resources Board (Air Resources Board staff response attached)
9. January 10, 1991 letter from John C. Paulsen of U. S. Borax to Richard Corey of the Air Resources Board (Air Resources Board response attached)



CHEMICAL MANUFACTURERS ASSOCIATION

Geraldine V Cox, Ph.D
Vice President-Technical Director

January 10, 1991

Via Federal Express

Mr. Richard Corey
Special Projects Section/SSD
California Air Resources Board
1219 K Street
Sacramento, California 95814

Re: Toxic Air Contaminant Identification List

Dear Mr. Corey:

The Carbon Disulfide Panel (Panel) of the Chemical Manufacturers Association (CMA) submits these comments in response to the California Air Resources Board's (ARB) request for information for use in updating the Toxic Air Contaminant (TAC) Identification List of Substances.

Summary and Recommendation

The Panel recognizes that carbon disulfide must be listed as a TAC pursuant to Section 39655 of the California Health and Safety Code because it has been identified as a "hazardous air pollutant" under the Clean Air Act Amendments of 1990. Emissions of carbon disulfide reported in California are very low, however, and the Panel urges that the ARB give carbon disulfide a priority status commensurate with these low emission levels when the ARB establishes its list of priorities pursuant to Section 39660(f) of the California Health and Safety Code.

¹See letter from P. Venturini (Dec 26, 1990). Although Mr. Venturini's letter requested that comments be received on or before January 9, 1991, the Panel understands from Ms. Janette Brooks, Manager of the Special Projects Section, that comments received on or before January 11, 1991, will be considered by ARB in its preparation of a draft report for updating the list of substances.

SL 063437

The Carbon Disulfide Panel

The Carbon Disulfide Panel is part of the Chemical Self-funded Technical Advocacy and Research Division (CHEMSTAR) of the Chemical Manufacturers Association (CMA). CHEMSTAR panels are formed to initiate research, conduct advocacy and/or monitor federal, state and international activities pertinent to the chemical about which the Panel is concerned. Carbon Disulfide Panel members include Akzo Chemicals Inc., Courtaulds Fibers Inc., Flexel, Inc., North American Rayon Corporation, PPG Industries, Inc., Teepak, Inc. and Viskase Corporation. Panel members manufacture carbon disulfide or use it in their respective manufacturing processes. The Panel thus has an interest in this rulemaking, and welcomes this opportunity to introduce itself to the ARB and present its views on this matter.

Comments

Pursuant to California Health and Safety Code Section 39655, substances identified as "hazardous air pollutants" under the federal Clean Air Act's national emission standards for hazardous air pollutants (NESHAPs) program, must be identified by the ARB as "toxic air contaminants" under the state program. Carbon disulfide is included on the list of hazardous air contaminants in Title III (hazardous air pollutants) of the Clean Air Act Amendments of 1990. Accordingly, the ARB has proposed to include carbon disulfide in Category II of the TAC list.

According to Mr. Venturini's letter, substances included in Category IIIA are federal hazardous air pollutants (and other substances) for which California emissions data are available. Reportedly, there are three databases that were reviewed to determine whether substances should be placed on the Category IIIA (emissions in California) or Category IIIB (no California emissions data) list: the Superfund Amendments and Reauthorization Act (SARA) Section 313 Toxics Release Inventory (TRI) (emissions year 1989); the Bay Area Quality Management District's Air Toxics Inventory (October 27, 1990); and the South Coast Air Quality Management District's Air Toxics Inventory (1983 and 1984 update).

The Panel understands that carbon disulfide was placed in Category IIIA solely on the basis of TRI emissions data, and that neither the Bay Area nor the South Coast database has data that are accessible or specific with respect to carbon disulfide emissions in California.² According to the TRI database, sources in

²Conversation with L. Bergeson, legal counsel to the Panel, and Ms. Janette Brooks, January 4, 1991.

Mr. Richard Corey
January 10, 1991
Page 3

California reported a total of 27,680 pounds of carbon disulfide released in 1989.³

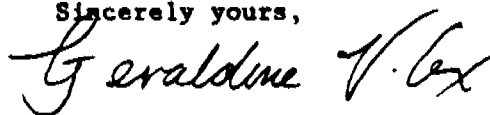
Conclusion

Pursuant to California Health and Safety Code Section 39660(f), the ARB and the California Department of Health Services (DHS) must establish priorities for evaluation and control of candidate substances based on the risk of harm to public health, the amount of or potential amount of emissions, the manner of usage of the substance, its persistence in the atmosphere, and ambient concentrations of the substance in the community.

Based on the very low emission levels of carbon disulfide reported in California, the Panel believes carbon disulfide properly belongs at the bottom of the list of priorities to be established under Section 39660(f), and that regulatory action of any kind with respect to evaluating and/or controlling carbon disulfide as a toxic air contaminant is unwarranted.

The Panel appreciates this opportunity to submit comments on this important matter. If you have any questions regarding these comments, please call Susan R. Howe of my staff at (202) 887-1293.

Sincerely yours,



Geraldine V. Cox, Ph.D.
Vice President-Technical Director

cc: Mr. Paul Kronenberg, CICC

³The California Office of Environmental Affairs reported this total includes releases from two facilities: Amvac Chemical Corporation: air-408 pounds, POTW -250, off-site-500 pounds; and, Columbian Chemical Company: air-26, 522 total 27,680 total pounds.

AIR RESOURCES BOARD

1102 J STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

Geraldine V. Cox, Ph.D.
Vice President-Technical Director
Chemical Manufacturers Association
2501 M Street, N.W.
Washington, D.C. 20037

Dear Dr. Cox:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 10, 1991 letter in which you provided information concerning carbon disulfide. Specifically, you recommended that carbon disulfide receive a low priority when the Air Resources Board evaluates substances for entry into the Toxic Air Contaminant Identification Program. The primary basis for your recommendation is that reported emissions of carbon disulfide in California are very low.

As you know, we plan to use the proposed Toxic Air Contaminant Identification List to select substances for review as Toxic Air Contaminants. Selecting substances for review will include a detailed evaluation of information concerning emissions in California, exposure, toxicity, and the atmospheric persistence of the listed substances. Based on this evaluation, specific substances will be entered into the review process or nominated (i.e., entered into Category II) for review as Toxic Air Contaminants.

The evaluation of the listed substances will involve use of the best information available. For example, in response to the requirements of the Air Toxics "Hot Spots" Information and Assessment Act of 1987, thousands of facilities throughout California are submitting comprehensive emissions information on hundreds of toxic substances. The Air Resources Board staff will use the most current Air Toxics "Hot Spots" Program data available when evaluating substances for entry into Category II.

Until substances on the proposed list are evaluated in this type of detail, it is premature to determine whether carbon disulfide will be recommended for placement into Category II of the Toxic Air Contaminant Identification List or remain in Subcategory IIIA. The Air Resources Board staff plans to evaluate substances in Category III during 1991 and to reevaluate the list in subsequent years.

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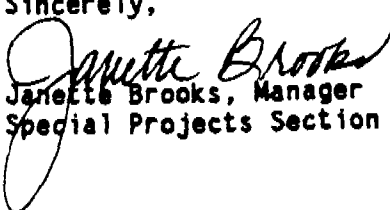
Geraldine V. Cox, Ph.D.

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February 8, 1997

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section

LAW OFFICES OF
PAUL, HASTINGS, JANOFSKY & WALKER

A PARTNERSHIP INCLUDING PROFESSIONAL CORPORATIONS

TWELFTH FLOOR

1050 CONNECTICUT AVENUE, N. W.

WASHINGTON, D. C. 20036

TELEPHONE (202) 223-9000

TWX 710-822-9062

TELECOPIER: (202) 452-8149

January 8, 1991

COUNSEL
LEE G. PAUL
ROBERT R. HASTINGS
LEONARD S. JANOFSKY
CHARLES M. WALKER

LOS ANGELES OFFICE
555 SOUTH FLOWER STREET
LOS ANGELES, CALIFORNIA 90071
TELEPHONE (213) 683-6000

ORANGE COUNTY OFFICE
695 TOWN CENTER DRIVE
COSTA MESA, CALIFORNIA 92626
TELEPHONE (714) 641-1100

WEST LOS ANGELES OFFICE
1299 OCEAN AVENUE
SANTA MONICA, CALIFORNIA 90401
TELEPHONE (213) 451-1200

ATLANTA OFFICE
GEORGIA-PACIFIC CENTER
133 PEACHTREE STREET, N. E.
ATLANTA, GEORGIA 30303
TELEPHONE (404) 588-9900

CONNECTICUT OFFICE
ONE CANTERBURY GREEN
STAMFORD, CONNECTICUT 06901
TELEPHONE (203) 357-0100

NEW YORK OFFICE
9 WEST 57th STREET
NEW YORK, NEW YORK 10019
TELEPHONE (212) 832-8100

TOKYO OFFICE
TORANOMON ONTORI BUILDING
4-3, TORANOMON 1-CHOME
MINATO-KU, TOKYO 108
TELEPHONE (103) 507-0730

WRITER'S DIRECT DIAL NUMBER

202-457-9423

OUR FILE NO

Peter D. Venturini, Chief
Stationary Source Division
Air Resources Board
1102 Q Street
P. O. Box 2815
Sacramento, California 95812

RECEIVED
JAN 9 1991
Stationary Source
Division
Air Resources Board

Re: Request for Information on the
Toxic Air Contaminant Program
List

Dear Mr. Venturini:

We are writing as counsel to the Chlorobenzene Producers Association (CPA) to provide comments on the proposed revision to Category III of the Proposed Toxic Air Contaminant Identification List, which you sent to me last week.

You have added Category III and have included a recitation of factors considered in the evaluation of substances for inclusion in Category II. We believe that your inclusion of factors raises several questions and should be deleted.

As your letter acknowledges, California Health and Safety Code, Section 39655 states that substances identified by the federal legislation as hazardous air pollutants shall be identified by the ARB as Toxic Air Contaminants. Thus regardless of the toxicity of these substances, they must be listed.

However, if the proposed caption for Category III is finalized, the inclusion of a substance in that Category

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PAUL HASTINGS, JANOFFSKY & WALKER

Peter D. Venturini, Chief
January 8, 1991
Page 2

might imply an unintended finding by ARB regarding toxicity endpoints (carcinogenic or noncarcinogenic health effects). Because all Clean Air Act hazardous air pollutants must be included as toxic air contaminants, regardless of any toxicity finding, the presence of a substance on the federal list should be mentioned as an additional factor. In the alternative, you could delete the listing of "factors considered." Category III could simply provide:

"Substances which are being evaluated for entry into Category II (IIA or IIB)."

If you have any questions, please do not hesitate to contact us.

Very truly yours, .



R. Bruce Dickson
Counsel to the Chlorobenzene
Producers Association

RBD:cs

SL 063443

AIR RESOURCES BOARD

1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

R. Bruce Dickson
Counsel to the Chlorobenzene
Producers Association
Law Offices of Paul, Hastings,
Janofsky & Walker
1050 Connecticut Avenue, N.W.
Washington, D.C. 20036

Dear Mr. Dickson:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 8, 1991 letter to Mr. Venturini in which you commented on the proposed revision to the definition for Category III. You state that the proposed definition for Category III may imply an unintended finding regarding the potency or toxicity of the substances listed under Category III (IIIA or IIIB).

The proposed revision to the definition for Category III is to clarify the factors that will be considered when substances listed under Category III are evaluated for entry into Category II (IIA or IIB). Specifying the factors considered during the evaluation does not infer knowledge about the toxicity or potency of substances listed under Category III.

The basis for listing substances under Category III is specific. Subcategory IIIA consists of "Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California)." Subcategory IIIB consists of "Substances identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available."

We believe that we are providing important information to the public by listing the factors that are considered prior to elevating substances from Category III to Category II. By defining Category III this way, the list can stand alone from the staff report which describes how substances are moved up in priority.

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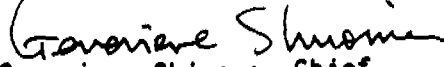
R. Bruce Dickson

-2-

February 8, 1951

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-7072.

Sincerely,



Genevieve Shiroma, Chief
Toxic Air Contaminant
Identification Branch



CHEMICAL MANUFACTURERS ASSOCIATION

*1/10 Paul J. ...
... ..*

RECEIVED

JAN 10 1991

January 8, 1991

Stationary Source
Division
Air Resources Board

Peter D. Venturini, Chief
Stationary Source Division
Air Resources Board
1102 Q Street
P. O. Box 2815
Sacramento, California 95812

Re: Response to Request for Information on the
Toxic Air Contaminant Program List

Dear Mr. Venturini:

I am writing on behalf of the Chemical Manufacturers Association Vinylidene Chloride Panel in response to the request for information on the proposed revision to Category III of the Proposed Toxic Air Contaminant Identification List contained in your December 16, 1990 letter to the Panel's counsel, R. Bruce Dickson, last week.

You have added Category III and have included a recitation of factors considered in the evaluation of substances for inclusion in Category II. We believe that your inclusion of factors for inclusion in Category II is incomplete and should be revised or deleted.

As your letter acknowledges, California Health and Safety Code Section 39655 states that substances identified by the federal legislation as hazardous air pollutants shall be identified by the ARB as Toxic Air Contaminants. Thus, regardless of the toxicity of these substances, they must be listed. However, this criterion is not included in the list of factors considered in the evaluation of substances.

If the proposed changes to Category III are finalized, the inclusion of a substance might imply an unintended finding by ARB regarding toxicity endpoints (carcinogenic or noncarcinogenic health effects). Because all Clean Air Act hazardous air pollutants must be included as toxic air contaminants, the presence of a substance on the

federal list should be mentioned as an additional factor. In the alternative, you could delete the listing of "factors considered". Category III could simply provide:

"Substances which are being evaluated for entry into Category II (IIA or IIB)."

If you have any questions, please do not hesitate to contact me at 202/887-1189.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Robert R. Romans/for".

Jonathon T. Busch
Manager
Vinylidene Chloride Panel

AIR RESOURCES BOARD

1102 O STREET
P O BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

Jonathon T. Busch, Manager
Vinylidene Chloride Panel
Chemical Manufacturers Association
2501 M Street, N.W.
Washington, D.C. 20037

Dear Mr. Busch:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 8, 1991 letter to Mr. Venturini in which you commented on the proposed revision to the definition for Category III. You state that the proposed definition for Category III may imply an unintended finding regarding the potency or toxicity of the substances listed under Category III (IIIA or IIIB).

The proposed revision to the definition for Category III is to clarify the factors that will be considered when the substances listed under Category III are evaluated for entry into Category II (IIA or IIB). Specifying the factors considered during the evaluation does not infer knowledge about the toxicity or potency of substances listed under Category III.

The basis for listing substances under Category III is specific. Subcategory IIIA consists of "Substances known to be emitted in California (includes Hazardous Air Pollutants identified in the Federal Clean Air Act known to be emitted in California)." Subcategory IIIB consists of "Substances identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available."

We believe that we are providing important information to the public by listing the factors that are considered prior to elevating substances from Category III to Category II. By defining Category III this way, the list can stand alone from the staff report which describes how substances are moved up in priority.

Jonathon T. Busch, Manager

-2-

February 8, 1991

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-7072.

Sincerely,

Genevieve Shiroma
Genevieve Shiroma, Chief
Toxic Air Contaminant
Identification Branch

SL 063449



CHEMICAL MANUFACTURERS ASSOCIATION

Geraldine V. Cox, Ph.D.
Vice President-Technical Director

January 8, 1991

Richard Corey
Special Projects Section/SSD
Re: Toxic Air Contaminant Identification List
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

Dear Mr. Corey:

I am writing on behalf of the Chemical Manufacturers Association ("CMA") Cobalt Panel in response to a letter of December 26, 1990, from Peter D. Venturini, requesting information on CARB's Toxic Air Contaminant Program List. The CMA Cobalt Panel was formed in 1989 to interact with regulatory agencies, like the Air Resources Board, and other organizations that may have occasion to address health, safety, and environmental issues involving the production, processing, transportation, use, handling, and disposal of cobalt and cobalt compounds. Panel members include various producers, processors, and users of cobalt and cobalt chemicals. The Cobalt Development Institute is an honorary member of the Panel and contributes its knowledge and expertise to Panel activities.

Attachment I to Mr. Venturini's letter of December 26, 1990 is a proposed list which is to assist the Air Resources Board in selecting substances "for entrance into the Toxic Air Contaminant Identification Process." An entry for "Cobalt compounds" is included in Category III.A. on the proposed list. This means that "Cobalt compounds," like the other substances that are listed in Category III, will be evaluated for entry into Category II, where they will be reviewed, or nominated for review, for identification as Toxic Air Contaminants.

We understand from Mr. Venturini's letter that "Cobalt compounds" and more than 100 other chemicals or chemical groups are being added to Category III because they have been identified as hazardous air pollutants under the federal Clean Air Act Amendments of 1990, not because there has been any finding that

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they present a significant risk to the general public in California as a result of emissions to the ambient air. In that connection, we wish to make two points.

First, the fact that 189 chemicals or chemical groups were added to the federal list of hazardous air pollutants by Congress does not mean that all of these chemicals present a significant air pollution-based health risk to the general public in California or elsewhere in the United States. In contrast to those chemicals that were identified as hazardous air pollutants by the U.S. Environmental Protection Agency ("EPA") in earlier years, the newly listed chemicals have not been scientifically reviewed and evaluated by EPA (or, for that matter, by Congress) to determine the nature and magnitude of the risk, if any, that emissions of the chemicals present to public health. Many of the newly listed chemicals (or individual compounds within named compound groups, like "Cobalt compounds") may present no public health risk of any consequence whatsoever as a result of emissions to the ambient air.

Second, Congress implicitly recognized this first point, by establishing a delisting mechanism in Section 112(b)(3) of the Clean Air Act, as amended. Under that delisting procedure, any person may petition EPA to delete either (i) a listed substance having a CAS number or (ii) a unique chemical substance within a listed compound group, e.g., a particular cobalt compound within the listed group "Cobalt compounds".

We anticipate that delisting petitions will be filed under Section 112(b)(3) for a variety of listed pollutants and/or unique chemical substances within listed compound groups. Delisting petitions for unique chemical substances within a listed compound group are most likely to be filed within the next nine months, since EPA may not promulgate an emissions standard applicable to such a chemical if it is the subject of a pending delisting petition filed within 12 months of enactment of the Clean Air Act Amendments.

In short, the fact that a particular substance or group of compounds has been listed as a hazardous air pollutant by Congress in the Clean Air Act Amendments of 1990 does not mean that the chemical actually presents a significant public health risk as a result of emissions to the ambient air. Nor does it mean that the chemical will remain on the list of hazardous air pollutants under the federal Clean Air Act. The Air Resources Board should bear these points in mind as it makes future

decisions on identifying substances for review as possible Toxic Air Contaminants in California.

The Panel appreciates this opportunity to comment on this important matter. If you have any questions regarding these comments, please call Ms. Susan R. Howe of my staff at (202) 887-1293.

Sincerely yours,



Geraldine V. Cox, Ph.D.
Vice President-Technical Director

cc: Paul Kronenberg, CICC

AIR RESOURCES BOARD

1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

Geraldine V. Cox, Ph.D.
Vice President-Technical Director
Chemical Manufacturers Association
2501 M Street, N.W.
Washington, D.C. 20037

Dear Dr. Cox:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 8, 1991 letter in which you provided comments concerning the addition of "Cobalt compounds" to the proposed Toxic Air Contaminant Identification List. Specifically, you stated that emissions of substances listed as Hazardous Air Pollutants (HAPs) under Section 112 of the Federal Clean Air Act may not represent a significant risk to the public. You also stated that the Air Resources Board (ARB) should bear this in mind when making future decisions on selecting substances for review as Toxic Air Contaminants.

As you know, we are proposing to add all of the HAPs to our list because we are required by state law to identify these substances under our Toxic Air Contaminant Program. We are in agreement that air emissions of some of these HAPs may not represent a significant health risk to the public in California. As acknowledged in your letter, substances in Category III will be evaluated for entry into Category II based on those substances which pose the greatest potential health impacts.

We understand that there is a delisting provision for HAPs listed under Section 112 of the Federal Clean Air Act. If California emissions data are available for a substance in Subcategory IIIA which the Environmental Protection Agency (EPA) removes from its list, it may be removed from the Toxic Air Contaminant Identification List due to consideration of health effects information including that which formed the basis for EPA's delisting as a HAP. However, if a substance, which is currently in Subcategory IIIB of the Toxic Air Contaminant Identification List, is deleted from the list of HAPs it will in turn be removed from the Toxic Air Contaminant Identification List. If California emissions data becomes available, a substance previously removed from Subcategory IIIB of the Toxic Air Contaminant Identification List due to its delisting as a HAP may be added to Subcategory IIIA of the list.

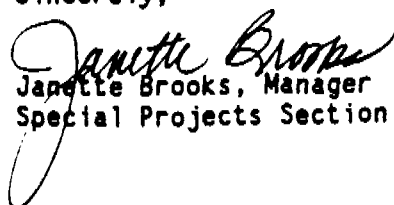
Geraldine V. Cox, Ph.D.

-2-

February 8, 1991

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section

COUNTY OF KINGS
AIR POLLUTION CONTROL DISTRICT



330 CAMPUS DRIVE
HANFORD, CALIF. 93230
(209) 584-1411

SHELDON R. MINKIN, D.O.
AIR POLLUTION CONTROL OFFICER
DENNIS OTANI, R.E.H.S.
ASST. AIR POLLUTION CONTROL OFFICER

January 4, 1991

Peter Venturini, Chief
Stationary Source Division
Air Resources Board
1102 Q Street
P.O. Box 2815
Sacramento, CA 95812

SUBJECT: Requested Information - Toxic Air Contaminant List

In reviewing the December 1990 Proposed Toxic Air Contaminant Identification list, I noted one substance for which we have additional information. Hexane is in category III B - substances for which California emissions information is not currently available. One source of hexane emissions is vegetable oil extraction plants. There is one such facility in Kings County which produces safflower and cotton seed oils. It is in the ARB's emission inventory as facility #6 in Kings County. Emissions data was corrected beginning in 1988 to reflect permitted annual emissions of 394 tons and actual annual emissions of 164 tons. These emissions are nearly all as hexane vapor.

I have no other comments on the lists or substances listed. Let me know if you have any questions.

Sincerely

Sheldon R. Minkin, D.O.
Air Pollution Control Officer

Mark Poindexter
Mark Poindexter
Air Quality Engineer

MR/te

AIR RESOURCES BOARD

1102 O STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

Mark Poindexter
Air Quality Engineer
Kings County Air Pollution Control District
330 Campus Drive
Hanford, CA 93230

Dear Mr. Poindexter:

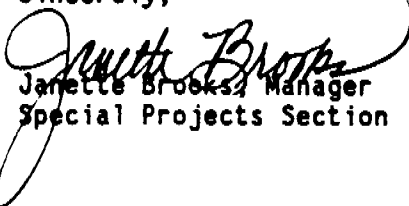
Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 4, 1991 letter in which you provided hexane emissions information from a facility in your Air Pollution Control District.

Based upon the information you provided, hexane has been moved from Subcategory IIIB "Substances identified as Hazardous Air Pollutants in the Federal Clean Air Act for which California emissions information is not currently available" to Subcategory IIIA "Substances known to be emitted in California..."

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section



RESOURCE MANAGEMENT
INTERNATIONAL, INC.

January 8, 1991

Mr. Richard Corey
Special Projects Section/SSD
California Air Resources Board
P. O. Box 2815
Sacramento, CA 95812

Subject: Review of Category IIIA Compounds

Dear Mr. Corey:

This is in response to your December 26, 1990 request for information on the Toxic Air Contaminant Identification List. It is clear that the amendments to the Federal Clean Air Act have had a tremendous impact on your program. The Air Resources Board has responded quickly to incorporate the additional substances resulting from the 1990 amendments.

I am aware of nine current studies coordinated by the National Toxicology Program (NTP) involving compounds listed in Category IIIA. These are long-term animal studies for carcinogenesis conducted by the National Institute of Environmental Health Sciences, Toxicology Research and Testing Program. The substances currently being studied are the following:

<u>Substance</u>	<u>CAS #</u>
1. Acetone	67-64-1
2. Acetonitrile	75-05-8
3. Dibutylphthalate	84-74-2
4. 1,2-Dichloroethane	107-06-2
5. Diethanolamine	111-42-2
6. Dimethyl phthalate	131-11-3
7. Ethyl benzene	100-41-4

Mr. Richard Corey
January 8, 1991
Page Two

8. Ethylene glycol	107-21-1
9. Ethylene thiourea	96-45-7

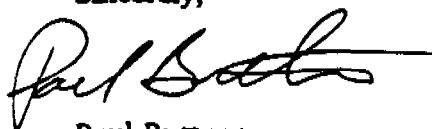
Additionally, I am aware of two studies scheduled for completion in fiscal year 1989-90 by the same organization. These two substances are the following:

<u>Substance</u>	<u>CAS #</u>
1. Ethyl chloride	75-00-3
2. Hydroquinone	123-31-9

The above information is from a November 1989 NTP document entitled, "Review of Current Department of Health and Human Services, Department of Energy and Environmental Protection Agency Research Related to Toxicology".

I hope this information is of use in your review of the Toxic Air Contaminant Program List. Please call me if you have any questions or if I may be of further assistance to you.

Sincerely,



Paul Buttner

AIR RESOURCES BOARD

102 O STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

Paul Buttner
Resource Management International, Inc.
3100 Zinfandel Drive, Suite 600
Sacramento, CA 95670

Dear Mr. Buttner:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 8, 1991 letter in which you provided information concerning the availability of health effects studies for a number of substances listed on the proposed Toxic Air Contaminant Identification List.

As you know, in proposing to revise the Toxic Air Contaminant Identification List, our intent is to incorporate the Federal Hazardous Air Pollutants, and other potentially toxic compounds for which we have available emissions data. Specifically, Federal Hazardous Air Pollutants proposed to be added to the list are placed in Category III. Hazardous Air Pollutants for which California emissions data is available are placed in Subcategory IIIA while Hazardous Air Pollutants without California emissions data are placed in Subcategory IIIB. In addition, several substances that are not Hazardous Air Pollutants are added to Subcategory IIIA. The basis for proposing to add these substances to Subcategory IIIA is the availability of emissions information for California.

During 1991, the Air Resources Board staff will evaluate the substances in Category III for entry into Category II. The factors that will be used to evaluate the substances include current information on their respective potencies and toxicities. With the assistance of the California Department of Health Services, we will evaluate the health effects studies cited in your letter.

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section

cc: Melanie Marty, Ph.D., DHS

CHROME COALITION

January 3, 1991

Mr. Richard Corey
Special Projects Section/SSD
California Air Resources Board
Post Office Box 2815
Sacramento, California 95812

Re: Toxic Air Contaminant Identification List

Dear Mr. Corey:

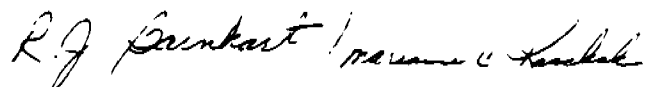
These comments are on behalf of the Chrome Coalition and are in response to the Request for Information on the Toxic Air Contaminant Program List of December 26, 1990.

We understand that the listing of chromium compounds as a class of chemicals in the recent amendments to the Federal Clean Air Act has triggered the same listing in Category III of the Toxic Air Contaminant Identification List. However, it should be recognized that the Clean Air Act list may be modified by the Administrator to delete individual substances or "...one or more unique chemical substances that contain a listed hazardous air pollutant not having a CAS number..." We recommend that the draft report updating the list of substances consider this possibility and detail how the list would be affected.

In particular, we anticipate that one or more petitions will be submitted under the Federal Clean Air Act to delete specific classes of chromium compounds including trivalent chromium compounds. It should be clarified as to whether a favorable ruling by the Administrator on this type petition would automatically remove these substances from the California list or whether the same information should be submitted to the California Air Resources Board for a separate determination. Since in this particular case trivalent chromium compounds have already been examined by the Air Resources Board and the determination made that they are not a Toxic Air Contaminant, we do not believe that this process should have to be repeated unless new, compelling information is introduced.

We appreciate this opportunity to comment.

Sincerely yours,



R. J. Barnhart, Ph.D.
Chairman, Chrome Coalition

RJB/sk

AIR RESOURCES BOARD

1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

R. J. Barnhart, Ph.D.
Chairman, Chrome Coalition
Industrial Health Foundation, Inc.
34 Penn Circle West
Pittsburgh, Pa. 15206

Dear Dr. Barnhart:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 3, 1991 letter in which you provided comments on behalf of the Chrome Coalition. Specifically, you recommended that the draft report updating the list of substances address how deletions to the list of Federal Hazardous Air Pollutants will be treated. As stated in your letter, the Chrome Coalition anticipates petitioning the Environmental Protection Agency (EPA) to have specific classes of chromium compounds, including trivalent chromium compounds, removed from the Federal list.

As you know, we are proposing to update the Toxic Air Contaminant Identification List by adding substances identified as Hazardous Air Pollutants and additional potentially toxic substances for which California emissions data are available. If the Administrator of the EPA deletes a substance or class of substances from the list of Hazardous Air Pollutants, corresponding changes to the Toxic Air Contaminant Identification List may be appropriate.

If California emissions data are available for a substance in Subcategory IIIA which EPA removes from its list, it may be removed from the Toxic Air Contaminant Identification List due to consideration of health effects information including that which formed the basis for EPA's delisting as a Hazardous Air Pollutant. However, if a substance, which is currently in Subcategory IIIB of the Toxic Air Contaminant Identification List, is deleted from the list of Hazardous Air Pollutants it will in turn be removed from the Toxic Air Contaminant Identification List. If California emissions data becomes available, a substance previously removed from Subcategory IIIB of the Toxic Air Contaminant Identification List due to its delisting as a Hazardous Air Pollutant may be added to Subcategory IIIA of the list.

R. J. Barnhart, Ph.D.

-2-

February 8, 1991

For chromium compounds, we will take into consideration our previous evaluation on non-hexavalent chromium compounds, depending on any future EPA action to retain or delete "chromium compounds" from its list. Because the Air Resources Board specifically identified hexavalent chromium as a Toxic Air Contaminant, "chromium compounds" remains on the proposed Toxic Air Contaminant Identification List specifically because it is listed as a Hazardous Air Pollutant.

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section

Vulcan CHEMICALS

P.O. BOX 536390
BIRMINGHAM, ALABAMA 35253-0390
(205) 877-3556

A DIVISION OF
VULCAN MATERIALS COMPANY

THOMAS A. ROBINSON, PH.D.
MANAGER, REGULATORY AFFAIRS

January 3, 1991

Mr. Richard Corey
Special Projects Section/SSD
California Air Resources Board
P. O. Box 2815
Sacramento, CA 95812

Re: Toxic Air Contaminant Identification List

Dear Mr. Corey:

This letter is in response to Mr. Venturini's letter of December 26, 1990 which contained proposed changes to the Toxic Air Contaminant Identification List.

In reviewing the proposed revision, we noted that ethylene dichloride is listed as a Category I substance, while 1,2-dichloroethane is listed as a Category IIIA substance.

Ethylene dichloride and 1,2-dichloroethane are one and the same chemical and one of the above listings should be deleted.

Sincerely yours,

VULCAN CHEMICALS



Thomas A. Robinson, Ph.D.

am

AIR RESOURCES BOARD

1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

Thomas A. Robinson, Ph.D.
Vulcan Chemicals
P.O. Box 530390
Birmingham, Alabama 35253-0390

Dear Dr. Robinson:

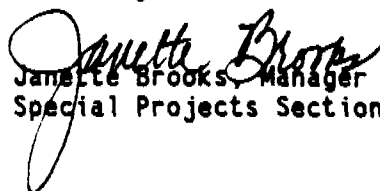
Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 3, 1991 letter in which you commented that a substance was listed twice. Specifically, you stated ethylene dichloride and 1,2-dichloroethane are the same chemical and one of the listings should be deleted.

You are correct in pointing out that ethylene dichloride, which has been identified as a Toxic Air Contaminant by the Air Resources Board and as such is listed in Category I, is the same chemical as 1,2-dichloroethane which is listed in Subcategory IIIA. In response to your comment we are removing 1,2-dichloroethane from Subcategory IIIA.

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section

***** U.S. BORAX

January 10, 1991

Mr. Richard Corey
Special Projects Section/SSD
California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

RE: TOXIC AIR CONTAMINANT
IDENTIFICATION LIST

Dear Mr. Corey:

This letter is to draw your attention to an apparent redundancy in the referenced list as proposed.

"Inorganic arsenic", as listed in Category I, has been identified as a TAC. It is noted however, that "Arsenic compounds" as listed in Category III A as being evaluated for entry into Category II. It is our understanding that the Category I listing for "inorganic arsenic" is synonymous with inorganic "arsenic compounds". A similar situation occurs with "Inorganic lead" (Category II B and "Lead compounds" (Category III A).

It is suggested that this listing be clarified to avoid any misinterpretation of the list.

Respectfully,



John C. Paulsen
Principal Environmental Engineer
Government & Public Affairs

JCP:gw

SL 063465

AIR RESOURCES BOARD

1102 Q STREET
P.O. BOX 2815
SACRAMENTO, CA 95812



February 8, 1991

John C. Paulsen
Principal Environmental Engineer
Government & Public Affairs
U.S. Borax & Chemical Corporation
3075 Wilshire Boulevard
Los Angeles, CA 90010-1294

Dear Mr. Paulsen:

Comments on the Proposed Toxic Air Contaminant Identification List

Thank you for your January 10, 1991 letter in which you provided comments on the proposed Toxic Air Contaminant Identification List. Specifically, you point out an apparent redundancy in that "inorganic arsenic" is in Category I and "arsenic compounds" is in Subcategory IIIA. In your letter, you also raise a similar point concerning "inorganic lead" and "lead compounds."

You are correct in stating that the Air Resources Board (ARB) has identified inorganic arsenic as a Toxic Air Contaminant. However, inorganic arsenic and arsenic compounds are not synonymous in that there may be arsenic substances emitted in California that are not covered under the category "inorganic arsenic."

Under Section 112 of the Federal Clean Air Act, the Environmental Protection Agency lists "Arsenic compounds (inorganic including arsine)" as a Hazardous Air Pollutant. The ARB evaluated inorganic arsenic including arsine when it identified inorganic arsenic as a Toxic Air Contaminant. However, California emissions data is available for what is referred to as arsenic compounds. Emissions of "arsenic compounds" in California are not necessarily limited to inorganic arsenic. Thus, "arsenic compounds" is proposed to be listed in Subcategory IIIA.

The reason for listing both inorganic lead and lead compounds on the list is similar. Specifically, the category "lead compounds" is listed as a Hazardous Air Pollutant under Section 112 of the Federal Clean Air Act. Because the category "lead compounds" is not limited to inorganic lead, it is necessary to place "lead compounds" on the list. "Lead compounds" is placed in Subcategory IIIA because there is California emissions data for what is referred to as "lead compounds."

John C. Paulsen

-2-

February 8, 1991

It is possible that the emissions data reported as lead or arsenic compounds is primarily or even exclusively inorganic lead or arsenic. However, the limitations of the emissions data do not provide for such a determination at this time. Thus, we believe that it is prudent to place lead and arsenic compounds in Subcategory IIIA as opposed to IIIB.

Thank you for taking the time to respond to our request for information. If you have any questions regarding this letter or the proposed Toxic Air Contaminant Identification List, please call me at (916) 322-9148.

Sincerely,


Janette Brooks, Manager
Special Projects Section

SL 063467

APPENDIX D

STYRENE HEALTH EFFECTS EVALUATION REQUEST

SL 063468

State of California

MEMORANDUM

To : Ed Mendoza, Assistant Deputy Director
Public Health
Department of Health Services
714 P Street
Sacramento, CA 95814

Date : April 4, 1990

Subject : Health Effects
Evaluation of
Styrene

From : James D. Boyd *William W. Sytner*
Executive Officer
Air Resources Board

This memorandum is a formal request that the Department of Health Services evaluate the health effects of styrene as a candidate toxic air contaminant in accordance with Health and Safety Code Section 39650 et seq.

Attached for your staff's consideration in evaluating styrene are the references on styrene health effects which were identified in an Air Resources Board (ARB) letter of public inquiry and provided by the public in response to that letter.

Ambient air monitoring of styrene began earlier this year. Although we do not have specific data at this time, we will provide ambient levels data for your staff later this year.

According to Health and Safety Code Sections 39660-62, the Department of Health Services has 90 days from receipt of this letter to submit a written evaluation to the ARB with recommendations on the health effects of styrene. If necessary, the Department of Health Services may request a 30 day extension.

If you have questions regarding this request, please contact me at 445-4383 or have your staff contact Peter D. Venturini, Chief of the Stationary Source Division, at 445-0650.

Attachment

cc: Jananne Sharpless, Chairwoman, ARB
George Alexeeff, DHS, w/Atchs
Richard Jackson, DHS, w/Atchs
Henry Voss, DFA
Members of the Scientific Review Panel
Assemblywoman Sally Tanner
Senator Ralph Dills
Senator Art Torres

APPENDIX E

INORGANIC LEAD HEALTH EFFECTS EVALUATION REQUEST

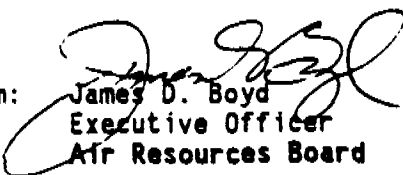
State of California

MEMORANDUM

Ed Mendoza, Assistant Deputy Director
Public Health
Department of Health Services
714 P Street
Sacramento, California 95814

Date : February 21, 1991
Subject : Request for
Health Effects
Evaluation of
Inorganic Lead

From:


James D. Boyd
Executive Officer
Air Resources Board

This memorandum is a formal request that the Department of Health Services (DHS) evaluate the health effects of inorganic lead as a candidate toxic air contaminant (TAC) in accordance with Health and Safety Code Section 39650 et seq.

In the past, we provided health effects references and responses to the public information request at the same time we requested a compound's health effects evaluation. For inorganic lead, your staff are aware that the references from our literature search on health effects will follow this request in a few weeks and that we will forward you responses from the public information request as we receive them.

Ambient monitoring data on lead is available from our Ambient Air Quality Data Reports. Due to the sampling method used, we expect that these measurements primarily represent ambient inorganic lead concentrations. Please let us know if you intend to identify particular inorganic lead species of health interest as we will need to adjust our monitoring method.

According to Health and Safety Code Sections 39660-62, the DHS has 90 days from receipt of this letter to submit a written evaluation to the Air Resources Board (ARB) with recommendations on the health effects of inorganic lead. If necessary, you may request a 30-day extension.

If you have questions regarding this request, please contact me at (916) 445-4383 or have your staff contact Peter D. Venturini, Chief of the Stationary Source Division, at (916) 445-0650.

cc: Jananne Sharpless, Chairwoman, ARB
George Alexeeff, DHS
Richard Jackson, DHS
Henry Voss, DFA
Members of the Scientific Review Panel
Assemblywoman Sally Tanner
Senator Ralph Dills
Senator Art Torres

SL 063471